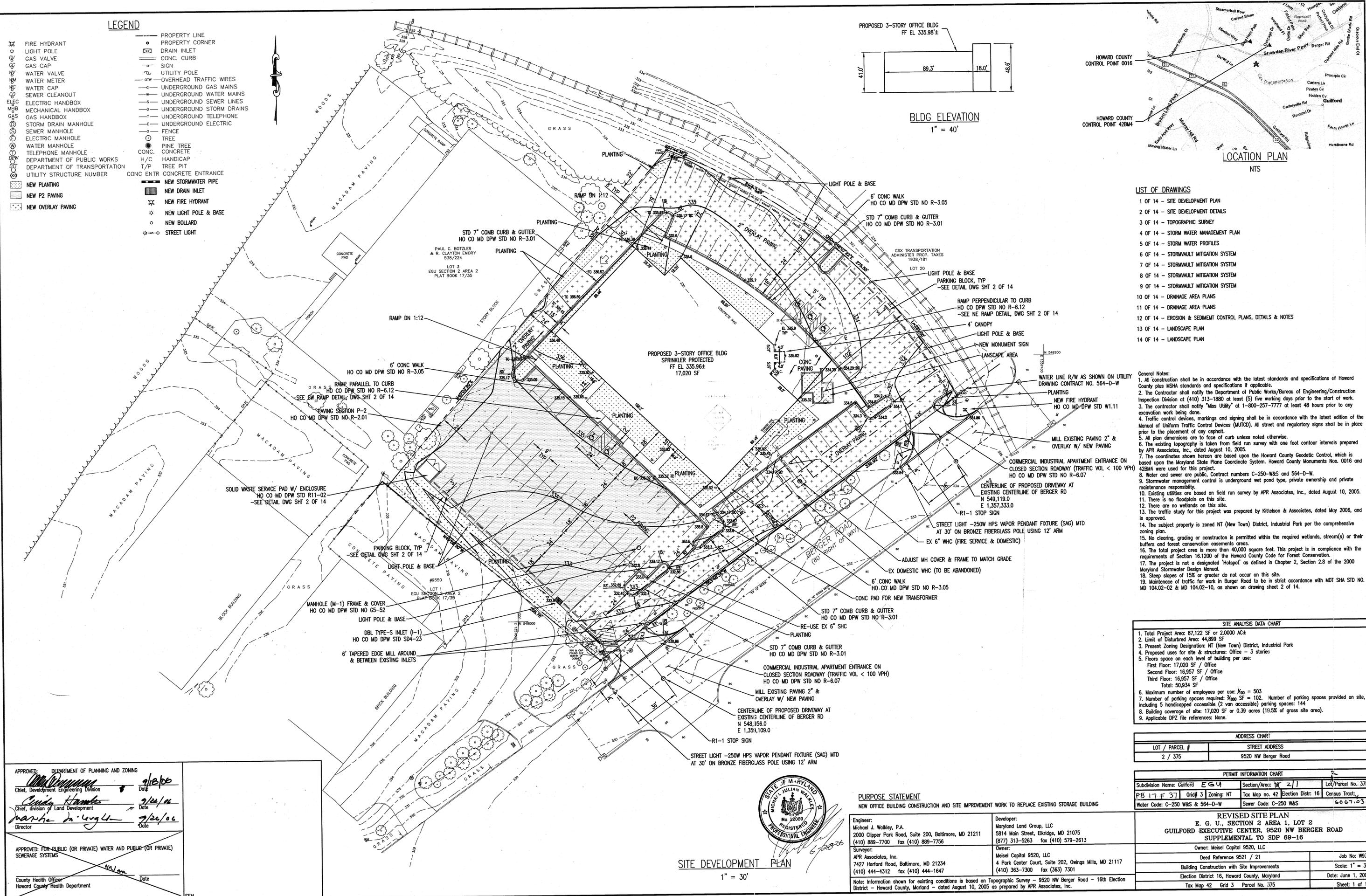


LEGEND

- ⊛ FIRE HYDRANT
- ⊛ LIGHT POLE
- ⊛ GAS VALVE
- ⊛ GAS CAP
- ⊛ WATER VALVE
- ⊛ WATER METER
- ⊛ WATER CAP
- ⊛ SEWER CLEANOUT
- ⊛ ELECTRIC HANDBOX
- ⊛ MECHANICAL HANDBOX
- ⊛ GAS HANDBOX
- ⊛ STORM DRAIN MANHOLE
- ⊛ SEWER MANHOLE
- ⊛ ELECTRIC MANHOLE
- ⊛ TELEPHONE MANHOLE
- ⊛ DEPARTMENT OF PUBLIC WORKS
- ⊛ DEPARTMENT OF TRANSPORTATION
- ⊛ UTILITY STRUCTURE NUMBER
- ⊛ NEW PLANTING
- ⊛ NEW P2 PAVING
- ⊛ NEW OVERLAY PAVING
- PROPERTY LINE
- ⊛ PROPERTY CORNER
- ⊛ DRAIN INLET
- ⊛ CONC. CURB
- ⊛ SIGN
- ⊛ UTILITY POLE
- OVERHEAD TRAFFIC WIRES
- UNDERGROUND GAS MAINS
- UNDERGROUND WATER MAINS
- UNDERGROUND SEWER LINES
- UNDERGROUND STORM DRAINS
- UNDERGROUND TELEPHONE
- FENCE
- ⊛ TREE
- ⊛ PINE TREE
- ⊛ CONC.
- ⊛ CONCRETE
- ⊛ H/C
- ⊛ HANDICAP
- ⊛ TREE PIT
- ⊛ CONC ENTR
- ⊛ CONCRETE ENTRANCE
- ⊛ NEW STORMWATER PIPE
- ⊛ NEW DRAIN INLET
- ⊛ NEW FIRE HYDRANT
- ⊛ NEW LIGHT POLE & BASE
- ⊛ NEW BOLLARD
- ⊛ STREET LIGHT



LIST OF DRAWINGS

- 1 OF 14 - SITE DEVELOPMENT PLAN
- 2 OF 14 - SITE DEVELOPMENT DETAILS
- 3 OF 14 - TOPOGRAPHIC SURVEY
- 4 OF 14 - STORM WATER MANAGEMENT PLAN
- 5 OF 14 - STORM WATER PROFILES
- 6 OF 14 - STORMWALT MITIGATION SYSTEM
- 7 OF 14 - STORMWALT MITIGATION SYSTEM
- 8 OF 14 - STORMWALT MITIGATION SYSTEM
- 9 OF 14 - STORMWALT MITIGATION SYSTEM
- 10 OF 14 - DRAINAGE AREA PLANS
- 11 OF 14 - DRAINAGE AREA PLANS
- 12 OF 14 - EROSION & SEDIMENT CONTROL PLANS, DETAILS & NOTES
- 13 OF 14 - LANDSCAPE PLAN
- 14 OF 14 - LANDSCAPE PLAN

General Notes:

1. All construction shall be in accordance with the latest standards and specifications of Howard County plus MSHA standards and specifications if applicable.
2. The Contractor shall notify the Department of Public Works/Bureau of Engineering/Construction Inspection Division at (410) 315-1880 at least (5) five working days prior to the start of work.
3. The contractor shall notify "Miss Utility" at 1-800-257-7777 at least 48 hours prior to any excavation work being done.
4. Traffic control devices, markings and signing shall be in accordance with the latest edition of the Manual of Uniform Traffic Control Devices (MUTCD). All street and regulatory signs shall be in place prior to the placement of any asphalt.
5. All plan dimensions are to face of curb unless noted otherwise.
6. The existing topography is taken from field run survey with one foot contour intervals prepared by APR Associates, Inc., dated August 10, 2005.
7. The coordinates shown hereon are based upon the Howard County Geodetic Control, which is based upon the Maryland State Plane Coordinate System, Howard County Monuments Nos. 0016 and 42B44 were used for this project.
8. Water and sewer are public, Contract numbers C-250-W&S and 564-D-W.
9. Stormwater management control is underground wet pond type, private ownership and private maintenance responsibility.
10. Existing utilities are based on field run survey by APR Associates, Inc., dated August 10, 2005.
11. There is no floodplain on this site.
12. There are no wetlands on this site.
13. The traffic study for this project was prepared by Kitelson & Associates, dated May 2006, and is approved.
14. The subject property is zoned NT (New Town) District, Industrial Park per the comprehensive zoning plan.
15. No clearing, grading or construction is permitted within the required wetlands, stream(s) or their buffers and forest conservation easements areas.
16. The total project area is more than 40,000 square feet. This project is in compliance with the requirements of Section 16.1200 of the Howard County Code for Forest Conservation.
17. The project is not a designated "Hotspot" as defined in Chapter 2, Section 2.8 of the 2000 Maryland Stormwater Design Manual.
18. Steep slopes of 15% or greater do not occur on this site.
19. Maintenance of traffic for work in Burger Road to be in strict accordance with MD SHA STD NO. MD 104.02-02 & MD 104.02-10, as shown on drawing sheet 2 of 14.

SITE ANALYSIS DATA CHART	
1. Total Project Area: 87,122 SF or 2,000 AC±	
2. Limit of Disturbed Area: 44,899 SF	
3. Present Zoning Designation: NT (New Town) District, Industrial Park	
4. Proposed uses for site & structures: Office - 3 stories	
5. Floors space on each level of building per use:	
First Floor: 17,020 SF / Office	
Second Floor: 16,957 SF / Office	
Third Floor: 16,957 SF / Office	
Total: 50,934 SF	
6. Maximum number of employees per use: $N_{100} = 503$	
7. Number of parking spaces required: $N_{100} SF = 102$. Number of parking spaces provided on site, including 5 handicapped accessible (2 van accessible) parking spaces: 144	
8. Building coverage of site: 17,020 SF or 0.39 acres (18.5% of gross site area).	
9. Applicable DPZ file references: None.	

ADDRESS CHART	
LOT / PARCEL #	STREET ADDRESS
2 / 375	9520 NW Berger Road

PERMIT INFORMATION CHART			
Subdivision Name: Guilford	E G U	Section/Area: 2 / 1	Lot/Parcel No. 375
PB 17 F 37	Grid# 3	Zoning: NT	Tax Map no. 42 Election Distr: 16 Census Tract: 6067.03
Water Code: C-250 W&S & 564-D-W		Sewer Code: C-250 W&S	

REVISED SITE PLAN	
E. G. U., SECTION 2 AREA 1, LOT 2 GUILFORD EXECUTIVE CENTER, 9520 NW BERGER ROAD SUPPLEMENTAL TO SDP 69-16	
Owner: Meisel Capital 9520, LLC	Job No: W939
Deed Reference 9521 / 21	Scale: 1" = 30'
Building Construction with Site Improvements	Date: June 1, 2006
Election District 16, Howard County, Maryland	Sheet: 1 of 14
Tax Map 42 Grid 3 Parcel No. 375	

APPROVED: DEPARTMENT OF PLANNING AND ZONING
[Signature] 9/18/06
 Chief, Development Engineering Division
[Signature] 9/26/06
 Chief, Division of Land Development
[Signature] 9/26/06
 Director

APPROVED: FOR PUBLIC (OR PRIVATE) WATER AND PUBLIC (OR PRIVATE) SEWERAGE SYSTEMS
[Signature]
 County Health Officer
 Howard County Health Department



SITE DEVELOPMENT PLAN

1" = 30'

PURPOSE STATEMENT

NEW OFFICE BUILDING CONSTRUCTION AND SITE IMPROVEMENT WORK TO REPLACE EXISTING STORAGE BUILDING

Engineer:
 Michael J. Walkley, P.A.
 2000 Clipper Park Road, Suite 200, Baltimore, MD 21211
 (410) 889-7700 fax (410) 889-7756

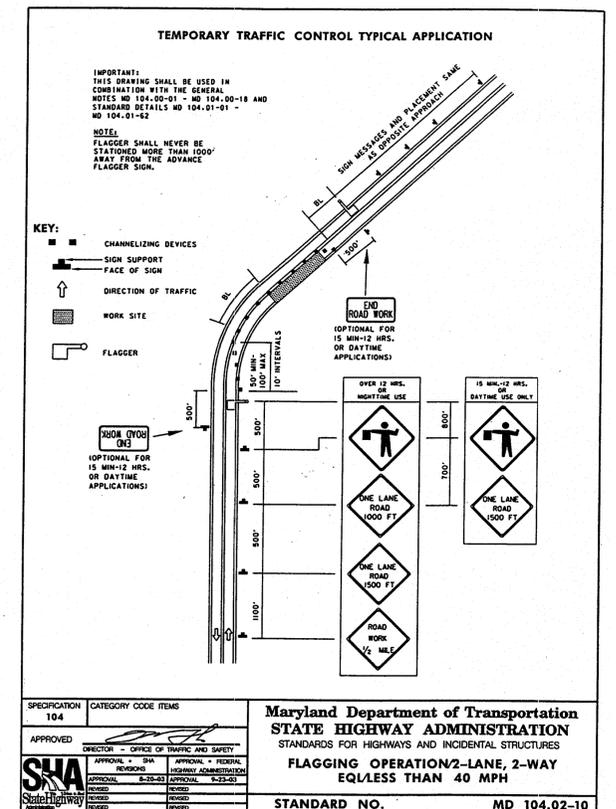
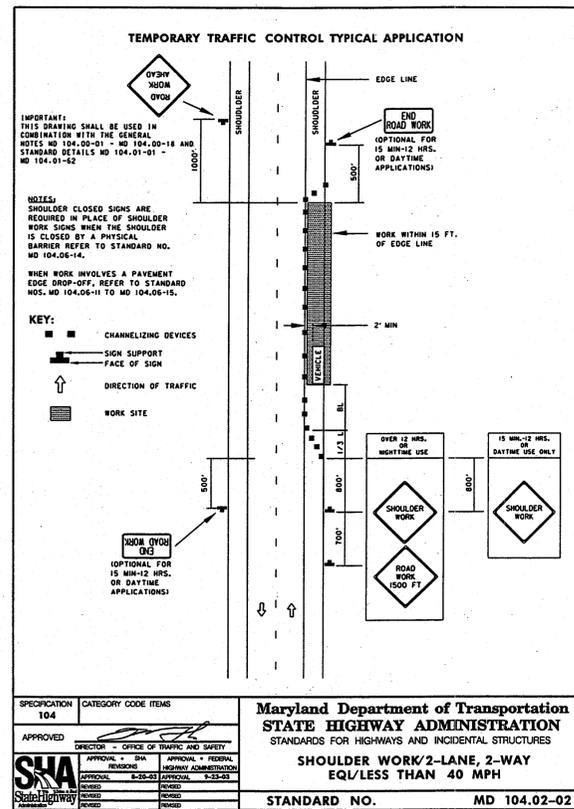
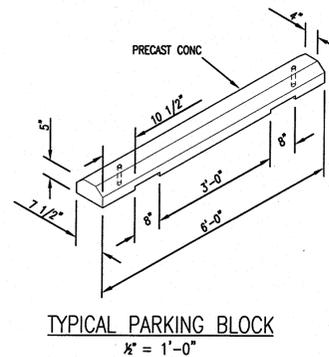
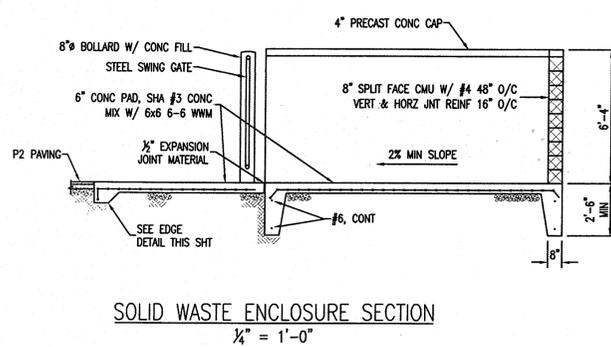
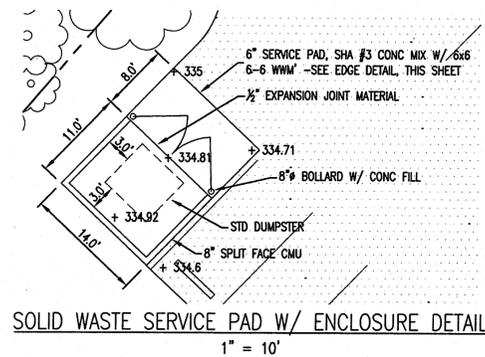
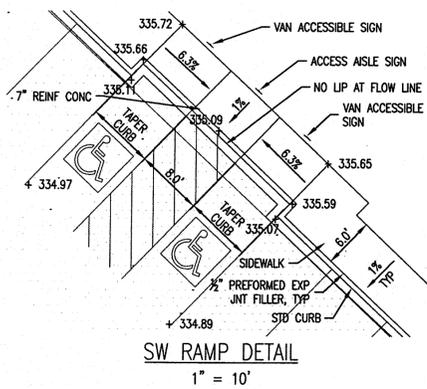
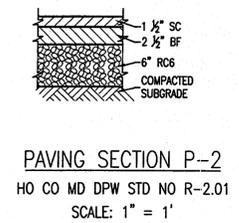
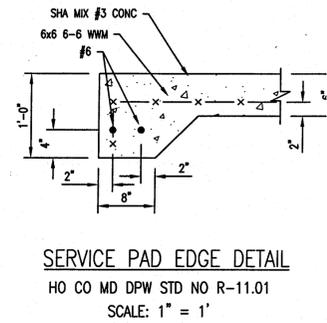
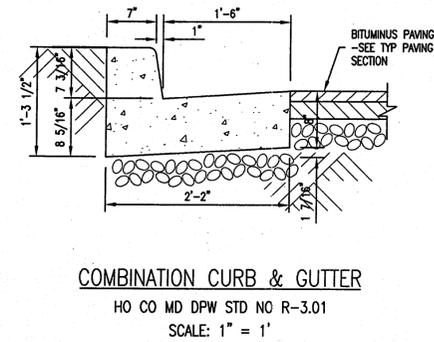
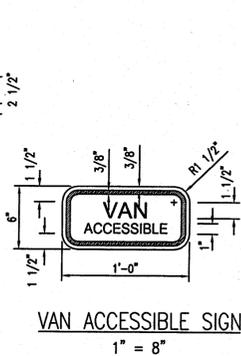
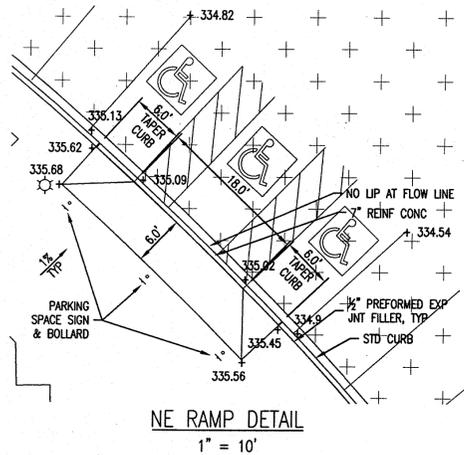
Surveyor:
 APR Associates, Inc.
 7427 Harford Road, Baltimore, MD 21234
 (410) 444-4312 fax (410) 444-1647

Developer:
 Maryland Land Group, LLC
 5814 Main Street, Elkrige, MD 21075
 (877) 313-5263 fax (410) 579-2613

Owner:
 Meisel Capital 9520, LLC
 4 Park Center Court, Suite 202, Owings Mills, MD 21117
 (410) 363-7300 fax (363) 7301

Note: Information shown for existing conditions is based on Topographic Survey - 9520 NW Berger Road - 16th Election District - Howard County, Maryland - dated August 10, 2005 as prepared by APR Associates, Inc.

