HOMEWOOD SUITES
PARCEL 'D-5'
HOTEL AND RESTAURANT
SITE DEVELOPMENT PLAN

GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY STANDARDS AND SPECIFICATIONS. ALL WORK AND MATERIALS SHALL COMPLY WITH O.S.H.A. STANDARDS.
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	1-800-257-7777
VERIZON TELEPHONE COMPANY:	1-410-954-6281
HOWARD COUNTY BUREAU OF UTILITIES:	313-2366
AT&T CABLE LOCATION DIVISION:	393-3553
B.G.&E. CO. CONTRACTOR SERVICES:	850-4620
B.G.&E. CO. UNDERGROUND DAMAGE CONTROL:	787-4620
STATE HIGHWAY ADMINISTRATION:	531-5533

4. SITE ANALYSIS:
   TOTAL PROJECT AREA: 3.19 AC.
   PRESENT ZONING: PEC
   USE OF STRUCTURE: HOTEL & RESTAURANT
   TOTAL BUILDING FLOOR AREA: 98,664 SF
   LOBBY LEVEL FLOOR AREA: 26,184 SF
   2ND FLOOR AREA: 14,092 SF
   3RD FLOOR AREA: 14,092 SF
   4TH FLOOR AREA: 14,092 SF
   5TH FLOOR AREA: 14,092 SF
   6TH FLOOR AREA: 14,092 SF
   TOTAL BUILDING COVERAGE: 31,535 SF (0.72 AC. OR 22.7% OF GROSS AREA)
   PAVED PARKING LOT/AREA ON SITE: 67,819 SF. (1.56 AC. OR 48.9% OF GROSS AREA)
   AREA OF LANDSCAPE ISLAND: 2109 SF (0.05 AC. OR 1.6% OF GROSS AREA)
   LIMIT OF DISTURBED AREA: 3.19 AC
   CUT: 18231 CY FILL: 4390 CY
5. PROJECT BACKGROUND:
   LOCATION : LAUREL, MD.; TAX MAP 41, BLOCK 17, PARCEL 124
   ZONING : PEC
   SUBDIVISION : MONTPELIER RESEARCH PARK
   SECTION/AREA : N/A
   SITE AREA : 3.19 AC.
   DPZ REFERENCES : S-86-47, SDP-98-11, F-98-45, F-99-168, SDP-99-145, F-00-94, PLAT 13937, 14261, PLAT 15169, F-02-089, F-10-029 (PLAT 20795)
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-WAY, PAVING, OR EXISTING UTILITIES WILL BE CORRECTED AT THE CONTRACTOR'S EXPENSE.
8. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY, PLUS MSHA STANDARDS AND SPECIFICATIONS, IF APPLICABLE.
9. 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.
10. ALL REINFORCED CONCRETE FOR STORM DRAIN STRUCTURES SHALL HAVE A MINIMUM OF 28 DAYS STRENGTH OF 3,500 P.S.I.
11. 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.
12. ESTIMATES OF EARTHWORK QUANTITIES ARE PROVIDED SOLELY FOR THE PURPOSE OF CALCULATING FEES.
13. 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.
14. THE EXISTING TOPOGRAPHY SHOWN HEREON IS BASED ON A FIELD TOPOGRAPHICAL SURVEY WITH TWO FOOT CONTOUR INTERVALS PERFORMED BY ROBERT H. VOGEL ENGINEERING, INC., DATED APRIL 2002, UPDATED DECEMBER 2008.
15. THE PROPERTY LINES SHOWN HEREON IS BASED ON PLAT# 15169.
16. COORDINATES AND ELEVATIONS ARE BASED ON HOWARD COUNTY MONUMENTS 41EA AND 41EB.
17. ALL CURB AND GUTTER TO BE HOWARD COUNTY STANDARD DETAIL 3.01 UNLESS OTHERWISE NOTED.
18. CONTRACTOR RESPONSIBLE FOR CONSTRUCTING 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 NO. 36-3654-D, AND FIRE HYDRANT BY ADC. PUBLIC SEWER AVAILABLE THROUGH CONTRACT NO. 36-3654-D, AND BY ADC.
23. BUILDINGS TO HAVE INSIDE WATER METER SETTING.
24. ALL STORMDRAIN PIPE BEDDING IS TO BE CLASS 'C'.
25. ALL BUILDINGS TO HAVE ROOF LEADERS WHICH EMPTY INTO STORM DRAIN SYSTEM.
26. GEOTECHNICAL REPORT PREPARED BY SPECIALIZED ENGINEERING, DATED NOVEMBER 19, 2008.
27. THE GEOTECHNICAL ENGINEER TO CONFIRM PAVING SECTION PRIOR TO CONSTRUCTION. ALL PAVING TO BE MINIMUM HOWARD COUNTY STANDARD DETAIL P-2 UNLESS OTHERWISE NOTED.
28. TRAFFIC STUDY PREPARED BY THE TRAFFIC GROUP DATED MARCH 27, 2009; APPROVED 05/21/09.
29. THE SUBJECT PROPERTY IS ZONED PEC PER THE 02/02/2004 COMPREHENSIVE ZONING PLAN.
30. A NOISE STUDY IS NOT REQUIRED FOR THIS PROJECT.
31. THERE ARE NO BURIAL GROUNDS OR CEMETERIES LOCATED ON THIS PROPERTY.
32. THERE IS NO 100YR FLOODPLAIN, WETLANDS, STREAMS, OR STEEP SLOPES ON SITE.
33. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND LANDSCAPE MANUAL.
34. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING HAS BEEN POSTED AS PART OF THE BUILDER'S GRADING PERMIT APPLICATION UNDER THIS SITE DEVELOPMENT PLAN IN THE AMOUNT OF $12,990.00 FOR THE REQUIRED 33 SHADE TREES, 2 EVERGREENS, AND 93 SHRUBS.
35. ANY EXISTING STREET TREES DAMAGED OR DESTROYED DURING CONSTRUCTION WILL BE REPLACED BY THE CONTRACTOR.
36. THE FOREST CONSERVATION REQUIREMENTS FOR THIS PROJECT HAVE PREVIOUSLY ADDRESSED UNDER SDP-98-11, F-98-45, AND SDP-98-137.
37. THIS PROJECT IS SUBJECT TO COMPLIANCE WITH THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS. DEVELOPMENT OR CONSTRUCTION ON THIS PROPERTY MUST COMPLY WITH SETBACK AND BUFFER REGULATIONS IN EFFECT AT THE TIME OF SUBMISSION OF THE SITE DEVELOPMENT PLAN, WAIVER PETITION APPLICATION OR BUILDING/ GRADING PERMIT APPLICATIONS.
38. A KNOX BOX IS REQUIRED TO BE PLACED ON THE FRONT OF THE BUILDING. IT SHALL BE PLACED TO THE RIGHT OF THE MAIN ENTRANCE AT A RANGE OF 4-5' IN HEIGHT AND NO MORE THAN 6' LATERALLY FROM THE DOOR. IT'S LOCATION IS SHOWN ON THESE PLANS. THE BOX SHALL BE ELECTRONICALLY SUPERVISED TO NOTIFY THE OWNER THAT IT IS BEING ACCESSED (INTEGRATED WITH THE FIRE ALARM SYSTEM).
39. LANDSCAPING NOT PERMITTED WITHIN 7-1/2' OF EACH SIDE OF THE FIRE DEPARTMENT CONNECTION. PROVIDE A CLEAR UNOBSTRUCTED ACCESS PATH TO THE FIRE DEPARTMENT CONNECTION. NFPA-1 13.1.4
40. FIRE LANES SHOULD BE PROVIDED IN THIS SITE TO ALLOW EMERGENCY VEHICLE ACCESS. EITHER FIRE LANE SIGNAGE SHOULD BE INSTALLED, OR THE CURBS SHOULD BE PAINTED IN RED AND STENCILED TO IDENTIFY THE ROAD AS A FIRE LANE.
41. ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE POST (14 GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (12 GAUGE) - 3' LONG. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.
42. ALL EXTERIOR LIGHTING TO COMPLY WITH THE REQUIREMENTS FOUND IN ZONING SECTION 134 OF THE HOWARD COUNTY ZONING REGULATIONS. (DETAILS ON SHEET 3 AND 6)
43. STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURE AND POLE SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOLUME III (1993), AND AS MODIFIED BY "GUIDELINES FOR STREET LIGHTS IN RESIDENTIAL DEVELOPMENTS (JUNE 1993). A MINIMUM SPACING OF 20' SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE.
44. STORMWATER MANAGEMENT IS TO BE PROVIDED BY A REGIONAL FACILITY LOCATED ON PARCEL F-1 AS APPROVED ON SDP-98-11.
45. TRASH AND RECYCLABLES COLLECTION WILL BE PRIVATE.
46. THIS PLAN IS SUBJECT TO BA-09-002V, APPROVED APRIL 9, 2009, FOR VARIANCES TO REDUCE THE 30-FOOT REAR SETBACK TO 10 FEET FOR A RETAINING WALL, PARKING SPACES, TRASH RECEPTACLES, AND STORAGE BUILDING; AND TO REDUCE THE 30-FOOT SIDE STRUCTURE AND USE SETBACK FROM ALL OTHER ZONING DISTRICTS TO 5 FEET FOR PARKING SPACES IN A PEC (PLANNED EMPLOYMENT CENTER) ZONING DISTRICT. APPROVAL SUBJECT TO THE FOLLOWING CONDITIONS:
    1. THE VARIANCES WILL APPLY ONLY TO THE RETAINING WALL, PARKING SPACES, TRASH DUMPSTER, AND STORAGE BUILDING BEING REQUESTED AND NOT TO ANY NEW STRUCTURES, USES, OR CHANGE IN USES ON THE SUBJECT PROPERTY OR TO ANY ADDITIONS THERETO.
    2. THE PETITIONER SHALL INSTALL FOUR-FOOT CHAIN LINK FENCE ATOP THE RETAINING WALL ALONG THE PROPERTY'S WESTERN BOUNDARY.
    3. THE PETITIONER SHALL PLANT AND SPACES VEGETATION IN THE SETBACK AREA TO PROVIDE SUFFICIENT ROOM FOR ANY NECESSARY MAINTENANCE ON THE PETITIONER'S PROPERTY WITHOUT TRESPASSING ON THE APL PROPERTY.
    4. THE PETITIONER SHALL USE MODULAR BLOCK MATERIAL TO CONSTRUCT THE RETAINING WALL ON THE PROPERTY'S WESTERN SIDE.
47. THIS SITE COMPLIES WITH THE HOWARD COUNTY GREEN BUILDINGS LAW SET FORTH UNDER TITLE 3, SUBTITLE 10 OF THE HOWARD COUNTY CODE AND SECTION 3.1005(A) OF THE CODE. REGISTRATION WITH THE U.S. GREEN BUILDING COUNCIL AND THE APPLICABLE LEED REGISTRATION FEE WAS PAID ON 1/30/09. THE LEED NEW CONSTRUCTION CHECKLIST WAS PREPARED, SIGNED AND DATED BY THE PROJECT LEED ACCREDITED PROFESSIONAL AND WAS RECEIVED BY DPZ ON APRIL 29, 2009. THE PROPOSED BUILDING IS TENTATIVELY CERTIFIED BY LEED WITH THE MINIMUM REQUIRED CERTIFIED LEVEL RATING.
48. THE PROPOSED BUILDING WILL HAVE AN AUTOMATIC FIRE PROTECTION SPRINKLER SYSTEM.
49. THIS PROPERTY IS SUBJECT TO A USE-IN-COMMON SHARED ACCESS EASEMENT AND MAINTENANCE AGREEMENT FOR PARCELS D-1 AND D-2 (D-5) AS RECORDED UNDER F-99-168 (PLAT 13937). REFERENCE THE DRIVEWAY EASEMENT DECLARATION (L.4890,F.0212).
50. THIS PLAN IS SUBJECT TO THE FOLLOWING DESIGN MANUAL WAIVERS:
    A. WAIVER TO DESIGN MANUAL, VOLUME III, SECTION 6.D; DENIED ON JUNE 3, 2009; TO ALLOW THE DRIVEWAY SPACING BETWEEN THE BANK DRIVEWAY AND THE HOTEL DRIVEWAY BE REDUCED FROM THE REQUIRED 110' TO 70'.
    B. WAIVER TO DESIGN MANUAL, VOLUME III, SECTION 2.5; APPROVED ON JUNE 3, 2009; TO ALLOW THE USE OF THE POSTED SPEED PLUS 10 MPH IN-LIEU OF THE REQUIRED 85TH PERCENTILE SPEED STUDY FOR THE FOR THE STOPPING SIGHT DISTANCE ANALYSIS.
51. THERE WILL BE NO HOTEL-BUSINESS VEHICLES ALLOWED TO BE PARKED ON-SITE.
52. THE INTENDED USE OF THE 4,270 SF "FLEX SPACE" AREA WILL BE FOR CORPORATE SEMINARS, CONVENTIONS AND TRAINING PROGRAMS AND THE PRIMARY OCCUPANTS OF THE MEETING SPACE WILL BE HOTEL GUESTS.

PARKING TABULATION

	REQUIRED
114 ROOMS @ 1.0 SPACE PER ROOM	114 SPACES
5393 SF RESTAURANT 14.0 SPACES PER 1,000 SF	76 SPACES
TOTAL SPACES REQUIRED:	190 SPACES
TOTAL SPACES PROVIDED:	180 SPACES* (INCLUDING 6 HANDICAP)

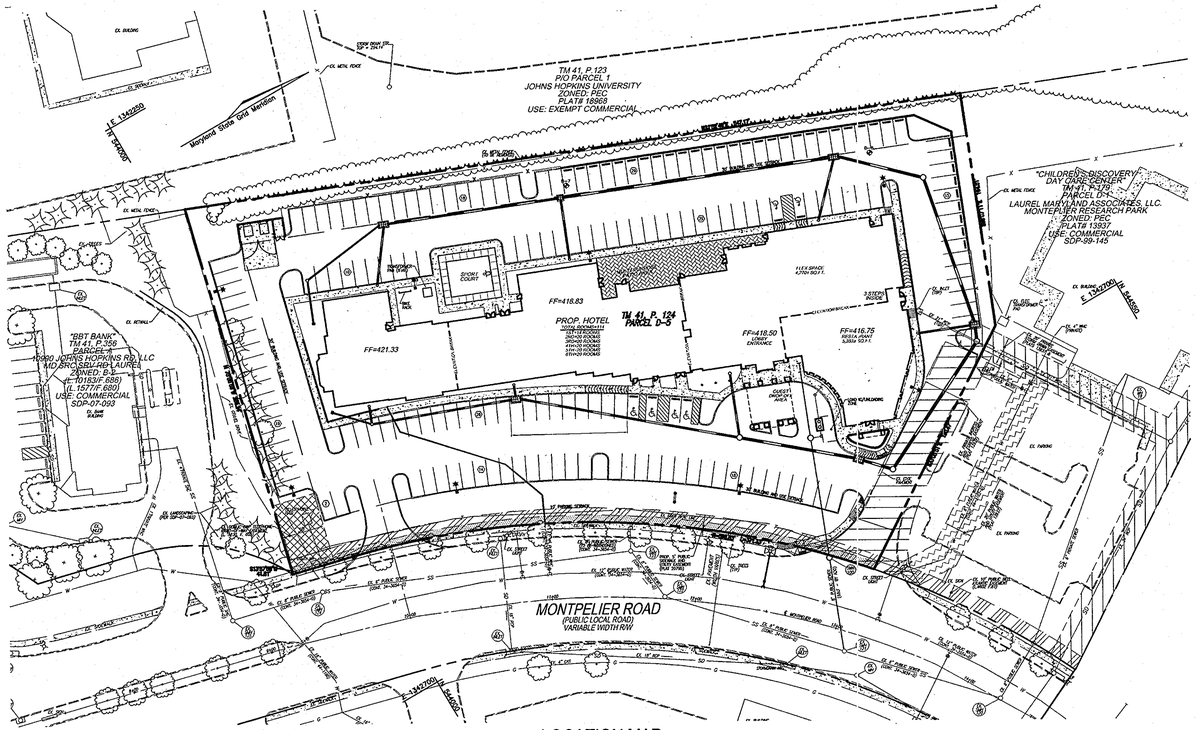
*IN ACCORDANCE WITH THE INSTITUTE OF TRANSPORTATION ENGINEERS (ITE) 3RD EDITION PARKING GENERATION STUDY, THE DEPARTMENT OF PLANNING AND ZONING DIVISION OF LAND DEVELOPMENT HAS DETERMINED, PER THEIR LETTER DATED FEBRUARY 12, 2009, THAT A REDUCTION IN PARKING FROM THOSE AS REQUIRED UNDER THE ZONING REGULATIONS TO A MINIMUM OF 180 ON-SITE SPACES WILL ADEQUATELY SERVE THE PROPOSED USES.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 4/1/10
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 5/05/10
DIRECTOR	DATE 5/5/10

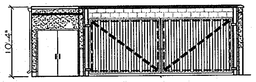
APPROVED : FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEMS

COUNTY HEALTH OFFICER, HOWARD COUNTY HEALTH DEPARTMENT — DATE 4/19/2010



LOCATION MAP
SCALE: 1"=50'

BUILDING ELEVATION
NOT TO SCALE



STORAGE BUILDING AND TRASH ENCLOSURE ELEVATION
NOT TO SCALE

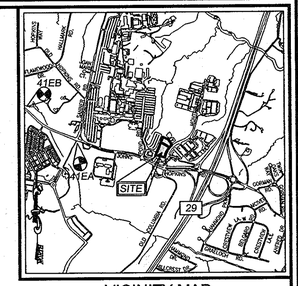
LEGEND

EXISTING CONTOUR	382
PROPOSED CONTOUR	382
EXISTING SPOT ELEVATION	x382.56
PROPOSED SPOT ELEVATION	+82.53
DIRECTION OF FLOW	
EXISTING TREES TO REMAIN	
LIGHT POLES	
SOIL TYPE	M1B2 M1D3
CONCRETE	

BENCHMARKS

HOWARD COUNTY BENCHMARK 41EA
N 544825.805 E 1339217.454 ELEV. 407.643

HOWARD COUNTY BENCHMARK 41EB
N 546222.250 E 1337778.162 ELEV. 464.553



VICINITY MAP
SCALE: 1"=2000'
ADC MAP: 19-B3

SHEET INDEX

DESCRIPTION	SHEET NO.
COVER SHEET	1 OF 9
SITE LAYOUT AND SITE DETAILS	2 OF 9
SITE GRADING AND SEDIMENT CONTROL PLAN	3 OF 9
SEDIMENT AND EROSION CONTROL NOTES AND DETAILS	4 OF 9
STORM DRAIN DRAINAGE AREA MAP AND UTILITY PROFILES	5 OF 9
UTILITY PROFILES AND SITE DETAILS	6 OF 9
SITE LANDSCAPE PLAN	7 OF 9
RETAINING WALL	8 OF 9
RETAINING WALL	9 OF 9

OWNER/DEVELOPER

HOPKINS HOSPITALITY INVESTORS, LLC
C/O STAR HOTELS
7226 LEE DEFORET DR., SUITE 200
COLUMBIA, MD 21046
(301) 596-5400

NO.	REVISION	DATE
1	REVISE THE PLAN TO MODIFY THE PROPOSED STORM DRAIN SYSTEM TO PROVE TO ACCOMMODATE THE NEW GOVERNOR DRAINAGE PER THE ARCHITECTURAL PLANS	12-10-13

SITE DEVELOPMENT PLAN
COVER SHEET
HOMEWOOD SUITES
PARCEL 'D-5'
HOTEL AND RESTAURANT
CERTIFIED LEVEL RATED GREEN BUILDING
TAX MAP 41 BLOCK 17 PLAT 20795 (L.6053/F.487) PARCEL 124, D-5
5th 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

ADDRESS CHART	
LOT/PARCEL#	STREET ADDRESS
D-5	7531 MONTPELIER RD

PERMIT INFORMATION CHART					
SUBDIVISION NAME: MONTPELIER RESEARCH PARK			SECTION/AREA: N/A		PARCEL NUMBER: 124, PARCEL D-5
PLAT NO.	BLOCK NO.	ZONE	TAX/ZONE	ELECT. DIST.	CENSUS TR.
20795	17	PEC	41	5TH	6051.02
WATER CODE: E21			SEWER CODE: 6440000		

STATE OF MARYLAND — ROBERT HARRIS VOGEL — NO. 16193 — PROFESSIONAL ENGINEER — 9/15
ROBERT H. VOGEL, PE No.16193

DESIGN BY:	RHV
DRAWN BY:	DZ
CHECKED BY:	RHV
DATE:	JANUARY 2010
SCALE:	AS SHOWN
W.O. NO.:	04-120

PROFESSIONAL CERTIFICATE

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. 16193 EXPIRATION DATE 09-27-2010

