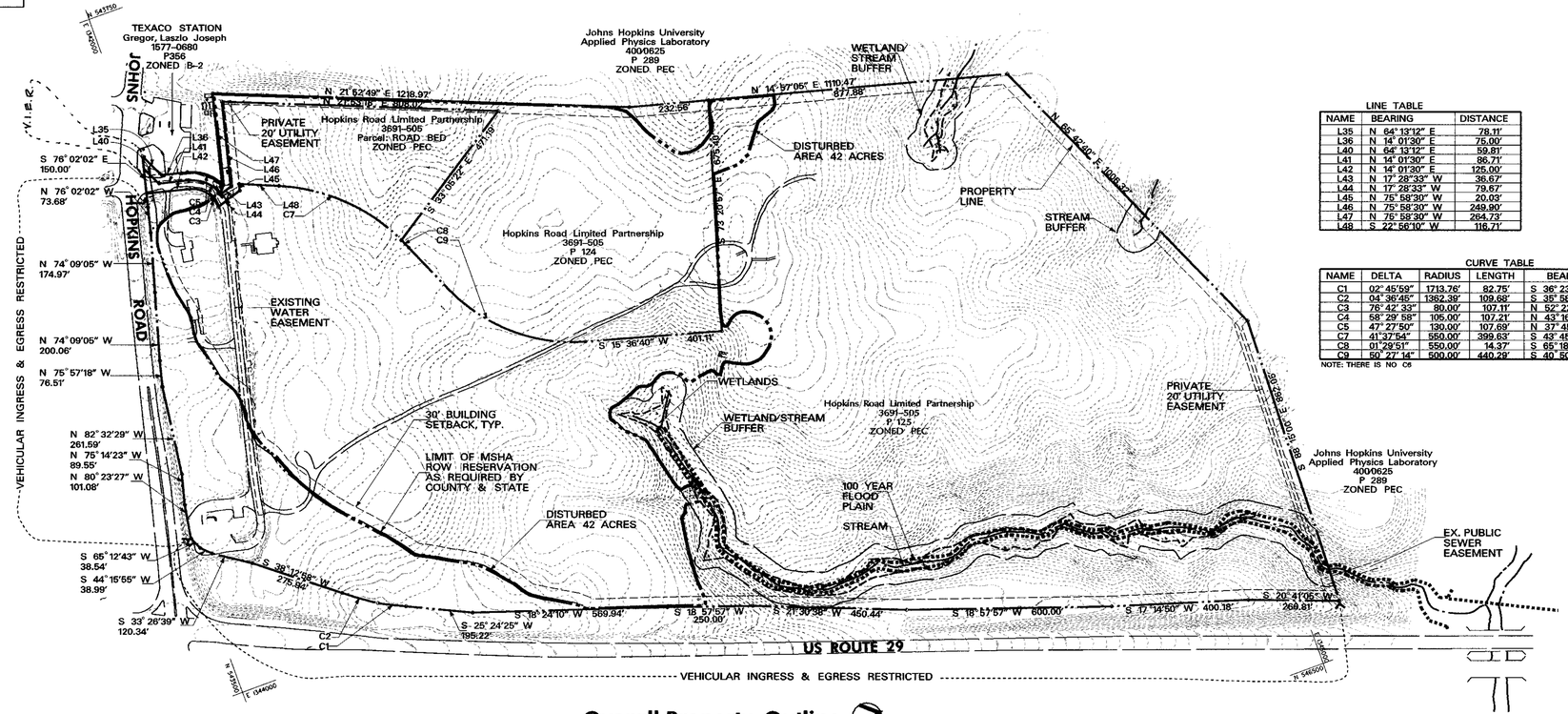
Site Development Plan for Montpelier Research Park

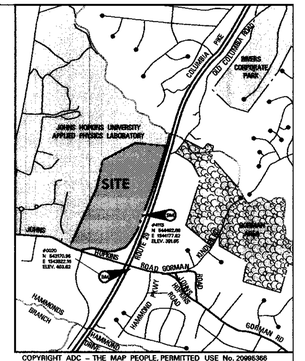
Howard County Maryland

Sheet Index

ADDRESS CHART	
LOT NUMBER	STREET ADDRESS
124,125	10302 JOHNS HOPKINS ROAD



Overall Property Outline
Scale: 1" = 200'
NORTH



NORTH

LOCATION MAP
SCALE: 1" = 2000'

HORIZONTAL CONTROL

THE COURSES AND COORDINATES SHOWN HEREON ARE BASED UPON THE NAD 83 MARYLAND COORDINATE SYSTEM AND ARE DERIVED FROM THE FOLLOWING HOWARD COUNTY SURVEY CONTROL STATIONS:

NO.	NORTH	EAST
0020	543170.96	1343822.16
4113	544492.88	1344177.82
41EA	544825.81	1339217.44
41EB	546222.26	1337778.18

VERTICAL CONTROL

ELEVATIONS SHOWN HEREON ARE REFERRED TO THE NATIONAL GEODETIC VERTICAL DATUM (NVD29) WITH LOCAL REFERENCE TO HOWARD COUNTY SURVEY CONTROL STATIONS:

NO.	ELEVATION
0020	403.62
4113	391.65
41EA	407.73

LINE TABLE

NAME	BEARING	DISTANCE
L35	N 64° 13'12" E	78.11'
L36	N 14° 01'30" E	75.00'
L40	N 64° 13'12" E	59.81'
L41	N 14° 01'30" E	86.71'
L42	N 14° 01'30" E	125.00'
L43	N 17° 28'33" W	36.67'
L44	N 17° 28'33" W	79.67'
L45	N 75° 58'30" W	20.03'
L46	N 75° 58'30" W	249.90'
L47	N 75° 58'30" W	264.73'
L48	S 22° 56'10" W	116.71'

CURVE TABLE

NAME	DELTA	RADIUS	LENGTH	BEARING	CHORD	TANGENT
C1	02° 45'59"	1713.76'	82.75'	S 36° 23'23" W	82.74'	41.38'
C2	04° 36'46"	1362.39'	109.68'	S 35° 58'37" W	109.65'	54.87'
C3	76° 42' 33"	80.00'	107.11'	N 52° 22' 47" E	99.28'	63.30'
C4	58° 29' 58"	105.00'	107.21'	N 43° 16'29" E	102.61'	58.80'
C5	47° 27'50"	130.00'	107.69'	N 37° 45'25" E	104.64'	57.15'
C7	41° 27'54"	550.00'	398.53'	S 43° 45'07" W	390.90'	209.10'
C8	01°29'51"	550.00'	14.37'	S 65° 18'59" W	14.37'	7.19'
C9	50° 27' 14"	500.00'	440.29'	S 40° 50'18" W	426.21'	235.57'

NOTE: THERE IS NO C6

Site Analysis Data Chart

1. General Site Data
   a. Present Zoning: PEC
   b. Applicable DPZ File References: BA 96-31 E, WP97-21, PB 190, VP 86-64 WP 91-93, ZB 802 & 767, S 86-47, FDP #1, SDP 88-197, SDP 89-88, WP 98-12, F-98-45
   c. Proposed Use of Site or Structure(s): UNDETERMINED - MASS GRADING ONLY
   d. Proposed Water and Sewer Systems: X Public - _____
   e. Water and Sewer contract number 30-1757D

2. Area Tabulation
   a. Total Project Area: ± 104 Acres (Indicate by Section and Area As Shown on Final Plat or As Shown on Deed)
   b. Net Area of Site: 97.99 Acres (Indicate by Section and Area As Shown on Final Plat)
   c. Area of This Plan Submission: 43.5 Acres
   d. Limit of Disturbed Area: 43.5 Acres
   e. Building Coverage of Site: N/A Acres and 0 % of Gross Area (Proposed)

4. Open Space Data: N /A

5. Parking Space Data N /A

General Notes

1. All construction shall be performed in accordance with the latest standards and specifications of Howard County, plus MSHA standards and specifications if applicable or as specified.

2. Approximate location of existing utilities are based solely on available records. Contractor shall verify the location of any utilities which may be impacted by the work. The contractor shall take all necessary precautions to protect the existing utilities and maintain uninterrupted service. Any damage incurred due to contractors operation shall be repaired immediately at the contractor's expense.

3. The contractor shall test pit existing utilities at least five (5) days before starting work shown on these drawings to verify their location and elevation. The contractor shall notify the engineer immediately if location of utilities is other than shown.

4. The contractor shall notify 'Miss Utility' at 1-800-257-7777 at least 48 hours prior to any excavation work being done, and 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.

5. Any damage caused by the Contractor to existing public right-of-way, existing paving, existing curb and gutter, existing utilities, etc. shall be repaired at the Contactors expense.

6. Topography derived from aerial photogrammetry by Photogrammetric Data Services in June 1986. Stream crossing sections field run by DMW in May , 1997.

7. All hydraulic data is for the 10-year storm unless otherwise noted.

8. The subsurface exploration and geotechnical engineering analysis for this project was made by Hillis Carnes, Inc. on Jan 31, 1997.

9. All fill areas shall be compacted to a minimum of 95% of the maximum dry density as determined and verified in accordance with AASHTO T-180.

10. The coordinates shown hereon are based upon the Howard County geodetic control which is based upon the NAD83 Maryland Coordination System. Howard County monument nos. 0020, 4113, 41EA, 41EB were used for this project (See Location Map).

11. Storm water management quantity and quality is provided by a retention facility for the site.

12. 100 year floodplain limits per DMW floodplain study. Wetland delineation on Jan. 29, 1988 by Environs: jurisdictional determination reconfirmed by Corps of Engineers in April 1996.

13. There are no known cemeteries or burial grounds on this site. However, should evidence of a burial site be discovered, the project will be subject to Section 16.1305 of the Subdivision Regulations.

14. No traffic study is required for this project.

15. Electric, gas, cable and telephone lines designed by others.

16. State & Federal permit tracking number 199765674, GRANTED NOV. 8, 1997.

17. WP98.12 granted on 8-22-97 for deferral of landscaping requirements to Final and/or Site Development Plans and for waiver of Sketch & Preliminary Plan for inital stage of subdivision.

18. The existing septic system must be properly abandoned prior to disturbance by any proposed grading. Proposed grading may complicate the establishment of a new septic area for a relocated sales trailer.

19. A portion of the Forest Conservation obligations incurred by this development have been met by the payment of $15,682.00 to the Howard County Forest Conservation Fund. With any further development of the site, the remaining obligation of 2.8 acres, must be addressed.

10-9-97
Date

Professional Engr. No. 16872

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 10/29/97

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 10/29/97

DIRECTOR — DATE 10/29/97

Date	No.	Revision Description
3-2-98	1	LIMIT OF DISTURBANCE

Montpelier Research Park
HOWARD COUNTY MARYLAND
OWNER/ DEVELOPER: HOPKINS ROAD LIMITED PARTNERSHIP
9050 RED BRANCH ROAD, SUITE 200 COLUMBIA, MD 21045

DMW
Daft · McCune · Walker, Inc.
A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals
200 East Pennsylvania Avenue
Towson, Maryland 21286
410 296 3333
Fax 296 4705

SUBDIVISION NAME			SECTION/AREA		LOT/PARCEL #
Montpelier			41		124,125, & ROAD BED
PLAT # OR L/F	BLOCK #	ZONE	TAX/ZONE MAP	ELECT. DISTRICT	CENSUS TRACT
L.3691,F505	17	PEC	41	5th	6051.02
WATER CODE			SEWER CODE		
E 21			6440000		

TITLE
COVER SHEET

Des By: TPC	Scale: As Shown	Proj. No. 941715
Drn By: TPC, MSS	Date: 10-9-97	1 OF 18
Chk By: MM	Approved:	

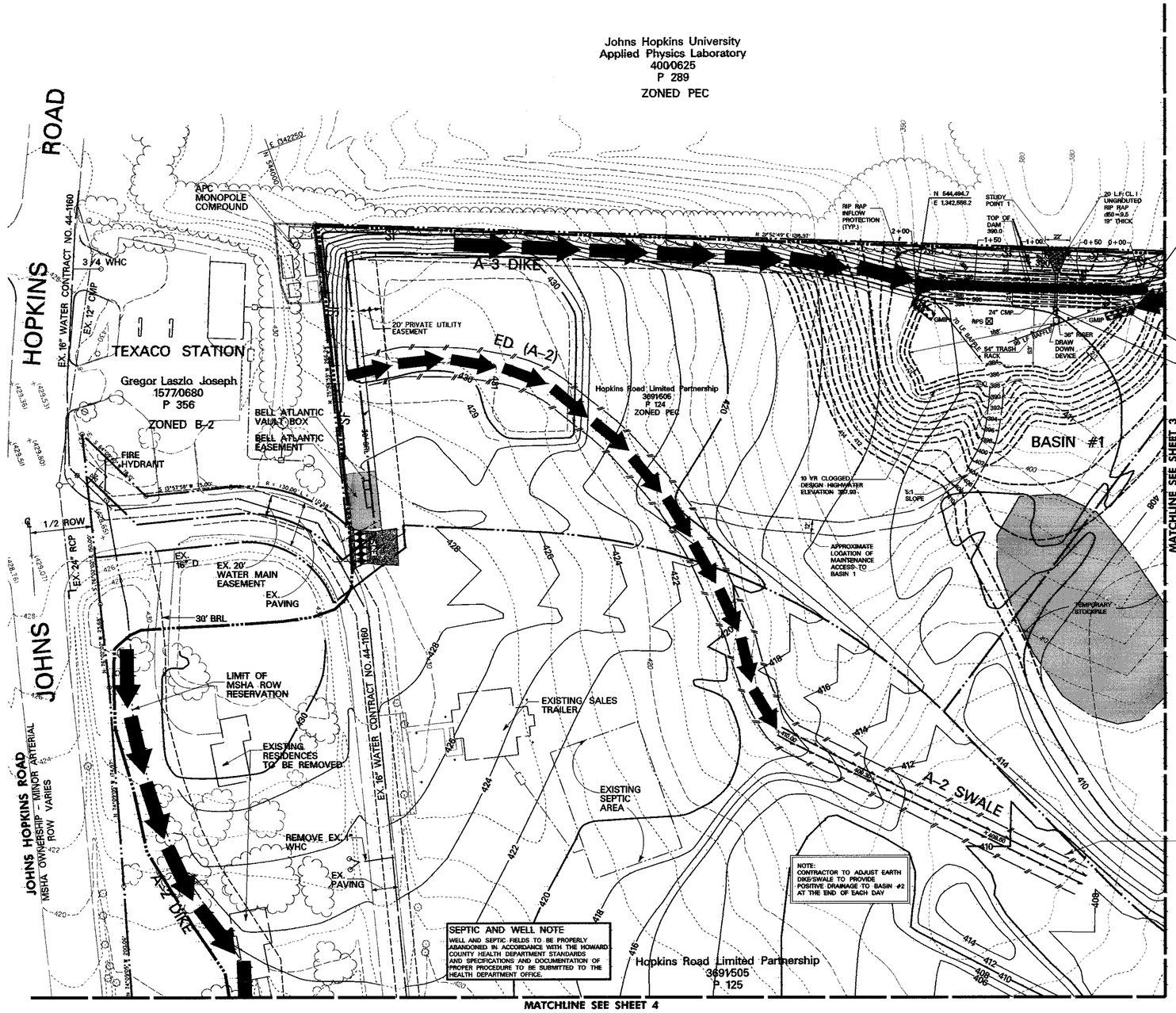
SDP-98-11 Tue Sep 9 11:23:40 1997 d:\941715\941715.txt