SDP-69-016



APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division: *[Signature]* Date: 7/20/16

Chief, Division of Land Development: *[Signature]* Date: 7/20/16

Director: *[Signature]* Date: 7/20/16

APPROVED: FOR PUBLIC (OR PRIVATE) WATER AND PUBLIC (OR PRIVATE) SEWERAGE SYSTEMS

County Health Officer: *[Signature]* Date: _____

Howard County Health Department



Engineer:
Michael J. Walkley, P.E.
2000 Clipper Park Road, Suite 200, Baltimore, MD 21211
(410) 889-7700 fax (410) 889-7756

Developer:
Maryland Land Group, LLC
5814 Main Street, Elkridge, MD 21075
(877) 313-5263 fax (410) 579-2613

Surveyor:
APR Associates, Inc.
7427 Harford Road, Baltimore, MD 21234
(410) 444-4312 fax (410) 444-1647

Owner:
Meisel Capital 9520, LLC
4 Park Center Court, Suite 202, Owings Mills, MD 21117
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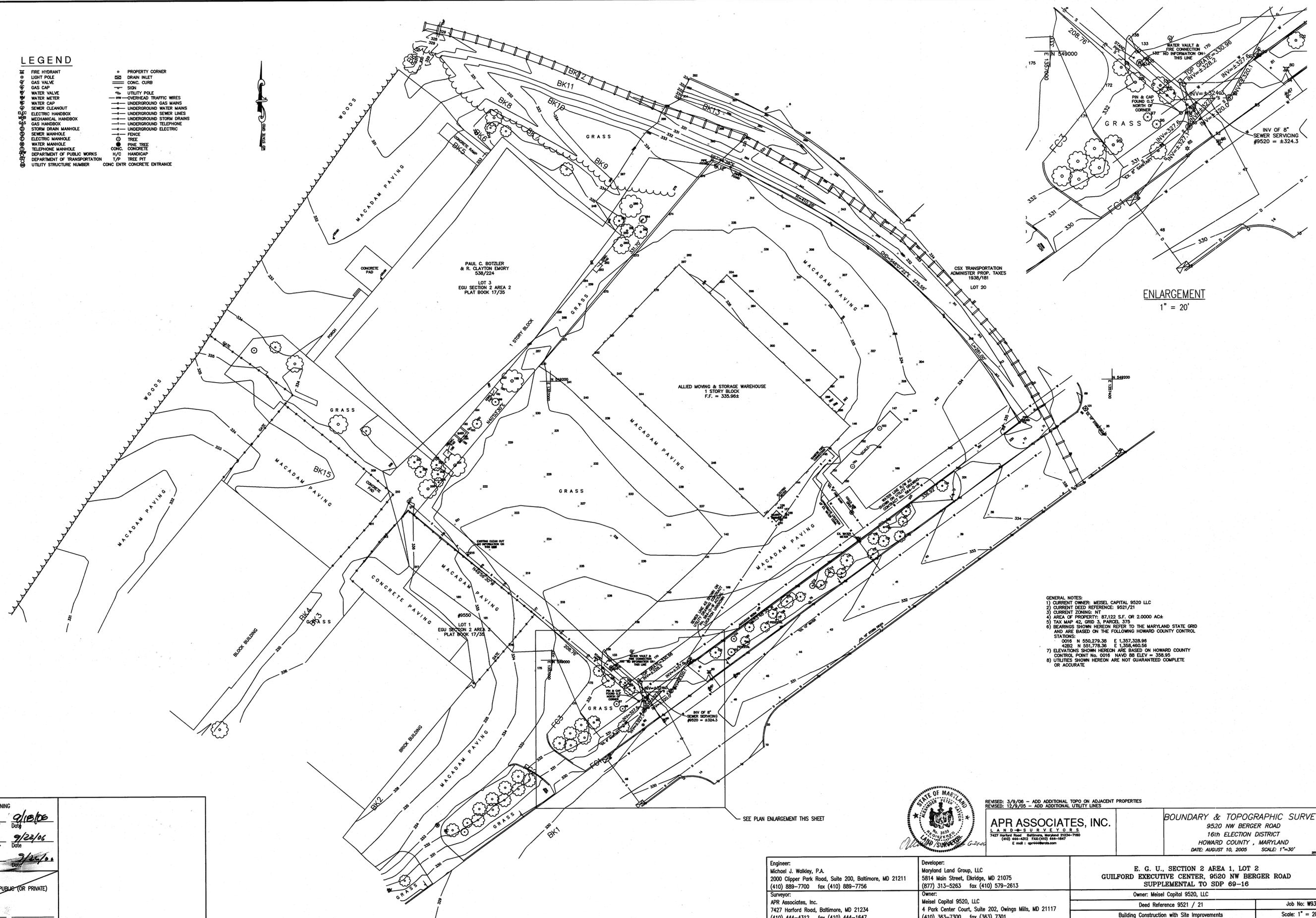
Note: Information shown for existing conditions is based on Topographic Survey - 9520 NW Berger Road - 16th Election District - Howard County, Maryland - dated August 10, 2005 as prepared by APR Associates, Inc.

SITE DETAILS	
E. G. U., SECTION 2 AREA 1, LOT 2 GUILFORD EXECUTIVE CENTER, 9520 NW BERGER ROAD SUPPLEMENTAL TO SDP 89-16	
Owner: Meisel Capital 9520, LLC	Job No: W939
Deed Reference 9521 / 21	Scale: 1" = 30'
Building Construction with Site Improvements	Date: June 1, 2006
Election District 16, Howard County, Maryland	Sheet: 2 of 14
Tax Map 42 Grid 3 Parcel No. 375	

SDP-69-016

LEGEND

- FIRE HYDRANT
- LIGHT POLE
- GAS VALVE
- GAS CAP
- WATER VALVE
- WATER METER
- WATER CAP
- SEWER CLEANOUT
- ELEC. HANDBOX
- MECHANICAL HANDBOX
- GAS HANDBOX
- STORM DRAIN MANHOLE
- SEWER MANHOLE
- ELECTRIC MANHOLE
- TELEPHONE MANHOLE
- DEPARTMENT OF PUBLIC WORKS
- DEPARTMENT OF TRANSPORTATION
- UTILITY STRUCTURE NUMBER
- PROPERTY CORNER
- DRAIN INLET
- CONC. CURB
- SIGN
- UTILITY POLE
- OVERHEAD TRAFFIC WIRES
- UNDERGROUND GAS MAINS
- UNDERGROUND WATER MAINS
- UNDERGROUND SEWER LINES
- UNDERGROUND STORM DRAINS
- UNDERGROUND TELEPHONE
- FENCE
- TREE
- PINE TREE
- CONCRETE
- H/C
- TYP
- CONC ENTR
- CONCRETE ENTRANCE



ENLARGEMENT
1" = 20'

GENERAL NOTES:
 1) CURRENT OWNER: MEISEL CAPITAL 9520 LLC
 2) CURRENT DEED REFERENCE: 9521/21
 3) CURRENT ZONING: NT
 4) AREA OF PROPERTY: 87,122 S.F. OR 2.0000 AC±
 5) TAX MAP 42, GRID 3, PARCEL 375
 6) BEARINGS SHOWN HEREON REFER TO THE MARYLAND STATE GRID AND ARE BASED ON THE FOLLOWING HOWARD COUNTY CONTROL STATIONS:
 0016 N 550,279.38 E 1,357,328.98
 4282 N 551,778.36 E 1,358,460.56
 7) ELEVATIONS SHOWN HEREON ARE BASED ON HOWARD COUNTY CONTROL POINT No. 0016. NAVD 88 ELEV = 358.95
 8) UTILITIES SHOWN HEREON ARE NOT GUARANTEED COMPLETE OR ACCURATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 Chief, Development Engineering Division
 Chief, Division of Land Development
 Director

9/18/05
 9/23/05
 9/24/05

APPROVED: FOR PUBLIC (OR PRIVATE) WATER AND PUBLIC (OR PRIVATE) SEWERAGE SYSTEMS
 County Health Officer
 Howard County Health Department



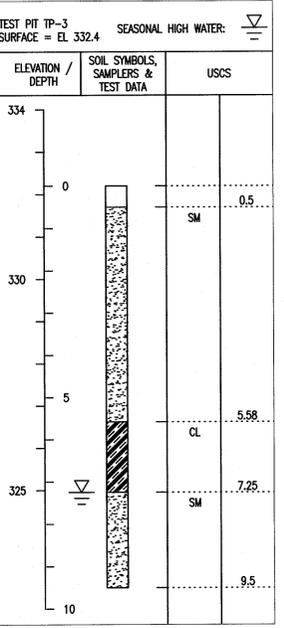
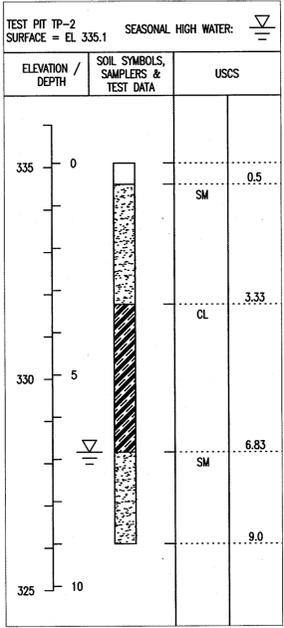
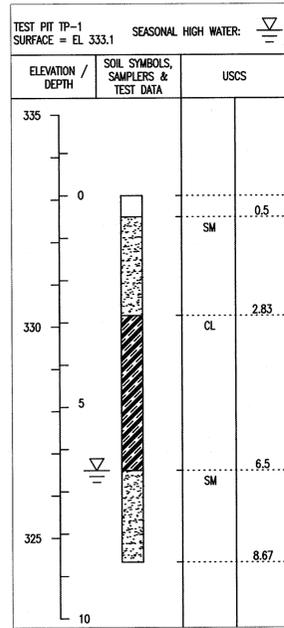
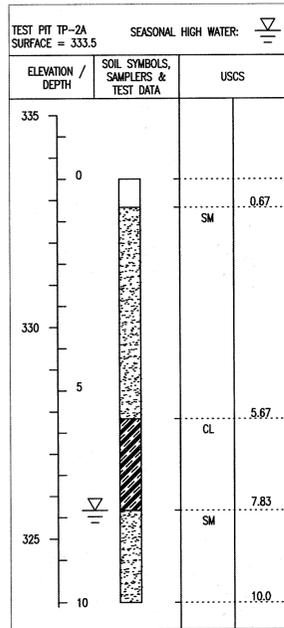
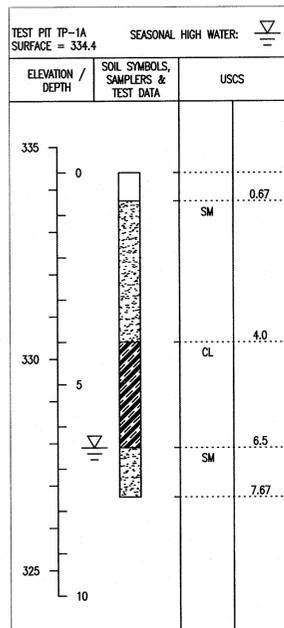
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 REVISED: 12/9/05 - ADD ADDITIONAL UTILITY LINES

APR ASSOCIATES, INC.
 L.A.N.D.S.U.R.V.E.Y.I.N.G.S.
 7427 Harford Road, Baltimore, Maryland 21234-7160
 (410) 444-4312 Fax: (410) 444-1647
 E-mail: apr@aprassoc.com

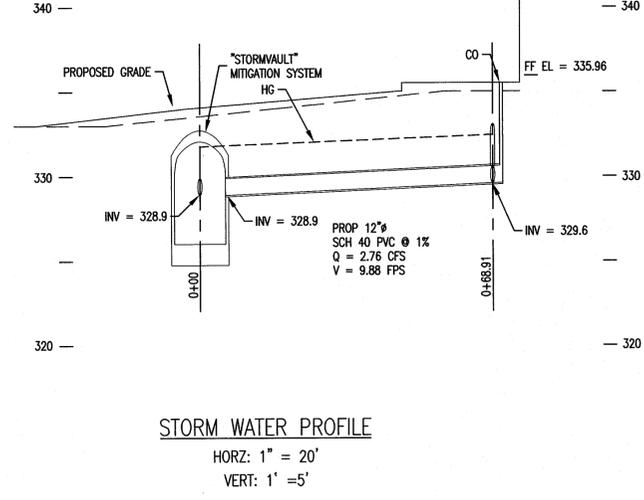
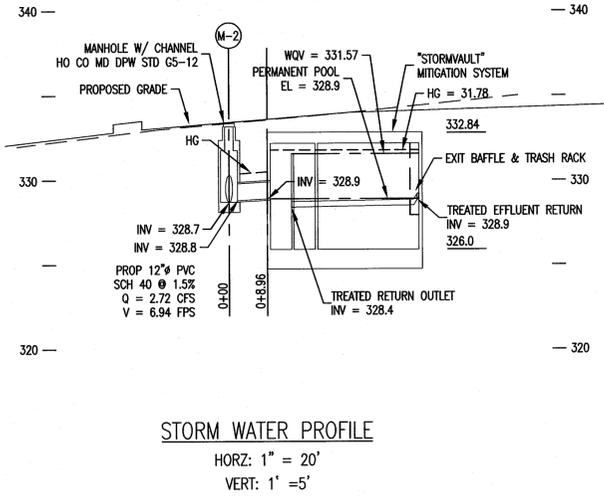
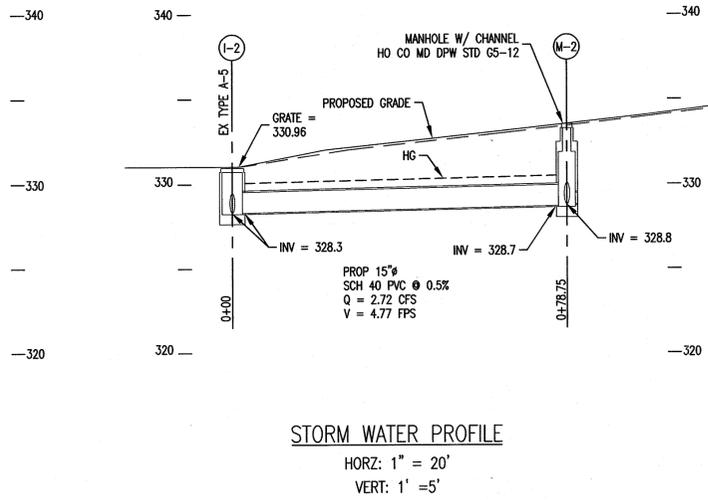
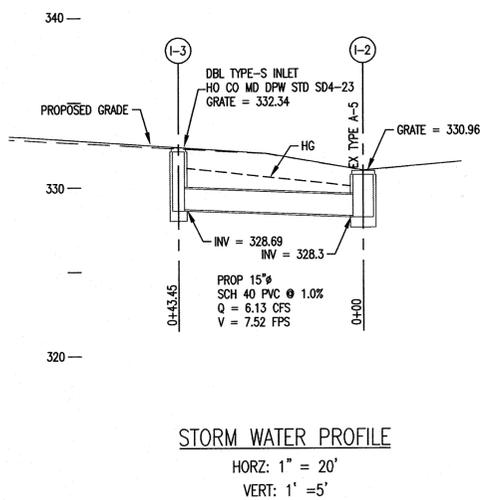
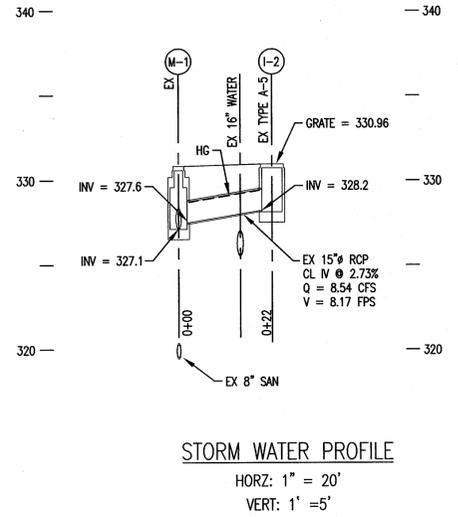
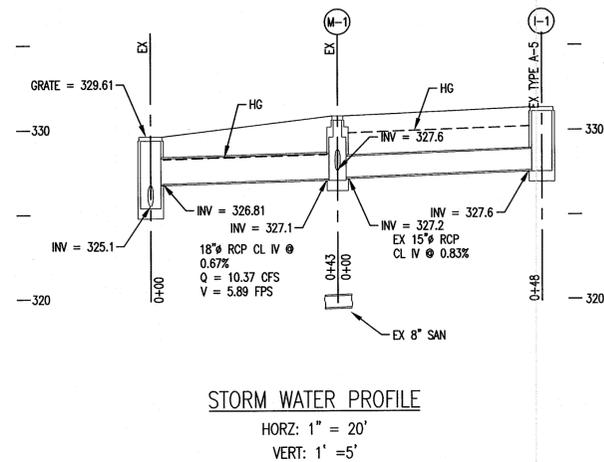
BOUNDARY & TOPOGRAPHIC SURVEY
 9520 NW BERGER ROAD
 16th ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 DATE: AUGUST 10, 2005 SCALE: 1"=30'

Engineers: Michael J. Walkley, P.A. 2000 Clipper Park Road, Suite 200, Baltimore, MD 21211 (410) 889-7700 fax (410) 889-7756	Developer: Maryland Land Group, LLC 5814 Main Street, Elkridge, MD 21075 (877) 313-5263 fax (410) 579-2613	Owner: Meisel Capital 9520, LLC 4 Park Center Court, Suite 202, Owings Mills, MD 21117 (410) 363-7300 fax (363) 7301	E. G. U., SECTION 2 AREA 1, LOT 2 GULFORD EXECUTIVE CENTER, 9520 NW BERGER ROAD SUPPLEMENTAL TO SDP 69-16 Owner: Meisel Capital 9520, LLC Deed Reference 9521 / 21 Building Construction with Site Improvements Election District 16, Howard County, Maryland Tax Map 42 Grid 3 Parcel No. 375	Job No: W939 Scale: 1" = 20' Date: March 20, 2005 Sheet: 3 of 14
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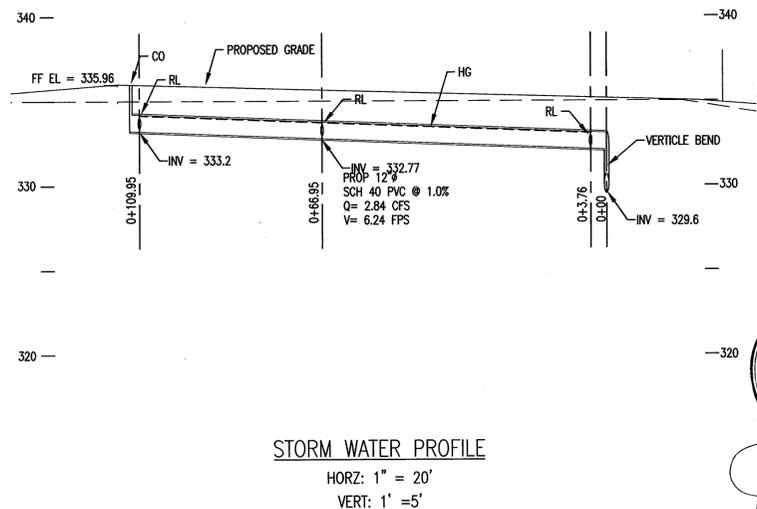
SDP-69-016



TEST PIT LOGS



NOTE:
EXISTING STORM DRAIN CONSTRUCTED UNDER ORIGINAL SDP PRIOR TO THIS REVISION BEING APPROVED.