SHEET 1 OF 9

SDP-09-055

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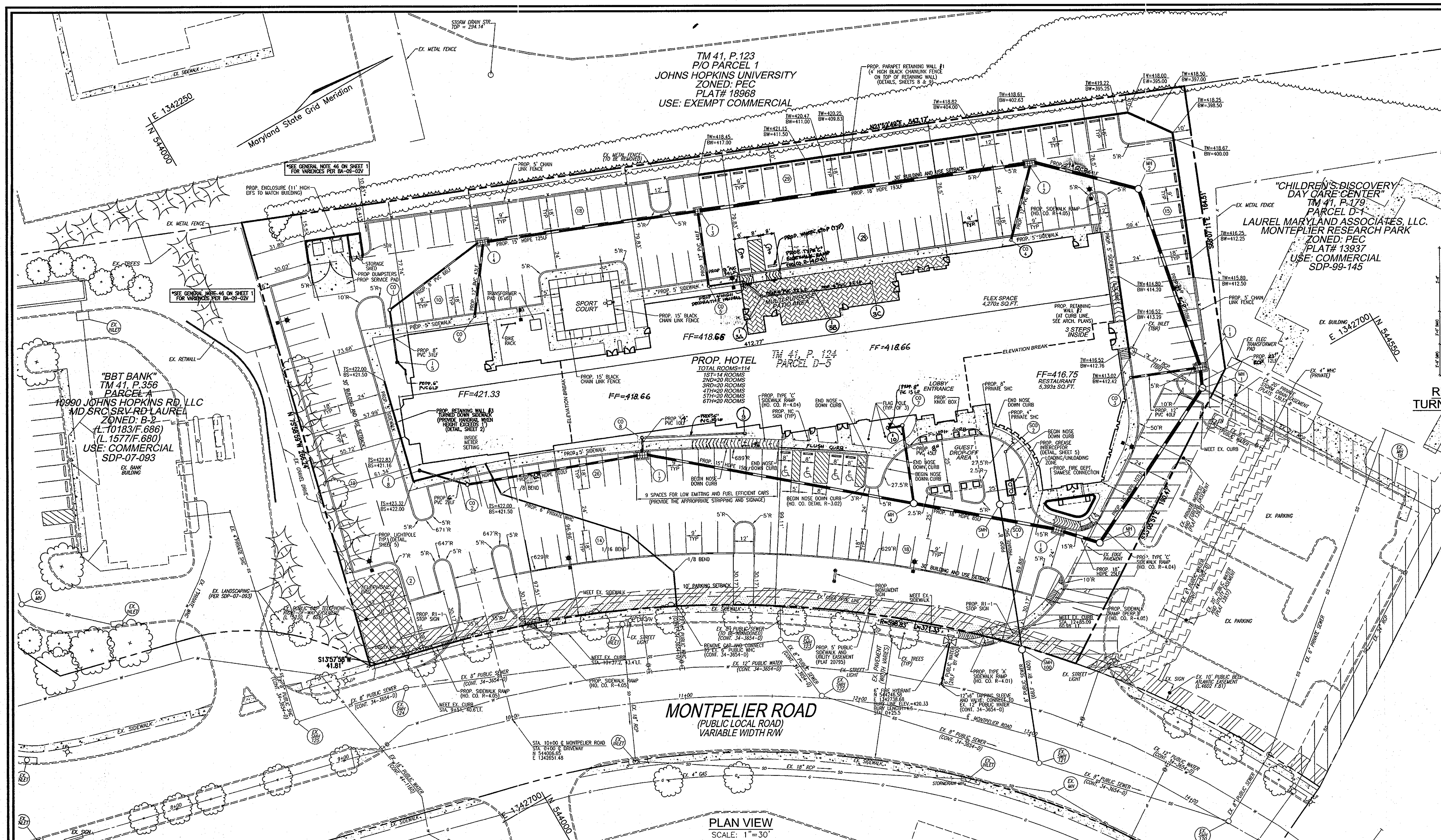
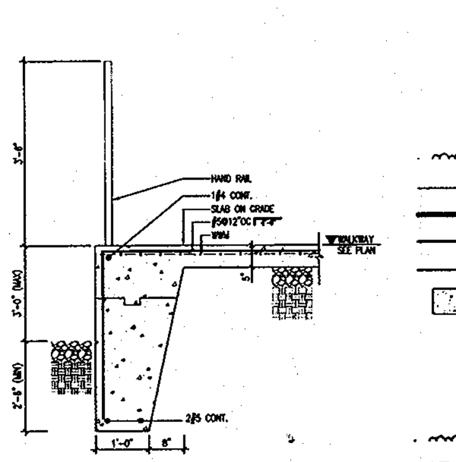
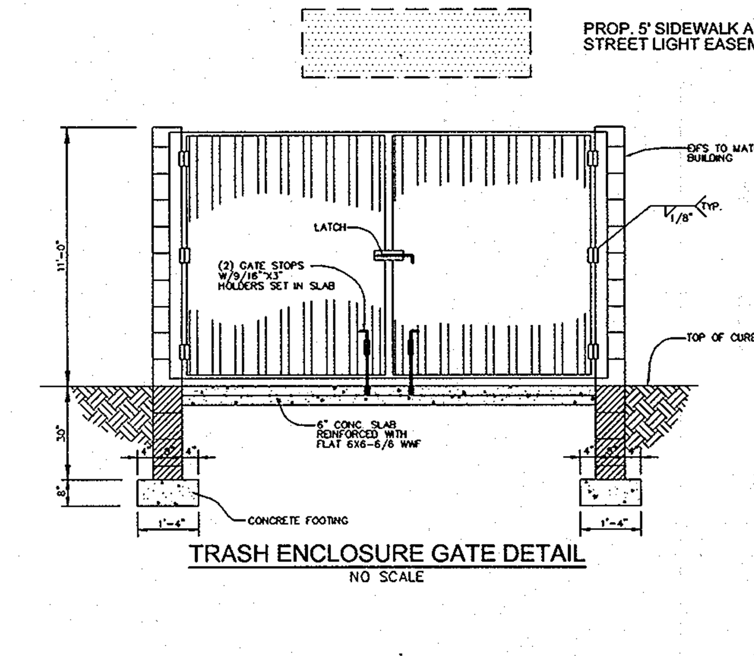




RETAINING WALL #3
TURNED DOWN SIDEWALK
NOT TO SCALE

LEGEND:

- EXISTING CURB AND GUTTER
- PROPOSED CURB AND GUTTER (HO. CO. DETAIL R-3.01)
- 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 FENCE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- ADJACENT PROPERTY LINE
- PROPOSED SIDEWALK (HO. CO. DETAIL R-3.05)
- PROP. LIGHT POLE
- PROP. WALL MOUNTED ACORN SHAPE (P5775) 75W LIGHT (TYP.)
- PROPOSE TREELINE
- EX. PUBLIC C&P TELEPHONE RIGHT-OF-WAY EASEMENT (L.5230/F. 605)
- EX. PRIVATE INGRESS AND EGRESS EASEMENT (PLAT 13937)
- EX. 20' PRIVATE STORM DRAIN EASEMENT (PLAT 13937)
- EX. 20' PUBLIC WATER AND UTILITY EASEMENT (PLAT 13937)
- PROP. 5' SIDEWALK AND STREET LIGHT EASEMENT

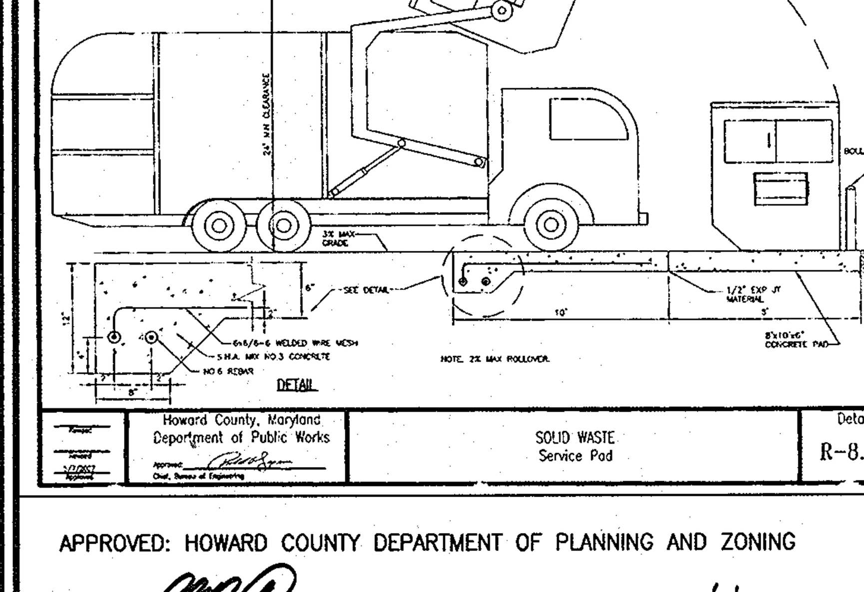


TRASH ENCLOSURE GATE DETAIL
NO SCALE

OWNER/DEVELOPER

HOPKINS HOSPITALITY INVESTORS, LLC
C/O STAR HOTELS
7226 LEE DEFORET DR., SUITE 200
COLUMBIA, MD 21046
(301) 596-5400

NO.	REVISION	DATE
1	REVISE THE PLAN TO MODIFY THE PROPOSED STORM DRAIN SYSTEM IN ORDER TO ACCOMMODATE THE MOST CURRENT DRAINAGE FOR THE ARCHITECTURAL PLANS	12-10-13

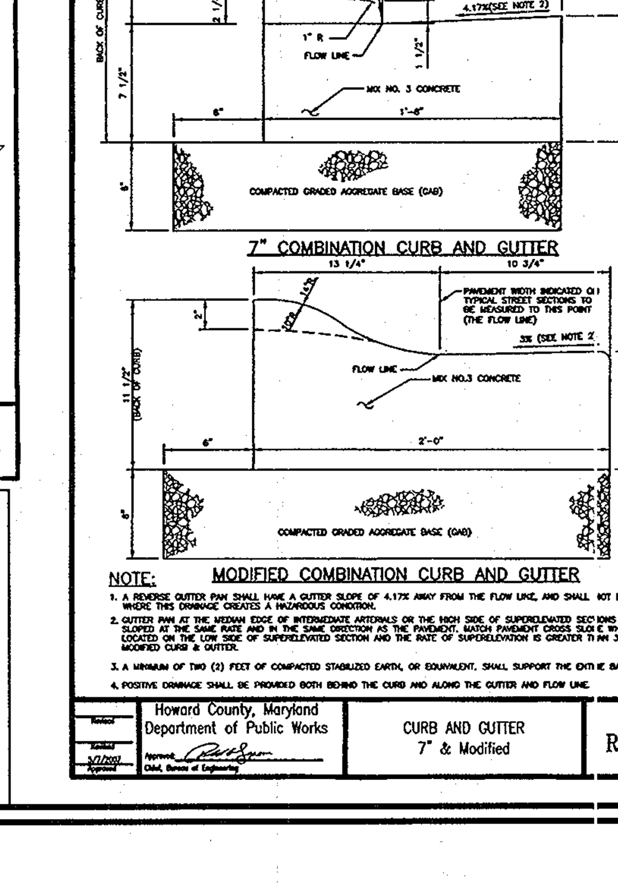


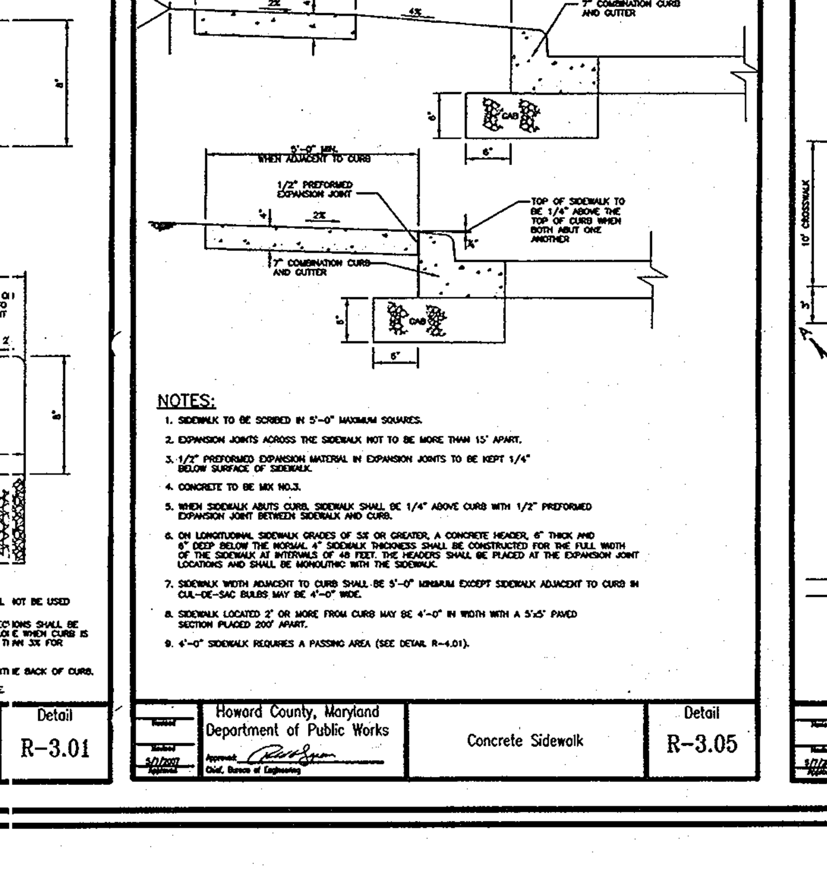
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

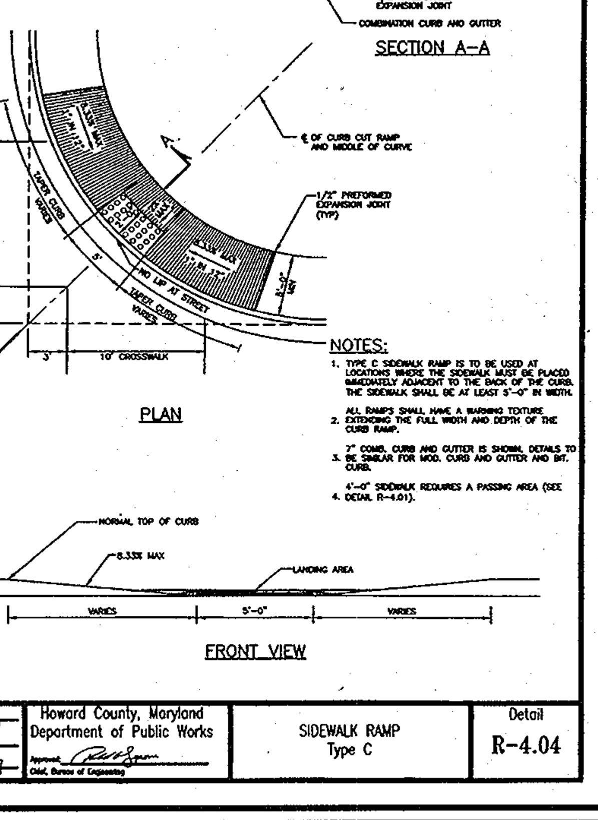
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/1/10

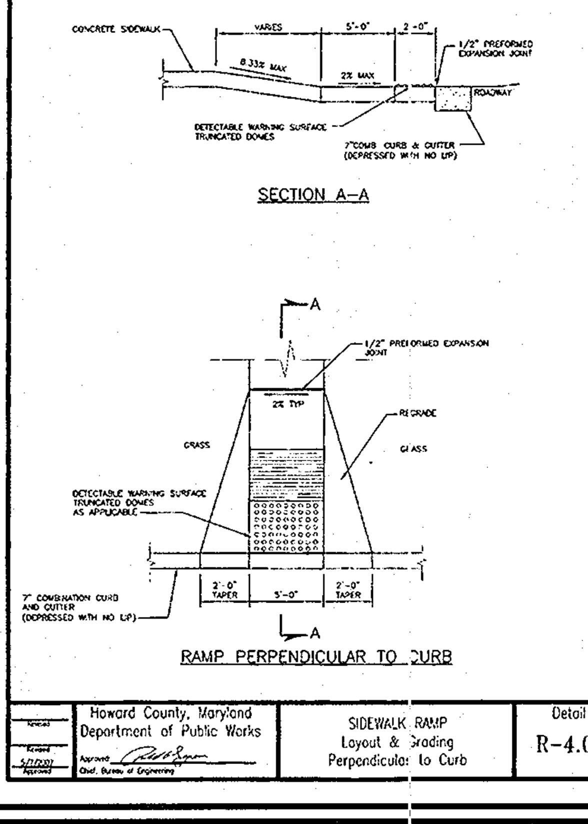
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/05/10

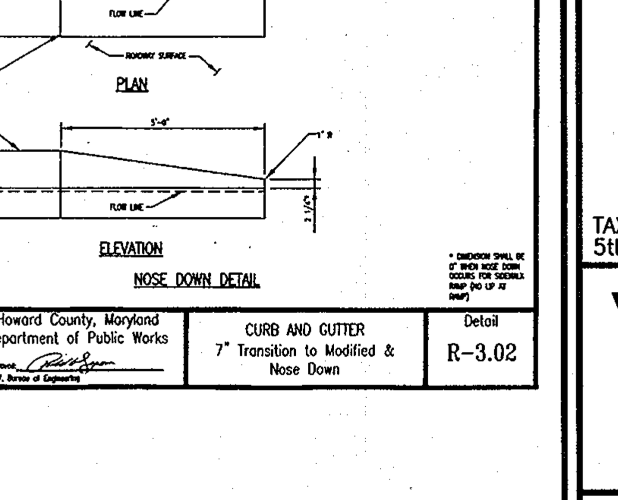
DIRECTOR — DATE 5/5/10











SITE DEVELOPMENT PLAN

SITE LAYOUT PLAN

HOMEWOOD SUITES

PARCEL 'D-5'
HOTEL AND RESTAURANT
CERTIFIED LEVEL RATED GREEN BUILDING
PLAT 20795 (L.6053/F.487)

TAX MAP 41 BLOCK 17 — PARCEL 124, D-5
5th 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 — PROFESSIONAL ENGINEER
ROBERT H. VOGEL, PE No.16193

DESIGN BY:	RHV
DRAWN BY:	DZ
CHECKED BY:	RHV
DATE:	JANUARY 2010
SCALE:	AS SHOWN
W.O. NO.:	04-120

PROFESSIONAL CERTIFICATE

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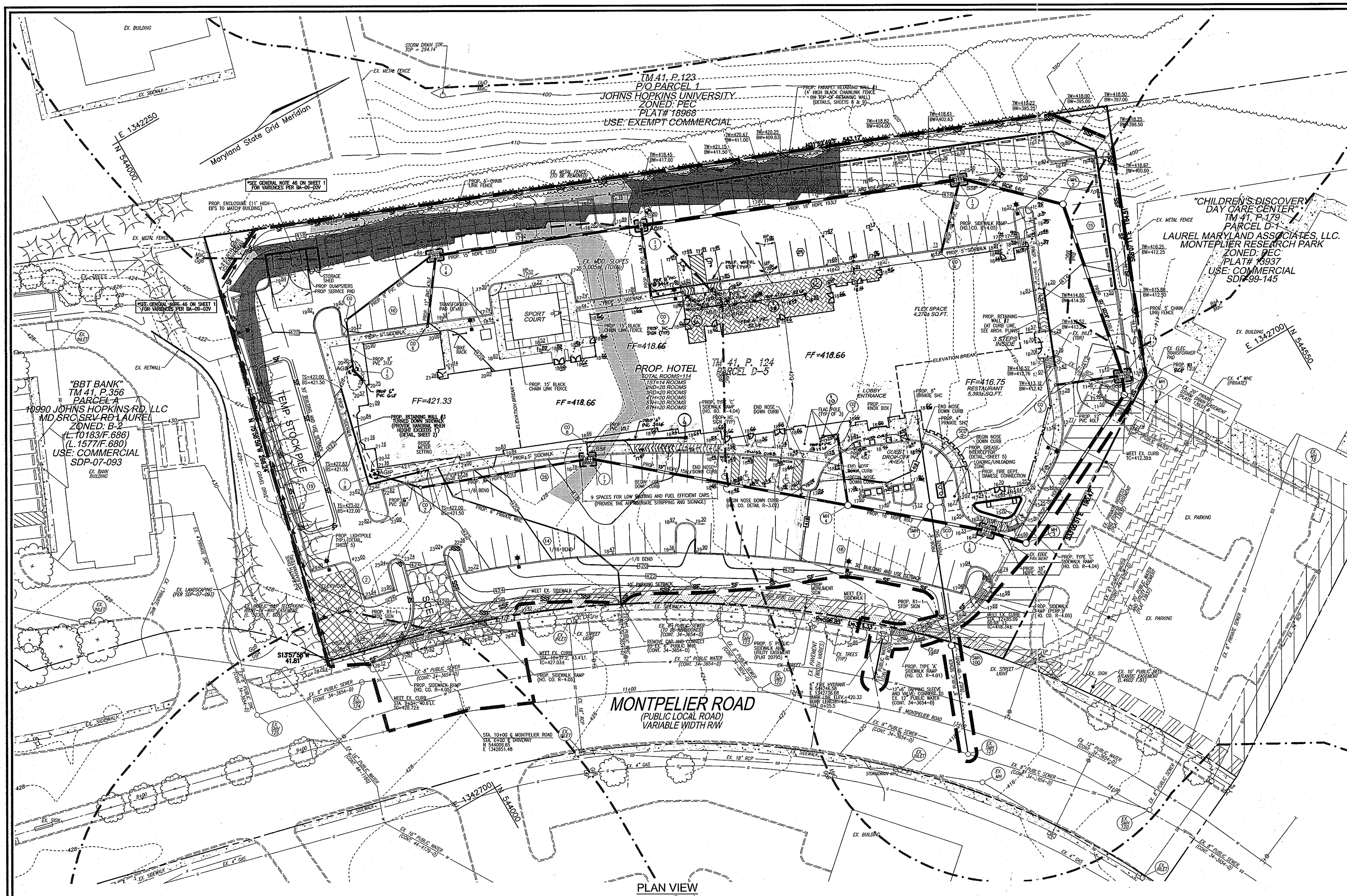
SDP-09-055



LEGEND:

Symbol	Description
398	EXISTING CONTOUR
406	PROPOSED CONTOUR
+ 402.68	PROPOSED SPOT ELEVATION
× 402.68	EXISTING SPOT ELEVATION
	EXISTING CURB AND GUTTER
	PROPOSED CURB AND GUTTER
	EXISTING UTILITY POLE
	EXISTING LIGHT POLE
	EXISTING MAILBOX
	EXISTING SIGN
SMH 2	EXISTING SANITARY MANHOLE
SS	EXISTING SANITARY LINE
CO	EXISTING CLEANOUT
FH	EXISTING FIRE HYDRANT
W	EXISTING WATER LINE
	PROPOSED STORM DRAIN
	PROPOSED STORM DRAIN INLET
	EXISTING TREES (FIELD LOCATED)
	EXISTING TREELINE (FIELD LOCATED)
x	EXISTING FENCE
	PROPERTY LINE
	RIGHT-OF-WAY LINE
	ADJACENT PROPERTY LINE
	PROPOSED SIDEWALK
	PROP. LIGHT POLE
	PROP. WALL MOUNTED ACORN SHAPE (P5775) 75W LIGHT (TYP.)
	PROPOSE TREELINE
	EX. PUBLIC C&P TELEPHONE RIGHT-OF-WAY EASEMENT (L.5230/F. 605)
	EX. PRIVATE INGRESS AND EGRESS EASEMENT (PLAT 13937)
	EX. 20' PRIVATE STORM DRAIN EASEMENT (PLAT 13937)
	EX. 20' PUBLIC WATER AND UTILITY EASEMENT (PLAT 13937)
	PROP. 5' SIDEWALK AND STREET LIGHT EASEMENT
M1B2 / M1D3	SOILS BOUNDARY
	MODERATE SLOPES (15% – 24.99%)
	STEEP SLOPE (>25%)
SF	SILT FENCE
SSF	SUPER SILT FENCE
LOD	LIMIT OF DISTURBANCE
CIP	CURB INLET PROTECTION
AGIP	AT GRADE INLET PROTECTION
S C E	STABILIZED CONSTRUCTION ENTRANCE

OWNER/DEVELOPER

HOPKINS HOSPITALITY INVESTORS, LLC
C/O STAR HOTELS
7226 LEE DEFORET DR., SUITE 200
COLUMBIA, MD 21046
(301) 596-5400

NOTE:
THE SIDEWALK ACCESSIBLE ROUTE FROM THE HOTEL/RESTAURANT WHICH LEADS TO THE PUBLIC STREET IS NOT INTENDED TO BE AN ADA ACCESSIBLE HANDICAP ROUTE.

