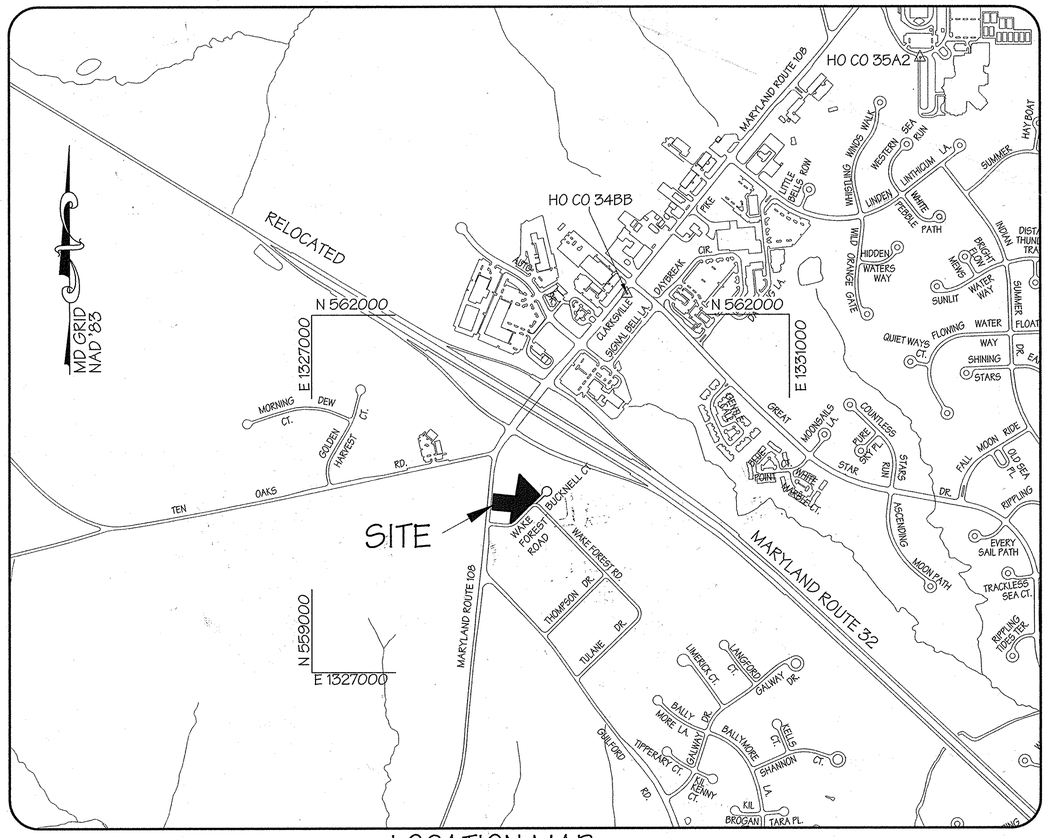
GENERAL NOTES

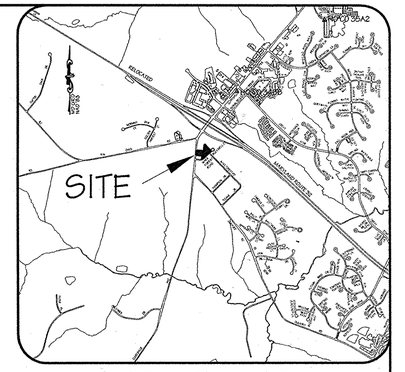
1. THE PURPOSE OF THIS SITE DEVELOPMENT PLAN IS TO PROVIDE CONSTRUCTION DOCUMENTS FOR A COMMERCIAL BUILDING IN ACCORDANCE WITH THE SITE DEVELOPMENT PLAN REGULATIONS.
2. All construction shall be in accordance with the latest standards and specifications of Howard County Design Manual Vol. IV and current MSHA standards & specifications.
3. Project Background:
   Location: Clarksville , Maryland
   Tax Map: Map 34 Tax Map Parcel 155
   Grid: 12
   Election District: 5 th
4. Existing Zoning: B-2 per 2/2/04 Comprehensive Zoning Plan.
5. Current Deed Reference:
   Parcel 155: L. 9150 / F. 162 (Zoned B-2)
6. Plat Reference: Zepp Plaza, Parcel A: Plat No. 17437.
7. The internal property lines shall be removed via a consolidation plat; plat #17437.
8. The Boundary shown hereon is based on a field run boundary survey performed by LDE, Inc. in October , 1999.
9. Horizontal and vertical datum's are related to the Maryland State Plane Coordinate System as projected from Howard county control stations No. 34BB and 35A2 (NAD 83).
10. Any damage caused by the contractor to existing public right-of-way, existing paving, existing curb and gutter, existing utilities, etc. shall be corrected at the contractors expense.
11. The existing utilities shown hereon are located from field surveys and construction drawings of record. The contractor shall locate existing utilities to his own satisfaction and well in advance of any construction activities. Additionally, the contractor shall taks all necessary precautions to protect all existing utilities and maintain uninterrupted service. Any damage incurred to utilities or existing features due to contractor's operation shall be repaired immediately at the contractor's expense.
12. There may be additional utilities not shown on these plans. The engineer assumes no responsibility for utility locations not shown and it shall be the responsibility of the contractor to verify the locations of all existing utilities within the limits of construction and notify the engineer of any discrepancies, prior to the start of construction.
13. Site Analysis Data:
   a. Total project Area : 1.398 Acres
   b. Area of Plan Submission: 1.398 Acres
   c. Limit of Disturbed Area: 1.298 Acres
   d. Present Use: Parcel 155 - Ex. Plumbing business
      Lawn / Landscaping
   e. Proposed Site and Structure Use: Commercial Office, Retail, Equipment Maintenance
   f. Building Area Per Floor: 1st Floor: 11,036 s.f / 2nd Floor: 7,611 s.f. (18,647 s.f. Total)
   g. Building Floor Space per Use: 1) Retail: 6,842 s.f.
      2) Office Use: 8,340 s.f. (Includes 18% common area)
      3) ~~Equipment Maintenance~~ 2,865 s.f. (first floor only) RESTAURANT
      Total Building Area: 18,647 s.f.
   h. Maximum Number of Employees: 30
   i. Parking Required: ~~5 Spaces / 1000 s.f. of Retail Area = 35 spaces~~
      ~~3.3 Spaces / 1000 s.f. of Office area = 30 spaces~~
      ~~3 spaces + 3 spaces/service bay of Equipment Maintenance area = 6 spaces~~
      SEE REQUIRED SHARED PARKING CHART
      Total Parking required = ~~71~~ Spaces 78
   j. Parking Provided: Van Accessible Handicap spaces provided = 4 spaces
      Regular spaces provided = ~~67~~ spaces 74
      Total Parking provided = ~~71~~ spaces 78
   k. Building Coverage of Site: 0.256 Acres / 18.3% of gross site area.
   l. Applicable DPZ File References: F-05-027
14. There are no streams, stream buffers, floodplains, wetlands, wetland buffers or steep slopes located within the boundary of this project per a field investigation by LDE, Inc. in March, 2002.
15. The forest conservation obligation for this project is 0.21 acres. The total obligation shall be met via payment of $4,574.00 Fee-in Lieu. There are no existing forested areas onsite and no potential planting areas once the site is developed.
16. Adjustments to the sequence of construction shall be approved by the Howard County Department of Inspections, Licenses and Permits, prior to such adjustments.
17. Traffic control devices, markings and signing shall be in accordance with the latest edition of the Manual of Uniform Traffic Control Devices (MUTCD). All street and regulatory signs shall be in place prior to the placement of any asphalt.
18. The contractor shall notify the Department of Public Works/Bureau of Engineering/Construction Inspection at (410) 313 1880 at least five- (5) working days prior to the start of work.
19. The contractor shall notify "Miss Utility" at 1-800-257-7777 at least forty-eight (48) hours prior to any excavation work.
20. This property is located within the Metropolitan District. Existing water and sewer stubs have been provided to this property via Contract No. 34-3669-D. Private connections to the proposed building from the existing stubs are shown on this plan.
21. Stormwater quality management and stormwater quantity management is provided by an onsite underground StormTech detention system.
22. The onsite underground Stormtech facility will be privately owned and maintained by the property owner.
23. The existing receiving storm drain system located in Wake Forest Road and Bucknell Court (has been analyzed and found to be properly sized to accept all runoff from the subject site. The onsite grading has changed the originally approved drainage areas to existing inlets I-10, I-9 and I-8. This site development plan includes a drainage area map showing the revised drainage areas to each inlet.
24. The proposed storm drain system connection to the existing storm drain system will require open cutting across existing Bucknell Court. The contractor shall repair the paving and curb & gutter in Bucknell Court (Howard County Local Road) in accordance with County Standards and to the satisfaction of the Howard County Inspector.
25. Any damage to Public "Right-of-Ways" or paved public roads shall be repaired immediately at the contractors expense in accordance with the Howard County and MSHA Standards and Specifications.
26. All fill shall be rolled to a minimum degree of compaction of 95% of the dry unit weight as determined by AASHTO T- 180.
27. There are no existing contiguous slopes 25% or greater which are greater than 20,000 square feet within the boundaries of the site.
28. A Noise Study is not required for this Site Development Plan submission.
29. A Geotechnical Report was completed for the proposed building and potential onsite stormwater management by Hillis Carnes Engineering Associates, Inc. on June 19, 2001.
30. Earthwork quantities shown on this plan are estimated and should not be used for bid purposes. Contractors should perform independent earthwork analysis for bid purposes.
31. Deviations from these plans and specifications without prior written consent of the civil engineer may cause the work to be unacceptable.
32. The dimensioned distances shall govern if scaled and dimensioned distances on this plan are found to be in disagreement.
33. No work is permitted within the Maryland Route 108 Right-of-Way until an Access Permit is issued by the MSHA.
34. The existing commercial entrance off Route 108 will be relocated for this project.
35. Landscaping requirement per Section 16.124 of the Subdivision and Land Development Regulations shall be provided in accordance with a landscape plan on file with this site plan. Surety in the amount $10,650.00 shall be made part of the Developer's Agreement for this site plan.
36. The existing topography shown hereon is taken from a field run survey with two foot contour intervals prepared by LDE, Inc. in October, 1999.
37. All exterior light fixtures shall be oriented to direct light inwards and downwards onsite away from adjoining properties and public roads in accordance with Section 134 of the Howard County Zoning Regulations.
38. The existing brick building onsite will be removed. A Demolition Permit from the Department of Inspections, Licenses and Permits is required.
39. The existing onsite well shall be sealed by a licensed well driller and the onsite septic system shall be abandoned in accordance with the Howard County Department of Environmental Health's abandonment procedures prior to issuance of the building permit.
40. The existing water house connection to the existing brick building will be abandoned in accordance with the Howard County Bureau of Utilities procedures.
41. This plan is subject to the Amended Fifth Edition of the Subdivision and Land Development Regulations per Council Bill 45-2003 and the Zoning Regulations as amended by CB 75-2003.
42. On July 7, 2005, the Chief of the Development Engineering Division approved a Design Manual Waiver from Section 2.2.3 of Design Manual Volume III to allow a WB-40 vehicle to be used for turning movements onsite instead of the required WB-50 vehicle.
43. Vehicular access to Wake Forest Road is prohibited.
44. The permit application deadline for conversion of one-story Equipment Maintenance Space to Restaurant and the restriping of the rear parking lot shall be September 22, 2011 (one year from Red-Line approval date).



LOCATION MAP
Scale: 1" = 600'

LEGEND

- EXISTING 2' CONTOUR
- EXISTING 10' CONTOUR
- PROPOSED CONTOUR
- EXISTING CURB & GUTTER
- PROPOSED CURB & GUTTER
- EXISTING STORM DRAIN
- PROPOSED STORM DRAIN
- CENTER LINE OF ROAD
- EXISTING EDGE OF PAVEMENT
- EXISTING TREES
- PROPOSED TREES
- EXISTING ADJOINER PROPERTY LINES
- EXISTING FENCE
- EXISTING SANITARY SEWER
- EXISTING WATER
- LIMIT OF DISTURBANCE
- SILT FENCE
- RETAINING WALL
- LANDSCAPE FENCE
- SOIL BORING
- STABALIZED CONSTRUCTION ENTRANCE (SCE)
- DRAINAGE DIVIDE
- EXISTING GAS
- EXISTING STORM SEWER
- UNDERGROUND DETENTION FACILITY
- PROPOSED STATE HIGHWAY PAVING



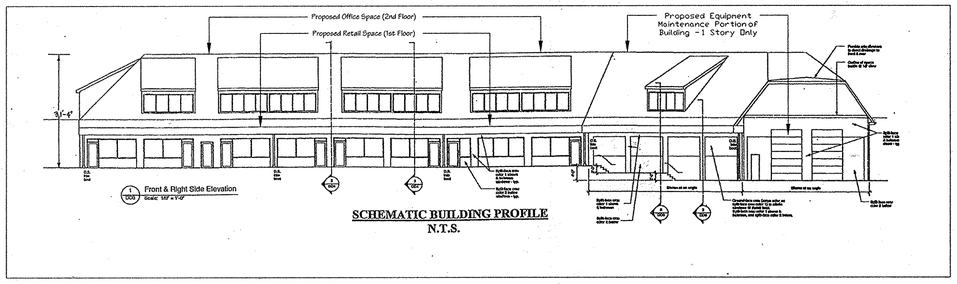
VICINITY MAP
Scale: 1"=2000'

SHEET INDEX

Sheet Number	Description
1	Cover Sheet
2	Site Development Plan
3	Grading and Soil Erosion & Sediment Control Plan
4	Grading and Soil Erosion & Sediment Control Detail Sheet
5	Construction Details & Utility Profiles
6	U/G Det. Facility & SHA Drainage Details
7	Stormwater Management Details
8	Stormwater Management Notes & Details
9	Storm Drain Profiles & Details
10	Drainage Area & Soils Map
11	Forest Stand Delineation / Conservation Plan
12	Landscape Plan / Details
13	Traffic Control Plan

BENCHMARKS

1. Howard County Survey Control Station: 34BB
   Standard Howard County Survey Disc set on a concrete monument. Located 15 feet south of CL intersection of Great Star Drive and Route 108, 1.3 feet behind face of curb on North Bound Lane of Route 108.
   N. 562176.459
   E. 1329641.876
   Elev.= 485.25'
2. Howard County Survey Control Station: 35A2
   Standard Howard County Survey Disc set on a concrete monument. Located 93' feet from BG&E Pole #166792 and, 47.2 feet from BG&E Pole #370902 along south bound lane of Route 108. Approximately 214.5 feet from CL intersection of Shepard Lane and Route 108.
   N. 564154.302
   E. 1331201.065
   Elev.= 488.64'



SCHEMATIC BUILDING PROFILE
N.T.S.

SITE DEVELOPMENT PLAN
ZEPP PLAZA

Parcel A
Tax Map 34, Parcel 155
12447 Clarksville Pike
Clarksville, Maryland 21029

⚠ 5th ELECTION DISTRICT HOWARD COUNTY, MARYLAND

REVISED REQUIRED PARKING - ZEPP PLAZA

	SF	Weekday Morning 8am-9am	Weekday Midday 9am-3pm	Weekday Afternoon 3pm-5pm	Weekday Evening 5pm-midnight	Weekend Daytime 6am-6pm	Weekend Evening 6pm-midnight	Nighttime Mid-6am	Parking Requirement
Office and Industrial	8,940	50% 23.6	100% 29.5	100% 29.8	10% 30	10% 3.0	5% 1.5	5% 1.5	3.3 spaces / 1000 SF
Retail	6,842	20% 4.8	60% 20.5	60% 20.5	90% 30.8	100% 34.2	70% 23.9	5% 1.7	5.0 spaces / 1000 SF
Restaurant (not fast food)	2,865	50% 20.1	50% 20.1	50% 20.1	100% 40.1	100% 40.1	100% 40.1	10% 4.0	14.0 spaces / 1000 SF
TOTAL	18,647	50.5	70.1	70.1	73.8	77.3	65.5	7.2	

PROFESSIONAL CERTIFICATION
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 19917, Expiration Date: 9/18/11

REDLINE REVISION - PARKING LAYOUT / STRIPING PLAN

VANMAR ASSOCIATES, INC.
Engineers Surveyors Planners
310 South Main Street, P.O. Box 328, Mount Airy, Maryland 21771
(301) 829-2890 (301) 831-5015 (410) 549-2751
Fax (301) 831-5605

REDLINE PARKING LAYOUT
SEPTEMBER, 2010

Subdivision Name: Zepp Plaza				Sect/Area N/A	Parcel/No. 155
Plat No. 17437	Block No. 12	Zone B-2	Tax Map No. 34	Election District 5th	Census Tract 6051.02
Water Code 111			Sewer Code 6650000		

ADDRESS CHART

Parcel No.	Street Address
155	12435 Clarksville Pike

LDE, INC.
9250 Rumsey Road, Suite 106, Columbia, MD. 21045 (410) 715-1070
(301) 596-3424 (410) 715-9540 (Fax)

DESIGNED S.D.H.	Cover Sheet ZEPP PLAZA Parcel A Tax Map 34, Parcel 155 Plat No. 17437 12447 Clarksville Pike Clarksville, Maryland 21029 5th Election District - Howard County, Maryland Previous Submittals: F-05-027	SCALE As Shown
DRAWN J.D.R.		DRAWING 1 of 13
CHECKED B.D.B.		JOB NO. 99-062
DATE 1/2006	OWNER: Zepp Plaza, LLC. 12435 Clarksville Pike Clarksville, Maryland (410) 531-6712 DEVELOPER: Crystal Hill Advisors 11737 Rte 108 Clarksville, Maryland (410) 531-6700	FILE NO. SDP-05-021

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DIRECTOR — DATE 2/16/06

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/16/06

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 2/14/06

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICALREQUIREMENTS.

NATURAL RESOURCE CONSERVATION SERVICE — DATE 2/9/06

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 2/9/06

REVISIONS

No.	Date	Description
4	09/10/10	REVISE PARKING LAYOUT / STRIPING PLAN
5	11/2/10	RESTAURANT ENTRANCE & INC. ACCESS

DEVELOPER'S CERTIFICATE

I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS OF DEVELOPMENT 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 ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

Rosemary W. Zepp
Edward W. Zepp III
SIGNATURE OF DEVELOPER — DATE 1/28/06

ENGINEER'S CERTIFICATE

I CERTIFY THAT THESE PLANS FOR SEDIMENT AND EROSION CONTROL REPRESENT 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 1/27/06

SDP-05-021

F:\99-062\Dwg\99-062-1 COV (1).dwg, Cover Sheet (1), 1/27/2006 4:44:46 PM

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DIRECTOR — DATE 2/16/06

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/16/06

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 2/14/06

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICALREQUIREMENTS.

NATURAL RESOURCE CONSERVATION SERVICE — DATE

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

HOWARD SOIL CONSERVATION DISTRICT — DATE

Legend
- P-1 Paving
- P-2 Paving
- MSHA Impervious

PROFESSIONAL CERTIFICATION
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 18417, Expiration Date: 9.16.11

REDLINE REVISION - PARKING LAYOUT / STRIPING PLAN

VANMAR ASSOCIATES, INC.
Engineers Surveyors Planners
310 South Main Street, P.O. Box 328, Mount Airy, Maryland 21771
(301) 829-2890 (301) 831-5015 (410) 549-2751

NOTE: All debris is to be kept out of the underground facility during and after construction.

Stormtech Underground Detention Facility (See Sheets 6-8 for Plan Sheet and Details)

REVISIONS

No.	Date	Description
4 5	09/16/10	REVISE PARKING LAYOUT / STRIPING PLAN / ENTRANCES
1	11/2006	Added retaining wall
2	11/2006	Revised Sewer connection, revised landscaping, revised Stormtech WQ configuration, show relocated traffic control structure, added underdrain system to pick up roof drainage.
3	4/2007	Revised H.C. Ramp & accessible route in front of building per building Inspector

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS OF DEVELOPMENT 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 ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

Rosemary W. Zepp
Edgar W. Zepp III 1/27/06
SIGNATURE OF DEVELOPER — DATE

STATE OF MARYLAND BRUCE DAVID BURTON No. 19184 REGISTERED PROFESSIONAL ENGINEER 1/27/06

ENGINEER'S CERTIFICATE

I CERTIFY THAT THESE PLANS FOR SEDIMENT AND EROSION CONTROL REPRESENT 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.

Bruce D. Burton 1/27/06
SIGNATURE OF ENGINEER — DATE

Subdivision Name: Zepp Plaza				Sect/Area N/A	Parcel/No. 155
Plat No. 17437	Block No. 12	Zone B-2	Tax Map No. 34	Election District 5th	Census Tract 6051.02
Water Code I11			Sewer Code 6650000		

LDE, INC.
9250 Rumsey Road, Suite 106, Columbia, MD. 21045 (410) 715-1070
(301) 596-3424 (410) 715-9540 (Fax)

DESIGNED S.D.H.	Site Development Plan	SCALE 1"=20'
DRAWN J.D.R.	**ZEPP PLAZA**	DRAWING 2 of 13
CHECKED B.D.B.	Parcel A Tax Map 34, Parcel 155 Plat No. 17437 12447 Clarksville Pike Clarksville, Maryland 21029 5th Election District - Howard County, Maryland Previous Submittals: F-05-027	JOB NO. 99-062
DATE 1/2006	OWNER: Zepp Plaza, LLC. 12435 Clarksville Pike Clarksville, Maryland (410) 531-6712 DEVELOPER: Crystal Hill Advisors 11737 Rte 108 Clarksville, Maryland (410) 531-6700	FILE NO. SDP-05-021

SDP-05-021

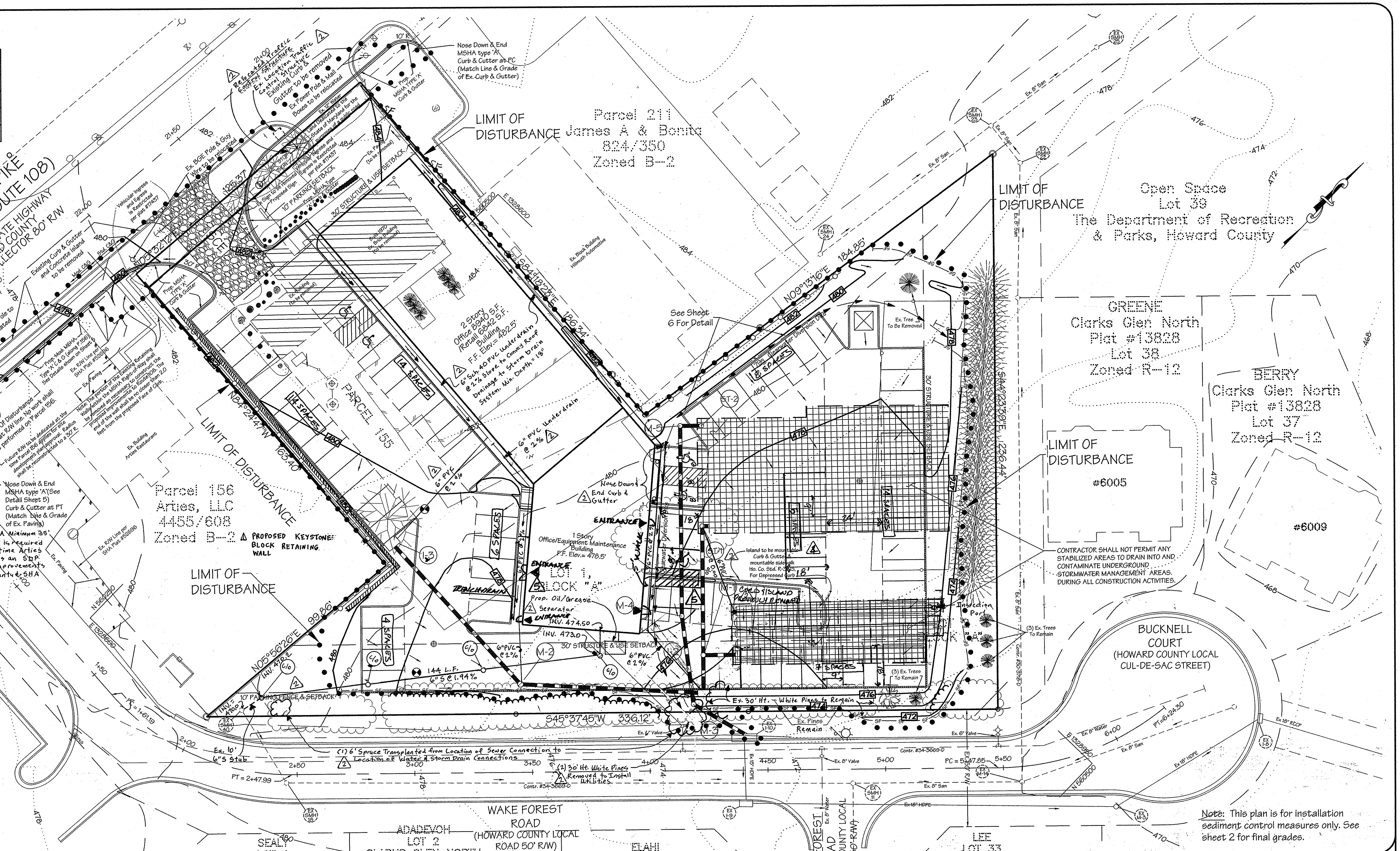
F:\99-062-1\dwg\99-062-1 SDP (2).dwg, SDP (2), 1/27/2006 4:46:10 PM

STORMWATER MANAGEMENT SUMMARY TABLE

PROPOSED DRAINAGE AREA 'B'. TOTAL DRAINAGE AREA TO BMPS = 1.40 Acres

STORAGE REQUIREMENT		TOTAL SITE D.A.	COMMENTS
WQv	Required: Provided:	3,456 cu. ft. 4,292 cu. ft.	Met in underground chambers
REv	Required: Provided:	898 cu. ft. 898 cu. ft.	met in underground chambers
Cpv	Required: Provided:	5897 cu. ft. 5897 cu. ft.	Met in underground chambers
Qp10	Required: Provided:	13,068 cu. ft. 13,068 cu. ft.	Met in underground chambers
Qp100	Required: Provided:	pass 100 yr ult. Storm	Passed safely

Note: All requirements will be met in the two (2) underground Stormtech Chamber facilities.



Note: This plan is for installation sediment control measures only. See sheet 2 for final grades.

Note: Proposed contours shown hereon are finished paving/curb grades. Contractor to allow for paving section in all areas to be paved.

Stormtech Underground Detention Facility (See Sheets 6-8 for Plan Sheet and Details)

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DIRECTOR — DATE 2/16/06

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/16/06

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 2/14/06

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICALREQUIREMENTS.