TRAP #3 TABLE

TRAP NUMBER		3
TRAP TYPE		ST-IV
EXISTING DRAINAGE AREA AC.		5.6
INTERIM DRAINAGE AREA AC.		N/A
PROPOSED DRAINAGE AREA AC.		2.8
	WET	10080
STORAGE REQUIRED C.F.	DRY	10080
	TOTAL	20160
	WET	11282
STORAGE PROVIDED C.F.	DRY	23827
	TOTAL	35109
EXISTING GROUND ELEV.		411
TOP EMBANKMENT ELEV.		416
WEIR CREST ELEV.		414
WET STORAGE /OUTLET ELEV.		411
CLEANOUT ELEV.		409.7
BOTTOM ELEV.		409
DEPTH OF CHANNEL		2
OUTLET WIDTH		20
	WET	2
BASIN DEPTH	DRY	3
	TOTAL	5
BOTTOM DIMENSIONS		95'X85'
TRAP SIDE SLOPES		2:1
BARREL DIAMETER		8"
BARREL LENGTH		40'
WET STORAGE ZONE ELEV.		409-411
DRY STORAGE ZONE ELEV.		411-414

DESIGN FLOW SUMMARY TRAP 3

	2 YEAR
PROPOSED INFLOW (CFS)	18.5
ALLOWABLE RELEASE (CFS)	3.27
PROPOSED OUTFLOW (CFS)	2.62
WATER SURFACE ELEVATION (FT.)	213.79
STORAGE PROVIDED (AC-FT)	0.482

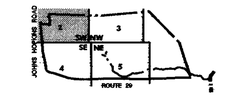


BASIN #1 TABLE

BASIN NUMBER		1
EXISTING DRAINAGE AREA AC.		N/A
INTERIM DRAINAGE AREA AC.		N/A
PROPOSED DRAINAGE AREA AC.		6.7
	WET	12,060
STORAGE REQUIRED C.F.	DRY	12,060
	TOTAL	24,120
	WET	14,029
STORAGE PROVIDED C.F.	DRY	17,847
	TOTAL	31,876
EXISTING GROUND ELEV.		386.00
TOP EMBANKMENT ELEV.		390.00
RISER CREST ELEV.		387.00
WET STORAGE /OUTLET ELEV.		385.40
CLEANOUT ELEV.		384.68
BOTTOM ELEV.		384.00
Q INTO BASIN C.F.S. (10 yr. Clogged)		35.97
Q OUT BARREL C.F.S. (10 yr. Clogged)		29.71
	WET	1.40
BASIN DEPTH	DRY	1.60
	TOTAL	3.0
DESIGN HIGHWATER 10 yr. Clogged		388.05
FREEBOARD PROVIDED		2.0'
BASIN SIDE SLOPES		2:1/3:1
BARREL DIAMETER		24"
RISER DIAMETER		36"
WET STORAGE ZONE ELEV.		384.00 – 386.40
DRY STORAGE ZONE ELEV.		385.40 – 387.00
BOTTOM DIMENSION		188' X 53'
DIMENSION FROM CLEANOUT ELEV. TO RISER TOP		2.3'
START PERFORATIONS AT ELEVATION		385.4

DESIGN FLOW SUMMARY

BASIN 1/STUDY POINT 1	2 YEAR
PROPOSED INFLOW (CFS)	20.77
ALLOWABLE RELEASE (CFS)	20.49
PROPOSED OUTFLOW (CFS)	13.17
WATER SURFACE ELEVATION (FT.)	387.44
STORAGE PROVIDED (AC-FT)	0.53



KEY SHEET

NORTH NTS

LEGEND

SYMBOL	DESCRIPTION
400	PROPOSED CONTOURS
399.3	PROPOSED INTERMEDIATE CONTOURS
	STREAM
	LIMIT OF MSHA R.O.W. RESERVATION
	EXISTING CONTOURS
	EXISTING TREES/ TREE LINE
	WETLAND/STREAM BUFFER
	WETLAND
60	TEMPORARY CONTOUR
SF	SILT FENCE
SSF	SUPER SILT FENCE
	A-2 DIKE
	LIMIT OF DISTURBANCE
	REMOVABLE PUMPING STATION (RPS)
GMIP	GABION INFLOW PROTECTION (GMIP)
	BAFFLE
SCE	STABILIZED CONSTRUCTION ENTRANCE
	BLAZE ORANGE SAFETY FENCE
DRAW DOWN DEVICE	VERTICAL DRAWDOWN DEVICE

DEVELOPER'S CERTIFICATION:

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

SIGNATURE OF DEVELOPER — DATE 4/29/98
PRINT NAME BELOW SIGNATURE
Howard L. Aronson

ENGINEER'S CERTIFICATION:

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

SIGNATURE OF ENGINEER — DATE 3/10/98
PRINT NAME BELOW SIGNATURE
John W. Ranocchia, Jr.

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

U.S. NATURAL RESOURCE CONSERVATION SERVICE — DATE 5/2/98

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

HOWARD S.C.D. — DATE 5/2/98

NOTES:

TWO EXISTING RESIDENCES TO BE DEMOLISHED. EXISTING WELLS AND SEPTIC SYSTEMS TO BE ABANDONED PER HEALTH DEPARTMENT REGULATIONS.

THE TRELLISES SALES OFFICE TO BE RELOCATED. EXISTING WELL AND SEPTIC TO BE ABANDONED PER HEALTH DEPARTMENT REGULATIONS.

NOTE: THIS PLAN SUPERSEDES SDP-98-011, APPROVED 10-29-98.

NORTH

3-10-98
Date

Professional Engr. No. 19557

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 5/8/98

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/15/98

DIRECTOR — DATE 5/18/98

Date	No.	Revision Description

Montpelier
Research Park
HOWARD COUNTY MARYLAND

OWNER/DEVELOPER: HOPKINS ROAD LIMITED PARTNERSHIP
9030 RED BRANCH ROAD, SUITE 200 COLUMBIA, MD 21045

DMW
Daft · McCune · Walker, Inc.
A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals
200 East Pennsylvania Avenue
Towson, Maryland 21286
410 296 3333
Fax 296 4705

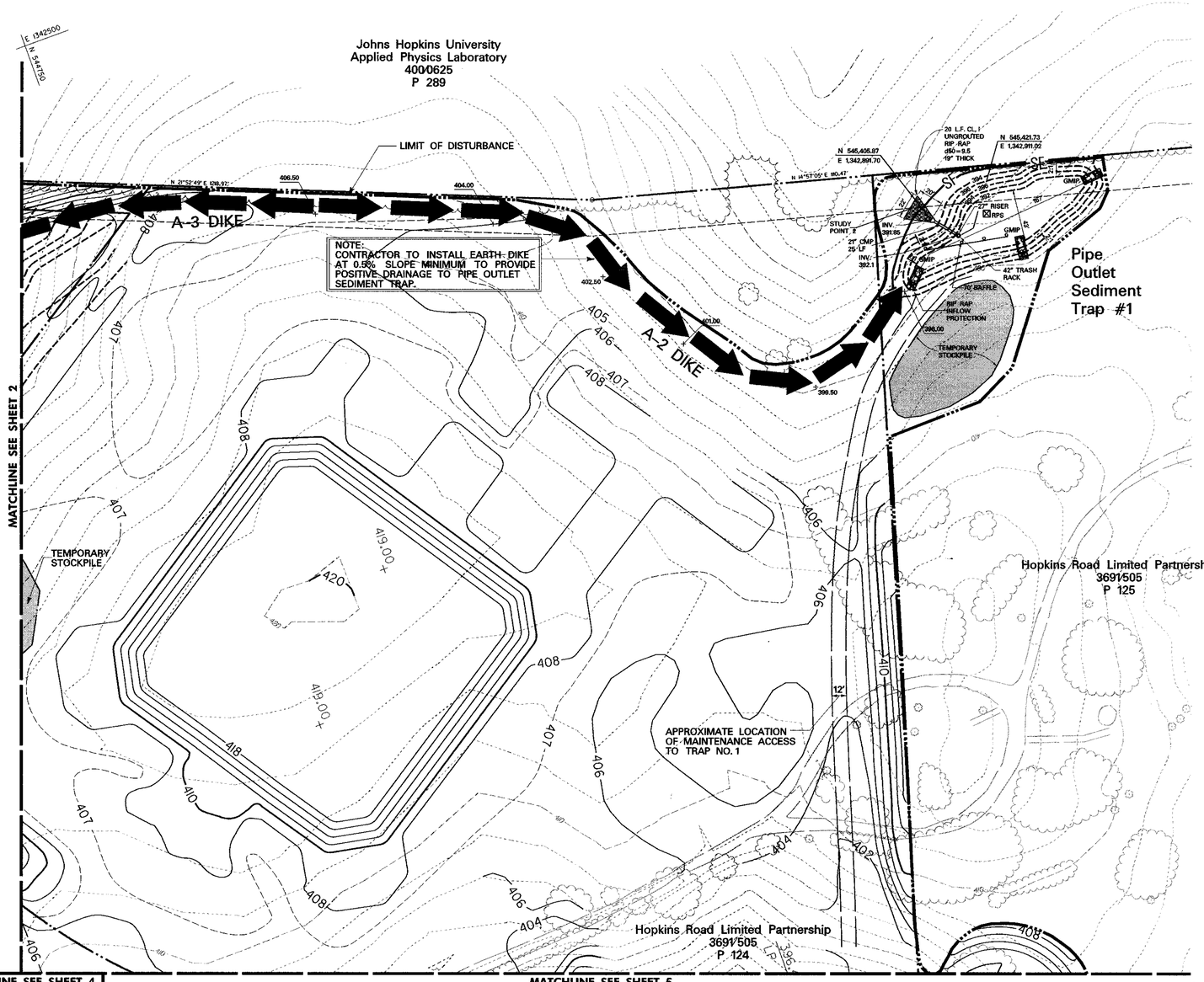
SUBDIVISION NAME: Montpelier		SECTION/AREA	LOT/PARCEL #: 124,125, & ROAD BED
PLAT# OR L/F: L3691,F505	BLOCK #: 17	ZONE: PEC	TAX/ZONE MAP: 41
ELECT. DISTRICT: 5th	CENSUS TRACT: 6051.02		
WATER CODE: E 21	SEWER CODE: 6440000		

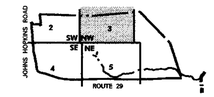
TITLE: REVISED SW SITE GRADING & SEDIMENT & EROSION CONTROL

Des By: ZAL	Scale: 1"=50'	Proj. No. 941715
Drn By: TPC, MSS	Date: 3-4-98	2 OF 18
Chk By: MM	Approved:	

Tue Mar 10 15:15:40 1998 d:\941715\941715.dgn

SDP-98-11





NORTH **KEY SHEET** NTS.

LEGEND

SYMBOL	DESCRIPTION
400	PROPOSED CONTOURS
399.3	PROPOSED INTERMEDIATE CONTOURS
	STREAM
	EXISTING CONTOURS
	EXISTING TREES/ TREE LINE
	WETLAND/STREAM BUFFER
	WETLAND
60	TEMPORARY CONTOUR
SF	SILT FENCE
SSF	SUPER SILT FENCE
	A-2 DIKE
	LIMIT OF DISTURBANCE
	REMOVABLE PUMPING STATION (RPS)
GMIP	GABION INFLOW PROTECTION (GMIP)
	BAFFLE
SCE	STABILIZED CONSTRUCTION ENTRANCE

ESC TRAP TABLE

TRAP NUMBER		1
TRAP TYPE		P.O.S.T.
EXISTING DRAINAGE AREA AC.		3.90
INTERIM DRAINAGE AREA AC.		N/A
PROPOSED DRAINAGE AREA AC.		3.90
	WET	7,020
STORAGE REQUIRED C.F.	DRY	7,020
	TOTAL	14,040
	WET	8,640
STORAGE PROVIDED C.F.	DRY	8,640
	TOTAL	17,280
EXISTING GROUND ELEV.		396.00
TOP EMBANKMENT ELEV.		396.00
RISER CREST ELEV.		394.85
WET STORAGE /OUTLET ELEV.		393.64
CLEANOUT ELEV.		392.82
BOTTOM ELEV.		392.00
DEPTH OF CHANNEL		N/A
OUTLET WIDTH		N/A
BOTTOM DIMENSION		167' X 43'
TRAP SIDE SLOPES		2 : 1
	WET	1.64
TRAP DEPTH	DRY	1.21
	TOTAL	2.85
BARREL DIAMETER		21"
RISER DIAMETER		27"
WET STORAGE ZONE ELEV.		392.00 – 393.64
DRY STORAGE ZONE ELEV.		393.64 – 394.85
DIMENSION FROM CLEANOUT ELEV. TO RISER TOP		2.6'
START PERFORATIONS AT ELEVATION		393.64