NO.	REVISION	DATE
1	REVISE THE PLAN TO MODIFY THE PROPOSED STORM DRAIN SYSTEM IN ORDER TO ACCOMMODATE THE MOST CURRENT DRAINAGE PER THE ARCHITECTURAL PLANS.	12-10-13

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[signature] 4/1/10
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

Kent Sheubrooks 5/05/10
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

Thomas E. Butler 5/5/10
DIRECTOR — 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."

SIGNATURE OF DEVELOPER — DATE 3/17/10

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 3/17/10

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

John K. Robertson 3/30/10
HOWARD S.C.D. — DATE

SOILS LEGEND

SYMBOL	NAME / DESCRIPTION	GROUP
BaA	BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES	D
GgA	GLENELG LOAM, O TO 3 PERCENT SLOPES	B
GgB	GLENELG LOAM, 3 TO 8 PERCENT SLOPES	B
MaC	MANOR LOAM, 15 TO 25 PERCENT SLOPES	B

SITE DEVELOPMENT PLAN

GRADING, SEDIMENT AND EROSION CONTROL PLAN; SOILS MAP

HOMEWOOD SUITES

PARCEL 'D-5'
HOTEL AND RESTAURANT
CERTIFIED LEVEL RATED GREEN BUILDING
TAX MAP 41 BLOCK 17 — PLAT 20795 (L.6053/F.487) — PARCEL 124, D-5
5th ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

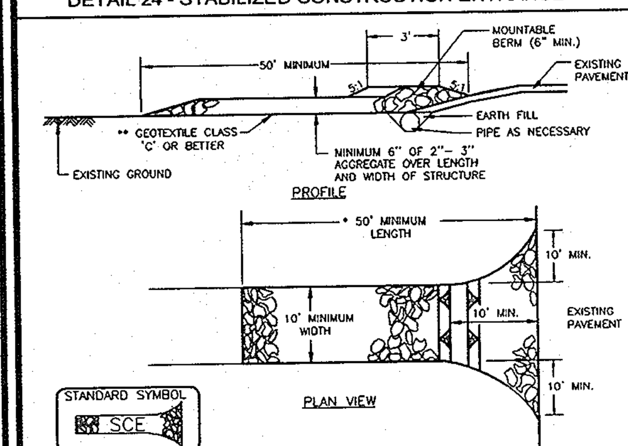
ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET
ELLICOTT CITY, MD 21043
TEL: 410.461.7666
FAX: 410.461.8961

STATE OF MARYLAND — ROBERT HARRIS VOGEL — No. 16193 — PROFESSIONAL ENGINEER — 3/19/10
ROBERT H. VOGEL, PE No.16193

DESIGN BY: RHV
DRAWN BY: DZ
CHECKED BY: RHV
DATE: JANUARY 2010
SCALE: AS SHOWN
W.O. NO.: 04-120

PROFESSIONAL CERTIFICATE
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. 16193 EXPIRATION DATE: 09-27-2010

DETAIL 24 - STABILIZED CONSTRUCTION ENTRANCE

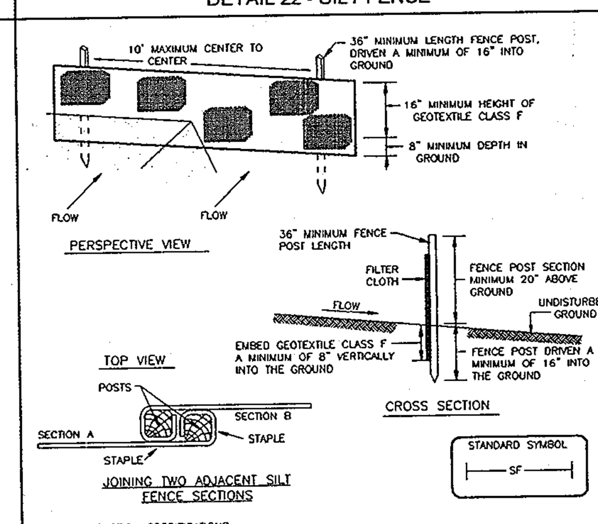


CONSTRUCTION SPECIFICATION

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.

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

DETAIL 22 - SILT FENCE



CONSTRUCTION SPECIFICATIONS

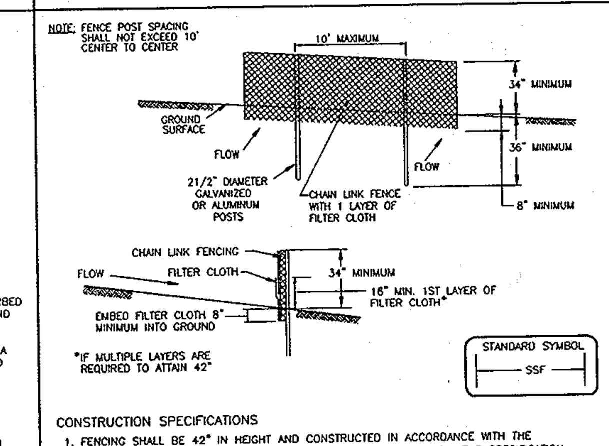
1. FENCE POSTS SHALL BE A MINIMUM OF 36" LONG, DRIVEN 16" MINIMUM INTO THE GROUND. WOOD POSTS SHALL BE 1 1/2" X 1 1/2" SQUARE (MINIMUM) CUT, OR 1 3/4" DIAMETER (MINIMUM) ROUND AND SHALL BE OF SOUND QUALITY HARDWOOD. STEEL POSTS WILL BE STANDARD T OR U SECTION WEIGHING NOT LESS THAN 1.00 POUND PER LINEAR 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 ²/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.

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

DETAIL 33 - SUPER SILT FENCE



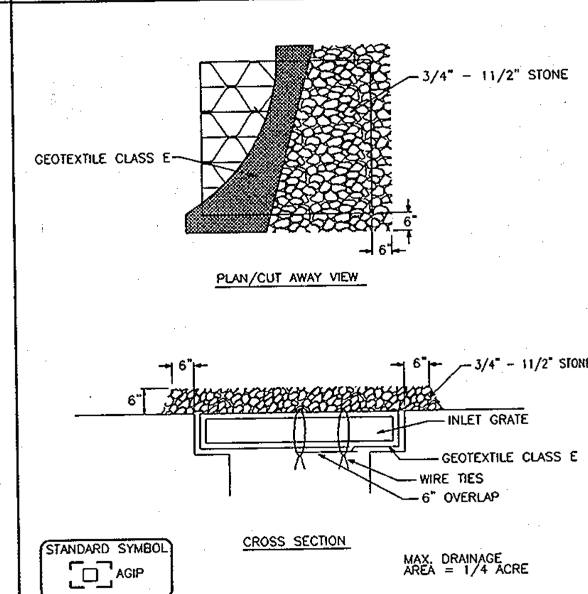
CONSTRUCTION SPECIFICATIONS

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 ²/MINUTE (MAX.)	TEST: MSMT 322
FILTERING EFFICIENCY	75% (MIN.)	TEST: MSMT 322

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

DETAIL 23B - AT GRADE INLET PROTECTION

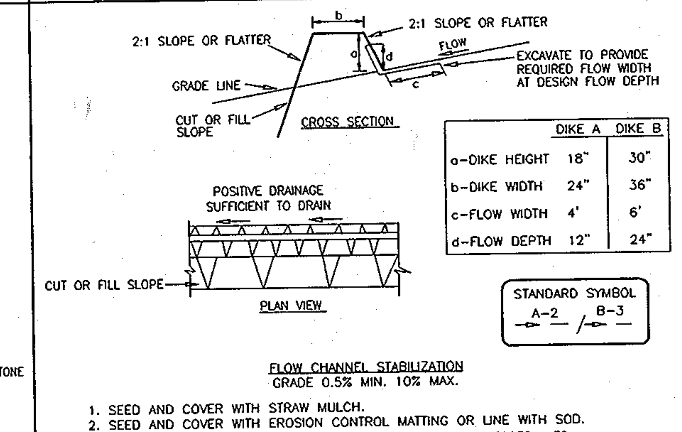


CONSTRUCTION SPECIFICATIONS

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.

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

DETAIL 1 - EARTH DIKE



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

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

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

CONSTRUCTION SPECIFICATIONS

1. ALL TEMPORARY EARTH DIKES SHALL HAVE UNINTERRUPTED POSITIVE GRADE TO AN OUTLET. SPOT ELEVATIONS MAY BE NECESSARY FOR GRADES LESS THAN 1
2. RUNOFF DIVERTED FROM A DISTURBED AREA SHALL BE CONVEYED TO A SEDIMENT TRAPPING DEVICE.
3. RUNOFF DIVERTED FROM AN UNDISTURBED AREA SHALL OUTLET DIRECTLY INTO AN UNDISTURBED, STABILIZED AREA AT A NON-EROSIVE VELOCITY.
4. ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS, AND OTHER 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.

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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.

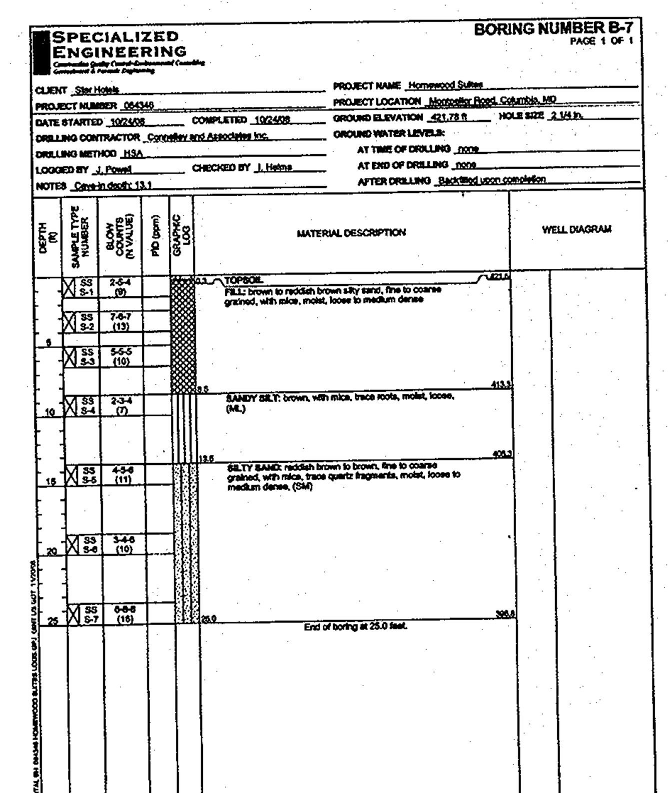
SPECIFICATIONS

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.

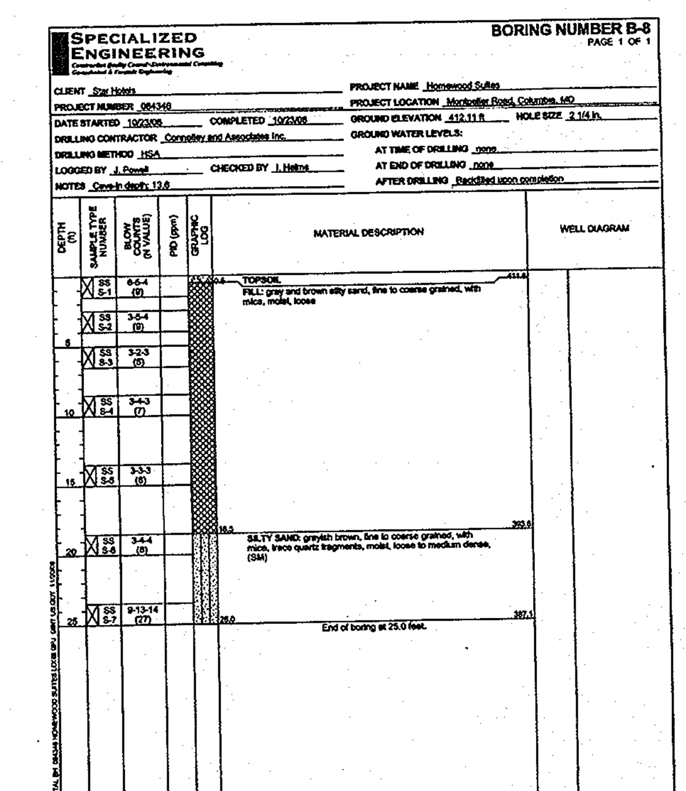


SPECIALIZED ENGINEERING — BORING NUMBER B-7, PAGE 1 OF 1

CLIENT Star Hotels; PROJECT NUMBER 084340; DATE STARTED 10/24/08; COMPLETED 10/24/08; DRILLING CONTRACTOR Connelley and Associates Inc.; DRILLING METHOD HSA; LOGGED BY J. Powell; CHECKED BY J. Helms; NOTES Cave-in depth: 13.1

PROJECT NAME Homewood Suites; PROJECT LOCATION Montpelier Road, Columbia, MD; GROUND ELEVATION 421.78 ft; HOLE SIZE 2 1/4 in.; GROUND WATER LEVELS: AT TIME OF DRILLING none; AT END OF DRILLING none; AFTER DRILLING Backfilled upon completion

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	MATERIAL DESCRIPTION
	SS S-1	2-5-4 (9)	0.3 TOPSOIL. FILL: brown to reddish brown silty sand, fine to coarse grained, with mica, moist, loose to medium dense
	SS S-2	7-6-7 (13)	
5	SS S-3	5-5-5 (10)	
10	SS S-4	2-3-4 (7)	8.5 SANDY SILT: brown, with mica, trace roots, moist, loose, (ML)
15	SS S-5	4-5-6 (11)	13.5 SILTY SAND: reddish brown to brown, fine to coarse grained, with mica, trace quartz fragments, moist, loose to medium dense, (SM)
20	SS S-6	3-4-6 (10)	
25	SS S-7	6-8-8 (16)	25.0 End of boring at 25.0 feet.



SPECIALIZED ENGINEERING — BORING NUMBER B-8, PAGE 1 OF 1

CLIENT Star Hotels; PROJECT NUMBER 084340; DATE STARTED 10/23/08; COMPLETED 10/23/08; DRILLING CONTRACTOR Connelley and Associates Inc.; DRILLING METHOD HSA; LOGGED BY J. Powell; CHECKED BY J. Helms; NOTES Cave-in depth: 13.6

PROJECT NAME Homewood Suites; PROJECT LOCATION Montpelier Road, Columbia, MD; GROUND ELEVATION 412.11 ft; HOLE SIZE 2 1/4 in.; GROUND WATER LEVELS: AT TIME OF DRILLING none; AT END OF DRILLING none; AFTER DRILLING Backfilled upon completion

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	MATERIAL DESCRIPTION
	SS S-1	6-5-4 (9)	0.4 TOPSOIL. FILL: gray and brown silty sand, fine to coarse grained, with mica, moist, loose
	SS S-2	3-5-4 (9)	
5	SS S-3	3-2-3 (5)	
10	SS S-4	3-4-3 (7)	
15	SS S-5	3-3-3 (6)	
20	SS S-6	3-4-4 (8)	18.5 SILTY SAND: grayish brown, fine to coarse grained, with mica, trace quartz fragments, moist, loose to medium dense, (SM)
25	SS S-7	9-13-14 (27)	25.0 End of boring at 25.0 feet.

PERMANENT SEEDING NOTES

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

SEEDBED PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISKING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.

SOIL AMENDMENTS: IN LIEU OF SOIL TEST RECOMMENDATIONS, USE ONE OF THE FOLLOWING SCHEDULES:
1. PREFERRED: APPLY 2 TONS/ACRE DOLOMITIC LIMESTONE (92 IBS/1000 SQ. FT.) AND 600 IBS/ACRE 10-10-10 FERTILIZER (14 IBS/1000 SQ. FT.) BEFORE SEEDING. HARROW OR DISK INTO UPPER THREE INCHES OF SOIL. AT TIME OF SEEDING, APPLY 400 IBS/ACRE 30-0-0 UREAFORM FERTILIZER (9 IBS/1000 SQ. FT.)
2. ACCEPTABLE: APPLY 2 TONS/ACRE DOLOMITIC LIMESTONE (92 IBS/1000 SQ. FT.) AND 1000 IBS/ACRE 10-10-10 FERTILIZER (23 IBS/1000 SQ. FT.) BEFORE SEEDING. HARROW OR DISK INTO UPPER THREE INCHES OF SOIL.

SEEDING: FOR THE PERIODS MARCH 1 THUR APRIL 30, AND AUGUST 1 THRU OCTOBER 15, SEED WITH 60 IBS/ACRE (1.4 IBS/1000 SQ.FT.) OF KENTUCKY 31 TALL FESCUE. FOR THE PERIOD MAY 1 THRU JULY 31, SEED WITH 60 IBS KENTUCKY 31 TALL FESCUE PER ACRE AND 2 IBS/ACRE (.05 IBS/100() SQ. FT.) OF WEEPING LOVEGRASS. DURING THE PERIOD OF OCTOBER 16 THRU FEBRUARY 28, PROTECT SITE BY:
OPTION 1: TWO TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING.
OPTION 2: USE SOD.
OPTION 3: SEER: WITH 60 IBS/ACRE KENTUCKY 30 TALL FESCUE AND MULCH WITH 2 TONS/ACRE WELL ANCHORED STRAW.

MULCHING: APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 IBS/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 SLOPE 8 FEET OR HIGHER, USE 348 GALLONS PER ACRE (8 GAL/1000 SQ. FT.) FOR ANCHORING.

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

TEMPORARY SEEDING NOTES

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

SEEDBED PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISKING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.

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

SEEDING: FOR PERIODS MARCH 1 THRU APRIL 30 AND FROM AUGUST 15 THRU OCTOBER 15, SEED WITH 2-1/2 BUSHEL PER ACRE OF ANNUAL RYE (3.2 IBS/1000 SQ. FT.). FOR THE PERIOD MAY 1 -- AUGUST 14, SEED WITH 3 IBS/ACRE OF WEEPING LOVEGRASS (.07 IBS/1000 SQ. FT.). FOR THE PERIOD NOVEMBER 16 -- FEBRUARY 28, PROTECT SITE BY APPLYING 2 TONS/ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING, OR USE SOD.

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

REFER TO THE 1994 MAR4AND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR ADDITIONAL RATES AND METHODS NOT COVERED.

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 (410-313-1855).
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) 3 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES, AND ALL SLOPES GREATER THAN 3:1, (B) 7 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
4. ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THEIR PERIMETER IN ACCORDANCE WITH VOL. 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	3.19 ACRES
AREA DISTURBED	3.21 ACRES
AREA TO BE ROOFED OR PAVED	2.56 ACRES
AREA TO BE VEGETATIVELY STABILIZED	0.63 ACRES
TOTAL CUT	18,231 CY
TOTAL FILL	4,390 CY
WASTE/BORROW LOCATION	N/A

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

21.0 STANDARDS AND SPECIFICATIONS FOR TOPSOIL

DEFINITION

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

PURPOSE

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

CONDITIONS WHERE PRACTICE APPLIES

I. THIS PRACTICE IS LIMITED TO AREAS HAVING 2:1 OR FLATTER SLOPES WHERE:
   A. THE TEXTURE OF THE EXPOSED SUBSOIL/PARENT MATERIAL IS NOT ADEQUATE TO PRODUCE VEGETATIVE GROWTH.
   B. THE SOIL MATERIAL IS SO SHALLOW THAT THE ROOTING ZONE IS NOT DEEP ENOUGH TO SUPPORT PLANTS OR FURNISH CONTINUING SUPPLIES OF MOISTURE AND PLANT NUTRIENTS.
   C. THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT GROWTH.
   D. THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE.
II. FOR THE PURPOSE OF THESE STANDARDS AND SPECIFICATIONS, AREAS HAVING SLOPES STEEPER THAN 2:1 REQUIRE SPECIAL CONSIDERATION AND DESIGN FOR ADEQUATE STABILIZATION. AREAS HAVING SLOPES STEEPER THAN 2:1 SHALL HAVE THE APPROPRIATE STABILIZATION SHOWN ON THE PLANS.

CONSTRUCTION AND MATERIAL SPECIFICATIONS

I. TOPSOIL SALVAGED FROM THE EXISTING SITE MAY BE USED PROVIDED THAT IT MEETS THE STANDARDS AS SET FORTH IN THESE SPECIFICATIONS. TYPICALLY, THE DEPTH OF TOPSOIL TO BE SALVAGED FOR A GIVEN SOIL TYPE CAN BE FOUND IN THE REPRESENTATIVE SOIL PROFILE SECTION IN THE SOIL SURVEY PUBLISHED BY USDA-SCS IN COOPERATION WITH MARYLAND AGRICULTURAL EXPERIMENTAL STATION.
II. TOPSOIL SPECIFICATIONS – SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING:
   I. TOPSOIL SHALL BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, LOAMY SAND. OTHER SOILS MAY BE USED IF RECOMMENDED BY AN AGRONOMIST OR 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 DIAMETER.
   II. TOPSOIL MUST BE FREE OF PLANTS OR PLANT PARTS SUCH AS BERMUDA GRASS, QUACKGRASS, JOHNSONGRASS, NUTSEDGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.
   III. WHERE THE SUBSOIL IS EITHER HIGHLY ACIDIC OR COMPOSED OF HEAVY CLAYS, GROUND LIMESTONE SHALL BE SPREAD AT THE RATE OF 4-8 TONS/ACRE (200-400 POUNDS PER 1,000 SQUARE FEET) PRIOR TO THE PLACEMENT OF TOPSOIL. LIME SHALL BE DISTRIBUTED UNIFORMLY OVER DESIGNATED AREAS AND WORKED INTO THE SOIL IN CONJUNCTION WITH TILLAGE OPERATIONS AS DESCRIBED IN THE FOLLOWING PROCEDURES.
III. FOR SITES HAVING DISTURBED AREAS UNDER 5 ACRES:
   I. PLACE TOPSOIL (IF REQUIRED) AND APPLY SOIL AMENDMENTS AS SPECIFIED IN 20.0 VEGETATIVE STABILIZATION-SECTION I- VEGETATIVE STABILIZATION METHODS AND MATERIALS.

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

   II. PLACE TOPSOIL (IF REQURED) AND APPLY SOIL AMENDMENTS AS SPECIFIED IN AS SPECIFIED IN 20.0 VEGETATIVE STABILIZATION – SECTION I – VEGETATIVE STABILIZATION METHODS AND MATERIALS.
IV. FOR SITES HAVING DISTURBED AREAS OVER 5 ACRES:
   I. ON SOIL MEETING TOPSOIL SPECIFICATIONS, OBTAIN TEST RESULTS DICTATING FERTILIZER AND LIME AMENDMENTS REQUIRED TO BRING THE SOIL INTO COMPLIANCE WITH THE FOLLOWING:
      A. pH FOR TOPSOIL SHALL BE BETWEEN 6.0 AND 7.5. IF THE TESTED SOIL DEMONSTRATES A pH OF LESS THAN 6.0, SUFFICIENT LIME SHALL BE PRESCRIBED TO RAISE THE pH TO 6.5 OR HIGHER.
      B. ORGANIC CONTENT OF TOPSOIL SHALL BE NOT LESS THAN 1.5 PERCENT BY WEIGHT.
      C. TOPSOIL HAVING SOLUBLE SALT CONTENT GREATER THAN 500 PARTS PER MILLION SHALL NOT BE USED.
      D. NO SOD OR SEED SHALL BE PLACED ON SOIL WHICH HAS BEEN TREATED WITH SOIL STERILANTS OR CHEMICALS USED FOR WEED CONTROL UNTIL SUFFICIENT TIME HAS ELAPSED (14 DAYS MIN.) TO PERMIT DISSIPATION OF PHYTO-TOXIC MATERIALS.