NATURAL RESOURCE CONSERVATION SERVICE — DATE 2/9/06

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 2/9/06

PROFESSIONAL CERTIFICATION

I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13417, Expiration Date: 9-18-11

REDLINE REVISION – PARKING LAYOUT / STRIPING PLAN

VANMAR ASSOCIATES, INC.
Engineers Surveyors Planners
310 South Main Street, P.O. Box 328, Mount Airy, Maryland 21771
(301) 829-2890 (301) 831-5015 (410) 549-2751
Fax (301) 831-5603

REVISIONS

No.	Date	Description
1	11/2006	Added retaining wall
2	11/2006	Revised sewer connection, revised landscaping, revised stormtech WQ configuration, show relocated traffic control structure, added underdrain system to pickup roof drainage.
4	09/16/10	REVISE PARKING LAYOUT / STRIPING PLAN
5	11/8/10	RESTAURANT ENTRANCE & HC ACCESS

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS OF DEVELOPMENT 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 ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

SIGNATURE OF DEVELOPER — DATE 1/27/06

STATE OF MARYLAND — BRUCE DAVID BURTON — No. 19184 — REGISTERED PROFESSIONAL ENGINEER

ENGINEER'S CERTIFICATE

I CERTIFY THAT THESE PLANS FOR SEDIMENT AND EROSION CONTROL REPRESENT 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 1/27/06

Subdivision Name: Zepp Plaza			Sect/Area N/A	Parcel/No. 155	
Plat No. 17437	Block No. 12	Zone B-2	Tax Map No. 34	Election District 5th	Census Tract 6051.02
Water Code 111			Sewer Code 6650000		

LDE, INC.
9250 Rumsey Road, Suite 106, Columbia, MD. 21045 (410) 715-1070
(301) 596-3424 (410) 715-9540 (Fax)

DESIGNED	Grading and Sediment Control Plan	SCALE
S.D.H.	**ZEPP PLAZA**	1"=20'
DRAWN	Parcel A Tax Map 34, Parcel 155 Plat No. 17437 12447 Clarksville Pike Clarksville, Maryland 21029	DRAWING
J.D.R.		3 of 13
CHECKED	5th Election District – Howard County, Maryland Previous Submittals: F-05-027	JOB NO.
B.D.B.		99-062
DATE	OWNER: Zepp Plaza, LLC. 12435 Clarksville Pike Clarksville, Maryland (410) 531-6712 — DEVELOPER: Crystal Hill Advisors 11737 Rte 108 Clarksville, Maryland (410) 531-6700	FILE NO.
1/2006		SDP-05-021

SDP-05-021

HOWARD SOIL CONSERVATION DISTRICT

STANDARD SEDIMENT CONTROL NOTES

1. A minimum of 48 hours notice must be given to the Howard County Department of Inspections, Licenses and Permits, Sediment Control Division prior to the start of any construction, (313-1855).
2. All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the most current "MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL", and revisions thereto.
3. Following initial soil disturbance or redisturbance, permanent or temporary stabilization shall be completed within: a) 7 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes greater than 3:1, b) 14 days as to all other disturbed or graded areas on the project site.
4. All sediment traps/basins shown must be fenced and warning signs posted around their perimeter in accordance with Vol. 1, Chapter 7, of the HOWARD COUNTY DESIGN MANUAL, Storm Drainage.
5. All disturbed areas must be stabilized within the time period specified above in accordance with the 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL (Section G) for permanent seeding, sod, temporary seeding, and mulching. Temporary stabilization with mulch alone can only be done when recommended seeding dates do not allow for proper germination and establishment of grasses.
6. All sediment control structures are to remain in place and are to be maintained in operative condition until permission for their removal has been obtained from the Howard County Sediment Control Inspector.
7. Site Analysis:

	Total Area of Site	1.4	Acres
	Area Disturbed	1.3	Acres
	Area to be roofed or paved	1.2	Acres
	Area to be vegetatively stabilized	0.10	Acres
QUANTITY SEE NOTE THIS SHEET	Total Cut	3,820	Cu. Yds.
	Total Fill	863	Cu. Yds.
	Offsite waste area location	2,957	(to be trucked an offsite location with an approved grading plan)

8. Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
9. Additional sediment control must be provided, if deemed necessary by the Howard County 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 can be back filled and stabilized within one working day, whichever is shorter.

HOWARD SOIL CONSERVATION DISTRICT

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 per acres dolomitic limestone (92 lbs/1000sq. ft.) and 600 lbs per acre 10-10-10 fertilizer (14 lbs/1000 sq. ft.) before seeding. Harrow or disk into upper three inches of soil. At time of seeding, apply 400 lbs per acre 30-0-0 ureaform fertilizer (9 lbs/1000sq. ft.)

2) ACCEPTABLE -- Apply 2 tons per acres dolomitic limestone (92 lbs/1000sq. ft.) and 1000 lbs per acre 10-10-10 fertilizer (23 lbs/1000 sq. ft.) before seeding. Harrow or disk into upper three inches of soil.

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

MULCHING -- Apply 1-1/2 to 2 tons per acre (70 to 90 lbs/1000sq. 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/1000sq. ft.) of emulsified asphalt on flat areas. On slopes 8 feet or higher, use 348 gallons per acre (8 gal/1000sq. ft.) for anchoring.

MAINTENANCE -- Inspect all seeding areas and make needed repairs, replacements and reseedings.

HOWARD SOIL CONSERVATION DISTRICT

TEMPORARY SEEDING NOTES

Apply to graded or cleared areas likely to be redisturbed where a short-term vegetative cover is needed.

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

SOIL AMENDMENTS: -- Apply 600 lbs per acre 10-10-10 fertilizer (14 lbs/1000sq. ft.).

SEEDING -- For periods March 1 thru April 30, and from August 15 thru October 15 seed with 2-12 bushels per acre of annual rye (3.2 lbs/1000sq. ft.). For the period May 1 thru August 14, seed with 3 lbs. per acre of weeping lovegrass (.07 lbs/1000sq. ft.). For the period November 16 thru February 28, protect site by applying 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring, or use sod.

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

Refer to the 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for additional rates and methods not covered.

21.0 STANDARD AND SPECIFICATIONS FOR TOPSOIL

Definition

Placement of topsoil over a prepared subsoil prior to establishment of permanent vegetation.

Purpose

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

Conditions Where Practice Applies

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

a. The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.
b. The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.
c. The original soil to be vegetated contains material toxic to plant growth.
d. The soil is so acidic that treatment with limestone is not feasible.

II. For the purpose of these Standards and Specifications, areas having slopes steeper than 2:1 require special consideration and design for adequate stabilization. Areas having slopes steeper than 2:1 shall have the appropriate stabilization shown on the plans.

Construction and Material Specifications

I. Topsoil salvaged from the existing site may be used provided that it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-SCS in cooperation with Maryland Agricultural 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 soil scientist and approved by the appropriate approval authority. Regardless, topsoil shall not be a mixture of contrasting textured subsoils and shall contain less than 5% by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1-1/2" in diameter.
ii. Topsoil must be free of plants or plant parts such as bermuda grass, quackgrass, Johnsongrass, nutsedge, poison ivy, thistle, or others as specified.
iii. Where 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.

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 as 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 for Permanent Seeding - Instead of applying the full amounts of lime and commercial fertilizer, composted sludge and amendments may be applied as specified below:

i. Composted Sludge Material for use as a soil conditioner for sites having disturbed areas over 5 acres shall be tested to prescribe amendments and for sites having disturbed areas under 5 acres shall conform to the following requirements:
a. Composted sludge shall be supplied by, or originate from, a person or persons that are permitted (at the time of acquisition of the compost) by the Maryland Department of the Environment under COMAR 26.04.06.
b. Composted sludge shall contain at least 1 percent nitrogen, 1.5 percent phosphorus, and 0.2 percent potassium and have a Ph of 7.0 to 8.0. If compost does not meet these requirements, the appropriate constituents must be added to meet the requirements prior to use.
c. Composted sludge shall be applied at a rate of 1 ton/1,000 square feet.

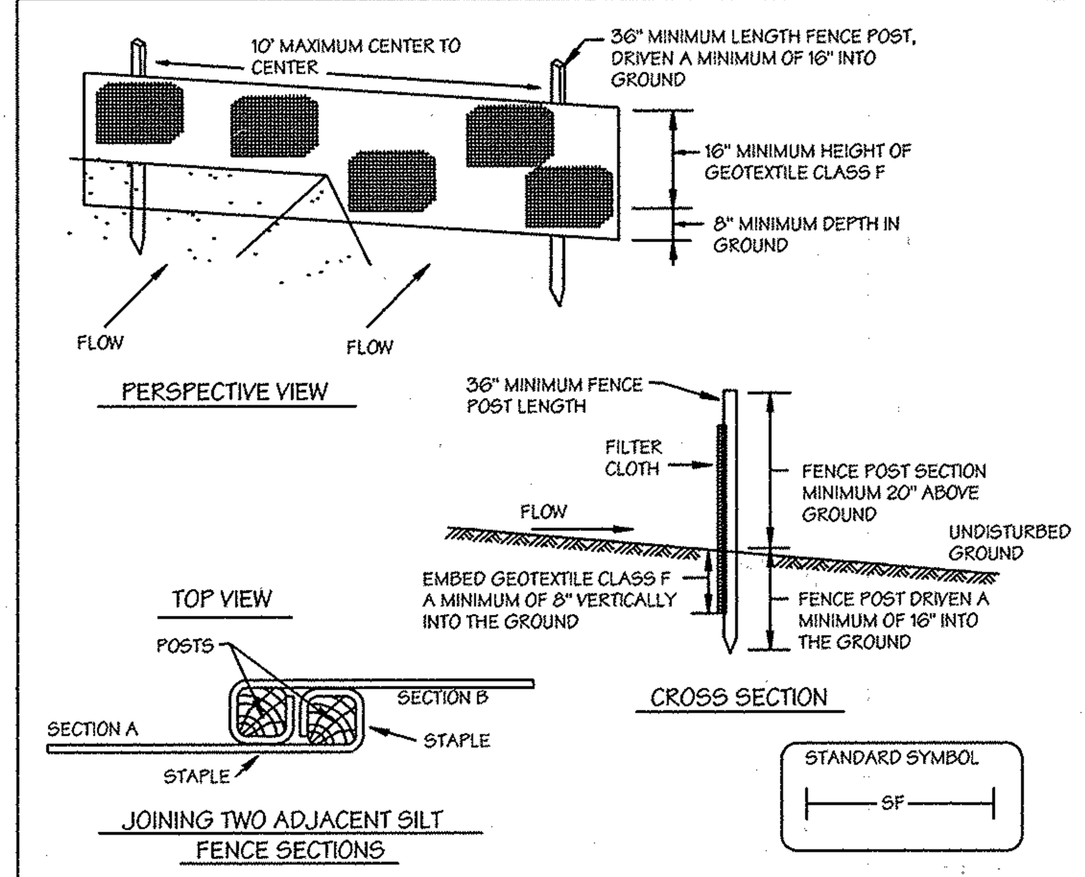
ii. Composted sludge shall be amended with a potassium fertilizer applied at the rate of 4 lb./1,000 square feet, and 1/3 the normal lime application rate.

References:Guideline Specifications, Soil Preparation and Sodding. MD-VA, Pub.#1, Cooperative Extension Service, University of Maryland and Virginia Polytechnic Institutes. Revised 1973.

SEQUENCE OF CONSTRUCTION

1. OBTAIN GRADING PERMIT.	1 DAY
2. NOTIFY THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS AT LEAST 24 HOURS PRIOR TO STARTING CONSTRUCTION.	1 DAY
3. INSTALL STABILIZED CONSTRUCTION ENTRANCE AND SILT FENCE AT LIMIT OF DISTURBANCE SHOWN HEREON. INSTALL CLEARWATER EARTH DIKE TO DIVERT UPGRADE DRAINAGE FROM UDERGROUND STORMWATER MANAGEMENT SYSTEM.	2 DAYS
4. DEMOLITION AND REMOVAL OF EXISTING BUILDING. ABANDONMENT OF EXISTING SEPTIC SYSTEM AND WHC IN ACCORDANCE WITH HEALTH DEPT. AND BUREAU OF UTILITIES PROCEDURES. REMOVE / ABANDON EX. WELL BY LICENSED WELL DRILLER IN ACCORDANCE WITH HEALTH DEPARTMENT ABANDONMENT PROCEDURES.	10 DAYS
5. REMOVE EXISTING ONSITE FENCES, PAVING, TREES / SHRUBS DESIGNATED FOR REMOVAL ON THE PLAN.	3 DAYS
6. ROUGH GRADE THE SITE IN ACCORDANCE WITH THE APPROVED GRADING PLAN.	10 DAYS
7. MAINTENANCE ON THE SEDIMENT AND EROSION CONTROL STRUCTURES SHOWN HEREON AFTER EACH RAINFALL AND ON A DAILY BASIS.	DAILY
8. FINE GRADE FOR BUILDING PAD.	2 DAYS
9. STABILIZE ALL DISTURBED AREAS NOT TO BE ROOFED OR PAVED IN ACCORDANCE WITH THE TEMPORARY SEEDING NOTES.	1 DAY
10. CONSTRUCT BUILDING.	5 MONTHS
12. FINE GRADE SITE IN ACCORDANCE WITH THE APPROVED GRADING PLAN. IMMEDIATELY STABILIZE ALL AREAS NOT TO BE ROOFED OR PAVED IN ACCORDANCE WITH THE TEMPORARY SEEDING NOTES.	3 DAYS
13. INSTALL STORM DRAIN SYSTEM AND WATER AND SEWER CONNECTIONS.	1 WEEK
14. INSTALL STANDARD HOWARD COUNTY CURB AND GUTTER AND MSHA TYPE 'A' CURB AND GUTTER, AS SHOWN ON THE SITE PLAN.	4 DAYS
15. INSTALL GRAVEL PAVING BASE FOR ALL AREAS DESIGNATED TO BE PAVED. EXCEPT WITHIN UNDERGROUND STORMWATER MANAGEMENT SYSTEM.	3 DAYS
16. STABILIZE ALL REMAINING DISTURBED AREAS IN ACCORDANCE WITH THE PERMANENT SEEDING NOTES.	1 DAY
17. INSTALL CONCRETE SIDEWALKS, DOOR PADS AND STEPS.	4 DAYS
18. INSTALL STORMTECH UNDERGROUND DETENTION SYSTEM, INCLUDING ALL STRUCTURES AND PIPES TO CONNECT TO EX. INLET IN BUCKNELL COURT.	7 DAYS
19. INSTALL BASE OVER UNDERGROUND STORMWATER MANAGEMENT SYSTEM INSTALL AND SURFACE PAVING COURSES	6 DAYS
20. WITH THE PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, REMOVE ANY REMAINING SEDIMENT CONTROL DEVICES, INCLUDING THE SCE, SILT FENCE AND INLET PROTECTION. STABILIZE ANY REMAINING DISTURBED AREAS IN ACCORDANCE WITH THE PERMANENT SEEDING NOTES.	1 DAY
21. INSTALL LANDSCAPING AND PERIMETER FENCING IN ACCORDANCE WITH THE APPROVED LANDSCAPE PLAN.	3 DAYS
22. PAINT STRIPE PARKING AREA AND INSTALL SIGNAGE.	1 DAY
TOTAL ESTIMATED TIME:	8 MONTHS

DETAIL 22- SILT FENCE



Construction Specifications

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

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

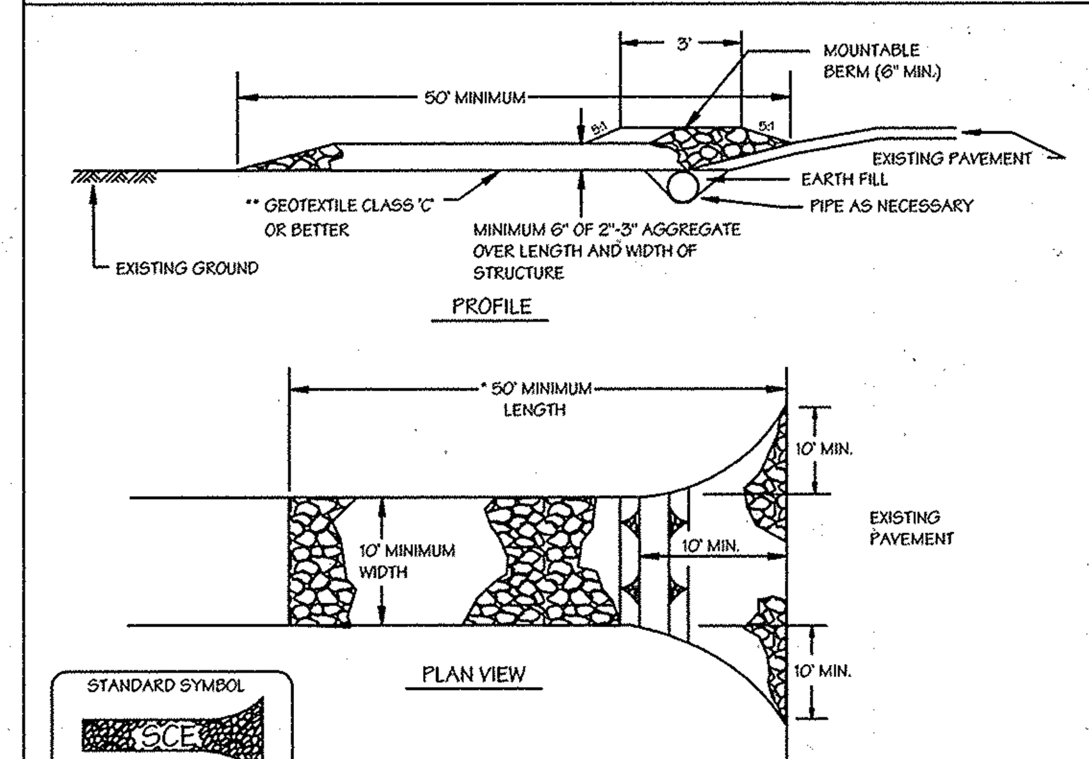
Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal ft² / minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

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

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

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

DETAIL 24 - STABILIZED CONSTRUCTION ENTRANCE



Construction Specification

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

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

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

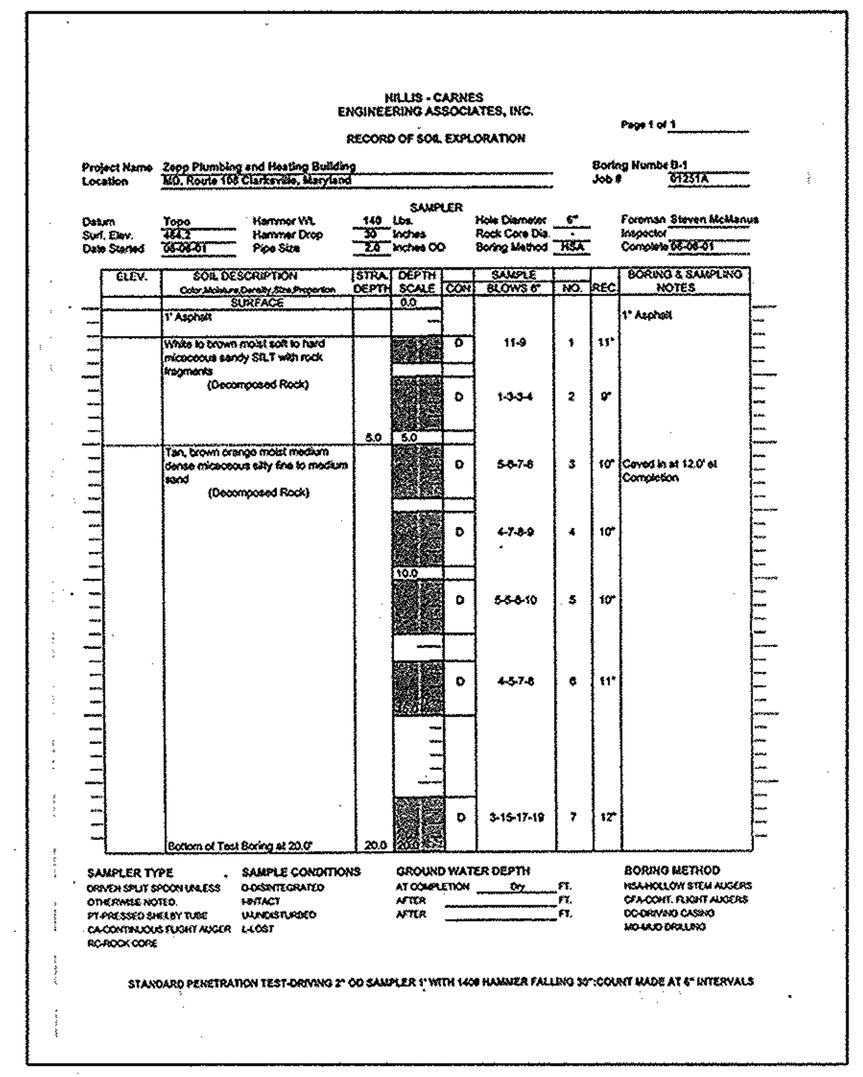
4. Stone - crushed aggregate (2" to 3") or reclaimed or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the entrance.

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

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

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

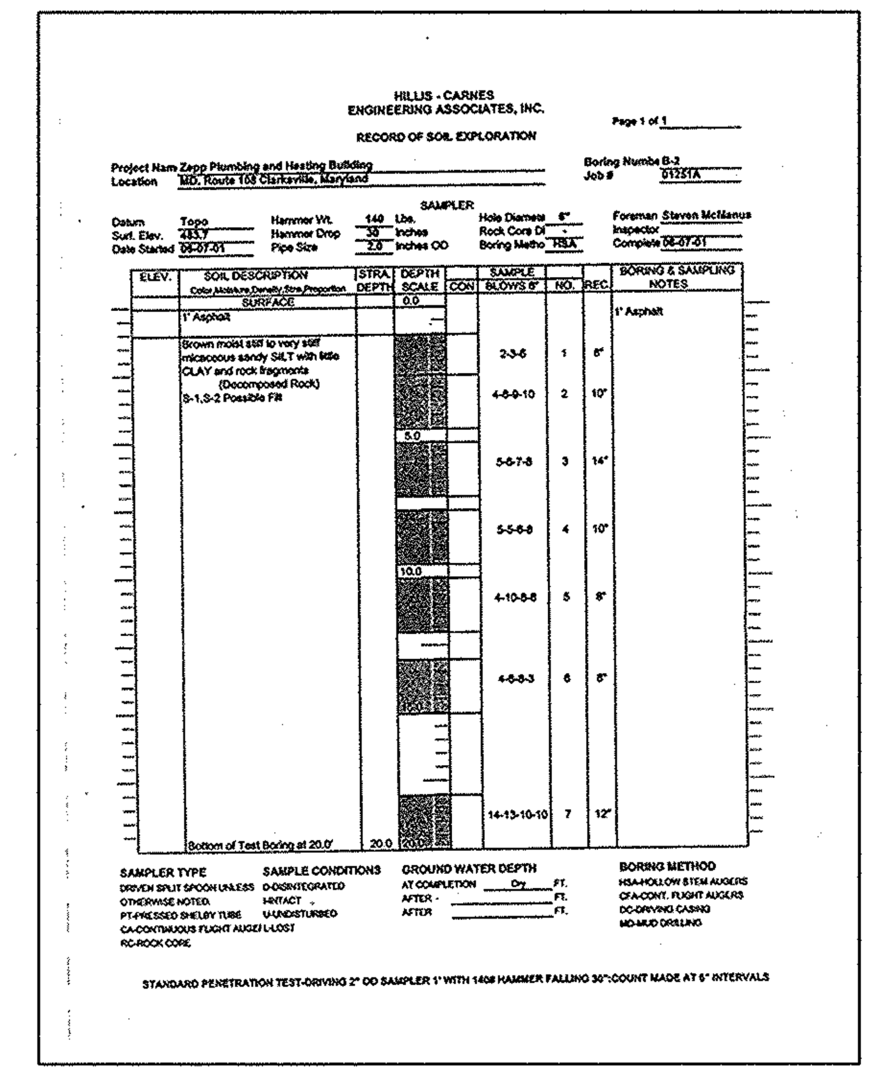
QUANTITIES NOTES: Quantities are provided for informational purposes only. Contractor to make his own analysis prior to placing a bid on grading work. See standard sediment control notes no. 7 site analysis / cut & fill.



HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION
Page 1 of 1
Project Name: Zepp Plumbing and Heating Building — Boring Number B-1 — Job # 01251A
Location: MD. Route 108 Clarksville, Maryland
Surf. Elev. 484.2 — Hammer Wt. 140 Lbs. — Hammer Drop 30 Inches — Pipe Size 2.0 Inches OD — Hole Diameter 6" — Boring Method HSA — Foreman Steven McManus

SOIL DESCRIPTION	SAMPLE BLOWS 6"	NO.	REC	BORING & SAMPLING NOTES
1" Asphalt				1" Asphalt
White to brown moist soft to hard micaceous sandy SILT with rock fragments (Decomposed Rock)	11-9	1	11"	
	1-3-3-4	2	9"	
Tan, brown orange moist medium dense micaceous silty fine to medium sand (Decomposed Rock)	5-6-7-8	3	10"	Caved in at 12.0' at Completion
	4-7-8-9	4	10"	
	5-5-8-10	5	10"	
	4-5-7-8	6	11"	
Bottom of Test Boring at 20.0'	3-15-17-19	7	12"	

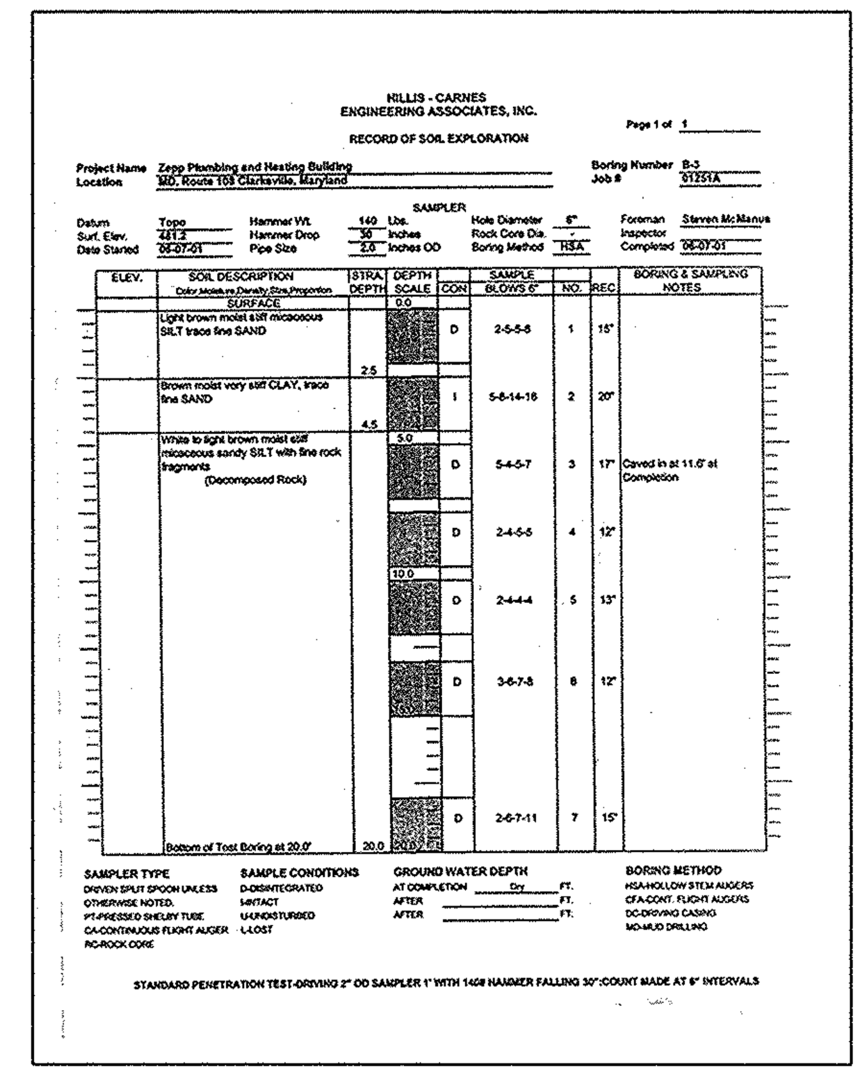
GROUND WATER DEPTH: AT COMPLETION Dry FT.
STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30";COUNT MADE AT 6" INTERVALS



HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION
Page 1 of 1
Project Name: Zepp Plumbing and Heating Building — Boring Number B-2 — Job # 01251A
Location: MD. Route 108 Clarksville, Maryland
Surf. Elev. 483.7 — Foreman Steven McManus

SOIL DESCRIPTION	SAMPLE BLOWS 6"	NO.	REC	BORING & SAMPLING NOTES
1" Asphalt				1" Asphalt
Brown moist stiff to very stiff micaceous sandy SILT with little CLAY and rock fragments (Decomposed Rock) S-1,S-2 Possible Fill	2-3-6	1	6"	
	4-8-9-10	2	10"	
	5-6-7-8	3	14"	
	5-5-6-8	4	10"	
	4-10-8-8	5	8"	
	4-6-8-3	6	8"	
Bottom of Test Boring at 20.0'	14-13-10-10	7	12"	

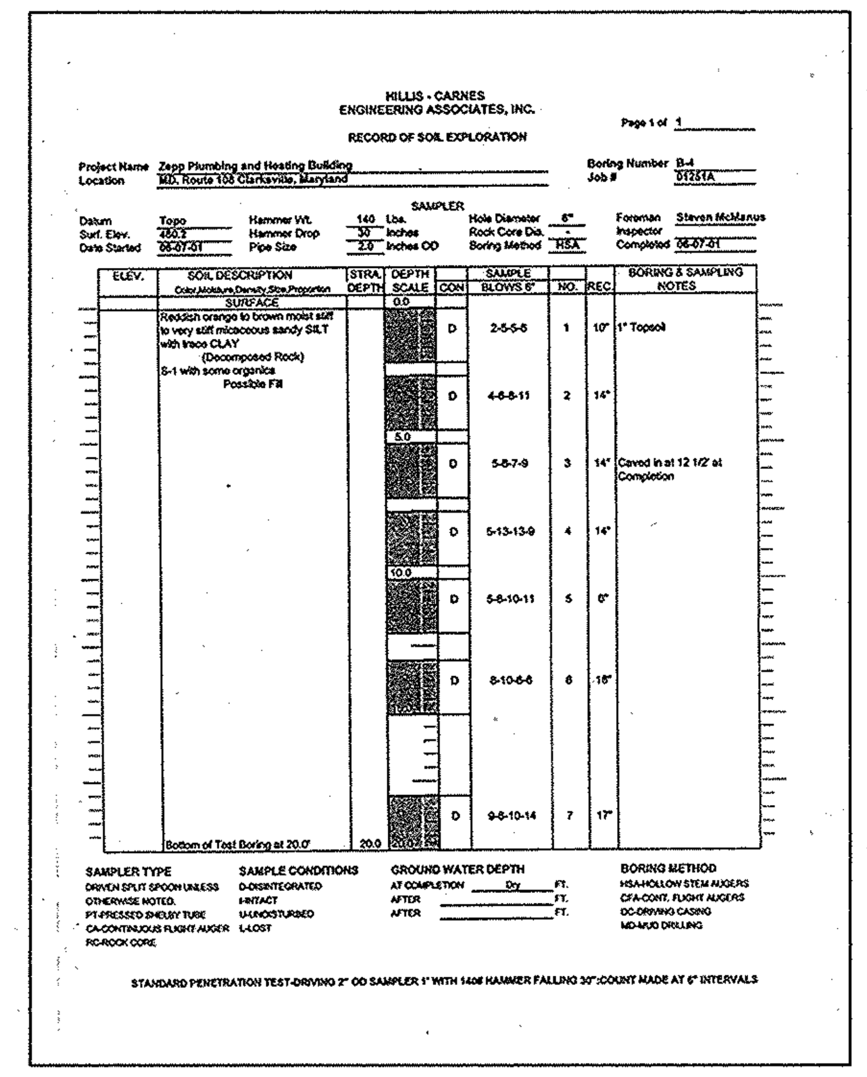
GROUND WATER DEPTH: AT COMPLETION Dry FT.



HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION
Page 1 of 1
Project Name: Zepp Plumbing and Heating Building — Boring Number B-3 — Job # 01251A
Location: MD. Route 108 Clarksville, Maryland
Surf. Elev. 481.2 — Foreman Steven McManus

SOIL DESCRIPTION	SAMPLE BLOWS 6"	NO.	REC	BORING & SAMPLING NOTES
Light brown moist stiff micaceous SILT trace fine SAND	2-5-5-5	1	15"	
Brown moist very stiff CLAY, trace fine SAND	5-8-14-16	2	20"	
White to light brown moist stiff micaceous sandy SILT with fine rock fragments (Decomposed Rock)	5-4-5-7	3	17"	Caved in at 11.0' at Completion
	2-4-5-5	4	12"	
	2-4-4-4	5	13"	
	3-6-7-8	6	12"	
Bottom of Test Boring at 20.0'	2-6-7-11	7	15"	

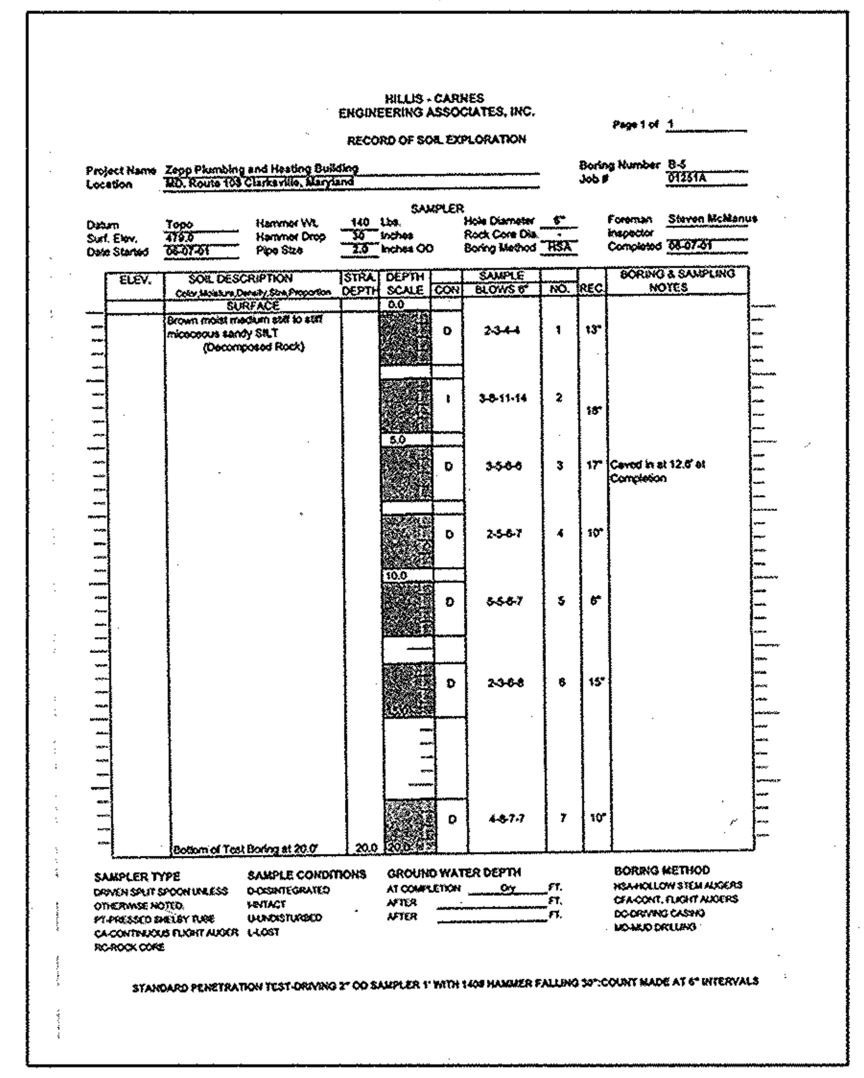
GROUND WATER DEPTH: AT COMPLETION Dry FT.



HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION
Page 1 of 1
Project Name: Zepp Plumbing and Heating Building — Boring Number B-4 — Job # 01251A
Location: MD. Route 108 Clarksville, Maryland
Surf. Elev. 480.2 — Foreman Steven McManus

SOIL DESCRIPTION	SAMPLE BLOWS 6"	NO.	REC	BORING & SAMPLING NOTES
Reddish orange to brown moist stiff to very stiff micaceous sandy SILT with trace CLAY (Decomposed Rock) S-1 with some organics Possible Fill	2-5-5-6	1	10"	1" Topsoil
	4-6-8-11	2	14"	
	5-8-7-9	3	14"	Caved in at 12 1/2' at Completion
	5-13-13-9	4	14"	
	5-8-10-11	5	6"	
	8-10-6-6	6	18"	
Bottom of Test Boring at 20.0'	9-8-10-14	7	17"	

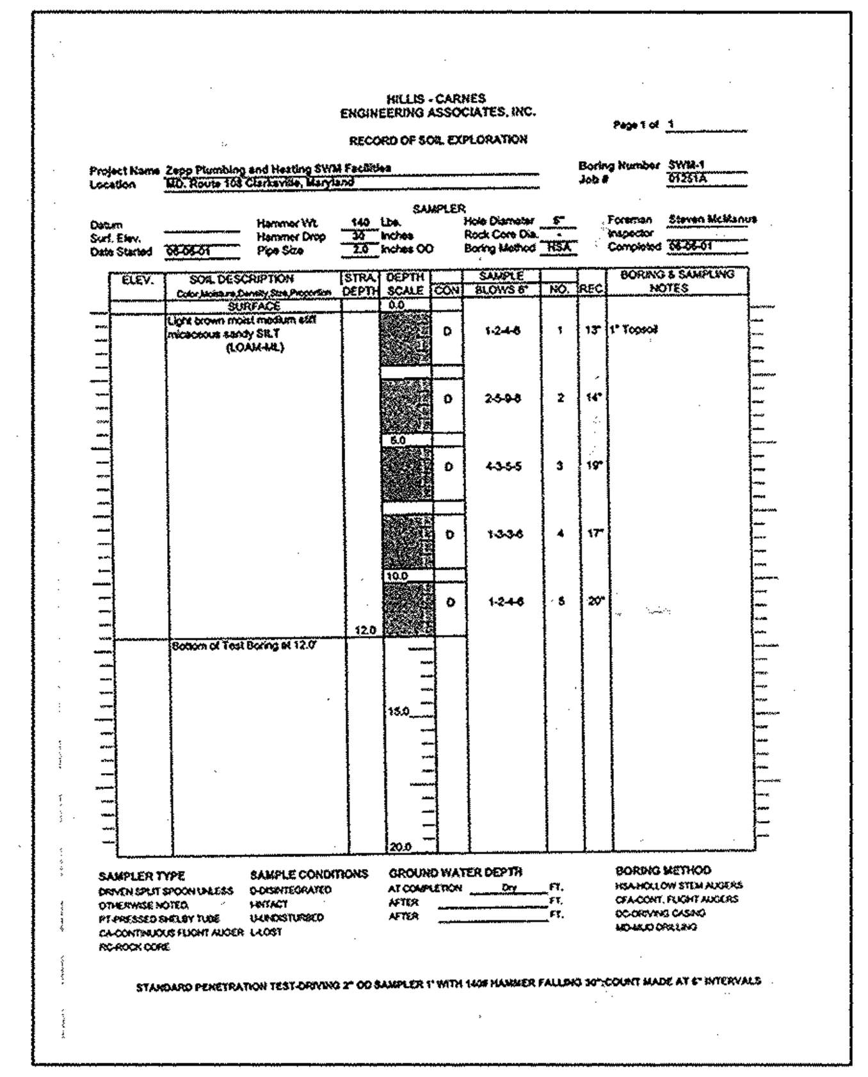
GROUND WATER DEPTH: AT COMPLETION Dry FT.



HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION
Page 1 of 1
Project Name: Zepp Plumbing and Heating Building — Boring Number B-5 — Job # 01251A
Location: MD. Route 108 Clarksville, Maryland
Surf. Elev. 479.0 — Foreman Steven McManus

SOIL DESCRIPTION	SAMPLE BLOWS 6"	NO.	REC	BORING & SAMPLING NOTES
Brown moist medium stiff to stiff micaceous sandy SILT (Decomposed Rock)	2-3-4-4	1	13"	
	3-8-11-14	2	18"	
	3-5-6-6	3	17"	Caved in at 12.6' at Completion
	2-5-6-7	4	10"	
	5-5-6-7	5	8"	
	2-3-6-8	6	15"	
Bottom of Test Boring at 20.0'	4-6-7-7	7	10"	

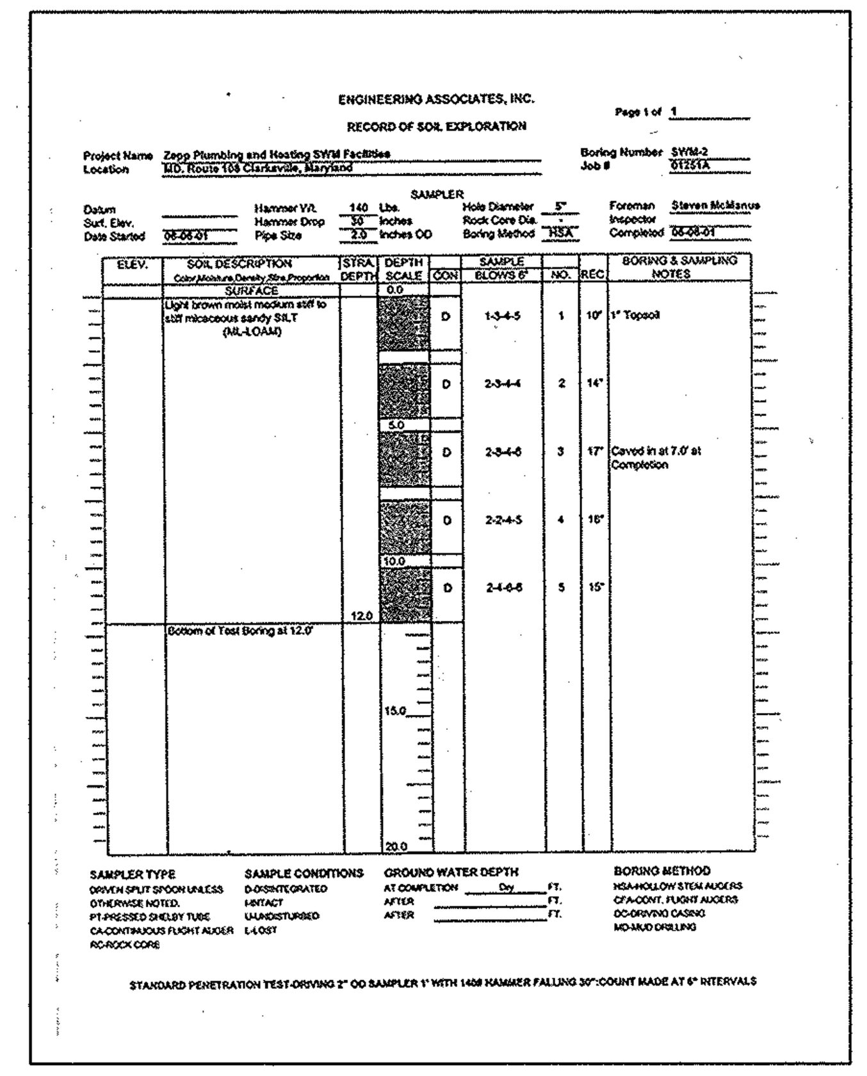
GROUND WATER DEPTH: AT COMPLETION Dry FT.



HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION
Page 1 of 1
Project Name: Zepp Plumbing and Heating SWM Facilities — Boring Number SWM-1 — Job # 01251A
Location: MD. Route 108 Clarksville, Maryland
Foreman Steven McManus

SOIL DESCRIPTION	SAMPLE BLOWS 6"	NO.	REC	BORING & SAMPLING NOTES
Light brown moist medium stiff micaceous sandy SILT (LOAM-ML)	1-2-4-6	1	13"	1" Topsoil
	2-5-9-8	2	14"	
	4-3-5-5	3	19"	
	1-3-3-6	4	17"	
	1-2-4-6	5	20"	
Bottom of Test Boring at 12.0'				

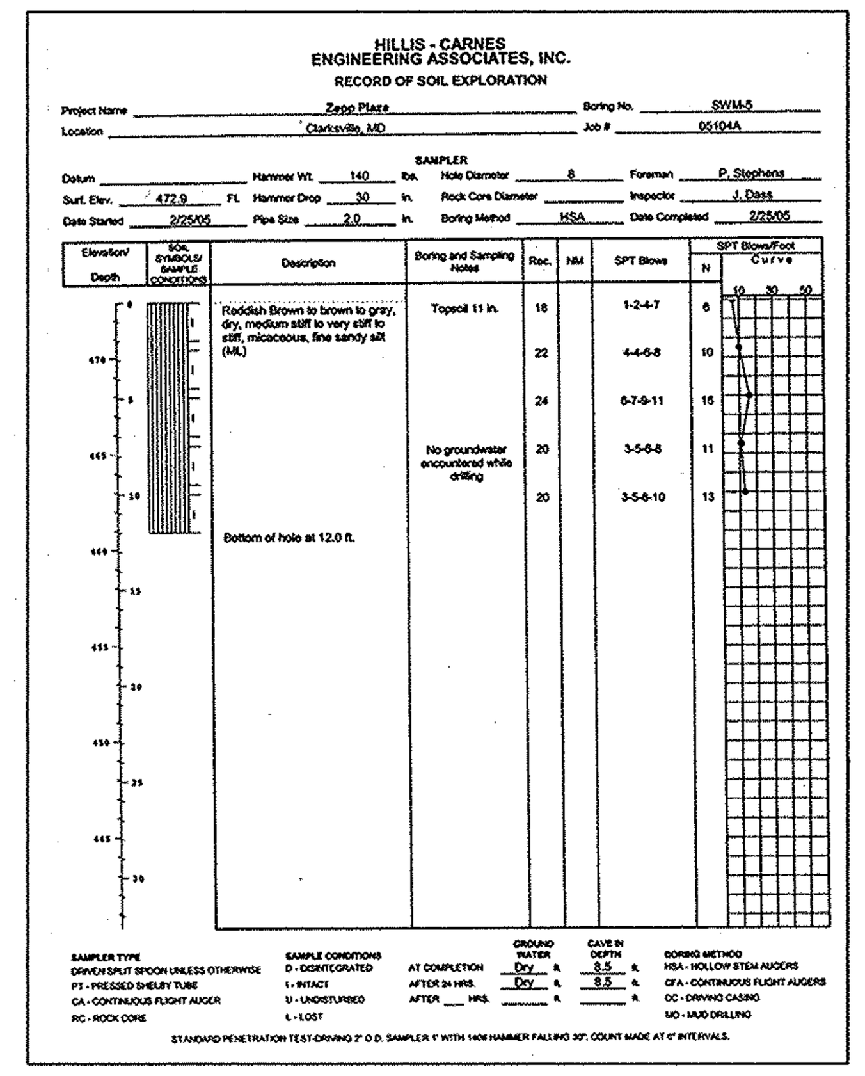
GROUND WATER DEPTH: AT COMPLETION Dry FT.



ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION
Page 1 of 1
Project Name: Zepp Plumbing and Heating SWM Facilities — Boring Number SWM-2 — Job # 01251A
Location: MD. Route 108 Clarksville, Maryland
Hole Diameter 5" — Foreman Steven McManus

SOIL DESCRIPTION	SAMPLE BLOWS 6"	NO.	REC	BORING & SAMPLING NOTES
Light brown moist medium stiff to stiff micaceous sandy SILT (ML-LOAM)	1-3-4-5	1	10"	1" Topsoil
	2-3-4-4	2	14"	
	2-3-4-6	3	17"	Caved in at 7.0' at Completion
	2-2-4-5	4	18"	
	2-4-6-6	5	15"	
Bottom of Test Boring at 12.0'				

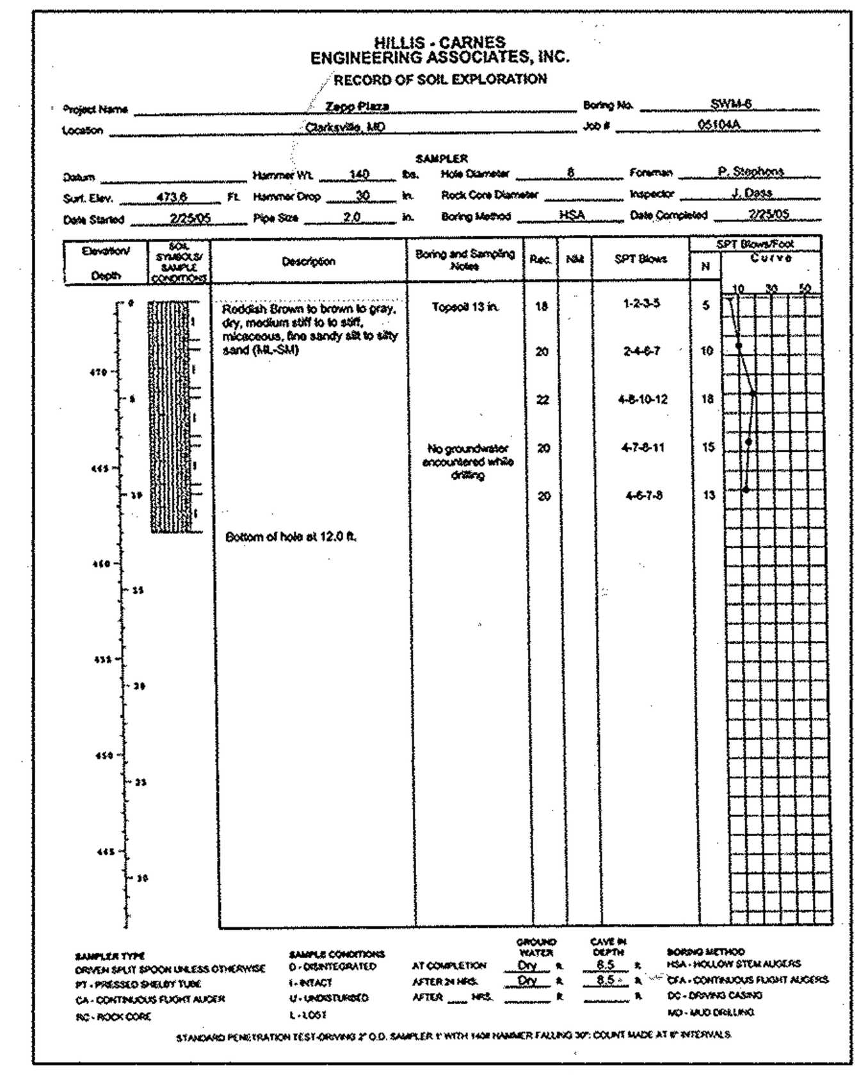
GROUND WATER DEPTH: AT COMPLETION Dry FT.



HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION
Project Name: Zepp Plaza — Boring No. SWM-5
Location: Clarksville, MD — Job # 05104A
Surf. Elev. 472.9 ft. — Hammer Wt. 140 lbs. — Hammer Drop 30 in. — Pipe Size 2.0 in. — Hole Diameter 8 — Boring Method HSA — Foreman P. Stephens — Inspector J. Dass — Date Started 2/25/05 — Date Completed 2/25/05

Description	Boring and Sampling Notes	Rec.	SPT Blows	N
Reddish Brown to brown to gray, dry, medium stiff to very stiff to stiff, micaceous, fine sandy silt (ML)	Topsoil 11 in.	18	1-2-4-7	6
		22	4-4-6-8	10
		24	6-7-9-11	16
	No groundwater encountered while drilling	20	3-5-6-8	11
		20	3-5-8-10	13
Bottom of hole at 12.0 ft.				

GROUND WATER: AT COMPLETION Dry — AFTER 24 HRS. Dry — CAVE IN DEPTH 8.5 ft.



HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION
Project Name: Zepp Plaza — Boring No. SWM-6
Location: Clarksville, MD — Job # 05104A
Surf. Elev. 473.6 ft. — Hammer Wt. 140 lbs. — Hammer Drop 30 in. — Pipe Size 2.0 in. — Hole Diameter 8 — Boring Method HSA — Foreman P. Stephens — Inspector J. Dass — Date Started 2/25/05 — Date Completed 2/25/05

Description	Boring and Sampling Notes	Rec.	SPT Blows	N
Reddish Brown to brown to gray, dry, medium stiff to stiff, micaceous, fine sandy silt to silty sand (ML-SM)	Topsoil 13 in.	18	1-2-3-5	5
		20	2-4-6-7	10
		22	4-8-10-12	18
	No groundwater encountered while drilling	20	4-7-8-11	15
		20	4-6-7-8	13
Bottom of hole at 12.0 ft.				

GROUND WATER: AT COMPLETION Dry — AFTER 24 HRS. Dry — CAVE IN DEPTH 8.5 ft.

NOTE: For remaining Soil Boring Data see sheet 9 of 13.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DIRECTOR	DATE 2/16/06
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 2/16/06
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 2/14/06

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICALREQUIREMENTS.

NATURAL RESOURCE CONSERVATION SERVICE — DATE 2/9/06

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 2/9/06

REVISIONS

No.	Date	Description

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS OF DEVELOPMENT 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 ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

Rosemary W. Zepp — 1/27/06

SIGNATURE OF DEVELOPER — DATE

ENGINEER'S CERTIFICATE

I CERTIFY THAT THESE PLANS FOR SEDIMENT AND EROSION CONTROL REPRESENT 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.