DESIGN FLOW SUMMARY

TRAP 1/STUDY POINT 2	2 YEAR
EXISTING PEAK (CFS)	1.28
PROPOSED PEAK (CFS)	0.37

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 10/29/97 VJC

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 10/29/97 TC

DIRECTOR — DATE 10/29/97

Date	No.	Revision Description

Montpelier Research Park

HOWARD COUNTY MARYLAND

OWNER/DEVELOPER: HOPKINS ROAD LIMITED PARTNERSHIP
9030 RED BRANCH ROAD, SUITE 200 COLUMBIA, MD 21045

DMW
Daft · McCune · Walker, Inc.
A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals
200 East Pennsylvania Avenue
Towson, Maryland 21286
410 296 3333
Fax 296 4705

SUBDIVISION NAME		SECTION/AREA		LOT/PARCEL #
Montpelier				124,125, & ROAD BED
PLAT# OR L/F	BLOCK #	ZONE	TAX/ZONE MAP	ELECT. DISTRICT	CENSUS TRACT
L3691,F505	17	PEC	41	5th	6051.02
WATER CODE		SEWER CODE		
E 21		6440000		

TITLE **NW SITE GRADING & SEDIMENT & EROSION CONTROL**

Des By: ZAL	Scale: 1" = 50'	Proj. No. 941715	
Drn By: TPC, MSS	Date: 10-9-97	3 OF 18	
Chk By: MM	Approved:		

DEVELOPER'S CERTIFICATION:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND 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 OF DEVELOPER — DATE 10/1/97
PRINT NAME BELOW SIGNATURE
Howard L. Resnick

ENGINEER'S CERTIFICATION:

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

SIGNATURE OF ENGINEER — DATE 10.9.97
PRINT NAME BELOW SIGNATURE
Max Kantzer

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

U.S. NATURAL RESOURCE CONSERVATION SERVICE — DATE 10.29.97

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

HOWARD S.C.D. — DATE 10/27/97

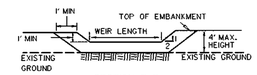
NORTH

10.9.97
Date

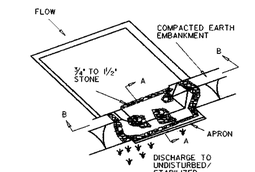
STATE OF MARYLAND — MAX KANTZER — No. 16872 — REGISTERED PROFESSIONAL ENGINEER

Professional Engr. No. 16872

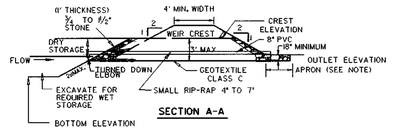
Tue Sep 9 11:26:09 1997 d:\941715\941715.sp2 SDP-98-11



SECTION B-B



PERSPECTIVE VIEW



SECTION A-A

NOTE: 5' MIN LENGTH UP TO 5 ACRES, OVER 5 ACRES USE 10' MIN

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

C - 9 - 16

MARYLAND DEPARTMENT OF ENVIRONMENT
WATER MANAGEMENT ADMINISTRATION

STONE / RIP-RAP OUTLET SEDIMENT TRAP - ST IV

Constuction Specifications

1. The area under embankment shallbe cleared, grubbed and stripped of any vegetation and root mat. The pool area shallbe cleared.

2. The fill material for the embankment shallbe free of roots or other woody vegetation as well as over-sized stones, rocks, organic material or other objectionable material. The embankment shallbe compacted by traversing with equipment while it is being constructed. Maximum height of embankment shall be 4', measured at centerline of embankment.

3. All cut and fill slopes shallbe 2:1 or flatter.

4. Elevation of the top of any dike directing water into trap must equal or exceed the height of trap embankment.

5. Storage area provided shallbe figured by computing the volume measured from top of excavation. (For storage requirements see Table 9).

6. Geotextile Class C shallbe placed over the bottom and sides of the outlet channel prior to placement of stone. Section of fabric must overlap at least 1' with section nearest the entrance placed on top. Fabric shallbe embedded at least 6" into existing ground at entrance of outlet channel.

7. 4" - 7" stone shallbe used to construct the weir and 4" - 12" or Class I rip-rap shallbe used to construct the outlet channel.

8. Outlet - An outlet shallinclude a means of conveying the discharge in an erosion free manner to an existing stable channel. Protection against scour at the discharge point shallbe provided as necessary.

9. Outlet channel must have positive drainage from the trap.

10. Sediment shallbe removed and trap restored to its original dimensions when the sediment has accumulated to ½ of the wet storage depth of the trap (900 cf/ac). Removed sediment shallbe deposited in a suitable area and in such a manner that it will not erode.

11. The structure shallbe inspected periodically after each rain and repaired as needed.

12. Construction of traps shallbe carried out in such a manner that sediment pollution is abated. Once constructed, the top and outside face of the embankment shallbe stabilized with seed and mulch. Points of concentrated inflow shallbe protected in accordance with Grade Stabilization Structure criteria. The remainder of the interior slopes should be stabilized (one time) with seed and mulch upon trap completion and monitored and maintained erosion free during the life of the trap.

13. The structure shallbe dewatered by approved methods, removed and the area stabilized when the drainage area has been properly stabilized.

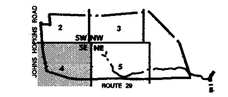
U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

C - 9 - 16A

MARYLAND DEPARTMENT OF ENVIRONMENT
WATER MANAGEMENT ADMINISTRATION

STONE / RIP-RAP OUTLET SEDIMENT TRAP - ST IV

NOTE: THIS PLAN SUPERSEDES SDP-96-011, APPROVED ON 10-29-98.



KEY SHEET

NORTH

NTS

LEGEND

SYMBOL	DESCRIPTION
400	PROPOSED CONTOURS
399.3	PROPOSED INTERMEDIATE CONTOURS
	STREAM
	LIMIT OF MSHA R.O.W. RESERVATION
	EXISTING CONTOURS
	EXISTING TREES/ TREE LINE
	WETLAND/STREAM BUFFER
	WETLAND
60	TEMPORARY CONTOUR
SF	SILT FENCE
SSF	SUPER SILT FENCE
	A-2 DIKE
	LIMIT OF DISTURBANCE
	GABION INFLOW PROTECTION (GMIP)
	BAFFLE
SCE	STABILIZED CONSTRUCTION ENTRANCE

DEVELOPER'S CERTIFICATION:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND 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 OF DEVELOPER — DATE 4/29/98
PRINT NAME BELOW SIGNATURE
Howard L. Resnick

ENGINEER'S CERTIFICATION:

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

SIGNATURE OF ENGINEER — DATE 3/16/98
PRINT NAME BELOW SIGNATURE
John W. Ranocchia, Sr.

REVIEWED FOR HOWARD S.C.D. AND MEETS TECHNICAL REQUIREMENTS
U.S. NATURAL RESOURCE CONSERVATION SERVICE — DATE 5/7/98

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
HOWARD S.C.D. — DATE 5/7/98

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 5/8/98 TC

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/15/98 TC

DIRECTOR — DATE 5/18/98

Date	No.	Revision Description

Montpelier
Research Park
HOWARD COUNTY MARYLAND

OWNER/DEVELOPER: HOPKINS ROAD LIMITED PARTNERSHIP
9030 RED BRANCH ROAD, SUITE 200 COLUMBIA, MD 21045

DMW
Daft · McCune · Walker, Inc.
A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals
200 East Pennsylvania Avenue
Towson, Maryland 21286
410 296 3333
Fax 296 4705

SUBDIVISION NAME			SECTION/AREA		LOT/PARCEL #
Montpelier					124,125, & ROAD BED
PLAT# OR L/F	BLOCK #	ZONE	TAX/ZONE MAP	ELECT. DISTRICT	CENSUS TRACT
L3691,F505	17	PEC	41	5th	6051.02
WATER CODE			SEWER CODE		
E 21			6440000		

3-10-98
Date

STATE OF MARYLAND — JOHN W. RANOCCHIA SR. — REGISTERED PROFESSIONAL ENGINEER

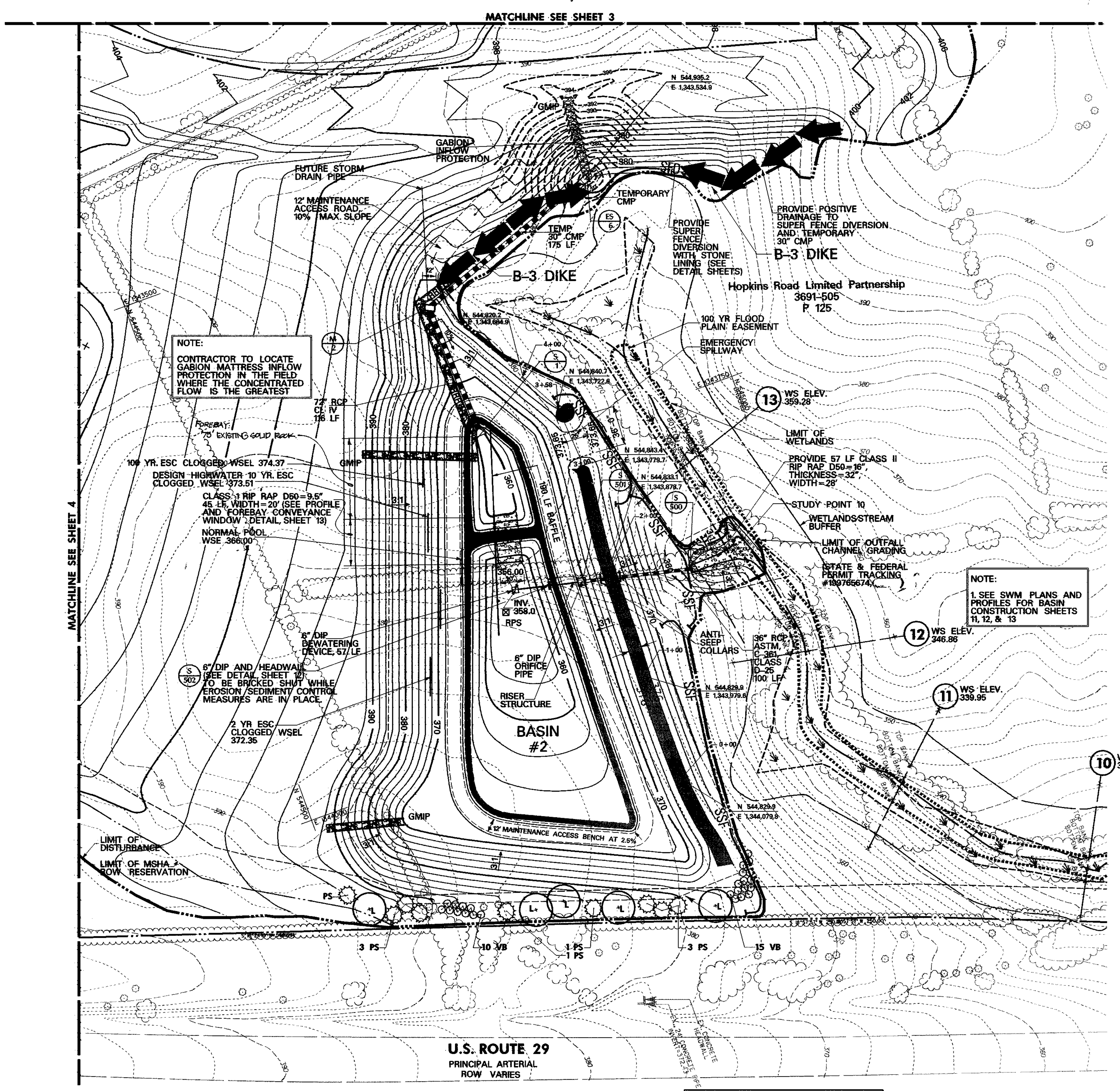
Professional Engr. No. 10351

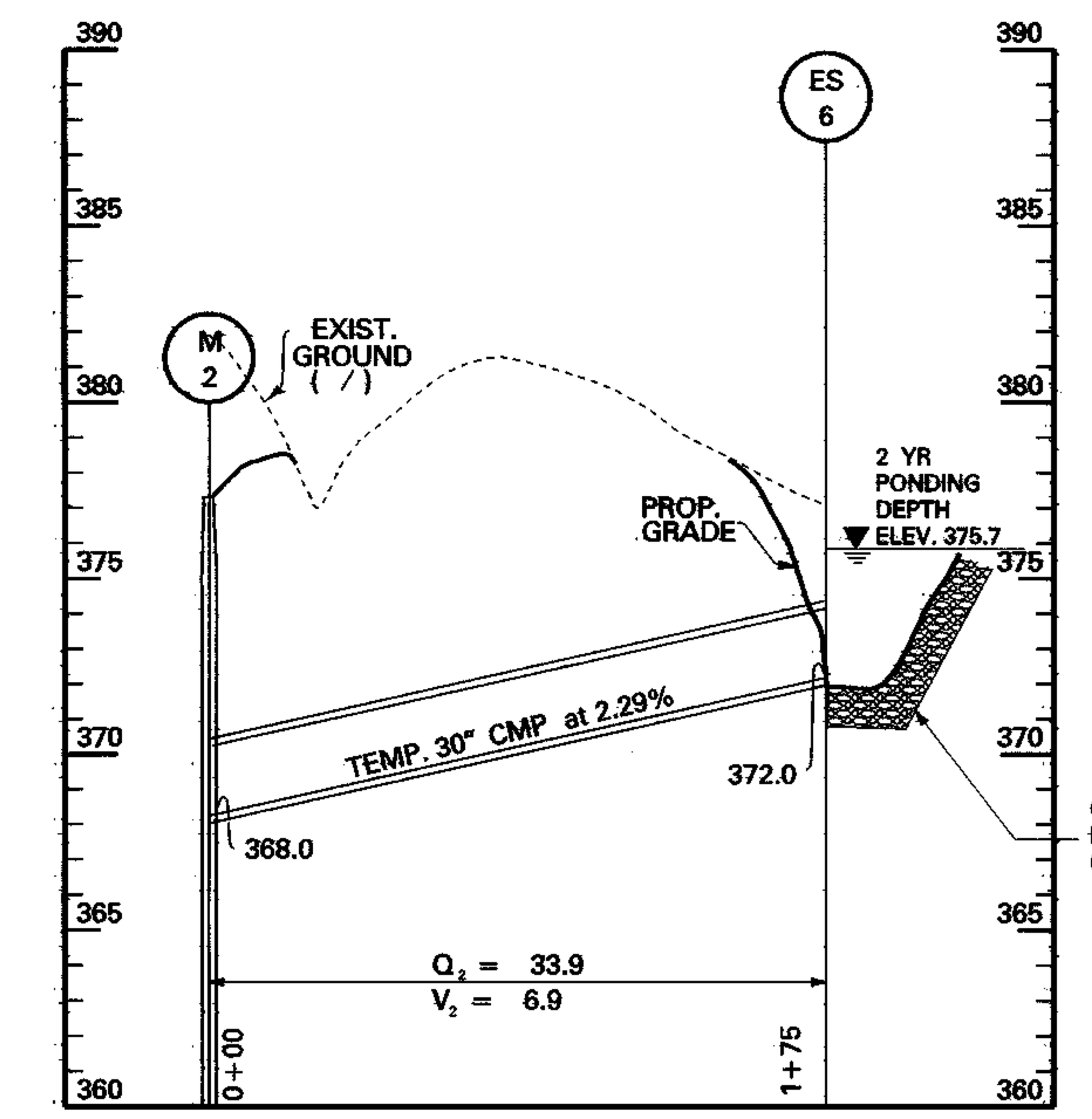
NORTH

TITLE
REVISED SE SITE GRADING & SEDIMENT & EROSION CONTROL

Des By: ZAL	Scale: 1" = 50'	Proj. No. 941715	
Drn By: TPC	Date: 3-4-98	4	OF 18
Chk By:	Approved:		