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

   II. PLACE TOPSOIL (IF REQUIRED) AND APPLY SOIL AMENDMENTS 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 PLACED WHILE THE TOPSOIL OR SUBSOIL IS IN A FROZEN OR MUDDY CONDITION, WHEN THE SUBSOIL IS EXCESSIVELY WET OR IN A CONDITION THAT MAY OTHERWISE BE DETRIMENTAL TO PROPER GRADING AND SEEDBED PREPARATION.
VI. ALTERNATIVE TO PERMANENT SEEDING – INSTEAD OF APPLYING THE FULL AMOUNTS OF LIME AND COMMERCIAL FERTILIZER, COMPOSTED SLUDGE AND AMENDMENTS MAY BE APPLIED AS SPECIFIED BELOW:
   I. COMPOSTED SLUDGE MATERIAL FOR USE AS A SOIL CONDITIONER FOR SITES HAVING DISTURBED AREAS OVER 5 ACRES SHALL BE TESTED TO PRESCRIBE AMENDMENTS AND FOR SITES HAVING DISTURBED AREAS UNDER 5 ACRES SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:
      A. COMPOSTED SLUDGE SHALL BE SUPPLIED BY, OR ORIGINATE FROM, A PERSON OR PERSONS THAT ARE PERMITTED (AT THE TIME OF ACQUISITION OF THE COMPOST) BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT UNDER COMAR 26.04.06.
      B. COMPOSTED SLUDGE SHALL CONTAIN AT LEAST 1 PERCENT NITROGEN, 1.5 PERCENT PHOSPHORUS, AND 0.2 PERCENT POTASSIUM AND HAVE A pH OF 7.0 TO 8.0. IF COMPOST DOES NOT MEET THESE REQUIREMENTS, THE APPROPRIATE CONSTITUENTS MUST BE ADDED TO MEET THE REQUIREMENTS PRIOR TO USE.
      C. COMPOSTED SLUDGE SHALL BE APPLIED AT A RATE OF 1 TON/1,000 SQUARE FEET.
   II. COMPOSTED SLUDGE SHALL BE AMENDED WITH A POTASSIUM FERTILIZER APPLIED AT THE RATE OF 4 LB/1,000 SQUARE FEET, AND 1/3 THE NORMAL LIME APPLICATION RATE.

SEQUENCE OF CONSTRUCTION

1. OBTAIN HOWARD COUNTY GRADING PERMIT. (WEEK 1)
2. NOTIFY HOWARD COUNTY AT LEAST 48 HOURS PRIOR TO START OF CONSTRUCTION. (2 DAYS)
3. CONDUCT A PRE-CONSTRUCTION MEETING WITH THE SEDIMENT CONTROL INSPECTOR PRIOR TO ANY LAND DISTURBANCE. (1 WEEK)
4. INSTALL STABILIZED CONSTRUCTION ENTRANCE WITH MOUNTABLE BERM. (1 DAY)
5. INSTALL ALL SILT FENCE, SUPER SILT FENCE, AND EARTH DIKE. (2 WEEKS)
6. WITH APPROVAL OF SEDIMENT CONTROL INSPECTOR, CLEAR AND GRUB SITE. (3 WEEKS)
7. BEGIN SITE GRADING, RETAINING WALL AND UTILITY CONSTRUCTION. INSTALL INLET PROTECTION AS STORM DRAIN CONSTRUCTION PROGRESSES. INLETS I-1, I-2, I-4, I-6 AND I-7 TO BE WRAPPED IN SUPER SILT FENCE. (10 WEEKS)
8. BEGIN BUILDING CONSTRUCTION. (32 WEEKS)
9. UPON COMPLETION OF THE RETAINING WALL, INSTALL ALL ON-SITE CURB AND GUTTER. (1 WEEK)
10. INSTALL ON-SITE PAVING BASE COURSE. (1 WEEK)
11. COMPLETE BUILDING AND UTILITY CONSTRUCTION.
12. INSTALL ALL PAVING. (1 WEEK)
13. INSTALL SIDEWALKS. (1 WEEK)
14. WITH THE INSPECTOR'S APPROVAL, FINE GRADE AND STABILIZE ALL AREAS OF PARCEL INCLUDING ANY EXPOSED EARTH AREAS OUTSIDE THE LOD. REMOVE ALL TRASH JUNK AND DEBRIS FROM ENTIRE PARCEL. (2 WEEKS)
15. REMOVE ALL REMAINING SEDIMENT CONTROL MEASURES AFTER RECEIVING APPROVAL FROM THE SEDIMENT CONTROL INSPECTOR. (4 WEEKS)
16. INSTALL SITE LANDSCAPING. (2 WEEKS)

NOTES:
1. DURING GRADING AND AFTER EACH RAINFALL, CONTRACTOR WILL INSPECT AND PROVIDE NECESSARY MAINTENANCE TO THE SEDIMENT CONTROL MEASURES ON THIS PLAN.
2. FOLLOWING INITIAL SOIL DISTURBANCES OR REDISTURBANCE PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN:
   A. 3 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL
   B. 17 CALENDAR DAYS FOR ALL OTHER DISTURBED AREAS.

GEOTECHNICAL RECOMMENDATIONS:

5.1 SITE PREPARATION AND EARTHWORK

The following recommendations are intended for the satisfactory performance of the earthwork that may be involved to attain the planned grades within the footprint areas of the multi-story building, drive lanes and open parking areas.

- Any unsuitable fill within the proposed building should be removed to a minimum depth of 3 feet below the proposed foundation subgrade and replaced with controlled fill. Additional undercut should be anticipated at localized areas to remove soft uncontrolled fill.
- Unsuitable fill within the proposed paved areas should generally be removed to a minimum depth of 2 feet below the proposed pavement subgrade and replaced with controlled fill. Additional undercut may be anticipated at localized areas to remove soft uncontrolled fill.
- Following the stripping and excavation of all unsuitable materials, grading operations may proceed. Prior to fill placement, the geotechnical engineer should observe the site for proper stripping and preparation.
- The subgrades exposed after stripping should be proofrolled with at least two (2) passes of a loaded dump truck that has a minimum axle load of 10 tons to identify any soft/loose pockets. Any observed loose/soft pockets should be excavated to suitable-bearing subgrade and replaced with fill satisfying the controlled fill requirements detailed later in this section of the report or lean-mix concrete (2000 psi).
- Material satisfactory for controlled fill should include clean soil or bankrun sand and gravel (GW, GM, and SM). GC and SC materials may be used provided that the density and the liquid limit and plasticity index of the finer fraction of the material satisfy the following limitations:

Maximum Dry Density (PCF)	≥105
Liquid Limit (%)	≤40
Plasticity Index	≤20

- CL and ML materials satisfying the above requirements and limitations may be used with approval of the Geotechnical Engineer of Record. Highly plastic soils (CH, MH) should not be used in engineered fills. The fill materials should be free from topsoil, organics and rock fragments having a major dimension greater than 3 inches.
- The on-site soils of Stratum I, except layers of moderately to highly plastic soils (LL>45 and PI>20), if encountered, are suitable for use in engineered fills, subject to moisture adjustments and other limitations presented above.
- Fill placement should be in maximum 8-inch thick, loose, horizontal lifts compacted uniformly with the proper equipment.
- Fill required to support the slab-on-grade and pavement areas should be compacted to at least ninety-five percent (95%) of the maximum dry density as established by ASTM D-1557 test method. The moisture content of the fill should be within plus or minus three (±2) percentage points of the optimum moisture content.

The earthwork should be performed under the observation of and to the satisfaction of a geotechnical engineer.

5.2 SHALLOW FOUNDATIONS

As stated earlier, shallow foundations (continuous and spread footings) are considered adequate for the support of the proposed building. The footings should be supported on the undisturbed, suitable-bearing virgin soils, or on controlled structural fill, as specified in Section 5.1 'Site Preparation and Earthwork'.

Continuous footings that are partially located in structural fill and partially in undisturbed soil formation, should be designed as grade beams, 5 feet on either side of the transition.

The footings may be sized and designed on the basis of allowable bearing pressures indicated below, subject to observation and approval of soil conditions at the bottom of footing excavations for suitable soil bearing by the Geotechnical Engineer of Record or his qualified representative.

SOIL CONDITIONS AT SUBGRADE	ALLOWABLE BEARING PRESSURE (psf)	MINIMUM WIDTH OF FOOTINGS (INCHES)
Controlled Structural Fill		
Isolated Footings	2,500	30
Continuous Footings	2,500	18
Undisturbed Soils		
Isolated Footings	2,500	30
Continuous Footings	2,500	18

Shallow Foundations on Geopier™ or Controlled Modulus Columns™

As stated earlier, if the bearing capacity of the natural soils is enhanced by a proprietary ground-improvement system such as Geopiers™ or Controlled Modulus Columns™ (CMC), then the structure could be supported on spread footings bearing on Geopiers™ or CMCs™.

The Geopier™ foundation system and CMC Columns™ are soil improvement techniques used to improve bearing conditions where suitable bearing soils are not available at a reasonable depth. Geopier™ elements are constructed by building successive layers of densely compacted aggregate in a drilled cavity. Typical Geopier™ diameters range from 24 to 36 inches. Layers of well-graded aggregate are compacted with high energy ramming impact actions to improve the strength and stiffness of the combined pier-soil system.

Depending on Geopier™ diameter and spacing, the development of an allowable composite bearing pressure on the order of 4 kips per square foot (ksf) to 6 ksf is expected. The Geopier™ element capacity, to support lateral load, depends on pier diameter and depth. However, A Geopier™ licensee should design the system for this project.

The Controlled Modulus Column™ is constructed with the use of a specially designed auger, powered by equipment with large torque capacity and high static down thrust, that displaces the soil laterally, with virtually no spoil or vibration. During the auger extraction process, a column is developed by pressure-grouting to achieve a predetermined stiffness ratio with the surrounding soil. The result is the grouted CMC elements and the surrounding soils are considered a "composite system", which acts as a ground improvement system.

Depending on CMCs™ spacing, the development of an allowable composite bearing pressure on the order of 4 kips per square foot (ksf) to 6 ksf is expected. However, A CMCs™ licensee should design the system for this project.

Shallow spread footing supported on a ground-improvement system, such as Geopier™ or CMCs™ are designed based on the criterion that maximum settlement and differential settlement do not exceed 1 inch and ½ inch, respectively.

5.2.1 DEPTH OF FOOTINGS

The embedment depth of all footing subgrades is governed by the minimum depth requirements for protection against frost heave in accordance with the 2000 International Building Code. The depth of frost in Howard County, Maryland is approximately 36 inches. Therefore, the bottom of the footings should be located at least 36 inches below the lowest adjacent exterior finished grade.

5.2.2 ANTICIPATED SETTLEMENTS

The footings, if designed on the basis of recommended allowable bearing pressures, are expected to experience a maximum total settlement of 1 inch with differential settlement between adjacent walls limited to ¾-inch over a 30-foot span.

5.2.3 FOOTING EXCAVATIONS

Because of possible variations in subsurface conditions and related bearing capacity, all footing excavations and trenches should be observed and approved by the Geotechnical Engineer of Record. Water and possibly some loose soil may collect in the footing excavations as a result of surface precipitation and near ground surface seepage. Therefore:

- Water, very loose soil and soil softened by water should be removed from the bottom of the footing excavations before placing concrete.
- If water is found to be entering a foundation excavation the bottom of the footing excavations and trenches should be protected by undercutting 3 inches and placing a 3-inch thick lean-mix concrete (2,000 psi) workmat immediately upon approval and before reinforcing steel is placed.
- Footing excavations should not be left open for long periods. If the concrete can not be placed due to inclement weather conditions or any other unforeseen circumstances, the bottom of the footing excavations and trenches should be protected by undercutting 3 inches and placing a 3-inch thick lean-mix concrete (2,000 psi) workmat immediately upon approval and before reinforcing steel is placed.
- Backfill around and above the footing should satisfy the controlled fill requirements described in Section 5.1 'Site Preparation and Earthwork'.

5.6 SEISMIC CONSIDERATIONS

Based on the subsurface conditions encountered at the site, structural design shall use the following site coefficients for seismic design based on Section 1615 of the International Building Code (2003):

Seismic Site Class	D
Spectral response acceleration at short periods, S_s	0.159
Spectral response acceleration at 1-second period, S_1	0.050
Site coefficient, F_a	1.60
Site coefficient, F_v	2.40

Based on information obtained from our soil test borings and our review and knowledge of local geology, it is our opinion that the potential for liquefaction of the soils at the site due to earthquake activity is relatively low.

5.7 SLAB-ON-GRADE

The following recommendations are intended for the placement of the building slab-on-grade.

- Floor slab excavation should be proofrolled and prepared as described under 'Site Preparation and Earthwork'.
- Unsuitable uncontrolled fill encountered at and below the subgrade elevations of the slab-on-grade, should be excavated to a minimum depth of 2 feet and replaced with approved fill material.
- A free-draining, granular blanket of crushed stone or gravel should be placed under the slab for lateral drainage and as a capillary barrier. The thickness of this blanket should be at least 6 inches.
- The entire slab area should be reinforced with a welded wire fabric or as otherwise specified by the Structural Engineer.
- Adequate control joints should be provided with adequate shear reinforcement.
- The slab should be designed on the basis of modulus of subgrade reaction "k" of not more than 125 psi/inch.

5.8 PAVEMENT

It is anticipated that cuts and fills of up to 10 feet may be required to achieve pavement subgrade elevations. This grading is likely to produce a pavement subgrade that will consist, in the major part of the site, of soils having classifications of ML, or SM. Soft or yielding soils that deflect when proofrolled should be undercut to a suitable bearing subgrade. The undercut areas should be replaced with fill satisfying the controlled fill requirements detailed in 'Site Preparation and Earthwork'.

The grading should, if at all possible, be done during a dry season. This should minimize the potential moisture related problems although they may not be eliminated. Several acceptable moisture-modifying methods should be considered in order to dry soils with high moisture contents. The moisture modifying methods include the disking and drying of the soils, and chemical modification with the addition of quick lime or Portland cement to the soils.

In pavement subgrade undercut areas where moisture contents of the soil are high (>25%) the use of geotextile fabric and crushed stone may be necessary in order to stabilize the pavement area subgrade.

For preliminary pavement design, and due to the variable soil types across the site, an average California Bearing Ratio (CBR) value of 4 may be assigned to the on-site soils. Following completion of grading operations, the subgrade soils should be tested for laboratory CBR values under soaked conditions in accordance with AASHTO T-193 requirements, in order to determine the design CBR values. Any necessary adjustments to pavement designs can be made at that time.

Traffic loading and intensity was not provided to Specialized Engineering. For a 20-year design period, Equivalent Axle Load (EAL) values of 30,000 for car and light truck traffic for Standard Duty pavement (parking areas) and 100,000 for car traffic and delivery truck traffic for Heavy Duty pavement (drivelines and service areas) was assumed. The EAL value is the number of equivalent 18,000 lb single axle loads expected over a 20-year design life. If the actual EAL values will differ from the values presented here, Specialized Engineering should be notified so that the recommendations presented in this section can be re-evaluated.

The pavement design values presented below should be considered the minimum recommended thickness. Based on the traffic information provided, the pavement thickness values are shown in the following tables. These design thicknesses assume that a properly compacted stable subgrade has been achieved.

FLEXIBLE PAVEMENT	STANDARD DUTY (Parking Area)		HEAVY DUTY (Drive Lane)	
OPTIONS	I	II	I	II
Asphaltic Concrete Surface Course	1.5"	1.5"	1.5"	1.5"
Asphaltic Concrete Binder Course	3.0"	3.0"	4.0"	4.0"
Dense Aggregate Base Stone (GAB or equivalent)	6.0"	N/A	6.0"	N/A
Recycled Crushed Concrete (RC-6)	N/A	8.0"	N/A	8.0"

All materials and methods of placement should conform to the current Maryland State Highway Administration (MSHA) requirements.

Allowances for proper drainage and proper material selection of base materials are most important for performance of flexible pavements. Ruts and cracks in asphalt pavement allow for quick deterioration of the pavement primarily due to saturation of the underlying base and subgrade.

In areas that may be subjected to concentrated wheel loads, such as in trash dumpster and loading dock areas with repeated tractor trailer traffic loadings, the use of a Portland cement concrete pavement section should be considered. Based on the design criteria discussed earlier, and the engineering characteristics of soils encountered in the borings, it is recommended that the following minimum Portland cement pavement section be used:

Rigid Pavement Options	Minimum Thickness
Reinforced Concrete*	6"
Dense Aggregate Base Stone (GAB or equivalent)	8"

* (fc = 4000 psi)

Should concrete pavement be utilized, the concrete should be properly reinforced and jointed, and should have a minimum 28 day compressive strength of 4000 psi. Expansion joints should be sealed with a polyurethane sealant so that moisture infiltration into the subgrade soils and resultant concrete deterioration at the joints is minimized.

In pavement cut areas traffic loads must be kept to a minimum. Once cut to grade, repeated traffic loads or heavy construction loads will cause significant destabilization of the on-site soils. This destabilization may result in the need for additional undercutting and replacement of the disturbed soils with resulting lost time and increases in construction costs.

In fill areas, similar precautions as exercised in cut areas will be required. Minimum traffic and minimum disturbance is the key to dealing with the on site soils. In most cases where the on site soils are overly wet, special treatment of the subgrade soils will probably be needed before new fill can be placed and compacted.

The pavement sections designed on the basis of actual C.B.R. data are for the post construction traffic conditions. Partial construction of the pavement section, a common practice in the industry, is likely to result in pavement and subgrade failure, due to inadequate support capability of an incomplete pavement, heavier than designed traffic loads and maneuvering of construction traffic.

5.9 UTILITY TRENCHES AND MANHOLES

The excavations for the utility trenches should be made with 1H:1V or flatter side slopes in accordance with applicable OSHA excavation standards detailed in 29 CFR, Part 1926 and should be adequately protected against sudden cave-in or sloughing by using steel trench boxes.

The backfill in the utility trenches should conform to the requirements of Howard County in addition to the recommendations for 'Site Preparation and Earthwork'. Moderately to highly plastic clays and elastic silts (LL>40 and PI>20) should not be used to backfill the trenches.

The backfill against the manhole structures should conform to the requirements stated under 'Site Preparation and Earthwork'. The fill material should not have rock fragments larger than 3 inches and each lift should be compacted as specified.

5.10 RETAINING WALLS

The type of retaining wall planned for the project has not been established at this time, but for planning purposes we anticipate a Segmental Retaining Wall (SRW) will be the most cost effective solution. For the, SRW supported on suitable natural soils of Stratum I or controlled structural fill prepared in accordance with Section 5.1 "Site Preparation And Earthwork", the design should be governed by the following parameters:

- The design lateral pressures should be based upon the following parameters:

Angle of Internal Friction (ϕ)	= 28°
Bulk Unit Weight (γ_{bulk})	= 125 pcf
Active Coefficient of Earth Pressures, K_a:	= 0.36
Passive Coefficient of Earth Pressures, K_p	= 2.80

- Surcharge loading from adjacent structures, and backslopes, if any, should be taken into account when designing the walls.
- The allowable bearing pressures for gravity retaining wall systems bearing on the firm natural soils of Stratum I of structural fill placed under controlled conditions are estimated to be on the order of 2,500 pounds per square foot.
- The footing subgrade of the wall should be embedded at least 8 inches or deeper as recommended by the wall designer and segmental unit manufacturer.
- Appropriate drainage measures should be provided behind the walls as determined by the wall designer.
- After the site grading plan has been completed a global stability analysis should be performed to determine the minimum length of geogrids for the segmental wall.
- The backfill for the retaining wall is to be composed of controlled granular soils, and benched into the natural soils behind the wall.
- Fill placed behind the retaining walls should be compacted to at least ninety five percent (95%) of the maximum dry density as per ASTM D698 test method. The moisture content of the subgrade soils should be within plus or minus two (±2) percentage points of the optimum moisture content.

Heavy compaction and construction equipment should not operate closer than 5 feet to the walls, so as not to impose additional pressure on the walls and reduce the potential for causing damage to the walls. Small vibratory rollers, such as hand held tampers or walk-behind rollers should be used to compact the fill in the vicinity to the walls.

IDEAL TIMES OF SEEDING FOR TURF GRASS MIXTURES:
WESTERN MD: MARCH 15 TO JUNE 1, AUGUST 1 TO OCTOBER 1 (HARDINESS ZONES: 5b, 6a)
CENTRAL MD: MARCH 1 TO MAY 15, AUGUST 15 TO OCTOBER 15 (HARDINESS ZONES: 6b)
SOUTHERN MD: MARCH 1 TO MAY 15, AUGUST 15 TO OCTOBER 15 (HARDINESS ZONES: 7a, 7b)

Table B.1: Temporary Seeding for Site Stabilization

Plant Species	Seeding Rate 1/ lb/ac	Seeding Rate 1/ lb/1000 ft²	Seeding Depth 2/ (inches)	Recommended Seeding Dates by Plant Hardiness Zone 3/ 5b and 6a	6b	7a and 7b
Cool-Season Grasses						
Annual Ryegrass (*Lolium perenne ssp. multiflorum*)	40	1.0	0.5	Mar 15 to May 31; Aug 1 to Sep 30	Mar 1 to May 15; Aug 1 to Oct 15	Feb 15 to Apr 30; Aug 15 to Nov 30
Barley (*Hordeum vulgare*)	96	2.2	1.0	Mar 15 to May 31; Aug 1 to Sep 30	Mar 1 to May 15; Aug 1 to Oct 15	Feb 15 to Apr 30; Aug 15 to Nov 30
Oats (*Avena sativa*)	72	1.7	1.0	Mar 15 to May 31; Aug 1 to Sep 30	Mar 1 to May 15; Aug 1 to Oct 15	Feb 15 to Apr 30; Aug 15 to Nov 30
Wheat (*Triticum aestivum*)	120	2.8	1.0	Mar 15 to May 31; Aug 1 to Sep 30	Mar 1 to May 15; Aug 1 to Oct 15	Feb 15 to Apr 30; Aug 15 to Nov 30
Cereal Rye (*Secale cereale*)	112	2.8	1.0	Mar 15 to May 31; Aug 1 to Oct 31	Mar 1 to May 15; Aug 1 to Nov 15	Feb 15 to Apr 30; Aug 15 to Dec 15
Warm-Season Grasses						
Foxtail Millet (*Setaria italica*)	30	0.7	0.5	Jun 1 to Jul 31	May 16 to Jul 31	May 1 to Aug 14
Pearl Millet (*Pennisetum glaucum*)	20	0.5	0.5	Jun 1 to Jul 31	May 16 to Jul 31	May 1 to Aug 14

NOTES:
1/ Seeding rates for the warm-season grasses are in pounds of Pure Live Seed (PLS). Actual planting rates shall be adjusted to reflect percent seed germination and purity, as tested. Adjustments are usually not needed for the cool-season grasses.
Seeding rates listed above are for temporary seedings, when planted alone. When planted as a nurse crop with permanent seed mixes, use 1/3 of the seeding rate listed above for barley, oats, and wheat. For smaller-seeded grasses (annual ryegrass, pearl millet, foxtail millet), do not exceed more than 5% (by weight) of the overall permanent seeding mix. Cereal rye generally should not be used as a nurse crop, unless planting will occur in very late fall beyond the seeding dates for other temporary seedings. Cereal rye has allelopathic properties that inhibit the germination and growth of other plants. If it must be used as a nurse crop, seed at 1/3 of the rate listed above.
Oats are the recommended nurse crop for warm-season grasses.
2/ For sandy soils, plant seeds at twice the depth listed above.
3/ The planting dates listed are averages for each Zone and may require adjustment to reflect local conditions, especially near the boundaries of the zone.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[signature] CHIEF, DEVELOPMENT ENGINEERING DIVISION	4/1/10 DATE
[signature] CHIEF, DIVISION OF LAND DEVELOPMENT	5/05/10 DATE
[signature] DIRECTOR	5/5/10 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."