STATE OF MARYLAND — BRUCE DAVID BURTON — No. 19184 — REGISTERED PROFESSIONAL ENGINEER

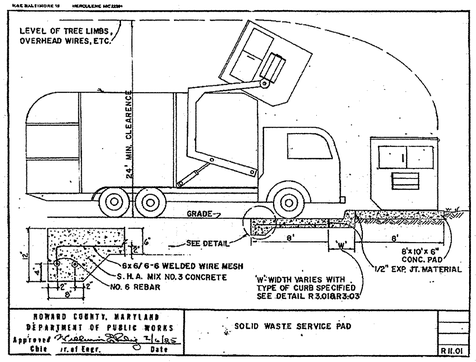
Bruce D. Burton — 1/27/06

SIGNATURE OF ENGINEER — DATE

LDE, INC.
9250 Rumsey Road, Suite 106, Columbia, MD. 21045 (410) 715-1070
(301) 596-3424 (410) 715-9540 (Fax)

DESIGNED S.D.H. J.L.M.	Grading and Sediment Control Notes & Details	SCALE As Shown
DRAWN J.D.R. S.T.B.	ZEPP PLAZA Parcel A Tax Map 34, Parcel 155 Plat No. 17437 12447 Clarksville Pike Clarksville, Maryland 21029	DRAWING 4 of 13
CHECKED B.D.B.	5th Election District - Howard County, Maryland Previous Submittals: F-05-027	JOB NO. 01-067
DATE 1/2006	OWNER: Zepp Plaza, LLC. 12435 Clarksville Pike Clarksville, Maryland (410) 531-6712 DEVELOPER: Crystal Hill Advisors 11737 Rte 108 Clarksville, Maryland (410) 531-6700	FILE NO. SDP-05-021

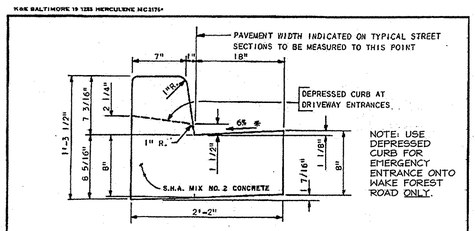
SDP-05-021



HOWARD COUNTY, MARYLAND DEPARTMENT OF PUBLIC WORKS
Approved Norman Rose 7/1/85
Chief, Bureau of Engr. Date

SOLID WASTE SERVICE PAD

R.11.01



NOTE: USE DEPRESSED CURB FOR EMERGENCY ENTRANCE ONTO WAKE FOREST ROAD ONLY.

STANDARD 7" COMBINATION CURB AND GUTTER

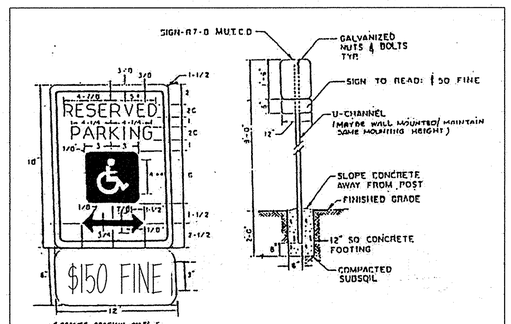
GUTTER PAN AT THE MEDIAN EDGE OF INTERMEDIATE ARTERIALS OR THE HIGH SIDE OF SUPERELEVATED SECTIONS SHALL BE SLOPED AT THE SAME RATE AND IN THE SAME DIRECTION AS THE PAVEMENT. MATCH PAVEMENT CROSS SLOPE WHEN CURB IS LOCATED ON THE LOW SIDE OF SUPERELEVATED SECTION AND THE RATE OF SUPERELEVATION IS GREATER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

REV. JAN. 1989
REV. JUN. 1987
REV. MAR. 1986

HOWARD COUNTY, MARYLAND DEPARTMENT OF PUBLIC WORKS
Approved Norman Rose 1-15-81
Chief-Bureau of Engineering

COMBINATION CURB AND GUTTER

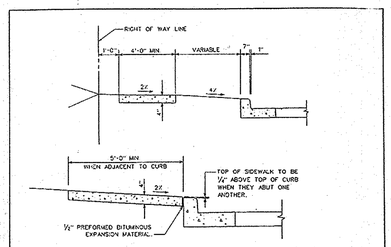
DRAWN BY W.T. BALLARD
CHECKED BY J.L.B.
NO SCALE
R- 3.01



(ALL DIMENSIONS FOR SIGN IN INCHES)

COLORS:
LEGEND & BORDER-GREEN
WHITE SYMBOL ON BLUE BACKGROUND
BACKGROUND-WHITE

REFERENCE STATE OF MARYLAND STANDARD HIGHWAY SIGNS BOOKLET
MARYLAND DEPARTMENT OF TRANSPORTATION



DETAIL 'A'

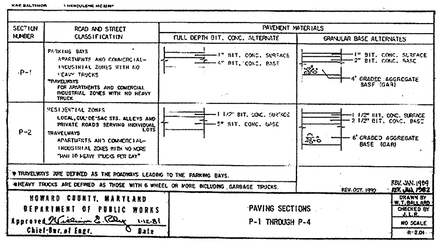
NOTES:

1. SIDEWALK TO BE SCRIBED IN 5'-0" MAXIMUM SQUARES.
2. EXPANSION JOINTS ACROSS THE SIDEWALK NOT TO MORE THAN 15' APART.
3. 1/2" PREFORMED BITUMINOUS EXPANSION MATERIAL IN EXPANSION JOINTS TO BE KEPT 1/2" BELOW SURFACE OF SIDEWALK.
4. CONCRETE TO BE MIX NO. 2
5. WHEN SIDEWALK ABUTS CURB, WALK SHALL BE 1/2" ABOVE CURB WITH 1/2" PREFORMED BITUMINOUS EXPANSION MATERIAL BETWEEN SIDEWALK AND CURB.
6. ON LONGITUDINAL SIDEWALK GRADES OF 5% OR GREATER, A CONCRETE HEADER, 6" THICK AND 6" DEEP BELOW THE NORMAL 4" SIDEWALK THICKNESS SHALL BE CONSTRUCTED FOR THE FULL WIDTH OF THE SIDEWALK AT INTERVALS OF 48 FEET. THE HEADERS SHALL BE PLACED AT EXPANSION JOINT LOCATIONS AND SHALL BE MONOLITHIC WITH THE SIDEWALK.
7. SIDEWALK WIDTH ADJACENT TO CURB SHALL BE 5'-0" MIN EXCEPT SIDEWALK ADJACENT TO CURB IN CUL-DE-SAC BULBS MAY BE 4'-0" WIDE.
8. SIDEWALK LOCATED 2'-0R MORE FROM CURB MAY BE 4'-0" IN WIDTH WITH A 5'x5' PAVED SECTION PLACED 200' APART

HOWARD COUNTY, MARYLAND DEPARTMENT OF PUBLIC WORKS
Approved Harold E. Rogers 10/20/05
Chief - Bureau of Engineering Date

CONCRETE SIDEWALK

DWN: T.P.
CHK: W.M.H.
NO SCALE
R - 3.05



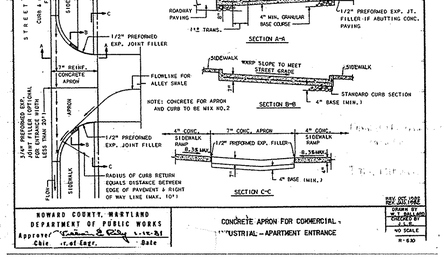
* TRAVELWAYS ARE DEFINED AS THE ROADWAYS LEADING TO THE PARKING BAYS.
#HEAVY TRUCKS ARE DEFINED AS THOSE WITH 6 WHEEL OR MORE INCLUDING GARBAGE TRUCKS.

REV-DOT 1990 REV JAN 1989 REV JAN 1982

HOWARD COUNTY, MARYLAND DEPARTMENT OF PUBLIC WORKS
Approved Norman Rose 1-15-81
Chief-Bur. of Engr. Date

PAVING SECTIONS P-1 THROUGH P-4

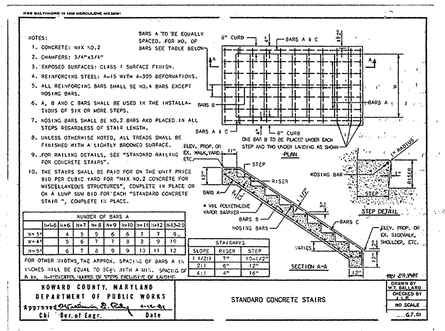
DRAWN BY W.T.BALLARD
CHECKED BY J.L.B.
NO SCALE
R-3.04



HOWARD COUNTY, MARYLAND DEPARTMENT OF PUBLIC WORKS
Approved Norman Rose 1-15-81
Chief-Bur. of Engr. Date

CONCRETE APRON FOR COMMERCIAL - INDUSTRIAL - APARTMENT ENTRANCE

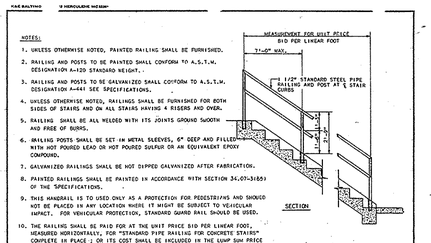
REV JAN 1982 REV JAN 1989
DRAWN BY W.T. BALLARD
CHECKED BY J.L.B.
NO SCALE
R-3.03



STANDARD CONCRETE STAIRS

REV JUNE

DRAWN BY W.T. BALLARD
CHECKED BY J.L.B.
NO SCALE
R-3.01



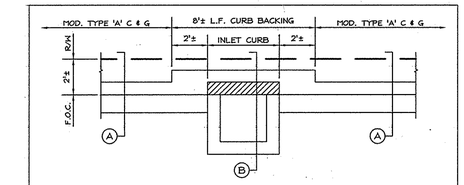
NOTES:

1. UNLESS OTHERWISE NOTED, PAINTED RAILING SHALL BE FURNISHED.
2. RAILING AND POSTS TO BE PAINTED SHALL CONFORM TO A.S.T.M. DESIGNATION A-120 STANDARD WEIGHT.
3. RAILING AND POSTS TO BE GALVANIZED SHALL CONFORM TO A.S.T.M. DESIGNATION A-444 SEE SPECIFICATIONS.
4. UNLESS OTHERWISE NOTED, RAILINGS SHALL BE FURNISHED FOR BOTH SIDES OF STAIRS AND ON ALL STAIRS HAVING 4 RISERS AND OVER.
5. RAILING SHALL BE ALL WELDED WITH ITS JOINTS GROUND SMOOTH AND FREE OF BURRS.
6. RAILING POSTS SHALL BE SET IN METAL SLEEVES, 6" DEEP AND FILLED WITH HOT POURED LEAD OR HOT POURED SULFUR OR AN EQUIVALENT EPOXY COMPOUND.
7. GALVANIZED RAILINGS SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION.
8. PAINTED RAILINGS SHALL BE PAINTED IN ACCORDANCE WITH SECTION 34.07-3(b5) OF THE SPECIFICATIONS.
9. THIS HANDRAIL IS TO USED ONLY AS A PROTECTION FOR PEDESTRIANS AND SHOULD NOT BE PLACED IN ANY LOCATION WHERE IT MIGHT BE SUBJECT TO VEHICULAR IMPACT. FOR VEHICULAR PROTECTION, STANDARD GUARD RAIL SHOULD BE USED.
10. THE RAILING SHALL BE PAID FOR AT THE UNIT PRICE BID PER LINEAR FOOT, MEASURED HORIZONTALLY, FOR "STANDARD PIPE RAILING FOR CONCRETE STAIRS" COMPLETE IN PLACE ; OR ITS COST SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR "STANDARD CONCRETE STAIR", COMPLETE IN PLACE.

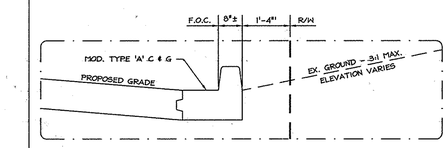
HOWARD COUNTY, MARYLAND DEPARTMENT OF PUBLIC WORKS
Approved Norman Rose 1-15-81
Chief-Bur. of Engr. Date

STANDARD PIPE RAILING FOR CONCRETE STAIRS

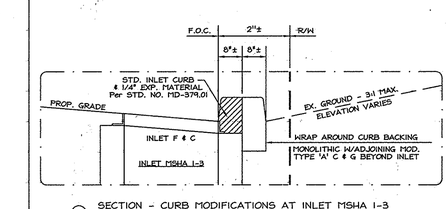
REV JAN 1982
DRAWN BY W.T. BALLARD
CHECKED BY J.L.B.
NO SCALE
R-3.02



PLAN - CURB MODIFICATIONS AT INLET MSHA I-3
SCALE: 1/4" = 1'-0"



(A) SECTION - MODIFIED MSHA TYPE 'A' CURB & GUTTER - TYP.
(SEE STD. NO. MD 620.02 SHOWN BELOW - FOR INFO NOT SHOWN ABOVE)



(B) SECTION - CURB MODIFICATIONS AT INLET MSHA I-3
(SEE STD. NO. MD 620.02 SHOWN BELOW - FOR INFO NOT SHOWN ABOVE)

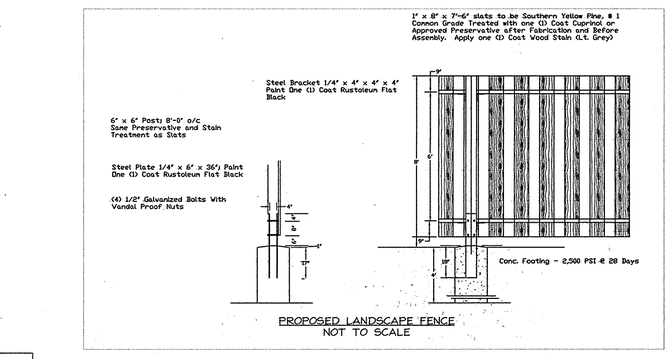
DETAILS - MODIFIED MSHA TYPE 'A' CURB & GUTTER
(PROPOSED FOR USE ALONG MD ROUTE 108 R/W AT PARCEL 156)
SCALE: 1/2" = 1'-0" U.N.O.

TYPE 'A'
COMBINATION CURB & GUTTER
DESIGN SPEED 30-40 MPH
(OPTIONAL) URBAN AREA DESIGN SPEED 50 MPH

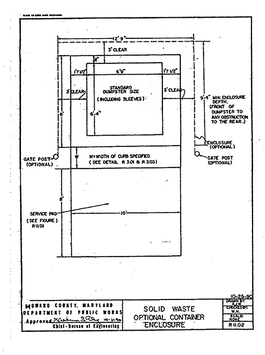
NOTES:
A. MAXIMUM JOINT SPACING FOR CONCRETE CURB AND COMBINATION CURB & GUTTER IS 10'. SEE SPECIFICATION FOR LOCATIONS AND DESCRIPTION OF TREATMENT FOR THE TYPES OF JOINTS USED.

M.D.O.T. S.H.A.

MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
STANDARD TYPES A & B CONCRETE CURB AND COMBINATION CONCRETE CURB & GUTTER MODIFIED
STANDARD NO. MD 620.02



PROPOSED LANDSCAPE FENCE
NOT TO SCALE



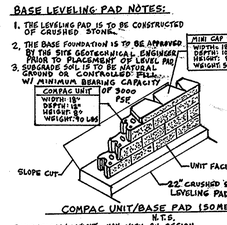
HOWARD COUNTY, MARYLAND DEPARTMENT OF PUBLIC WORKS
Approved Norman Rose 1-15-81
Chief-Bureau of Engineering

SOLID WASTE OPTIONAL CONTAINER ENCLOSURE

DRAWN BY W.T. BALLARD
CHECKED BY J.L.B.
NO SCALE
R.11.02

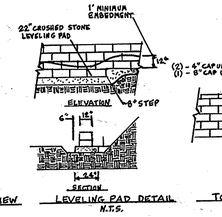
BASE LEVELING PAD NOTES:

1. THE LEVELING PAD IS TO BE CONSTRUCTED OF CRUSHED STONE.
2. THE BASE FOUNDATION IS TO BE APPROVED BY THE SITE GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT OF LEVEL PAD.
3. SUBGRADE SOILS TO BE NATURAL GROUND OR CONTROLLED FILL W/ MINIMUM BEARING CAPACITY OF 3000 PSF

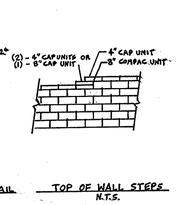


COMPAC UNIT/BASE PAD ISOMETRIC VIEW
N.T.S.

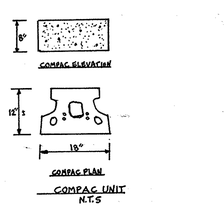
DIMENSIONS & WEIGHT MAY VARY BY REGION



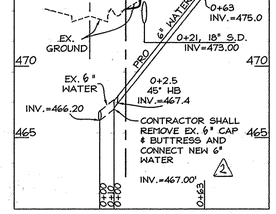
LEVELING PAD DETAIL
N.T.S.



TOP OF WALL STEPS
N.T.S.



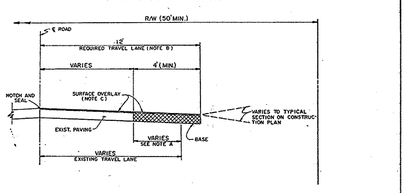
COMPAC UNIT
N.T.S.



6" PRIVATE WATER PROFILE

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

FOR RT. 108 ONLY



NOTE A - WHEN EXISTING TRAVEL LANE IS LESS THAN THE REQUIRED 12' LANE, CONTRACTOR SHALL REMOVE ENOUGH OF THE EXISTING ROAD BED TO PROVIDE A MINIMUM BASE WIDENING OF 4'

NOTE B - THE SURFACE OVERLAY SHALL BE CARRIED TO THE ℄ OF THE ROAD AND NOTCHED AND SEALED

NOTE C - SURFACE OVERLAY COURSE TO BE EQUAL TO SURFACE COURSE OF TYPICAL PAVING SECTION OF SUBDIVISION

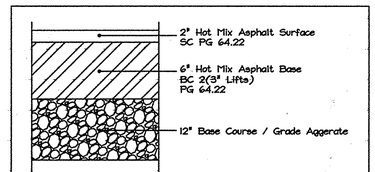
NOTE D - ℄ OF ROAD TO BE MILLED AT DEPTH OF 1½" x 1' WIDE USING A MILLING MACHINE.

REV JAN 1989

HOWARD COUNTY, MARYLAND DEPARTMENT OF PUBLIC WORKS
Approved Norman Rose 1-15-81
Chief-Bur. of Engr. Date

WIDENING STRIPS ALONG EXISTING ROADWAYS
NO SCALE

DRAWN BY W.T. BALLARD
CHK BY W.M.H.
NO SCALE
R.10.01



STATE HIGHWAY FULL DEPTH PAVEMENT SECTION
N.T.S.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DIRECTOR — DATE 2/16/06

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/16/06

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 2/14/06

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICALREQUIREMENTS.

NATURAL RESOURCE CONSERVATION SERVICE — DATE

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

HOWARD SOIL CONSERVATION DISTRICT — DATE

REVISIONS

No.	Date	Description
1	11/2006	Added retaining wall details
2	11/2006	Revised sewer connection, revised landscaping, revised Stormtech WQ configuration, show relocated traffic control structure, added underdrain system to pick up roof drainage.

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS OF DEVELOPMENT 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 ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

Zachary W. Zepp 1/27/06
SIGNATURE OF DEVELOPER — DATE

ENGINEER'S CERTIFICATE

I CERTIFY THAT THESE PLANS FOR SEDIMENT AND EROSION CONTROL REPRESENT 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.

STATE OF MARYLAND BRUCE DAVID BURTON NO. 19186 REGISTERED PROFESSIONAL ENGINEER

Bruce D. Burton 1/27/06
SIGNATURE OF ENGINEER — DATE

LDE, INC.
9250 Rumsey Road, Suite 106, Columbia, MD. 21045 (410) 715-1070
(301) 596-3424 (410) 715-9540 (Fax)

CONSTRUCTION DETAILS & UTILITY PROFILES

ZEPP PLAZA

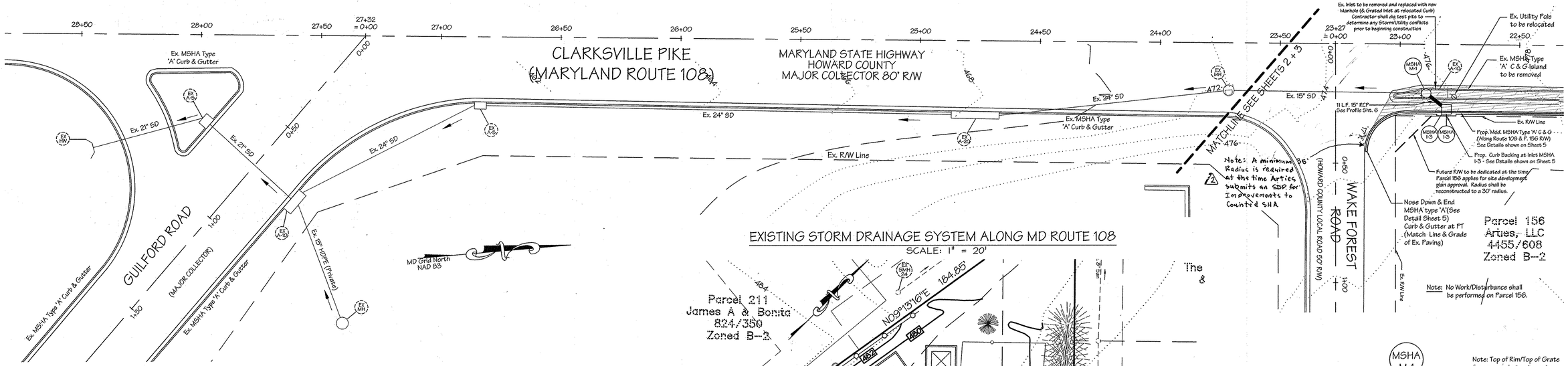
Parcel A
Tax Map 34, Parcel 155
Plat No. 17437
12447 Clarksville Pike
Clarksville, Maryland 21029
5th Election District - Howard County, Maryland
Previous Submittals: F-05-027

DESIGNED	J.L.M.
DRAWN	J.L.M.
CHECKED	B.D.B.
DATE	1/2006
SCALE	AS SHOWN
DRAWING	5 of 13
JOB NO.	99-062
FILE NO.	SDP-05-021

OWNER: Zepp Plaza, LLC. 12485 Clarksville Pike Clarksville, Maryland (410) 531-6712
DEVELOPER: Crystal Hill Advisors 11737 Rte 108 Clarksville, Maryland (410) 531-6700

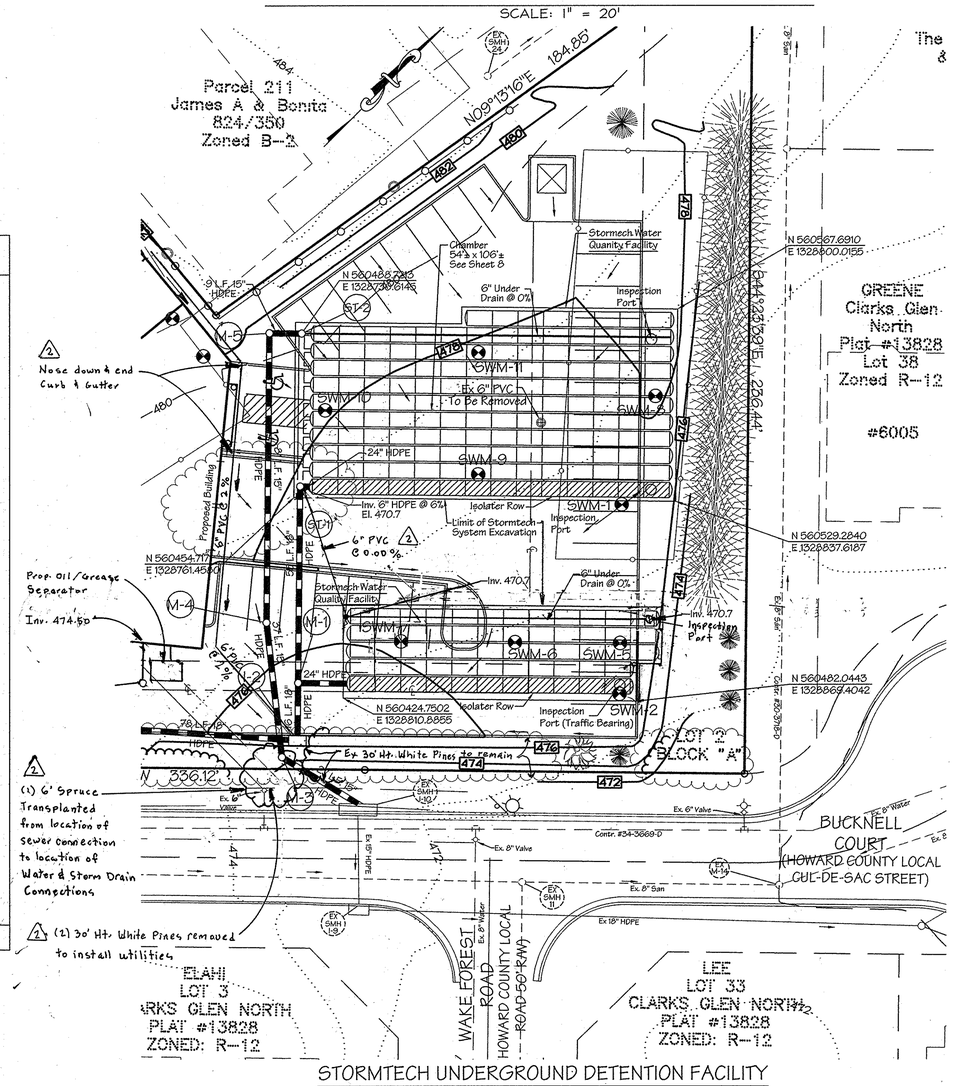
SDP-05-021

F:\99-062-1\dwg\99-062-1 CON DET (5) Jeny CON DETAILS (5), 1/27/2006 5:16:26 PM



EXISTING STORM DRAINAGE SYSTEM ALONG MD ROUTE 108

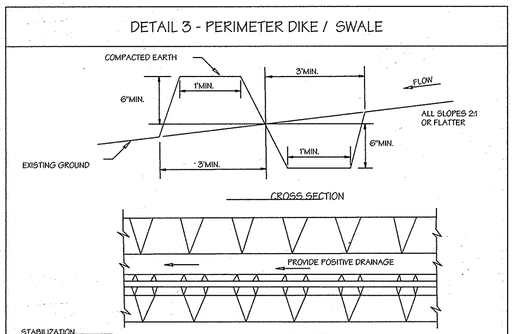
SCALE: 1" = 20'



STORMTECH UNDERGROUND DETENTION FACILITY

SCALE: 1" = 20'

DETAIL 3 - PERIMETER DIKE / SWALE



STABILIZATION

PD/S-1 SEED AND MULCH (DRAINING 1 ACRE)
PD/S-2 SEED AND COVER WITH SOIL
STABILIZATION MATTING OR
LINE WITH SOD (DRAINING BETWEEN 1 AND 2 ACRES)

STANDARD SYMBOL

PD/S-1

Construction Specifications

1. All perimeter dike/swales shall have an 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 into an undisturbed stabilized area at a non-erosive velocity.

4. The swale shall be excavated or shaped to line, grade, and cross-section as required to meet the criteria specified in the standard.