APPROVED: DEPARTMENT OF PLANNING AND ZONING
Chief, Development Engineering Division
Cinda Handley
Chief, division of Land Development
David LaCelle
Director

APPROVED: FOR PUBLIC (OR PRIVATE) WATER AND PUBLIC (OR PRIVATE) SEWERAGE SYSTEMS
County Health Officer
Howard County Health Department

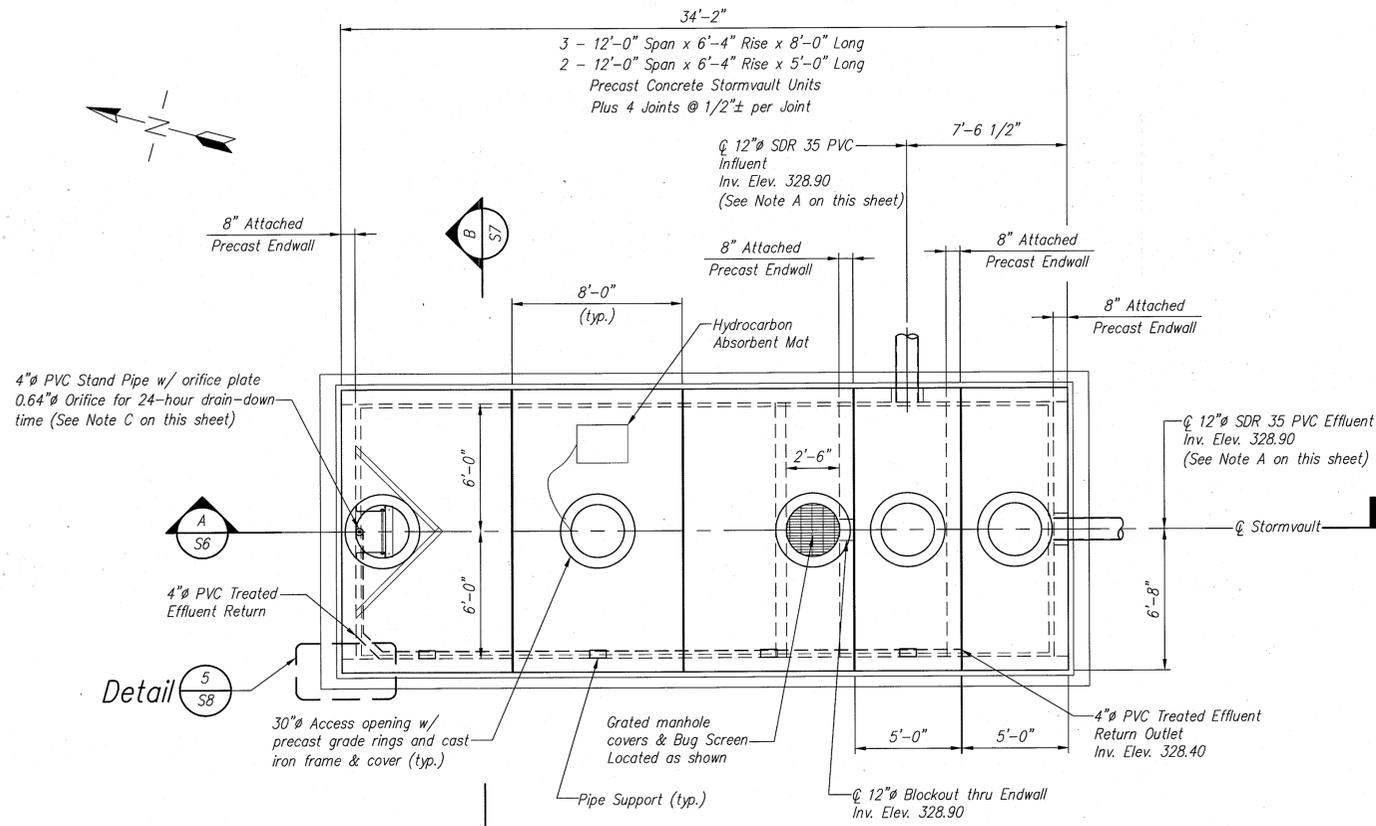


Engineer:
Michael J. Walkley, P.A.
2000 Clipper Park Road, Suite 200, Baltimore, MD 21211
(410) 889-7700 fax (410) 889-7756

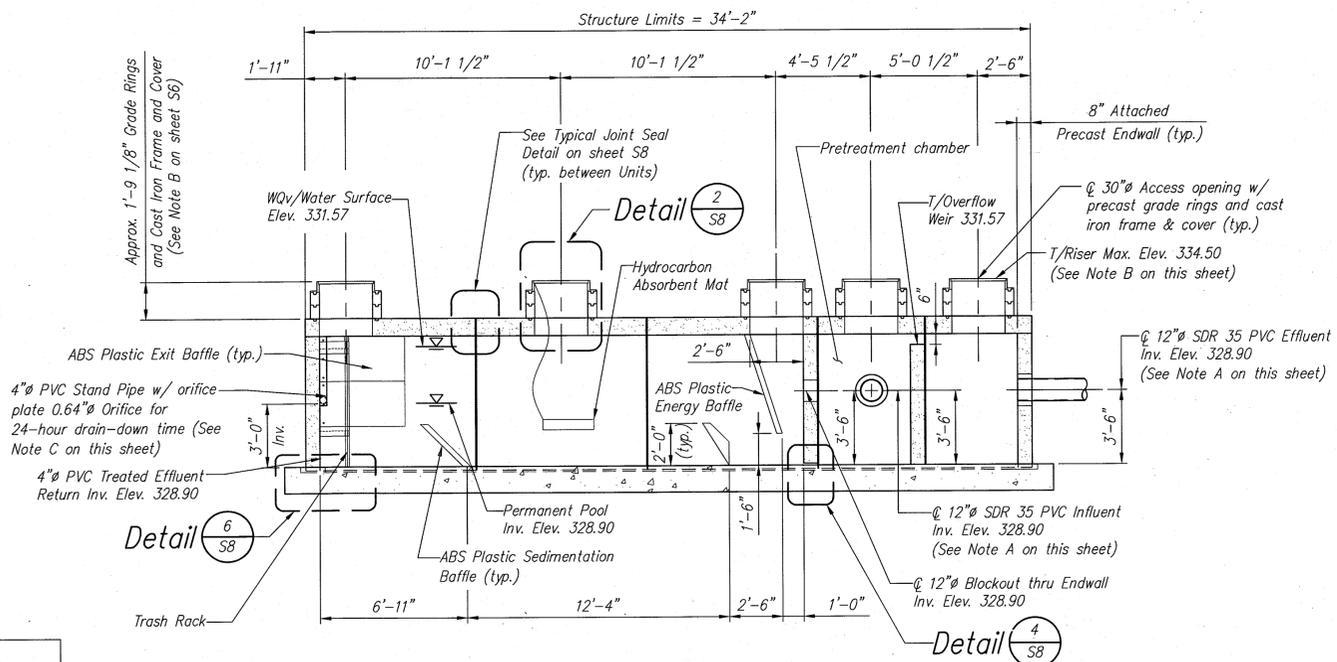
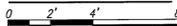
Developer:
Maryland Land Group, LLC
5814 Main Street, Elkridge, MD 21075
(877) 313-5263 fax (410) 579-2613

STORM WATER MANAGEMENT PROFILES
E. G. U., SECTION 2 ARBA 1, LOT 2
GUILFORD EXECUTIVE CENTER, 9520 NW BERGER ROAD
SUPPLEMENTAL TO SDP 69-16

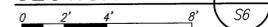
Owner: Meisel Capital 9520, LLC
Deed Reference 9521 / 21
Job No: W939
Building Construction with Site Improvements
Scale: 1" = 30'
Election District 16, Howard County, Maryland
Date: June 1, 2006
Tax Map 42 Grid 3 Parcel No. 375
Sheet: 5 of 14



VAULT PLAN



SECTION



NOTES

GENERAL NOTES:

1. This vault has been designed for general site conditions. The project engineer shall be responsible for the structure's suitability to the existing site conditions and for the hydraulic evaluation — including scour and confirmation of soil conditions.
2. Prior to construction, contractor must verify all elevations shown through the engineer.
3. Only Bridgtek, a division of Contech Arch Technologies, Inc., the CON/SPAN® approved precaster in Maryland may provide the structure designed in accordance with these plans.

DESIGN DATA

Design Loading:
Vault Units: HS20-44
Design Fill Height: Varies from 11 3/8" min to 2'-0" max from top of crown to top of pavement.
Design Method: Load factor per AASHTO Specification
Assumed Allowable Soil Bearing: 4000 PSF *
Pretreatment Volume Provided = 328 ft³
Treatment Volume Provided = 1572 ft³

*Foundation excavation and subgrade preparation shall be in accordance with the geotechnical report for this project prepared by Konder Engineering & Technical Service dated 9/28/05

MATERIALS

Precast units shall be constructed and installed in accordance with CON/SPAN® Specifications. Concrete for Footings shall have a minimum compressive strength of 4000 psi. Reinforcing steel for footings shall conform to ASTM 615, A616 or A617-Grade 60.

STORMVAULT GENERAL NOTES

- A. All pipe/structure connections to be fit with water-tight resilient pipe connector. Exact blockout size per manufacturer specifications
- B. Dimensions and Elevations to be field adjusted to match finished grade
- C. Orifice protected by Exit Baffle and Trash Rack to prevent blockage
- D. Maximum HGL Elevation for Stormvault located at T/Inside Arch Elev. 332.07
- E. Please keep all debris out of the vault during construction



APPROVED: DEPARTMENT OF PLANNING AND ZONING
 Chief, Development Engineering Division
 Chief, Division of Land Development
 Director

APPROVED: FOR PUBLIC (OR PRIVATE) WATER AND PUBLIC (OR PRIVATE) SEWERAGE SYSTEMS
 County Health Officer
 Howard County Health Department

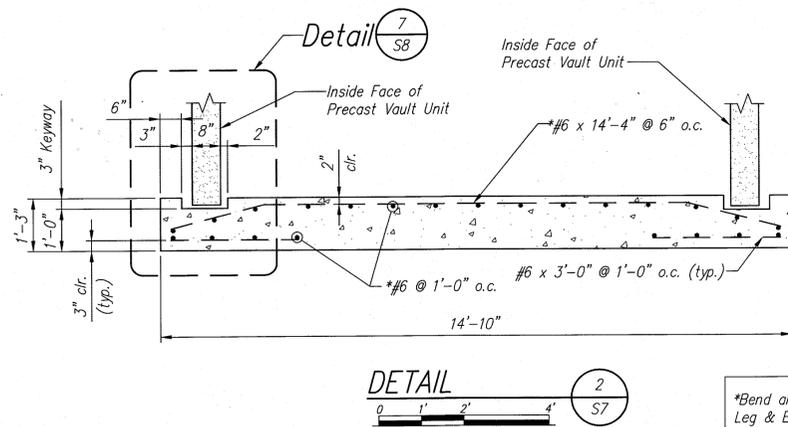
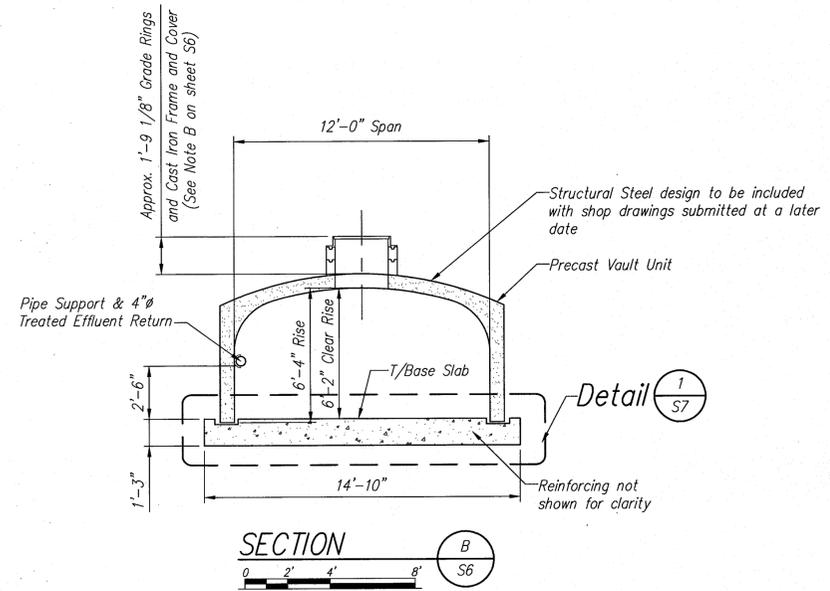
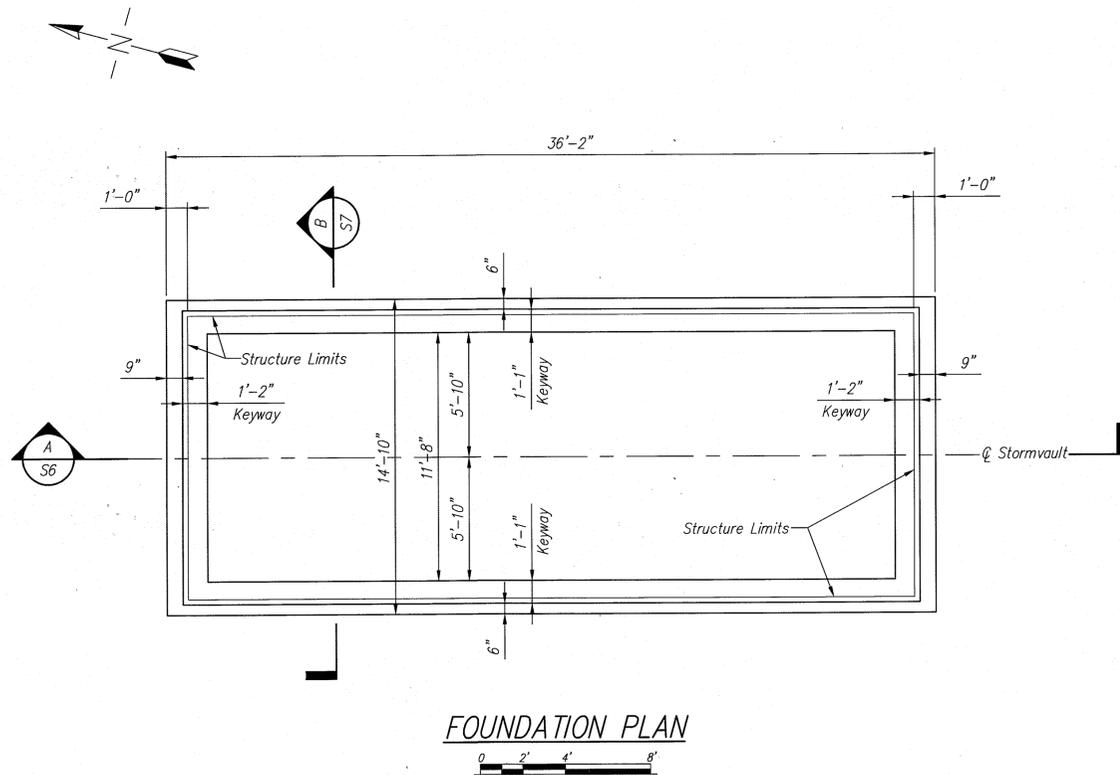
Date	Description	Sheets Revised	By
3/20/06	General Revisions	S6 & S7	JAL
3/30/06	General Revisions	S6 & S7	JAL
5/2/06	General Revisions	All Sheets	JAL

Engineer:
Michael J. Walkley, P.A.
2000 Clipper Park Road, Suite 200, Baltimore, MD 21211
(410) 889-7700 fax (410) 889-7756

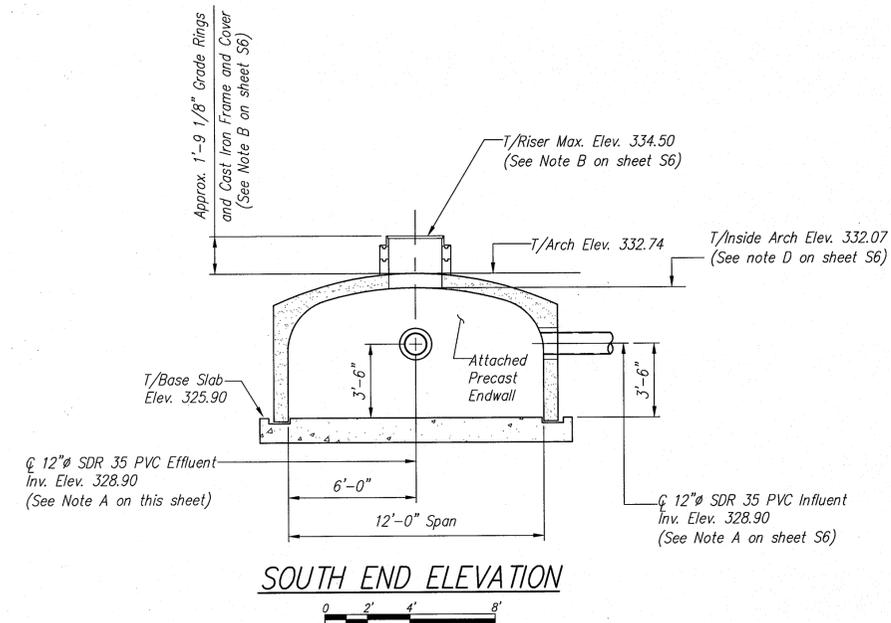
Developer:
Maryland Land Group, LLC
5814 Main Street, Elkridge, MD 21075
(877) 313-5263 fax (410) 579-2613

STORMVAULT MITIGATION SYSTEM
 E. G. U., SECTION 2 AREA 1, LOT 2
 GUILFORD EXECUTIVE CENTER, 9520 NW BERGER ROAD
 SUPPLEMENTAL TO SDP 69-16

Owner: Meisel Capital 9520, LLC
 Deed Reference 9521/21
 Job No: W939
 New Building Construction with Site Improvements
 Scale: 1/4" = 1'-0"
 Election District 16, Howard County, Maryland
 Date: May 2, 2006
 Tax Map 42 Grid 3 Parcel No. 375
 Sheet: 6 of 14