[signature] SIGNATURE OF DEVELOPER — 3/17/10 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] SIGNATURE OF ENGINEER — 3/19/10 DATE

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

[signature] HOWARD S.C.D. — 3/30/10 DATE

OWNER/DEVELOPER
HOPKINS HOSPITALITY INVESTORS, LLC
C/O STAR HOTELS
7226 LEE DEFORET DR., SUITE 200
COLUMBIA, MD 21046
(301) 596-5400

NO.	REVISION	DATE
1	REVISE THE PLAN TO MODIFY THE PROPOSED STORM DRAIN SYSTEM IN ORDER TO ACCOMMODATE THE MOST CURRENT DRAINAGE FOR THE ARCHITECTURAL PLANS	12-10-13

SITE DEVELOPMENT PLAN

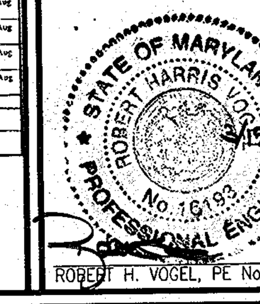
SEDIMENT & EROSION CONTROL NOTES & DETAILS

HOMEWOOD SUITES

PARCEL 'D-5'
HOTEL AND RESTAURANT
CERTIFIED LEVEL RATED GREEN BUILDING
PLAT 20795 (L.6053/F.487)

TAX MAP 41 BLOCK 17 — 5th ELECTION DISTRICT — PARCEL 124, D-5 — 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



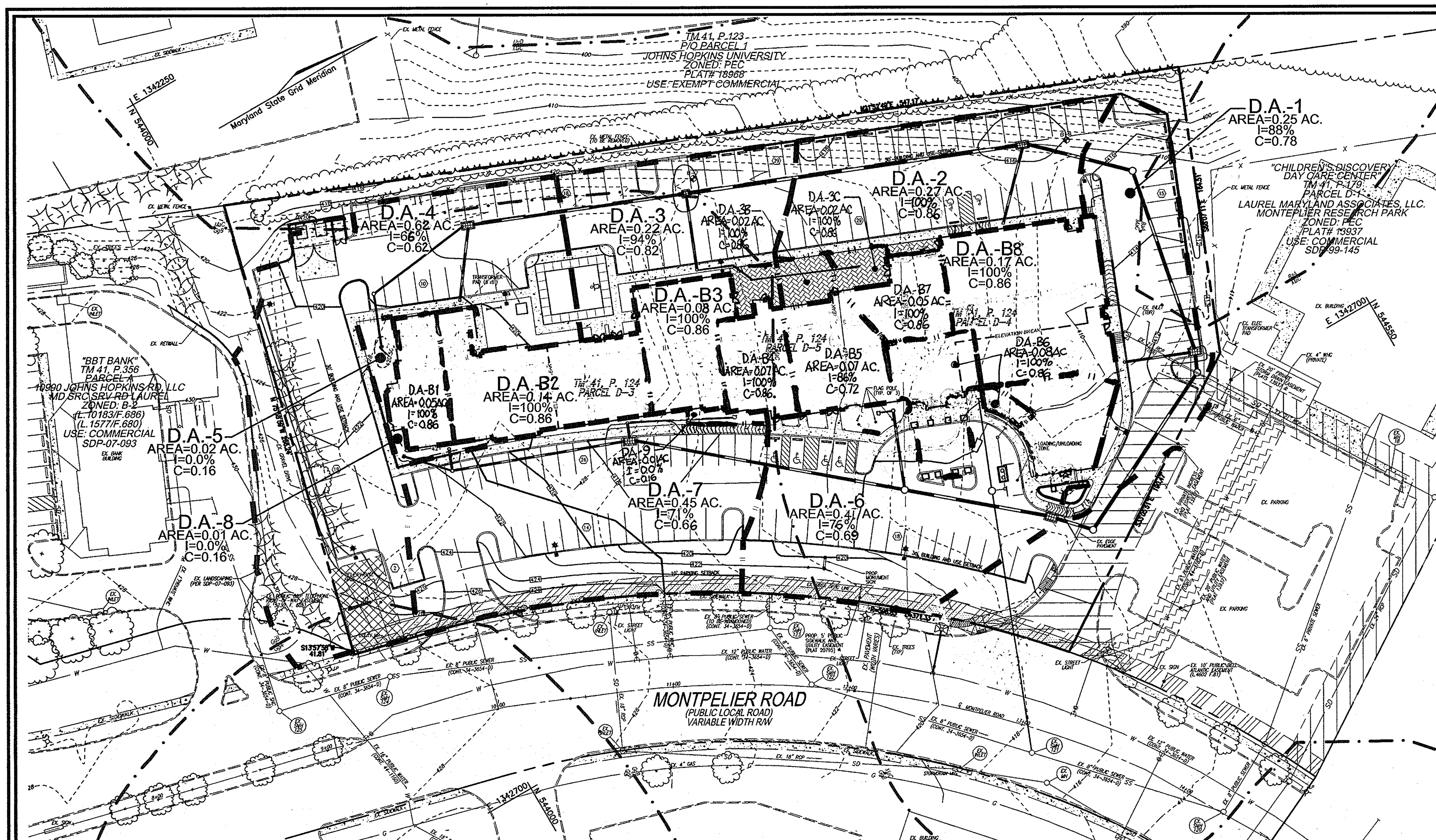
ROBERT H. VOGEL, PE No.16193

DESIGN BY:	RHV
DRAWN BY:	DZ
CHECKED BY:	RHV
DATE:	JANUARY 2010
SCALE:	AS SHOWN
W.O. NO.:	04-120

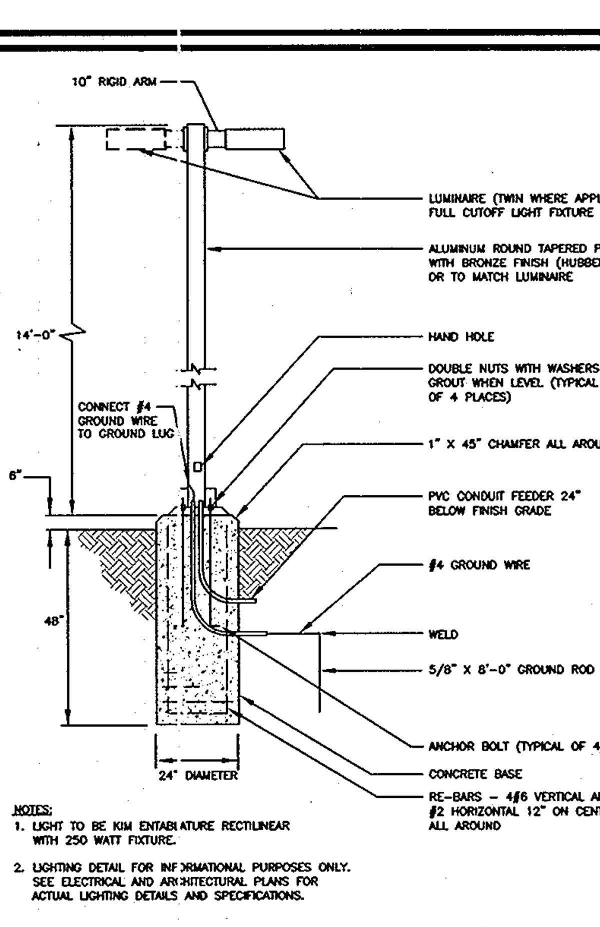
PROFESSIONAL CERTIFICATE

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. 16193 EXPIRATION DATE: 09-27-2010

SDP-09-055

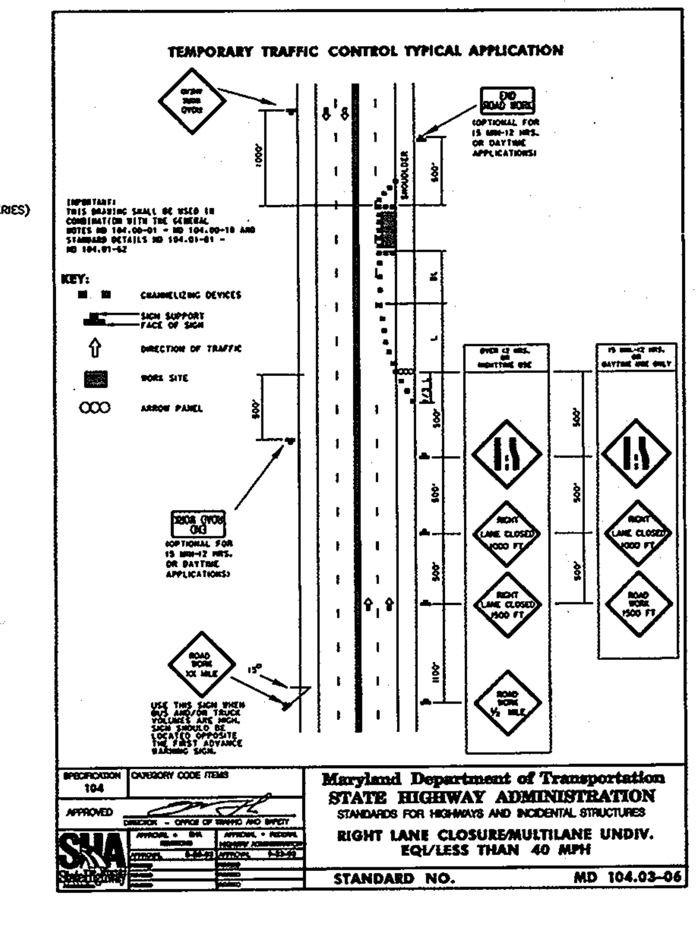


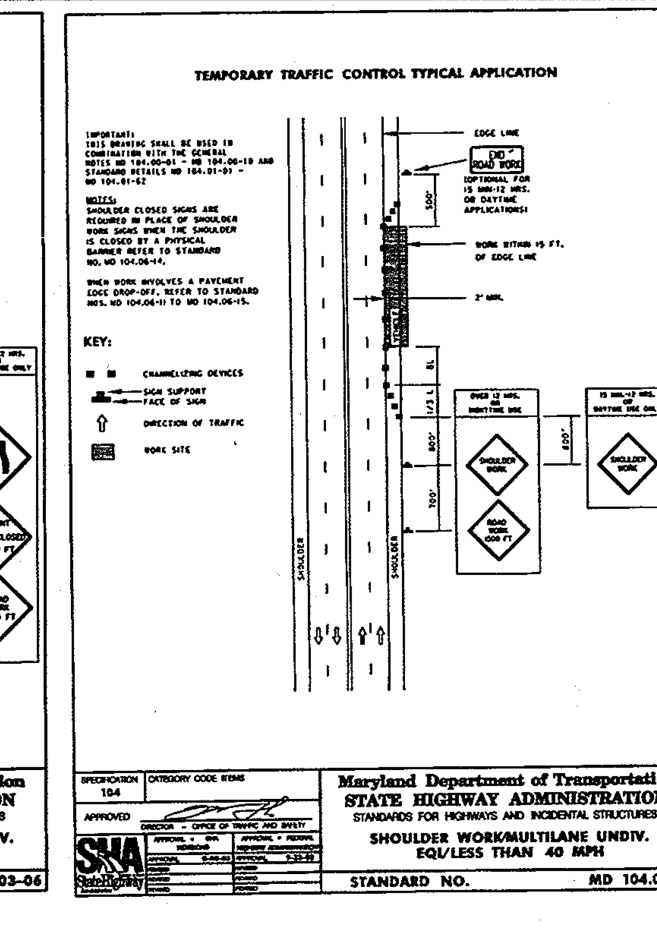
STORM DRAIN DRAINAGE AREA MAP
SCALE: 1"=40'

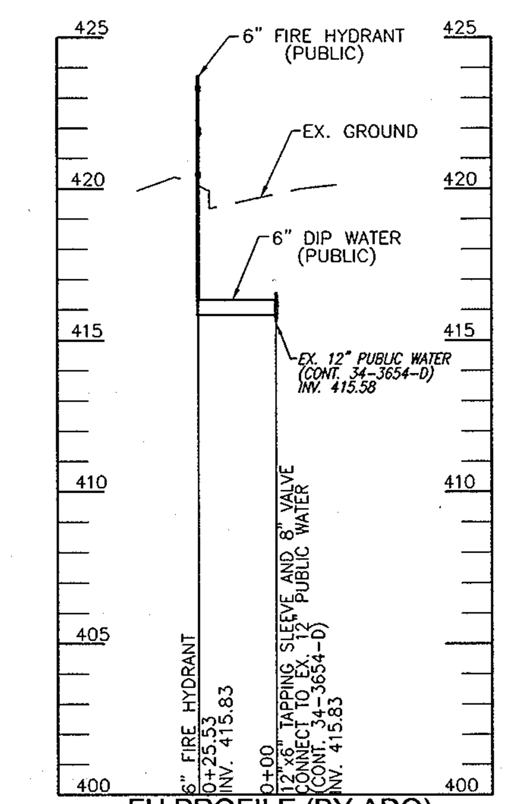


NOTES:
1. LIGHT TO BE KIM ENTABLATURE RECTILINEAR WITH 250 WATT FIXTURE.
2. LIGHTING DETAIL FOR INFORMATIONAL PURPOSES ONLY. SEE ELECTRICAL AND ARCHITECTURAL PLANS FOR ACTUAL LIGHTING DETAILS AND SPECIFICATIONS.

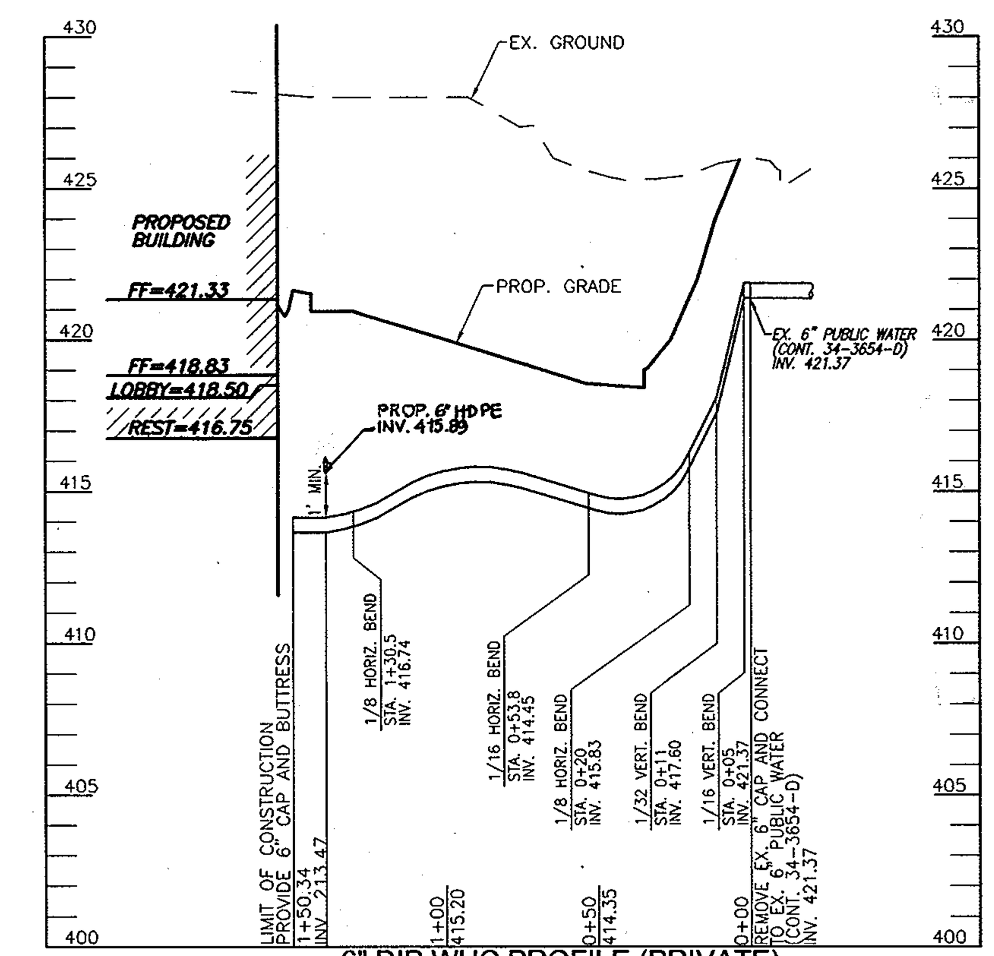
POLE BASE DETAIL
(NOT TO SCALE)



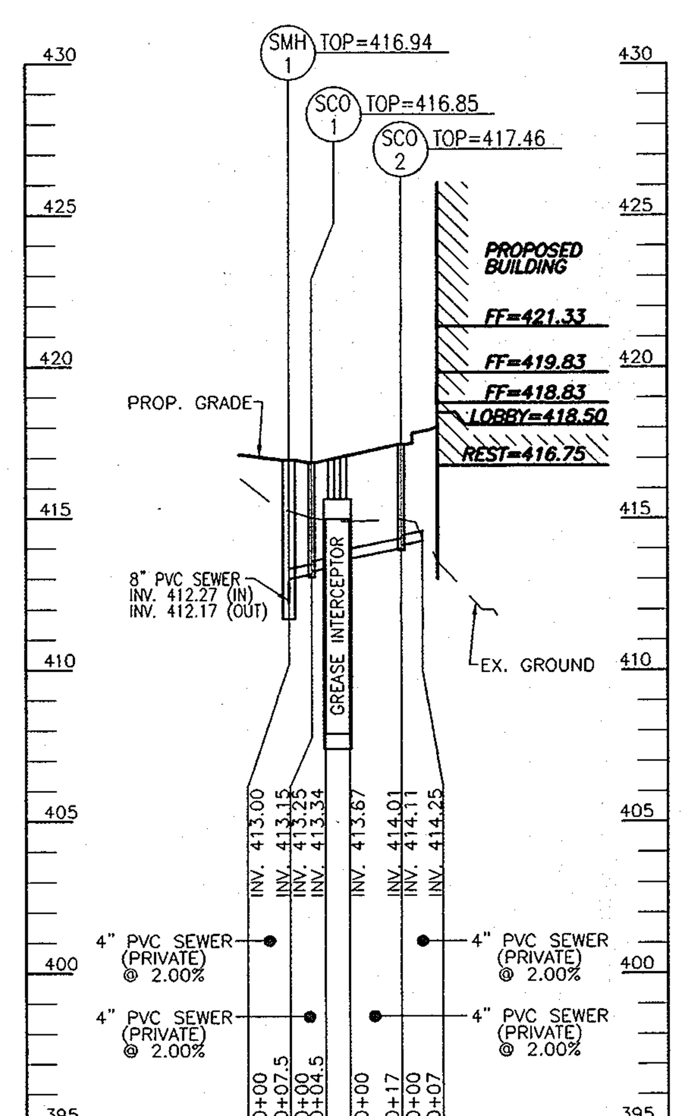




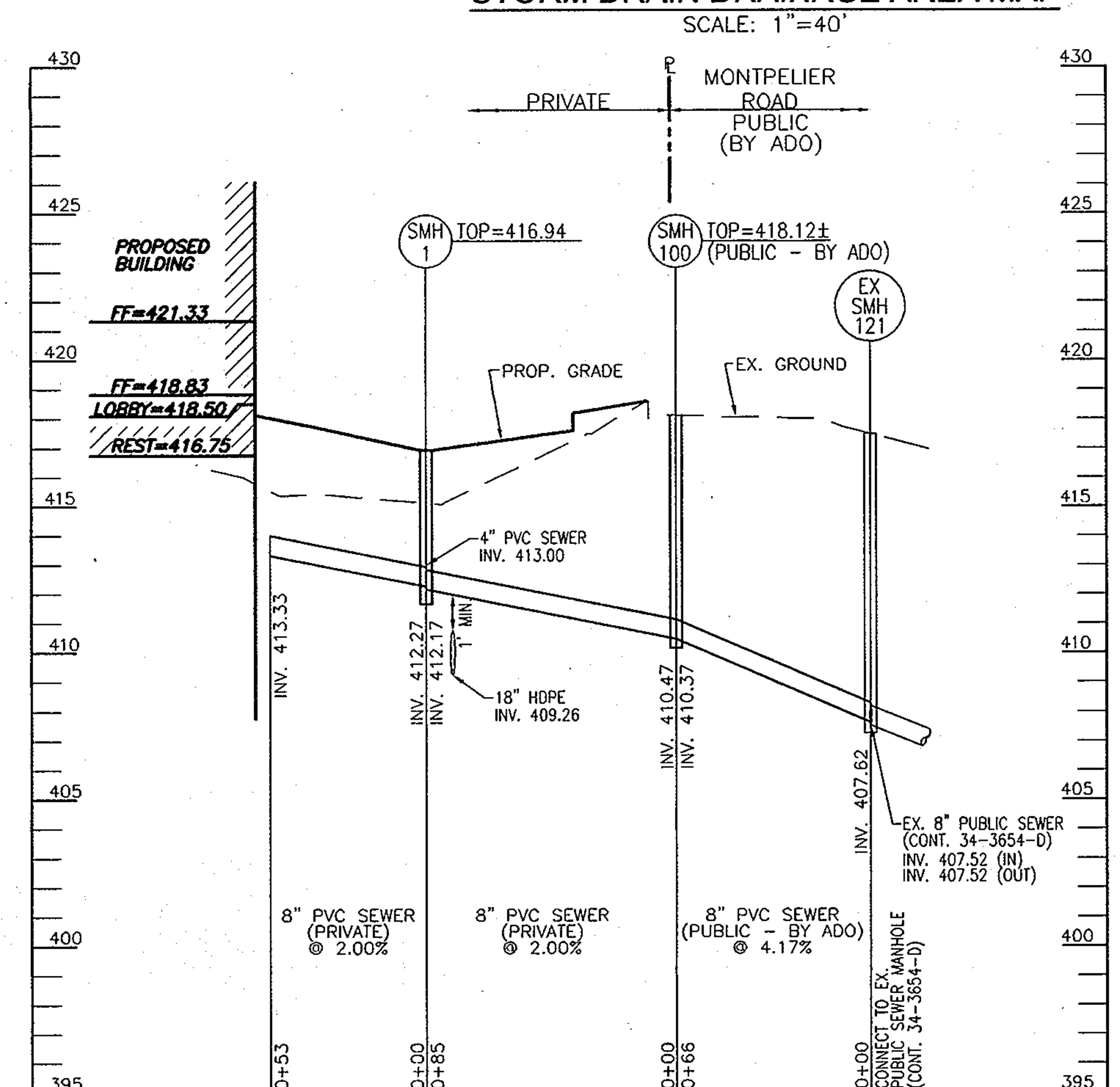
FH PROFILE (BY ADO)
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



