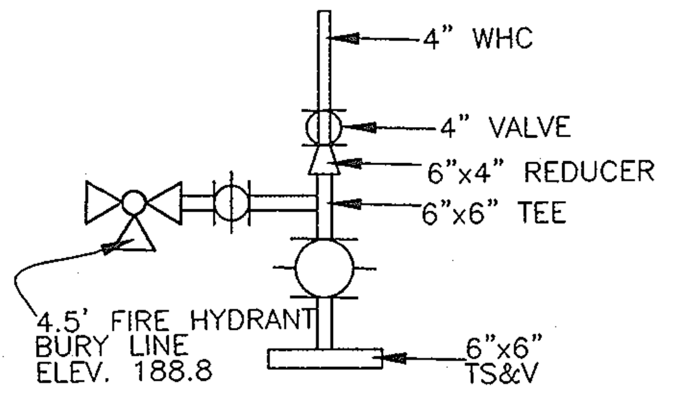
MEADOWRIDGE BUSINESS PARK
PARCEL S-1
1st ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
SITE DEVELOPMENT PLAN

SHEET INDEX	
NO.	DESCRIPTION
1	SITE DEVELOPMENT AND GRADING PLAN
2	SEDIMENT AND EROSION CONTROL ,SOILS AND LANDSCAPE PLAN
3	SEDIMENT AND EROSION NOTES AND DETAILS
4	STORM DRAIN DRAINAGE AREA MAP
5	STORM DRAIN NOTES AND DETAILS
6	BORINGS



FIRE HYDRANT DETAIL SCALE: 1" = 20'

GENERAL NOTES

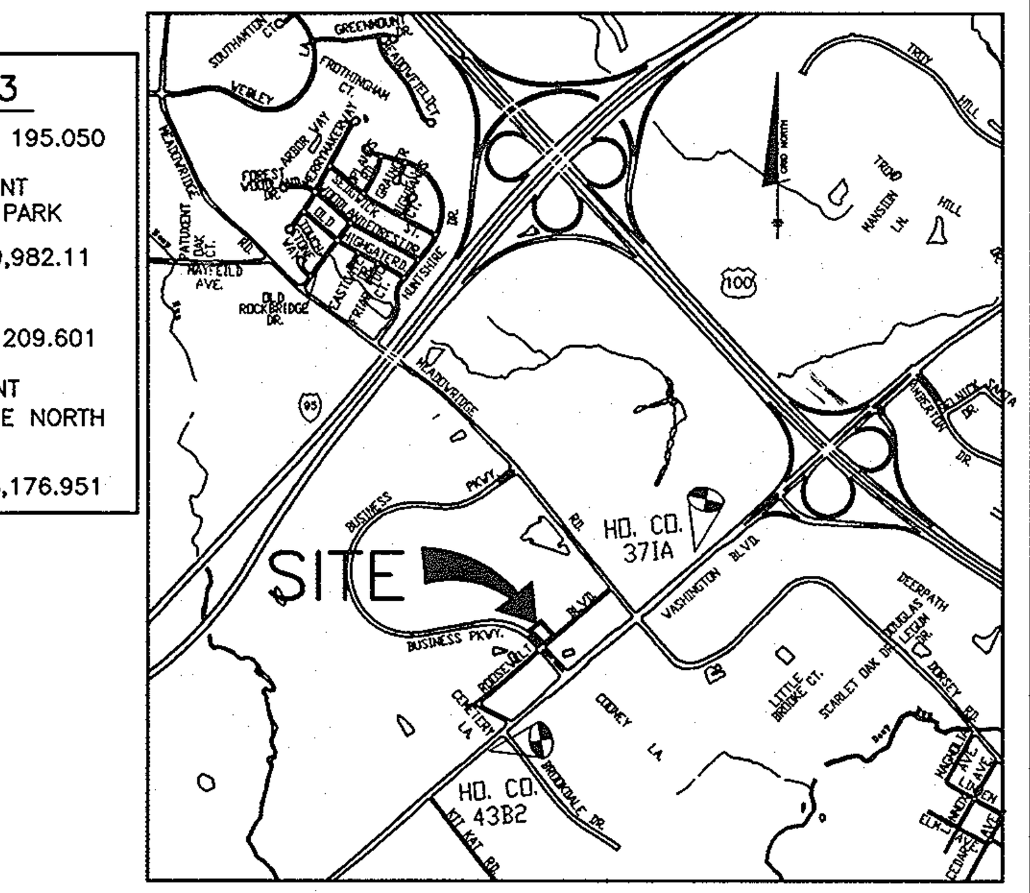
1. THE SUBJECT PROPERTY IS ZONED CE-CLI PER THE 07/28/06 COMPREHENSIVE PLAN.
2. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY, PLUS MSHA STANDARDS AND SPECIFICATIONS, IF APPLICABLE.
3. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING CONSTRUCTION INSPECTION DIVISION AT 410-313-1880 AT LEAST (FIVE) 5 WORKING DAYS PRIOR TO THE START OF WORK.
4. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK AND RECEIVE CONFIRMATION THAT ALL UTILITIES HAVE BEEN MARKED BEFORE PROCEEDING WITH SITE WORK.
5. ALL DIMENSIONS ARE TO THE FACE OF CURB UNLESS OTHERWISE NOTED.
6. THE CONTOURS SHOWN HEREON HAVE BEEN TAKEN FROM FIELD RUN TOPOGRAPHIC SURVEYS AT 2' INTERVAL. PREPARED BY BENCHMARK ENGINEERING INC. ON OR ABOUT JANUARY 1, 2007.
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. 37IA AND 43B2 WERE USED FOR THIS PROJECT.
8. BOUNDARY IS BASED ON RECORD PLAT.
9. WATER AND SEWER FOR THIS SUBDIVISION IS PUBLIC AND LOCATED WITHIN THE PATAPSCO DRAINAGE AREA. SEWER AND WATER CONTRACT No. 511-W AND 705-S.
10. THERE ARE NO WETLANDS OR FLOODPLAIN WITHIN THE AREA OF THIS PROPERTY.
11. EXISTING UTILITIES WERE LOCATED FROM RECORD DRAWINGS AND FIELD RUN SURVEY.
12. THE TRAFFIC STUDY FOR THIS PROJECT WAS PREPARED BY MARS GROUP DATED APRIL 2007 .
13. CONTRACTOR SHALL ADJUST ALL UTILITIES, RIM ELEVATIONS AND INVERT ELEVATIONS AS NEEDED TO MATCH THIS PLAN.
14. ALL EXTERIOR LIGHTING SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL VOLUME III SECTION 134 OF THE HOWARD COUNTY ZONING REGULATIONS.
15. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL.
16. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING WILL BE POSTED AS PART OF THE DEVELOPERS AGREEMENT IN THE AMOUNT OF $4,440.00.
17. THE SITE IS EXEMPT FROM FOREST CONSERVATION BECAUSE IT IS LESS THAN 40,000 SQUARE FEET (16.1202(b)(1)(I)).
18. STORMWATER MANAGEMENT QUALITY CONTROL FOR THIS PARCEL IS PROVIDED BY AN UNDERGROUND STORM FILTER. THIS FACILITY WILL BE PRIVATELY OWNED AND MAINTAINED.
19. 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.
20. THERE ARE NO 25% SLOPES OR GREATER AS DEFINED WITHIN THE SUBDIVISION REGULATION ON THIS SITE.
21. UNLESS NOTED AS "PRIVATE" ALL EASEMENTS ARE PUBLIC.
22. THIS SITE DEVELOPMENT PLAN MUST CONFORM TO THE ROUTE 1 MANUAL.
23. STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURE AND POLE SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOLUME III (1993) AND AS MODIFIED BY "GUIDELINES FOR STREET LIGHT IN RESIDENTIAL DEVELOPMENTS (JUNE 1993)". A MINIMUM SPACING OF 20' SHALL BE MAINTAINED BETWEEN ANY STREETLIGHT AND ANY TREE."
24. ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY-OF-WAY SHALL BE ON A 2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE POST (14 GUAGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (12 GUAGE) – 3' LONG. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST."
25. THE FRONTAGE IMPROVEMENTS ARE IN ACCORDANCE WITH DMV IV, STANDARD DETAIL R-6.09.
26. THE PROPOSED WHC FIRE HYDRANT AND ABANDONMENT OF THE EXISTING WHC ARE DONE UNDER ADVANCED DEPOSITE ORDER(ADO).
27. THE PROPOSED FIRE HYDRANT IS INSTALLED UNDER AN ADVANCED DEPOSIT ORDER(ADO).
28. TRASH COLLECTION AND STORAGE SHALL OCCUR WITHIN THE BUILDING.
29. THE LOADING AREA SPACE WILL BE CLEARLY SIGNED TO RESERVE THE SPACE.
30. ALL SIGNS SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE POST (14 GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (12 GAUGE) – 3 FEET LONG. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.

STREET LIGHT SCHEDULE				
SYMBOL	STREET NAME	LOCATION		DESCRIPTION
	ROOSEVELT BLVD.	N 552487.9171	E 1378455.4386	250 WATT HPS VAPOR PENDANT SAG FIXTURE MOUNTED ON A 30' BRONZE FIBERGLASS POLE W/ 12' ARM
	BUSINESS PARKWAY	N 552483.3771	E 1378252.3191	
	BUSINESS PARKWAY	N 552524.2187	E 1378207.7551	

BENCH MARKS NAD '83

HO. CO. 37IA — ELEV. 195.050
STAMPED DISC ON CONCRETE MONUMENT ROUTE 1 BY MEADOWRIDGE MEMORIAL PARK
N 553,315.151 — E 1,379,982.11

HO. CO. 43B2 — ELEV. 209.601
STAMPED DISC ON CONCRETE MONUMENT BEING 15.55' FROM A C&P M.H. IN THE NORTH BOUND LANE OF ROUTE 1
N 551,654.993 — E 1,378,176.951

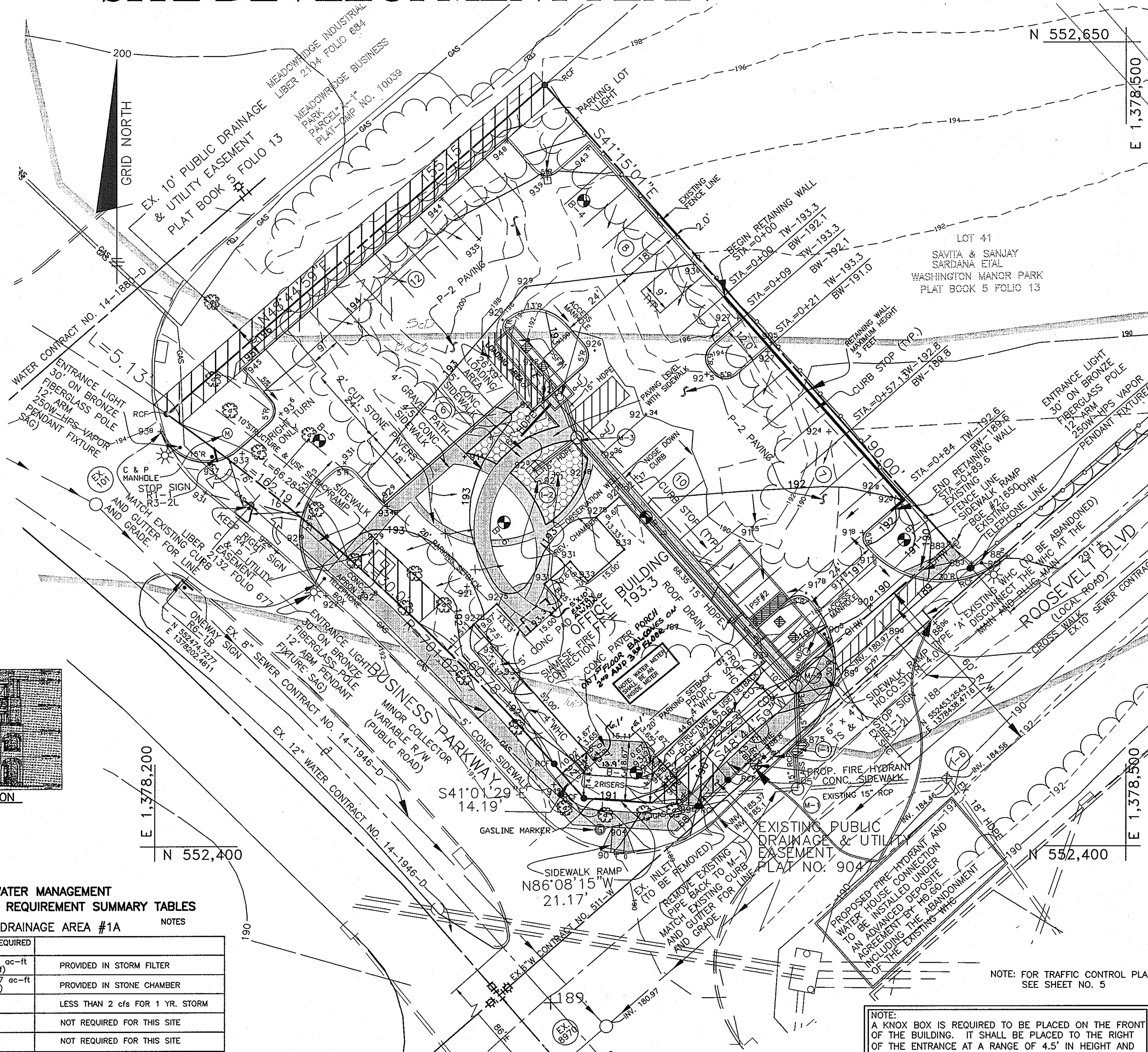


ADC MAP 17 A12

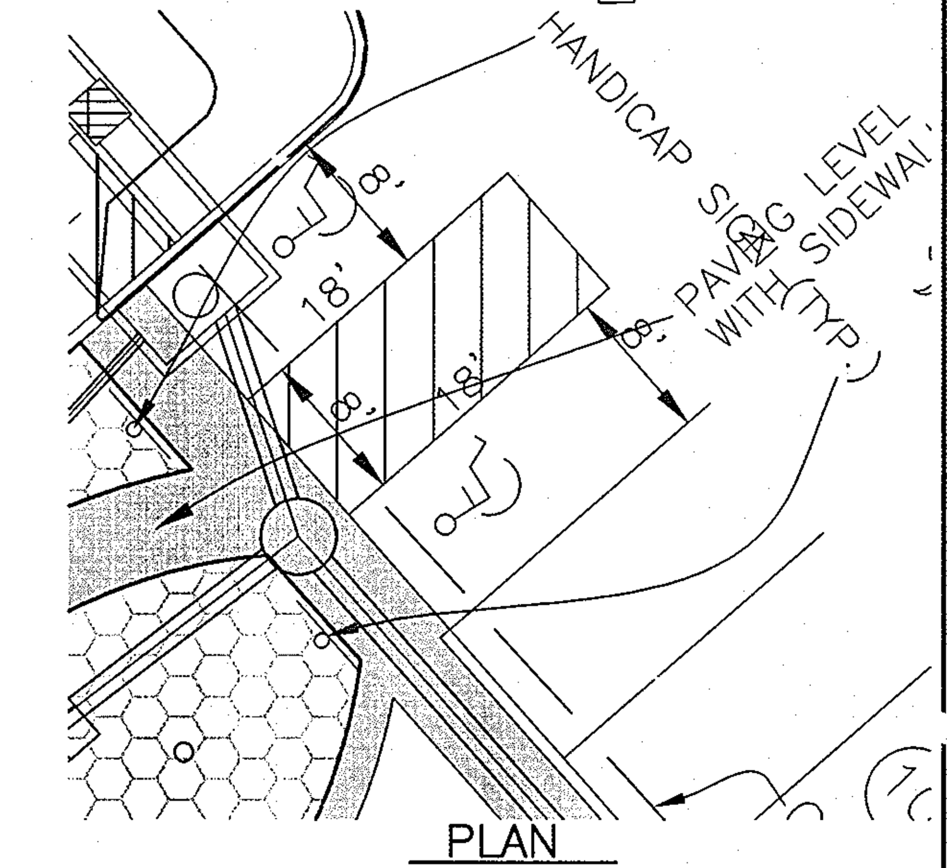
VICINITY MAP SCALE: 1"=2000'

LEGEND

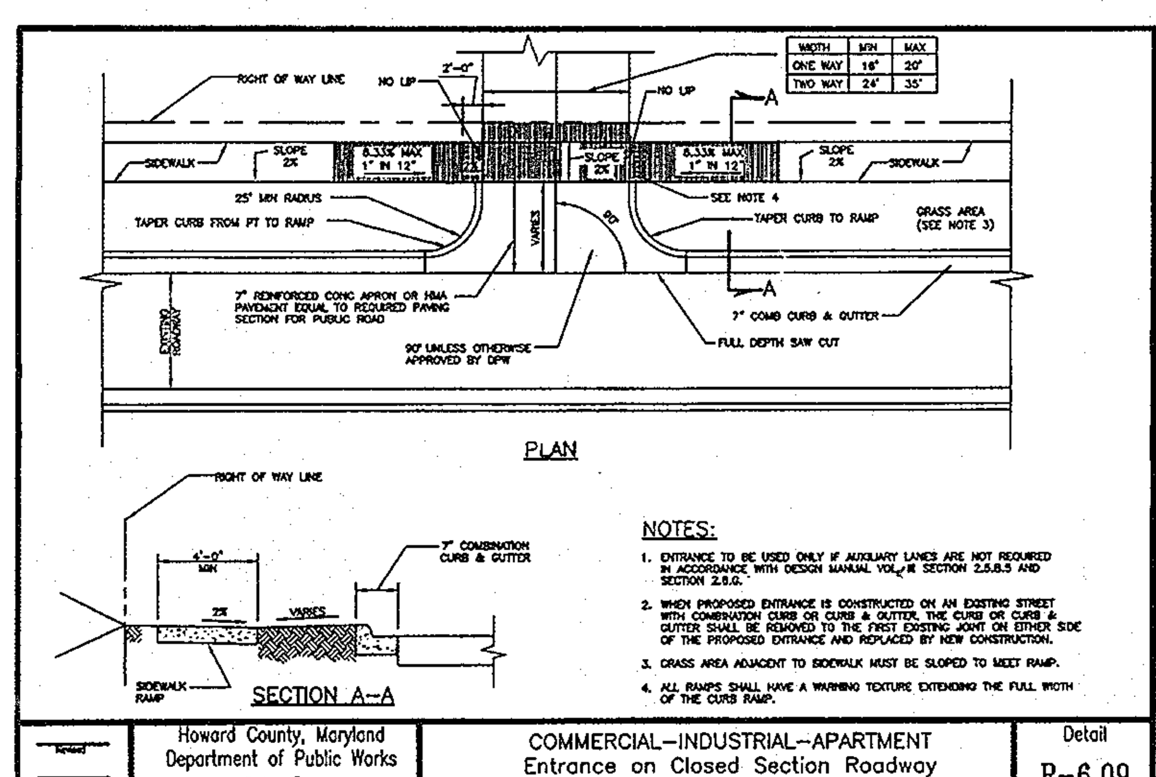
SOILS CLASSIFICATION	ChB2
SOILS DELINEATION	
EXISTING CONTOURS	480 / 478
PROPOSED CONTOURS	999
EXISTING WOODS LINE	
EXISTING BOUNDRY	
PUBLIC UTILITY EASEMENT	
HANDICAP STRIPPING	
LOADING AREA	
PROPOSED SIDEWALK	
PROPOSED SWMF	
HANDICAPPED SPACE	
PROP. FIRE HYDRANT	
LIGHTING POLES	
PARKING LOT LIGHT	