5. Fill shall be compacted by earth moving equipment.

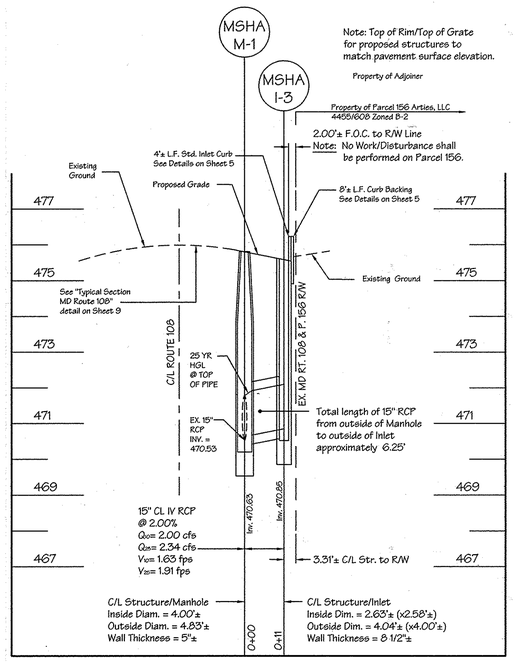
6. Stabilization with seed and mulch or as specified of the area disturbed by the dike and swale shall be completed within 7 days upon removal.

7. Inspection and required maintenance shall be provided after each rain event.

Note: The maximum drainage area for this practice is 2 acres.

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

MSHA STORM DRAIN PROFILE MSHA M-1 TO MSHA I-3



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DIRECTOR — DATE 2/14/06

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/14/06

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 2/14/06

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICALREQUIREMENTS.

NATURAL RESOURCE CONSERVATION SERVICE — DATE

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

HOWARD SOIL CONSERVATION DISTRICT — DATE

REVISIONS

No.	Date	Description
2	11/2006	Revised sewer connection, revised landscaping, revised Stormtech WQ configuration, show relocated traffic control structure, added underdrain system to pick up roof drainage.

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS OF DEVELOPMENT 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 ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

SIGNATURE OF DEVELOPER — DATE 1/27/06

STATE OF MARYLAND BRUCE DAVID BUNTON No. 19196 REGISTERED PROFESSIONAL ENGINEER — 1/27/06

ENGINEER'S CERTIFICATE

I CERTIFY THAT THESE PLANS FOR SEDIMENT AND EROSION CONTROL REPRESENT 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 1/27/06

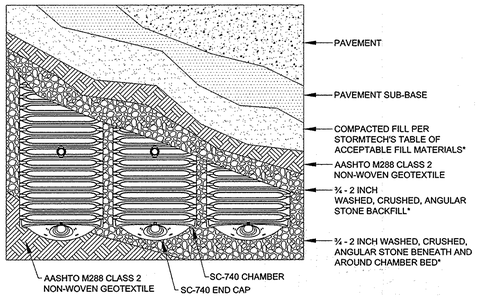
Subdivision Name: Zepp Plaza	Sect/Area N/A; Parcel/No. 155
Plat No. 17437	Block No. 12; Zone B-2; Tax Map No. 34; Election District 5th; Census Tract 6051.02
Water Code III	Sewer Code 6650000

LDE, INC.
9250 Rumsey Road, Suite 106, Columbia, MD. 21045 (410) 715-1070
(301) 596-3424 (410) 715-9540 (Fax)

DESIGNED S.D.H.	Underground Detention Facility and State Highway Drainage Details
DRAWN J.M.B.	ZEPP PLAZA
CHECKED B.D.B.	Parcel A Tax Map 34, Parcel 155 Plat No. 17437 12447 Clarksville Pike Clarksville, Maryland 21029 5th Election District - Howard County, Maryland Previous Submittals: F-05-027
DATE 1/2006	OWNER: Zepp Plaza, LLC. 12435 Clarksville Pike Clarksville, Maryland (410) 531-6712 DEVELOPER: Crystal Hill Advisors 11737 Rte 108 Clarksville, Maryland (410) 531-6700
SCALE 1" = 20'	
DRAWING 6 of 13	
JOB NO. 99-062	
FILE NO. SDP-05-021	

F:\99-062-Turkey\99-0621-S1\DET (6).dwg, STORMTECH & RET WALL PLAN (6), 1/27/2006 4:45:07 PM

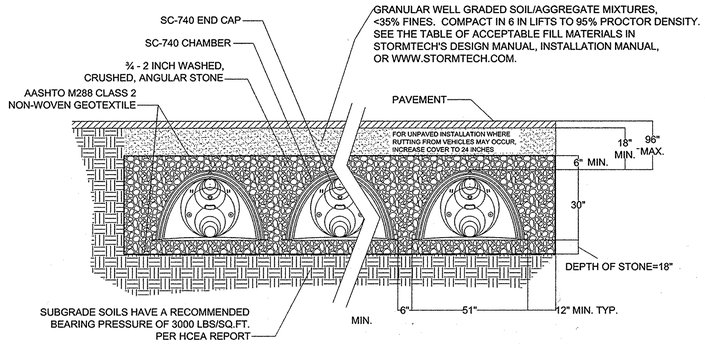
SDP-05-021



STORMTECH SC-740 CHAMBER SYSTEM
PLAN VIEW DETAIL
NOT TO SCALE

FOR STORMTECH
INFORMATION CALL 1-888-892-2694

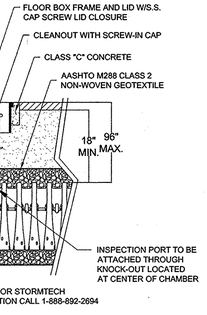
* SEE STORMTECH'S DESIGN MANUAL



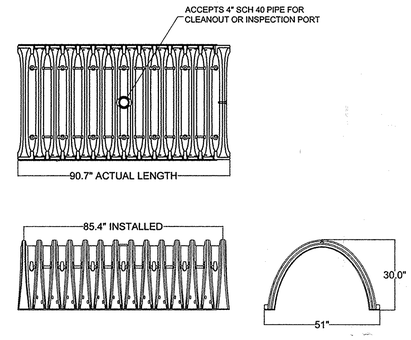
FOR STORMTECH
INFORMATION CALL 1-888-892-2694

STORMTECH SC-740 CHAMBER SYSTEM
TYPICAL CROSS SECTION DETAIL
NOT TO SCALE

*SEE STORMTECH'S DESIGN MANUAL



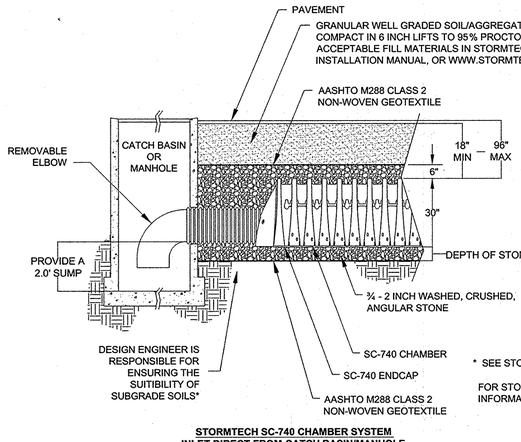
STORMTECH SC-740 CHAMBER SYSTEM
OPTIONAL INSPECTION PORT DEATAIL
NOT TO SCALE



STORMTECH SC-740 CHAMBER

NOMINAL CHAMBER SPECIFICATIONS	
SIZE (W x H x INSTALLED LENGTH)	51.0" x 30.0" x 85.4"
CHAMBER STORAGE	45.9 CUBIC FEET
MINIMUM INSTALLED STORAGE	74.9 CUBIC FEET
WEIGHT	75 LBS.

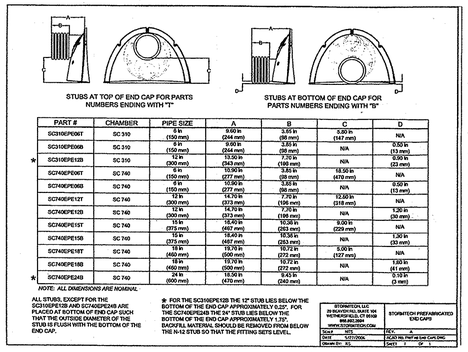
FOR STORMTECH
INFORMATION CALL 1-888-892-2694



STORMTECH SC-740 CHAMBER SYSTEM
INLET DIRECT FROM CATCH BASIN/MANHOLE
NOT TO SCALE

* SEE STORMTECH'S DESIGN MANUAL

FOR STORMTECH
INFORMATION CALL 1-888-892-2694



PART #	CHAMBER	PIPE SIZE	A	B	C	D
SC310EPE06T	SC 310	6 in (150 mm)	9.00 in (644 mm)	3.05 in (98 mm)	5.80 in (147 mm)	N/A
SC310EPE06B	SC 310	6 in (150 mm)	9.00 in (644 mm)	0.83 in (98 mm)	N/A	0.50 in (13 mm)
* SC310EPE12B	SC 310	12 in (300 mm)	13.30 in (343 mm)	7.20 in (186 mm)	N/A	0.85 in (22 mm)
SC740EPE06T	SC 740	6 in (150 mm)	10.90 in (277 mm)	3.83 in (98 mm)	18.50 in (470 mm)	N/A
SC740EPE06B	SC 740	6 in (150 mm)	10.90 in (277 mm)	3.83 in (98 mm)	N/A	0.50 in (13 mm)
SC740EPE12T	SC 740	12 in (300 mm)	14.70 in (373 mm)	7.70 in (196 mm)	12.00 in (318 mm)	N/A
SC740EPE12B	SC 740	12 in (300 mm)	14.70 in (373 mm)	7.70 in (196 mm)	N/A	1.20 in (30 mm)
SC740EPE15T	SC 740	15 in (375 mm)	18.40 in (467 mm)	10.26 in (263 mm)	9.00 in (229 mm)	N/A
SC740EPE15B	SC 740	15 in (375 mm)	18.40 in (467 mm)	10.26 in (263 mm)	N/A	1.20 in (32 mm)
SC740EPE18T	SC 740	18 in (450 mm)	19.70 in (500 mm)	10.72 in (272 mm)	5.00 in (127 mm)	N/A
SC740EPE18B	SC 740	18 in (450 mm)	19.70 in (500 mm)	10.72 in (272 mm)	N/A	1.60 in (41 mm)
* SC740EPE24B	SC 740	24 in (600 mm)	18.50 in (470 mm)	9.45 in (240 mm)	N/A	0.10 in (3 mm)

NOTE: ALL DIMENSIONS ARE NOMINAL

ALL STUBS, EXCEPT FOR THE SC310EPE12B AND SC740EPE24B ARE PLACED AT BOTTOM OF END CAP SUCH THAT THE OUTSIDE DIAMETER OF THE STUB IS FLUSH WITH THE BOTTOM OF THE END CAP.

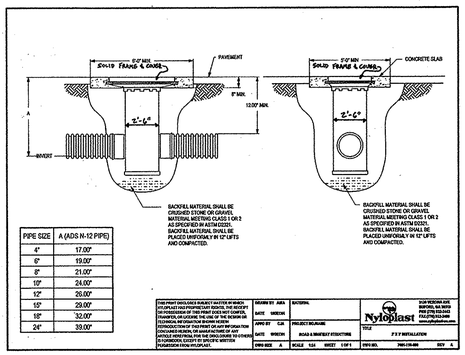
* FOR THE SC310EPE12B THE 12" STUB LIES BELOW THE BOTTOM OF THE END CAP APPROXIMATELY 0.25", FOR THE SC740EPE24B THE 24" STUB LIES BELOW THE BOTTOM OF THE END CAP APPROXIMATELY 1.25". BACKFILL MATERIAL SHOULD BE REMOVED FROM BELOW THE N-12 STUB SO THAT THE FITTING SETS LEVEL.

STORMTECH, LLC
20 BEAVER ROAD, SUITE 104
WETHERSFIELD, CT 06109
860.882.2694
WWW.STORMTECH.COM

STORMTECH FIELD FABRICATED END CAPS

Scale: NTS
Drawn By: S.STOTCHEK
Checked By: TJ

DETAIL No. PART as SHIP CAPS END
DATE 1 OF 1

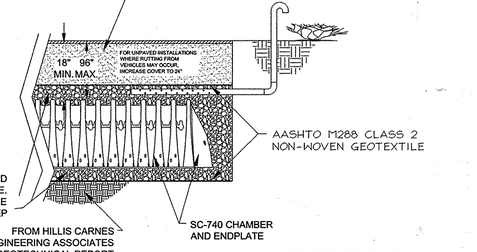


PIPE SIZE	A (ADS N-12 PIPE)
4"	17.00"
6"	19.00"
8"	21.00"
10"	24.00"
12"	26.00"
15"	29.00"
18"	32.00"
24"	39.00"

THIS PRINT DISCLOSES IN SUBJECT MATTER BY WHICH DEVELOPMENT HAS PROPRIETARY RIGHTS. THE RECEIPT OR POSSESSION OF THIS PRINT DOES NOT CONVEY, LICENSE OR IMPLY ANY RIGHT TO USE IT WITHOUT THE EXPRESS WRITTEN PERMISSION OF NYLOPLAST OR ITS SUCCESSORS. REPRODUCTION OF THIS PRINT OR ANY PART THEREOF, OR DISCLOSURE OF ITS CONTENTS, WITHOUT SUCH PRIOR WRITTEN PERMISSION, SHALL NOT BE IMPLIED. ANY USE OF THIS PRINT SHALL CONSTITUTE AN AGREEMENT TO THE FOREGOING AND ACCEPTANCE OF THE RESPONSIBILITY FOR ANY DAMAGES RESULTING FROM ITS UNAUTHORIZED USE.

DRAWN BY: AMS | MATERIAL:
DATE: 9/08/05 | CHECKED:
APPD BY: CJB | PROJECT: BOLT-DOWN
DATE: 9/08/05 | SCALE: NONE | SHEET: 1 OF 1 | DWG NO.

Nyloplast
TITLE: F3 T INSTALLATION

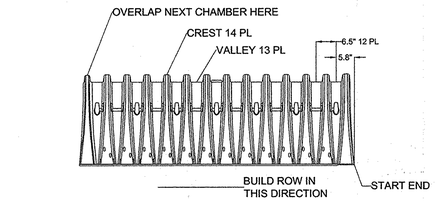


* SEE STORMTECH'S DESIGN MANUAL

FOR STORMTECH
INFORMATION CALL 1-888-892-2694

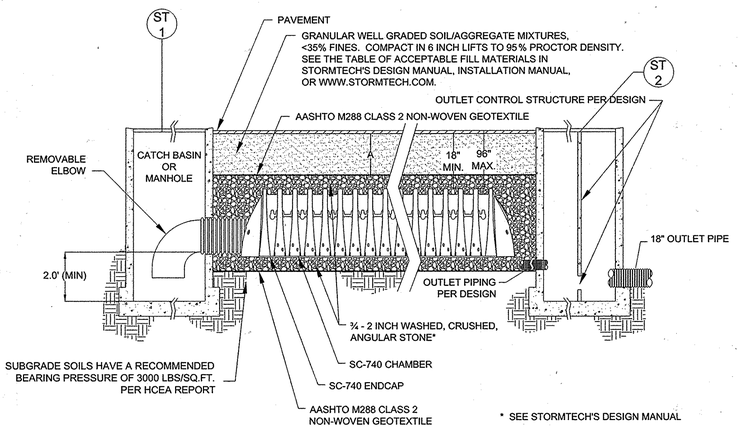
STORMTECH SC-740 CHAMBER SYSTEM
VENT DETAIL
NOT TO SCALE

FOR STORMTECH
INFORMATION CALL 1-888-892-2694



STORMTECH SC-740 CHAMBER
CORRUGATION DETAIL
NOT TO SCALE

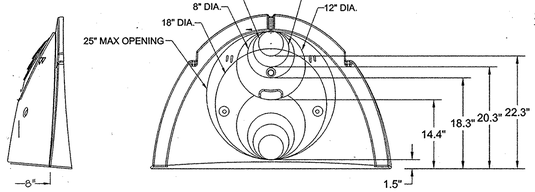
FOR STORMTECH
INFORMATION CALL 1-888-892-2694



* SEE STORMTECH'S DESIGN MANUAL

FOR STORMTECH
INFORMATION CALL 1-888-892-2694

STORMTECH SC-740 CHAMBER SYSTEM
INLET OUTLET DETAIL
NOT TO SCALE



STORMTECH SC-740 CHAMBER
END CAP DETAIL
NOT TO SCALE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DIRECTOR — DATE 2/16/06

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/16/06

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 2/14/06

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICALREQUIREMENTS.

NATURAL RESOURCE CONSERVATION SERVICE — DATE

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

HOWARD SOIL CONSERVATION DISTRICT — DATE

REVISIONS

No.	Date	Description

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS OF DEVELOPMENT 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 ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF DEVELOPER — DATE 1/27/06

ENGINEER'S CERTIFICATE

I CERTIFY THAT THESE PLANS FOR SEDIMENT AND EROSION CONTROL REPRESENT 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.

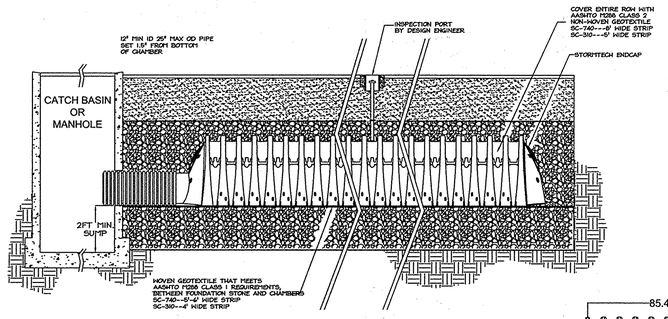
SIGNATURE OF ENGINEER — DATE 1/27/06

LDE, INC.
9250 Rumsey Road, Suite 106, Columbia, MD. 21045 (410) 715-1070
(301) 596-3424 (410) 715-9540 (Fax)

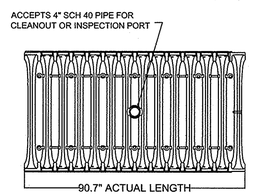
DESIGNED S.D.H.	Stormwater Management Details ZEPP PLAZA Parcel A Tax Map 34, Parcel 155 Plat No. 17437 12447 Clarksville Pike Clarksville, Maryland 21029 5th Election District - Howard County, Maryland Previous Submittals: F-05-027	SCALE AS SHOWN
DRAWN M.D.L.		DRAWING 7 of 13
CHECKED S.D.H.		JOB NO. 99-062
DATE 1/2006	OWNER: Zepp Plaza, LLC. 12435 Clarksville Pike Clarksville, Maryland (410) 531-6712 DEVELOPER: Crystal Hill Advisors 11737 Rte 108 Clarksville, Maryland (410) 531-6700	FILE NO. SDP-05-021

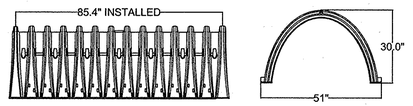
SDP-05-021

F:\99-062\Dwg\99-062-1 SWM DET (7).dwg, STORM TECH (7), 1/27/2006 4:50:50 PM

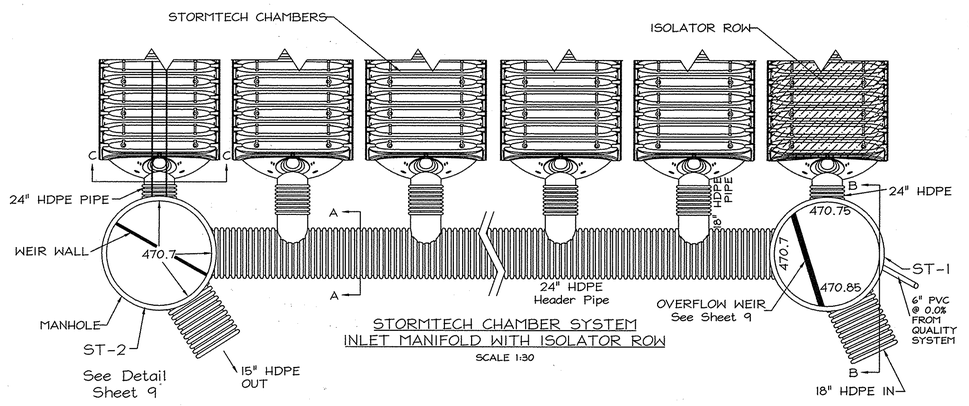


STORMTECH ISOLATOR ROW
PROFILE VIEW DETAIL
SCALE 1:30



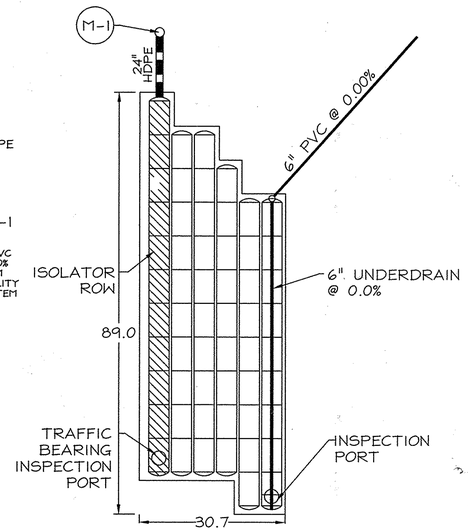


STORMTECH SC-740 CHAMBER
SCALE 1:30



STORMTECH CHAMBER SYSTEM
INLET MANIFOLD WITH ISOLATOR ROW
SCALE 1:30

58 STORMTECH SC-740 CHAMBERS
STORAGE PER CHAMBER - 88.4 CF (18 INCH STONE BASE)
TOTAL STORAGE PROVIDED - 5,127.2 CF



WATER QUALITY
CHAMBER PLAN VIEW
NOT TO SCALE

STORMTECH PRODUCT SPECIFICATIONS

1.0 GENERAL

1.1 STORMTECH CHAMBERS ARE DESIGNED TO CONTROL STORMWATER RUNOFF. AS A SUBSURFACE RETENTION SYSTEM, STORMTECH CHAMBERS RETAIN AND ALLOW EFFECTIVE INFILTRATION OF WATER INTO THE SOIL. AS A SUBSURFACE DETENTION SYSTEM, STORMTECH CHAMBERS DETAIN AND ALLOW FOR THE METERED FLOW OF WATER TO AN OUTFALL.

2.0 CHAMBER PARAMETERS

2.1 THE CHAMBER SHALL BE INJECTION MOLDED OF POLYPROPYLENE RESIN TO BE INHERENTLY RESISTANT TO ENVIRONMENTAL STRESS CRACKING (ESCR), AND TO MAINTAIN ADEQUATE STIFFNESS THROUGH HIGHER TEMPERATURES EXPERIENCED DURING INSTALLATION AND SERVICE.

2.2 THE NOMINAL CHAMBER DIMENSIONS OF THE STORMTECH SC-740 SHALL BE 30.0 INCHES TALL, 51.0 INCHES WIDE AND 90.7 INCHES LONG. THE NOMINAL CHAMBER DIMENSIONS OF THE STORMTECH SC-310 SHALL BE 16.0 INCHES TALL, 34.0 INCHES WIDE AND 90.7 INCHES LONG. THE INSTALLED LENGTH OF A JOINED CHAMBER SHALL BE 85.4 INCHES.

2.3 THE CHAMBER SHALL HAVE A CONTINUOUSLY CURVED SECTION PROFILE.

2.4 THE CHAMBER SHALL BE OPEN-BOTTOMED.

2.5 THE CHAMBER SHALL INCORPORATE AN OVERLAPPING CORRUGATION JOINT SYSTEM TO ALLOW CHAMBER ROWS OF ALMOST ANY LENGTH TO BE CREATED. THE OVERLAPPING CORRUGATION JOINT SYSTEM SHALL BE EFFECTIVE WHILE ALLOWING A CHAMBER TO BE TRIMMED TO SHORTEN ITS OVERALL LENGTH.

2.6 THE NOMINAL STORAGE VOLUME OF A JOINED STORMTECH SC-740 CHAMBER SHALL BE 74.9 CUBIC FEET PER CHAMBER WHEN INSTALLED PER STORMTECH'S TYPICAL DETAILS (INCLUDES THE VOLUME OF CRUSHED ANGULAR STONE WITH AN ASSUMED 40% POROSITY). THIS EQUATES TO 2.2 CUBIC FEET OF STORAGE/SQUARE FOOT OF BED. THE NOMINAL STORAGE VOLUME OF AN INSTALLED STORMTECH SC-310 CHAMBER SHALL BE 31.0 CUBIC FEET PER CHAMBER WHEN INSTALLED PER STORMTECH'S TYPICAL DETAILS (INCLUDES THE VOLUME OF CRUSHED ANGULAR STONE WITH AN ASSUMED 40% POROSITY). THIS EQUATES TO 1.3 CUBIC FEET OF STORAGE/SQUARE FOOT OF BED.

2.7 THE CHAMBER SHALL HAVE FORTY-EIGHT ORIFICES PENETRATING THE SIDEWALLS TO ALLOW FOR LATERAL CONVEYANCE OF WATER.

2.8 THE CHAMBER SHALL HAVE TWO ORIFICES NEAR ITS TOP TO ALLOW FOR EQUALIZATION OF AIR PRESSURE BETWEEN ITS INTERIOR AND EXTERIOR.

2.9 THE CHAMBER SHALL HAVE BOTH OF ITS ENDS OPEN TO ALLOW FOR UNIMPEDED HYDRAULIC FLOWS AND VISUAL INSPECTIONS DOWN A ROW'S ENTIRE LENGTH.

2.10 THE CHAMBER SHALL HAVE 14 CORRUGATIONS.

2.11 THE CHAMBER SHALL HAVE A CIRCULAR, INDENTED, FLAT SURFACE ON THE TOP OF THE CHAMBER FOR AN OPTIONAL 4-INCH INSPECTION PORT OR CLEAN-OUT.

2.12 THE CHAMBER SHALL BE ANALYZED AND DESIGNED USING AASHTO METHODS FOR THERMOPLASTIC CULVERTS CONTAINED IN THE LRFD BRIDGE DESIGN SPECIFICATIONS, 2ND EDITION, INCLUDING INTERIM SPECIFICATIONS THROUGH 2001. DESIGN LIVE LOAD SHALL BE THE AASHTO HS20 TRUCK. DESIGN SHALL CONSIDER EARTH AND LIVE LOADS AS APPROPRIATE FOR THE MINIMUM TO MAXIMUM SPECIFIED DEPTH OF FILL.

2.13 THE CHAMBER SHALL BE MANUFACTURED IN AN ISO 9001:2000 CERTIFIED FACILITY.

3.0 END CAP PARAMETERS

3.1 THE END CAP SHALL BE INJECTION MOLDED OF POLYPROPYLENE RESIN TO BE INHERENTLY RESISTANT TO ENVIRONMENTAL STRESS CRACKING, AND TO MAINTAIN ADEQUATE STIFFNESS THROUGH HIGHER TEMPERATURES EXPERIENCED DURING INSTALLATION AND SERVICE.

3.2 THE END CAP SHALL BE DESIGNED TO FIT INTO ANY CORRUGATION OF A CHAMBER, WHICH ALLOWS: CAPPING A CHAMBER THAT HAS ITS LENGTH TRIMMED; SEGMENTING ROWS INTO STORAGE BASINS OF VARIOUS LENGTHS.

3.3 THE END CAP SHALL HAVE SAW GUIDES TO ALLOW EASY CUTTING FOR VARIOUS DIAMETERS OF PIPE THAT MAY BE USED TO INLET THE SYSTEM.