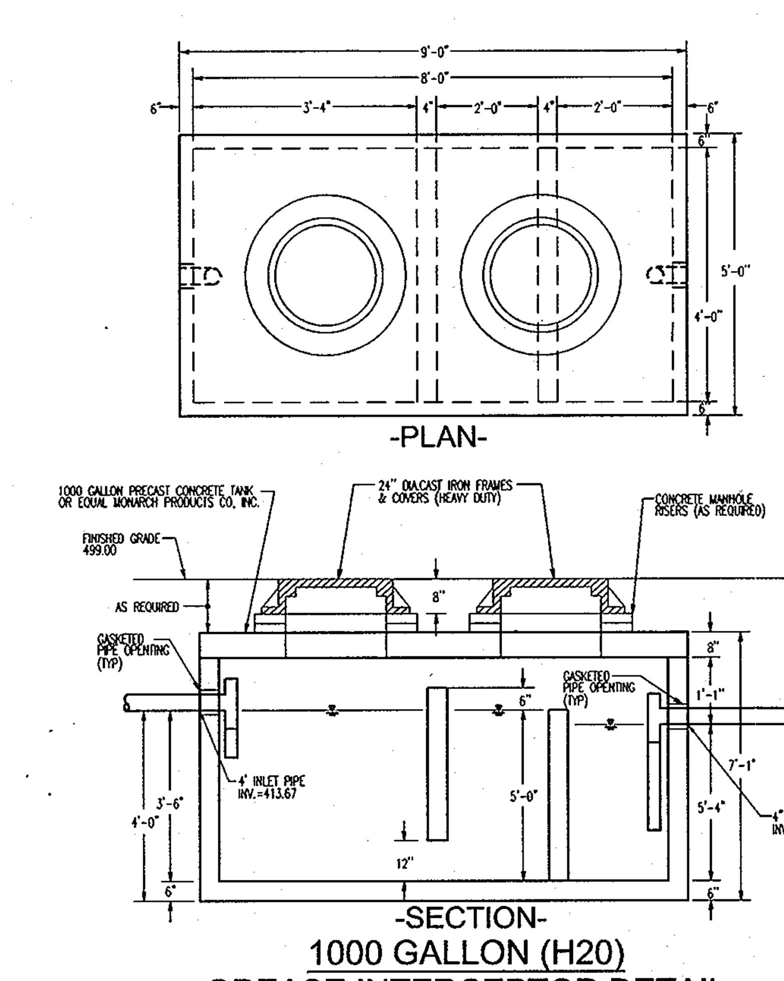
6" DIP WHC PROFILE (PRIVATE)
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



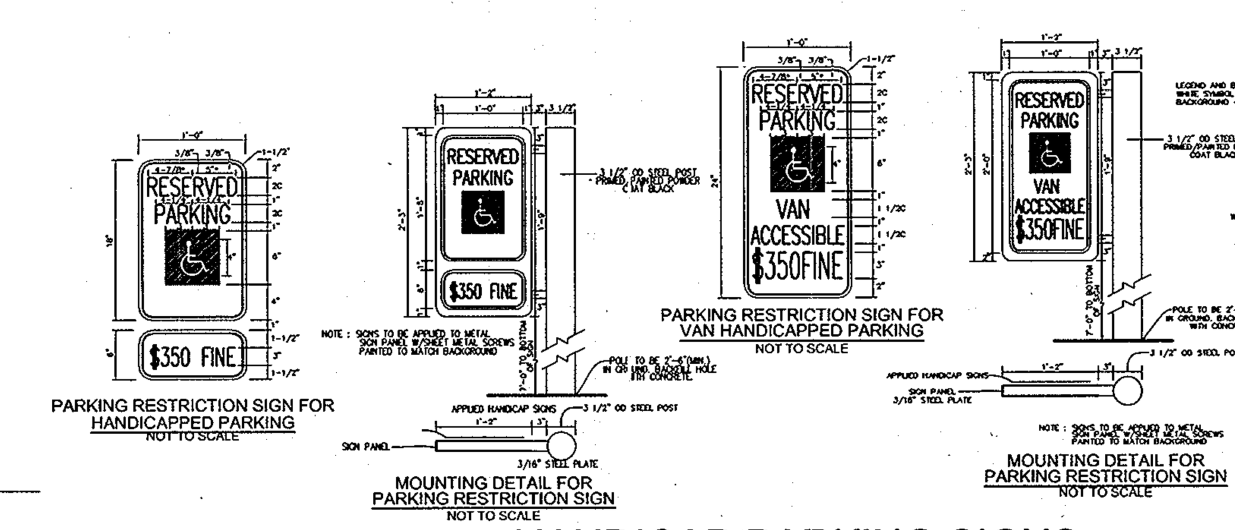
SEWER PROFILE
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



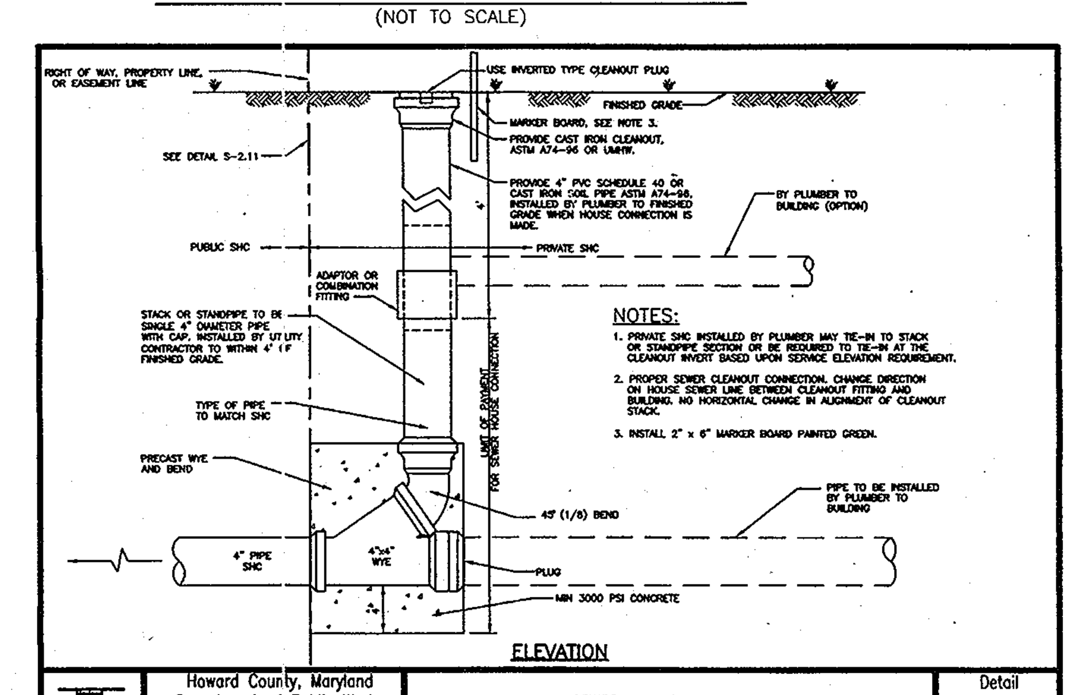
SEWER PROFILE
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



1000 GALLON (H20)
GREASE INTERCEPTOR DETAIL
NOT TO SCALE



HANDICAP PARKING SIGNS
(NOT TO SCALE)



NOTES:
1. PRIVATE SHC INSTALLED BY PLUMBER MAY TIE-IN TO STACK OR STANDPIPE SECTION OR BE REQUIRED TO TIE-IN AT THE CLEANOUT INVERT BASED UPON SERVICE ELEVATION REQUIREMENT.
2. PROPER SEWER CLEANOUT CONNECTION. CHANGE DIRECTION ON HOUSE SEWER LINE BETWEEN CLEANOUT FITTING AND BUILDING. NO HORIZONTAL CHANGE IN ALIGNMENT OF CLEANOUT STACK.
3. INSTALL 2" x 6" MARKER BOARD PAINTED GREEN.

Howard County, Maryland Department of Public Works	SEWER HOUSE CONNECTION Cleanout	Detail S-2.22

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[signature] 4/1/10
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

[signature] 5/05/10
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

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SITE DEVELOPMENT PLAN

STORM DRAIN DRAINAGE AREA MAP & UTILITY PROFILES

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

DESIGN BY: RHV
DRAWN BY: DZ
CHECKED BY: RHV
DATE: JANUARY 2010
SCALE: AS SHOWN
W.O. NO.: 04-120

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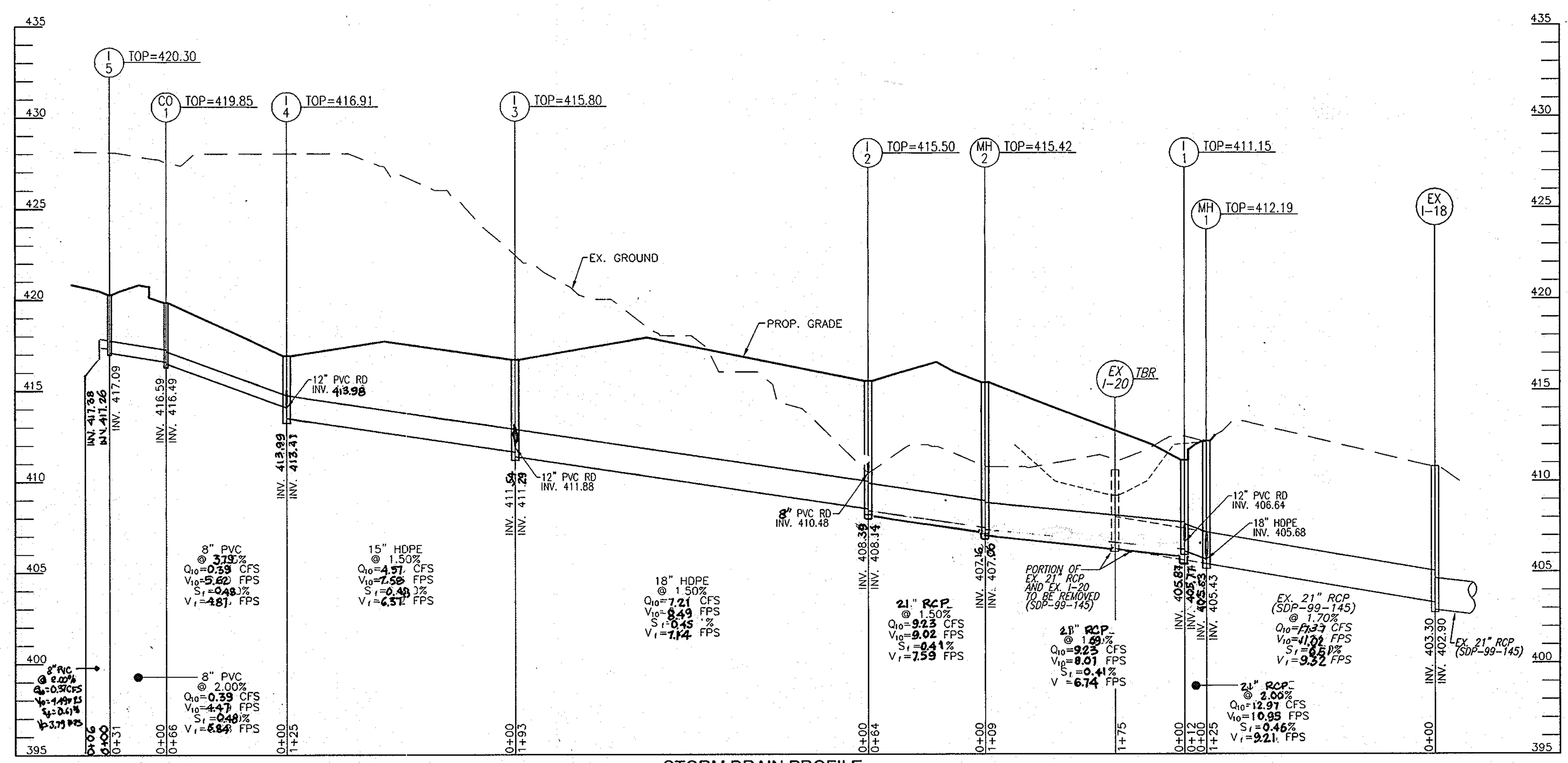
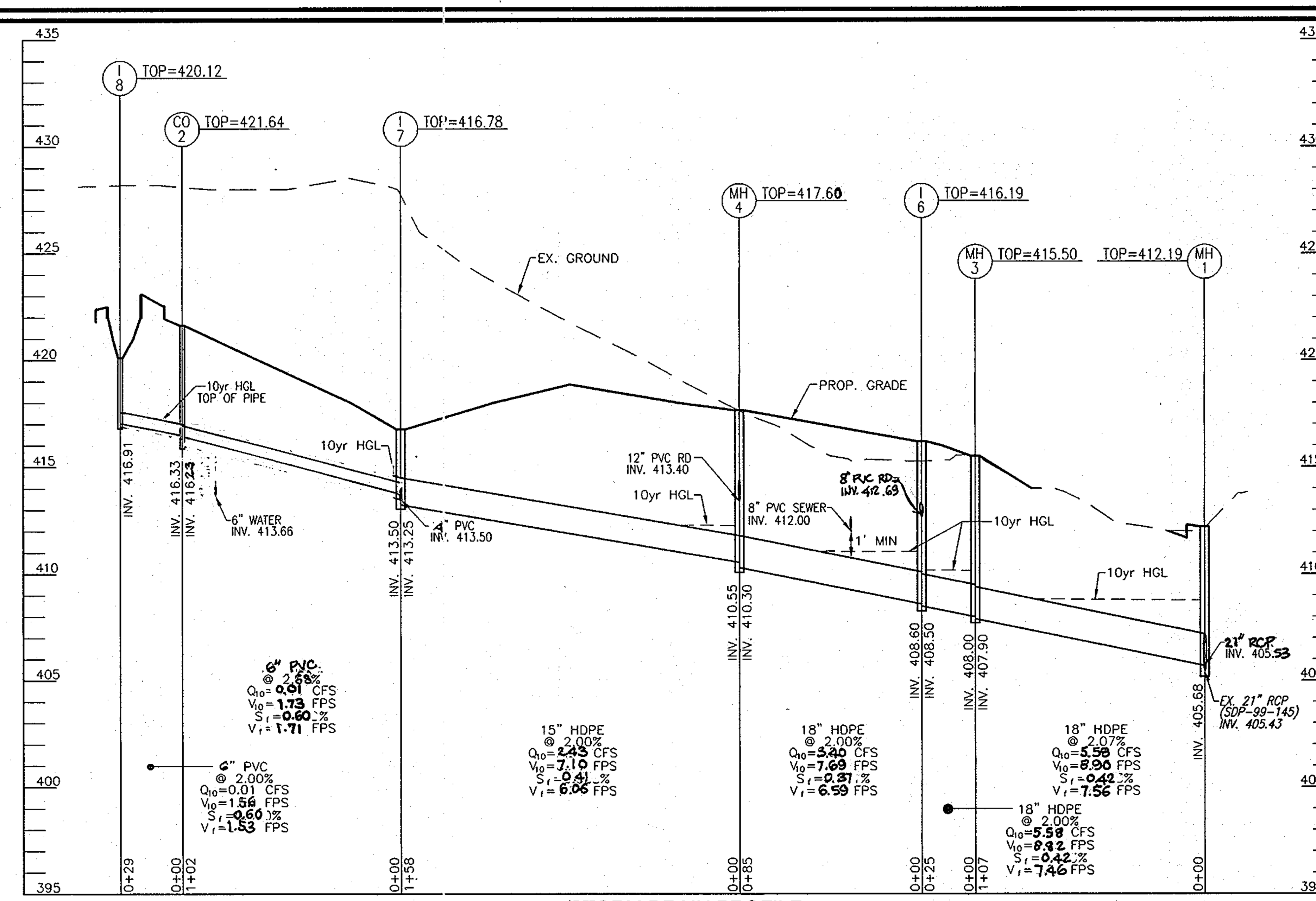


STORM DRAIN PROFILE
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



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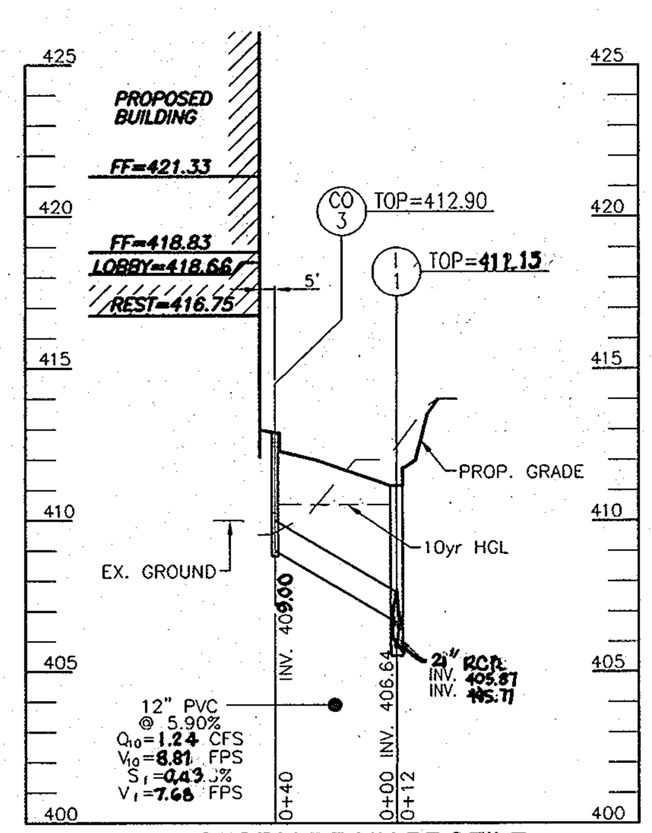

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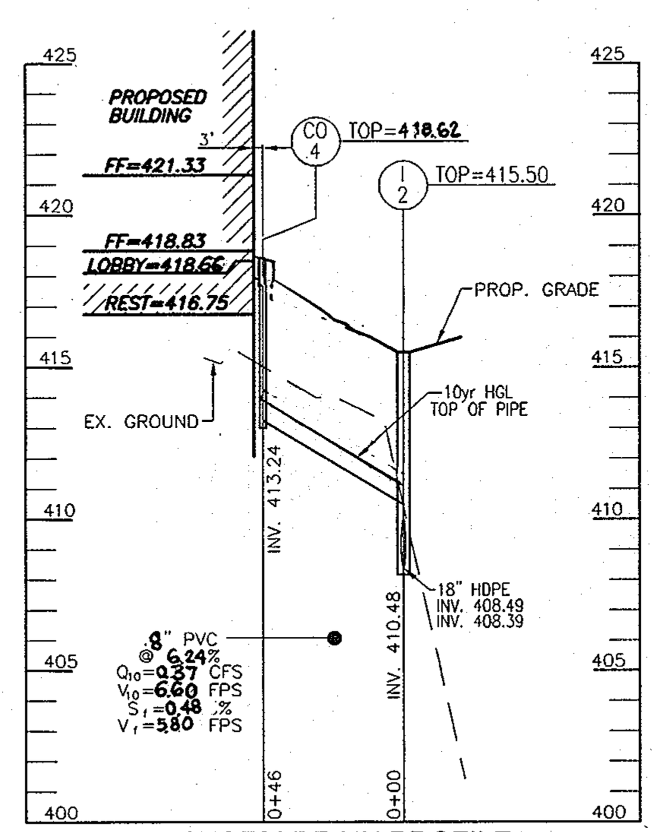

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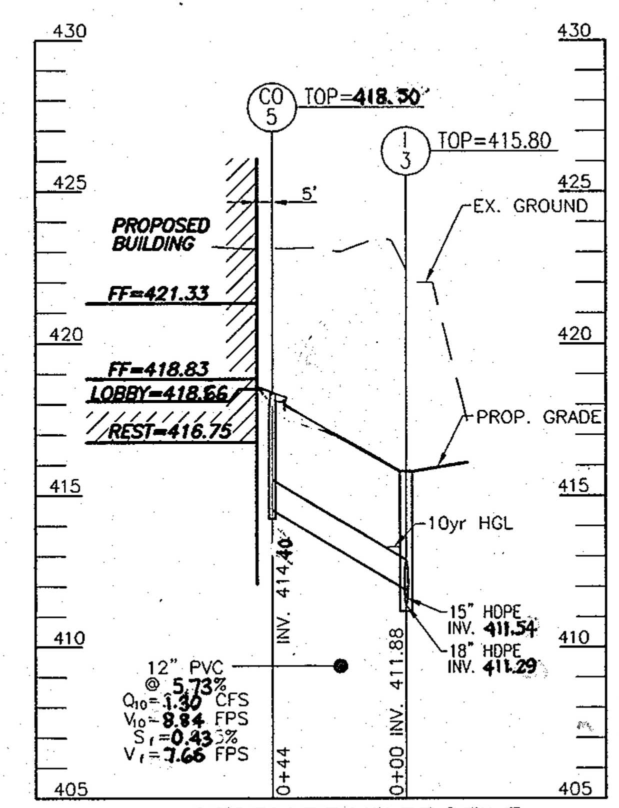