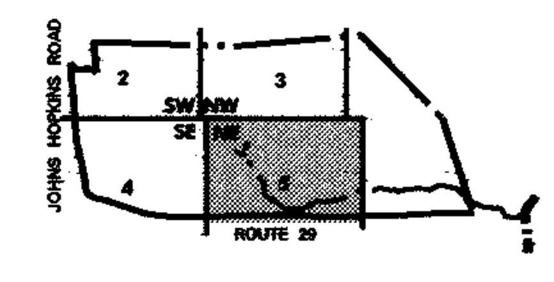
Tue Mar 10 14:05:05 1998 d:\941715\941715.dgn SDP-98-11





Temporary S&E Pipe Profile

Scale: Hoz. 1"=50'
Vert. 1"=5'



KEY SHEET

NTS

LEGEND

SYMBOL	DESCRIPTION
400	PROPOSED CONTOURS
399.3	PROPOSED INTERMEDIATE CONTOURS
	STREAM
RRP	RIP RAP INFLOW PROTECTION (RRP)
	EXISTING CONTOURS
	EXISTING TREES/ TREE LINE
	WETLAND/STREAM BUFFER
	WETLAND
60	TEMPORARY CONTOUR
SF	SILT FENCE
SSF	SUPER SILT FENCE
	A-2 DIKE
	LIMIT OF DISTURBANCE
	REMOVABLE PUMPING STATION (RPS)
	GABION INFLOW PROTECTION (GMIP)
	LIMIT OF MSHA R.O.W. RESER.
	BAFFLE
	STABILIZED CONSTRUCTION ENTRANCE
	PROPOSED TREES, & SHRUBS
DRAW DOWN DEVICE	VERTICAL DRAWDOWN DEVICE

BASIN #2 TABLE

BASIN NUMBER		2
EXISTING DRAINAGE AREA AC.		N/A
INTERIM DRAINAGE AREA AC.		N/A
PROPOSED DRAINAGE AREA AC.		30
	WET	54,000
STORAGE REQUIRED C.F.	DRY	54,000
	TOTAL	108,000
	WET	199,069
STORAGE PROVIDED C.F.	DRY	313,196
	TOTAL	512,265
EXISTING GROUND ELEV.		368.00
TOP EMBANKMENT ELEV.		376.00
RISER CREST ELEV.		371.50
WET STORAGE /OUTLET ELEV.		366.00
CLEANOUT ELEV.		361.00
BOTTOM ELEV.		356.00
Q INTO BASIN C.F.S. 10 yr. (10 YR CLOGGED)		129.70
Q OUT BARREL C.F.S. 10 yr. (10 YR CLOGGED)		25.84
	WET	12.0
BASIN DEPTH	DRY	7.5
	TOTAL	19.5
DESIGN HIGHWATER (10 YR. CLOGGED)		373.51
FREEBOARD PROVIDED		2.49'
BASIN SIDE SLOPES		3 : 1
BARREL DIAMETER		36"
RISER INSIDE DIMENSIONS		4' SQ.
WET STORAGE ZONE ELEV.		356.00 – 366.00
DRY STORAGE ZONE ELEV.		366.00 – 371.50
BOTTOM DIMENSION		N/A
DIMENSION FROM CLEANOUT ELEV. TO RISER TOP		14.5'
START PERFORATIONS AT ELEV.		366

BASIN #2

DESIGN FLOW SUMMARY	
POND 1/BASIN 2 / STUDY PT. 10	2-YEAR
PROPOSED INFLOW (CFS)	90.72
ALLOWABLE RELEASE (CFS)	6.25
PROPOSED OUTFLOW (CFS)	1.70
WATER SURFACE ELEVATION (FT)	369.50
STORAGE PROVIDED (AC – FT)	3.59

STUDY POINT 5	2-YEAR
EXISTING PEAK (CFS)	18.46
PROPOSED PEAK (CFS)	18.43

Conditions and Managment Practices for Working in Nontidal Wetlands and Buffers

A. REMOVE EXCAVATED MATERIAL, CONSTRUCTION MATERIAL OR DEBRIS TO AN UPLAND DISPOSAL AREA OUTSIDE OF ANY WATERWAY, FLOODPLAIN, NONTIDAL WETLAND, OR BUFFER;

B. IF BACKFILL IS OBTAINED, USE CLEAN MATERIAL FREE OF WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DELETERIOUS SUBSTANCE.

C. PLACE MATERIALS IN A LOCATION AND MANNER WHICH DOES NOT ADVERSELY IMPACT SURFACE OR SUBSURFACE WATER FLOW INTO OR OUT OF THE NONTIDAL WETLAND;

D. MAINTAIN THE HYDROLOGIC REGIME OF NONTIDAL WETLANDS OUTSIDE THE LIMITS OF DISTURBANCE.

E. RECTIFY ANY NONTIDAL WETLANDS AND BUFFERS TEMPORARILY IMPACTED BY THE PERMITTED ACTIVITY. ALL STABILIZATION IN THE WETLAND AND BUFFER SHALL BE OF THE FOLLOWING RECOMMENDED SPECIES: ANNUAL RYEGRASS (Lolium multiflorum), MILLET (Setaria italica), OATS (Uniola sp.) AND /OR RYE (Secale cereale). OTHER NON-PERSISTENT VEGETATION MAY BE ACCEPTABLE, BUT MUST BE APPROVED BY THE NONTIDAL WETLANDS AND WATERWAYS DIVISION. KENTUCKY 31 FESCUE SHALL NOT BE UTILIZED IN THE WETLAND OR BUFFER. ALL TEMPORARY FILLS SHALL BE REMOVED IN THEIR ENTIRETY ON OR BEFORE THE COMPLETION OF CONSTRUCTION;

F. TO PROTECT IMPORTANT AQUATIC SPECIES, IN-STREAM WORK IS PROHIBITED AS DETERMINED BY THE CASSIFICATION OF THE STREAM AS FOLLOWS:

USE I WATERS. IN-STREAM WORK MAY NOT BE CONDUCTED DURING THE PERIOD MARCH 1 – JUNE 15 INCLUSIVE, DURING ANY YEAR.

G. NO REMOVAL OF VEGETATION, GRADING, FILLING, DRAINING, OR OTHER ALTERATION OF THE NONTIDAL WETLANDS OR BUFFER OUTSIDE THE LIMITS OF DISTURBANCE SHALL OCCUR WITHOUT WRITTEN AUTHORIZATION FROM THE WATER MANAGEMENT ADMINISTRATION.

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

Cheryl Simmons 5/7/98
U.S.D.A. NATURAL RESOURCES CONSERVATION SERVICE — DATE

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

APPROVED: 5/7/98
HOWARD SOIL CONSERVATION DISTRICT — DATE

PLAN NUMBER

DEVELOPERS CERTIFICATE:

I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

SIGNATURE OF DEVELOPER — DATE 4/29/98
PRINT NAME BELOW SIGNATURE Howard L. Resnick

ENGINEERS CERTIFICATE:

I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIRMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

SIGNATURE OF ENGINEER — DATE 3/10/98
PRINT NAME BELOW SIGNATURE John W. Ranocchia

NOTE:

1. SEE SHEET 9 FOR LANDSCAPE DETAILS, SPECIFICATION & PLANT LIST.
2. PLANT LOCATIONS MAY BE FIELD ADJUSTED TO MAINTAIN SIGHT LINE TO SOUTH SITE.
3. REQUIREMENT – SMW PLANTING-TYPE B 350 LF=7 SHADE TREES, 9 EVERGREEN PROVIDED: 5 SHADE TREES, 9 EVERGREEN, 25 SHRUBS (SUBSTITE 25 SHRUBS FOR 2 SHADE TREES).
4. ALL REQUIRED PLANTINGS ARE BONDED AS PART OF THE DEVELOPERS AGREEMENT.

NOTE: THIS PLAN SUPERSEDES SDP-98-011, APPROVED 10-29-97.

NORTH

3-10-98
Date

STATE OF MARYLAND — JOHN W. RANOCCHIA — REGISTERED PROFESSIONAL ENGINEER

Professional Engr. No. 14551

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 5/8/98 DATE

CHIEF, DIVISION OF LAND DEVELOPMENT — 5/15/98 DATE

DIRECTOR — 5/18/98 DATE

Date	No.	Revision Description
10-21-98	1	REVISED FOREBAY AND STRUCTURE MO.

Montpelier
Research Park
HOWARD COUNTY MARYLAND

OWNER/DEVELOPER: HOPKINS ROAD LIMITED PARTNERSHIP
9030 RED BRANCH ROAD, SUITE 200 COLUMBIA, MD 21045

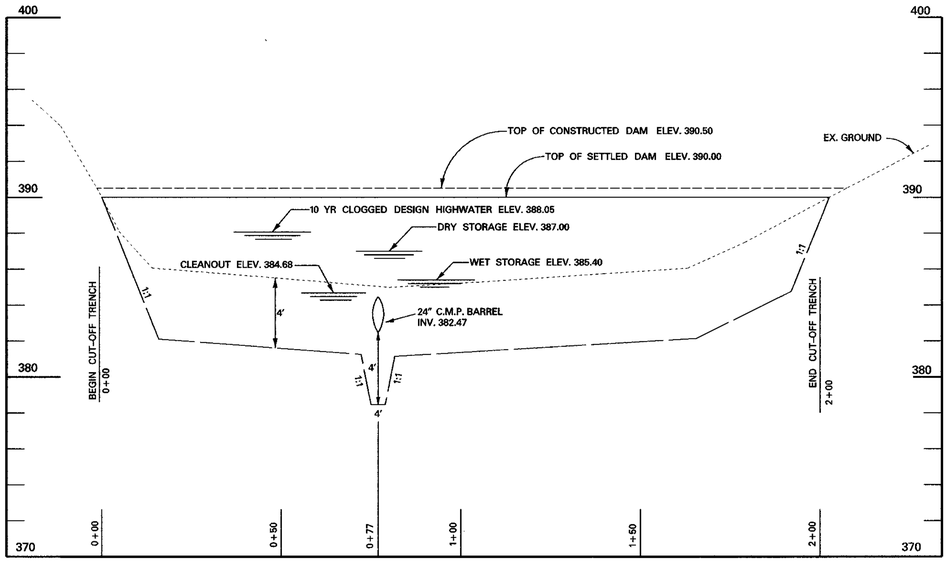
DMW
Daft · McCune · Walker, Inc.
A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals
200 East Pennsylvania Avenue
Towson, Maryland 21286
410 296 3333
Fax 296 4705

SUBDIVISION NAME			SECTION/AREA		LOT/PARCEL #
Montpelier					124,125, & ROAD BED
PLAT# OR L/F	BLOCK #	ZONE	TAX/ZONE MAP	ELECT. DISTRICT	CENSUS TRACT
L3691,F505	17	PEC	41	5th	6051.02
WATER CODE			SEWER CODE		
E 21			6440000		

TITLE
REVISED NE SITE GRADING & SEDIMENT & EROSION CONTROL

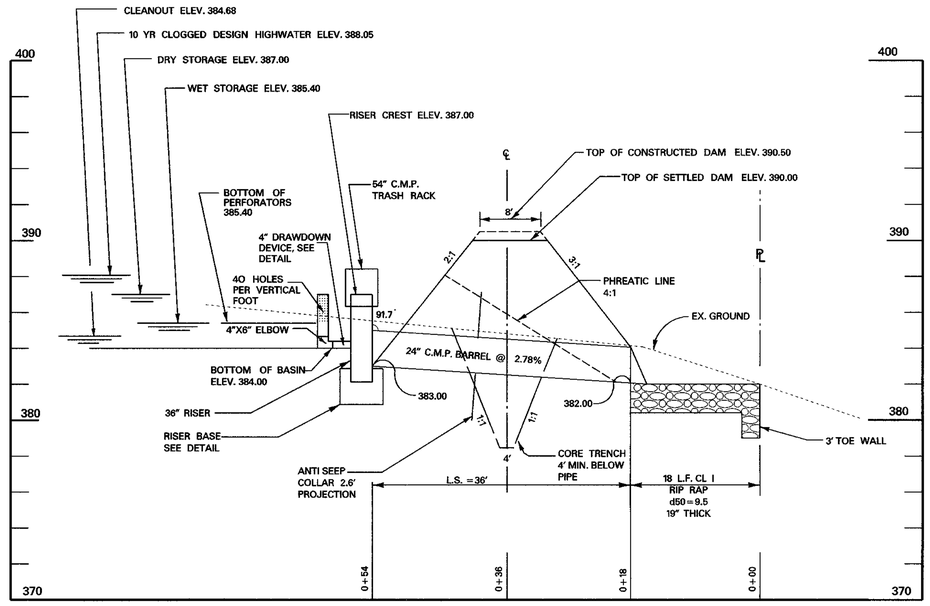
Des By: ZAL	Scale: 1"=50'	Proj. No. 941715
Drn By: TPC, MSS	Date: 3-4-98	
Chk By: MM	Approved:	5 OF 18