3.4 THE END CAP SHALL HAVE EXCESS STRUCTURAL ADEQUACIES TO ALLOW CUTTING AN ORIFICE OF ANY SIZE AT ANY INVERT ELEVATION.

3.5 THE PRIMARY FACE OF AN END CAP SHALL BE CURVED OUTWARD TO RESIST HORIZONTAL LOADS GENERATED NEAR THE EDGES OF BEDS.

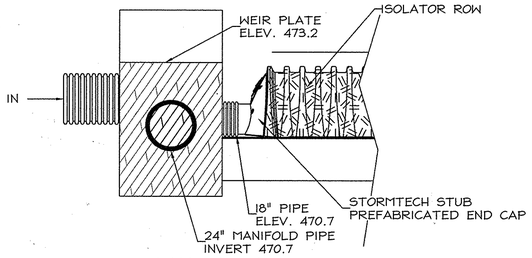
3.6 THE END CAP SHALL BE MANUFACTURED IN AN ISO 9001:2000 CERTIFIED FACILITY.

NOMINAL CHAMBER SPECIFICATIONS
SIZE (W x H x INSTALLED LENGTH) 51.0" x 30.0" x 85.4"
CHAMBER STORAGE 45.9 CUBIC FEET
MINIMUM INSTALLED STORAGE 74.9 CUBIC FEET
WEIGHT 75 LBS.

FOR STORMTECH INFORMATION CALL 1-888-892-2694

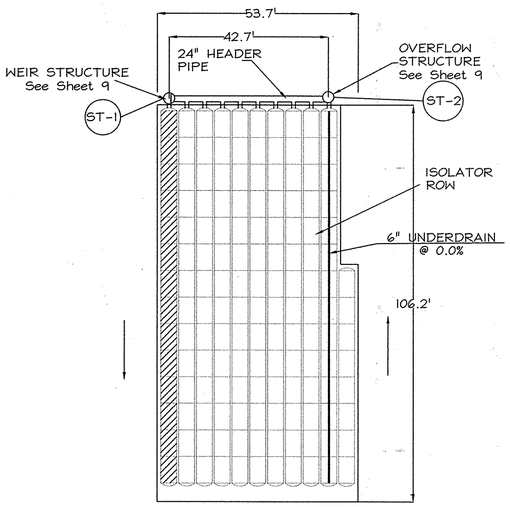
STORMTECH GENERAL NOTES

1. STORMTECH LLC ("STORMTECH") REQUIRES INSTALLING CONTRACTORS TO USE AND UNDERSTAND STORMTECH'S LATEST INSTALLATION INSTRUCTIONS PRIOR TO BEGINNING SYSTEM INSTALLATION.
2. OUR TECHNICAL SERVICES DEPARTMENT OFFERS INSTALLATION CONSULTATIONS TO INSTALLING CONTRACTORS. CONTACT OUR TECHNICAL SERVICES REPRESENTATIVE AT LEAST 30 DAYS PRIOR TO SYSTEM INSTALLATION TO ARRANGE A PRE-INSTALLATION CONSULTATION. OUR REPRESENTATIVES CAN THEN ANSWER QUESTIONS OR ADDRESS COMMENTS ON THE STORMTECH CHAMBER SYSTEM AND INFORM THE INSTALLING CONTRACTOR OF THE MINIMUM INSTALLATION REQUIREMENTS BEFORE BEGINNING THE SYSTEM'S CONSTRUCTION. CALL **1-888-892-2694** TO SPEAK TO A TECHNICAL SERVICE REPRESENTATIVE OR VISIT **WWW.STORMTECH.COM** TO RECEIVE A COPY OF OUR INSTALLATION INSTRUCTIONS.
3. STORMTECH'S REQUIREMENTS FOR SYSTEMS WITH PAVEMENT DESIGN (ASPHALT, CONCRETE PAVERS, ETC.): MINIMUM COVER IS 18 INCHES NOT INCLUDING PAVEMENT; MAXIMUM COVER IS 96 INCHES INCLUDING PAVEMENT. FOR INSTALLATIONS THAT DO NOT INCLUDE PAVEMENT, WHERE RUTTING FROM VEHICLES MAY OCCUR, MINIMUM REQUIRED COVER IS 24 INCHES, MAXIMUM COVER IS 96 INCHES.
4. THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE DESIGN ENGINEER.
5. AASHTO M288 CLASS 2 NON-WOVEN GEOTEXTILE (FILTER FABRIC) MUST BE USED AS INDICATED IN THE PROJECT PLANS.
6. STONE PLACEMENT BETWEEN CHAMBERS ROWS AND AROUND PERIMETER MUST FOLLOW INSTRUCTIONS AS INDICATED IN THE MOST CURRENT VERSION OF STORMTECH'S INSTALLATION INSTRUCTIONS.
7. BACKFILLING OVER THE CHAMBERS MUST FOLLOW REQUIREMENTS AS INDICATED IN THE MOST CURRENT VERSION OF STORMTECH'S INSTALLATION INSTRUCTIONS.
8. THE CONTRACTOR MUST REFER TO STORMTECH'S INSTALLATION INSTRUCTIONS FOR A TABLE OF ACCEPTABLE VEHICLE LOADS AT VARIOUS DEPTHS OF COVER. THIS INFORMATION IS ALSO AVAILABLE AT STORMTECH'S WEBSITE: **WWW.STORMTECH.COM**. THE CONTRACTOR IS RESPONSIBLE FOR PREVENTING VEHICLES THAT EXCEED STORMTECH'S REQUIREMENTS FROM TRAVELING ACROSS OR PARKING OVER THE STORMWATER SYSTEM. TEMPORARY FENCING, WARNING TAPE AND APPROPRIATELY LOCATED SIGNS ARE COMMONLY USED TO PREVENT UNAUTHORIZED VEHICLES FROM ENTERING SENSITIVE CONSTRUCTION AREAS.
9. THE CONTRACTOR MUST APPLY EROSION AND SEDIMENT CONTROL MEASURES TO PROTECT THE STORMWATER SYSTEM DURING ALL PHASES OF SITE CONSTRUCTION PER LOCAL CODES AND DESIGN ENGINEER'S SPECIFICATIONS.
10. STORMTECH PRODUCT WARRANTY IS LIMITED. SEE CURRENT PRODUCT WARRANTY FOR DETAILS. TO ACQUIRE A COPY CALL STORMTECH AT **1-888-892-2694** OR VISIT **WWW.STORMTECH.COM**.

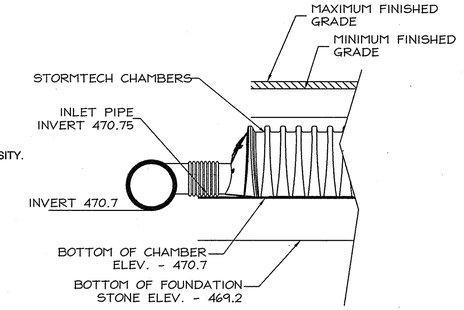


SECTION A_A @ ST-1
SCALE 1:30

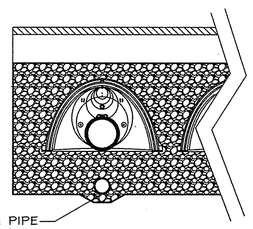
148 STORMTECH SC-740 CHAMBERS
STORAGE PER CHAMBER - 88.4 CF (18 INCH STONE BASE)
TOTAL STORAGE PROVIDED - 13,083.2 CF



WATER QUANTITY
CHAMBER PLAN VIEW
NOT TO SCALE



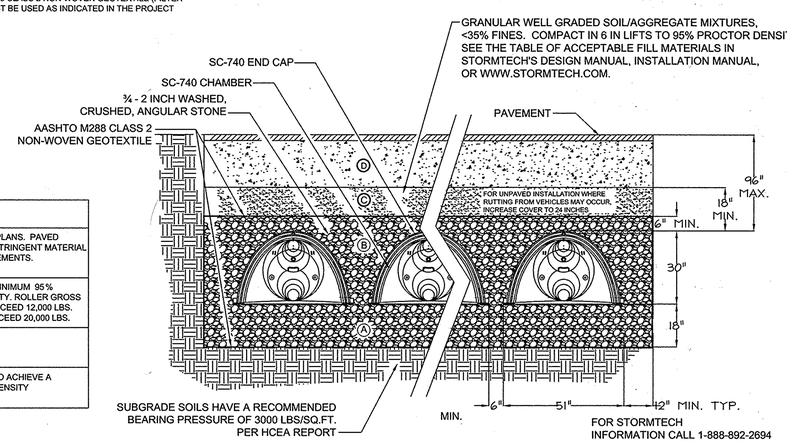
SECTION B_B @ ST-2
SCALE 1:30



SECTION C_C
SCALE 1:30

ACCEPTABLE FILL MATERIALS
STORMTECH SC-310 AND SC-740 CHAMBER SYSTEMS

MATERIAL LOCATION	DESCRIPTION	AASHTO M43 DESIGNATION	AASHTO M145 DESIGNATION	COMPACTION/DENSITY REQUIREMENT
D FILL MATERIAL FROM 18" TO GRADE ABOVE CHAMBERS	ANY SOIL/ROCK MATERIALS, NATIVE SOILS OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	N/A	PREPARE PER ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C FILL MATERIAL FOR 6" TO 18" ELEVATION ABOVE CHAMBERS (24" FOR UNPAVED INSTALLATIONS)	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES.	3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	A-1 A-2 A-3	COMPACT IN 6" LIFTS TO A MINIMUM 95% STANDARD PROCTOR DENSITY. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 LBS. DYNAMIC FORCE NOT TO EXCEED 20,000 LBS.
B EMBEDMENT STONE SURROUNDING AND TO A 6" ELEVATION ABOVE CHAMBERS	WASHED ANGULAR STONE WITH THE MAJORITY OF PARTICLES BETWEEN ¾ - 2 INCH	3, 357, 4, 467, 5, 56, 57	N/A	NO COMPACTION REQUIRED
A FOUNDATION STONE BELOW CHAMBERS	WASHED ANGULAR STONE WITH THE MAJORITY OF PARTICLES BETWEEN ¾ - 2 INCH	3, 357, 4, 467, 5, 56, 57	N/A	PLATE COMPACT OR ROLL TO ACHIEVE A 95% STANDARD PROCTOR DENSITY



STORMTECH SC-740 CHAMBERSYSTEM
TYPICAL CROSS SECTION DETAIL
SCALE 1:30

*SEE STORMTECH'S DESIGN MANUAL

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DIRECTOR — DATE 2/16/06

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/16/06

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 2/14/06

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICALREQUIREMENTS

NATURAL RESOURCE CONSERVATION SERVICE — DATE

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

HOWARD SOIL CONSERVATION DISTRICT — DATE

STATE OF MARYLAND — CHARLES THOMAS — No. 16518 — PROFESSIONAL ENGINEER

REVISIONS

No.	Date	Description

LDE, INC.
9250 Rumsey Road, Suite 106, Columbia, MD. 21045 (410) 715-1070
(301) 596-3424 (410) 715-9540 (Fax)

DESIGNED S.D.H.	Stormwater Management Notes & Details	SCALE AS SHOWN
DRAWN M.D.L.	ZEPP PLAZA	DRAWING 8 of 13
CHECKED B.D.B.	Parcel A Tax Map 34, Parcel 155 Plat #17437 12447 Clarksville Pike Clarksville, Maryland 21029 5th Election District - Howard County, Maryland Previous Submittals: N/A	JOB NO. 99-062
DATE 1/2006	OWNER: Zepp Plaza, LLC. 12435 Clarksville Pike Clarksville, Maryland (410) 531-6712 — DEVELOPER: Crystal Hill Advisers 11737 Rte 108 Clarksville, Maryland (410) 531-6700	FILE NO. SDP-05-021

SDP-05-21

F:\99-062-1\dwg\99-062-1 STORMTECH DETAIL (9).dwg, 9MM NOTES & DETAILS (9), 1/27/2006 5:53:04 PM

PIPE SCHEDULE

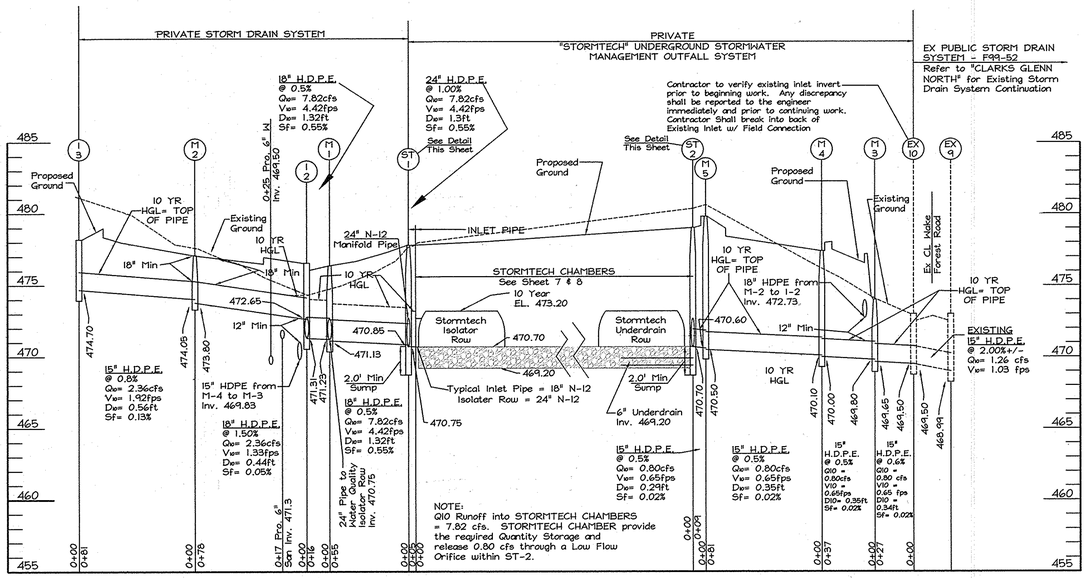
Size	Class	Total Length *
15"	HDPE Smooth Interior	235
18"	HDPE Smooth Interior	149
24"	HDPE Smooth Interior	16
15"	Class IV RCP	11

* The total length of pipe does not take into account the slope of the pipe. This total is for linear feet only for center of structure to center of structure.

STORM DRAIN STRUCTURE SCHEDULE

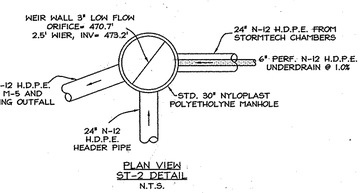
Structure No.	Type	Inv. In.	Inv. Out	Top of Rim/ Grate/ Slab	Detail	Location*	Remarks
I-2	A-5 Inlet	472.65	471.31	**476.50	SD 4.01	N. 560407.35 / E. 1328810.26	Standard A-5 Inlet
I-3	A-5 Inlet	-	474.70	**478.87	SD 4.01	N. 560361.73 / E. 1328670.41	Standard A-5 Inlet
M-1	Precast Manhole	471.23	471.13	475.80	G 5.12	N. 560418.87 / E. 1328798.99	Precast Manhole
M-2	Precast Manhole	474.05	473.80	477.10	G 5.12	N. 560356.16 / E. 1328751.50	Precast Manhole
M-3	Precast Manhole	469.80	469.65	475.00	G 5.12	N. 560400.97 / E. 1328810.49	Precast Manhole
M-4	Precast manhole	470.10	470.00	476.90	G 5.12	N. 560424.55 / E. 1328780.85	Precast Manhole
M-5	Precast Manhole	470.60	470.50	479.90	G 5.12	N. 560482.42 / E. 1328724.18	Precast Manhole
ST-1	H.D.P.E. Manhole	467.50	469.00	477.90	-	N. 560458.18 / E. 1328760.52	Nyloplast MH
ST-2	H.D.P.E. Manhole	469.00	467.50	479.10	-	N. 560488.72 / E. 1328730.61	Nyloplast MH
EX. I-10	Ex. A-10 Inlet	469.50	469.50	473.10	-	N. 560405.56 / E. 1328835.92	Field Connection to Ex. Inlet contractor to verify ex. invert elev.
MSHA M-1	48" Precast MH	470.63	470.53	475.81	MD 384.01	N. 560282.88 / E. 1328492.61	STD. MD-384.01
MSHA I-3	Type 'S' Single	-	470.80	475.56	MD 379.01	N. 560285.68 / E. 1328499.85	STD. MD-379.02-01 (Single Grate)

* Coordinates are for the center of the structure
**Throat opening invert, I-2 = 476.00 / I-3 = 478.2
***Center point top elevation. Surface grate slopes 2.0%.

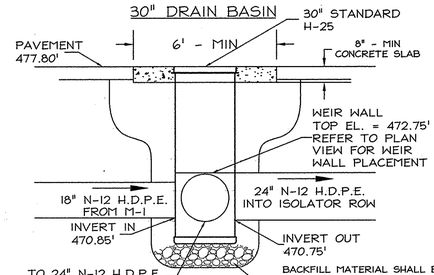


Private Onsite Storm Drain System I-3 toward ST-1

Scales: Horizontal - 1"=50'
Vertical - 1"=5'

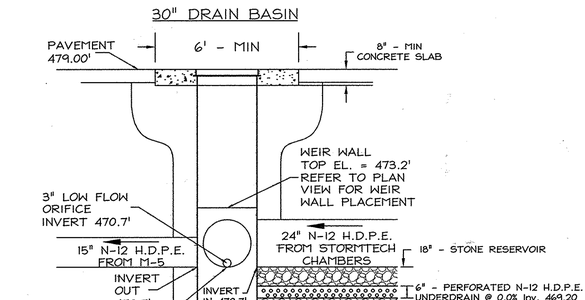


PLAN VIEW
ST-2 DETAIL
N.T.S.



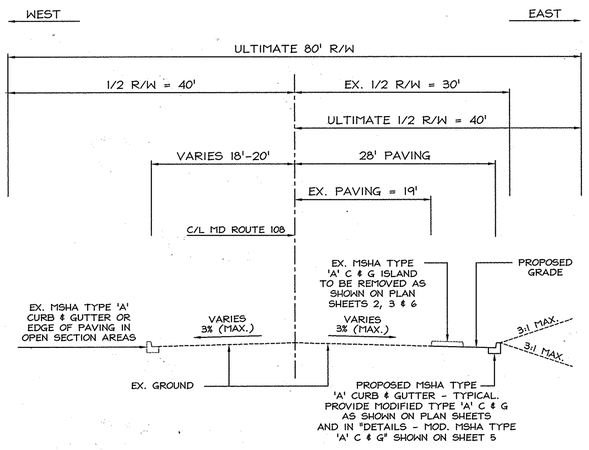
PROFILE VIEW
ST-1 DETAIL
SCALE: 1" = 3'

NOTE: DETAIL MODIFIED FROM NYLOPLAST DRAWING TITLED 30" H-25 (HEAVY TRAFFIC) INSTALLATION



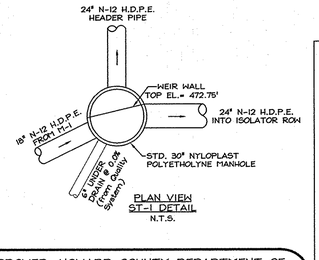
PROFILE VIEW
ST-2 DETAIL
SCALE: 1" = 3'

NOTE: DETAIL MODIFIED FROM NYLOPLAST DRAWING TITLED 30" H-25 (HEAVY TRAFFIC) INSTALLATION

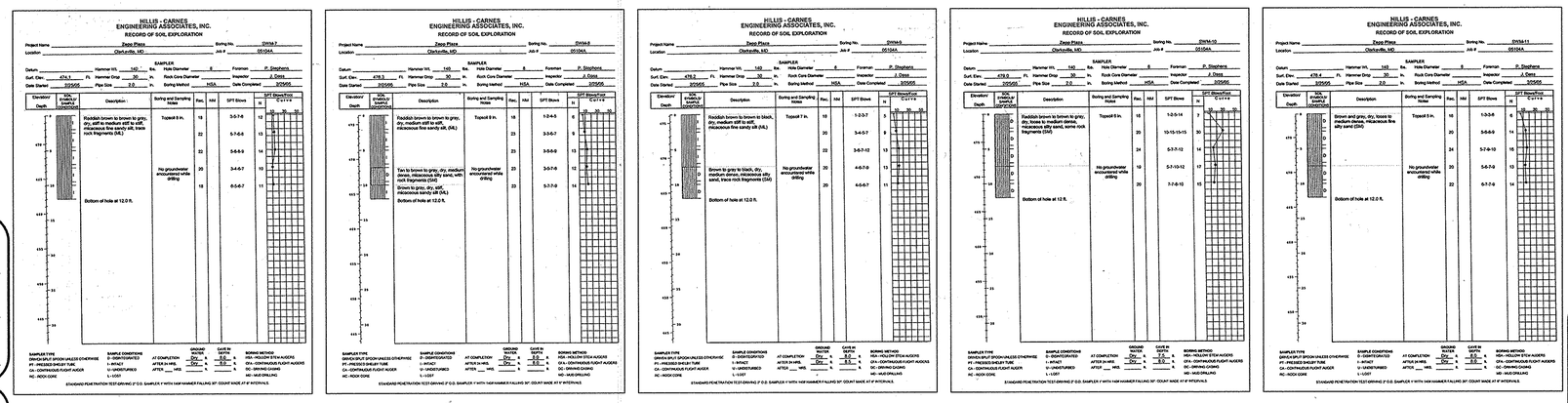


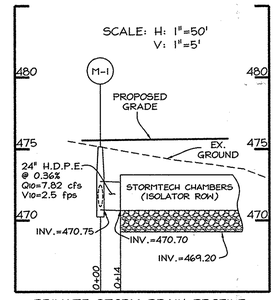
TYPICAL SECTION MD ROUTE 108

SCALE: 1" = 10'



PLAN VIEW
ST-1 DETAIL
N.T.S.





PRIVATE STORM DRAIN PROFILE
M-1 TO WATER QUALITY CHAMBERS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DIRECTOR — DATE 2/16/06

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/16/06

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 2/16/06

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICALREQUIREMENTS.

NATURAL RESOURCE CONSERVATION SERVICE — DATE

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

HOWARD SOIL CONSERVATION DISTRICT — DATE

REVISIONS

No.	Date	Description

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS OF DEVELOPMENT 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 ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

Eleanor W. Zepp — 1/27/06

SIGNATURE OF DEVELOPER — DATE

STATE OF MARYLAND — BRUCE DAVID BONHAM — No. 19198 — REGISTERED PROFESSIONAL ENGINEER — 1/27/06

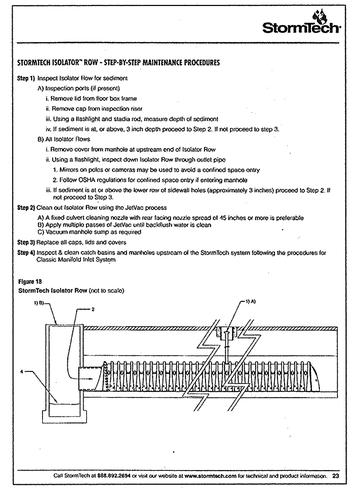
ENGINEER'S CERTIFICATE

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

Bruce D. Bonham — 1/27/06

SIGNATURE OF ENGINEER — DATE

STATE OF MARYLAND — BRUCE DAVID BONHAM — No. 19198 — REGISTERED PROFESSIONAL ENGINEER



StormTech

STORMTECH ISOLATOR™ ROW - STEP-BY-STEP MAINTENANCE PROCEDURES

Step 1) Inspect Isolator Row for sediment
- A) Inspection ports (if present)
  - i. Remove lid from floor box frame
  - ii. Remove cap from inspection riser
  - iii. Using a flashlight and stadia rod, measure depth of sediment
  - iv. If sediment is at, or above, 3 inch depth proceed to Step 2. If not proceed to step 3.
- B) All Isolator Rows
  - i. Remove cover from manhole at upstream end of Isolator Row
  - ii. Using a flashlight, inspect down Isolator Row through outlet pipe
    1. Mirrors on poles or cameras may be used to avoid a confined space entry
    2. Follow OSHA regulations for confined space entry if entering manhole
  - iii. If sediment is at or above the lower row of sidewall holes (approximately 3 inches) proceed to Step 2. If not proceed to Step 3.

Step 2) Clean out Isolator Row using the JetVac process
- A) A fixed culvert cleaning nozzle with rear facing nozzle spread of 45 inches or more is preferable
- B) Apply multiple passes of JetVac until backflush water is clean
- C) Vacuum manhole sump as required

Step 3) Replace all caps, lids and covers

Step 4) Inspect & clean catch basins and manholes upstream of the StormTech system following the procedures for Classic Manifold Inlet System.

Figure 19
StormTech Isolator Row (not to scale)

Call StormTech at 888.892.2694 or visit our website at www.stormtech.com for technical and product information. 23

StormTech

13.0 Inspection and Maintenance

13.1 TREATMENT TRAIN INSPECTION AND MAINTENANCE
The StormTech recommended treatment train inlet system has three tiers of treatment upstream of the StormTech chambers. It is recommended that inspection and maintenance (I&M) be initiated at the furthest upstream treatment tier and continue downstream as necessary. The following I&M procedures follow this approach providing I&M information in the following order: Tier 1 – Pretreatment (BMP); Tier 2 – StormTech Isolator Row; and , Tier 3 – Eccentric Pipe Header System.

13.2 CATCHBASIN/MANHOLE I&M
Typically a stormwater system will have catchbasins and manholes upstream of the detention/retention system. In some cases these may be the only pre-treatment devices. Regular I&M of catchbasins and manholes should be scheduled and performed as part of a site's routine maintenance plan.

Catchbasin/Manhole – Step-by-Step Maintenance Procedures
1) Inspect catch basins and manholes upstream of StormTech chambers for sediment
2) Remove grate or cover
3) Skim off oils and floatables
4) Using a stadia rod, measure the depth of sediment
5) If sediment is at a depth greater than 6" proceed to step 6. If not proceed to step 7
6) Vacuum or manually remove sediment
7) Replace grate
8) Record depth & date and schedule next inspection

TABLE 18 – Pretreatment Inspection and Maintenance Guidelines

SEDIMENT CONTROL INSPECTION	INSPECTION*	MAINTENANCE**
StormTech Isolator™ Row	Bi-Annually	JetVac - Culvert Cleaning Nozzle Preferred
Sediment Basin	Quarterly or after large storm event	Excavate sediment
Catch Basin Sump	Quarterly	Excavate,pump, or vacuum
Sedimentation Structure	Quarterly	Excavate,pump, or vacuum
Catch Basin Filter Bags	After all storm events	Clean and/or replace filter bags
Porous Pavement	Quarterly	Sweep Pavement
Pipe Header Design	Quarterly	Excavate,pump, or vacuum
Water Quality Inlet	Quarterly	Excavate,pump, or vacuum
Sand Filters	Quarterly or after storm event	Remove & replace sand filter

* The schedule does not account for regional or site variables. Local municipal guidelines should be followed for inspection when available.
** The methods stated are minimum guidelines for removal and cleaning of system. Other methods may apply.

Call StormTech at 888.892.2694 or visit our website at www.stormtech.com for technical and product information. 21

Figure 17 – Catchbasin/Manhole I&M Steps

13.3 PRE-TREATMENT DEVICE I&M
Manufacturer's I&M procedures should be followed for proprietary pretreatment devices such as baffle boxes, swirl concentrators, oil-water separators, and filtration units. **Table 18** provides some general guidelines but is not a substitute for a manufacturer's specific instructions.