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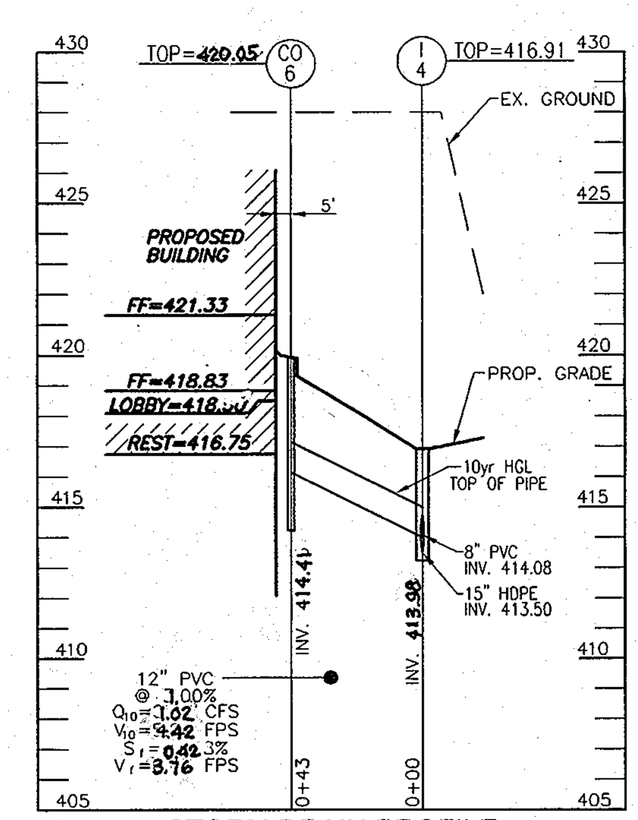

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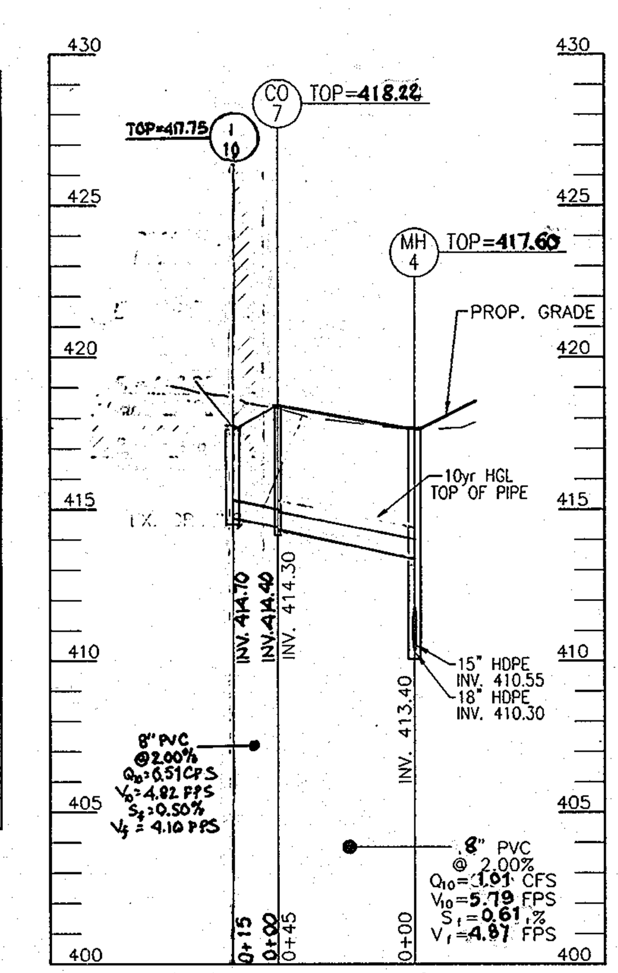

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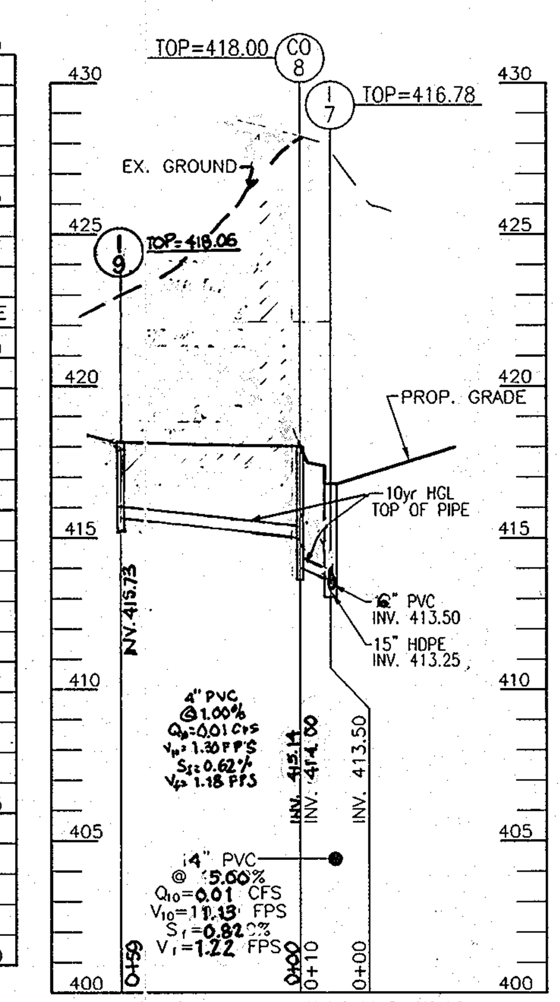

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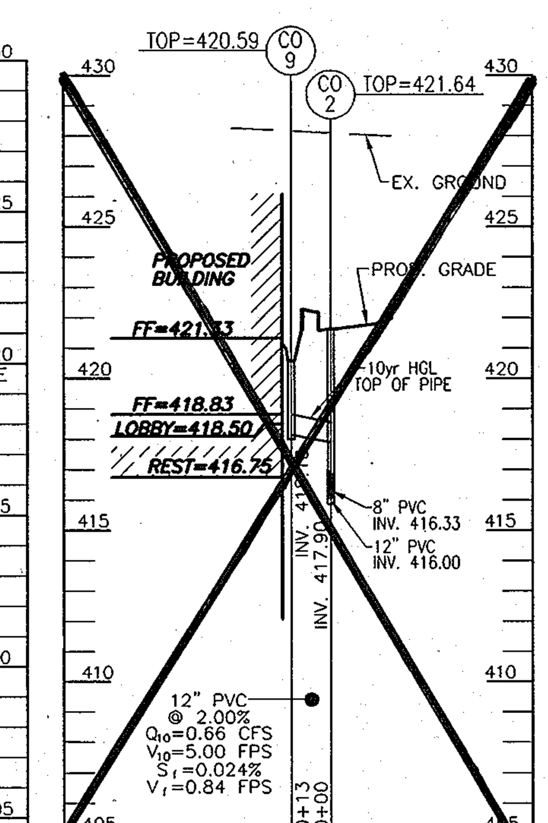

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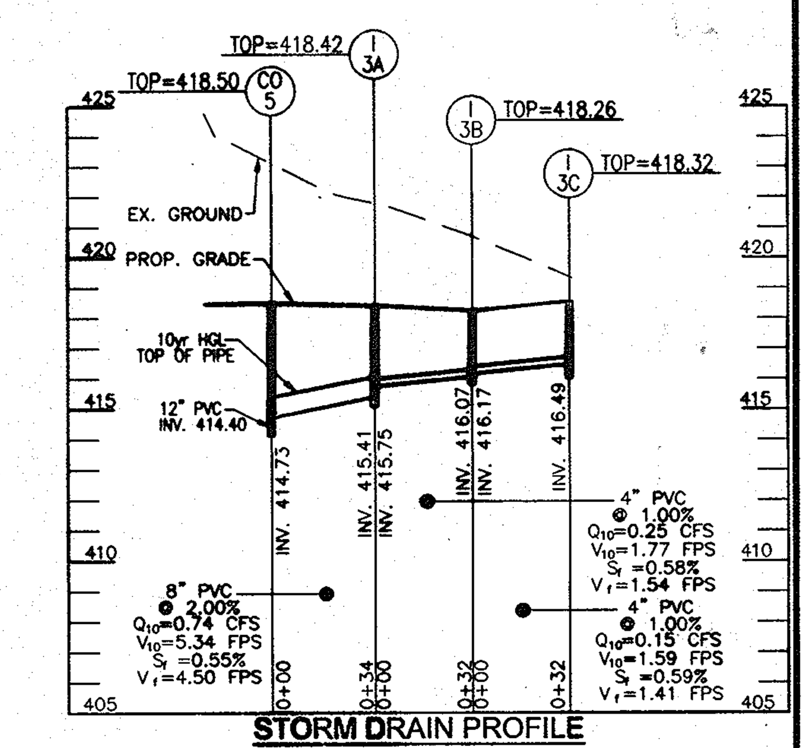


STORM DRAIN PROFILE
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'

OWNER/DEVELOPER

HOPKINS HOSPITALITY INVESTORS, LLC
C/O STAR HOTELS
7226 LEE DEFORET DR., SUITE 200
COLUMBIA, MD 21046
(301) 596-5400

STRUCTURE SCHEDULE

NO.	TYPE	LOCATION	TOP ELEV.	INV. IN	INV. OUT	COMMENTS
I-1	DOUBLE TYPE 'S' COMB. INLET (PARALLEL)	N 544450.3 E 1342674.2	411.15	12"-406.64 21"-405.87	21"-405.77	HO. CO. STD. D-4.34
I-2	DOUBLE TYPE 'S' INLET	N 544424.7 E 1342523.1	415.50	8"-410.48 18"-408.39	21"-408.14	HO. CO. STD. D-4.23
I-3	TYPE 'S' INLET	N 544245.8 E 1342451.3	415.80	12"-411.88 15"-411.54	18" 411.28	HO. CO. STD. D-4.22
I-4	DOUBLE TYPE 'S' INLET	N 544129.9 E 1342404.7	416.91	8"-413.99 12"-413.98	15" 413.41	HO. CO. STD. D-4.23
I-5	ACO S-600 CATCH BASIN	N 544052.8 E 1342440.0	420.30	4" 417.26	8" 417.09	ACO S-600 CATCH BASIN
I-6	DOUBLE TYPE 'S' COMB. INLET (PARALLEL)	N 544332.8 E 1342714.5	416.19	18" 408.60	18" 408.50	HO. CO. STD. D-4.34
I-7	DOUBLE TYPE 'S' COMB. INLET (PARALLEL)	N 544147.6 E 1342557.1	416.78	4" 413.50 6" 413.50	15" 413.25	HO. CO. STD. D-4.34
I-8	ACO S-600 CATCH BASIN	N 544032.5 E 1342500.4	420.12	–	6" 416.91	ACO S-600 CATCH BASIN
MH-1	STANDARD 4' PRECAST MANHOLE	N 544445.5 E 1342685.0	412.19	18" 405.68 21" 405.53	EX. 21" 405.43	HO. CO. STD. G-5.12
MH-2	STANDARD 4' PRECAST MANHOLE	N 544471.4 E 1342567.3	415.42	21" 407.16	21" 407.06	HO. CO. STD. G-5.12
MH-3	STANDARD 4' PRECAST MANHOLE	N 544349.7 E 1342732.6	415.50	18" 408.00	18" 407.90	HO. CO. STD. G-5.12
MH-4	STANDARD 4' PRECAST MANHOLE	N 544268.6 E 1342659.4	417.60	12" 413.40 15" 410.55	18" 410.30	HO. CO. STD. G-5.12
CO-1	CLEANOUT	N 544064.2 E 1342411.6	419.85	8" 416.59	8" 416.49	HO. CO. STD. S-2.21
CO-2	CLEANOUT	N 544052.1 E 1342521.2	421.76	6" 416.33	6" 416.23	HO. CO. STD. S-2.21
CO-3	CLEANOUT	N 544412.9 E 1342659.2	412.90	–	12" 409.66	HO. CO. STD. S-2.21
CO-4	CLEANOUT	N 544393.2 E 1342556.1	416.62	–	12" 413.24	HO. CO. STD. S-2.21
CO-5	CLEANOUT	N 544229.5 E 1342491.8	418.59	8"-414.73	12"-414.40	HO. CO. STD. S-2.21
CO-6	CLEANOUT	N 544104.6 E 1342439.4	420.05	–	12"-414.41	HO. CO. STD. S-2.21
CO-7	CLEANOUT	N 544285.1 E 1342618.0	418.22	8"-414.40	8" [illegible]	HO. CO. STD. S-2.21
CO-8	CLEANOUT	N 544152.2 E 1342548.0	418.00	4"-415.14	4"-414.00	HO. CO. STD. S-2.21
[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]

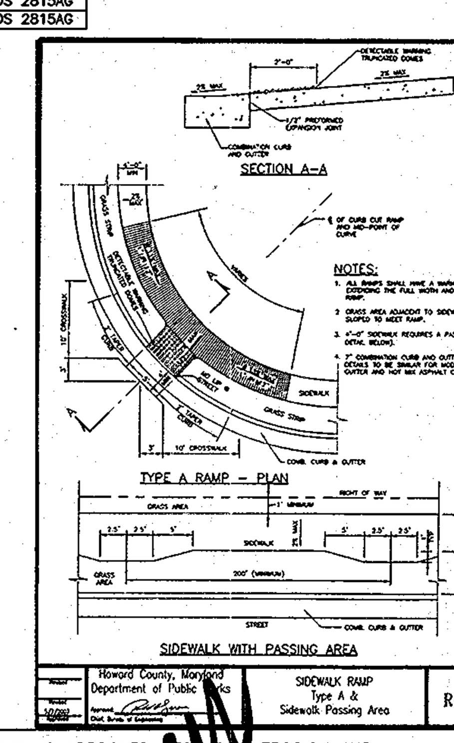
NOTE : 1. TOP ELEVATIONS ARE AT CENTER TOP OF HEADPIECE FOR TYPE 'A-10', CENTER TOP OF GRATE FOR ACO CATCH BASIN AND TYPE 'S' INLETS, AND TOP OF MANHOLE COVER FOR PRECAST MANHOLES.
2. FOR TOP SLAB SLOPES SEE GRADING PLAN.
3. SEE ARCHITECTURAL PLANS FOR DOWNSPOUT AND ROOF DRAIN DETAILS.
4. ALL CUSTOM AND NON-STANDARD STRUCTURES TO BE DESIGNED BY A QUALIFIED STRUCTURAL ENGINEER.

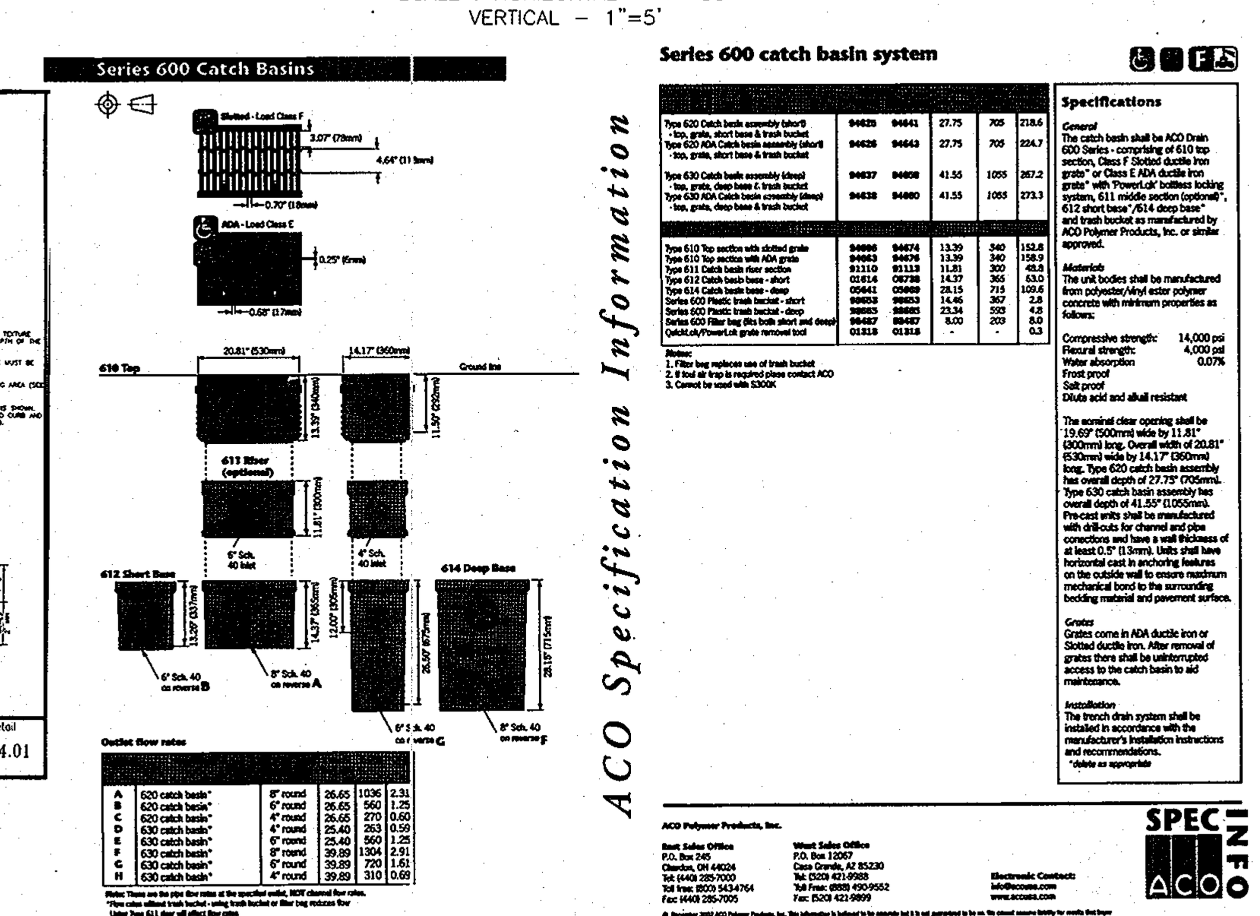
STRUCTURE SCHEDULE (CONTINUED...)

NO.	TYPE	LOCATION	TOP ELEV.	INV. IN	INV. OUT	COMMENTS
I-3A	ADS NYLOPLAST 15" DRAIN BASIN (W/ PED. GRATE)	N 544252.2 E 1342512.4	418.42	4" 415.75	8" 415.41	ADS 2815AG
I-3B	ADS NYLOPLAST 15" DRAIN BASIN (W/ PED. GRATE)	N 544280.3 E 1342524.6	418.26	4" 416.17	4" 416.07	ADS 2815AG
I-3C	ADS NYLOPLAST 15" DRAIN BASIN (W/ PED. GRATE)	N 544310.7 E 1342536.8	418.32	–	4" 416.49	ADS 2815AG
I-9	ADS NYLOPLAST 15" DRAIN BASIN (W/ PED. GRATE)	N 544204.8 E 1342575.1	418.06	–	4' 415.73	ADS 2815AG
I-10	ADS NYLOPLAST 15" DRAIN BASIN (W/ PED. GRATE)	N 544276.8 E 1342614.7	417.75	–	8" 414.93	ADS 2815AG

PIPE SCHEDULE

SIZE	TYPE	LENGTH
12"	HDPE	102 LF
15"	HDPE	283 LF
18"	HDPE	595 LF
8"	PVC (SCH. 40)	126 LF
12"	PVC (SCH. 40)	251 LF





APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/6/10

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/05/10

DIRECTOR — DATE 5/5/10

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SIGNATURE OF ENGINEER — DATE 3/19/10

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HOWARD S.C.D. — DATE

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SITE DEVELOPMENT PLAN

UTILITY PROFILES

HOMEWOOD SUITES

PARCEL 'D-5'
HOTEL AND RESTAURANT
CERTIFIED LEVEL RATED GREEN BUILDING
PLAT 20795 (L.6053/F.487)

TAX MAP 41 BLOCK 17 — PARCEL 124, D-5
5th ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

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

ROBERT H. VOGEL, PE No.16193

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DRAWN BY: DZ
CHECKED BY: RHV
DATE: JANUARY 2010
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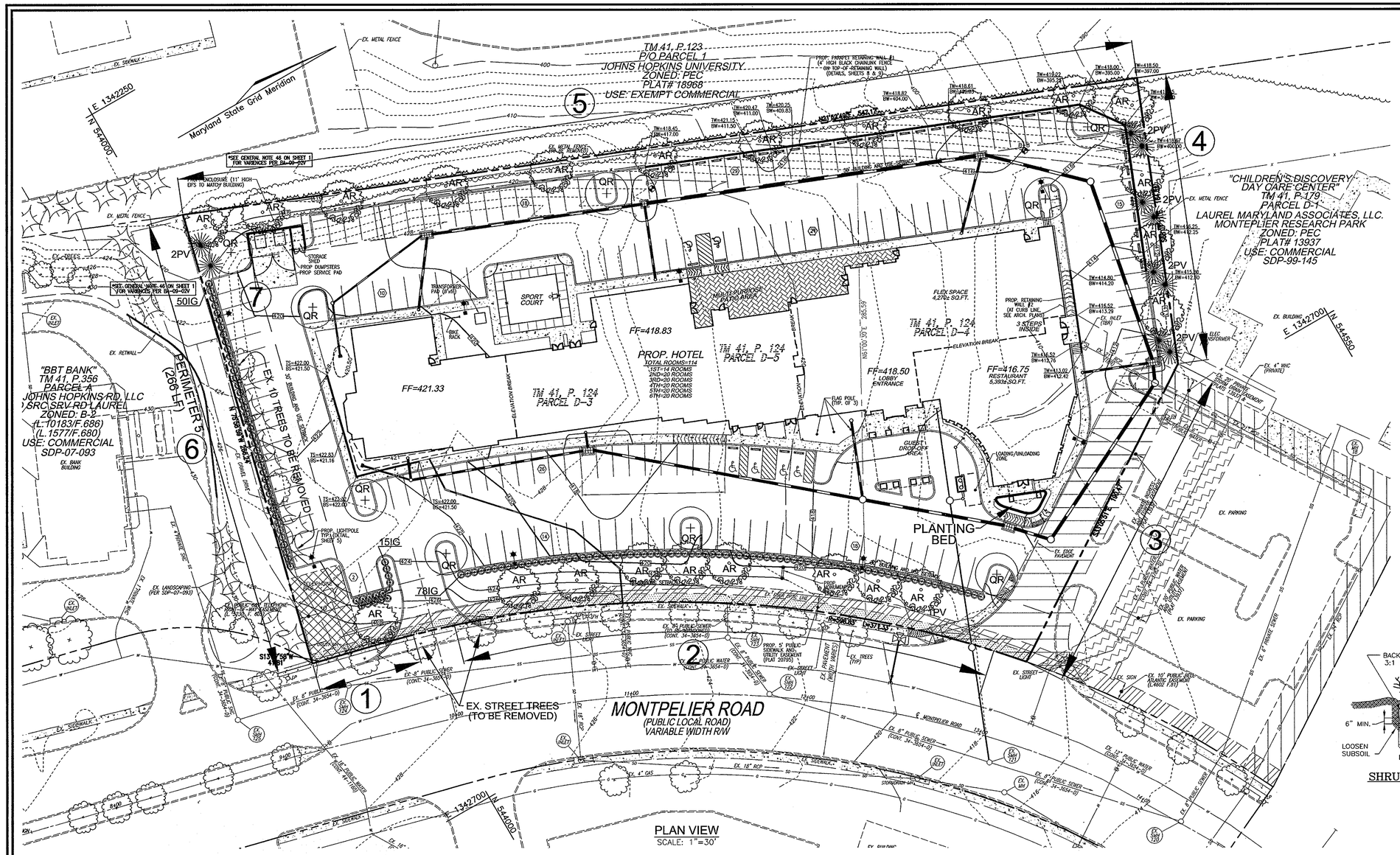
PROFESSIONAL CERTIFICATE

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. 16193 EXPIRATION DATE: 09-27-2010

SDP-09-055



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 FENCE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- ADJACENT PROPERTY LINE
- PROPOSED SIDEWALK
- PROP. LIGHT POLE
- PROP. WALL MOUNTED ACORN SHAPE (PS775) 75W LIGHT (TYP.)
- PROPOSE TREELINE
- EX. PUBLIC C&P TELEPHONE RIGHT-OF-WAY EASEMENT (L.5230/F. 655)
- EX. PRIVATE INGRESS AND EGRESS EASEMENT (PLAT 13937)
- EX. 20' PRIVATE STORM DRAIN EASEMENT (PLAT 13937)
- EX. 20' PUBLIC WATER AND UTILITY EASEMENT (PLAT 13937)
- PROP. 5' PUBLIC SIDEWALK AND STREET LIGHT EASEMENT
- M1B2 / M1D3 SOILS BOUNDARY
- QP / AR PROPOSED SHADE TREE
- PROPOSED EVERGREEN TREE
- 16 PROPOSED SHRUBS
- 2 LANDSCAPE PERIMETER

BACKFILL WITH TOPSOIL AND PEAT MOSS, 3:1 RATIO. BACKFILL IN 6" LIFTS
3" MULCH
6" MIN.
LOOSEN SUBSOIL
EQUAL TO TWICE BALL DIA.
6" FOR PLANTS UP TO 4' HEIGHT MIN. 8" FOR PLANTS OVER 4' HEIGHT MIN.