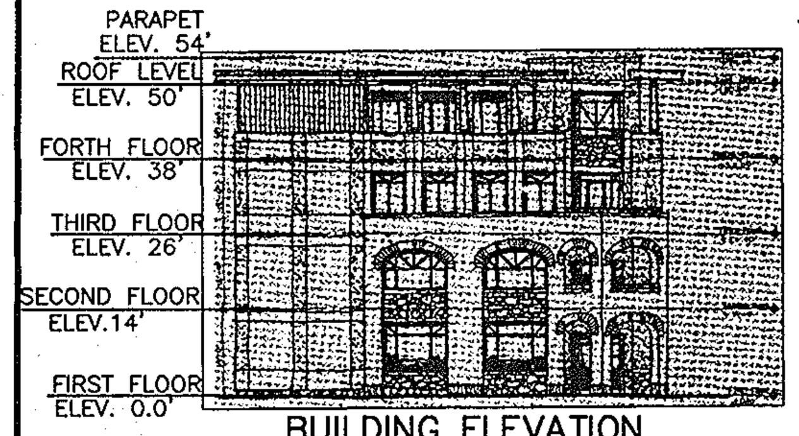


PLAN SCALE: 1" = 20'



PLAN SCALE: 1" = 10'





BUILDING ELEVATION
SCALE: 1" = 20'

SITE ANALYSIS DATA CHART

A.) TOTAL PROJECT AREA: 0.62 AC.±
B.) AREA OF PLAN SUBMISSION: 0.62 AC.±
C.) LIMIT OF DISTURBANCE AREA: 0.62 AC.±
D.) PRESENT ZONING: CE-CLI
E.) PROPOSED USES FOR SITE AND STRUCTURES: 4 STORY GENERAL OFFICE BUILDING
F.) TOTAL ALL BULDING SQUARE FOOT AREA 13,029 SF
1ST FLOOR AREA 3,450 SF
2ND FLOOR AREA 3,450 SF
3RD FLOOR AREA 3,386 SF
4TH FLOOR AREA 2,743 SF
PARKING IS PROVIDED BASED ON SPECIFIC USES.
G.) NUMBER OF PARKING SPACES REQUIRED BY HOWARD COUNTY ZONING REGULATIONS (PER SECTION 133.D OF THE ZONING REGULATIONS AT 3.3 PARKING SPACES PER 1,000 SF OF BUILDING): 43 SPACES
H.) NUMBER OF PARKING SPACES PROVIDED ON SITE: (INCLUDING 2 HANDICAPPED PARKING SPACES): 43 SPACES
I.) BUILDING COVERAGE OF SITE: 0.08 AC./3485 SF (12.9%)
J.) APPLICABLE DPZ FILE REFERENCES: F-89-163, F-07-191
K.) NO CHANGE IN USE IS PERMITTED UNLESS IT COMPLIES WITH THE PARKING REQUIREMENTS OF ZONING SECTION 133 AND IS APPROVED BY THE DEPARTMENT OF PLANNING AND ZONING. MEDICAL OFFICES MUST ACCOUNT FOR LESS THAN 50% OF THE USE OF SQUARE FOOTAGE.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 4/28/08 DATE
CHIEF, DIVISION OF LAND DEVELOPMENT — 5/2/08 DATE
DIRECTOR — 5/5/08 DATE

STORMWATER MANAGEMENT
GENERAL STORAGE REQUIREMENT SUMMARY TABLES
DRAINAGE AREA #1A

REQUIREMENT	VOLUME REQUIRED	NOTES
WATER QUALITY VOLUME (WQv)	0.043 ac-ft (1893cf)	PROVIDED IN STORM FILTER
RECHARGE VOLUME (REv)	0.0057 ac-ft (246cf)	PROVIDED IN STONE CHAMBER
CHANNEL PROTECTION VOL. (CPv)	NA	LESS THAN 2 cfs FOR 1 YR. STORM
OVERBANK FLOOD PROTECTIONNAVOLUME (Qp)	NA	NOT REQUIRED FOR THIS SITE
EXTREME FLOOD VOLUME (Qf)		NOT REQUIRED FOR THIS SITE

STORMWATER MANAGEMENT
GENERAL STORAGE REQUIREMENT SUMMARY TABLES
DRAINAGE AREA #1B

REQUIREMENT	VOLUME REQUIRED	NOTES
WATER QUALITY VOLUME (WQv)	0.043 ac-ft (1893cf)	NO NEW IMPERVIOUS IS PROVIDED WITHIN THIS DRAINAGE AREA
RECHARGE VOLUME (REv)	0.0057 ac-ft (246cf)	NO NEW IMPERVIOUS IS PROVIDED WITHIN THIS DRAINAGE AREA
CHANNEL PROTECTION VOL. (CPv)	NA	LESS THAN 2 cfs FOR 1 YR. STORM
OVERBANK FLOOD PROTECTION VOLUME (Qp)	NA	NOT REQUIRED FOR THIS SITE
EXTREME FLOOD VOLUME (Qf)	NA	NOT REQUIRED FOR THIS SITE

ADDRESS CHART	
PARCEL NO.	STREET ADDRESS
S-1	7356 ROOSEVELT BLVD.

DISCHARGE COMPARISON TABLE FOR DA#1

DISCHARGE	EXISTING	DEVELOPED	NOTES
1-YEAR	0.67 cfs	1.97 cfs	DEVELOPED IS SLIGHTLY MORE THAN EXISTING
10-YEAR	3.03 cfs	4.97 cfs	DEVELOPED IS SLIGHTLY MORE THAN EXISTING

SWM FACILITY SUMMARY

FACILITY	TYPE	STORAGE VOLUMES	NOTES
SWM#1	PERIMETER SAND FILTER#1 & #2	0.043 ac-ft	PROVIDE FOR WQv
SWM#2	STONE CHAMBER	0.0057 ac-ft	PROVIDE FOR Rev

NOTE: FOR TRAFFIC CONTROL PLAN SEE SHEET NO. 5

NOTE:
A KNOX BOX IS REQUIRED TO BE PLACED ON THE FRONT OF THE BUILDING. IT SHALL BE PLACED TO THE RIGHT OF THE ENTRANCE AT A RANGE OF 4.5' IN HEIGHT AND NOT MORE THAN 6' LATERALLY FROM THE DOOR. THE BOX SHALL BE ELECTRONICALLY SUPERVISED TO NOTIFY THE OWNER THAT IT IS BEING ACCESSED.

PERMIT INFORMATION CHART

SUBDIVISION NAME		SECTION/AREA		PARCEL#	
MEADOWRIDGE BUSINESS PARK PARCEL S-1		-		PARCEL S-1	
PLAT No.	GRID No.	ZONE	TAX MAP	ELEC. DIST.	CENSUS
19651	4	CE CLI	43	1ST	6012
WATER CODE	B01		SEWER CODE	2153000	

NO.	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644
www.bei-civilengineering.com

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. 21443, Expiration Date: 12-21-2008.

STATE OF MARYLAND — DONALD ALAN MASON — 4/7/08

OWNER/DEVELOPER:
INNERVATE I LLC
8015C DORSEY RUN ROAD
JESSUP, MARYLAND 20794
410-799-9415

PROJECT: MEADOWRIDGE BUSINESS PARK PARCEL S-1 OFFICE BUILDING

LOCATION: TAX MAP 43 – GRID 4, PARCEL 362 AND 375, 1st ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

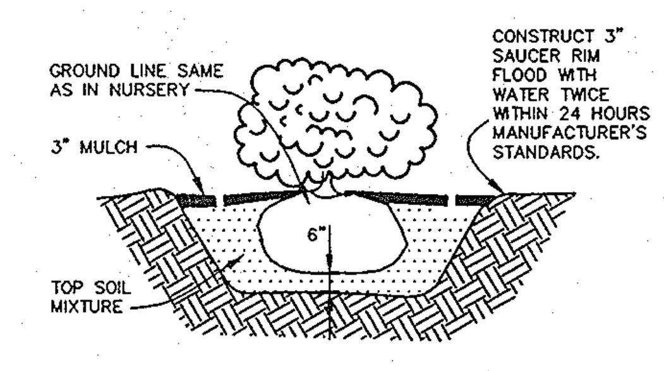
TITLE: SITE DEVELOPMENT PLAN, GRADING PLAN,

DATE: MAY, 2007 / JANUARY, 2008 — PROJECT NO. 1989

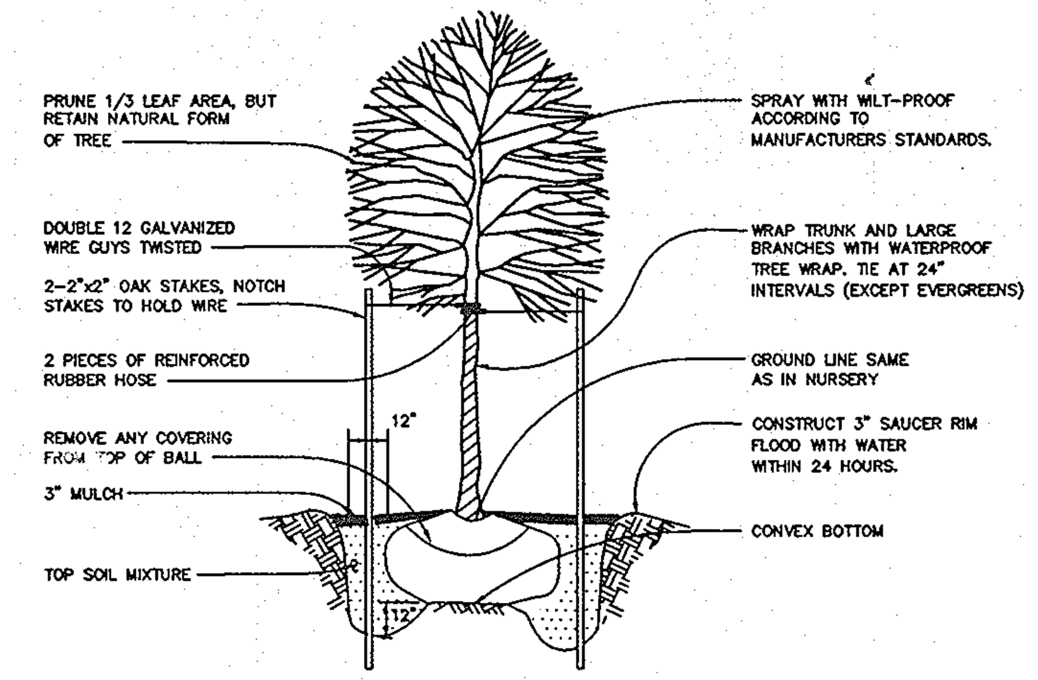
Design: DAM — Draft: EDD — Check: DAM — SCALE: AS SHOWN — DRAWING 1 OF 6

SDP-07-117

P:\1989 MEADOWRIDGE PAR S\dwg\8021s1.dwg, 4/7/2008 10:58:11 AM, Oce TDS600 HDI for mylar.pc3



SHRUB PLANTING DETAIL
NOT TO SCALE



TREE PLANTING DETAIL
NOT TO SCALE

SCHEDULE A PERIMETER LANDSCAPE EDGE					
CATEGORY	ADJACENT TO ROADWAY	YES	NO	YES	YES
	ADJACENT TO PERIMETER PROPERTIES	NO	YES	NO	NO
PERIMETER NO. / LANDSCAPE TYPE		1 B	2 A	3 E	4 E
LINEAR FEET OF ROADWAY (FRONTAGE/PERIMETER)		190	345	36	36
CREDIT FOR EXISTING VEGETATION: NO OR YES (DESCRIBE BELOW IF NEEDED)		YES 3 TREES	YES 2	NO	YES 1
CREDIT FOR WALL, FENCE OR BERM: NO OR YES (w/LINEAR FEET) (DESCRIBE BELOW IF NEEDED)		NO	NO	NO	NO
NUMBER OF PLANTS REQUIRED: SHADE TREES / EVERGREEN TREES / OTHER TREES (2:1 SUBSTITUTE) / SHRUBS		4 / 5 / – / –	6 / – / – / –	1 / – / 9 / –	1 / – / 9 / –
NUMBER OF PLANTS PROVIDED: SHADE TREES / EVERGREEN TREES / OTHER TREES (2:1 SUBSTITUTE) / SHRUBS (10:1 SUBSTITUTE) / (DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED)		1-PRO 3- EX / 2*-PRO / – / 30*-PRO / – / –	4-PRO 2- EX / – / – / – / – / –	1 / – / – / – / 9 / –	1 / – / – / – / 12 / –

* ONE EVERGEEN TREE IS PROPORTIONAL TO 10 SHRUBS TREES.

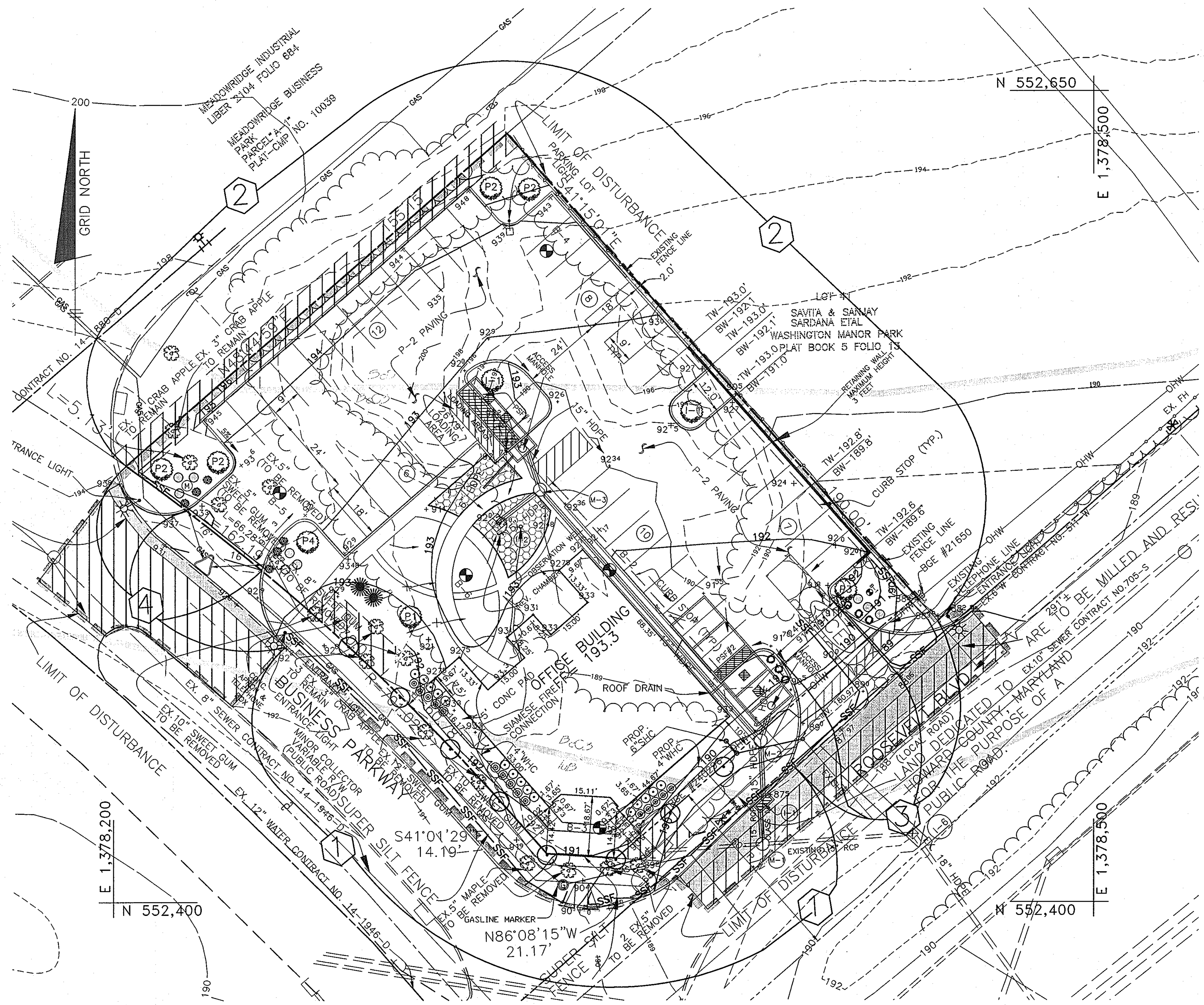
LANDSCAPE PLANTING LIST			
SYMBOL	QUANTITY	NAME	REMARKS
(symbol)	9	PRUNUS SARGENTII SARGENT CHERRY	2 1/2"-3" MIN. CAL. B & B FULL HEAD
(symbol)	2	LEYLAND CYPRESS CUPPRESSOCYPARIS LEYLANDI	5' - 6 ' HT.
(symbol)	15	HICKS YEW TAXUS MEDIA 'HICKSII'	2-1/2" - 3 ' HT.
(symbol)	15	FORTERGILLA MINOR 'MT AIRY'	24" - 30" HT.
(symbol)	9	PIERIS JAPONICA JAPANESE PIERIS	2' - 2 1/2 ' HT.
(symbol)	6	MOUNTAIN LAUREL KALMIA LATIFOLIA	2-1/2" - 3 ' HT.
(symbol)	6	VIBURNUM RHYTIDOPHYLLUM LEATHERLEAF VIBURNUM	2-1/2" - 3 ' HT.