LDE, INC.
9250 Rumsey Road, Suite 106, Columbia, MD. 21045 (410) 715-1070
(301) 596-3424 (410) 715-9540 (Fax)

DESIGNED	S.D.H.
DRAWN	J.D.R.
CHECKED	B.D.B.
DATE	1/2006

Storm Drain Profiles & Details
ZEPP PLAZA

Parcel A
Tax Map 34, Parcel 155
Plat No. 17437
12447 Clarksville Pike
Clarksville, Maryland 21029
5th Election District - Howard County, Maryland
Previous Submittals: F-05-027

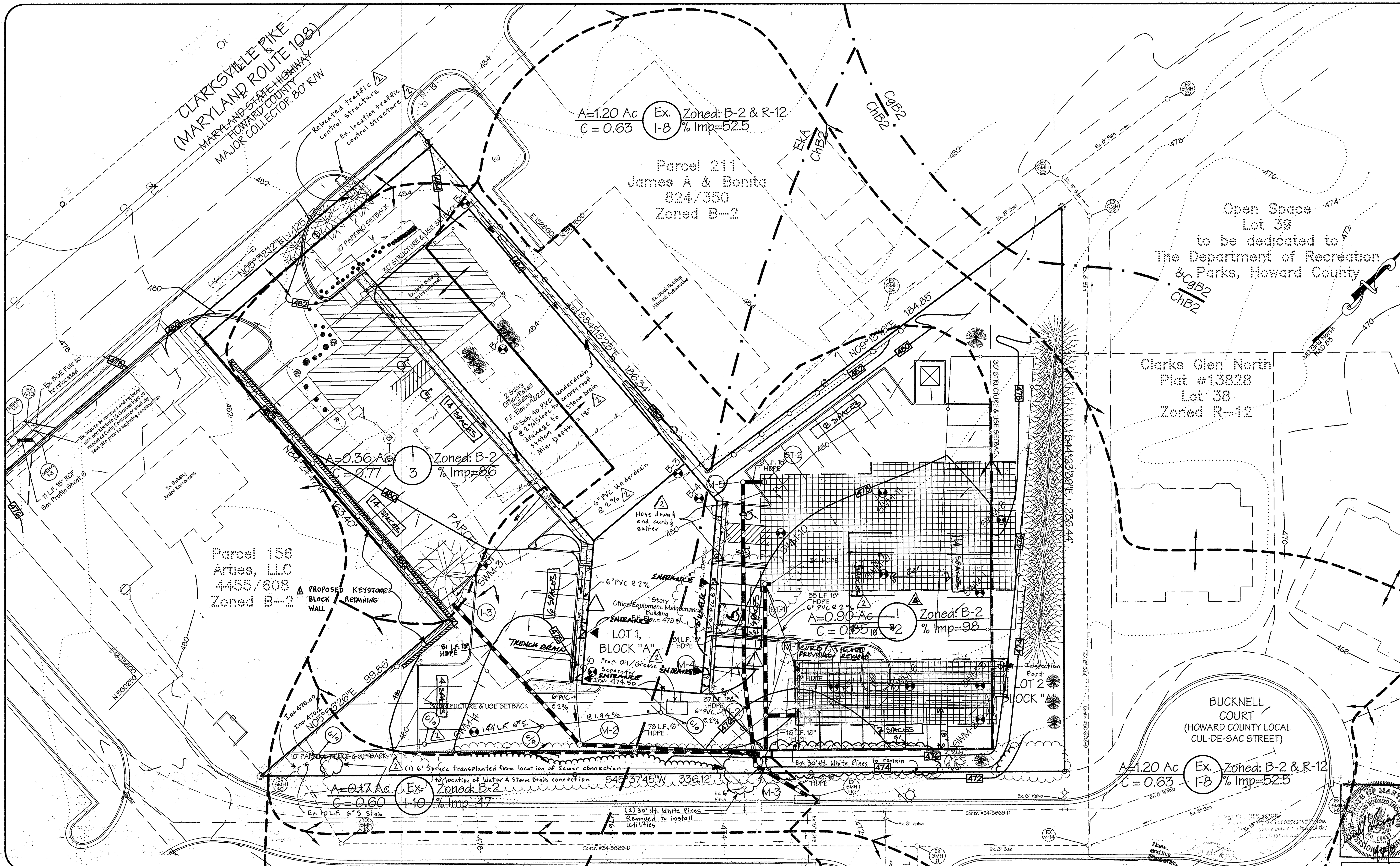
OWNER: Zepp Plaza, LLC.
12435 Clarksville Pike
Clarksville, Maryland
(410) 531-6712

DEVELOPER: Crystal Hill Advisors
11737 Rte 108
Clarksville, Maryland
(410) 531-6700

SCALE	As Shown
DRAWING	9 OF 13
JOB NO.	99-062
FILE NO.	SDP-05-021

SDP-05-021

F:\99-062\Working\99-062-1-STORM (9).DWG, STORM (9), 1/27/2006 5:50:09 PM



STORMWATER MANAGEMENT SUMMARY TABLE

PROPOSED DRAINAGE AREA 'B'. TOTAL DRAINAGE AREA TO BMPS = 1.40 Acres

STORAGE REQUIREMENT		TOTAL SITE D.A.	COMMENTS
WQv	Required:	3,456 cu. ft.	Met in
	Provided:	4,292 cu. ft.	underground chambers
REv	Required:	898 cu. ft.	met in
	Provided:	898 cu. ft.	underground chambers
Cpv	Required:	5897 cu. ft.	Met in
	Provided:	5897 cu. ft.	underground chambers
Qp10	Required:	13,068 cu. ft.	Met in
	Provided:	13,068 cu. ft.	underground chambers
Qp100	Required:	pass 100 yr ult. Storm	Passed safely
	Provided:		

Note: All requirements will be met in the two (2) underground Stormtech Chamber facilities.

Drainage Legend

- - - - - Proposed Drainage Divide

—·—·— Soil Boundary

Stormtech Underground Detention Facility (See Sheets 6-x for Plan Sheet and Details)

PROFESSIONAL CERTIFICATION
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 18417, Expiration Date: 9-18-11

REDLINE REVISION - PARKING LAYOUT/STRIPING PLAN

VANMAR ASSOCIATES, INC.
Engineers Surveyors Planners
310 South Main Street P.O. Box 328, Mount Airy, Maryland 21771
(301) 829-2890 (301) 831-5015 (410) 549-2751
Fax (301) 831-5603

SOILS LEGEND

HYDROLOGIC SOIL GROUP	SOIL SYMBOL	DESCRIPTION	REMARKS
B	EkA	Elioak Silt Loam, 0% - 3% slopes,	-
B	ChB2	Chester Silt Loam, 3% - 8% slopes, moderately eroded.	-
B	CgB2	Chester Gravelly Silt Loam, 3% - 8%, moderately eroded	-

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[signature] 2/16/06
DIRECTOR DATE

[signature] 2/16/06
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[signature] 2/14/06
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS.

NATURAL RESOURCE CONSERVATION SERVICE DATE

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

HOWARD SOIL CONSERVATION DISTRICT DATE

REVISIONS

No.	Date	Description
1	11/2006	Added retaining wall
2	11/2006	Revised sewer connection, revised landscaping, revised Stormtech WQ configuration, show relocated traffic control structure, added underdrain system to pick up roof drainage.
3	09/16/10	REVISE PARKING LAYOUT/STRIPING PLAN
4	11/8/10	RESTAURANT ENTRANCE & HC ACCESS

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS OF DEVELOPMENT 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 ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

Rosemary W. Zepp
Edgar W. Zepp 1/27/06
SIGNATURE OF DEVELOPER DATE

STATE OF MARYLAND — BRUCE DAVID BURTON — No. 19184 REGISTERED PROFESSIONAL ENGINEER
1/27/06

ENGINEER'S CERTIFICATE

I CERTIFY THAT THESE PLANS FOR SEDIMENT AND EROSION CONTROL REPRESENT 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.

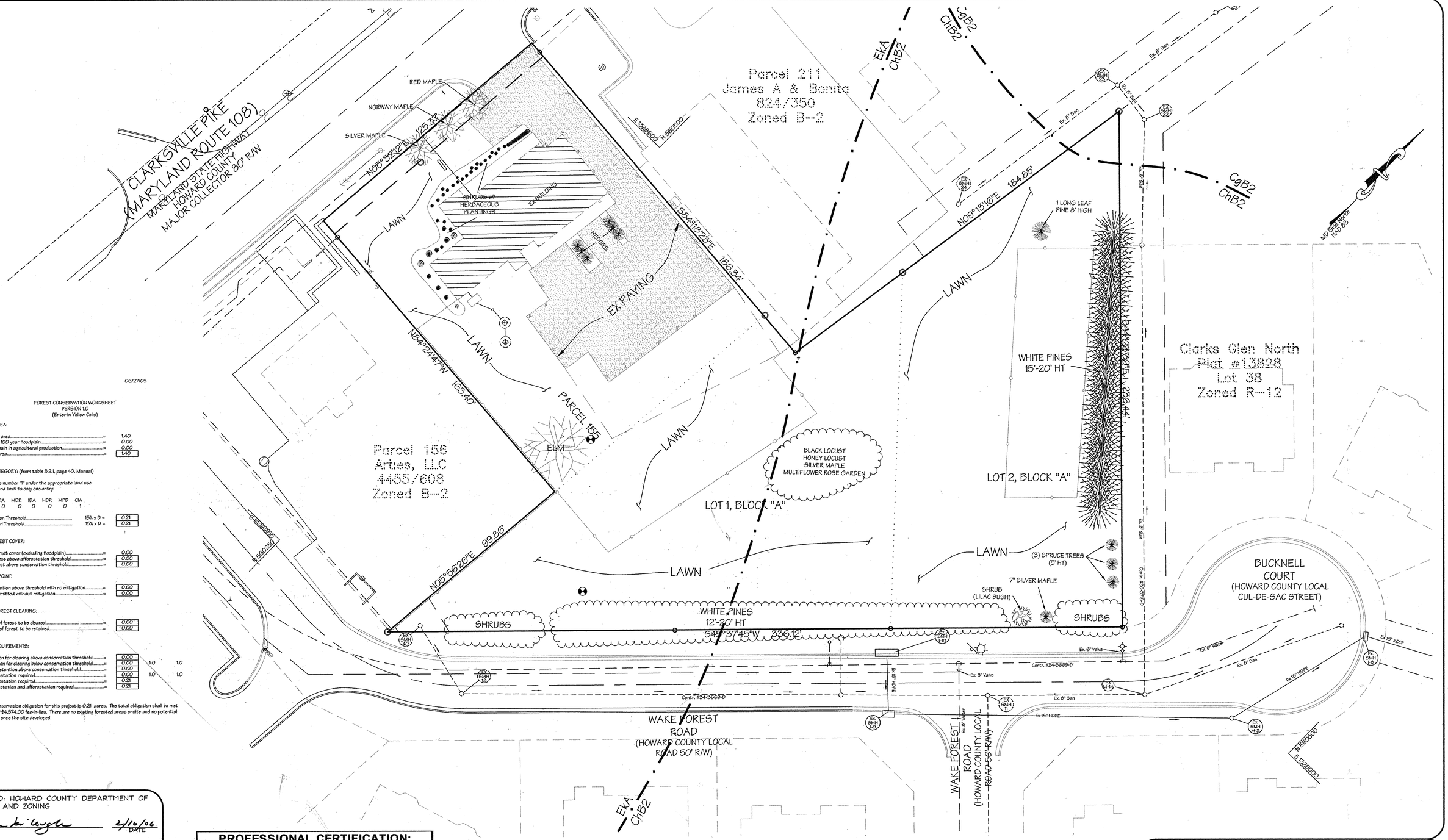
Bruce D. Burton 1/27/06
SIGNATURE OF ENGINEER DATE

LDE, INC.
9250 Rumsey Road, Suite 106, Columbia, MD. 21045 (410) 715-1070
(301) 596-3424 (410) 715-9540 (Fax)

DESIGNED S.D.H.	Drainage Area & Soils Map	SCALE 1"=20'
DRAWN J.D.R.	**ZEPP PLAZA**	DRAWING 10 of 13
CHECKED B.D.B.	Parcel A Tax Map 34, Parcel 155 Plat No. 17437 12447 Clarksville Pike Clarksville, Maryland 21029 5th Election District - Howard County, Maryland Previous Submittals: F-05-027	JOB NO. 99-062
DATE 1/2006	OWNER: Zepp Plaza, LLC. 12435 Clarksville Pike Clarksville, Maryland (410) 531-6712 DEVELOPER: Crystal Hill Advisors 11737 Rte 108 Clarksville, Maryland (410) 531-6700	FILE NO. SDP-05-021

SDP-05-021

F:\99-062-1\dwg\99-062-1 DRA-SOIL (10).dwg, DRAIN & SOIL (10), 1/27/2006 4:51:45 PM



06/27/05

FOREST CONSERVATION WORKSHEET
VERSION 1.0
(Enter in Yellow Cells)

NET TRACT AREA:

A. Total tract area	=	1.40
B. Area within 100 year floodplain	=	0.00
C. Area to remain in agricultural production	=	0.00
D. Net tracts area	=	1.40

LAND USE CATEGORY: (from table 3.2.1, page 40, Manual)

Input the number "1" under the appropriate land use zoning, and limit to only one entry.

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

E. Afforestation Threshold	15% x D =	0.21
F. Conservation Threshold	15% x D =	0.21

EXISTING FOREST COVER:

G. Existing forest cover (excluding floodplain)	=	0.00
H. Area of forest above afforestation threshold	=	0.00
I. Area of forest above conservation threshold	=	0.00

BREAK EVEN POINT:

J. Forest retention above threshold with no mitigation	=	0.00
K. Clearing permitted without mitigation	=	0.00

PROPOSED FOREST CLEARING:

L. Total area of forest to be cleared	=	0.00
M. Total area of forest to be retained	=	0.00

PLANTING REQUIREMENTS:

N. Reforestation for clearing above conservation threshold	=	0.00	1.0 1.0
P. Reforestation for clearing below conservation threshold	=	0.00	
Q. Credit for retention above conservation threshold	=	0.00	1.0 1.0
R. Total reforestation required	=	0.00	
S. Total afforestation required	=	0.21	
T. Total reforestation and afforestation required	=	0.21	

The Forest Conservation obligation for this project is 0.21 acres. The total obligation shall be met via payment of $4,574.00 fee-in-lieu. There are no existing forested areas onsite and no potential planting areas once the site developed.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DIRECTOR — DATE 2/10/06

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/14/06

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 2/14/06

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICALREQUIREMENTS.

NATURAL RESOURCE CONSERVATION SERVICE — DATE

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

HOWARD SOIL CONSERVATION DISTRICT — DATE

PROFESSIONAL CERTIFICATION:

Steve Heiss — 11/28/06

Steve Heiss, Qualified Professional, MDFCA

SOILS LEGEND			
HYDROLOGIC SOIL GROUP	SOIL SYMBOL	DESCRIPTION	REMARKS
B	EKA	Elioak Silt Loam, 0% - 3% slopes,	-
B	ChB2	Chester Silt Loam, 3% - 8% slopes, moderately eroded.	-
B	CgB2	Chester Gravelly Silt Loam, 3% - 8%, moderately eroded	-

Total Area Of Site = 1.4 Acres
Area Of Onsite Floodplain = 0.0 Acres
Net Tract Area = 1.4 Acres

REVISIONS

No.	Date	Description

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS OF DEVELOPMENT 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 ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

Edgar W. Zepp — 1/27/06

SIGNATURE OF DEVELOPER — DATE

STATE OF MARYLAND — BRUCE DAVID BURTON — No. 19182 — REGISTERED PROFESSIONAL ENGINEER — 1/27/06

ENGINEER'S CERTIFICATE

I CERTIFY THAT THESE PLANS FOR SEDIMENT AND EROSION CONTROL REPRESENT 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.

Bruce D. Burton — 1/27/06

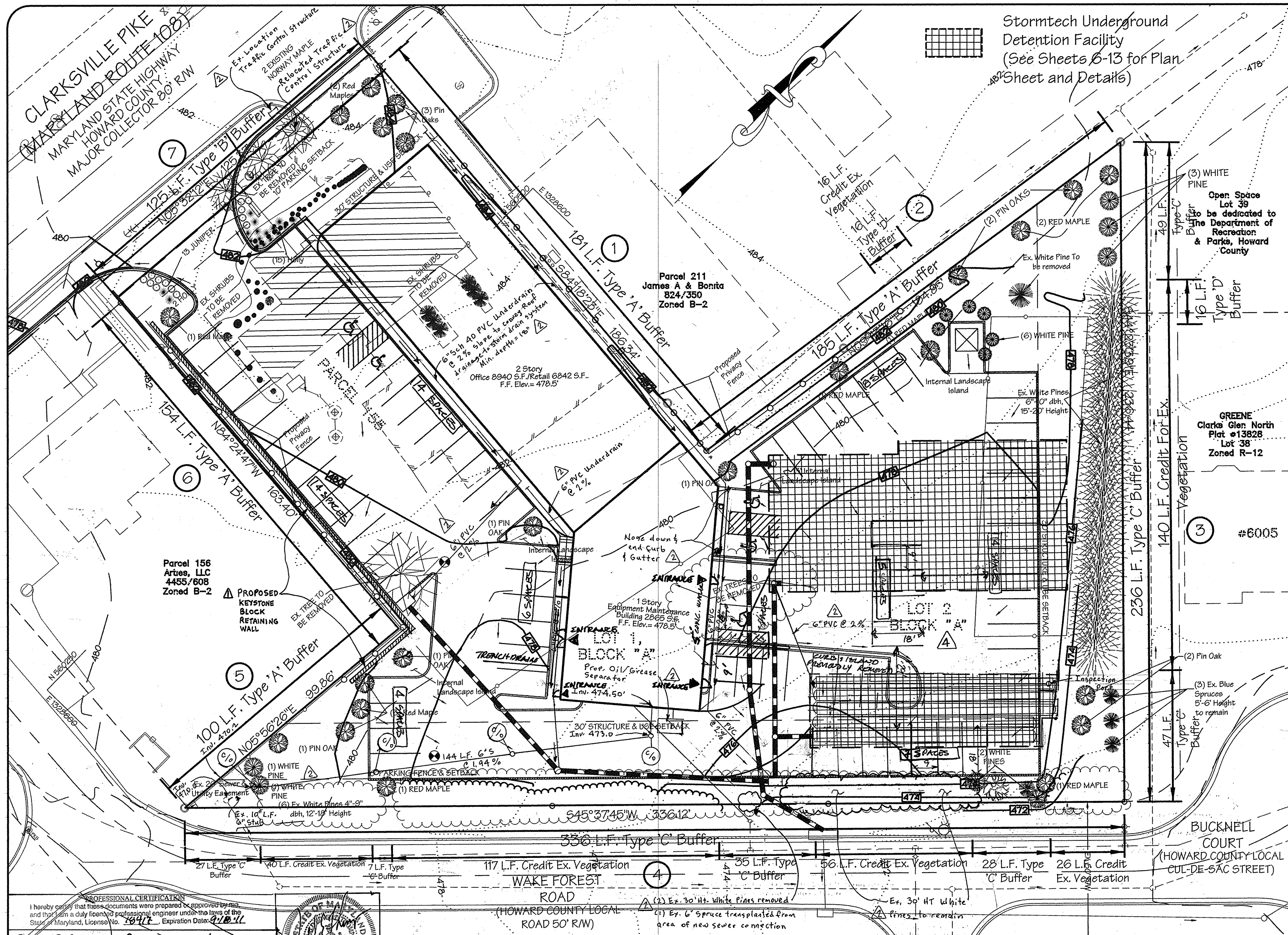
SIGNATURE OF ENGINEER — DATE

LDE, INC.
9250 Rumsey Road, Suite 106, Columbia, MD. 21045 (410) 715-1070
(301) 596-3424 (410) 715-9540 (Fax)

DESIGNED S.D.H.	Forest Stand Delineation / Conservation Plan ZEPP PLAZA Parcel A Tax Map 34, Parcel 155 Plat No. 17437 12447 Clarksville Pike Clarksville, Maryland 21029 5th Election District - Howard County, Maryland Previous Submittals: F-05-027	SCALE 1"=20'
DRAWN J.D.R.		DRAWING 11 of 13
CHECKED B.D.B.		JOB NO. 99-062
DATE 1/2006	OWNER: Zepp Plaza, LLC. 12435 Clarksville Pike Clarksville, Maryland (410) 531-6712 DEVELOPER: Crystal Hill Advisors 11737 Rte 108 Clarksville, Maryland (410) 531-6700	FILE NO. SDP-05-021

SDP-05-021

F:\99-062\dwg\99-062-1 FSD (1).dwg, Forest Stand Delineation-Conservation Plan (1), 1/27/2006 4:52:47 PM



SCHEDULE B PARKING LOT INTERNAL LANDSCAPING	
Number of parking spaces	71
Number of trees required 1:20	4 Landscape Islands / 4 Trees Required
Number of Trees Provided Shade Trees Other Trees (2:1 Substitution)	4 Landscape Islands / 4 Shade Trees Provided

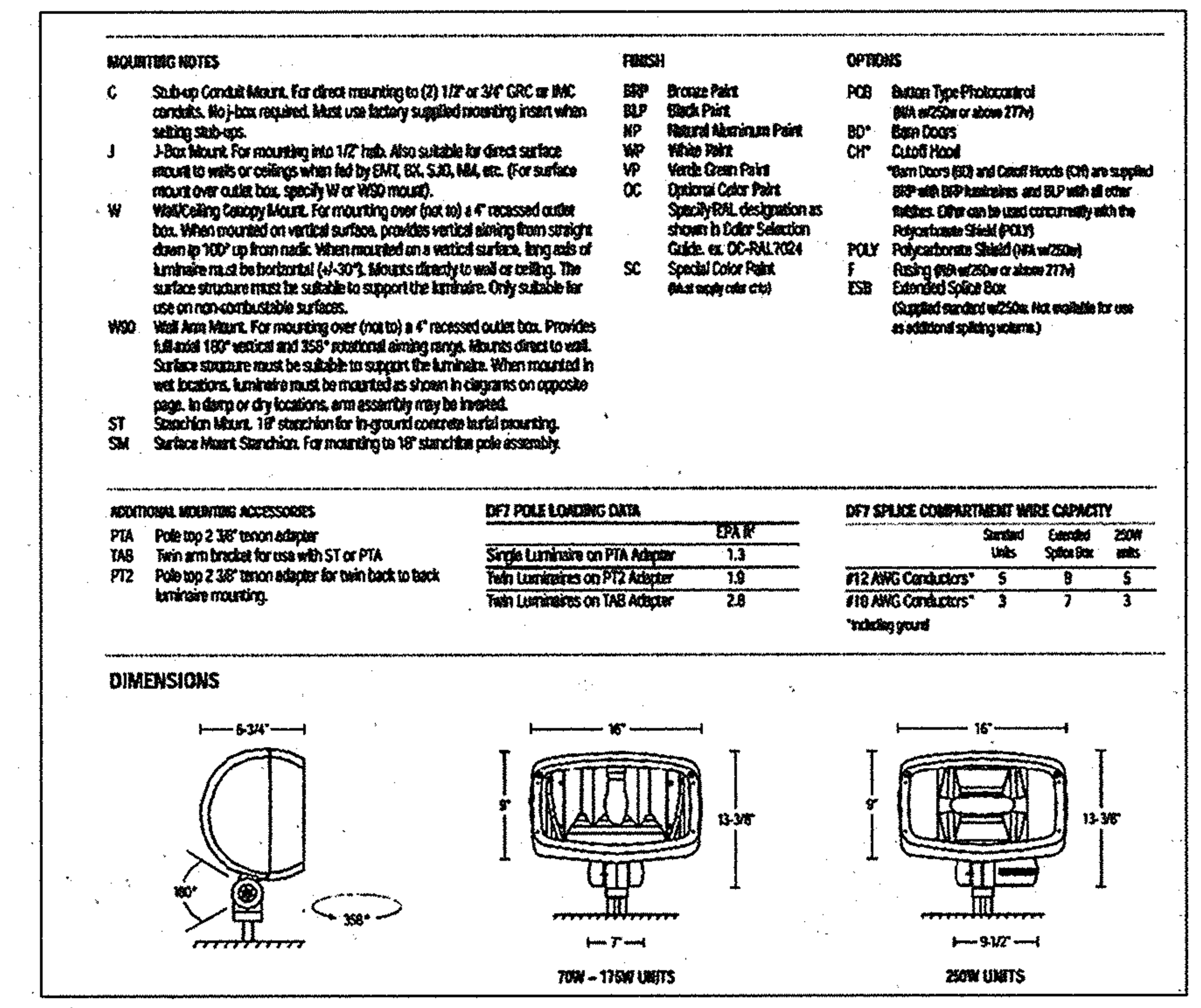
Totals: Shades - 4 Required

SCHEDULE A PERIMETER LANDSCAPE EDGE

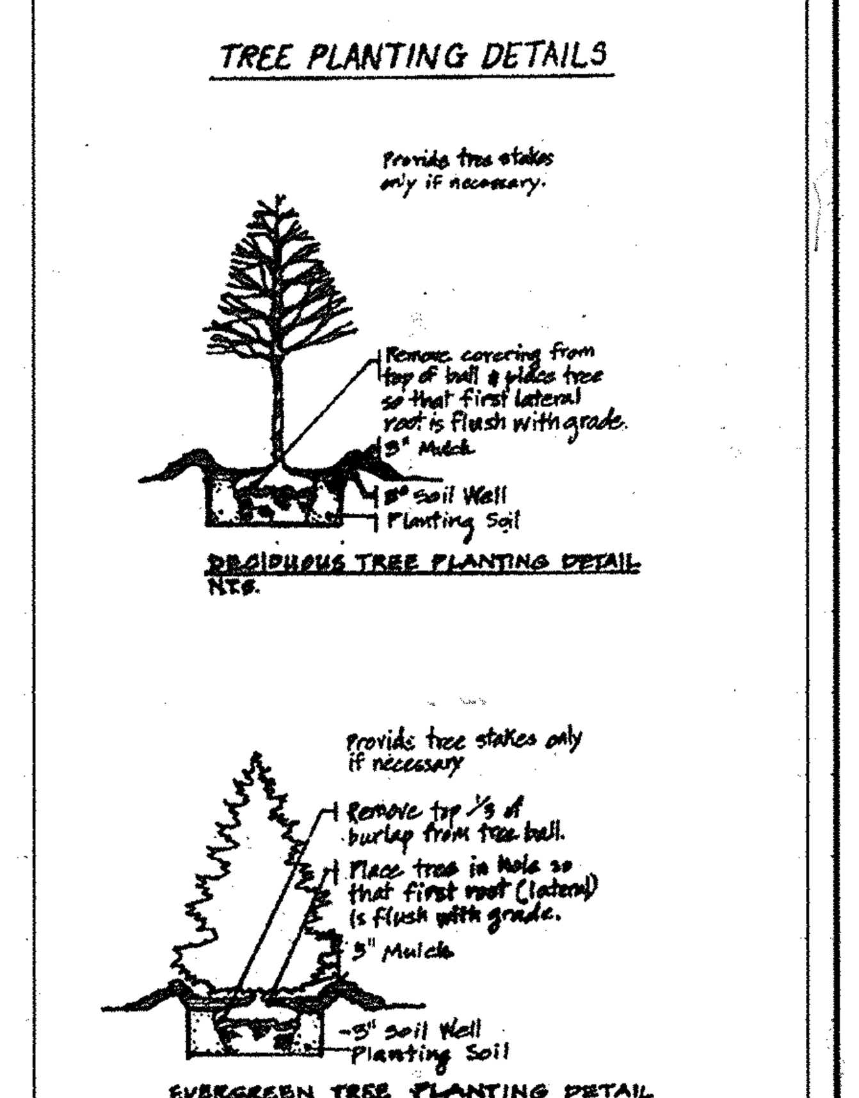
Category	Adjacent to Roadways		Adjacent to Perimeter Properties					Dumpster Screening	
Perimeter No.	4	7	1	2	3	5	6	P/O 3	P/O 2
Landscape Type	C	B	A	A	C	A	A	D	D
Linear Feet of Roadway Frontage / Perimeter	336 L.F.	125 L.F.	181 L.F.	185 L.F.	236 L.F.	100 L.F.	154 L.F.	16 L.F.	16 L.F.
Credit for Existing Vegetation (Yes, No Linear Feet) (Describe below if needed)	Yes 239 L.F.	No	No	No	Yes 140 L.F. (3 Ex. Spruce)	No	No	No	Yes
Credit for walk, fence or berm (Yes, No Linear Feet) (Describe below if needed)	No	No	Rear to Rear Commercial Building	No	No	No	No	No	No
Number of Plants Required Shade Trees Evergreen Trees Shrubs	97 L.F. 1:40=3 1:20=5	125 L.F. 1:50=3 1:40=3	181 L.F. 1:60=3	185 L.F. 1:60=3	96 L.F. 1:40=3 1:20=5	100 L.F. 1:60=2	154 L.F. 1:60=3	16 L.F. 1:60=1 1:10=2	16 L.F. 1:60=1 1:10=2
Number of Plants Provided Shade Trees Evergreen Trees Other Trees (2:1 substitution) Shrubs (10:1 substitution) (Describe plant substitution credits below if needed)	2 3	3 30	3	4	3 2 3 Ex. Spruce	2	3	1 3	1 3

Legend

- Proposed Privacy Fence
- Deciduous Tree
- Evergreen Tree
- Shrub
- Retaining Wall



TREE PLANTING DETAILS



MASTER LANDSCAPE SCHEDULE

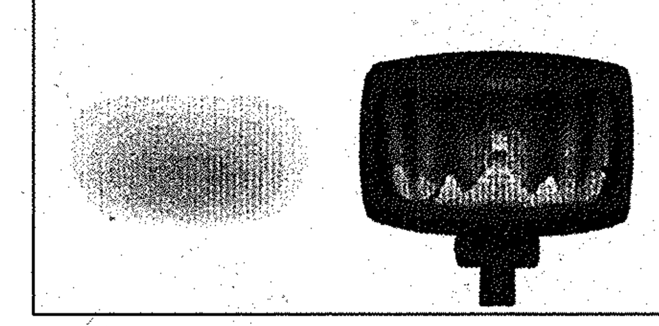
SYMBOL	QNTY	COMMON NAME	SCIENTIFIC NAME	SIZE	REMARKS
SHADE TREES					
	11	Red Maple October Glory'	Acer rubrum	2-1/2 - 3" Caliper	B & B
	12	Pin Oak	Quercus palustris	2-1/2" - 3" Caliper	B & B
EVERGREEN TREES					
	13	White Pine	Pinus strobus	6' - 8' Ht.	B & B
SHRUBS					
	17	Winterberry Holly	Ilex verticillata sargenti	3' - 4' Ht.	B & B
	13	Prince of Wales Juniper	Juniperus horizontalis	18" - 24" Ht.	container

Note: One (1) red maple and three (3) pin oaks are being used to meet the internal landscape requirements.
Six (6) white pines are being used to meet the dumpster screening requirements.
The remainder of the lansdcape materials will be used to meet the perimeter landscaping requirments.