*Bend all bars to miss Unit Leg & Endwall keyways

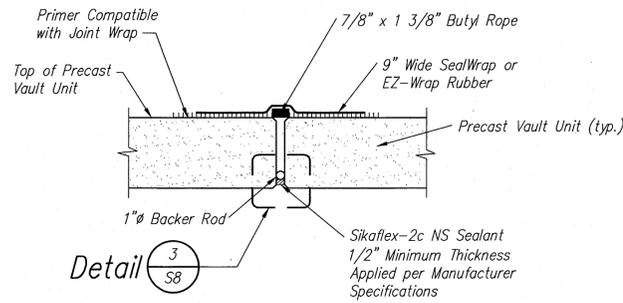
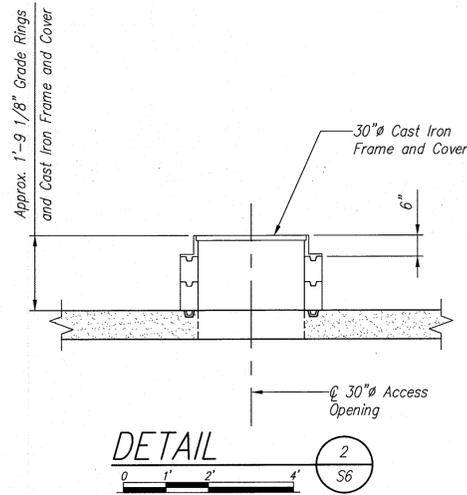


APPROVED: DEPARTMENT OF PLANNING AND ZONING
[Signature] 9/10/00
 Chief, Development Engineering Division
[Signature] 7/22/01
 Chief, division of Land Development
[Signature] 7/24/01
 Director

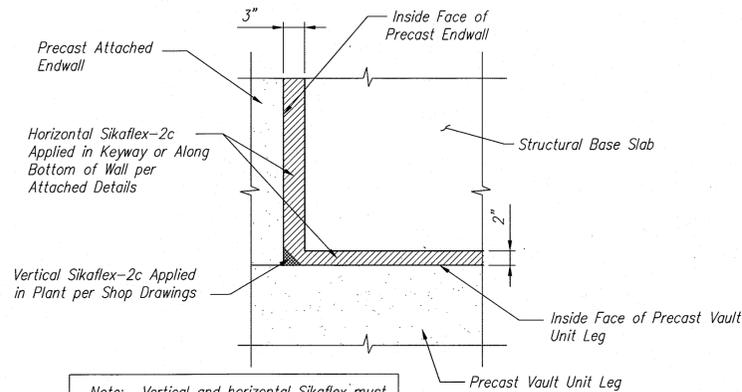
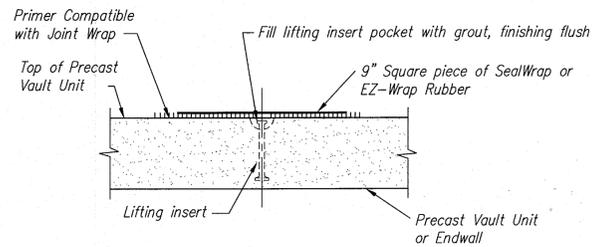
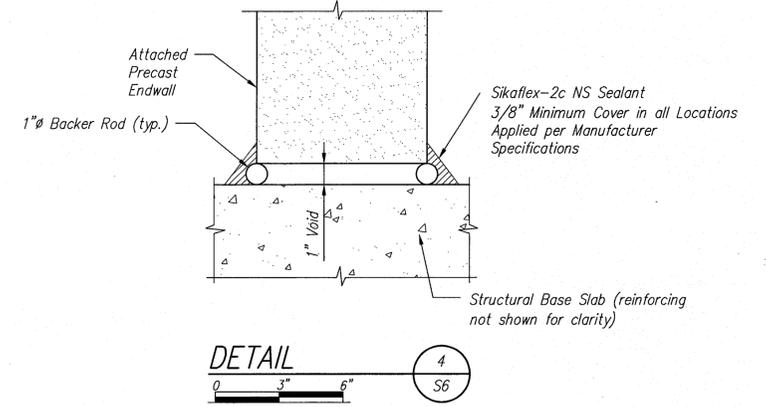
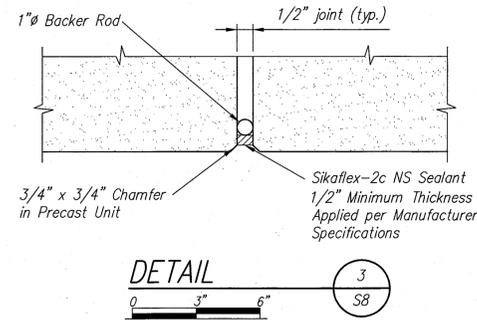
APPROVED: FOR PUBLIC (OR PRIVATE) WATER AND PUBLIC (OR PRIVATE) SEWERAGE SYSTEMS
[Signature]
 County Health Officer
 Howard County Health Department



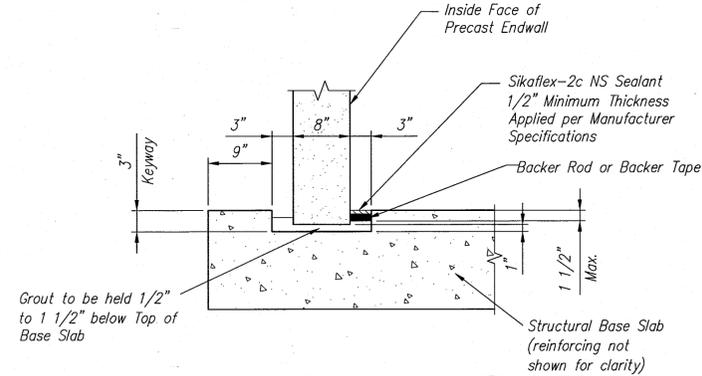
Engineer: Michael J. Walkley, P.A. 2000 Clipper Park Road, Suite 200, Baltimore, MD 21211 (410) 889-7700 fax (410) 889-7756	Developer: Maryland Land Group, LLC 5814 Main Street, Elkridge, MD 21075 (877) 313-5263 fax (410) 579-2613	STORMVAULT MITIGATION SYSTEM E. G. U., SECTION 2 AREA 1, LOT 2 GUILFORD EXECUTIVE CENTER, 9520 NW BERGER ROAD SUPPLEMENTAL TO SDP 69-16	
Surveyor: APR Associates, Inc. 7427 Harford Road, Baltimore, MD 21234 (410) 444-4312 fax (410) 444-1647	Owner: Meisel Capital 9520, LLC 4 Park Center Court, Suite 202, Owings Mills, MD 21117 (410) 363-7300 fax (363) 7301	Owner: Meisel Capital 9520, LLC Deed Reference 9521/21	Job No: W939 Scale: 1/4" = 1'-0" Date: May 2, 2006 Sheet: 7 of 14
Note: Information shown for existing conditions is based on Topographic Survey - 9520 NW Berger Road - 16th Election District - Howard County, Maryland - dated August 10, 2005 as prepared by APR Associates, Inc.		Election District 16, Howard County, Maryland Tax Map 42 Grid 3 Parcel No. 375	



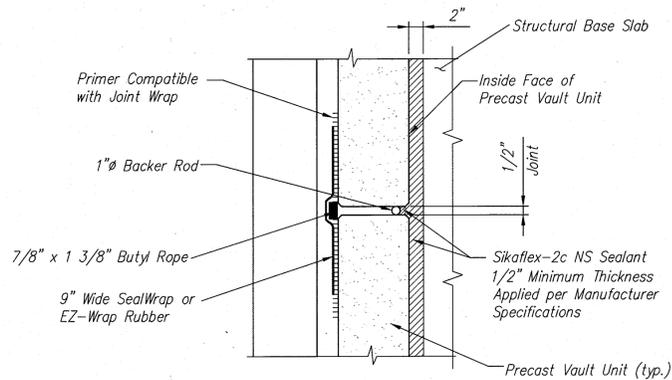
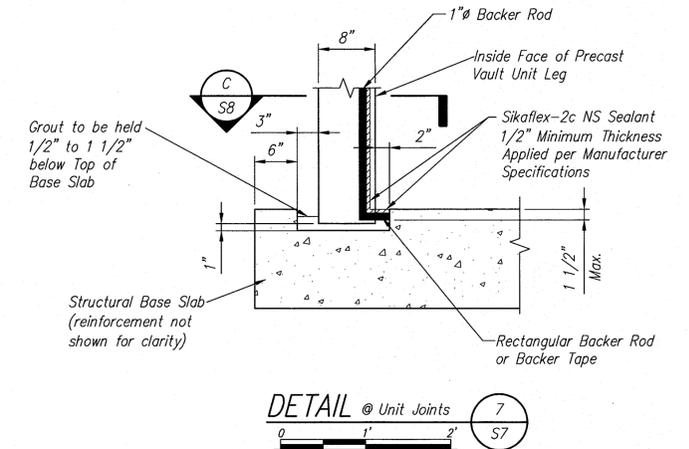
TYPICAL JOINT SEAL DETAIL
not to scale



Note: Vertical and horizontal SikaFlex must bond in order to ensure continuous joint.



Note: Vertical and horizontal SikaFlex must bond in order to ensure continuous joint.



APPROVED: DEPARTMENT OF PLANNING AND ZONING	
<i>[Signature]</i> Chief, Development Engineering Division	Date: 9/24/06
<i>[Signature]</i> Chief, Division of Land Development	Date: 9/24/06
<i>[Signature]</i> Director	Date: 9/24/06
APPROVED: FOR PUBLIC (OR PRIVATE) WATER AND PUBLIC (OR PRIVATE) SEWERAGE SYSTEMS	
<i>[Signature]</i> County Health Officer	Date: _____
Howard County Health Department	

Engineer: Michael J. Walkley, P.A. 2000 Clipper Park Road, Suite 200, Baltimore, MD 21211 (410) 889-7700 fax (410) 889-7756	Developer: Maryland Land Group, LLC 5814 Main Street, Elkridge, MD 21075 (877) 313-5263 fax (410) 579-2613	STORMVAULT MITIGATION SYSTEM E. G. U., SECTION 2 AREA 1, LOT 2 GUILFORD EXECUTIVE CENTER, 9520 NW BERGER ROAD SUPPLEMENTAL TO SDP 69-16
Surveyor: APR Associates, Inc. 7427 Harford Road, Baltimore, MD 21234 (410) 444-4312 fax (410) 444-1647	Owner: Meisel Capital 9520, LLC 4 Park Center Court, Suite 202, Owings Mills, MD 21117 (410) 363-7300 fax (363) 7301	Owner: Meisel Capital 9520, LLC Deed Reference 9521/21 Job No: W939 New Building Construction with Site Improvements Scale: 1/4" = 1'-0" Election District 16, Howard County, Maryland Date: May 2, 2006 Tax Map 42 Grid 3 Parcel No. 375 Sheet: 8 of 14
Note: Information shown for existing conditions is based on Topographic Survey - 9520 NW Berger Road - 16th Election District - Howard County, Maryland - dated August 10, 2005 as prepared by APR Associates, Inc.		



SPECIFICATIONS FOR MANUFACTURE AND INSTALLATION OF CON/SPAN® STORMWATER SYSTEMS

1. DESCRIPTION

This work shall consist of constructing a CONSPAN® vault in accordance with these specifications and in reasonably close conformity with the lines, grades, design and dimensions shown on the plans or as established by the Engineer. In situations where two or more specifications apply to this work, the most stringent requirements shall govern.

2. TYPES

Precast reinforced concrete CONSPAN® vault units manufactured in accordance with this specification shall be designed by span and rise. Precast reinforced concrete CONSPAN® endwalls manufactured in accordance with this specification shall be designated by length and height.

3. MATERIALS - CONCRETE

The concrete for the structures shall be air-entrained when installed in areas subject to freeze-thaw conditions, composed of portland cement, fine and coarse aggregates, admixtures and water. Air-entrained concrete shall contain 6 ± 2 percent air. The air entraining admixture shall conform to AASHTO M154.

- 3.1 Portland Cement - Shall conform to the requirements of ASTM Specifications C150-Type I, Type II, or Type III cement.
- 3.2 Coarse Aggregate - Shall consist of stone having a maximum size of 1 inch. Aggregate shall meet requirements for ASTM C33.
- 3.3 Water Reducing Admixture - The manufacturer may submit for approval by the Engineer, a water-reducing admixture for the purpose of increasing workability and reducing the water requirement for the concrete.
- 3.4 Calcium Chloride - The addition to the mix of calcium chloride or admixtures containing calcium chloride will not be permitted.

4. MATERIALS - STEEL REINFORCEMENT AND HARDWARE

All reinforcing steel for the structures shall be fabricated and placed in accordance with the detailed shop drawings submitted by the manufacturer.

- 4.1 Steel Reinforcement - Reinforcement shall consist of welded wire fabric conforming to ASTM Specification A 185 or A 497, or deformed billet steel bars conforming to ASTM Specification A 615, Grade 60. Longitudinal distribution reinforcement may consist of welded wire fabric or deformed billet steel bars.
 - 4.2 Hardware: Inserts for endwall connections shall be AISI Type 304 stainless steel. F-58 Expanded Coil inserts as manufactured by Dayton/Richmond Concrete Accessories, Mansfield, Ohio, (800) 745-3700. Galvanized nuts used in endwall connections shall be AISI Type 304 stainless steel. Washers used in endwall connections shall be AISI Type 304 stainless steel plate washers.
- Reinforcing bar splices shall be made using the Dowel Bar Splice System as manufactured by Dayton/Richmond Concrete Accessories, Mansfield, Ohio, (800) 745-3700, and shall consist of the Dowel Bar Splice (DB-SAE) and Dowel-in (DI).
- Female Loop Inserts shall be F-64 Female Loop Inserts as manufactured by Dayton/Richmond Concrete Accessories, Mansfield, Ohio, (800) 745-3700.
- Hook Bolts used in endwall connections shall be ASTM A 307.

5. MANUFACTURE

- 5.1 Mixture - The aggregates, cement and water shall be proportioned and mixed in a batch mixer to produce concrete of the design strength and meet the strength requirements of this specification. The proportion of portland cement in the mixture shall not be less than 564 pounds (6 sacks) per cubic yard of concrete.
- 5.2 Curing - The precast concrete vault units shall be cured for a sufficient length of time so that the concrete will develop the specified compressive strength in 28 days or less. Any one of the following methods of curing or combinations thereof shall be used:
 - 5.2.1 Steam Curing - The units may be low pressure, steam cured by a system that will maintain a moist atmosphere.
 - 5.2.2 Water Curing - The units may be water cured by any method that will keep the sections moist.
 - 5.2.3 Membrane Curing - A sealing membrane conforming to the requirements of ASTM Specification C 309 may be applied and shall be left intact until the required concrete compressive strength is attained. The concrete temperature at the time of application shall be within ± 10 degrees F of the atmospheric temperature. All surfaces shall be kept moist prior to the application of the compounds and shall be damp when the compound is applied.
- 5.3 Forms - The forms used in manufacture shall be sufficiently rigid and accurate to maintain the structure dimensions within the permissible variations given in Section 7 of these specifications. All casting surfaces shall be of a smooth material.
- 5.4 Handling - Handling devices or holes shall be permitted in each vault unit for the purpose of handling and setting.
- 5.5 Storage - The precast elements shall be stored in such a manner to prevent cracking or damage. The units shall not be moved until the concrete compressive strength has reached a minimum of 2500 psi, and they shall not be stored in an upright position until the concrete compressive strength is a minimum of 4,000 psi.

6. DESIGN

- 6.1 The precast element dimension and reinforcement details shall be as prescribed in the plan and the shop drawings provided by the manufacturer, subject to the provisions of Section 7, below. The minimum concrete compressive strength shall be as shown on the shop drawings. The minimum steel yield strength shall be 60,000 psi, unless otherwise noted on the shop drawings.
- 6.2 The precast elements are designed in accordance with the "Standard Specifications for Highway Bridges" 17th Edition, adopted by the American Association of State Highway and Transportation Officials, 2002. A minimum of one foot of cover above the crown of the vault units is required in the installed condition. (Unless noted otherwise on the shop drawings and designed accordingly.)

6.3

Placement of Reinforcement in Precast Vault Units - The cover of concrete over the outside circumferential reinforcement shall be 2 inches minimum. The cover of concrete over the inside circumferential reinforcement shall be 1 1/2 inches minimum, unless otherwise noted on the shop drawings. The clear distance of the end circumferential wires shall not be less than one inch nor more than two inches from the ends of each section. Reinforcement shall be assembled utilizing single or multiple layers of welded wire fabric (not to exceed 3 layers), supplemented with a single layer of deformed billet steel bars, when necessary. Welded wire fabric shall be composed of circumferential and longitudinal wires meeting the spacing requirements of 6.6, below, and shall contain sufficient longitudinal wires extending through the vault unit to maintain the shape and position of the reinforcement. Longitudinal distribution reinforcement may be welded wire fabric or deformed billet steel bars and shall meet the spacing requirements of 6.6, below. The ends of the longitudinal distribution reinforcement shall be not more than 3 inches and not less than 1 1/2 inches from the ends of the vault unit.

6.4

Placement of Reinforcement for Precast Endwalls - The cover of concrete over the longitudinal and transverse reinforcement shall be 2 inches minimum. The clear distance from the end of each precast element to the end transverse reinforcing steel shall not be less than one inch nor more than two inches. Reinforcement shall be assembled utilizing a single layer of welded wire fabric, or a single layer of deformed billet steel bars. Welded wire fabric shall be composed of transverse and longitudinal wires meeting the spacing requirements of 6.7, below, and shall contain sufficient longitudinal wires extending through the element to maintain the shape and position of the reinforcement. Longitudinal reinforcement may be welded wire fabric or deformed billet steel bars and shall meet the spacing requirements of 6.7, below. The ends of the longitudinal reinforcement shall be not more than 3 inches and not less than 1 1/2 inches from the ends of the walls.

6.5

Bending of Reinforcement for Precast Vault Units - The outside and inside circumferential reinforcing steel for the corners of the vault shall be bent to such an angle that is approximately equal to the configuration of the vault's outside corner.

6.6

Laps, Welds, and Spacing for Precast Vault Units - Tension splices in the circumferential reinforcement shall be made by lapping. Laps may be lapped together for assembly purposes. For smooth welded wire fabric, the overlap shall meet the requirements of AASHTO 8.30.2 and 8.32.6. For deformed welded wire fabric, the overlap shall meet the requirements of AASHTO 8.30.1 and 8.32.5. The overlap of welded wire fabric shall be measured between the outer most longitudinal wires of each fabric sheet. For deformed billet steel bars, the overlap shall meet the requirements of AASHTO 8.25. For splices other than tension splices, the overlap shall be a minimum of 12" for welded wire fabric or deformed billet steel bars. The spacing center to center of the circumferential wires in a wire fabric sheet shall be not less than 2 inches nor more than 4 inches. The spacing center to center of the longitudinal wires shall not be more than 8 inches. The spacing center to center of the longitudinal distribution steel for either line of reinforcing in the top slab shall be not more than 16 inches.