ALL PLANTINGS SHALL BE THE SPECIFIED HEIGHT AND OR CALIPER AT THE TIME OF INSTALLATION.

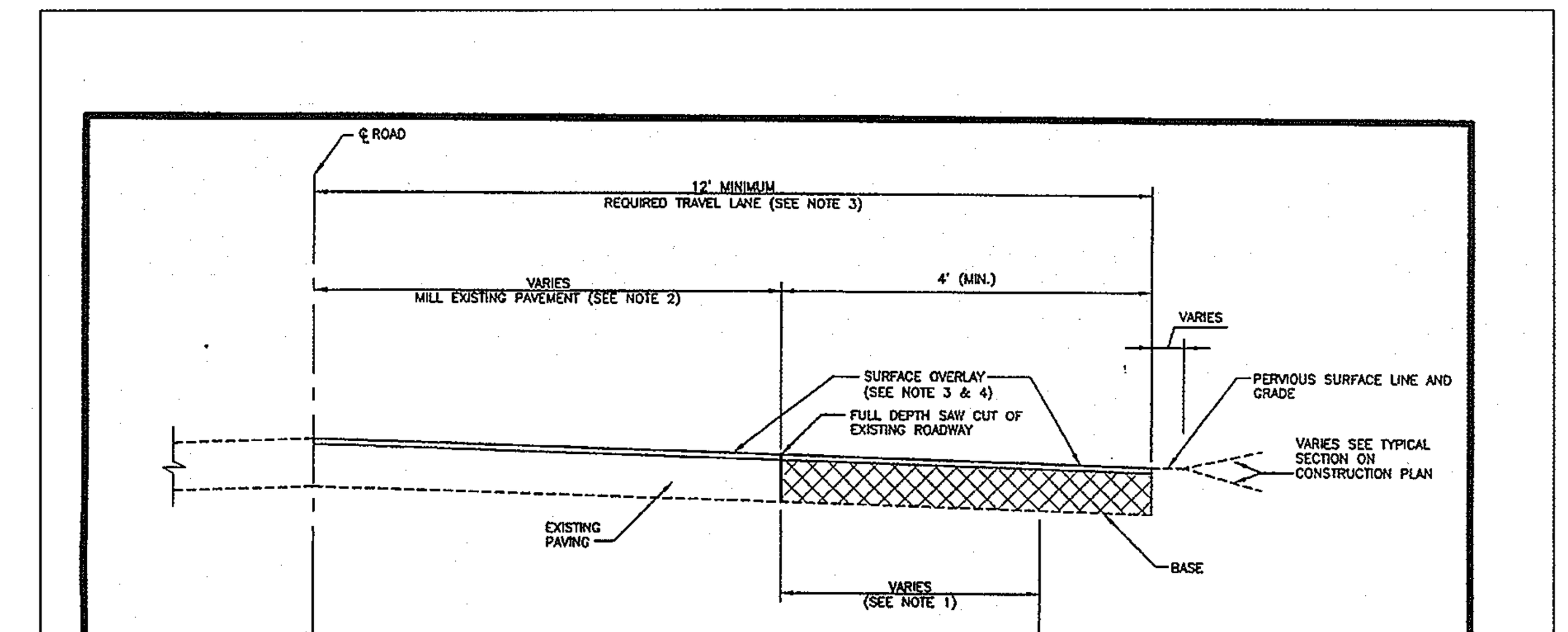
PLANTING NOTES:
1. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL.
2. TREES MUST BE PLANTED A MINIMUM OF 4 FEET FROM THE EDGE OF PAVING, 10' FROM A DRIVEWAY AND MUST BE A MINIMUM OF 5 FEET FROM ANY STORM DRAIN.
3. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING SHALL BE POSTED AS PART OF THE DPW, DEVELOPERS AGREEMENT FOR 9 SHADE TREES, 2 EVERGREEN TREES AND 48 SHRUBS IN THE AMOUNT OF $4,440.
4. AT THE TIME OF PLANT INSTALLATION, ALL SHRUBS AND TREES LISTED AND APPROVED ON THE LANDSCAPE PLAN, SHALL COMPLY WITH THE PROPER HEIGHT REQUIREMNET IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPE MANUAL. IN ADDITION, NO SUBSTITUTIONS OR RELOCATIONS OF THE REQUIRED PLANTINGS MAY BE MADE WITHOUT PRIOR REVIEW AND APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING. ANY DEVIATION FROM THE APPROVED LANDSCAPE PLAN MAY RESULT IN DENIAL OR DELAY IN THE RELEASE OF LANDSCAPE SURETY UNTIL SUCH TIME AS ALL REQUIRED MATERIALS ARE PLANTED AND/OR REVISIONS ARE MADE TO THE APPLICABLE PLANS.
5. THE OWNER, TENANTS AND/OR THEIR AGENTS SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE REQUIRED LANDSCAPING INCLUDING BOTH PLANT MATERIALS AND BERMS, FENCES AND WALLS. ALL PLANT MATERIALS SHALL BE MAINTAINED IN GOOD GROWING CONDITION, AND WHEN NECESSARY, REPLACED WITH NEW MATERIALS TO ENSURE CONTINUED COMPLIANCE WITH APPLICABLE REGULATIONS. ALL OTHER REQUIRED LANDSCAPING SHALL BE PERMANENTLY MAINTAINED IN GOOD CONDITION, AND WHEN NECESSARY, REPAIRED OR REPLACED.

SOILS LEGEND		
MAP SYMBOL	SOIL GROUP	SOIL TYPE
BeC3	C	BELTSVILLE SILT LOAM, 5 TO 10 PRCENT SLOPES, SEVERELY REODED
ScD	C	SANDY AND CLAYEY LAND, MODERAETLY ERODED
*IuB	C	IUKA LOAM, LOCAL ALLUVIUM, 1 TO 5 PERCENT SLOPES

* INDICATES HYDRIC SOILS
TAKEN FROM SOILS SURVEY, ISSUED JULY 1968, MAP NO. 30 &31



PLAN
SCALE: 1" = 20'



NOTES:
1. WHEN EXISTING TRAVEL LANE IS LESS THAN THE REQUIRED 12' LANE CONTRACTOR SHALL REMOVE A MINIMUM OF 1' FULL DEPTH OF THE EXISTING ROADWAY. IF CURB AND GUTTER IS INSTALLED, PROVIDE A MINIMUM OF 4' OF WIDENING FROM FACE OF GUTTER PAN.
2. THE EXISTING PAVEMENT TO BE RESURFACED SHALL BE MILLED AT DEPTH OF 1 1/2" (MINIMUM).
3. THE RESURFACING SHALL BE PLACED TO THE CENTERLINE OF THE ROADWAY.
4. RESURFACING COURSE TO BE EQUAL TO THE SURFACE COURSE OF THE TYPICAL PAVEMENT SECTION.

Revised / Revised / 5/7/2007 Approved	Howard County, Maryland Department of Public Works Approved: [signature] Chief, Bureau of Engineering	Existing Roadway Widening Strip	Detail R-1.08

EXISTING ROADWAY WIDENING STRIP
SCALE: 1" = 10'

BY THE DEVELOPER:

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

[signature] 4/7/08
DEVELOPER – INNERVATE I LLC. DATE

BY THE ENGINEER:

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

Donald Mason 4/7/08
ENGINEER – DONALD A. MASON, P.E. # 21443 DATE

REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.

[signature] 4-24-08
HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[signature] 4/28/08
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

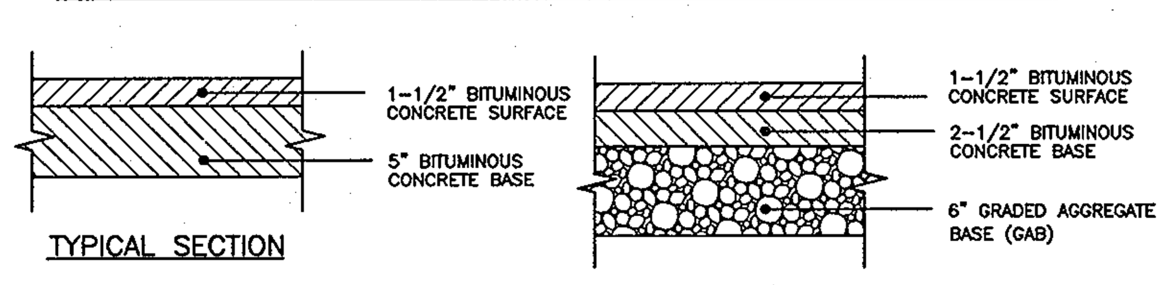
[signature] 5/2/08
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[signature] 5/5/08
DIRECTOR DATE

NO.	DATE	REVISION

SCHEDULE B PARKING LOT INTERNAL LANDSCAPING	
NUMBER OF PARKING SPACES	43
NUMBER OF LANDSCAPE ISLANDS REQUIRED	2
NUMBER OF LANDSCAPE ISLANDS PROVIDED	2

STREET TREE PLANTING LIST			
SYMBOL	QUANTITY	NAME	REMARKS
(symbol)	8	ACER RUBRUM "ARMSTRONG" ARMSTRONG COLUMNAR RED MAPLE	2 1/2"-3" MIN. CAL. B & B FULL HEAD



P-2 PAVEMENT DETAIL
NOT TO SCALE

LEGEND

EXISTING CONTOURS	—999—
PROPOSED CONTOURS	—999—
PROPOSED STRUCTURE	(symbol)
SOILS DELINEATION	(symbol)
SOILS CLASSIFICATION	BeC3
LIMIT OF DISTURBANCE	(symbol)
PROP. SUPER SILT FENCE	—SSF—
STABILIZED CONSTRUCTION ENTRANCE	SCE
HANDICAP STRIPING	(symbol)
PUBLIC UTILITY EASEMENT	(symbol)
FRONT IMPROVEMENT	(symbol)
LOADING AREA	(symbol)
PROPOSED SWMF	(symbol)
PROP. FIRE HYDRANT	(symbol)
LIGHTING POLES	(symbol)
PARKING LOT LIGHT	(symbol)

DEVELOPER'S/BUILDER'S CERTIFICTION

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

NAME: [signature] DATE: 4/7/08
INNERVATE I LLC

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644
www.bei-civilengineering.com

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. 21443, Expiration Date: 12-21-2008

STATE OF MARYLAND DONALD ALAN MASON No. 21443 PROFESSIONAL ENGINEER

Donald Mason 4/7/08

OWNER/DEVELOPER:	PROJECT: MEADOWRIDGE BUSINESS PARK PARCEL S-1 OFFICE BUILDING	
INNERVATE I LLC 8015C DORSEY RUN ROAD JESSUP, MARYLAND 20794 410-799-9415	LOCATION: TAX MAP 43 – GRID 4, PARCEL 362 AND 375, 1st ELECTION DISTRICT, HOWARD COUNTY, MARYLAND	
	TITLE: SEDIMENT AND EROSION CONTROL PLAN AND SOILS AND LANDSCAPE PLAN	
	DATE: MAY, 2007 / JANUARY, 2008	PROJECT NO. 1989
Design: DAM · Draft: EDD · Check: DAM	SCALE: AS SHOWN	DRAWING 2 OF 6

SDP-07-117

PERMANENT SEEDING NOTES

Apply to graded or cleared area not subject to immediate further disturbance where a permanent long-lived vegetative cover is needed.

Seedbed Preparation: Loosen upper three inches of soil be raking, discing or other acceptable means before seeding. (If not previously loosened)

Soil Amendments: In lieu of soil test recommendations, use on the following schedules.

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

2) Acceptable – Apply 2 tons per acre dolomitic limestone (92 lbs/1000 sf) and 1000 lbs per acre 10–10–10 fertilizer (23 lbs/1000 sf) before seeding. Harrow or disc into upper three inches of soil.

Seeding: For the periods March 1 through April 30 and August 1 through October 15, seed with 60 lbs per acre (1.4 lbs/1000 sf) of Kentucky 31 Tall Fescue. For the period May 1 through July 31, seed with 60 lbs Kentucky 31 Tall Fescue per acre and 2 lbs per acre (0.05 lbs/1000 sf) of Weeping Lovegrass. During the period of October 16 through 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/acre Kentucky 31 Tall Fescue and mulch with 2 tons/acre well anchored straw.

Mulching: Apply 1–1/12 to 2 tons per acre (70 to 90 lbs/1000 sf) 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 sf) of emulsified asphalt on flat areas. On slopes 8 feet or higher, use 348 gallons per acre (8 gal/1000 sf) for anchoring.

Maintenance: Inspect all seeded areas and make needed repairs, replacements and reseedings.

TEMPORARY SEEDING NOTES

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

Seedbed Preparation: Loosen upper three inches of soil by raking, discing or other acceptable means before seeding. (If not previously loosened)

Soil Amendments: Apply 600 lbs per acre 10–10–10 fertilizer (14 lbs/1000 sf).

Seeding: For periods March 1 through April 30 and from August 15 through November 15, seed with 2–1/2 bushel per acre of annual rye (3.2 lbs/1000 sf). For the period May 1 through August 14, seed with 3 lbs per acre of Weeping Lovegrass (0.07 lbs/1000 sf). For the period November 16 through 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/1000 sf) 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 sf) of emulsified asphalt on flat areas. On slopes 8 feet or higher, use 348 gallons per acre (8 gal/1000 sf) for anchoring.

Refer to the 1994 Maryland Standards and Specifications for Soil Erosión and Sediment Control for rate and methods not covered.

SEDIMENT CONTROL NOTES

1. A minimum of 48 hours notice must be given to the Howard County Department of Inspections and Permits,Sediment Control Division prior to the start of any construction (313–1855).
2. All vegetative and structural practices are to be installed accordingly 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 disturbances 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 calendar 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 12, of the "Howard County Design Manual, Storm Drainage".
5. All disturbed areas must be stabilized within the time period specified above in accordance with the "1994 Maryland Standards and Specifications for Soil Erosion and Sediment Control" for Permanent Seedings (Sec. 51) Sod (Sec. 54), Temporary Seeding (Sec. 50) and Mulching (Sec. 52). 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:.....0.62 AC±
   Area to be Disturbed:.....0.69± acres
   Area to be roofed or paved:.....0.47± acres
   Area to be vegetatively stabilized:.....0.22± acres
   Total Cut:.....1004 C.Y.
   Total Fill:.....1587 C.Y.
   Offsite Waste/Borrow Area Location : 583 C.Y. Borrow
8. Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
9. Additional sediment controls must be provided, if deemed necessary by the Howard County DPW 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.
12. Quantities and estimates shown are for sediment control purposes only. Contractor shall prepare his/her own quantity estimates to his/her satisfaction.

* It is the responsibility of the contractor to identify the spoil/borrow site and notify and gain approval from the sediment control inspector of the site and it's grading permit number at the time of construction.