Tue Mar 10 15:12:09 1998 d:\941715\941715.gp4 SDP-98-11



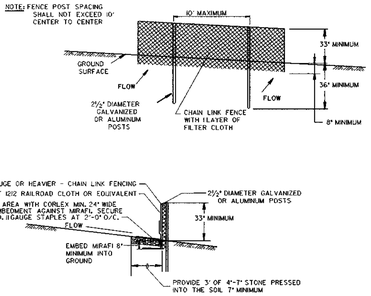
Profile Along ℄ Line of Dam Basin #1

SCALE HOR.1"=20'
VER.1"=4'



Profile Along Principal Spillway Basin #1

SCALE HOR.1"=10'
VER.1"=4'



Construction Specifications

1. Fencing shall be 42 inches in height and constructed in accordance with the latest Maryland State Highway (SHA) Details for Chain Link Fencing. The specification for a 6' fence shall be used, substituting 42" fabric and 6' length posts.
2. The posts do not need to be set in concrete.
3. Chain link fence shall be fastened securely to the fence posts with wire ties or staples. The lower tension wire, brace and truss rods, drive anchors and post caps are not required except on the ends of the fence. The chain link fencing shall be six (6) guage or heavier.
4. Mirafi shall be fastened securely to the chain link fence with ties spaced every 24' at the top and mid section.
5. Mirafi shall be embedded a minimum of 8" into the ground.
6. When two sections of filter cloth adjoin each other, they shall be overlapped by 6" and folded.
7. Maintenance shall be performed as needed.
8. Maximum flow slope 10.0%.
9. Maximum drainage area 5 acres, clean water only. Do not use to divert sediment runoff.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE — H - 26 - 4 — *MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION*

Super Fence Diversion

NOT TO SCALE

Temporary Sediment Basin * Construction Specifications

1. **Site Preparation:** Perimeter sediment control devices must be installed prior to clearing and grubbing. Areas where the embankment is to be placed shall be cleared, grubbed, and stripped of topsoil to remove trees, vegetation, roots or other objectionable material. The pool area shall not be cleared until completion of the dam embankment unless the pool area is to be used for borrow. In order facilitate clean-out and restoration, the pool area (measured at the top of the pipe spillway) shall be cleared of all brush, trees, and other objectionable materials.

2. **Cut-off Trench:** A cut-off trench shall be excavated along the centerline of earth fill embankments. The minimum depth shall be four feet. The cut-off trench shall extend up both abutments to the riser crest elevation. The minimum bottom width shall be two feet, but wide enough to permit operation of excavation and compaction equipment. The side slopes shall be no steeper than 1:1. Compaction requirements shall be the same as those for the embankment. The trench shall be dewatered during the backfilling-compaction operations. For dewatering, see Section D. Note: All water encountered during core trench construction shall be pumped from trench.

3. **Embankment:** The fill material shall be taken from approved areas shown on the plans. It shall be clean mineral soil free of roots, woody vegetation, oversized stones, rocks, or other objectionable material. Relatively pervious materials such as sand or gravel (Unified Soil Classes GW, GP, SW, and SP) or organic materials (Unified Soil Classes OL and OH) shall not be placed in the embankment. Areas on which fill is to be placed shall be scarified prior to placement of fill. The fill material shall contain sufficient moisture so that it can be formed by hand into a ball without crumbling. If water can be squeezed out of the ball, it is too wet for proper compaction. Fill material shall be placed in six-inch to eight-inch thick continuous lifts over the entire length of the fill. Compaction shall be obtained by routing and hauling the construction equipment over the fill so that the entire surface of each layer of the fill is traversed by at least one wheel or tread track of the equipment or by the use of a compactor. The embankment shall be constructed to an elevation 10 percent higher than the design height to allow for settlement.

4. **Principal Spillway:** Steel risers shall be securely attached to the barrel or barrel stub by welding the full circumference making a watertight structural connection. Concrete risers shall be poured with the principal spillway in place or precast with voids around the principal spillway filled with concrete or shrink proof grout for watertight connection. The barrel stub must be attached to the riser at the same percent (angle) of grade as the outlet conduit. The connection between the riser and the riser base shall be watertight. All connections between barrel sections must be achieved by approved watertight band assemblies. The barrel and riser shall be placed on a firm, smooth foundation of impervious oil as the embankment is constructed. Breaching the embankment to install the barrel is unacceptable. Pervious materials such as sand, gravel, or crushed stone shall not be used as backfill around the pipe or anti-seep collars. The fill material around the pipe spillway shall be placed in four-inch lifts and hand compacted under and around the pipe to at least the same density as the adjacent embankment. A depth of 1.5 times the pipe diameter (min.) shall be backfilled over the principal spillway and hand compacted before crossing it with construction equipment.

5. **Vegetative Treatment:** Stabilize the embankment in accordance with the appropriate vegetative Standard and Specifications immediately following construction. In no case shall the embankment remain unstabilized for more than seven (7) days. Once constructed, the top and outside face of the embankment shall be stabilized with seed and mulch. The remainder of the interior slopes should be stabilized (one time) with seed and mulch upon basin completion and monitored and maintained erosion-free during the life of the basin.

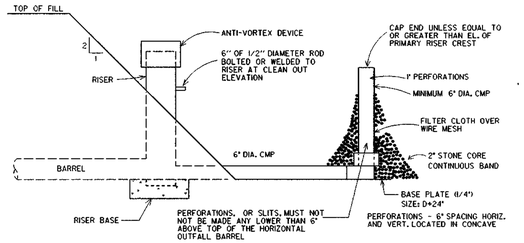
6. **Safety:** Local requirements concerning fencing and signs shall be met warning the public of hazards of soft sediment and floodwater.

7. **Maintenance:** Repair all damage caused by soil erosion and construction equipment at or before the end of each working day. Sediment shall be removed from the basin when it reaches the specified distance below the top of the riser as shown on the riser. This sediment shall be placed in such a manner that it will not erode from the site. The sediment shall not be deposited downstream from the embankment, adjacent to the stream or floodplain. Disposal areas must be stabilized.

8. **Final Disposal:** When temporary structures have served their intended purpose and the contributing drainage areas has been properly stabilized, the embankment and resulting sediment deposits are to be leveled or otherwise disposed of in accordance with the approved sediment control plan. The proposed use of a sediment basin site will often dictate final disposition of the basin and any sediment contained therein. If the site is scheduled for future construction, then the basin material and trapped sediments must be removed and safely disposed of and the basin shall be backfilled with a structural fill. When the basin areas is to remain open space, the pond may be pumped dry (using methods in Section D – Dewatering), graded, and backfilled.

Sequence of Construction

SEQUENCE	NUMBER OF DAYS
1. OBTAIN A GRADING PERMIT.	7
2. INSTALL SEDIMENT BASIN #2 AND TRAP #3.	21
3. INSTALL STORM DRAINS S-1 THROUGH M2, AND TEMPORARY PIPE ES-6 THROUGH M-2. INSTALL EARTH DIKES, SUPER FENCE DIVERSION AND SLOPE STABILIZATION TO ES-6.	21
4. INSTALL EARTH DIKE AND SWALE; GRADE TO PROVIDE POSITIVE DRAINAGE TO BASIN #2.	14
5. INSTALL REMAINING SEDIMENT AND EROSION CONTROLS AND STABILIZE.	7
6. ROUGH GRADE ROAD. CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE FROM EARTH DIKE AND SWALE TO BASIN #2 AT THE END OF EACH WORKING DAY.	21
7. ROUGH GRADE REMAINDER OF SITE.	21
8. STABLIZE ALL AREAS IN ACCORDANCE WITH STANDARDS AND SPECIFICATIONS.	14
9. UPON APPROVAL OF THE EROSION AND SEDIMENT CONTROL INSPECTOR, REMOVE ALL EROSION AND SEDIMENT CONTROL MEASURES AND STABILIZE.	7
10. CONVERT BASIN #2 TO SWM POND UPON APPROVAL OF THE SEDIMENT CONTROL INSPECTOR AND STABLIZE.	14



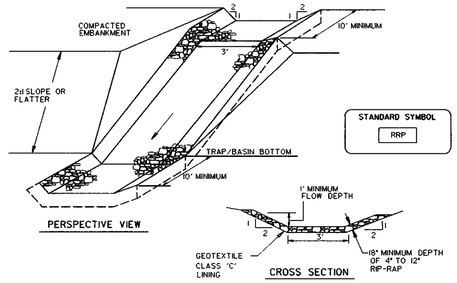
CONSTRUCTION SPECIFICATIONS

1. DEWATERING DEVICE SHALL BE 6" MINIMUM DIAMETER METAL PIPE EXTENDING INTO BASIN AREA.
2. PIPE SHALL BE WELDED OR CEMENTED TO RISER AND HAVE A 6" MINIMUM DIAMETER PERFORATED METAL PIPE WELDED AT END PERPENDULAR TO BARREL WITH A METAL CAP WELDED ONTO END OF PIPE UNLESS ABOVE EL. OF PRIMARY RISER CREST.
3. PIPE SHALL BE SECURELY WRAPPED WITH APPROVED FILTER CLOTH AND COVERED ON ALL SIDES WITH NO. 2A STONE TO THE CLEANOUT ELEV.
4. CLEAN OUT ELEVATION FOR BASIN WILL BE DESIGNATED BY A 6" PIECE OF 1/2" DIAMETER ROD BOLTED OF WELDED TO RISER AT THE PROPER ELEVATION. ROD SHOULD BE CLEARLY VISIBLE FROM TOP OF DAM. PLEASE NOTE THAT THE 4" CLEAN OUT HOLE HAS BEEN ELIMINATED.
5. SEDIMENT SHALL BE REMOVED AND BASIN RESTORED TO ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO THE CLEAN-OUT ELEVATION. REMOVED SEDIMENT SHALL BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE.
6. THE STRUCTURE WILL BE INSPECTED AFTER EACH RAIN AND REPAIRS MADE AS NEEDED.
7. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT EROSION AND WATER POLLUTION IS MINIMIZED.

U.S. DEPT. OF AGRICULTURE SOIL CONSERVATION SERVICE COLLEGE PARK, MD. 1980-0

Vertical Draw-Down Device

NOT TO SCALE



Construction Specifications

1. Rip-rap lined inflow channels shall be 1' in depth, have a trapezoidal cross section with 2:1 or flatter side slopes and 3' min. bottom width. The channel shall be lined with 4" to 12" rip-rap to a depth of 18".
2. Filter cloth shall be installed under all rip-rap. Filter cloth shall be Geotextile Class C.
3. Entrance and exit sections shall be installed as shown on the detail section.
4. Rip-rap used for the lining may be recycled for permanent outlet protection if the basin is to be converted to a stormwater management facility.
5. Gabion inflow Protection may be used in lieu of Rip-rap inflow Protection.
6. Rip-rap should blend into existing ground.
7. Rip-rap inflow Protection shall be used where the slope is between 4% and 10%, for slopes flatter than 10% use Earth Dike or Temporary Swale lining criteria.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE — B - 6 - 2 — *MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION*

Rip-Rap Inflow Protection

NOT TO SCALE

* Refer to "Conditions and Management Practices for Working in Nontidal Wetlands and Their Buffers" prior to impacting stream, wetland or buffer.

DEVELOPER'S CERTIFICATION:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND 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 OF DEVELOPER — DATE 10/21/97
PRINT NAME BELOW SIGNATURE
Howard L. Reinsch

ENGINEER'S CERTIFICATION:

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

SIGNATURE OF ENGINEER — DATE 10.9.97
PRINT NAME BELOW SIGNATURE
Max Kantzer

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

U.S. NATURAL RESOURCE CONSERVATION SERVICE — DATE 10-27-97

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

HOWARD S.C.D. — DATE 10/27/97

10.9.97
Date

Professional Engr. No. 16872

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 10/29/97 (TC)
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 10/29/97
DIRECTOR — DATE 10/29/97

Date	No.	Revision Description
3-11-98	1	REVISED SOC

Montpelier Research Park
HOWARD COUNTY MARYLAND

DMW
Daft · McCune · Walker, Inc.
A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals
200 East Pennsylvania Avenue, Towson, Maryland 21286
410 296 3333
Fax 296 4705