6.7

Laps, Welds, and Spacing for Precast Endwalls - Splices in the reinforcement shall be made by lapping. Laps may be lapped together for assembly purposes. For smooth welded wire fabric, the overlap shall meet the requirements of AASHTO 8.30.2 and 8.32.6. For deformed welded wire fabric, the overlap shall meet the requirements of AASHTO 8.30.1 and 8.32.5. The spacing center-to-center of the wires in a wire fabric sheet shall be not less than 2 inches nor more than 8 inches.

7. PERMISSIBLE VARIATIONS

7.1 Vault Units

- 7.1.1 Internal Dimensions - The internal dimension shall vary not more than 1% from the design dimensions nor more than 1-1/2 inches whichever is less. The haunch dimensions shall vary not more than 3/4 inch from the design dimension.
- 7.1.2 Slab and Wall Thickness - The slab and wall thickness shall not be less than that shown in the design by more than 1/4 inch. A thickness greater than that required in the design shall not be cause for rejection.
- 7.1.3 Length of Opposite Surfaces - Variations in laying lengths of two opposite surfaces of the vault unit shall not be more than 1/2 inch in any section, except where beveled ends for laying of curves are specified by the purchaser.
- 7.1.4 Length of Section - The underrun in length of a section shall not be more than 1/2 inch in any vault unit.
- 7.1.5 Position of Reinforcement - The maximum variation in position of the reinforcement shall be ± 1/2 inch. In no case shall the cover over the reinforcement be less than 1 1/2 inches for the outside circumferential steel or be less than 1 inch for the inside circumferential steel as measured to the external or internal surface of the vault. These tolerances or cover requirements do not apply to mating surfaces of the joints.
- 7.1.6 Area of Reinforcement - The area of steel reinforcement shall be the design steel areas as shown in the manufacturer's shop drawings. Steel areas greater than those required shall not be cause for rejection. The permissible variation in diameter of any reinforcement shall conform to the tolerances prescribed in the ASTM Specification for that type of reinforcement.

7.2 Endwalls

- 7.2.1 Wall Thickness - The wall thickness shall not vary from that shown in the design by more than 1/2 inch.
- 7.2.2 Length/Height of Wall Sections - The length and height of the wall shall not vary from that shown in the design by more than 1/2 inch.
- 7.2.3 Position of Reinforcement - The maximum variation in the position of the reinforcement shall be ± 1/2 inch. In no case shall the cover over the reinforcement be less than 1 1/2 inches.
- 7.2.4 Size of Reinforcement - The permissible variation in diameter of any reinforcing steel shall conform to the tolerances prescribed in the ASTM Specification for that type of reinforcing. Steel area greater than that required shall not be cause for rejection.

8. TESTING AND INSPECTION

8.1 Type of Test Specimen - Concrete compressive strength shall be determined from compression tests made on cylinders or cores. For cylinder testing, a minimum of 4 cylinders shall be taken during each production run. For core testing, one core shall be taken from each of 3 precast elements selected at random from each production group. A production group shall be defined as 15 or fewer vault units (of a particular size) or endwalls in a continuous production run. For each continuous production run, each production group or fraction thereof shall be considered separately for the purpose of testing and acceptance. A production run shall be considered continuous if not interrupted for more than 3 consecutive days.

8.2 Compression Testing - Cylinders shall be made and tested as prescribed by the ASTM C 39 Specification. Cores shall be obtained and tested for compressive strength in accordance with the provisions of the ASTM C497 Specification.

8.3 Acceptability of Cylinder Tests - When the average compressive strength of all cylinders tested is equal to or greater than the design compressive strength, and not more than 10% of the cylinders tested have a compressive strength less than the design concrete strength, and no cylinder tested has a compressive strength less than 80% of the design compressive strength, then the lot shall be accepted. When the compressive strength of the cylinders tested does not conform to this acceptance criteria, the acceptability of the lot may be determined as described in section 8.4, below.

8.4 Acceptability of Core Tests - The compressive strength of the concrete in each production group as defined in 8.1 is acceptable when the average core test strength is equal to or greater than the design concrete strength. When the compressive strength of the core tested is less than the design concrete strength, the precast element from which that core was taken may be re-cored. When the compressive strength of the re-core is equal to or greater than the design concrete strength, the compressive strength of the concrete in that production group is acceptable.

8.4.1 When the compressive strength of any re-core is less than the design concrete strength, the precast element from which that core was taken shall be rejected. Two precast elements from the remainder of the group shall be selected at random and one core shall be taken from each. If the compressive strength of both cores is equal to or greater than the design concrete strength, the compressive strength of the remainder of that group is acceptable. If the compressive strength of either of the two cores tested is less than the design concrete strength, the remainder of the group shall be rejected or, at the option of the manufacturer, each precast element of the remainder of the group shall be cored and accepted individually, and any of these elements that have cores with less than the design concrete strength shall be rejected.

8.4.2 Plugging Core Holes - The core holes shall be plugged and sealed by the manufacturer in a manner such that the elements will meet all of the test requirements of this specification. Precast elements so sealed shall be considered satisfactory for use.

8.4.3 Test Equipment - Every manufacturer furnishing vault structures under this specification shall furnish all facilities and personnel necessary to carryout the test required.

9. JOINTS

The vault units shall be produced with flat but ends. The ends of the vault units shall be such that when the sections are laid together they will make a continuous line of with a smooth interior free of appreciable irregularities, all compatible with the permissible variations in Section 7, above. The joint width shall not exceed 3/4 inches.

10. WORKMANSHIP AND FINISH

The precast vault units and endwalls shall be substantially free of fractures. The ends of the vault units shall be normal to the walls and centerline of the vault section, within the limits of the variations given in section 7, above, except where beveled ends are specified. The faces of the endwalls and vault units shall be parallel to each other, within the limits of variations given in section 7, above. The faces of the precast elements shall be a smooth steel form or troweled surface. Trapped air pockets causing surface defects shall be considered as part of a smooth, steel form finish.

11. REPAIRS

Precast elements may be repaired, if necessary, because of imperfections in manufacture or handling damage and will be acceptable if, in the opinion of the purchaser, the repairs are sound, properly finished and cured, and the repaired section conforms to the requirements of this specification.

12. INSPECTION

The quality of materials, the process of manufacture, and the finished structures shall be subject to inspection by the purchaser.

13. REJECTION

- The precast elements shall be subject to rejection on account of any of the specification requirements. Individual precast elements may be rejected because of any of the following:
- 13.1 Fractures or cracks passing through the wall, except for a single end crack that does not exceed one half the thickness of the wall.
 - 13.2 Defects that indicate proportioning, mixing, and molding not in compliance with Section 5 of these specifications.
 - 13.3 Honeycombed or open texture.
 - 13.4 Damaged ends, where such damage would prevent making a satisfactory joint.

14. MARKING

Each vault unit shall be clearly marked by waterproof paint. The following shall be shown on the inside of the vertical leg of the vault section:
 Vault Span X Vault Rise
 Date of Manufacture
 Name or trademark of the manufacturer

15. CONSTRUCTION REQUIREMENTS

15.1 Footings - The vault units and endwalls shall be installed on either precast or cast-in-place concrete footings. The design size and elevation of the footings shall be as determined by the Engineer. A three inch deep keyway shall be formed in the top surface of the footing three inches clear of the inside and outside faces of the bridge units, unless specified otherwise on the plans. A keyway is also required in the footings for the endwalls, unless otherwise specified. The footings shall be given a smooth float finish and shall reach a compressive strength of 2,000 psi before placement of the bridge and endwall elements. The completed footing surface shall be constructed in accordance with grades shown on the plans. When tested with a 10 foot straight edge, the surface shall not vary more than 1/4 inch in 10 feet. If a precast concrete footing is used, the contractor shall prepare a 4 inch thick base layer of compacted granular material the full width of the footing prior to placing the precast footing.

15.2 Placement of the Vault Units and Endwalls

The vault units and endwalls shall be placed as shown on the Engineer's plan drawings. Special care shall be taken in setting the elements to the true line and grade. The vault units and endwalls shall be set on 6" x 6" masonite or steel shims. A minimum gap of 1/2 inch shall be provided between the footing and the bottom of the unit's vertical legs or the endwall. The gap shall be filled with cement grout (Portland cement and water or cement mortar composed of Portland cement, sand and water) with a minimum 28-day compressive strength of 3000 psi. If units have been set with temporary lifts (casters, bars, etc.) grout must attain a minimum compressive strength of 1500 psi before lifts may be removed.

15.3 External Protection of Joints

The joint made by two adjoining vault units shall be covered with a 7/8" x 1 3/8" preformed bituminous joint sealant and a minimum of a 9 inch wide joint wrap. The surface shall be free of dirt before applying the joint material. A primer compatible with the joint wrap to be used shall be applied for a minimum width of nine inches on each side of the joint. The external wrap shall be EZ-RAP RUBBER by PRESS-SEAL GASKET CORPORATION, SEAL WRAP by MAR MAC MANUFACTURING CO. INC. or approved equal. The joint shall be covered continuously from the bottom of one vault section leg, across the top of the arch and to the opposite vault section leg. Any gaps that result in the joint wrap shall be a minimum of six inches long with the overlap running downhill.

In addition to the joints between vault units, the joint between the end vault unit and the endwall shall also be sealed as described above. Also, if lift holes are formed in the arch units, they shall be primed and covered with a 9" x 9" square of joint wrap.

During the backfilling operation, care shall be taken to keep the joint wrap in its proper location over the joint.

Internal Protection of Joints - Certain vaults may require additional joint protection to ensure that the structure is water-tight. Various joint sealing details including elastomeric urethane, or liquid sealing may be shown on the plans. Any internal joint sealing shall be performed as indicated on the construction plans.

15.4 Backfill - Backfill shall be considered as all rapidexcavation and new embankment adjacent to the CONSPAN® vault units and endwalls. The project construction and material specifications which include the specifications for excavation for structures and roadway excavation and embankment construction, shall apply except as modified in this section.

No backfill shall be placed against any structural elements until they have been approved by the Engineer.

Backfill against a waterproofed surface shall be placed carefully to avoid damage to the waterproofing material.

Mechanical tampers or approved compacting equipment shall be used to compact all backfill and embankment immediately adjacent to each side and over the top of each vault unit until it is covered to a minimum depth of one foot, unless the design fill height is less than 1'-0". The backfill within the Critical Backfill Zone (shown in the diagrams below) shall be placed in lifts of eight inches or less (loose depth). Heavy compaction equipment shall not be operated in this area or over the bridge until it is covered to a depth of one foot, unless the design fill height is less than 1'-0".

Lightweight dozers and graders may be operated over vault units having one foot of compacted cover, but heavy earth moving equipment (larger than a D-4 Dozer weighing in excess of 12 tons and having track pressures of eight psi or greater) shall require two feet of cover unless the design cover is less than two feet. In no case shall equipment operating in excess of the design load (HS20 or HS25) be permitted over the vault units unless approved by CONSPAN®.

Any additional fill and subsequent excavation required to provide this minimum cover shall be made at no additional cost to the project.

As a precaution against introducing unbalanced stresses in the vault, when placing backfill at no time shall the difference between the heights of fill on opposite sides of the vault exceed 24".

For fill heights over 12 feet, no backfilling may begin until a backfill compaction testing plan has been coordinated with and approved by CONSPAN®. Cost of the backfill compaction testing shall be included in the cost of the precast units. This included cost applies only to projects with fill heights over 12 feet (as measured from top crown of arch to finished grade).

16. QUALITY ASSURANCE

The Precaster shall demonstrate adherence to the standards set forth in the NPCCA Quality Control Manual. The Precaster shall meet either Section 16.1 or 16.2.

16.1 Certification - The Precaster shall be certified by the Precast/Prestressed Concrete Institute Plant Certification Program or the National Precast Concrete Association's Plant Certification Program prior to and during production of the products covered by this specification.

16.2 Qualifications, Testing and Inspection
 16.2.1 The Precaster shall have been in the business of producing precast concrete products similar to those specified for a minimum of three years. He shall maintain a permanent quality control department or retain an independent testing agency on a continuing basis. The agency shall issue a report, certified by a licensed engineer, detailing the ability of the Precaster to produce quality products consistent with industry standards.

16.2.2 The Precaster shall show that the following tests are performed in accordance with the ASTM standards indicated. Tests shall be performed for each 150 cubic yards of concrete placed, but not less frequently than once per production run, as defined in §9 of these specifications.

- 16.2.2.1 Air Content: C231 or C173
- 16.2.2.2 Compressive Strength: C39, C497

16.2.3 The Precaster shall provide documentation demonstrating compliance with this section to CONSPAN® at regular intervals or upon request.

16.2.4 The Owner may place an inspector in the plant when the products covered by this specification are being manufactured.

17. STORMVAULT® INSPECTION AND MAINTENANCE

The Stormvault® Mitigation System by CONSPAN® is specifically designed to treat stormwater runoff to the Maximum Extent Practicable. The Stormvault® System is designed to capture and hold floatable debris, free oils and greases, settleable sediments and those dissolved pollutants including metals, nitrates and phosphates, which may adsorb or adhere to the surface of sediments and organic materials. In order to insure efficient operation and to insure efficient removal rates, several important inspection and maintenance functions must periodically be performed. The inspection and maintenance are both to be performed during dry periods, in which no flow is entering the Stormvault® System and water has returned to the permanent pool elevation. These procedures are described more fully below.

INSPECTION

The Stormvault® Mitigation System by CONSPAN® is to be inspected bi-annually to ensure the system is in proper working order. The twice-yearly observation should require less than four person-hours per visit, but depends upon the size of the Stormvault® System. The inspection includes opening each manhole cover and visually inspecting for excess floating debris. The effluent chamber is to be inspected to verify that the control orifice within the standpipe is free of any trash or debris. In addition to the visual inspection, the first several chambers should be probed to gain an estimate of the collected sediment in the bottom of the vault. It is important to record the depths in these chambers to estimate when the next required maintenance should be performed. The removal of collected sediments is to be performed once the average depth in the vault reaches 6 inches. The hydrocarbon mats, which float on the surface of the Stormvault® System, are designed to remove free oils and greases from stormwater runoff. The mats are attached to the manhole accesses using a lanyard. These mats must also be inspected as part of the bi-annual cycle. These mats will be a granular solid white when initially installed and will turn darker as they absorb free oils and greases. The mats should be inspected twice yearly to ensure that some white granular portions of the mat remain. The mats may collect some surface sediment; however, only when they change to a solid dark color uniformly throughout the granular medium do they need to be replaced.

MAINTENANCE

The removal of collected sediments is to be performed once an average depth of 6 inches has been reached in the vault. The hydrocarbon sorbent mats are to be replaced once the mats turn completely dark in color and can no longer absorb any free oils and greases. The maintenance cycle for each Stormvault® unit will vary as it is a function of the size, type, and volume of pollutants in the stormwater runoff for that particular site. Previous monitoring and inspection of existing Stormvault® units has resulted in a recommended maintenance cycle of 4-5 years for both removal of sediment and replacement of hydrocarbon sorbent mats. A site-specific maintenance cycle can easily be determined by the bi-annual inspections.

Removal of accumulated materials:

The external wrap shall be performed by a professional pumping contractor, trained and licensed to remove and dispose of captured sediment material, perform this task. The contractor will lower a nozzle and hose into each chamber and pump the collected material into a vacuum truck. The contractor is to remove only the 6 inches of sediment and not the water in the permanent pool during vacuuming. This will minimize the amount of material, which the contractor must dispose.

Be aware that the captured sediments are by their nature easy to resuspend. Great care shall be taken to prevent any turbulence that may cause mixing and resuspension of the settled materials. The contractor must verify proper disposal with the local jurisdiction. An analysis of the materials may be required before disposal. Because of dilution by the water in the permanent pool, harmful pollutant concentrations are rarely reached.

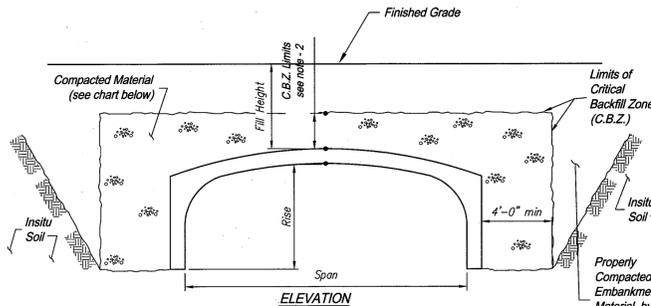
Replacement of hydrocarbon sorbent mats:

To remove the mats, locate the lanyard attached to the inside of the access cover and pull them out. Care should be taken in lifting the mats out through the manholes, as the saturated mats can weigh up to five times as much as new mats. The used mats should be disposed of as directed by the local authority. Generally this is in a similar manner used to dispose of drain oil or similar materials. Replace the mats in like fashion by clipping the new mats to the keeper lines. New mats can be obtained by contacting the CONSPAN® office nearest you.

NOTE:

The Stormvault® Mitigation System by CONSPAN® is a confined space and entry is not recommended. Enter only when necessary and with the proper equipment, following OSHA confined space entry procedures.

Group Classification	BACKFILL DESCRIPTION (AASHTO M 145-91)						
	A-1	A-3	A-2		A-4		
Sieve Analysis, Percent Passing (100% Passing 3" Sieve)	A-1-a	A-1-b	A-2-4	A-2-5	A-2-6	A-2-7	
No. 10	50 max.						
No. 40	30 max.	50 max.	51 min.				
No. 200	15 max.	25 max.	10 max.	35 max.	35 max.	35 max.	36 min.
Characteristics of Fraction Passing							
No. 40							
Liquid Limit			40 max.	41 min.	40 max.	41 min.	40 max.
Plasticity Index	6 max.	N.P.	10 max.	10 max.	11 min.	11 min.	10 max.
Usual Types of Significant Constituent Materials	Stone Fragments, Gravel & Sand			Silly or Clayey Gravel and Sand			Silly Soils
General Rating as Subgrade				Excellent to Good			Fair to Poor



NOTES

1. SEE CONSPAN® SPECIFICATIONS SECTION 15.4 FOR BACKFILL SPECIFICATIONS.
2. FOR FILL HEIGHTS GREATER THAN 2'-0", C.B.Z. LIMIT SHALL BE 2'-0" ABOVE ARCH CROWN. FOR FILL HEIGHTS LESS THAN 2'-0", THE FINISHED GRADE SHALL BE THE BOUNDARY LINE FOR THE C.B.Z.
3. BACKFILLING OPERATIONS WITHIN THE C.B.Z. SHALL BE PERFORMED IN LIFTS OF 8" OR LESS (LOOSE DEPTH).
4. MAXIMUM DRY DENSITY SHALL BE DETERMINED BY AASHTO T-99 OR OTHER APPROVED METHODS.
5. BACKFILL SHALL BE COMPACTED IN LAYERS UNTIL THE DENSITY IS NOT LESS THAN 95% OF THE MAXIMUM DRY DENSITY.