BY THE DEVELOPER:

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

DEVELOPER – INNERVATE I LLC. DATE 4/7/08

BY THE ENGINEER:

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

ENGINEER – DONALD A. MASON, P.E. # 21443 DATE 4/7/08

REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS:

HOWARD SOIL CONSERVATION DISTRICT DATE 4-24-08

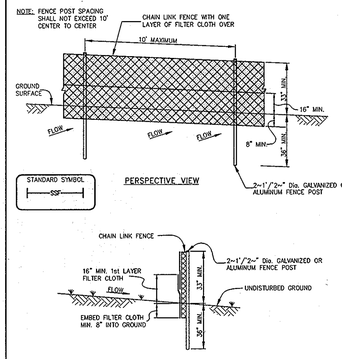
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE 4/28/08

CHIEF, DIVISION OF LAND DEVELOPMENT DATE 5/2/08

DIRECTOR DATE 5/5/08

DETAIL 33 – SUPER SILT FENCE



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

SUPER SILT FENCE

CONSTRUCTION SPECIFICATIONS

1. Fencing shall be 42" in height and constructed in accordance with the latest Maryland State Highway Details for Chain Link Fencing. The specification for a 6' fence shall be used, substituting 42" fabric and 6' length posts.
2. Chain link fence shall be fastened securely to the fence posts with wire ties. The lower tension wire, brace and truss rods, drive anchors and post caps are not required except on the ends of the fence.
3. Filter cloth shall be fastened securely to the chain link fence with ties spaced every 24" at the top and mid section.
4. Filter cloth shall be embedded a minimum of 8" into the ground.
5. When two sections of filter cloth odjoin each other, they shall be overlapped by 6" and folded.
6. Maintenance shall be performed as needed and silt buildups removed when "bulges" develop in the sill fence, or when sill reaches 50% of fence height
7. Filter cloth shall be fastened securely to each fence post with wire ties or staples at top and mid section and shall meet the following requirements for Geotextile Class F:

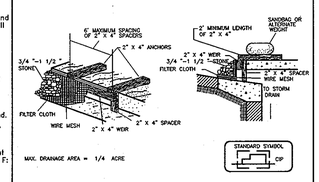
Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal/ft /minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

SUPER SILT FENCE DESIGN CRITERIA

Slope	Slope Steepness	Slope Length (maximum)	Silt Fence Length (maximum)
0 – 10%	0 – 10:1	Unlimited	Unlimited
10 – 20%	10:1 – 5:1	200 feet	1,500 feet
20 – 33%	5:1 – 3:1	100 feet	1,000 feet
33 – 50%	3:1 – 2:1	100 feet	500 feet
50% +	2:1 +	50 feet	250 feet

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

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

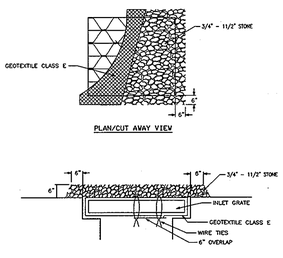


Construction Specifications

1. Attach a continuous piece of wire mesh (30" minimum width by throat length plus 4") to the 2" x 4" weir (measuring throat length plus 2") as shown on the standard drawing.
2. Place a continuous piece of Geotextile Class E the same dimensions as the wire mesh over the wire mesh and securely attach it to the 2" x 4" weir.
3. Securely nail the 2" x 4" weir to a 9" long vertical spacer to be located between the weir and the inlet face (max. 4' apart).
4. Place the assembly against the inlet throat and nail (minimum 2" lengths of 2" x 4" to the top of the weir at spacer locations). These 2" x 4" anchors shall extend across the inlet top and be held in place by sandbags or alternate weight.
5. The assembly shall be placed so that the end spacers are a minimum 1' beyond both ends of the throat opening.
6. Form the 1/2 " x 1/2 " wire mesh and the geotextile fabric to the concrete gutter and against the face of the curb on both sides of the inlet. Place clean 3/4 " x 1 1/2 " stone over the wire mesh and geotextile in such a manner to prevent water from entering the inlet under or around the geotextile.
7. This type of protection must be inspected frequently and the filter cloth and stone replaced when clogged with sediment.
8. Assure that storm flow does not bypass the inlet by installing a temporary earth or asphalt dike to direct the flow to the inlet.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE | PAGE E – 16 – 5B | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 23B – AT GRADE INLET PROTECTION

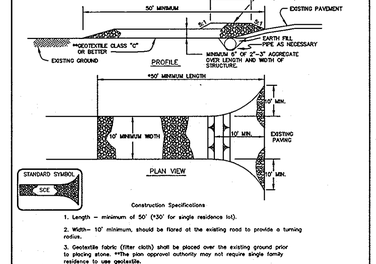


Construction Specifications

1. Lift grate and wrap with Geotextile Class E to completely cover all openings, then set grate back in place.
2. Place 3/4" to 11/2" stone, 4"–6" thick on the grate to secure the fabric and provide additional filtration.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE | PAGE E – 18 – 5A | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 24 – STABILIZED CONSTRUCTION ENTRANCE



Construction Specifications

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 residence 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 mounted 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

TOPSOIL SPECIFICATIONS

I. Topsoil salvaged from the existing site may be used provided that it meets that 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 texture 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, quack grass, Johnson grass, 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 or 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 in 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 distributed 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.

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

SEQUENCE OF CONSTRUCTION

DAY 1 OBTAIN GRADING PERMIT. CONTACT MISS UTILITY AND THE HOWARD COUNTY CONSTRUCTION INSPECTION DIVISION.

DAY 2–4 CLEAR AND GRUB FOR SEDIMENT CONTROL DEVICES, INSTALL STABILIZED CONSTRUCTION ENTRANCE, AND SUPER SILT FENCE. PROTECTIVE FENCING WILL BE PLACED AROUND VEGETATION TO REMAIN ON SITE PRIOR TO CLEARING, GRUBBING ANS MASS GRADING OF THE SITE. CONTRACTOR MUST OBTAIN PERMISSION OF INSPECTOR PRIOR TO PROCEEDING TO NEXT STEP.

DAY 5–7 CLEAR AND GRUB REMAINDER OF SITE.

DAY 8–13 MASS GRADE SITE.

DAY 14–24 WITH THE PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, INSTALL STORM DRAINS AND INLET PROTECTION WATER, SEWER AND UTILITIES AND STABILIZE IN ACCORDANCE WITH TEMPORARY SEEDING NOTES.

DAY 25–85 GRADE BUILDING PAD AND COMMENCE BUILDING CONSTRUCTION.

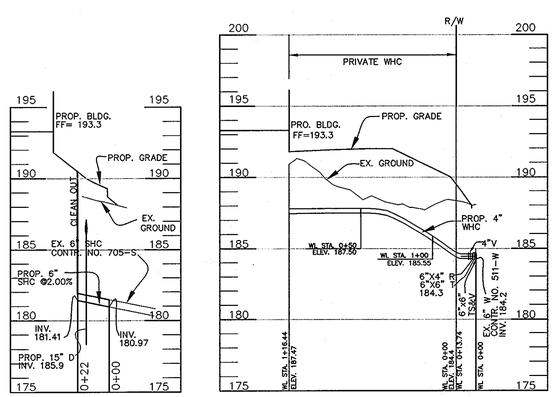
DAY 86–90 INSTALL CURB AND GUTTER.

DAY 91–93 INSTALL PAVING FOR PARKING LOT.

DAY 94–95 FINAL GRADE REMAINDER OF SITE AND PERMANENTLY STABILIZE.

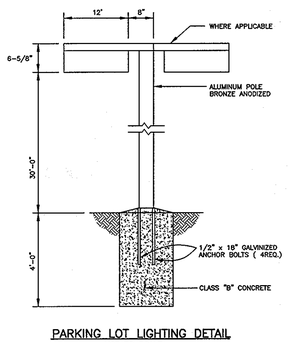
DAY 96–98 INSTALL REQUIRED LANDSCAPING AS SPECIFIED ON THE LANDSCAPE PLAN.

DAY 99–102 UPON APPROVAL OF HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, REMOVE REMAINING SEDIMENT CONTROL DEVICES CONVERT SEDIMENT BASIN TO PERMANENT SWM FACILITY AND PERMANENTLY STABILIZE.



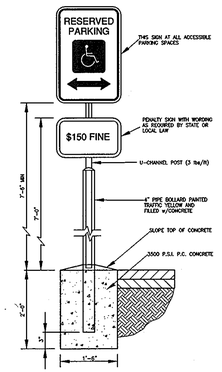
6"SHC PROFILE
SCALE: HORIZ. 1" = 50'
VERT. 1" = 5'

4"WHC PROFILE
SCALE: HORIZ. 1" = 50'
VERT. 1" = 5'



PARKING LOT LIGHTING DETAIL
NOT TO SCALE

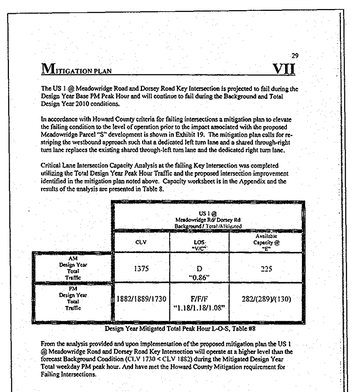
NOTES:
1) ALL LIGHT FIXTURES TO BE 250 WATT HIGH PRESSURE SODIUM VAPOR FULL CUTOFF TYPE WITH METAL POLES AND DIRECTED DOWNWARD.
2) LOCATION OF LIGHT FIXTURES ARE ON THE PLAN AND SHOWN AS ■+■



POLE MOUNTED DETAIL

HANDICAP PARKING SIGN DETAIL
NOT TO SCALE

MITIGATION PLAN



MITIGATION PLAN

29

MITIGATION PLAN VII

The US 1 @ Meadowridge Road and Dorsey Road Key Intersection is projected to fail during the Design Year Base PM Peak Hour and will continue to fail during the Background and Total Design Year 2010 conditions.

In accordance with Howard County criteria for failing intersections a mitigation plan to elevate the failing condition to the level of operation prior to the impact associated with the proposed Meadowridge Parcel "S" development is shown in Exhibit 19. The mitigation plan calls for re-striping the westbound approach such that a dedicated left turn lane and a shared through/right turn lane replaces the existing shared through-left turn lane and the dedicated right turn lane.

Critical Lane Intersection Capacity Analysis at the failing Key Intersection was completed utilizing the Total Design Year Peak Hour Traffic and the proposed intersection improvement identified in the mitigation plan noted above. Capacity worksheet is in the Appendix and the results of the analysis are presented in Table 8.

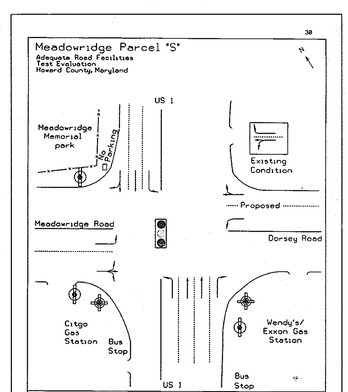
	US 1 @ Meadowridge Rd/ Dorsey Rd Background / Total Unbalanced		
	CLV	LOS. "VOC"	Available Capacity @ "X"
AM Design Year Total Traffic	1375	D "0.86"	225
PM Design Year Total Traffic	1883/1889/1730	F/F/F "1.181/1.191/.108"	282/(289)/(130)

Design Year Mitigated Total Peak Hour LOS, Table #8

From the analysis provided and upon implementation of the proposed mitigation plan the US 1 @ Meadowridge Road and Dorsey Road Key Intersection will operate at a higher level than the forecast Background Condition (CLV 1730 < CLV 1882) during the Mitigated Design Year Total weekday PM peak hour. And have met the Howard County Mitigation requirement for Failing Intersections.

ADEQUATE ROAD FACILITIES TEST EVALUATION, MEADOWRIDGE PARCEL "S".

MARS GROUP



NO.	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410–465–6105 FAX: 410–465–6644
www.bei–civilengineering.com

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. 21443, Expiration Date: 12-21-2008.
STATE OF MARYLAND DONALD ALAN MASON No. 21443 PROFESSIONAL ENGINEER
4/7/08

OWNER/DEVELOPER:
INNERVATE I LLC
8015C DORSEY RUN ROAD
JESSUP, MARYLAND 20794
410–799–9415

PROJECT: MEADOWRIDGE BUSINESS PARK PARCEL S–1 OFFICE BUILDING

LOCATION: TAX MAP 43 – GRID 4 PARCEL 362 AND 375 1st ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE: SEDIMENT CONTROL NOTES AND DETAILS, WHC AND SHC PROFILES

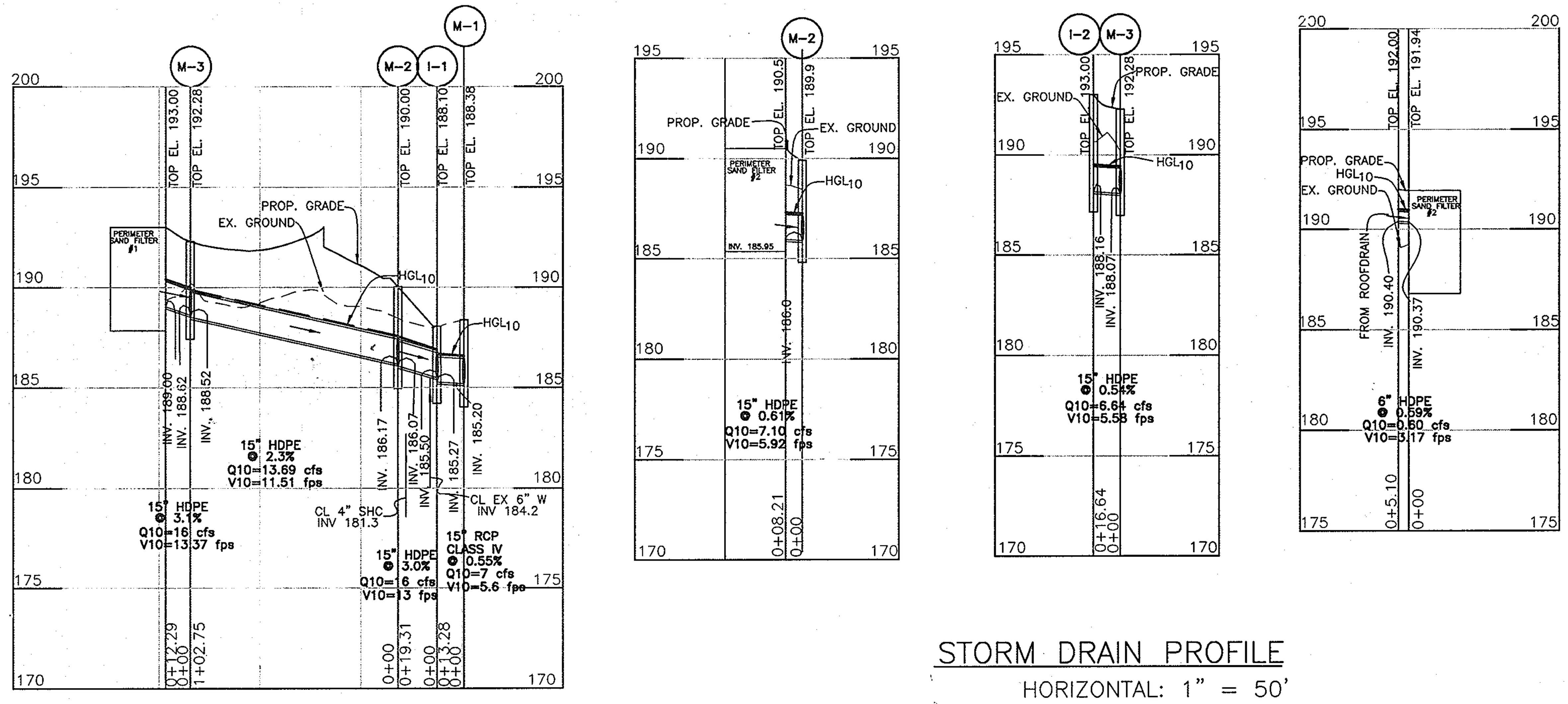
DATE: MAY, 2007 / JANUARY, 2008 PROJECT NO. 1989

SCALE: AS SHOWN DRAWING 3 OF 6

Design: DAM Draft: EDD Check: DAM

SDP–07–117

P:\1989 MEADOWRIDGE PAR S\dwg\802\sc2-3.dwg, 4/7/2008 11:06:36 AM, Oce TDS600 HDI for mylar.pc3

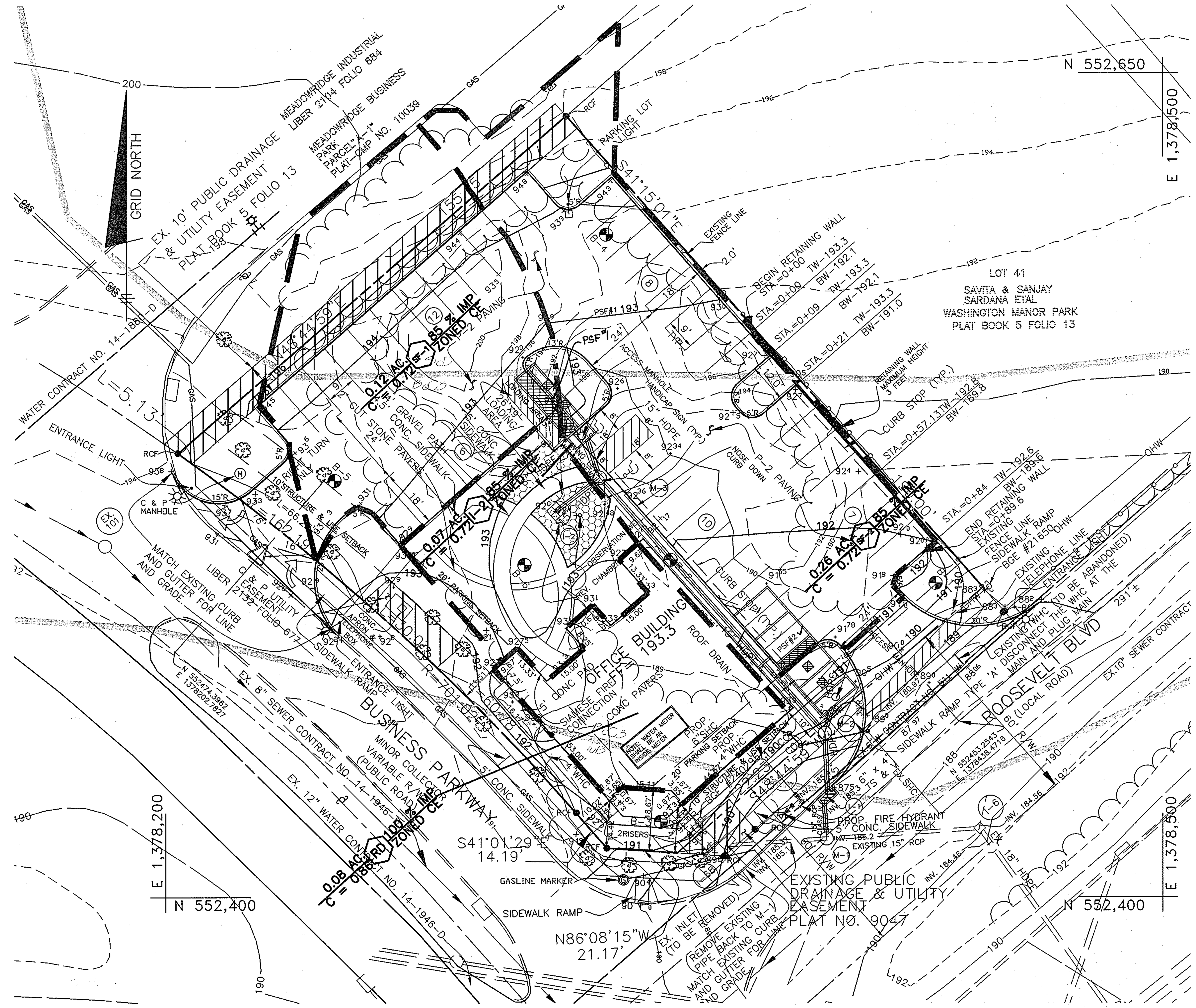


STORM DRAIN PROFILE

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

NOTE:–

THE CONTRACTOR SHALL CONFIRM THE LOCATION AND ELEVATION OF THE WATER MAIN PRIOR TO CONSTRUCTION OF THE STORM DRAIN BETWEEN I–1 AND M–2. THE CONTRACTOR SHALL TEST PIT THE LOCATION OF THE WATER MAIN TO DETERMINE THE LOCATION AND ELEVATION OF THE MAIN. ANY DISCREPANCIES BETWEEN THE ACTUAL LOCATION AND ELEVATION OF THE WATER MAIN AND THE LOCATION AND ELEVATIONS SHOWN ON THE PLAN SHALL BE REPORTED TO THE ENGINEER IMMEDIATELY. ANY RELOCATION OF THE WATER MAIN SHALL REQUIRE WRITTEN VERIFICATION THAT A REDLINE REVISION HAS BEEN APPROVED FOR THE VERTICAL RELOCATION OF THE WATER LINE PRIOR TO CONSTRUCTION OF THE STORM DRAIN.