SUBDIVISION NAME	SECTION/AREA	LOT/PARCEL #
Montpelier		124,125, & ROAD BED

PLAT# OR L/F	BLOCK #	ZONE	TAX/ZONE MAP	ELECT. DISTRICT	CENSUS TRACT
L3691,F505	17	PEC	41	5th	6051.02

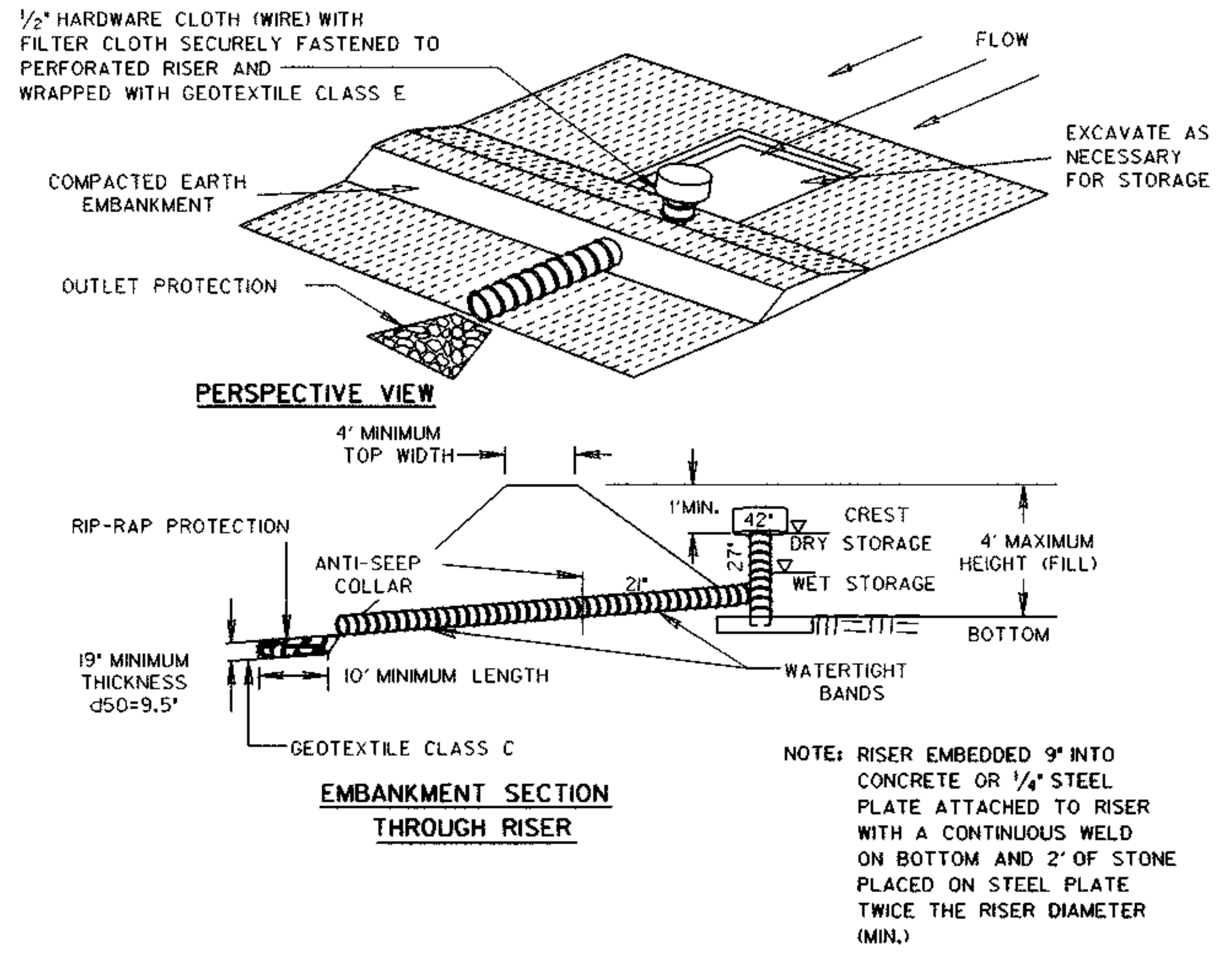
WATER CODE	SEWER CODE
E 21	6440000

TITLE: **SEDIMENT & EROSION CONTROL DETAILS**

Des By: ZAL	Scale: As Shown	Proj. No. 941715	
Dm By: TPC	Date: 10-9-97	6 OF 18	
Chk By: MM	Approved:		

Tue Sep 9 11:52:46 1997 d:\941715\941715.sg7

SDP-98-11



U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE — C – 9 – 7 — MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

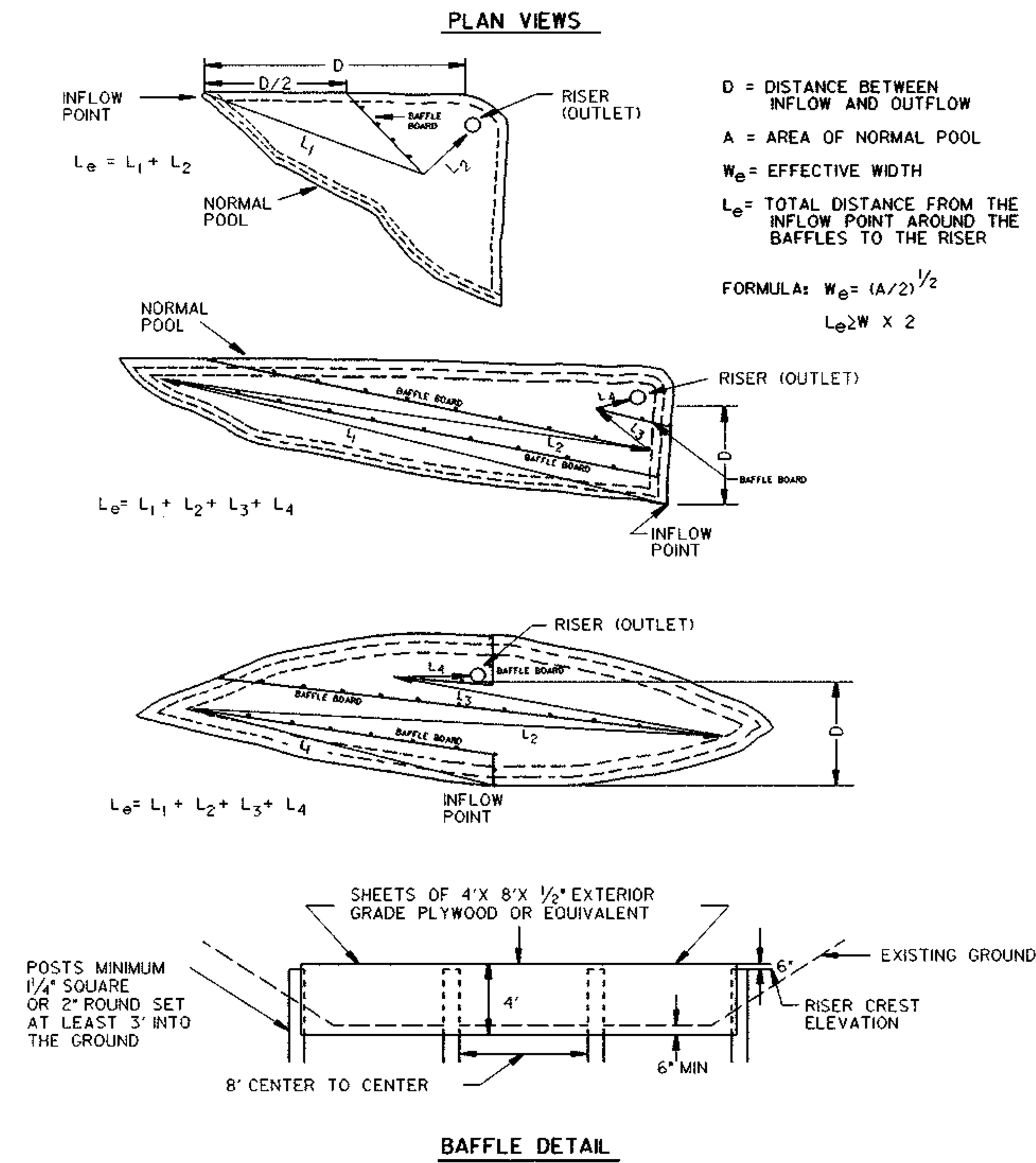
Pipe Outlet Sediment Trap – ST I

Construction Specifications

1. The area under the embankment shallbe cleared, grubbed and stripped of any vegetation and root mat. The poolarea shallbe cleared.
2. The fillmaterialfor the embankment shallbe free of roots or other woody vegetation as wellas oversized stones, rocks, organic material, or other objectionable material. The embankment shallbe compacted by traversing with equipment while it is being constructed.
3. The totaltrap volume as measured from the bottom to riser crest elevation shallbe 3600 cubic feet per acre of drainage area (see Table 9). The top of embankment must be ≥1' above the riser crest elevation.
4. Sediment shallbe removed and the trap restored to its originaldimensions when the sediment has accumulated to one half of the wet storage depth of the trap (900cf/ac). The sediment shallbe deposited in a suitable area and in such a manner that it willnot erode.
5. The structure shallbe inspected periodically and after each rain and repairs made as necessary.
6. Construction operations shallbe carried out in such a manner that erosion and water pollution are abated. Once constructed, the top and outside face of the embankment shallbe stabilized with seed and mulch. Points of concentrated inflow shallbe protected in accordance with Grade Stabilization Structure criteria. The remainder of the interior slopes should be stabilized (one time) with seed and mulch upon trap completion and monitored and maintained erosion free during the life of the trap.
7. The structure shallbe removed and area stabilized when the drainage area has been properly stabilized.
8. Allcut and fillslopes shallbe 2:1or flatter.
9. Allpipe connections shallbe watertight.
10. Above the wet storage elevation, the riser shallbe perforated with ½" wide by 6" long slits or 1" diameter holes spaced 6" vertically and horizontally. No perforations willbe allowed within 6" of the horizontalbarrel.
11. The riser shallbe wrapped with ½" hardware cloth (wire) then wrapped with Geotextile Class E. The filter cloth shallextend 6" above the highest slit and 6" below the lowest slit. Where ends of filter cloth come together, they shallbe overlapped, folded and fastened to prevent bypass. Filter cloth shallbe replaced as necessary to prevent clogging.
12. Straps or connecting bands shallbe used to hold the filter cloth and wire fabric in place. They shallbe placed at the top and bottom of the cloth.
13. Fillmaterialaround the pipe spillway shallbe hand compacted in 4" layers. A minimum of 2' of hand-compacted backfillshallbe placed over the pipe spillway before crossing it with construction equipment.
14. The riser shallbe anchored with either a concrete base or steelplate base to prevent flotation. Concrete bases shallbe at least twice the riser diameter and 12" deep with the riser embedded 9". Steelplate bases shallbe at least twice the riser diameter, ¼" minimum thickness and attached to the bottom of the riser by a continuous weld to form a watertight connection. Then place 2' of stone, gravelor tamped earth on the plate.
15. Anti seep collars shallbe constructed in accordance with plans (ref. table 16 and Details C-10-23 AND C-10-24).
16. Concentric trash rack and anti-vortex device design details are on Detail C-10-26 AND C-10-26A.
17. Refer to Section D for dewatering requirements of sediment traps.
18. Outlet - An outlet shallbe provided, which includes a means of conveying the discharge in an erosion free manner to an existing stable channel.
19. Where discharge occurs at the property line, localordinances and drainage easement requirements shallbe met.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE — C – 9 – 7A — MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

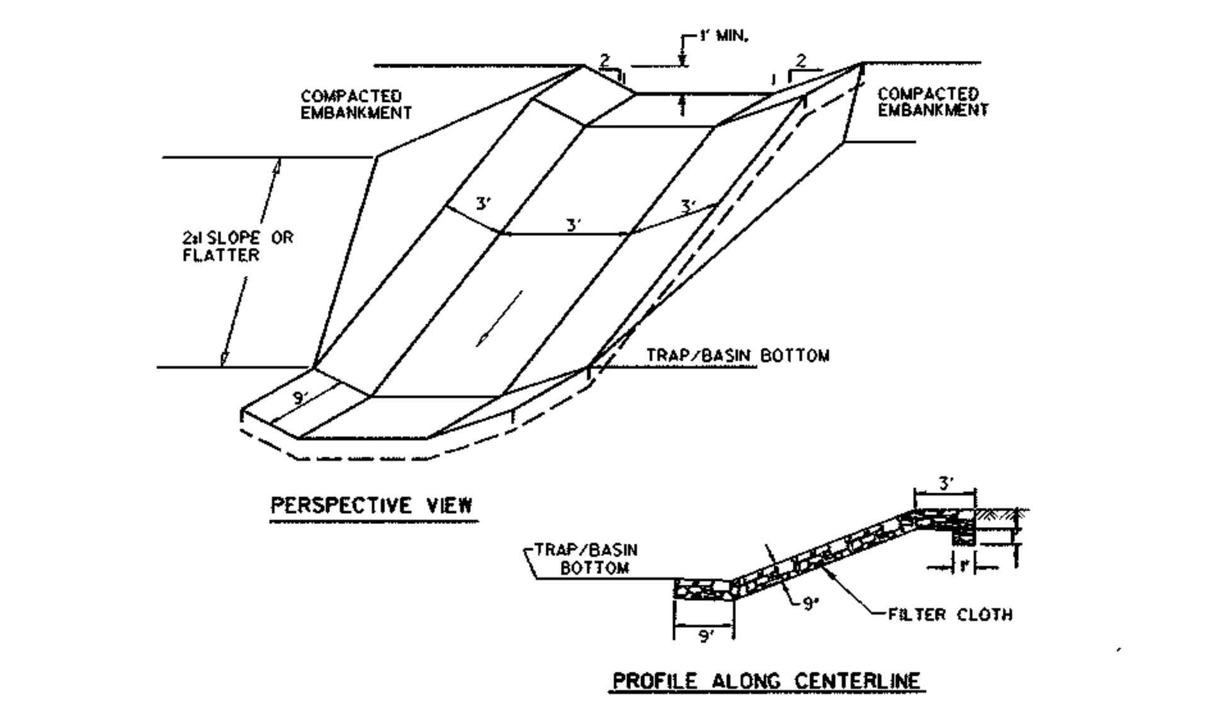
Pipe Outlet Sediment Trap – ST I



U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE — C – 10 – 28 — MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