SPAN	FILL HEIGHT	ACCEPTABLE MATERIAL INSIDE C.B.Z.	ACCEPTABLE MATERIAL OUTSIDE C.B.Z.
≤ 24'-0"	≥ 12'-0"	A1, A3	--
≤ 24'-0"	< 12'-0"	A1, A2, A3, A4	--
> 24'-0"	ALL	A1, A3	--

EMBANKMENT MATERIAL PER PROJECT SPECIFICATIONS

BACKFILL REQUIREMENTS

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 Chief, Development Engineering Division 9/10/06
 Chief, Division of Land Development 9/22/06
 Director 9/24/06

APPROVED: FOR PUBLIC (OR PRIVATE) WATER AND PUBLIC (OR PRIVATE) SEWERAGE SYSTEMS
 County Health Officer
 Howard County Health Department

Engineer: Michael J. Walkley, P.A.
 2000 Clipper Park Road, Suite 200, Baltimore, MD 21211
 (410) 889-7700 fax (410) 889-7756

Surveyor: AFR Associates, Inc.
 7427 Harford Road, Baltimore, MD 21234
 (410) 444-4312 fax (410) 444-1647

Developer: Maryland Land Group, LLC
 5814 Main Street, Elkridge, MD 21075
 (877) 313-5263 fax (410) 579-2613

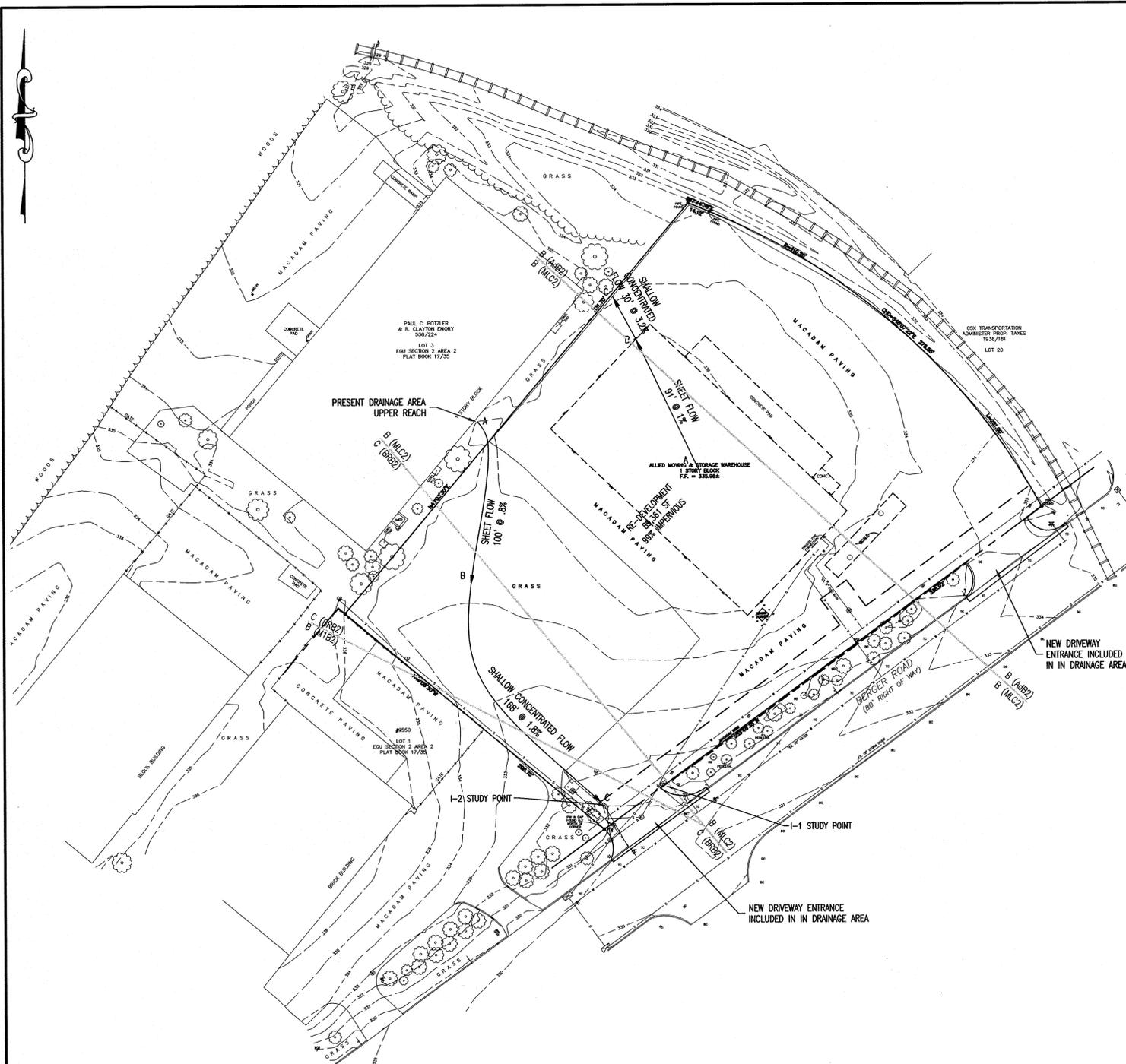
Owner: Meisel Capital 9520, LLC
 4 Park Center Court, Suite 202, Owings Mills, MD 21117
 (410) 363-7300 fax (301) 763-3101

STORMVAULT MITIGATION SYSTEM
 E. G. U. SECTION 2 AREA 1, LOT 2
 GUILFORD EXECUTIVE CENTER, 9520 NW BERGER ROAD
 SUPPLEMENTAL TO SDP 69-16

Owner: Meisel Capital 9520, LLC
 Deed Reference 9521/21
 New Building Construction with Site Improvements
 Election District 16, Howard County, Maryland
 Tax Map 42 Grid 3 Parcel No. 375

Job No: W939
 Scale: 1/4" = 1'-0"
 Date: May 2, 2006
 Sheet: 9 of 14

SDP-69-01

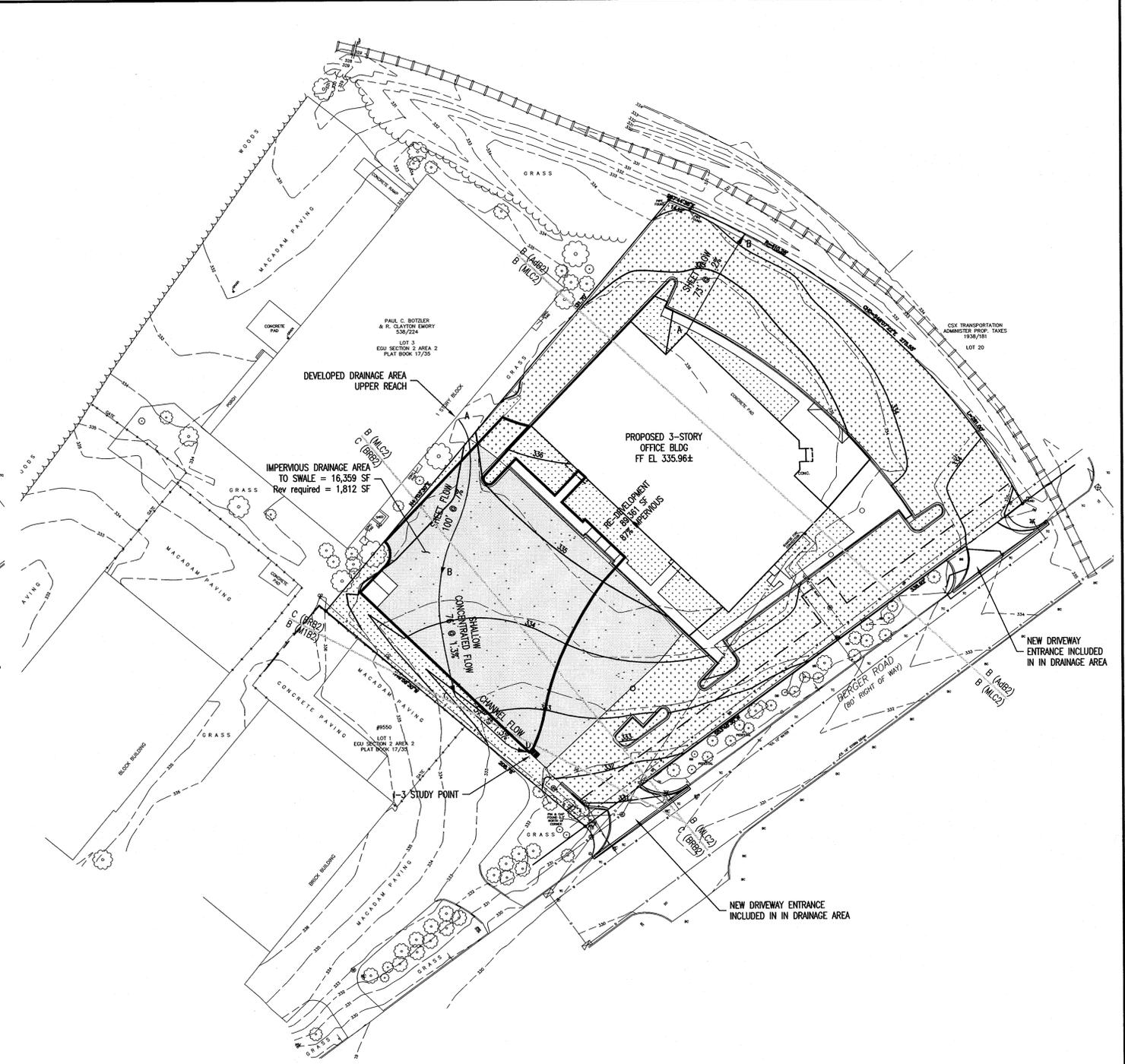


DRAINAGE AREA - PRESENT

1" = 40'

PRESENT DRAINAGE AREA = 89,361 SF			
SOIL CLASS	B	C	SUB-TOTAL
PERVIOUS	1,277	0	1,277
IMPERVIOUS	76,870	11,214	88,084
TOTAL			89,361

REQUIRED IMPERVIOUS REDUCTION (20%) = 17,617 SF



DRAINAGE AREA - DEVELOPED

1" = 40'

RE-DEVELOPMENT DRAINAGE AREA = 89,361 SF			
SOIL CLASS	B	C	SUB-TOTAL
PERVIOUS	9,546	2,385	11,931
IMPERVIOUS	67,293	10,137	77,430
TOTAL			89,361

IMPERVIOUS AREA REDUCTION = 10,654 SF
AREA TO BE QUALITY MANAGED = 6,963 SF

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 Chief, Development Engineering Division: *[Signature]* Date: 9/16/06
 Chief, Division of Land Development: *[Signature]* Date: 9/20/06
 Director: *[Signature]* Date: 7/20/06

APPROVED: FOR PUBLIC (OR PRIVATE) WATER AND PUBLIC (OR PRIVATE) SEWERAGE SYSTEMS
 County Health Officer: *[Signature]* Date: *[Blank]*
 Howard County Health Department



Engineer: Michael J. Walker, P.A.
 2000 Clipper Park Road, Suite 200, Baltimore, MD 21211
 (410) 889-7700 fax (410) 889-7756

Surveyor: APR Associates, Inc.
 7427 Harford Road, Baltimore, MD 21234
 (410) 444-4312 fax (410) 444-1647

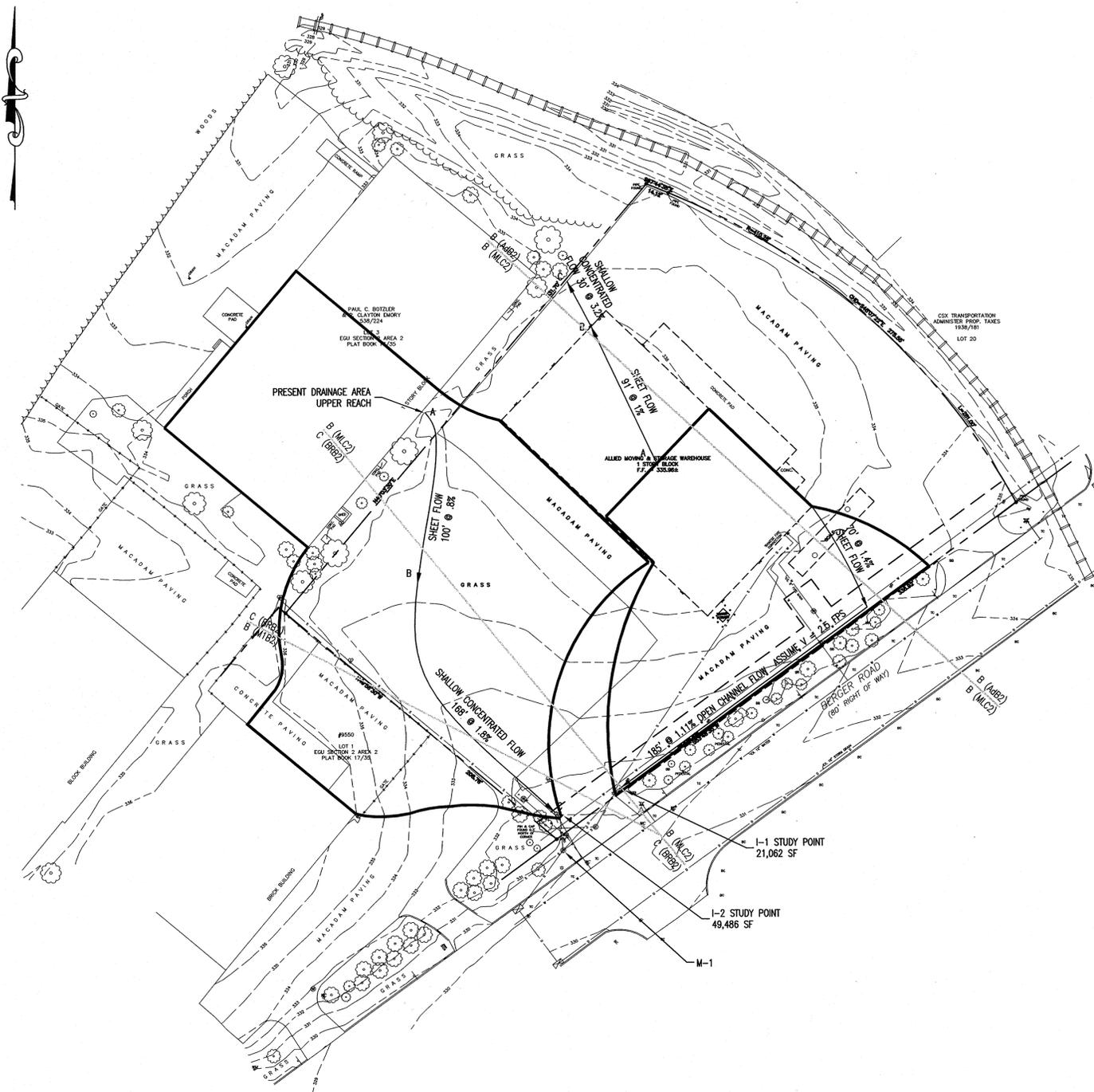
Developer: Maryland Land Group, LLC
 5814 Main Street, Elkridge, MD 21075
 (877) 313-5263 fax (410) 579-2613

Owner: Meisel Capital 9520, LLC
 4 Park Center Court, Suite 202, Owings Mills, MD 21117
 (410) 363-7300 fax (363) 7301

DRAINAGE AREA PLANS
 E. G. U., SECTION 2 AREA 1, LOT 2
 GUILFORD EXECUTIVE CENTER, 9520 NW BERGER ROAD
 SUPPLEMENTAL TO SDP 69-16

Owner: Meisel Capital 9520, LLC
 Deed Reference 9521 / 21 Job No: W939
 Building Construction with Site Improvements Scale: 1" = 40'
 Election District 16, Howard County, Maryland Date: May 1, 2006
 Tax Map 42 Grid 3 Parcel No. 375 Sheet 16 of 14

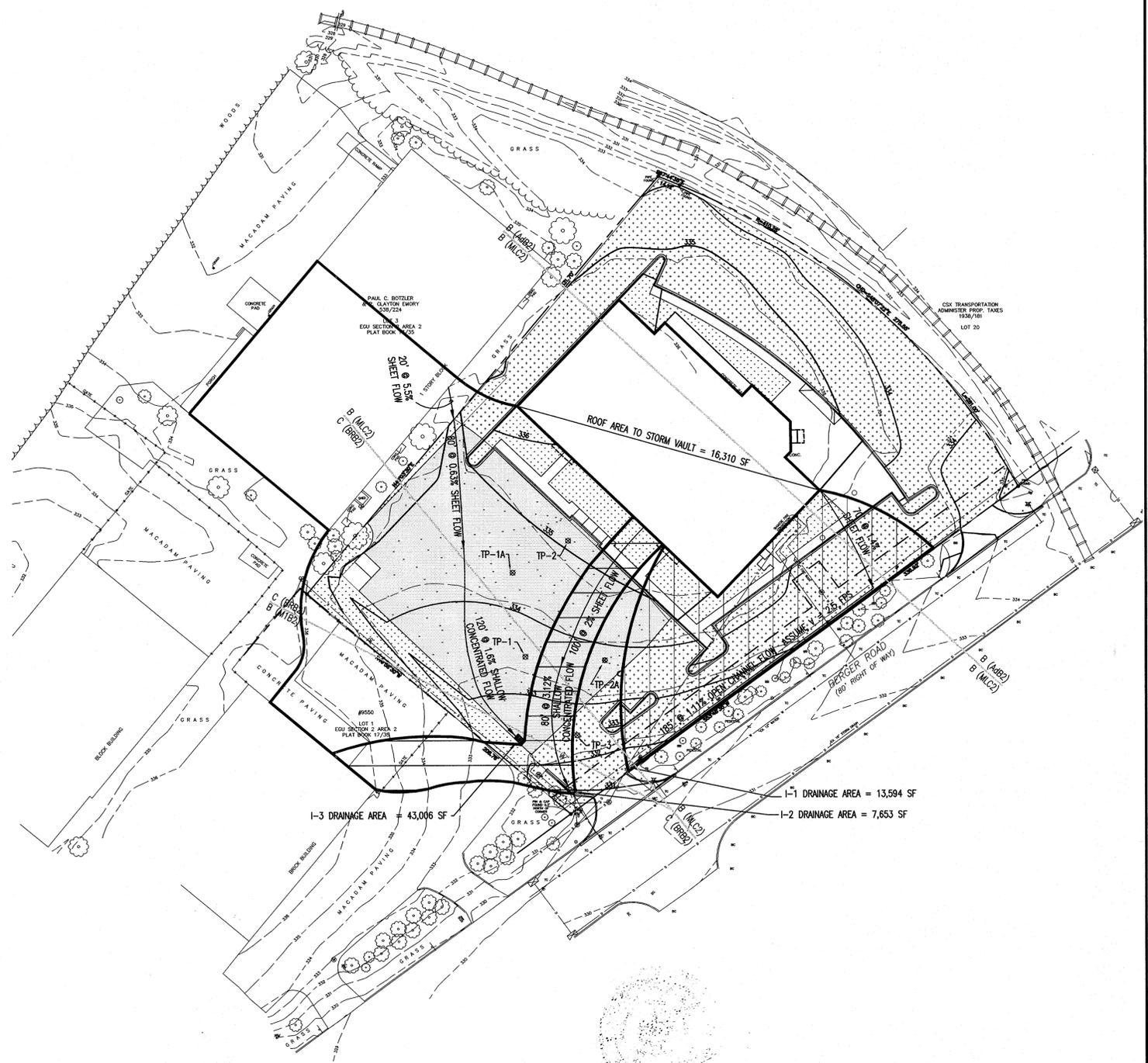
SDP. 69-016



DRAINAGE AREA TO EXISTING STORM DRAIN M-1
1" = 40'