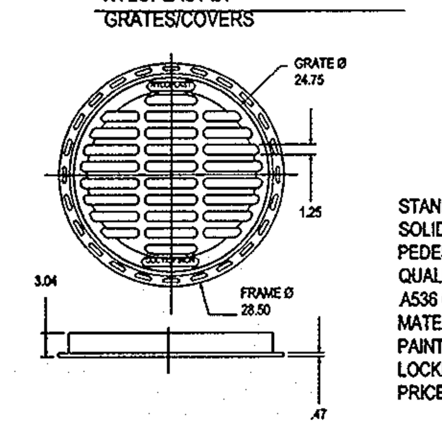
PLAN

SCALE: 1" = 20'

LEGEND

EXISTING CONTOURS	999
PROPOSED CONTOURS	999
PROPOSED STRUCTURE	▭
PROP. DRAINAGE AREA	▬ ▬
SOIL CLASSIFICATION	▨
EXISTING TREE LINE	⌒⌒⌒
PUBLIC UTILITY EASEMENT	▨
HANDICAP STRIPPING	▨
LOADING AREA	▨
PROPOSED SWMF	⬡
HANDICAPPED SPACE	♿
PROP. FIRE HYDRANT	⋈
LIGHTING POLES	☼
PARKING LOT LIGHT	⊡

NYLOPLAST 24" GRATES/COVERS



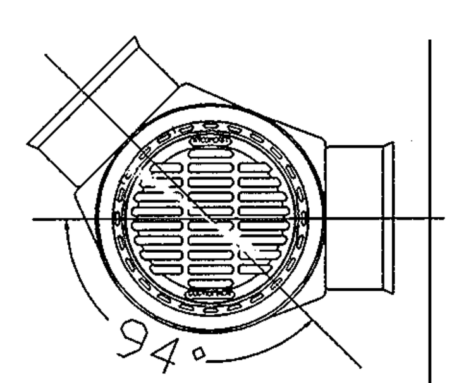
STANDARD

APPROX. DRAIN AREA = 194.60 SQ. IN.
APPROX. WEIGHT WITH FRAME = 124.00 LBS.

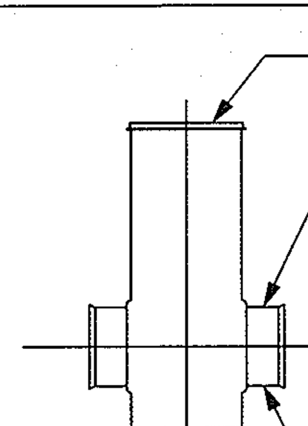
STANDARD GRATE HAS H-25 HEAVY DUTY RATING
SOLID COVER HAS H-25 HEAVY DUTY RATING
PEDESTRIAN GRATE HAS H-10 MEDIUM DUTY RATING
QUALITY: MATERIALS SHALL CONFORM TO ASTM A536 GRADE 70-50-05
MATERIAL: DUCTILE IRON
PAINT: CASTINGS ARE FURNISHED WITH A BLACK PAINT
LOCKING DEVICE AVAILABLE UPON REQUEST
PRICE INCLUDES FRAME & GRATE/COVER

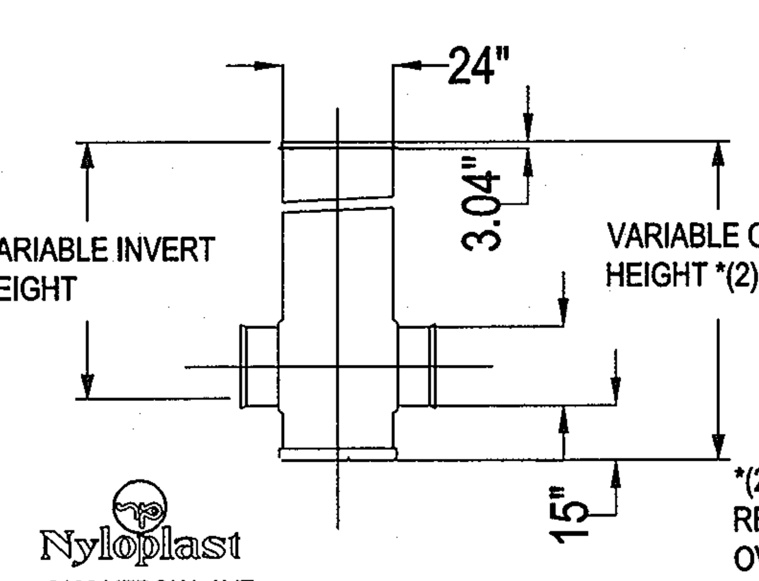
* SIZE OF OPENING MEETS REQUIREMENTS OF AMERICAN DISABILITY ACT AS STATED IN FEDERAL REGISTER PART III, DEPARTMENT OF JUSTICE, 28 CFR PART 36. NONDISCRIMINATION ON THE BASIS OF DISABILITY BY PUBLIC ACCOMMODATIONS AND IN COMMERCIAL FACILITIES; FINAL RULE.

*(1) ADAPTERS CAN BE MOUNTED ON ANY ANGLE 0|| TO 359|| . TO DETERMINE MINIMUM ANGLE BETWEEN ADAPTERS SEE DRAWING NO. 7001-110-013.



24" DRAIN BASIN





Nyloplast
3130 VERONA AVE
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www.nyloplast-us.com

PIPE SCHEDULE	
PIPE SIZE	LENGTH LF
15" HDPE	163
6" HDPE	19
15" RCP CLASS IV	10

SOILS LEGEND		
MAP SYMBOL	SOIL GROUP	SOIL TYPE
BeC3	C	BELTSVILLE SILT LOAM, 5 TO 10 PRCENT SLOPES, SEVERELY REODED
ScD	C	SANDY AND CLAYEY LAND, MODERAETLY ERODED
*IuB	C	IUKA LOAM, LOCAL ALLUVIUM, 1 TO 5 PERCENT SLOPES

* INDICATES HYDRIC SOILS
TAKEN FROM SOILS SURVEY, ISSUED JULY 1968, MAP NO. 30 &31

BENCH MARKS NAD '83	
HO. CO. 37IA	ELEV. 195.050
STAMPED DISC ON CONCRETE MONUMENT ROUTE 1 BY MEADOWRIDGE MEMORIAL PARK	
N 553,315.151	E 1,379,982.11
HO. CO. 43B2	ELEV. 209.601
STAMPED DISC ON CONCRETE MONUMENT BEING 15.55' FROM A C&P M.H. IN THE NORTH BOUND LANE OF ROUTE 1	
N 551,654.993	E 1,378,176.951

STRUCTURE SCHEDULE

STR. No.	LOCATION	TOP ELEV.	INV. IN	INV. IN	INV. OUT	TYPE	Ho. Co. STD.	REMARKS
I–1	N552431.6156 E1378398.0562	188.10	185.50	–	185.27	DOUBLE 'S' INLET		BRICK OR CAST IN PLACE
I–2	N552516.9910, E1378317.3340	193.0	–	–	188.16	YARD INLET		NYLOPLAST SEE DETAIL
M–1	N552417.7928, E1378398.6735	188.38	185.20	–	–	4' MANHOLE	G 5.12	–
M–2	N552449.8139, E1378398.0896	190.00	186.17 185.50	–	186.07	4' MANHOLE	G 5.12	–
M–3	N552527.1862, E1378330.4845	192.22	188.62	–	188.52	4' MANHOLE	G 5.12	–

NOTE: 1) ALL INLET TOP ELEVATIONS AND COORDINATES ARE AT THE TOP FACE OF CURB IN THE MIDDLE OF THE INLET.
2) ALL MANHOLE COORDINATES ARE TO THE CENTER OF THE MANHOLE.

ALL STORM DRAINS SHALL BE PRIVATELY OWNED AND MAINTAINED

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[illegible] 4/28/08
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

[illegible] 5/2/08
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

[illegible] 5/5/08
DIRECTOR — DATE

NO.	DATE	REVISION
1	8-7-09	REVISED PER AS-BUILT CONDITIONS

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
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ELLICOTT CITY, MARYLAND 21043
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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. 21443, Expiration Date: 12-21-2008

STATE OF MARYLAND — DONALD ALAN MASON — No. 21443 — PROFESSIONAL ENGINEER

[illegible] 4/7/08

OWNER/DEVELOPER:
INNERVATE I LLC
8015C DORSEY RUN ROAD
JESSUP, MARYLAND 20794
410-799-9415

PROJECT: MEADOWRIDGE BUSINESS PARK PARCEL S-1 OFFICE BUILDING

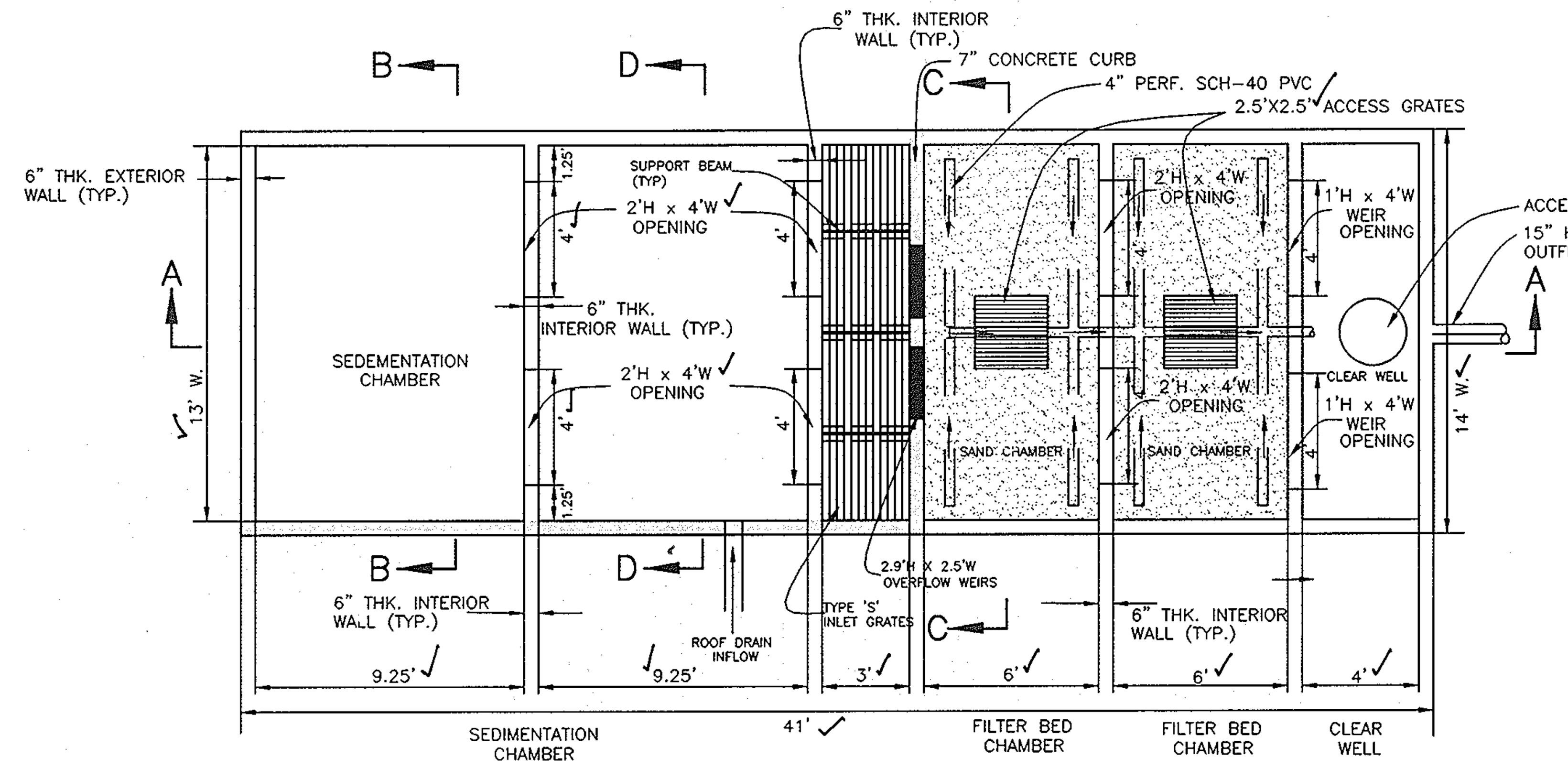
LOCATION: TAX MAP 43 – GRID 4, PARCEL 362 AND 375, 1st ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

TITLE: STORM DRAIN DRAINAGE AREA MAP (ON-SITE)

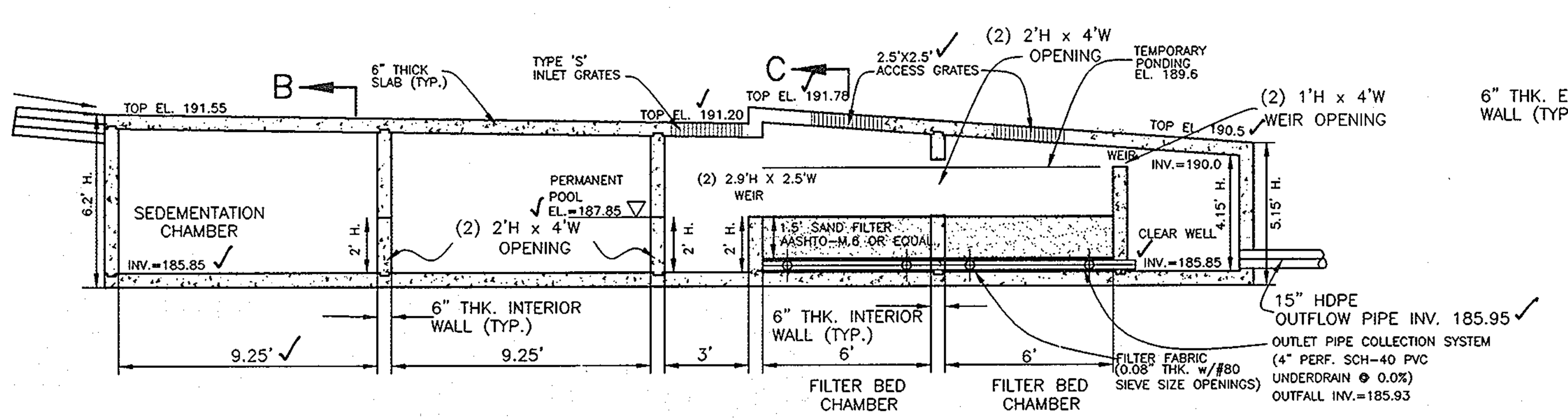
DATE: MAY, 2007 / JANUARY, 2008 — PROJECT NO. 1989