LANDSCAPE PERIMETER TABLE

PERIMETER NO.	LINEAR FOOTAGE	EDGE TYPE	ADJACENT LAND USE
1	181	A	COMMERCIAL
2	185	A / D	COMMERCIAL / DUMPSTER
3	236	C / D	RESIDENTIAL / DUMPSTER
4	336	C	ROADWAY
5	100	A	COMMERCIAL
6	154	A	COMMERCIAL
7	125	B	PARKING / ROADWAY
TOTAL LENGTH:	1317		

DF12



Horizontal Flood
The optical system of choice for providing broad even flood-lighting illumination to horizontal surfaces from setbacks of 8' to 30', or for area lighting applications where wide luminaire spacings are desired. Typical applications include 1-2 story buildings, parking lots, freight yards and security lighting.

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 letter of Landscape Installation, accompanied by an executed one year guarantee of plant materials, will be submitted to the Department of Planning and Zoning.

Name: Edgar W. Zepp / Rosemary W. Zepp   Date: 1/27/06

PROFESSIONAL CERTIFICATION
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 18417, Expiration Date: 9/18/11

REDLINE REVISION - PARKING LAYOUT / STRIPING PLAN

VANMAR ASSOCIATES, INC.
Engineers Surveyors Planners
310 South Main Street, P.O. Box 328, Mount Airy, Maryland 21771
(301) 829-2890 (301) 831-5015 (410) 549-2751
Fax (301) 831-5603

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DIRECTOR — DATE 2/16/06

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/16/06

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 2/14/06

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICALREQUIREMENTS.

NATURAL RESOURCE CONSERVATION SERVICE — DATE

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

HOWARD SOIL CONSERVATION DISTRICT — DATE

STREET LIGHTING NOTES AND DETAILS

Higher Light Levels
The Gardco Floodlight accepts both metal halide and high pressure sodium lamps to 750W. Using these high lumen packages creates application opportunities unmatched by typical 400W products.

Uniform Light Levels
Precisely faceted reflectors generate extremely uniform lighting levels of 3:1, 6:1 and 12:1 maximum to minimum, depending on the requirements of the specific application. are available for critical brightness control.

Clean Pattern Appearance
Typically, HID luminaires produce streaks, striations and color separations in floodlighting patterns which are not evident in photometric reports. Gardco's precise positioning of specular reflector facets, in combination with selective use of hammer-toned material ensures clean, unstriated patterns.

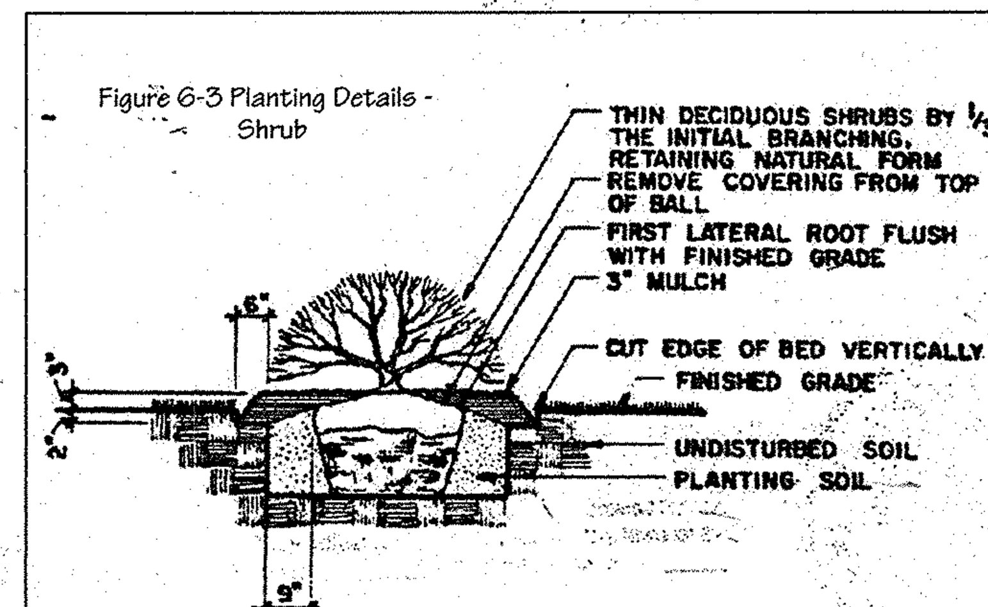
Control of Unwanted Glare
Nine optical systems are available, each providing sharp visual cutoff to the lamp and the lamp images at normal viewing angles. Luminaires are easily placed behind landscape or architectural elements, as well as on poles or walls above eye level. This mounting flexibility allows the shielding of lamp brightness in most any installation. An optional cutoff hood and internal louver system are available for critical brightness control.

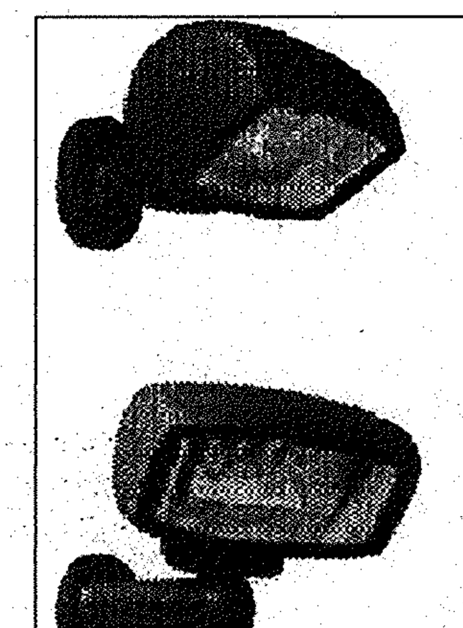
Lighting Notes
1. All onsite lighting fixture shall be Gardco DF series luminaire Horizontal Floodlights or approved equal.
2. All fixture shall be mounted on the building at heights of 10 & 20 feet.
3. All lights shall be directed down & away from the adjacent properties. Shields shall be required if glare cannot be zeroed out at the property lines.
4. No fixtures shall be mounted on the building within 15 L.F. of the property lines.

Landscape Notes
1. This plan has been prepared in accordance with the provisions of Section 16.124 of the Howard County Code and the Howard County Landscape Manual.
2. The Owner/Developer is responsible for the planting of all plant material required to meet the standards established by the Howard County Landscape Manual.
3. Financial Surety for the required landscaping has been posted as part of the Department of Public Works Developer's Agreement in the amount of $10,650.00.
4. The Owner/Developer shall be responsible for the maintenance of the plant materials.
5. All plant materials shall conform to the American Association of Nurserymen's publication, American Standard Nursery Stock.
6. This Plan is for Landscaping Purposes only.
7. PLEASE SEE SHEET 4 FOR SEEDING NOTES.

At the time of installment, all shrubs and other plantings herewith listed and approved for this site, shall be of the proper height requirements in accordance with the Howard County Landscape Manual. In addition, no substitutions or relocations of required planting 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 a time as all required materials are planted and/or revisions are made to applicable plans and certificates.

Figure 6-3 Planting Details - Shrub





The minimal profile **Wall/Ceiling Canopy** mount for downlighting.

Wall Arm mount enables full vertical and horizontal aiming, and may be used for wall-washing effects.

REVISIONS

No.	Date	Description
1	11/2006	Added retaining wall
4	09/16/10	REVISE PARKING LAYOUT / STRIPING PLAN
5	11/8/10	RESTAURANT ACCESS & HC ACCESS

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS OF DEVELOPMENT 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 ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

SIGNATURE OF DEVELOPER — DATE 1/27/06

STATE OF MARYLAND — BRUCE DAVID BURTON — No. 19184 — REGISTERED PROFESSIONAL ENGINEER

ENGINEER'S CERTIFICATE

I CERTIFY THAT THESE PLANS FOR SEDIMENT AND EROSION CONTROL REPRESENT 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 1/27/06

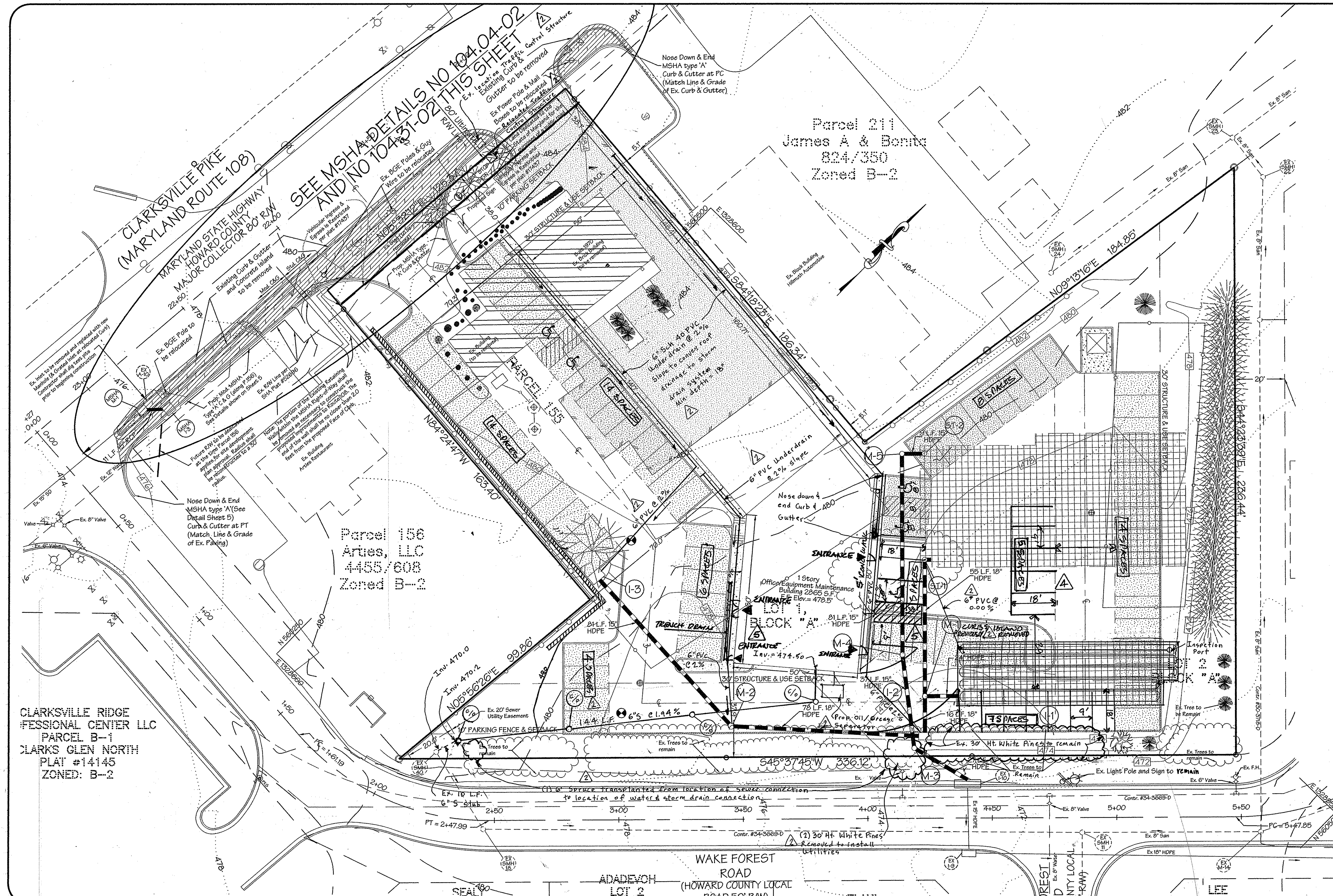
Subdivision Name: Zepp Plaza			Sect/Area N/A	Parcel/No. 155	
Plat No. 17437	Block No. 12	Zone B-2	Tax Map No. 34	Election District 5th	Census Tract 6051.02
Water Code 111			Sewer Code 6650000		

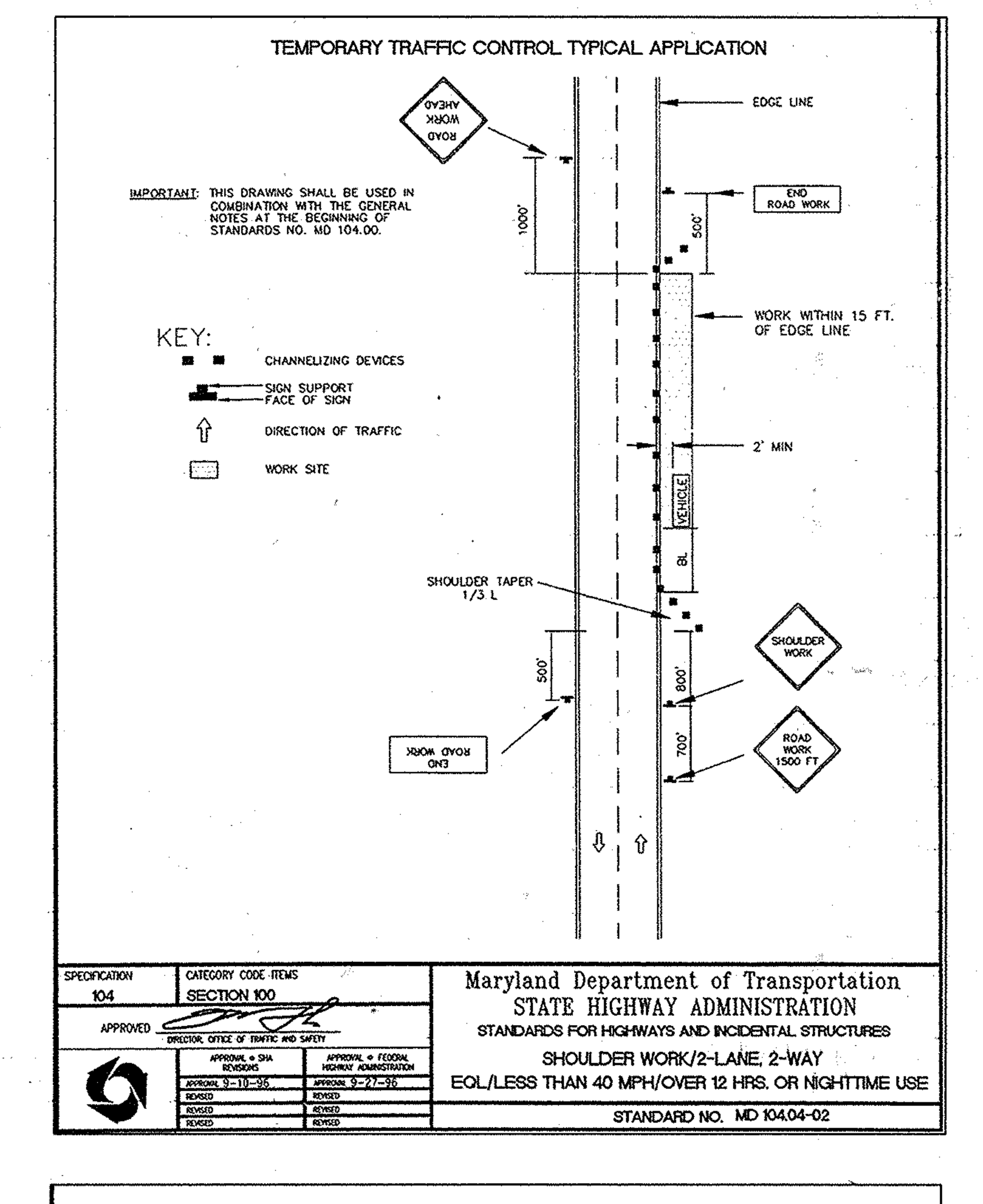
LDE, INC.
9250 Rumsey Road, Suite 106, Columbia, MD. 21045 (410) 715-1070
(301) 596-3424 (410) 715-9540 (Fax)

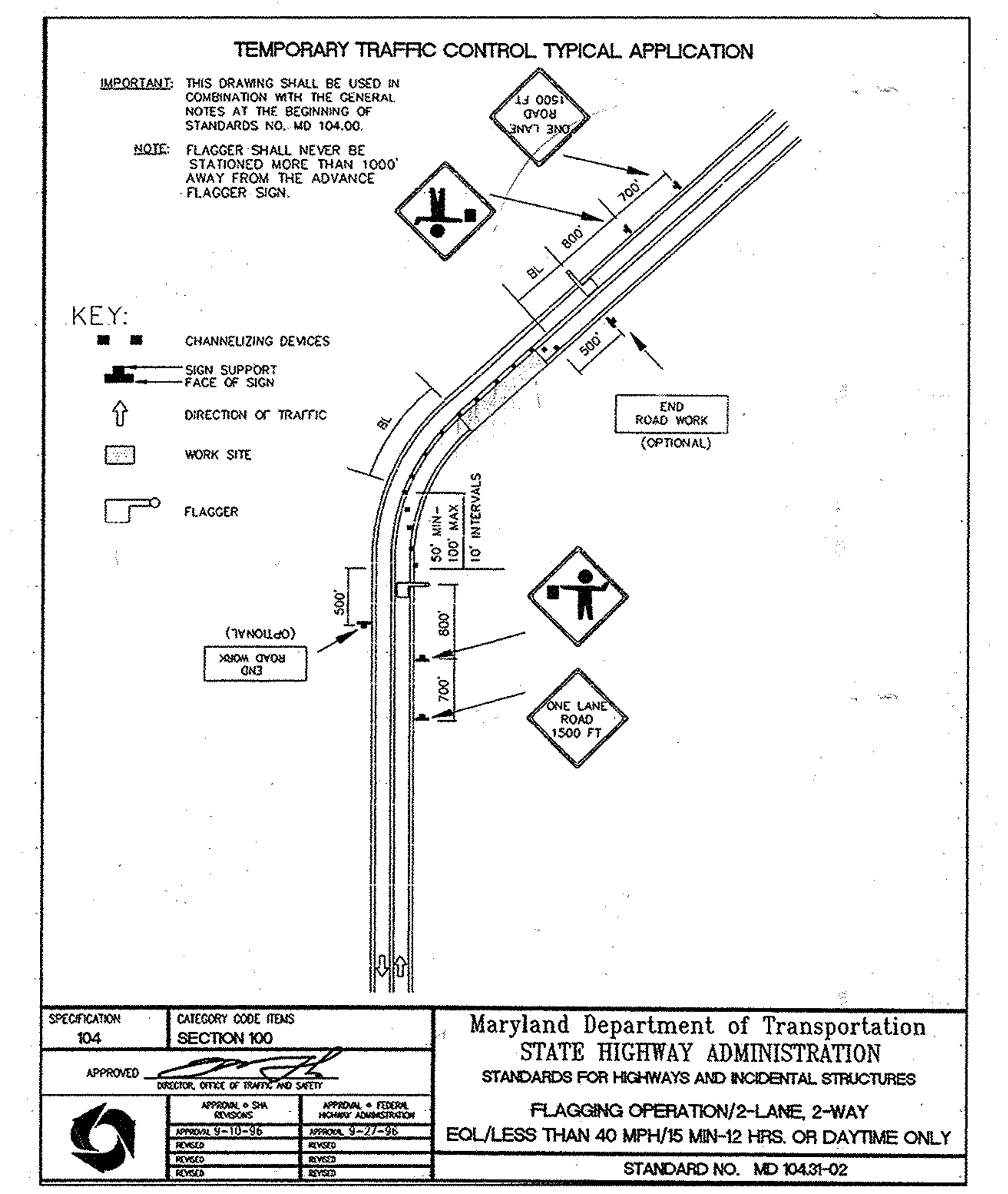
DESIGNED S.D.H.	Landscape Plan / Details **ZEPP PLAZA** Parcel A Tax Map 34, Parcel 155 Plat No. 17437 12447 Clarksville Pike Clarksville, Maryland 21029 5th Election District - Howard County, Maryland Previous Submittals: F-05-027	SCALE 1"=20'
DRAWN J.D.R.		DRAWING 12 of 13
CHECKED B.D.B.		JOB NO. 99-062
DATE 1/2006	OWNER: Zepp Plaza, LLC. 12435 Clarksville Pike Clarksville, Maryland (410) 531-6712 — DEVELOPER: Crystal Hill Advisors 11737 Rte 108 Clarksville, Maryland (410) 531-6700	FILE NO. SDP-05-021

SDP-05-021

F:\99-062-1\dwg\99-062-1 LAND (12).dwg, LANDSCAPE (12), 1/27/2006 4:53:22 PM







APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DIRECTOR — 2/16/06 DATE

CHIEF, DIVISION OF LAND DEVELOPMENT — 2/16/06 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 2/14/06 DATE

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS.

NATURAL RESOURCE CONSERVATION SERVICE — DATE

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

HOWARD SOIL CONSERVATION DISTRICT — DATE

REVISIONS

No.	Date	Description
1	11/2006	Added retaining wall
2	11/2006	Revised sewer connection, revised landscaping, revised Stormtech WQ configuration, show relocated traffic control structure, added underdrain system to pick up roof drainage.
4	09/16/10	REVISE PARKING LAYOUT/ STRIPING PLAN
5	11/8/10	RESTAURANT ACCESS & HC ACCESS

PROFESSIONAL CERTIFICATION
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 18417, Expiration Date: 9-11-10

REDLINE REVISION - PARKING LAYOUT / STRIPING PLAN

VANMAR ASSOCIATES, INC.
Engineers Surveyors Planners
310 South Main Street, P.O. Box 328, Mount Airy, Maryland 21771
(301) 829-2890 (301) 831-5015 (410) 549-2751
Fax (301) 831-5603

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS OF DEVELOPMENT 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 ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

Rosemary W. Zepp / Edgar W. Zepp — 1/27/06

SIGNATURE OF DEVELOPER — DATE

STATE OF MARYLAND — BRUCE DAVID BURTON — No. 19184 REGISTERED PROFESSIONAL ENGINEER — 1/27/06

ENGINEER'S CERTIFICATE

I CERTIFY THAT THESE PLANS FOR SEDIMENT AND EROSION CONTROL REPRESENT 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.

Bruce D. Burton — 1/27/06

SIGNATURE OF ENGINEER — DATE

Subdivision Name: Zepp Plaza			Sect/Area: N/A	Parcel/No.: 155	
Plat No.: 17437	Block No.: 12	Zone: B-2	Tax Map No.: 34	Election District: 5th	Census Tract: 6051.02
Water Code: I11			Sewer Code: 6650000		

LDE, INC.
9250 Rumsey Road, Suite 106, Columbia, MD. 21045 (410) 715-1070
(301) 596-3424 (410) 715-9540 (Fax)

DESIGNED S.D.H.	Traffic Control Plan	SCALE 1"=20'
DRAWN J.D.R.	**ZEPP PLAZA**	DRAWING 13 of 13
CHECKED B.D.B.	Parcel A, Tax Map 34, Parcel 155, Plat No. 17437, 12447 Clarksville Pike, Clarksville, Maryland 21029, 5th Election District - Howard County, Maryland, Previous Submittals: F-05-027	JOB NO. 99-062
DATE 1/2006	OWNER: Zepp Plaza, LLC. 12435 Clarksville Pike, Clarksville, Maryland (410) 531-6712 — DEVELOPER: Crystal Hill Advisors 11737 Rte 108, Clarksville, Maryland (410) 531-6700	FILE NO. SDP-05-021

SDP-05-021

F:\99-062-1\dwg\99-062-1 TCP (13).dwg, TRAFFIC (13), 1/27/2006 4:54:30 PM