PRESENT DRAINAGE AREA TO STORM DRAIN = 70,548 SF					
INLET I-1			INLET I-2		
SOIL CLASS	B	C SUB-TOTAL	SOIL CLASS	B	C SUB-TOTAL
PERVIOUS	0	572	PERVIOUS	13,622	9,981
IMPERVIOUS		20,490	IMPERVIOUS		25,883
TOTAL		21,062	TOTAL		49,486

OFF-SITE DRAINAGE AREA TO I-2 = 27,783 SF



DRAINAGE AREA - "STORMVAULT"
1" = 40'

INLET I-1 C=0.74			INLET I-2 C=0.75			INLET I-3 C=0.73			ROOF AREA TO STORMVAULT C=0.76		
SOIL CLASS	B	C SUB-TOTAL	SOIL CLASS	B	C SUB-TOTAL	SOIL CLASS	B	C SUB-TOTAL	SOIL CLASS	B	C SUB-TOTAL
PERVIOUS	0	2,196	PERVIOUS	600	502	PERVIOUS	4,188	3,402	PERVIOUS		0
IMPERVIOUS		11,398	IMPERVIOUS		6,551	IMPERVIOUS		35,416	IMPERVIOUS		16,310
TOTAL		13,594	TOTAL		7,653	TOTAL		43,006 SF	TOTAL		16,310

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 Chief, Development Engineering Division: *[Signature]* 9/16/06
 Chief, division of Land Development: *[Signature]* 9/20/06
 Director: *[Signature]* 7/24/06

APPROVED: FOR PUBLIC (OR PRIVATE) WATER AND PUBLIC (OR PRIVATE) SEWERAGE SYSTEMS
 County Health Officer: *[Signature]* Date: _____
 Howard County Health Department

SEAL

Engineer: Michael J. Walkley, P.A.
 2000 Clipper Park Road, Suite 200, Baltimore, MD 21211
 (410) 889-7700 fax (410) 889-7756

Surveyor: APR Associates, Inc.
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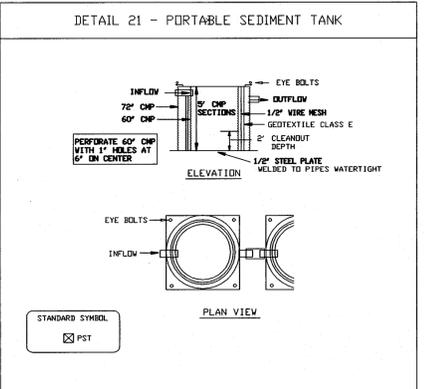
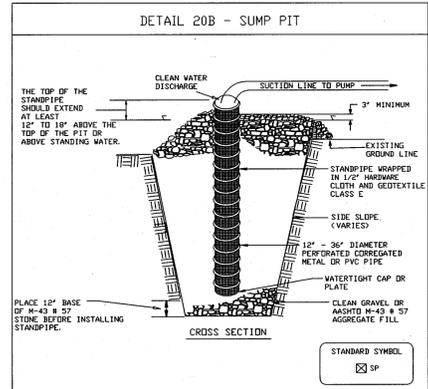
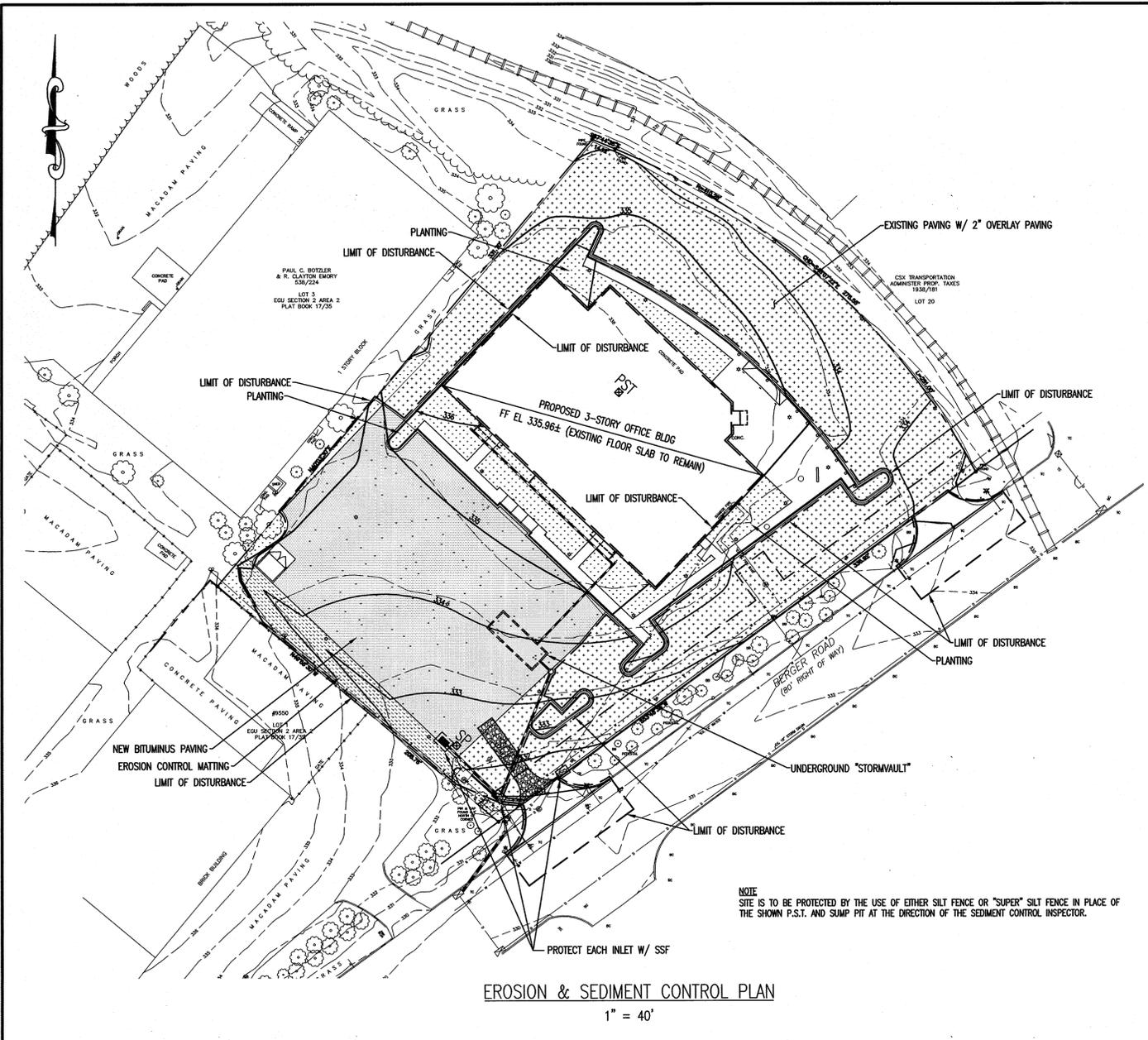
DRAINAGE AREA PLANS
 E. G. U., SECTION 2 AREA 1, LOT 2
 GUILFORD EXECUTIVE CENTER, 9520 NW BERGER ROAD
 SUPPLEMENTAL TO SDP 69-16

Owner: Meisel Capital 9520, LLC
 Deed Reference 9521 / 21
 Building Construction with Site Improvements
 Election District 16, Howard County, Maryland
 Tax Map 42 Grid 3 Parcel No. 375

Job No: W939
 Scale: 1" = 40'
 Date: May 1, 2006
 Sheet: 11 of 14



SDP-69-016



U.S. DEPARTMENT OF AGRICULTURE
 SOIL CONSERVATION SERVICE

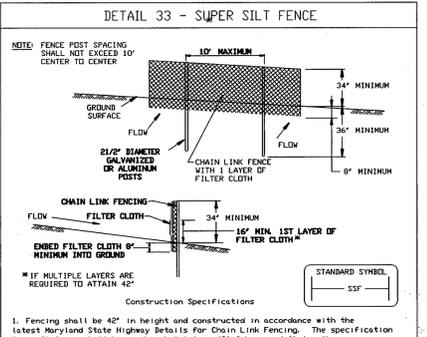
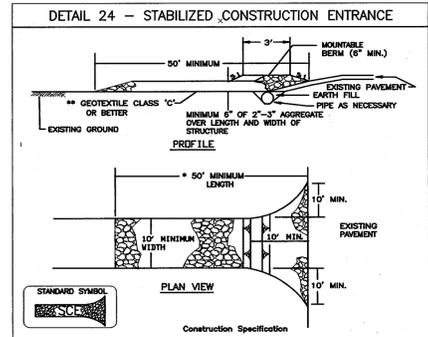
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MARYLAND DEPARTMENT OF ENVIRONMENT
 WATER MANAGEMENT ADMINISTRATION

U.S. DEPARTMENT OF AGRICULTURE
 SOIL CONSERVATION SERVICE

PAGE 2
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MARYLAND DEPARTMENT OF ENVIRONMENT
 WATER MANAGEMENT ADMINISTRATION



U.S. DEPARTMENT OF AGRICULTURE
 SOIL CONSERVATION SERVICE

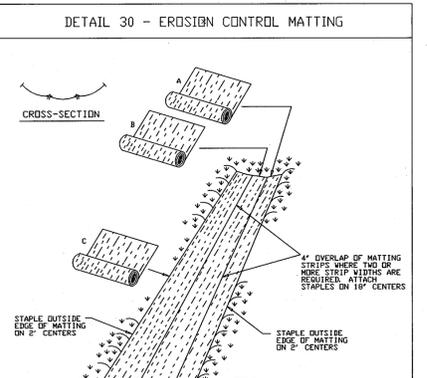
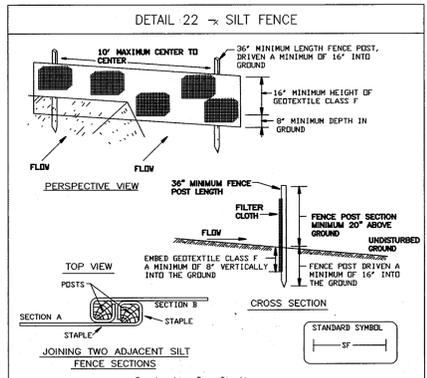
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MARYLAND DEPARTMENT OF ENVIRONMENT
 WATER MANAGEMENT ADMINISTRATION

U.S. DEPARTMENT OF AGRICULTURE
 SOIL CONSERVATION SERVICE

PAGE 2
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MARYLAND DEPARTMENT OF ENVIRONMENT
 WATER MANAGEMENT ADMINISTRATION



U.S. DEPARTMENT OF AGRICULTURE
 SOIL CONSERVATION SERVICE

PAGE 2
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MARYLAND DEPARTMENT OF ENVIRONMENT
 WATER MANAGEMENT ADMINISTRATION

U.S. DEPARTMENT OF AGRICULTURE
 SOIL CONSERVATION SERVICE

PAGE 2
 3-18-2

MARYLAND DEPARTMENT OF ENVIRONMENT
 WATER MANAGEMENT ADMINISTRATION

TEMPORARY SEEDING NOTES

- Apply to graded or cleared areas likely to be re-disturbed where a short-term vegetative cover is needed.
- Seeded 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/acre 10-10-10 fertilizer (14 lbs/1000 sq. ft.).
- Seeding:** For the periods March 1-April 30, and from August 15-October 15, seed with 2-1/2 bushels per acre of annual ryegrass (3.2 lbs/1000 sq. ft.). For the period May 1-August 14, seed with seed with 3 lbs/acre weeping lovegrass (0.07 lbs/1000 sq. ft.). For the period November 16-February 28, protect site by applying 2 tons/acre of well anchored straw mulch and seed as soon as possible in the spring, or use sod.
- Mulching:** Apply 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/1000 sq. ft.) of emulsified asphalt on flat areas. On slope 8 feet or higher, use 348 gallons per acre (8 gal/1000 sq. ft.) for anchoring.

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

**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.
- Seeded 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:
 1. **Preferred:** Apply 2 tons/acre dolomitic limestone (92 lbs/1000 sq. ft.) and 600 lbs/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/acre 30-0-0 ureiform fertilizer (9 lbs/1000 sq. ft.).
 2. **Acceptable:** Apply 2 tons/acre dolomitic limestone (92 lbs/1000 sq. ft.) 1000 lbs/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-April 30, and August 1-October 15, seed with 60 lbs/acre (1.4 lbs/1000sq. ft.) of Kentucky 31 Tall Fescue, for the period May 1-July 31, seed with seed with 60 lbs/acre Kentucky 31 Tall Fescue and 2 lbs/acre (0.05 lbs/1000 sq. ft.) of weeping lovegrass. During the period of October 16-February 28, protect site by **Option 1** - Two tons per acre of well anchored straw mulch and seed as soon as possible in the spring. **Option 2** - Use sod. **Option 3** - Seed with 60 lbs/acre Kentucky 30 Tall Fescue and mulch with 2 tons/acre well anchored straw.
- Mulching:** Apply 1-1/2 to 2 tons per acre (70 to 90 lbs/1000 sq. ft.) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gallons per acre (5 gal/1000 sq. ft.) of emulsified asphalt on flat areas. On slope 8 feet or higher, use 348 gallons per acre (8 gal/1000 sq. ft.) for anchoring.
- Maintenance:** Inspect all seeding areas and make needed repairs, replacements and seedings.

**HOWARD SOIL CONSERVATION DISTRICT
 STANDARD SEDIMENT CONTROL NOTES**

- 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).
- All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the "1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL" and revisions thereto.
- Following initial soil disturbance or re-disturbance, permanent or temporary stabilization shall be completed within: a) 7 calendar days for all perimeter disturbed structures, dikes, perimeter slopes and all slopes steeper than 3:1, b) 14 days as to all other disturbed or graded areas on the project site.
- 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.
- All disturbed areas must be stabilized within the time period specified above in accordance with the "1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL" for permanent seeding, sod, temporary seeding and mulching (Sec. 6). Temporary stabilization with mulch alone shall only be done when recommended seeding dates do not allow for proper germination and establishment of grasses.
- 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.
- Site Analysis:**
 Total Area of Site = 87,122 sq. ft. or 2,0000 Ac. ±
 Area Disturbed = 44,899 sq. ft. ±
 Area to be roofed or paved = 79,384 sq. ft.
 Area to be vegetatively stabilized = 7,738 sq. ft.
 Total Cut = 2,303 cu. yd.
 Offsite waste/borrow area location: Approved disposal site.
- Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
- Additional sediment control must be provided, if deemed necessary by the Howard County Sediment Control Inspector.
- 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, 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.
- Trenches for the construction of utilities is limited to three pipe lengths or that which shall be back-filled and stabilized within one working day, whichever is shorter.

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 Chief, Development Engineering Division
 Chief, Division of Land Development
 Director

9/14/06
 9/24/06
 9/24/06

APPROVED: FOR PUBLIC (OR PRIVATE) WATER AND PUBLIC (OR PRIVATE) SEWERAGE SYSTEMS
 County Health Officer
 Howard County Health Department

SEAL



Reviewed for Howard SCD and meets Technical Requirements
 Jim Meyer
 Natural Resources Conservation Service
 9/14/06
 Date

John K. Plutner
 Howard SCD
 9/14/06
 Date

ENGINEER'S CERTIFICATE
 I certify that this plan for sediment and erosion control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.

Michael J. Walkley P.E., President
 Signature of Engineer (print name below signature)
 Date: 6-28-06

DEVELOPER'S CERTIFICATE
 I/We certify that that all development and construction will be done according to this plan for sediment and erosion control and that all responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of the Environment Approved Training Program for Sediment and Erosion before beginning the project. I also authorize post-construction site inspection by the Howard Soil Conservation District.

Signature of Developer (print name below signature)
 Date: 9/15/06

EROSION & SEDIMENT CONTROL PLAN
 E. G. U., SECTION 2 AREA 1, LOT 2
 GULFORD EXECUTIVE CENTER, 9520 NW BERGER ROAD
 SUPPLEMENTAL TO SDC 69-16

Owner: Meisel Capital 9520, LLC
 Deed Reference 9521 / 21
 Job No: W399

Building Construction with Site Improvements
 Scale: 1" = 30'

Election District 16, Howard County, Maryland
 Date: May 1, 2006

Map Tax 42 Grid 3 Parcel No. 375
 Sheet: 12 of 14

NOTE
 1. No stock piling on site.

SEQUENCE OF CONSTRUCTION

- Obtain a Grading permit.
- Clear, grub and install the construction entrance, sump pit and other sediment control measures as deemed appropriate by the inspector (2 weeks).
- Rough grade site and apply temporary stabilization (2 weeks).
- Selectively excavate for proposed building structure and related foundations and apply temporary stabilization (2 weeks).
- Construct building, install water and other underground utilities (18 weeks).
- Construct underground "Stormvault" unit and rainleader piping. Install temporary plug at underground "Stormvault" unit inlet and at each rainleader connection (concurrent with item 5).
- Complete proposed driveway and parking area paving (3 weeks).
- Complete fine grading for related parking and remaining permanent structure (2 weeks).
- Fine grade total project site. Landscape or stabilize disturbed area (2 weeks).
- After the site is permanently stabilized and permission is granted from the Howard County Sediment Control Inspector, remove sediment controls, temporary plug at "Stormvault" and connect rainleaders. Stabilize any remaining disturbed areas (2 weeks).

Engineer:
 Michael J. Walkley, P.A.
 2000 Clipper Park Road, Suite 200, Baltimore, MD 21211
 (410) 889-7700 fax (410) 889-7756

Developer:
 Maryland Land Group, LLC
 5814 Main Street, Elkrige, MD 21075
 (877) 313-5263 fax (410) 579-2613

Surveyor:
 APR Associates, Inc.
 7427 Harford Road, Baltimore, MD 21234
 (410) 444-4312 fax (410) 444-1647

Owner:
 Meisel Capital 9520, LLC
 4 Park Center Court, Suite 202, Owings Mills, MD 21117
 (410) 363-7300 fax (363) 7301

Note: Information shown for existing conditions is based on Topographic Survey - 9520 NW Berger Road - 18th Election District - Howard County, Maryland - dated August 10, 2005 as prepared by APR Associates, Inc.