Design: DAM — Draft: EDD — Check: DAM — SCALE: AS SHOWN — DRAWING 4 OF 6

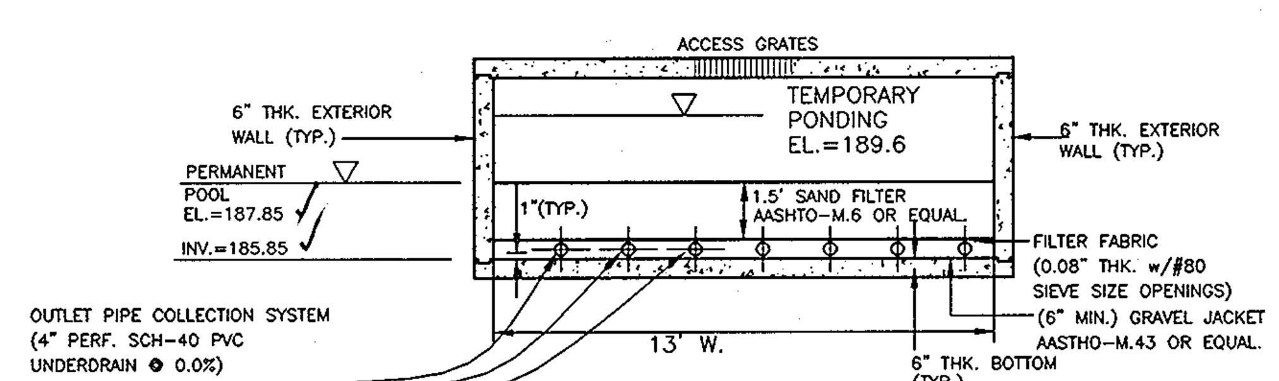
SDP-07-117



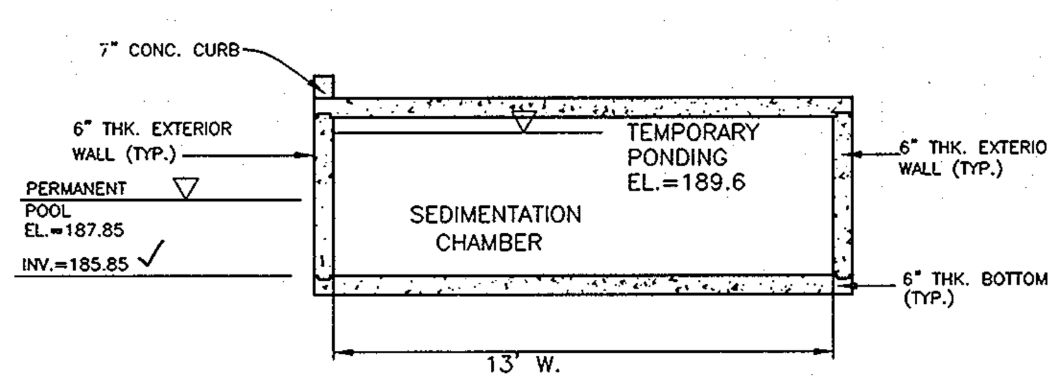
TOP VIEW



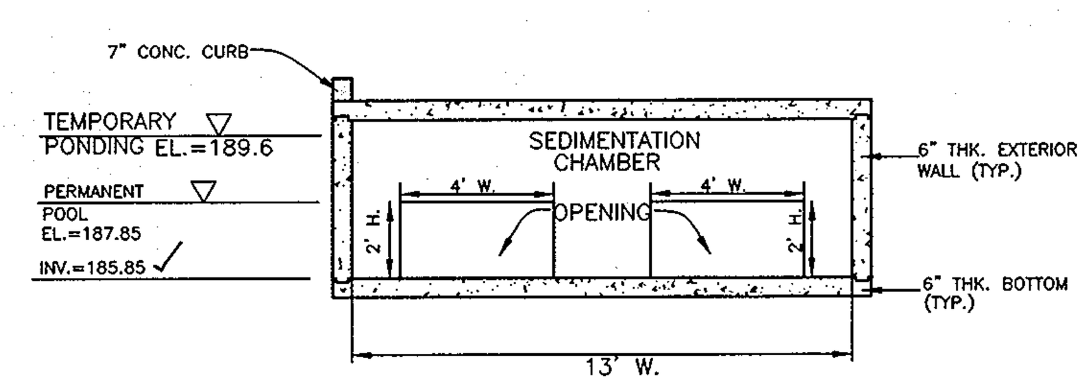
SECTION A-A
PROFILE



SECTION C-C
SIDE VIEW-CHAMBER



SECTION B-B
SIDE VIEW-CHAMBER



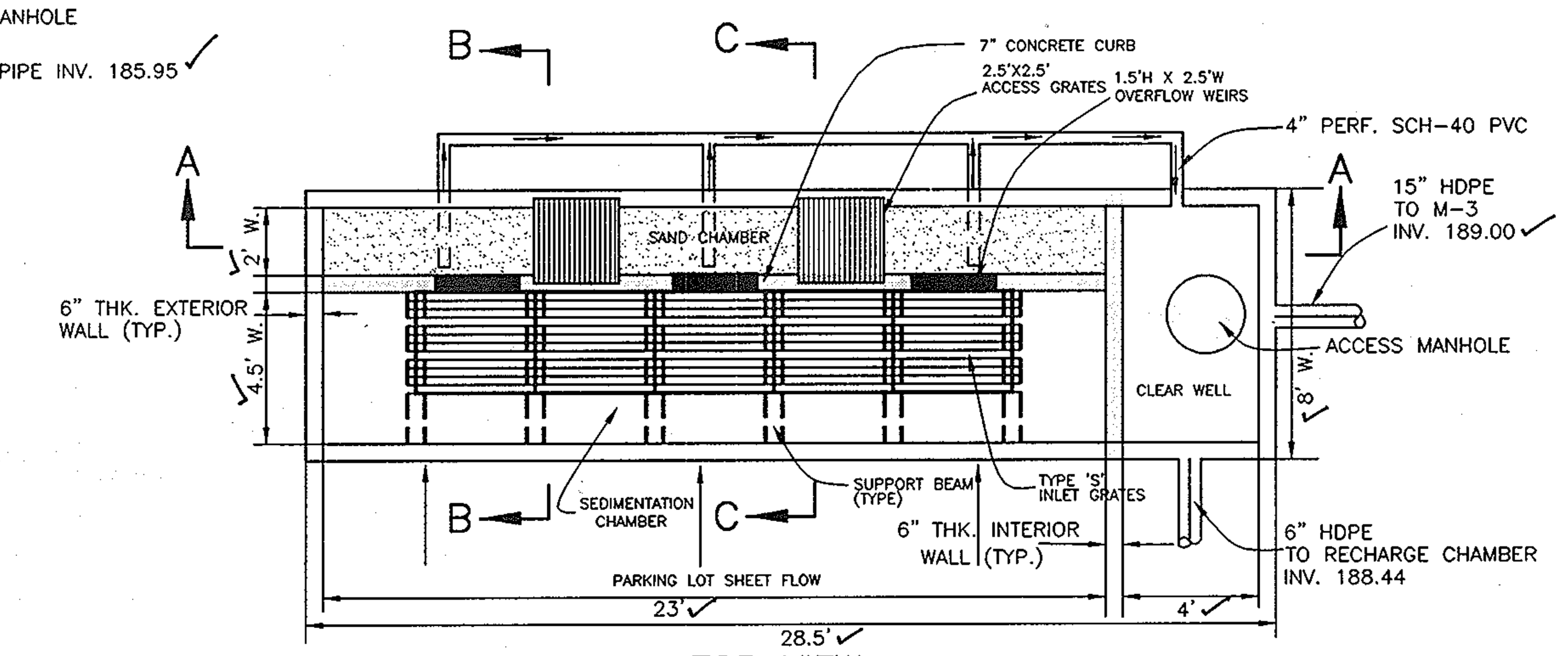
SECTION D-D
SIDE VIEW-CHAMBER

PERIMETER SAND FILTER#2

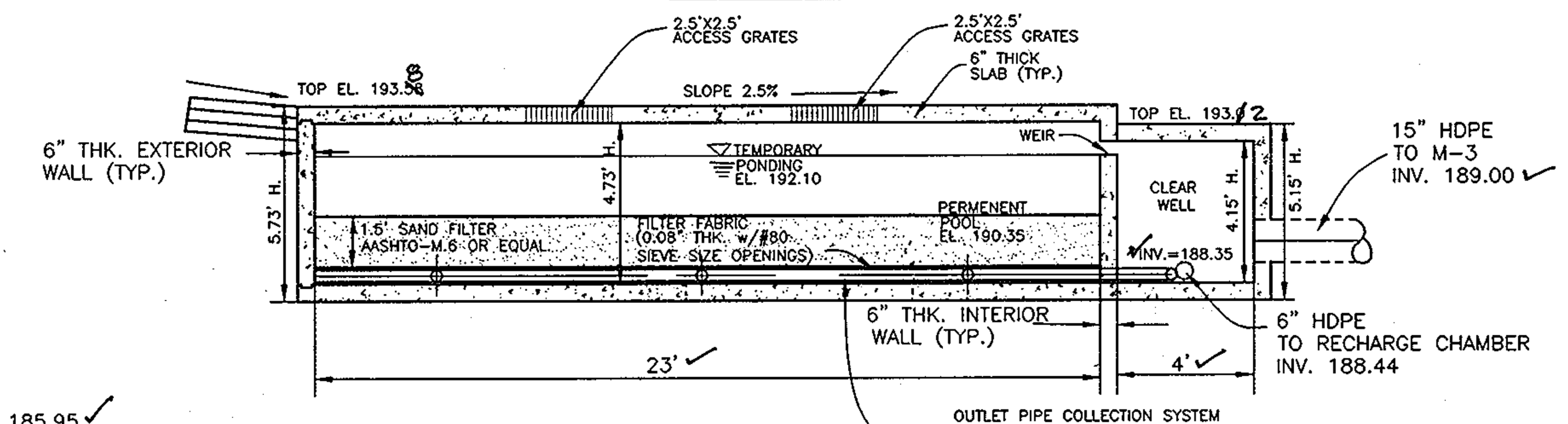
LOCATION: N 552,475.75 E 1,378,387.94

NOTE: REINFORCEMENT DESIGN FOR EACH SAND FILTER SHALL BE PREPARED BY A LICENSED STRUCTURAL ENGINEER IN THE STATE OF MARYLAND AND DESIGNED FOR HS25 LOADING.

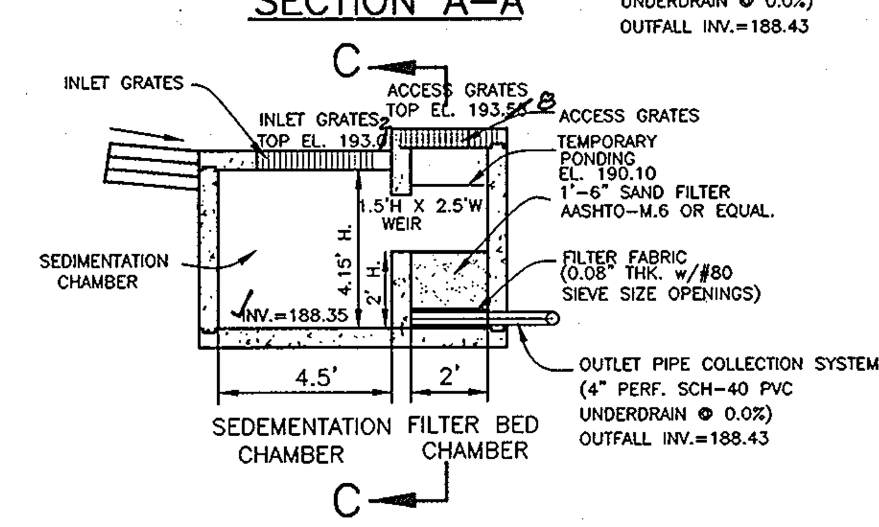
SCALE: 1" = 5'



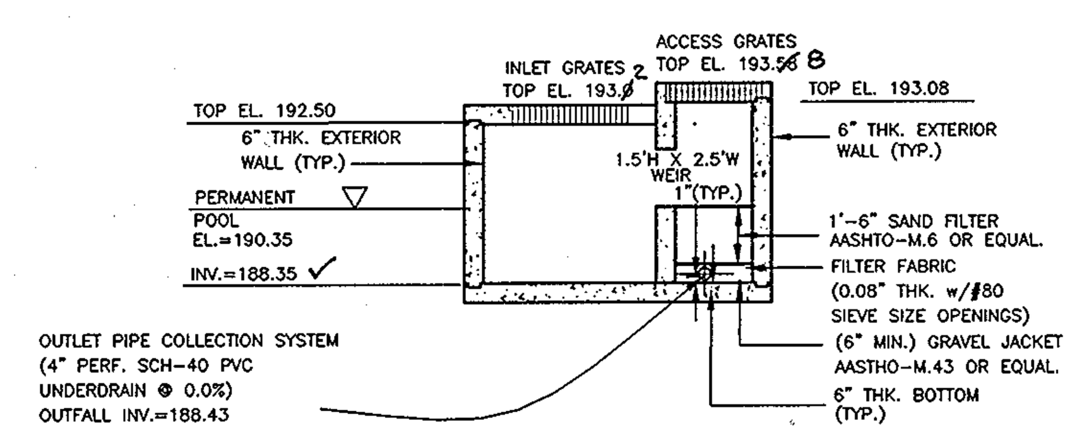
TOP VIEW



SECTION A-A



SECTION B-B
PROFILE



SECTION C-C
SIDE VIEW-CHAMBER

PERIMETER SAND FILTER#1

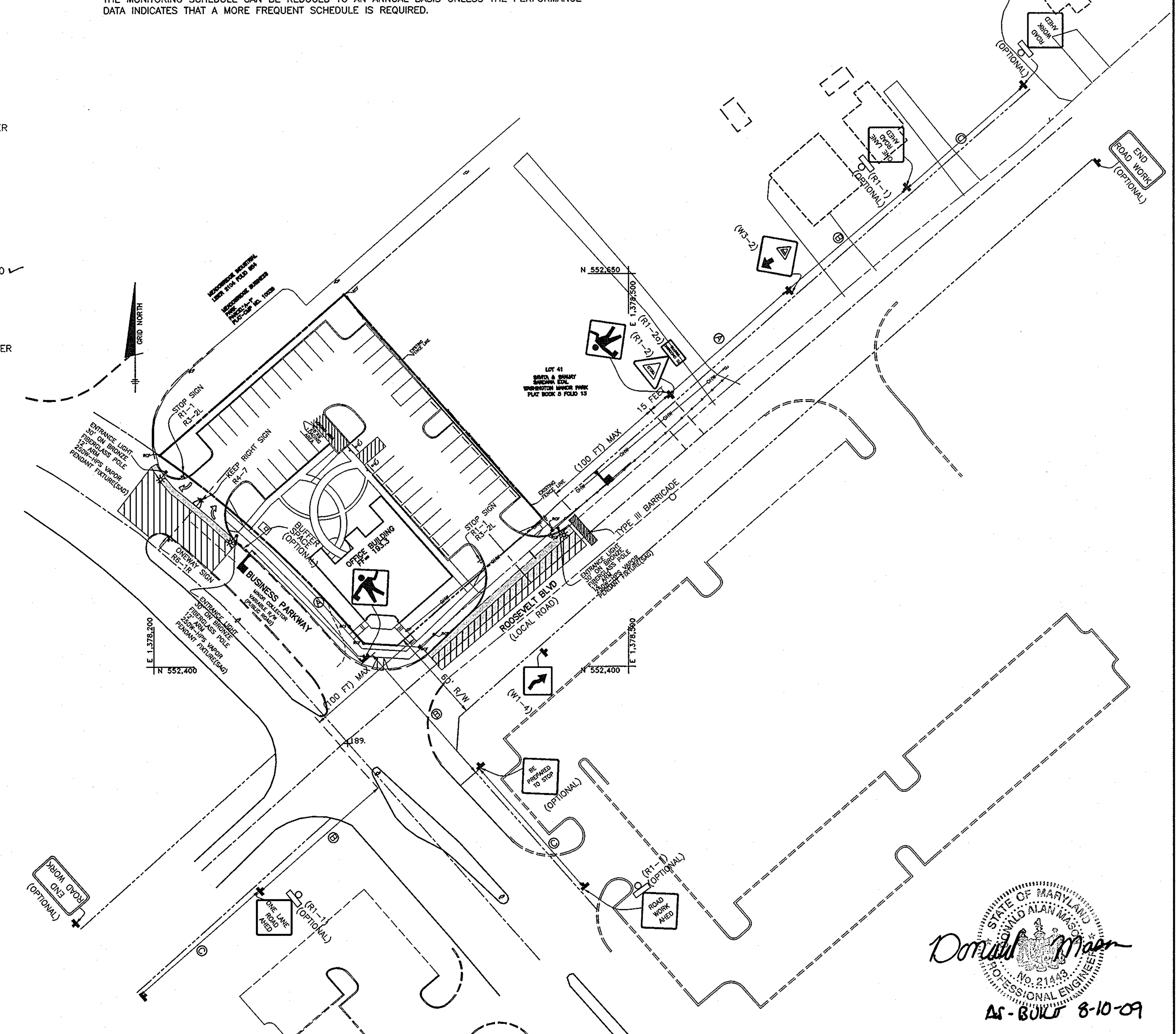
LOCATION: N 552,553.75 E 1,378314.17
SCALE: 1" = 5'

OPERATION & MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED UNDERGROUND STORMWATER FILTRATION SYSTEMS
SAND FILTER (WQv#1, WQv#2)

1. THE SEDIMENT CHAMBER OUTLET DEVICES SHALL BE CLEANED AND/OR REPAIRED WHEN DRAWDOWN TIMES WITHIN THE CHAMBER EXCEEDS 36 HOURS.
2. DEBRIS & LITTER SHALL BE REMOVED AS NECESSARY TO INSURE PROPER OPERATION OF THE SYSTEM.
3. SEDIMENT SHALL BE CLEANED-OUT OF THE SEDIMENTATION CHAMBER WHEN IT ACCUMULATES TO A DEPTH OF 6 INCHES.
4. WHEN WATER PONDS ON THE SURFACE OF THE FILTER BED FOR MORE THAN 72 HOURS, THE TOP FEW INCHES OF DISCOLORED MATERIAL SHALL BE REPLACED WITH FRESH MATERIAL. PROPER CLEANING AND DISPOSAL OF THE REMOVED MATERIALS & LIQUIDS MUST BE FOLLOWED BY THE OWNER.
5. A LOGBOOK SHALL BE MAINTAINED TO DETERMINE THE RATE AT WHICH THE FACILITY DRAINS.
6. THE MAINTENANCE LOGBOOK SHALL BE AVAILABLE TO HOWARD COUNTY FOR INSPECTION TO INSURE COMPLIANCE WITH OPERATION AND MAINTENANCE CRITERIA.
7. ONCE THE PERFORMANCE CHARACTERISTICS OF THE INFILTRATION SYSTEM HAVE BEEN VERIFIED, THE MONITORING SCHEDULE CAN BE REDUCED TO AN ANNUAL BASIS UNLESS THE PERFORMANCE DATA INDICATES THAT A MORE FREQUENT SCHEDULE IS REQUIRED.