Sediment Trap & Basin Baffles

Not to Scale



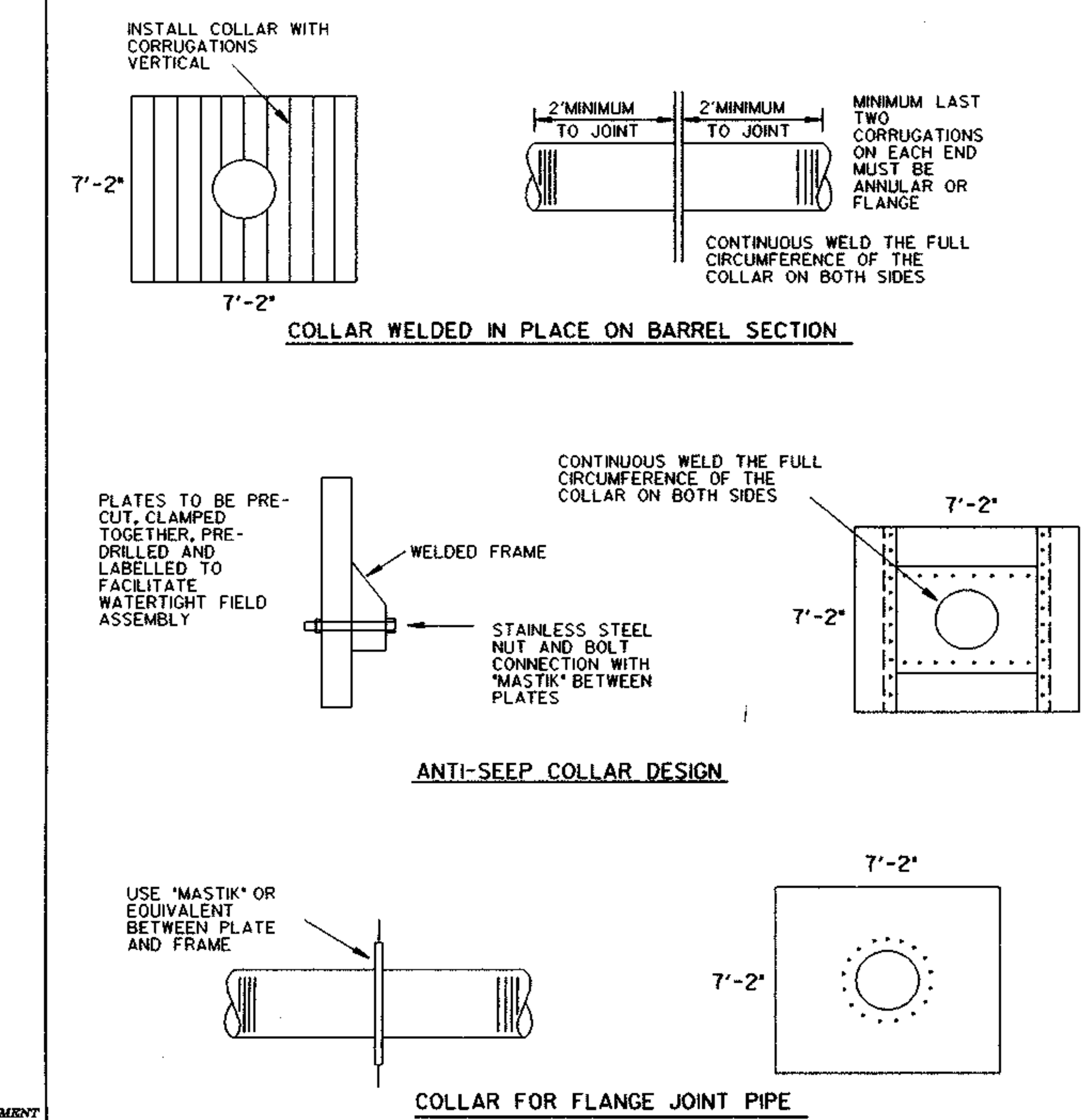
Construction Specifications

1. Gabion inflow protection shallbe constructed of 9' x 3' x 9" gabion baskets forming a trapezoidalcross section 1' deep, with 2:1side slopes, and a 3' bottom width.
2. Geotextile Class C shallbe installed under allgabion baskets.
3. The stone used to fillthe gabion baskets shallbe 4" - 7".
4. Gabions shallbe installed in accordance with manufacturers recommendations.
5. Gabion Inflow Protection shallbe used where concentrated flow is present on slopes steeper than 4:1.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE — *B – 7 – 2* — *MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION*

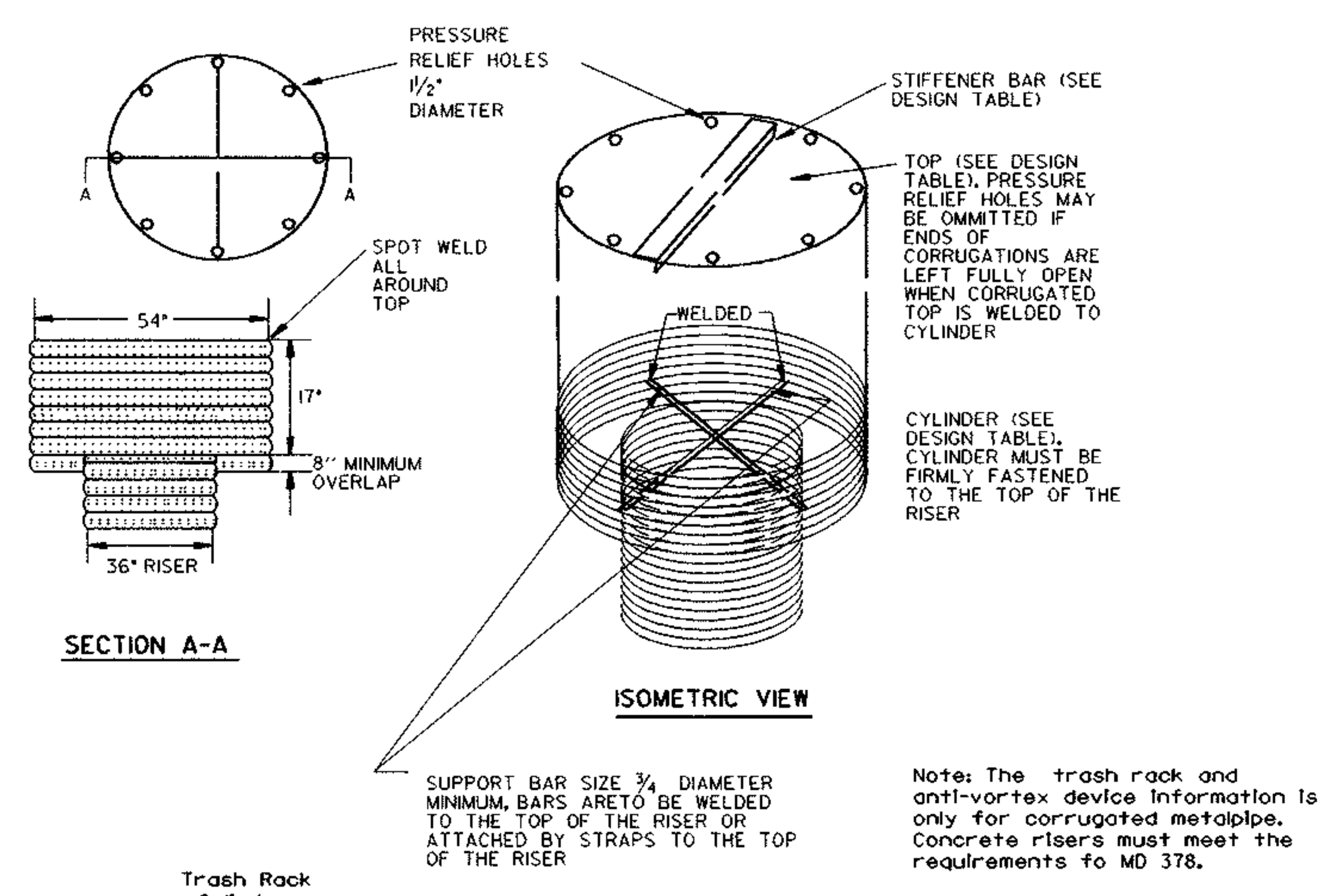
Gabion Inflow Protection

Not to Scale



U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE — C – 10 – 24 — MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

Typ. Anti–Seep Collars for P.O.S.T. & Basin #1



SUPPORT BAR SIZE ¾ DIAMETER MINIMUM, BARS ARETO BE WELDED TO THE TOP OF THE RISER OR ATTACHED BY STRAPS TO THE TOP OF THE RISER

Note: The trash rack and anti-vortex device information is only for corrugated metalpipe. Concrete risers must meet the requirements fo MD 378.

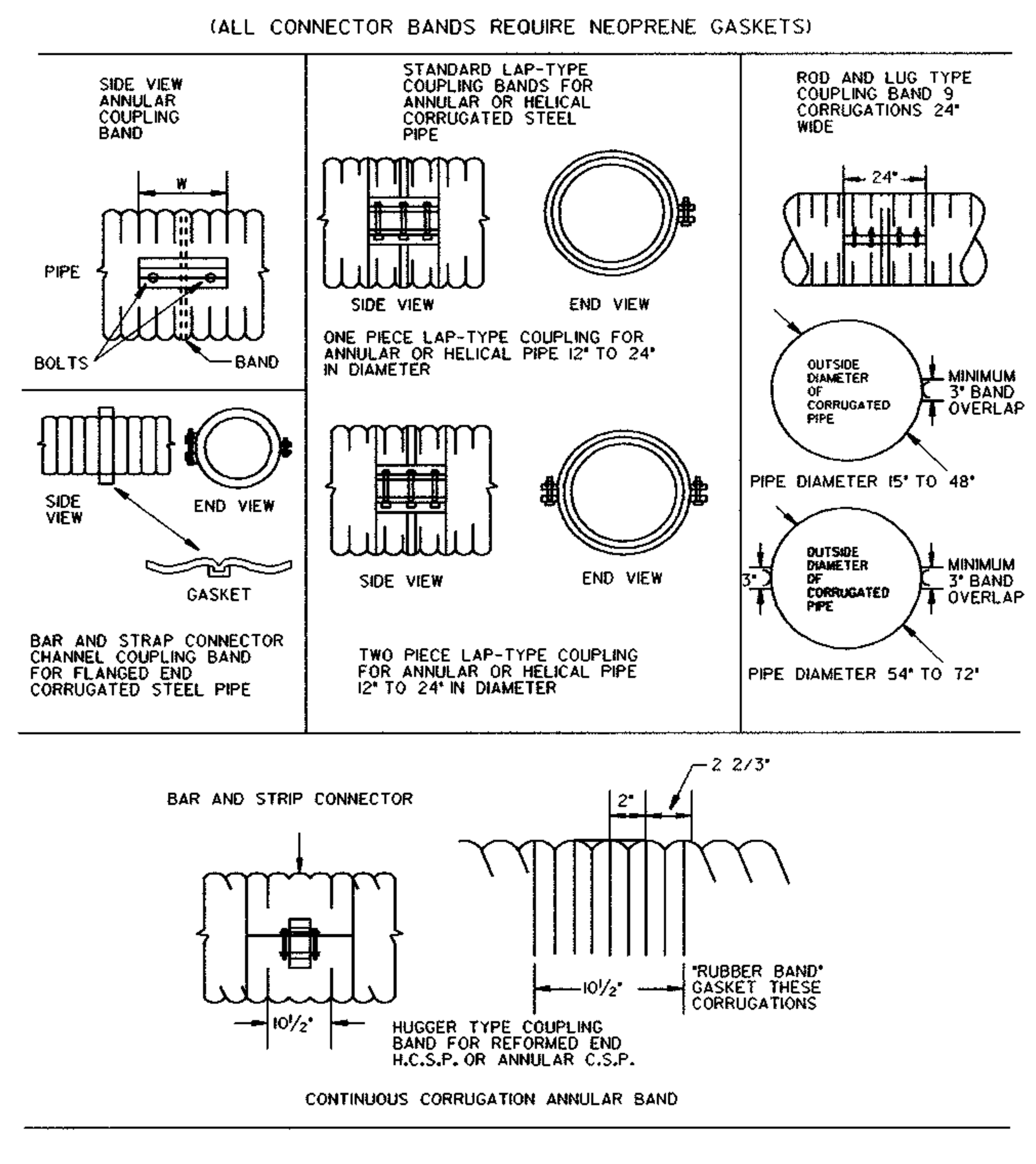
Riser Diam., in.	Trash Rack Cylinder Diam. In.	Trash Rack Cylinder Thick., gage	H. In.	Minimum Size Support Bar	Minimum Top Thickness	Minimum Top Stiffener
12	18	16	6	*6 Rebar	16 ga.	--
15	21	16	7	"	"	--
18	27	16	8	"	"	--
21	30	16	11	"	"	--
24	36	16	13	"	14 ga.	--
27	42	16	15	"	14 ga.	--
36	54	14	17	*8 Rebar	12 ga.	--
42	60	14	19	"	"	--
48	72	12	21	1-1/4" pipe or 1-1/4 x 1-1/4 x 1/4 angle	10 ga.	--
54	78	12	25	"	"	--
60	90	12	29	1-1/2" pipe or 1-1/2 x 1-1/2 x 1/4 angle	8 ga.	--
66	96	10	33	2" pipe or 2x2x3/16 angle	8 ga., w/stiffener	2x2x1/4 angle
72	102	10	36	"	"	2-1/2x2-1/2x1/4 angle
78	114	10	39	2-1/2" pipe or 2x2x1/4 angle	"	"
84	120	10	42	2-1/2" pipe or 2-1/2x2-1/2x1/4 angle	"	2-1/2x2-1/2x 5/16 angle

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE — C – 10 – 26 — MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

Concentric Trash–Rack & Anti–Vortex Device

Not to Scale

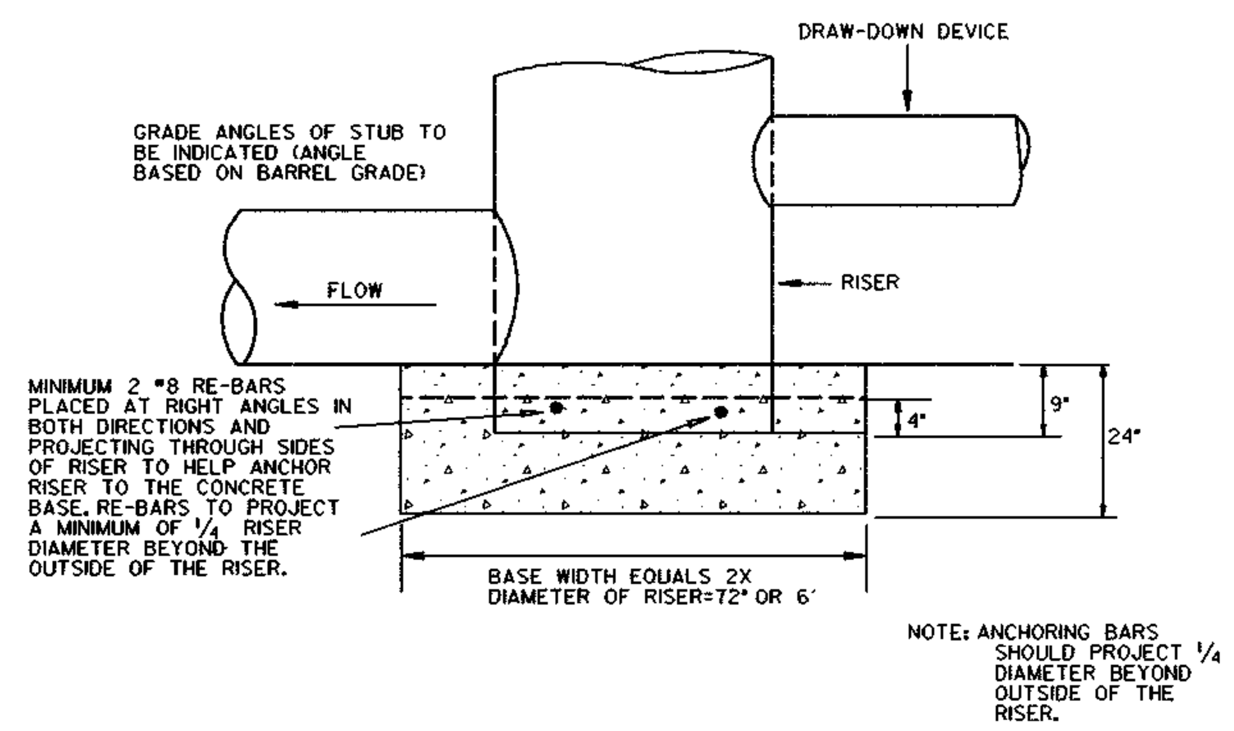
(ALL CONNECTOR BANDS REQUIRE NEOPRENE GASKETS)



NOTE: UNDER NO CIRCUMSTANCES WILL THE DIMPLE (UNIVERSAL) CONNECTOR BAND BE ACCEPTABLE FOR USE IN ANY SEDIMENT CONTROL OR STORMWATER MANAGEMENT STRUCTURE

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE — C – 10 – 27 — MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

Types of Couplers for Corrugated Steel Pipe



NOTE: ANCHORING BARS SHOULD PROJECT ¼ DIAMETER BEYOND OUTSIDE OF THE RISER.