SHRUB PLANTING DETAIL
NOT TO SCALE

OWNER/DEVELOPER
HOPKINS HOSPITALITY INVESTORS, LLC
C/O STAR HOTELS
7226 LEE DEFORET DR., SUITE 200
COLUMBIA, MD 21046
(301) 596-5400

NO.	REVISION	DATE

SCHEDULE A
PERIMETER LANDSCAPE EDGE

CATEGORY	ADJACENT TO ROADWAYS, PERIMETER PROPERTIES AND DUMPSTER						
PERIMETER/FRONTAGE DESIGNATION	1	2	3**	4**	5	6***	7 (DUMPSTER)
LANDSCAPE TYPE	E	E	N/A	N/A	A	A	C
LINEAR FEET OF ROADWAY FRONTAGE/PERIMETER	59'	310'	190'	165'	547'	266'	32'
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET DESCRIBE BELOW IF NEEDED)	NO	NO	NO	NO	NO	NO	NO
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 1	1:40 8	-	-	1:60 9	1:60 5	1:40 1
EVERGREEN TREES	-	-	-	-	-	-	1:20 2
SHRUBS	1:4 15	1:4 78	-	-	-	-	-
NUMBER OF PLANTS PROVIDED				(C)			
SHADE TREES	1	8	-	4	9	0***	1
EVERGREEN TREES	-	-	-	8	-	-	2
OTHER TREES (2:1 SUBSTITUTION)	-	-	✓	-	-	-	-
SHRUBS (10:1 SUBSTITUTION) DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED)	15	78	-	-	-	50***	-

TOTAL
24
2
93
23
10
-
143

** THIS PERIMETER IS AN INTERNAL LOT LINE WITHIN A SUBDIVISION. SCREENING BETWEEN PARCELS IS NOT REQUIRED BY HOWARD COUNTY.
*** SUBSTITUTE 50 SHRUBS FOR 5 SHADE TREES IN PERIMETER 6.

SCHEDULE B
PARKING LOT INTERNAL LANDSCAPING

NUMBER OF PARKING SPACES	180
NUMBER OF TREES REQUIRED	9
NUMBER OF TREES PROVIDED SHADE TREES OTHER TREES (2:1 SUBSTITUTION)	9 -

LANDSCAPE SCHEDULE

KEY	QUAN.	BOTANICAL NAME	SIZE	CAT
AR	23	ACER RUBRUM OCTOBER GLORY/ RED MAPLE	2 1/2"-3" CAL.	B & B
QR	9	QUERCUS PHELLOS WILLOW OAK	2 1/2"-3" CAL.	B & B
PV	10	PINUS VIRGINIANA VIRGINIA PINE	6'-8' HT.	B & B
IG	143	ILEX GLABRA INKBERRY	3'-4' HT.	B & B

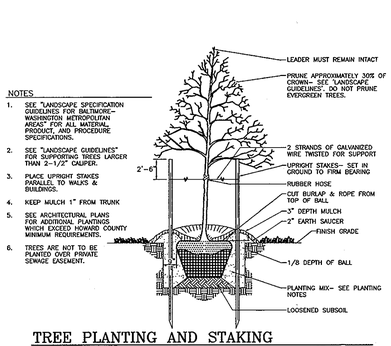
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 4/1/10
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 5/05/10
DIRECTOR	DATE 5/5/10

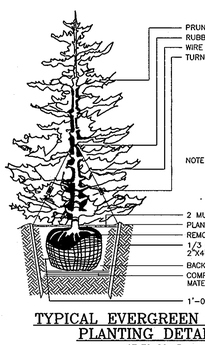
DEVELOPER'S/BUILDER'S CERTIFICATE

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.

SIGNATURE OF DEVELOPER — DATE 3/17/10



TREE PLANTING AND STAKING
DECIDUOUS TREES UP TO 2-1/2" CALIPER — NOT TO SCALE



TYPICAL EVERGREEN TREE PLANTING DETAIL
NOT TO SCALE

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 HOWARD COUNTY 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 BUILDER'S GRADING PERMIT APPLICATION IN THE AMOUNT OF $12,990.00 FOR THE REQUIRED 33 SHADE TREES, 2 EVERGREEN TREES, AND 93 SHRUBS.
3. THE OWNER, TENANT AND/OR THEIR AGENTS SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE REQUIRED LANDSCAPING, PLANT MATERIALS, BERMS, FENCES AND WALLS. ALL PLANT MATERIALS SHALL BE MAINTAINED IN GOOD GROWING CONDITION AND WHEN NECESSARY, REPLACED WITH NEW MATERIALS TO ENSURE CONTINUED COMPLIANCE WITH APPLICABLE REGULATIONS. ALL REQUIRED LANDSCAPING SHALL BE PERMANENTLY MAINTAINED IN GOOD CONDITION, AND WHEN NECESSARY, REPAIRED OR REPLACED.
4. AT THE TIME OF INSTALLMENT, ALL SHRUBS AND OTHER PLANTINGS LISTED HEREWITH AND APPROVED FOR THIS SITE SHALL BE OF THE PROPER HEIGHT REQUIREMENTS IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPE MANUAL. IN ADDITION, NO SUBSTITUTIONS OR RELOCATION OF REQUIRED PLANTINGS MAY BE MADE WITHOUT PRIOR REVIEW AND APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING. ANY DEVIATION FROM THIS APPROVED LANDSCAPE PLAN MAY RESULT IN DENIAL OR DELAY IN THE RELEASE OF LANDSCAPE SURETY UNTIL SUCH TIME AS ALL REQUIRED MATERIALS ARE PLANTED AND/OR REVISIONS ARE MADE TO APPLICABLE PLANS AND CERTIFICATES.
5. THERE ARE NO WETLANDS, STREAMS, OR 100YR FLOODPLAIN ON SITE.

SITE DEVELOPMENT PLAN

LANDSCAPE PLAN

HOMEWOOD SUITES
PARCEL 'D-5'
HOTEL AND RESTAURANT
CERTIFIED LEVEL RATED GREEN BUILDING
TAX MAP 41 BLOCK 17 — PARCEL 124, D-5
5th ELECTION DISTRICT — PLAT 20795 (L.6053/F.487) — 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 — PROFESSIONAL ENGINEER — 3/17/10
ROBERT H. VOGEL, PE No.16193

DESIGN BY:	RHV
DRAWN BY:	DZ
CHECKED BY:	RHV
DATE:	JANUARY 2010
SCALE:	AS SHOWN
W.O. NO.:	04-120

PROFESSIONAL CERTIFICATE
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. 16193 EXPIRATION DATE: 09-27-2010

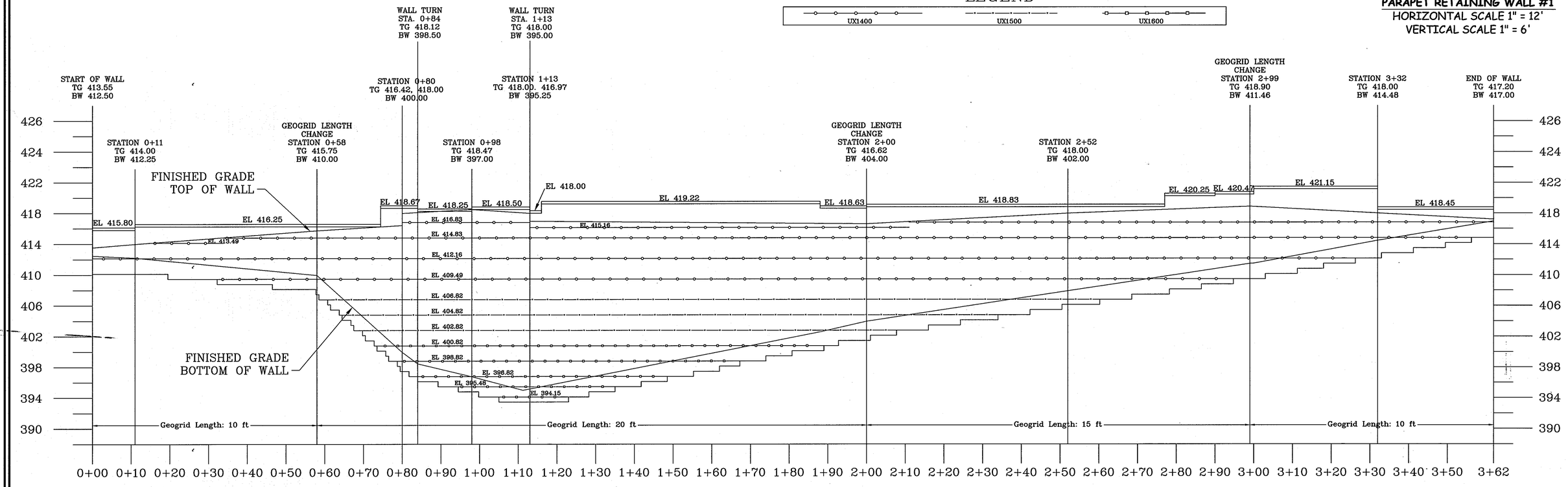
SHEET 7 OF 9

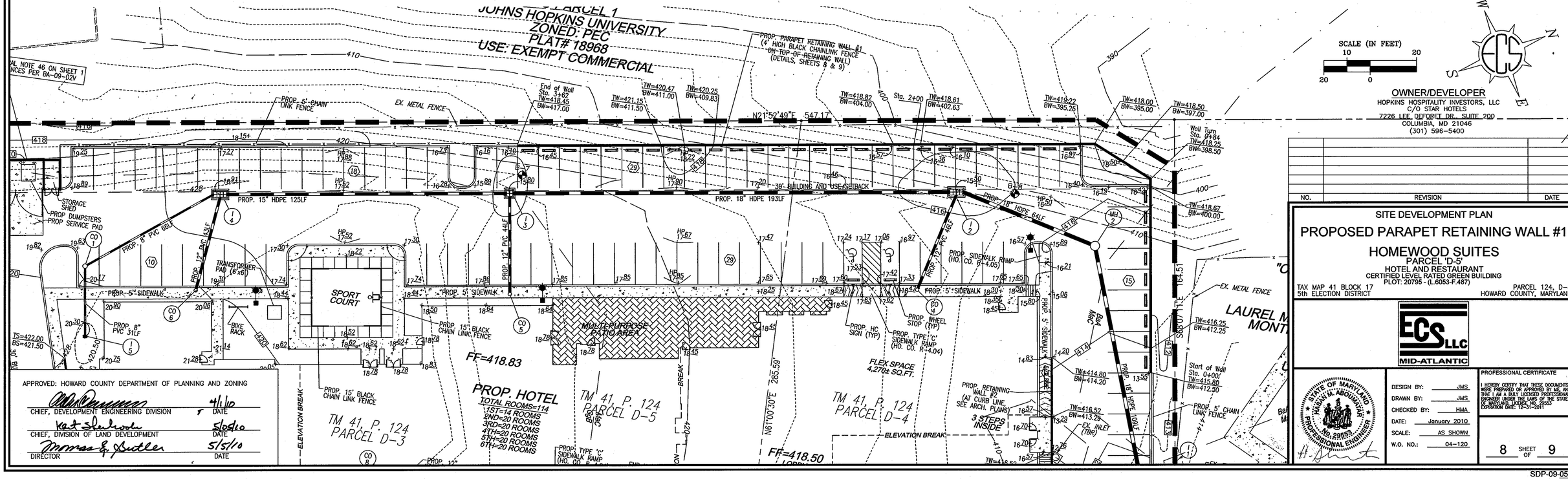
SDP-09-055

LEGEND

UX1400 — UX1500 — UX1600

PARAPET RETAINING WALL #1
HORIZONTAL SCALE 1" = 12'
VERTICAL SCALE 1" = 6'





NO.	REVISION	DATE

SITE DEVELOPMENT PLAN

PROPOSED PARAPET RETAINING WALL #1

HOMEWOOD SUITES

PARCEL 'D-5'
HOTEL AND RESTAURANT
CERTIFIED LEVEL RATED GREEN BUILDING
PLOT: 20795 - (L.6053-F.487)

TAX MAP 41 BLOCK 17 — PARCEL 124, D-5
5th ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

ECS LLC
MID-ATLANTIC

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 4/1/10
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 5/6/10
DIRECTOR	DATE 5/5/10

HASSAN M. ABOUMATAR — STATE OF MARYLAND — No. 29553 — PROFESSIONAL ENGINEER

DESIGN BY:	JMS
DRAWN BY:	JMS
CHECKED BY:	HMA
DATE:	January 2010
SCALE:	AS SHOWN
W.O. NO.:	04-120

PROFESSIONAL CERTIFICATE

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. 29553 EXPIRATION DATE: 12-31-2011

SHEET 8 OF 9

SDP-09-055

RETAINING WALL SPECIFICATION GUIDELINES

PART 1: GENERAL

1.01 Description

A. Retaining walls shall only be constructed under the observation of a Registered Professional Engineer and a (NICET, WACEL or equivalent) certified soils technician.
B. For "CRITICAL" walls, one soil boring shall be required every 100' along the entire length of the wall. Copies of all boring reports shall be provided to the Howard County Inspector prior to the start of construction.
C. 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.
D. 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.
E. 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 isophathalic 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 Drainage Pipe

A. Continuous collection pipe shall consist of 4-inch diameter slotted or perforated PVC pipe (Schedule 40)
B. Outlet (discharge) pipe shall consist of 4-inch diameter solid PVC pipe (Schedule 40).
C. All pipe fittings shall be appropriate for the pipe size and schedules used.

2.06 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. The backfill material shall contain at least 30 percent by weight retained on the US Standard No. 200 sieve. 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.

2.07 Structural Geogrid

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

Tensar UX1140065.
Tensar UX1160060.
Tensar UX1150060.

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.

2.08 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.
B. The geotextile shall consist of a Mirafi 140N, or an approved equivalent.
C. 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.
D. Ripped or otherwise damaged material shall not be used. The material shall be protected from sunlight and weather while stored on site in accordance with the manufacturer's recommendation.

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 qualified soils technician. Testing documentation shall be provided to the Howard County Inspector prior to the start of construction. The required test procedure shall be the Dynamic Cone Penetrometer Test ASTM STP-399.
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 Drainage Installation

A. Provide continuous 4-inch slotted or perforated PVC pipe behind the wall, no greater than 4 inches above finished grade at the bottom of the wall.
B. Provide 4-inch solid PVC pipe outlets every 10 feet along the wall, and at each end of the wall.

3.07 Fill Placement

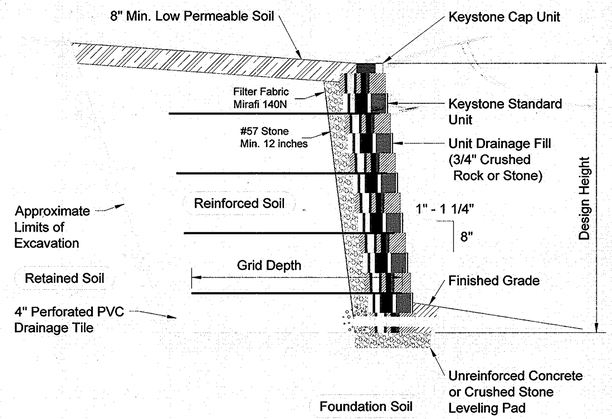
A. Backfill material shall be placed in 8 inch loose lifts and compacted to at least 95% of the maximum dry density as determined by ASTM D 698. The in-place moisture content shall be in the range of at the optimum moisture content to 2 percentage points higher than the optimum moisture content, as determined 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. The excavation face shall be stepped or notched to provide compaction of backfill on a level surface and to increase the interlock between the retained soils and the reinforced backfill.
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 fill material shall be confirmed by the onsite qualified soils technician. Each eight (8) inch lift shall be compacted to a minimum of 95% Standard Proctor Density and the testing report shall be made available to the Howard County Inspector upon completion of construction.
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.

3.08 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.

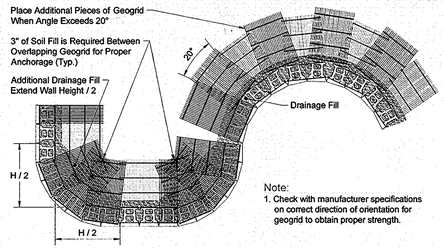
3.09 Fence Installation

A. For walls where a fence is required, do not place drainage stone into the tail voids of the upper 3 blocks at each designated post location. Shorter sections of scrap fence post material can be used during wall construction to identify post hole locations and to keep stone out of the voids for easier void cleanout prior to grouting.
B. Place each fence post into the tail void of the upper 3 blocks and grout into place with 3,000 psi non-shrink grout.
C. Construct the fence at the top of each wall in accordance with project documents.
D. See Architectural or Landscape plans and specifications for additional fence details.



TYPICAL REINFORCED WALL SECTION

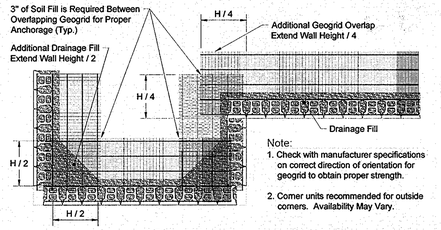
SCALE: NTS



Note:
1. Check with manufacturer specifications on correct direction of orientation for geogrid to obtain proper strength.

Geogrid Installation on Curves

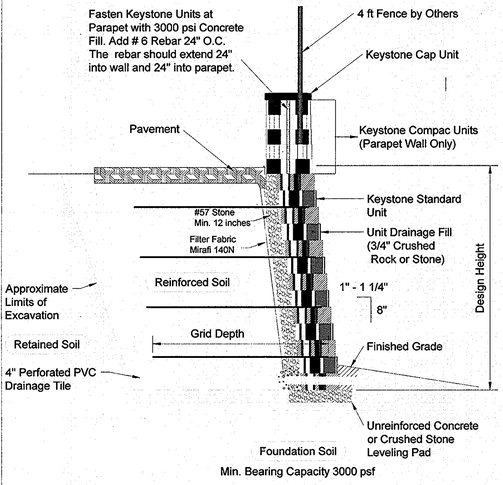
SCALE: NTS



Note:
1. Check with manufacturer specifications on correct direction of orientation for geogrid to obtain proper strength.
2. Corner units recommended for outside corners. Availability May Vary.

Geogrid Installation at Corners

SCALE: NTS



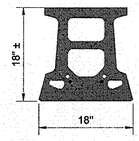
PARAPET & WALL IN SETBACK POSITION

SCALE: NTS

Standard II Elevation

Cap Unit Elevation

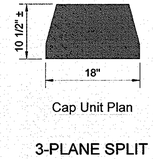
Corner Unit Elevation



Standard II Plan

STANDARD II UNIT

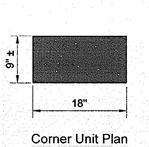
SCALE: NTS



Cap Unit Plan

3-PLANE SPLIT CAP UNIT OPTION

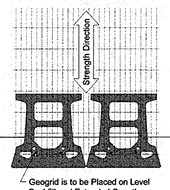
SCALE: NTS



Corner Unit Plan

CORNER UNIT

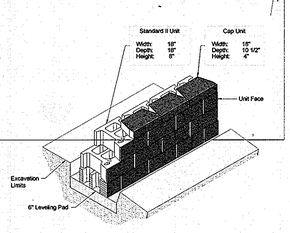
SCALE: NTS



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.

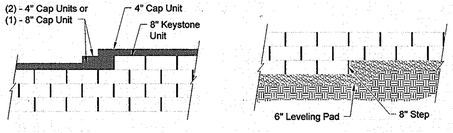
GRID & PIN CONNECTION

SCALE: NTS



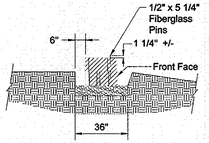
STANDARD II UNIT ISOMETRIC SECTION VIEW

SCALE: NTS



TOP OF WALL STEPS

SCALE: NTS



LEVELING PAD AND STEP DETAILS

SCALE: NTS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 4/1/10
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 5/04/10
DIRECTOR	DATE 5/5/10

OWNER/DEVELOPER
HOPKINS HOSPITALITY INVESTORS, LLC
C/O STAR HOTELS
7226 LEE DEFORET DR., SUITE 200
COLUMBIA, MD 21046
(301) 596-5400

NO.	REVISION	DATE

SITE DEVELOPMENT PLAN

PROPOSED PARAPET RETAINING WALL #1

HOMEWOOD SUITES

PARCEL 'D-5'
HOTEL AND RESTAURANT
CERTIFIED LEVEL RATED GREEN BUILDING
PLOT: 20795 - (L.6053-F.487)

TAX MAP 41 BLOCK 17 — PARCEL 124, D-5
5th ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

ECS LLC MID-ATLANTIC

STATE OF MARYLAND — YASSIN M. ABOUHAFAF — No. 29553 — PROFESSIONAL ENGINEER

DESIGN BY:	JMS
DRAWN BY:	JMS
CHECKED BY:	HMA
DATE:	January 2010
SCALE:	AS SHOWN
W.O. NO.:	04-120

PROFESSIONAL CERTIFICATE

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. 29553 EXPIRATION DATE: 12-31-2011

SHEET 9 OF 9

SDP-09-055