TABLE B.3.1 MATERIALS AND SPECIFICATIONS FOR SAND FILTERS #1 & #2

MATERIAL	SPECIFICATION	SIZE	NOTES:
NON-REBAR STEEL	ASTM A-36	N/A	STRUCTURAL STEEL TO BE HOT-DIPPED GALVANIZED ASTM A-123
	PEA GRAVEL: ASTM D-448 ORNAMENTAL STONE: WASHED COBBLES	PEA GRAVEL: NO.6 STONE: 2" TO 5"	
GEOTEXTILE	APPARENT OPENING SIZE: (ASTM D-4751) GRAB TENSILE STRENGTH: (ASTM D-4632) PUNCTURE RESISTANCE: (ASTM D-4833)	0.8" THK. EQUIVALENT OPENING SIZE OF #80 SIEVE	MUST MAINTAIN 125 GPM / SQ. FT. FLOW RATE. NOTE: A PEA GRAVEL LAYER MAY BE SUBSTITUTED FOR GEOTEXTILES MEANT TO "SEPERATE" SAND FILTER LAYERS
UNDERDRAIN GRAVEL	AASHTO M-43	0.375" TO 0.750"	
UNDERDRAIN PIPING	F758, TYPE PS28 OR AASHTO M-278	4" TO 6" RIGID SCH.40 PVC OR SDR35	3/8" PERF. @ 6" O/C, 4 HOLES PER ROW; MINIMUM OF 3" OF GRAVEL OVER PIPES, NOT NECESSARY UNDERNEATH PIPES
POURED-IN-PLACE CONC. (IF REQUIRED)	MSHA MIX NO.3; f'c=3500psi @ 28 DAYS, NORMAL WEIGHT, AIR ENTRAINED; REINFORCING TO MEET ASTM 615-60	N/A	ON-SITE TESTING OF POURED-IN-PLACE CONC. REQUIRED; 28 DAY STRENGTH TEST AND SLUMP TEST; ALL CONC. DESIGN (CAST -IN-PLACE or PRE-CAST) NOT USING PREVIOUSLY APPROVED STATE OR LOCAL STANDARDS REQUIRES DESIGN DRAWINGS SEALED AND APPROVED BY A PROFESSIONAL STRUCTURAL ENGINEER LICENSED IN THE STATE OF MARYLAND.
SAND (2.0' DEEP)	AASHTO M-6 OR ASTM C-33	0.02" TO 0.04"	SAND SUBSTITUTIONS SUCH AS DIABASE AND GRAYSTONE#10 ARE NOT ACCEPTABLE. NO CALCIUM CARBONATED OR DOLOMITIC SAND SUBSTITUTIONS ARE ACCEPTABLE. NO "ROCK DUST" CAN BE USED FOR SAND



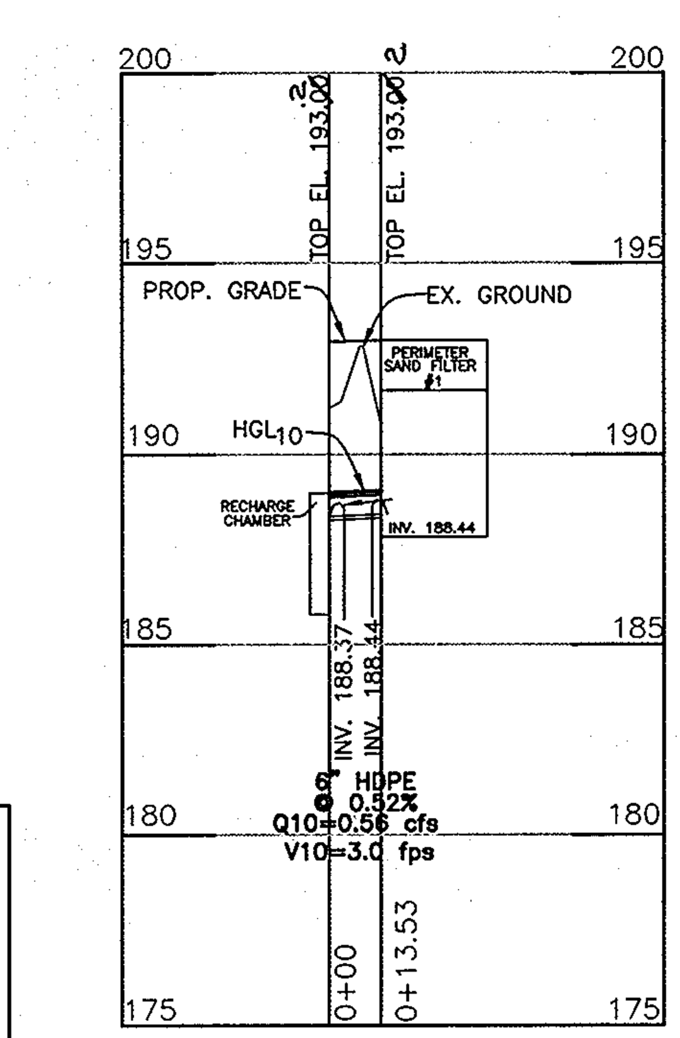
TRAFFIC CONTROL PLAN
SCALE: 1" = 50'

ROAD TYPE	DISTANCE BETWEEN SIGNS*		
	A	B	C
URBAN (LOW SPEED)	30(100)	30(100)	30(100)

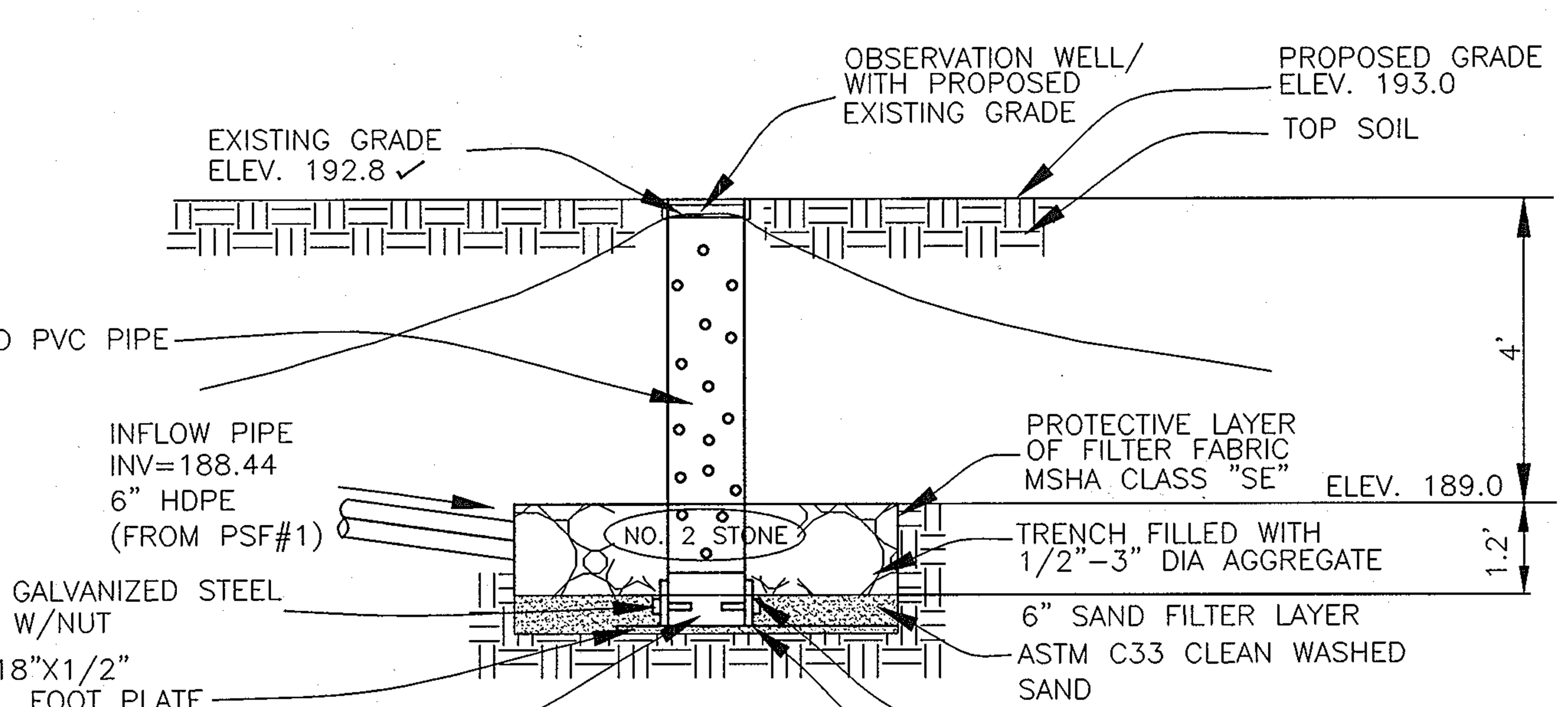
* DISTANCES ARE SHOWN IN METERS (FEET)

LEGEND

SIGN (SHOW FACING LEFT)
FLAGGER
ROAD NARROWS (W1-4)
FLAGGER AHEAD



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



RECHARGE CHAMBER
SCALE: 1" = 2'

BENCH MARKS NAD '83	
HO. CO. 371A	ELEV. 195.050
STAMPED DISC ON CONCRETE MONUMENT ROUTE 1 BY MEADOWRIDGE MEMORIAL PARK	
N 553,315.151	E 1,379,982.11
HO. CO. 43B2	ELEV. 209.601
STAMPED DISC ON CONCRETE MONUMENT BEING 15.55' FROM A C&P M.H. IN THE NORTH BOUND LANE OF ROUTE 1	
N 551,654.993	E 1,378,176.951

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/28/08
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/2/08
DIRECTOR — DATE 5/5/08

Donald Mason
AS-BUILT 8-10-09

NO.	DATE	REVISION
1	8-7-09	REVISED PER AS-BUILT CONDITIONS

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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. 21443, Expiration Date: 12-21-2008

STATE OF MARYLAND — DONALD ALAN MASON — No. 21443 — PROFESSIONAL ENGINEER
4/7/08

OWNER/DEVELOPER:
INNERVATE I LLC
8015C DORSEY RUN ROAD
JESSUP, MARYLAND 20794
410-799-9415

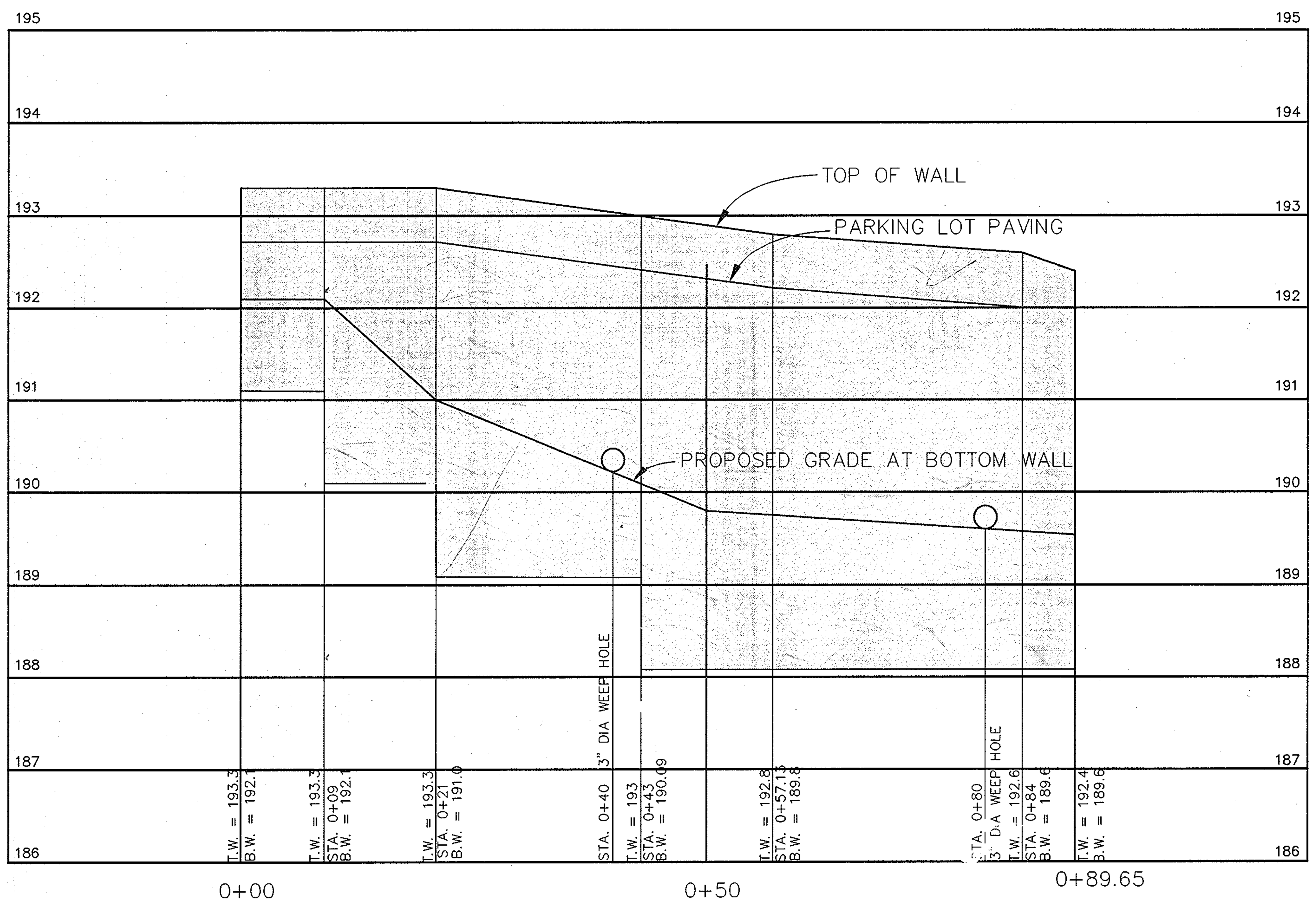
PROJECT: MEADOWRIDGE BUSINESS PARK
PARCEL S-1
OFFICE BUILDING

LOCATION: TAX MAP 43 – GRID 4
PARCEL 362 AND 375
1st ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: PERIMETER SAND FILTER NOTES, DETAILS AND TRAFFIC CONTROL PLAN

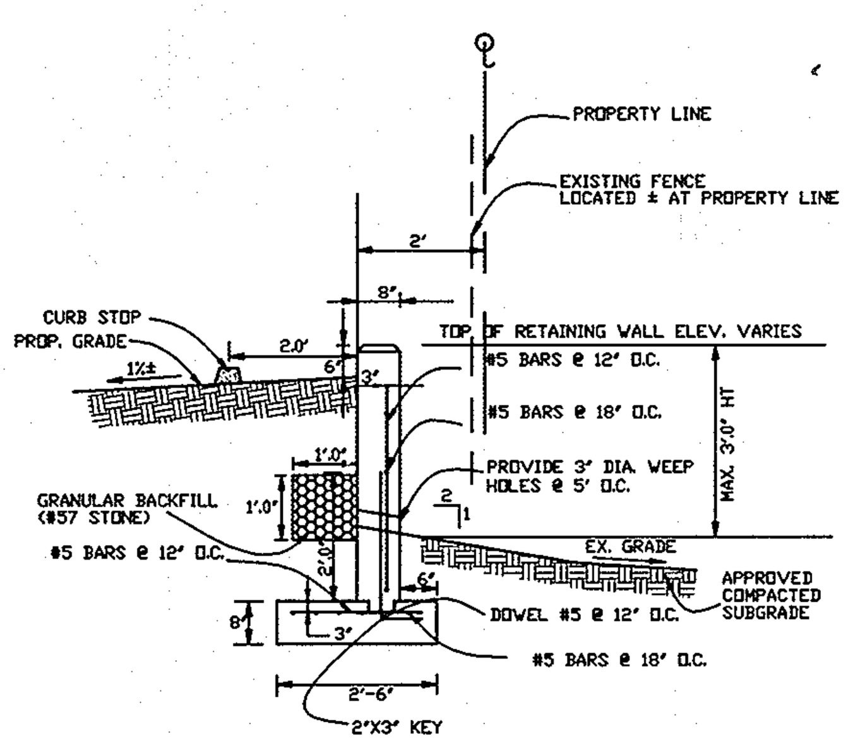
DATE:	MAY, 2007 / JANUARY, 2008	PROJECT NO.	1989
Design: DAM	Draft: EDD	Check: DAM	
SCALE:	AS SHOWN	DRAWING	5 OF 6

SDP-07-117



RETAINING WALL PROFILE

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



NOTES:

1. DIMENSION FROM CENTERLINE OF REINFORCEMENT TO EXPOSED FACE OF WALL
2. USE SHA MIX 6 CONCRETE.

RETAINING WALL CROSS SECTION

SCALE: 1" = 3'

CONSTRUCTION SPECIFICATIONS

These specifications are appropriate to all ponds within the scope of the Standard for practice MD-378. All references to ASTM and AASHTO specifications apply to the most recent version.

Site Preparation

Areas designated for borrow areas, embankment, and structural works shall be cleared, grubbed and stripped to topsoil. All trees, vegetation, roots and other objectionable material shall be removed. Channel banks and sharp breaks shall be sloped to no steeper than 1:1. All trees shall be cleared and grubbed within 15 feet of the toe of the embankment.

Areas to be covered by the reservoir will be cleared of all trees, brush, logs, fences, rubbish and other objectionable material unless otherwise designated on the plans. Trees, brush, and stumps shall be cut approximately level with the ground surface. For dry stormwater management ponds, a minimum of a 25-foot radius around the inlet structure shall be cleared.

All cleared and grubbed material shall be disposed of outside and below the limits of the dam and reservoir as directed by the owner or his representative. When specified, a sufficient quantity of topsoil will be stockpiled in a suitable location for use on the embankment and other designated areas.

Earth Fill

Material – The fill material shall be taken from approved designated borrow areas. If shall be free of roots, stumps, wood, rubbish, stones greater than 6", frozen or other objectionable material. Fill material for the center of the embankment, and cut off trench shall conform to Unified Soil Classification GC, SC, CH, or CL and must have at least 30 passing the #200 sieve. Consideration may be given to the use of other materials in the embankment if designed by a geotechnical engineer. Such special designs must have construction supervised by a geotechnical engineer.

Materials used in the outer shell of the embankment must have the capability to support vegetation of the quality required to prevent erosion of the embankment.

Placement – Areas on which fill is to be placed shall be scarified prior to placement of fill. Fill materials shall be placed in maximum 8 inch thick (before compaction) layers which are to be continuous over the entire length of the fill. The most permeable borrow material shall be placed in the downstream portions of the embankment. The principal spillway must be installed concurrently with fill placement and not excavated into the embankment.

Compaction – the movement of the hauling and spreading equipment over the fill shall be controlled so that the entire surface of each lift shall be traversed by not less than one tread track of heavy equipment or compaction shall be achieved by a minimum of four complete passes of a sheepsfoot, rubber tired or vibratory roller. Fill material shall contain sufficient moisture such that the required degree of compaction will be obtained with teh equipment used. The fill material shall contain sufficient moisture so that if formed into a ball it will not crumble, yet not be so wet that water can be squeezed out.