SDP-69-016

SITE TABULATIONS	
TOTAL GROSS AREA:	2.00 +/- ACRES
SHADE TREE UNITS REQUIRED:	52
SHADE UNITS PROVIDED:	16.5
DECIDUOUS SHADE TREES:	6 = 6 SHADE TREE UNITS
DECIDUOUS ORNAMENTAL TREES:	15 = 7.5 SHADE TREE UNITS
EVERGREEN TREES:	6 = 3 SHADE TREE UNITS

TREE PROTECTION. Prior to clearing and grading of site, contractor shall furnish and install tree protection measures including root pruning and feeding tree. Protection measures shall be applied within the critical root zone of all trees on-site and in adjacent properties impacted by disturbance. Tree protection measures shall be applied to on-site portions only of the critical root zones of trees located off-site. Tree protection measures shall be performed under the direction of a licensed arborist.

UTILITIES. Existing utilities serving adjacent property prevent planting of trees. Tall native grasses and forbs are proposed to screen parking lot. SEE TALL GRASS MEADOW DISTRIBUTION DETAIL.

EXISTING TREES. Retain and protect existing trees. See Tree protection note.

**BEFORE YOU DIG CONTACT MS UTILITY 1-800-257-7777
IT'S THE LAW!**

EXISTING PAVEMENT.
Extends to property line.

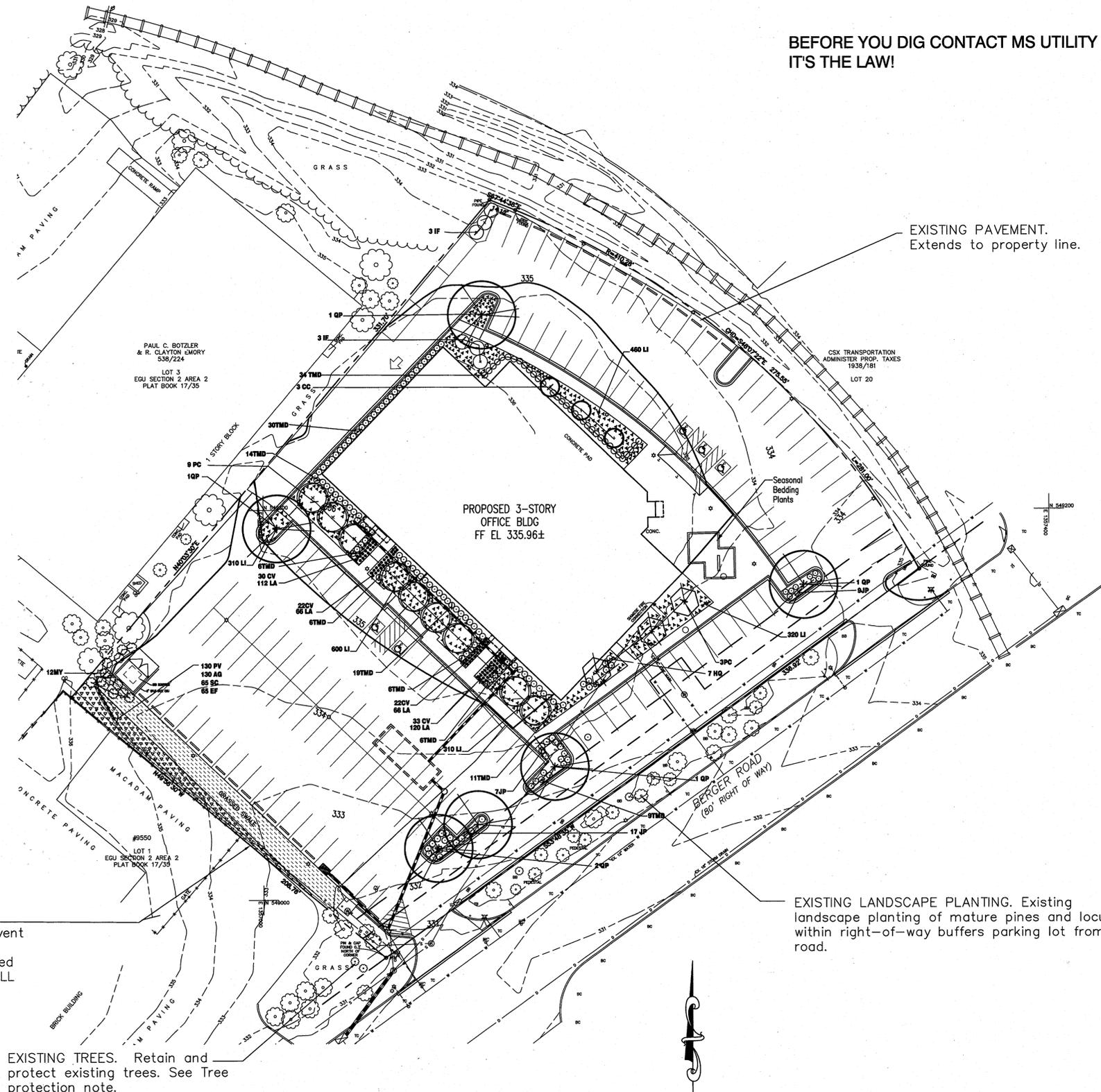
EXISTING LANDSCAPE PLANTING. Existing landscape planting of mature pines and locust within right-of-way buffers parking lot from road.

Landscape Notes

- Plants and plant material shall meet the detailed description as given on the plans and as described herein.
- All plant material, unless otherwise specified, shall be nursery grown, of good average, uniformly branched and have a vigorous root system. They shall be healthy, vigorous plants free from defects, decay, disfiguring roots, sunscald injuries, abrasions of the bark, plant disease, insect pest eggs, borers and all forms of infestations or objectionable disfigurements. Plant materials that are weak or which have been cut back from larger grades to meet certain specified requirements will be rejected. All plants shall be freshly dug; no heeled in plants or plants from cold storage will be accepted.
- All plant characteristics including, but not limited to: ball diameter, caliper and height measurements, shall be in accordance with the current edition of the "U.S.A. Standard for Nursery Stock", as recommended by the American Assoc. of Nurserymen, Inc.
- All trees shall be symmetrically balanced according to their normal habit of growth. No forked leader stock will be accepted.
- Planting shall be performed in the period beginning March 15 and ending December 15.
- All planting furnished under this contract shall be guaranteed to remain viable and to thrive in a healthy condition for a period of one (1) year. Trees that are not thriving satisfactorily, as determined by the Landscape Architect, within said one year period shall be replaced by the Contractor at his sole expense. All plant materials shall be planted in accordance with the plans and specifications for the original plantings. Replacement shall include the cost of tearing up and replacing that portion of sidewalk or paving, if any, required for tree replacement, all at the Contractor's sole expense. All replacement plants shall be guaranteed for a minimum period of one (1) year.
- The Contractor shall notify all utility companies five (5) days prior to beginning work.
- Location of plant materials may be adjusted in the field to account for tree roots and other obstructions.
- Any damage to the existing utilities, buildings, paving, curb, walls and vegetation (not so designated for removal on these plans) shall be repaired to previous condition or replaced by the Contractor at his expense.
- All planting beds shall have two (2) inches of shredded hardwood bark mulch placed on top of top soil.
- Topsoil shall be free from brush, weeds and other litter; and shall be free from clay lumps, stones, or other objects larger than one inch in diameter, and any other substance which may be harmful to plant growth. Prepared topsoil shall conform to the following specifications:
 - Prepared topsoil for evergreen plants: shall consist of two parts topsoil to one part humus or other approved organic material. Fertilize with 3 pounds 10-10-10 evergreen (acidic) fertilizer or approved equal per cubic yard of prepared topsoil.
 - Prepared topsoil for deciduous plants: shall consist of two parts topsoil, to one part leaf humus or dehydrated cow manure. Fertilize with 3 pounds standard 10-10-10 fertilizer or approved equal per cubic yard of prepared topsoil.

ADDITIONAL LANDSCAPE NOTES

- All material selected shall be equal to or better than the requirements according to the USA Standard for Nursery Stock latest edition published by the American Association of Nurserymen. All material shall be nursery grown under the same climatic conditions as the location of this project for at least two years. Varieties shall be indigenous to this area, Zone 6.
- All material shall be planted according to the Landscape Specification Guidelines for Baltimore-Washington Metropolitan Area as produced by the Landscape Contractors Association of Metropolitan Area as produced by the Landscape Architects, Maryland and Potomac Chapters, or equal.
- All plant material shall be installed during the first planting season after completion of site work.
- LANDSCAPE ARCHITECT TO APPROVE PLANTING LAYOUT. Contractor shall stake planting locations and outline bed areas. Contractor shall obtain approval from Landscape Architect of plant locations prior to installation.
- All plant material shall be guaranteed by the property owner or installer for the duration of one full growing season after final inspection and acceptance of the work. Plants shall be alive and in satisfactory growing condition at the end of the guarantee period. Thereafter, the property owner shall be replaced with new material by the owner within one growing season.
- This plan has been prepared in accordance with the provisions of Section 16.124 of the Howard County Code and the Landscape Manual.
- This project is exempt from the requirements of Section 16.1200 of the Howard County Code for Forest Conservation because the project is located in the Columbia New Town.
- Landscape surety in the amount of \$15,600.00 has been posted as a part of the Dev. Agreement.



LANDSCAPE PLAN
1" = 30'

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Chief, Development Engineering Division
Chief, division of Land Development
Director

APPROVED: FOR PUBLIC (OR PRIVATE) WATER AND PUBLIC (OR PRIVATE) SEWERAGE SYSTEMS
County Health Officer
Howard County Health Department



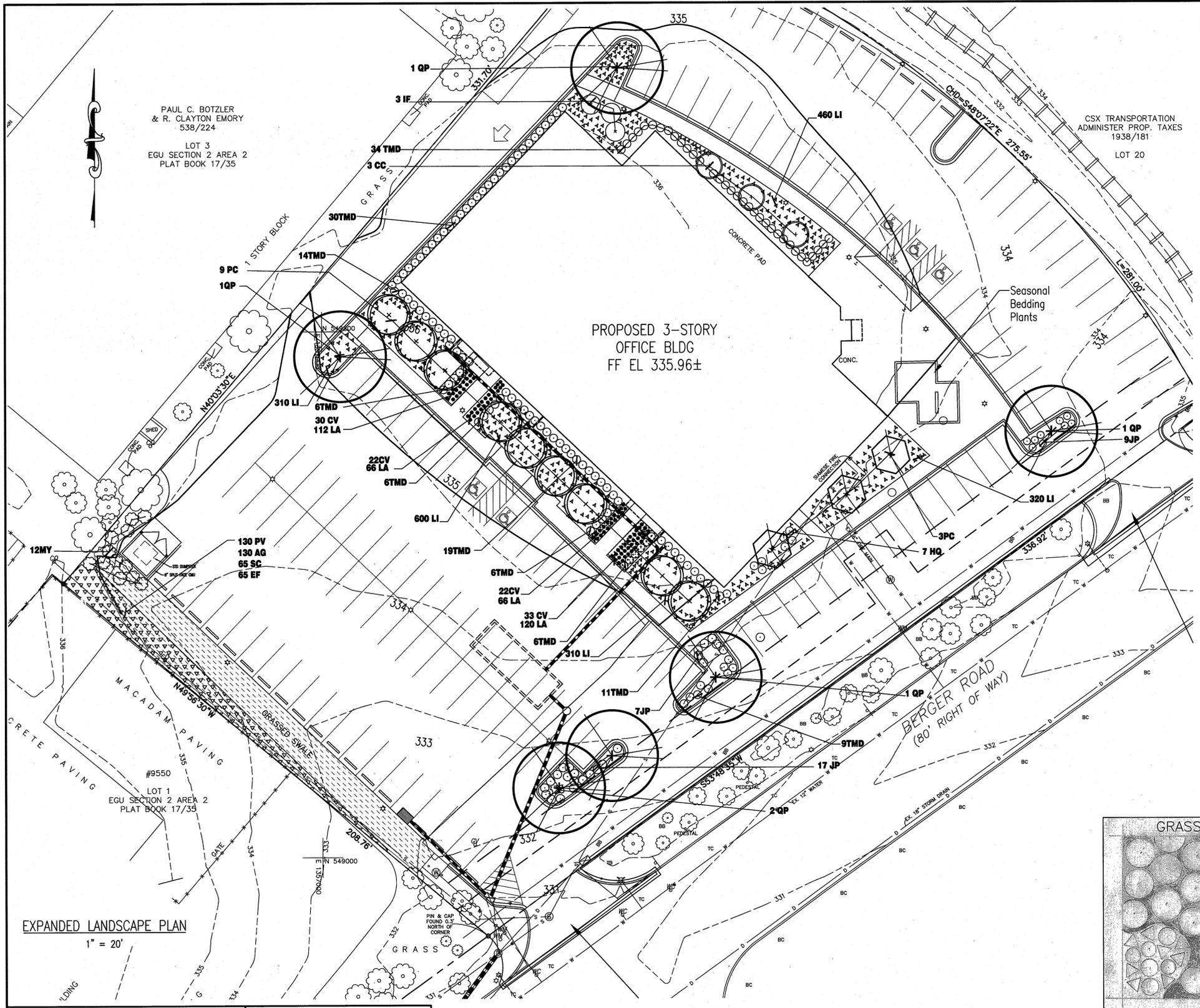
Brenton Associates, Inc.
landscape architects, land planners
1504 South St., Philadelphia, Pa., 19146
tel. 215/546-8458
www.brentonla.com

Engineer:
Michael J. Walkley, P.A.
2000 Clipper Park Road, Suite 200, Baltimore, MD 21211
(410) 889-7700 fax (410) 889-7756
Surveyor:
APR Associates, Inc.
7427 Harford Road, Baltimore, MD 21234
(410) 444-4312 fax (410) 444-1647

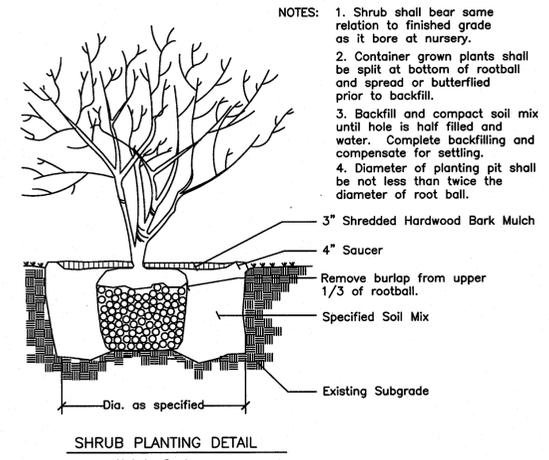
Developer:
Maryland Land Group, LLC
5814 Main Street, Elkridge, MD 21075
(877) 313-5263 fax (410) 579-2613
Owner:
Meisel Capital 9520, LLC
4 Park Center Court, Suite 202, Owings Mills, MD 21117
(410) 363-7300 fax (363) 7301

LANDSCAPE PLAN	
E. G. U., SECTION 2 AREA 1, LOT 2 GUILFORD EXECUTIVE CENTER, 9520 NW BERGER ROAD SUPPLEMENTAL TO SDP 69-16	
Owner: Meisel Capital 9520, LLC	Job No: W939
Deed Reference 9521 / 21	Scale: As Shown
Building Construction with Site Improvements	Date: June 1, 2006
Election District 16, Howard County, Maryland	Sheet: 13 of 14
Tax Map 42 Grid 3 Parcel No. 375	

SDP-69-016

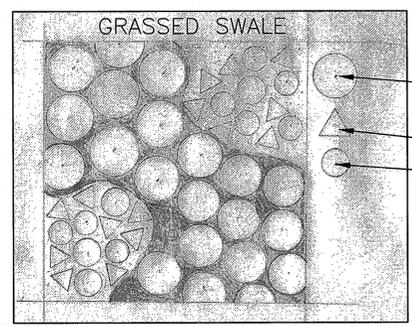


Plant List			
Sym	Qty	Scientific Name/ Common Name	Size
Trees			
QP	6	Quercus phellos/ Willow Oak	2 1/2"-3" cal. B & B
CC	3	Carpinus Carolinana/ American Hornbeam	2 1/2"-3" cal. B & B
PC	12	Pyrus Callergana 'Aristocrat'/Aristocrat Pear	2 1/2"-3" cal. B & B
IF	6	Ilex fosteri/Holly	7' - 8' Ht. B & B
Shrubs & Perennials			
MY	12	Myrica Cerasifera/ Bayberry	3' - 4' Ht. B & B
TMD	141	Taxus media densiformis/Dense Yew	30 - 36" Spread @ 3' o.ctr.
JSP	33	Juniperus squamata parsoni/Parsons Juniper	18' - 21' Spread
HQ	7	Hydrangea quercifolia/Oak Leaf Hydrangea	30 - 36" Ht.
CV	107	Coreopsis verticillata "Moonbeam"	2 Qt.
LA	364	Lamium 'White Nancy'	2 Qt. 15" O.C.
LI	2000	Liriope Muscari 'Big Blue'	2 Qt. 18" O.C.
AG	130	Andropogon gerardii	2 Qt. 24" O.C.
SC	65	Monarda 'Jacob's Cline'/ Bee Balm	2 Qt. 24" O.C.
EF	65	Eupatorium fistulosum/Joe Pye Weed	2 Qt. 24" O.C.
PV	130	Panicum virgatum Poaceae/Switch Grass	1 Gal. 24" O.C.

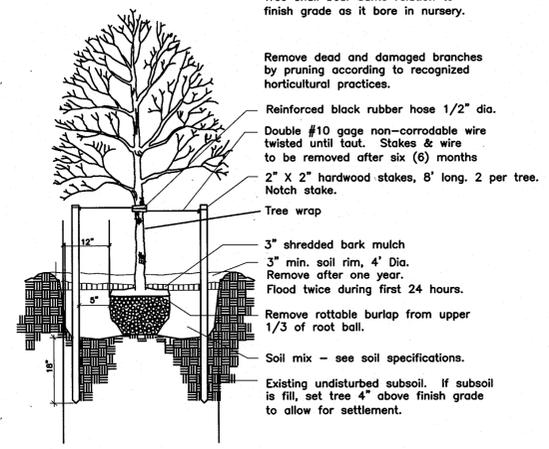


NOTES:
 1. Shrub shall bear same relation to finished grade as it bore at nursery.
 2. Container grown plants shall be split at bottom of rootball and spread or butterflyed prior to backfill.
 3. Backfill and compact soil mix until hole is half filled and water. Complete backfilling and compensate for settling.
 4. Diameter of planting pit shall be not less than twice the diameter of root ball.

SHRUB PLANTING DETAIL
Not to Scale



TALL GRASS MEADOW DISTRIBUTION DETAIL
Not to Scale



TREE PLANTING DETAIL
NOT TO SCALE

EXPANDED LANDSCAPE PLAN
1" = 20'

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 Chief, Development Engineering Division
 Chief, division of Land Development
 Director

APPROVED: FOR PUBLIC (OR PRIVATE) WATER AND PUBLIC (OR PRIVATE) SEWERAGE SYSTEMS
 County Health Officer
 Howard County Health Department

BEFORE YOU DIG CONTACT MS UTILITY 1-800-257-7777
IT'S THE LAW!



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LANDSCAPE DETAILS
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 SUPPLEMENTAL TO SDP 69-16
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