When required by the reviewing agency the minimum required density shall not be less than 95% of maximum dry density with a moisture content within ± 2
layer of fill shall be compacted as necessary to obtain that density, and is to be certified by the Engineer at the time of construction. All compaction is to be determined by AASHTO Method T-99 (Standard Proctor).

Cut Off Trench – The cutoff trench shall be excavated into impervious material along or parallel to the centerline of the embankment as shown on the plans. The bottom width of the trench shall be governed by the equipment used for excavation, with the minimum width being four feet. The depth shall be a least four feet below existing grade or as shown on the plans. The side slopes of the trench shall be 1 to 1 or flatter. The backfill shall be compacted with construction equipment, rollers, or hand tampers to assure maximum density and minimum permeability.

Embankment Core – The core shall be parallel to the centerline of the embankment as shown on the plans. The top width of the cores shall be a minimum of four feet. The height shall extend up to at least the 10 year water elevation or as shown on the plans. The side slopes shall be 1 to 1 or flatter. The core shall be compacted with construction equipment, rollers, or hand tampers to assure maximum density and minimum permeability. In addition, the core shall be placed concurrently with the outer shell of the embankment.

Structure Backfill

Backfill adjacent to pipes or structures shall be of the type and quality conforming to that specified for the adjoining fill material. The fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material needs to fill completely all spaces under and adjacent to the pipe. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a concrete structure or pipe, unless there is a compacted fill of 24" or greater over the structure or pipe.

Structure backfill may be flowable fill meeting the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 313 as modified. The mixture shall have a 100-200 psi; 28 day unconfined compressive strength. The flowable fill shall have a minimum pH of 4.0 and a minimum resistively of 2,000 ohm-cm. Material shall be placed such that a minimum of 6" (measured perpendicular to the outside of the pipe) of flowable fill shall be under (bedding), over and, on the sided of the pipe. It only needs to extend up to the spring line for rigid conduits. Average slump of the fill shall be 7" to assure flowability of the material. Adequate measures shall be taken (sand bags, etc.) to prevent floating the pipe. When using flowable fill, all metal pipe shall be bituminous coated. Any adjoining soil fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material shall completely fill all voids adjacent to the flowable fill zone. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a structure or pipe unless there is a compacted fill of 24' or greater over the structure or pipe. Backfill material outside the structural backfill (flowable fill) zone shall be of the type and quality conforming to that specified for the core of the embankment or other embankment materials.

Pipe Conduits

All pipes shall be circular in cross section

Corrugated Metal Pipe – all of the following criteria shall apply for corrugated metal pipe:

1. Materials – (Polymer Coated steel pipe) – Steel pipes with polymeric coatings shall bave a minimum coating thickness of 0.01 inch (10 mil) on both sides of the pipe. This pipe and its appurtenances shall conform to the requirements of AASHTO Specifications M-245 & M-246 with watertight coupling bands or flanges.

Maerials – (Aluminum Coated Steel Pipe) – This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-274 with watertight coupling bands or flanges. Aluminum Coated Steel Pipe, when used with flowable fill or when soil and/or water conditions warrant the need for increased durability, shall be fully bituminous coated per requirements of AASHTO Specification M-190 Type A. Any aluminum coating damaged or otherwise removed shall be replaced with cold applied bituminous coating compound. Aluminum surfaces that are to be in contact with concrete shall be painted with one coat of zinc chromate primer or two coats of asphalt.

Materials – (Aluminum Pipe) – This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-196 or M-211 with watertight coupling bands or flanges. Aluminum Pipe, when used with flowable fill or when soil and/or water conditions warrant for increased durability, shall be fully bituminous coated per requirements of AASHTO Specification M-190 Type A. Aluminum surfaces that are to be contact with concrete shall be painted with one coat of zinc chromate primer or two coats of asphalt. Hot dip galvanized bolts may be used for connections. The pH of the surrounding soils shall be between 4 and 9.

2. Coupling bands, anti-seep collars, end sections, etc., must be composed of the same material and coatings as the pipe. Metals must be insulated from dissimilar materials with use of rubber or plastic insulating materials at least 24 mils in thickness.

3. Connections – All connections with pipes must be completely watertight. The drain pipe or barrel connection to the riser shall be welded all around when the pipe and riser are metal. Anti-seep collars shall be connected to the pipe in such a manner as to be completely watertight. Dimple bands are not considered to be watertight.

All connection shall use a rubber or neoprene gasket when joining pipe sections. The end of each pipe shall be re-rolled an adequate number of corrugations to accommodate the bandwidth. The following type connections are acceptable for pipes less than 24 inches in diameter: flanges on both ends of the pipe with a circular 3/8 inch closed cell neoprene gasket, prepunched to the flange bolt circle, sandwiched between adjacent flanges; a 12-inch wide standard lap type band with 12-inch wide by 3/8-inch thick closed cell circular neoprene gasket; and a 12-inch wide hugger type band with o-ring gaskets having a minimum diameter of 1/2 inch greater than the corrugation depth. Pipes 24 inches in diameter and larger shall be connected by a 24 inch long annular corrugated band using a minimum of 4 (four) rods and lugs, 2 on each connecting pipe end. A 24-inch wide by 3/8-inch thick closed cell circular neoprene gasket will be installed with 12 inches on the end of each pipe. Flanged joints with 3/8 inch closed cell gaskets the full width of the flange is also acceptable.

Helically corrugated pipe shall have either continuously welded seams or have lock seams with internal caulking or a neoprene bead.

4. Bedding – The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.

5. Backfilling shall conform to "Structure Backfill ".

6. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

Reinforced Concrete Pipe – All of the following criteria shall apply for reinforced concrete pipe:

1. Materials – Reinforced concrete pipe shall have bell and spigot joints with rubber gaskets and shall equal or exceed ASTM C-361.

2. Bedding – Reinforced concrete pipe conduits shall be laid in a concrete bedding/cradle for their entire length. This bedding/cradle shall consist of high slump concrete placed under the pipe and up the sides of the pipe at least 50 % of its outside diameter with a minimum thickness of 6 inches. Where a concrete cradle is not needed for structural reasons, flowable fill may be used a described in the "Structure Backfill" section of this standard. Gravel bedding is not permitted.

3. Laying pipe – Bell and spigot pipe shall be places with the bell end upstream. Joints shall be made in accordance with recommendations of the manufacturer of the material. After the joints are sealed for the entire line, the bedding shall be placed so that all spaces under the pipe are filled. Care shall be exercised to prevent any deviation form the original line and grade of the pipe. The first joint must be located within 4 feet from the riser.

4. Backfilling shall conform to "Structure Backfill ".

5. Other details (anti-seep collars, valves, etc.) shall be shown on the drawings.

Plastic Pipe – The following criteria shall apply for plastic pipe:

1. Materials – PVC pipe shall be PVC-1120 or PVC-1220 conforming to ASTM D-1785 or ASTM D-2241. Corrugated High Density Polyethylene (HDPE) pipe, couplings and fittings shall conform to the following: 4' – 10" inch pipe shall meet the requirements of AASHTO M252 Type S, and 12" through 24" inch shall meet the requirements of AASHTO M294 Type S.

2. Joints and connections to anti-seep collars shall be completely watertight.

3. Bedding – The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.

4. Backfilling shall conform to "Structure Backfill ".

5. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

Drainage Diaphragms – When a drainage diaphragm is used, a registered professional engineer will supervise the design and construction inspection.

Concrete

Concrete shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 414, Mix No. 3.

Rock Riprap

Rock riprap shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 311.

Geotextile shall be placed under all riprap and shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 921.09, Class C.

Care of Water during Construction

All work on permanent structures shall be carried out in areas free from water. The contractor shall construct and maintain all temporary dikes, levees, cofferdams, drainage channels, and stream diversions necessary to protect the areas to be occupied by the permanent works. The contractor shall also furnish, install, operate, and maintain all necessary pumping and other equipment required for removal of water from various parts of the work and for maintaining the evacuations, foundation, and other parts of the work free from water as required or directed by the engineer for constructing each part of the work. After having served their purpose, all temporary protective works shall be removed or leveled and graded to the extent required to prevent obstruction in any degree whatsoever of the flow of water to the spillway or outlet works and so as not to interfere in any way with the operation or maintenance of the structure. Stream diversions shall be maintained until the full flow can be passed through the permanent works. The removal of water from the required excavation and the foundation shall be accomplished in a manner and to the extent that will maintain stability of the excavated slopes and bottom required excavations and will allow satisfactory performance of all construction operations. During the placing and compacting of material in required excavations, the water level at the location being refilled shall be maintained below the bottom of the excavation at such locations which may require draining the water sumps from which the water shall be pumped.

Stabilization

All borrow areas shall be graded to provide proper drainage and left in a sightly condition. All exposed surfaces of the embankment, spillway, spoil and borrow areas, and berms shall be stabilized by seeding, liming, fertilizing and mulching in accordance with the Natural Resources Conservation Service Standards and Specifications for Critical Area Planting (MD-342) or as shown on the accompanying drawings.

Erosion and Sediment Control

Construction operations will be carried out in such a manner that erosion will be controlled and water and air pollution minimized. State and local laws concerning pollution abatement will be followed. Construction plans shall detail erosion and sediment control measures.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Meadowridge Office — Boring No.: B-1
Location: Howard County, Maryland — Job #: 06775A

SAMPLER
Datum: — Hammer Wt.: 140 lbs. — Hole Diameter: 6" — Foreman: L. Smith
Surf. Elev.: 188.3 Ft. — Hammer Drop: 30 in. — Rock Core Diameter: — Inspector:
Date Started: 12/29/06 — Pipe Size: 2 in. — Boring Method: HSA — Date Completed: 12/29/06

Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	N
Brown to light gray, moist, medium stiff to stiff, silty clay (CL-ML; Possible FILL)	Gravel-2"	13"		4-5-5	10
		16"		7-10-12	22
Brown, moist, medium dense, clayey sand and gravel (GC-SC; Possible FILL)		12"		15-10-6	16
Light brown to greenish blue, damp to moist, stiff to hard, micaceous silt (ML)		18"		5-5-6	11
	Groundwater encountered @ 10.0' while drilling	18"		6-8-10	18
		17"		21-31-38	69
		18"		15-18-30	48
Bottom of boring @ 20.0'					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE
SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST
GROUND WATER: AT COMPLETION 5.0 ft.; AFTER 24 HRS. 1.0 ft.; AFTER ___ HRS. ___ ft.
CAVE IN DEPTH: AT COMPLETION 8.5 ft.; AFTER 24 HRS. 3.0 ft.
BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Meadowridge Office — Boring No.: B-2
Location: Howard County, Maryland — Job #: 06775A

SAMPLER
Datum: — Hammer Wt.: 140 lbs. — Hole Diameter: 6" — Foreman: L. Smith
Surf. Elev.: 188.9 Ft. — Hammer Drop: 30 in. — Rock Core Diameter: — Inspector:
Date Started: 12/29/06 — Pipe Size: 2 in. — Boring Method: HSA — Date Completed: 12/29/06

Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	N
Light brown, moist, medium stiff, clay, trace gravel and organics (CL; FILL)	Topsoil-2"	10"		1-2-5	7
Light gray, moist, stiff, clay (CL)		15"		4-5-7	12
Light gray, moist, loose to medium dense, clayey sand and gravel (GC-SC)		15"		7-4-5	9
Light brown, moist to damp, medium stiff to stiff, silty clay, trace sand (CL-ML)		17"		4-5-7	12
Bluish gray to green, moist, stiff to hard, sandy silt (ML)	Groundwater encountered @ 10.0' while drilling	17"		8-8-11	19
		14"		2-6-10	16
		16"		16-31-51	82
Bottom of boring @ 20.0'					

GROUND WATER: AT COMPLETION 5.0 ft.; AFTER 24 HRS. 4.0 ft.
CAVE IN DEPTH: AT COMPLETION 10.5 ft.; AFTER 24 HRS. 8.5 ft.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Meadowridge Office — Boring No.: B-3
Location: Howard County, Maryland — Job #: 06775A

SAMPLER
Datum: — Hammer Wt.: 140 lbs. — Hole Diameter: 6" — Foreman: L. Smith
Surf. Elev.: 188.3 Ft. — Hammer Drop: 30 in. — Rock Core Diameter: — Inspector:
Date Started: 12/29/06 — Pipe Size: 2 in. — Boring Method: HSA — Date Completed: 12/29/06

Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	N
Gray, moist, very soft, clay, trace organics (CL; FILL)	Topsoil-7"	13"		1-1-2	3
Gray, moist, stiff, clay, trace to some sand (CL)		18"		8-8-9	17
		16"		3-5-7	12
Light brown, moist, stiff, silt (ML)	Groundwater encountered @ 7.0' while drilling	18"		4-6-9	15
Dark gray to greenish gray, moist, stiff, micaceous sandy silt (ML)		18"		5-8-11	19
		18"		8-14-15	29
		15"		8-10-13	23
Bottom of boring @ 20.0'					

GROUND WATER: AT COMPLETION 5.0 ft.; AFTER 24 HRS. - ft.
CAVE IN DEPTH: AT COMPLETION 7.0 ft.; AFTER 24 HRS. - ft.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Meadowridge Office — Boring No.: B-5
Location: Howard County, Maryland — Job #: 06775A

SAMPLER
Datum: — Hammer Wt.: 140 lbs. — Hole Diameter: 6" — Foreman: L. Smith
Surf. Elev.: 194.9 Ft. — Hammer Drop: 30 in. — Rock Core Diameter: — Inspector:
Date Started: 12/29/06 — Pipe Size: 2 in. — Boring Method: HSA — Date Completed: 12/29/06

Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	N
Brown, moist, medium stiff to stiff, sandy clay, trace gravel and organics (CL; FILL)	Topsoil-5" No groundwater encountered while drilling	7"		2-2-4	6
		17"		4-5-6	11
		18"		5-4-5	9
Light brown, moist, medium stiff, clayey silt, trace sand (ML-CL)		14"		3-4-6	10
		18"		3-5-5	10
Bottom of boring @ 11.5'					

GROUND WATER: AT COMPLETION Dry ft.; AFTER 24 HRS. 4.0 ft.
CAVE IN DEPTH: AT COMPLETION 7.5 ft.; AFTER 24 HRS. 4.5 ft.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Meadowridge Office — Boring No.: B-6
Location: Howard County, Maryland — Job #: 06775A

SAMPLER
Datum: — Hammer Wt.: 140 lbs. — Hole Diameter: 6" — Foreman: L. Smith
Surf. Elev.: 190.5 Ft. — Hammer Drop: 30 in. — Rock Core Diameter: — Inspector:
Date Started: 12/29/06 — Pipe Size: 2 in. — Boring Method: HSA — Date Completed: 12/29/06

Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	N
Light brown, moist, soft to stiff, clay, trace organics, none to trace gravel (CL; FILL)	Topsoil-5" No groundwater encountered while drilling	8"		1-2-2	4
		10"		4-5-6	11
Light gray, moist, stiff, sandy gravelly clay (CL; Possible FILL)		15"		5-8-8	16
Light brown, damp, stiff, silty clay (CL-ML)		8"		6-8-8	16
		17"		4-5-6	11
Bottom of boring @ 11.5'					

GROUND WATER: AT COMPLETION 8.0 ft.; AFTER 24 HRS. 5.5 ft.
CAVE IN DEPTH: AT COMPLETION 8.0 ft.; AFTER 24 HRS. 5.8 ft.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Meadowridge Office — Boring No.: B-4
Location: Howard County, Maryland — Job #: 06775A

SAMPLER
Datum: — Hammer Wt.: 140 lbs. — Hole Diameter: 6" — Foreman: L. Smith
Surf. Elev.: 193.7 Ft. — Hammer Drop: 30 in. — Rock Core Diameter: — Inspector:
Date Started: 12/29/06 — Pipe Size: 2 in. — Boring Method: HSA — Date Completed: 12/29/06

Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	N
Light brown, moist, soft, clay, trace organics and gravel (CL; FILL)	Topsoil-0" No groundwater encountered while drilling	12"		1-2-2	4
Light brown and light gray, moist, stiff, sandy clay (CL)		18"		4-4-8	12
Tan, moist, medium stiff, clay (CL)		12"		3-4-6	10
Light brown, moist, medium stiff to stiff, clayey silt, trace sand (ML-CL)		17"		3-3-7	10
		18"		6-7-7	14
Bottom of boring @ 11.5'	Boring located on top of a stock pile, approximately 5' to 6' difference in elevation				

GROUND WATER: AT COMPLETION Dry ft.; AFTER 24 HRS. 6.5 ft.
CAVE IN DEPTH: AT COMPLETION 7.5 ft.; AFTER 24 HRS. 7.5 ft.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[illegible] — CHIEF, DEVELOPMENT ENGINEERING DIVISION — 4/20/08 DATE
[illegible] — CHIEF, DIVISION OF LAND DEVELOPMENT — 5/2/08 DATE
[illegible] — DIRECTOR — 5/5/08 DATE

NO.	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644
www.bei-civilengineering.com

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. 21443, Expiration Date: 12-21-2008

STATE OF MARYLAND — DONALD ALAN MASON — No. 21443 — PROFESSIONAL ENGINEER
[illegible] 4/7/08

OWNER/DEVELOPER:
INNERVATE I LLC
8015C DORSEY RUN ROAD
JESSUP, MARYLAND 20794
410-799-9415

PROJECT: MEADOWRIDGE BUSINESS PARK PARCEL S-1 OFFICE BUILDING

LOCATION: TAX MAP 43 – GRID 4, PARCEL 362 AND 375, 1st ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

TITLE: BORING LOGS, RETAINING WALL PROFILE AND CROSS SECTION

DATE: MAY, 2007 / JANUARY, 2008 — PROJECT NO. 1989

Design: DAM — Draft: EDD — Check: DAM — SCALE: AS SHOWN — DRAWING 6 OF 6

SDP-07-117

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