Construction Specifications

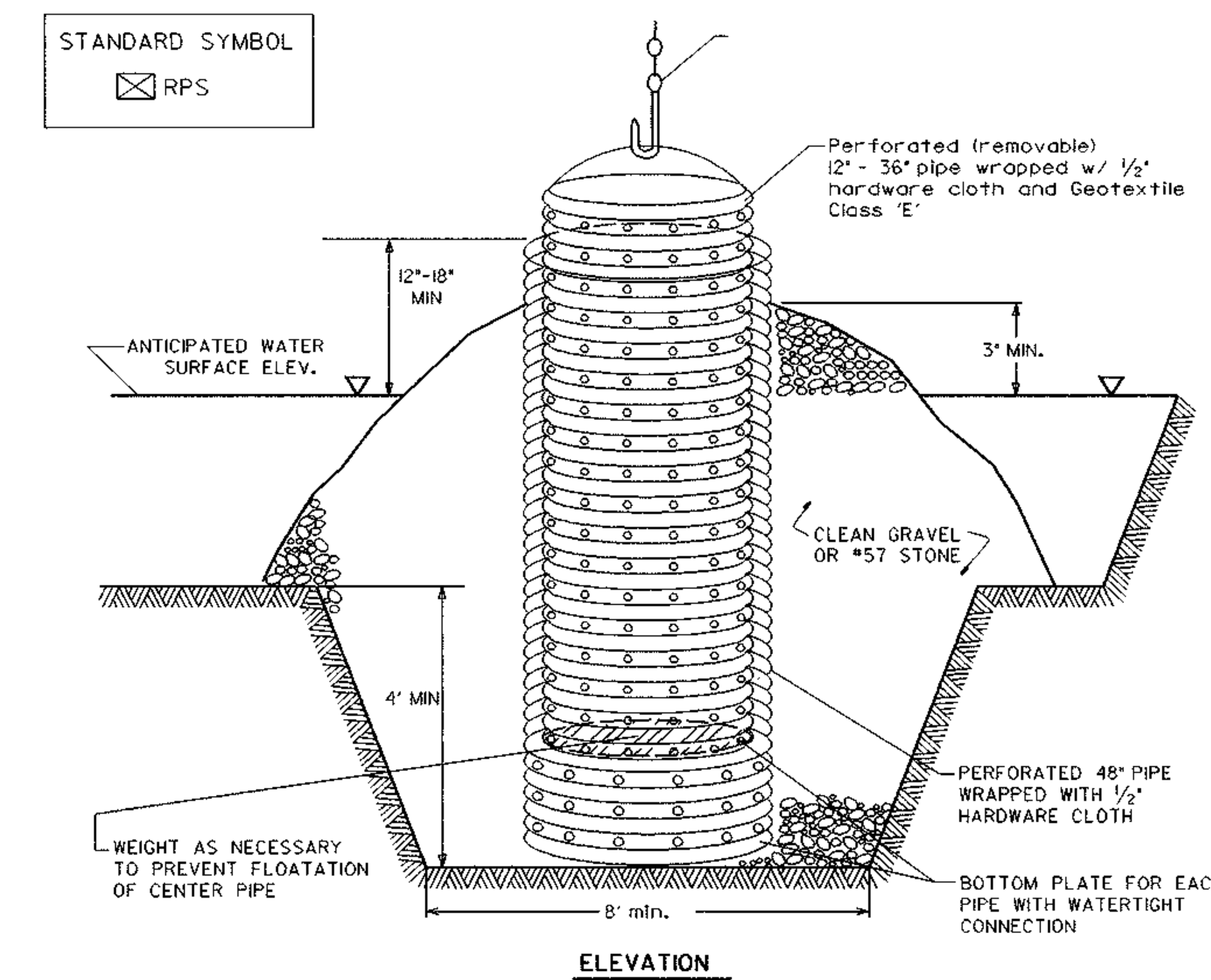
The riser shallhave a base attached with a watertight connection and shall have sufficient weight to prevent flotation of the riser. Two approved bases for risers 10' or less in height are:

1. A concrete base 18" thick with the riser embedded 9" in the base.
2. A ¼" minimum thickness steelplate attached to the riser by a continuous weld around the circumference of the riser to form a watertight connection. The plate shallhave 2' of stone, gravel, or compacted earth placed on it to prevent flotation. In either case, each side of the square base shallbe twice the riser diameter.

Note: For risers greater than ten feet high computations shallbe made to design a base which willprevent floatation. The minimum factor of safety shallbe 1.20 (downward forces = 1.20 x upward forces).

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE — C – 10 – 25 — MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

Riser Base Detail



Construction Specifications

1. The outer pipe should be 48" dia. or shall, in any case, be at least 4" greater in diameter than the center pipe. The outer pipe shallbe wrapped with ½" hardware cloth to prevent backfillmaterialfrom entering the perforations.
2. After installing the outer pipe, backfillaround outer pipe with 2" aggregate or clean gravel.
3. The inside stand pipe (center pipe) should be constructed by perforating a corrugated or PVC pipe between 12" and 36" in diameter. The perforations shall be ½" X 6" slits or 1" diameter holes 6" on center. The center pipe shallbe wrapped with ½" hardware cloth first, then wrapped again with Geotextile Class E.
4. The center pipe should extend 12" to 18" above the anticipated water surface elevation or riser crest elevation when dewatering a basin.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE — D – 12 – 5 — MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

Removable Pumping Station

Not to Scale

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 10/29/97

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 10/29/97

DIRECTOR — DATE 10/29/97

Date	No.	Revision Description

Montpelier
Research Park
HOWARD COUNTY MARYLAND

DMW
Daft · McCune · Walker, Inc.
A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals
200 East Pennsylvania Avenue Towson, Maryland 21286 410 296 3333 Fax 296 4705

SUBDIVISION NAME	SECTION/AREA	LOT/PARCEL #
Montpelier		124,125, & ROAD BED

PLAT# OR L/F	BLOCK #	ZONE	TAX/ZONE MAP	ELECT. DISTRICT	CENSUS TRACT
L3691,F505	17	PEC	41	5th	6051.02

WATER CODE	SEWER CODE
E 21	6440000

TITLE
SEDIMENT & EROSION CONTROL DETAILS

Des By: ZAL	Scale:	Proj. No. 941715
Drn By: TPC	Date: 10-9-97	7 OF 18
Chk By:	Approved:	

10-9-97
Date

STATE OF MARYLAND — MAX KANTZER — No. 16872 — REGISTERED — PROFESSIONAL ENGINEER

Professional Engr. No. 16872

DEVELOPER'S CERTIFICATION:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND 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 OF DEVELOPER — DATE 10/21/97
PRINT NAME BELOW SIGNATURE
Howard L. Rerneck

ENGINEER'S CERTIFICATION:

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

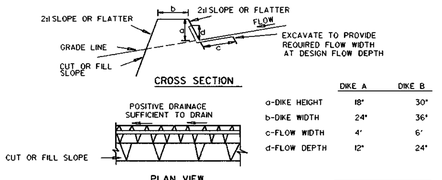
SIGNATURE OF ENGINEER — DATE 10.9.97
PRINT NAME BELOW SIGNATURE
Max Kantzer

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

U.S. NATURAL RESOURCE CONSERVATION SERVICE — DATE 10-28-97

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

HOWARD S.C.D. — DATE 10/27/97



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

STANDARD SYMBOL: A-2 B-3

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

1. Seed and cover with straw mulch.
2. Seed and cover with Erosion Control Matting or fine with sod.
3. 4" - 7" stone or recycled concrete equivalent pressed into the soil 7" minimum

Construction Specifications

1. All temporary earth dikes shall have uninterrupted positive grade to an outlet. Spot elevations may be necessary for grades less than 1%.

2. Runoff diverted from a disturbed area shall be conveyed to a sediment trapping device.

3. Runoff diverted from an undisturbed area shall outlet directly into an undisturbed, stabilized area at a non-erosive velocity.

4. All trees, brush, stumps, obstructions, and other objectionable material shall be removed and disposed of so as not to interfere with the proper functioning of the dike.

5. The dike shall be excavated or shaped to line, grade and cross section as required to meet the criteria specified herein and be free of bank projections or other irregularities which will impede normal flow.

6. Fill shall be compacted by earth moving equipment.

7. All earth removed and not needed for construction shall be placed so that it will not interfere with the functioning of the dike.

8. Inspection and maintenance must be provided periodically and after each rain event.

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

A - 1 - 6

MARYLAND DEPARTMENT OF ENVIRONMENT
WATER MANAGEMENT ADMINISTRATION

Earth Dike

Not to Scale

1. A MINIMUM OF 24 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY OFFICE OF INSPECTIONS AND PERMITS PRIOR TO THE START OF ANY CONSTRUCTION (992-2437).

2. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.

3. FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN:

   A. SEVEN CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1

   B. FOURTEEN 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. I, 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, SOD, TEMPORARY SEEDING, AND MULCHING (SECTION G). 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:

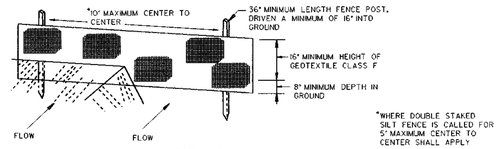
TOTAL AREA OF SITE	104.0 ACRES
AREA DISTURBED	93.5 ACRES
AREA TO BE ROOFED OR PAVED	9.0 ACRES
AREA TO BE VEGETATIVELY STABILIZED	42.0 ACRES
TOTAL CUT	240,000 CUBIC YARDS
TOTAL FILL	240,000 CUBIC YARDS
OFF-SITE WASTE/BORROW AREA LOCATION	WASTE = NA

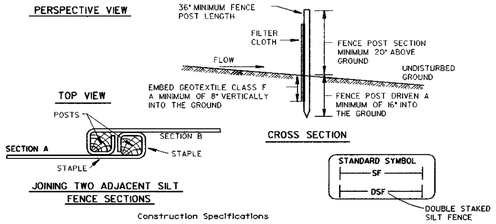
8. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.

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.

Howard County Sediment Control General Notes





STANDARD SYMBOL: SF, DSF — DOUBLE STAKED SILT FENCE

Construction Specifications

1. Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be 1½" x 1½" square (minimum) cut, or 1¾" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard T or U section weighting not less than 1.00 pond per linear foot.

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

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

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

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

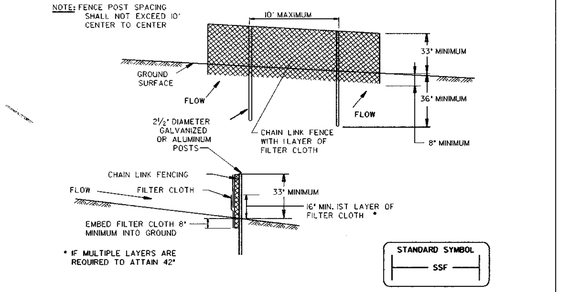
U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

E - 15 - 3

MARYLAND DEPARTMENT OF ENVIRONMENT
WATER MANAGEMENT ADMINISTRATION

Silt Fence

Not to Scale



STANDARD SYMBOL: SSF

Construction Specifications

1. Fencing shall be 42 inches in height and constructed in accordance with the latest Maryland State Highway (SHA) Details for Chain Link Fencing. The specification for a 6' fence shall be used, substituting 42" fabric and 6' length posts.

2. The posts do not need to be set in concrete.

3. Chain link fence shall be fastened securely to the fence posts with wire ties or staples. The lower tension wire, brace and truss rods, drive anchors and post caps are not required except on the ends of the fence. The chain link fencing shall be six (6) guage or heavier.

4. Filter cloth shall be fastened securely to the chain link fence with ties spaced every 24" at the top and mid section.

5. Filter cloth shall be embedded a minimum of 8" into the ground.

6. When two sections of filter cloth adjoin each other, they shall be overlapped by 6" and folded.

7. Maintenance shall be performed as needed and silt bulldups removed when "bulges" develop in the silt fence, or when silt reaches 50% of fence height

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

H - 26 - 3

MARYLAND DEPARTMENT OF ENVIRONMENT
WATER MANAGEMENT ADMINISTRATION

Super Silt Fence

Not to Scale

PERMANENT SEEDING NOTES

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

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

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

SEEDING - FOR THE PERIODS MARCH 1 THRU APRIL 30, AND AUGUST 1 THRU OCTOBER 15, SEED WITH 60 LBS. PER ACRE (1.4 LBS./1000 SQ.FT.) OF KENTUCKY 31 TALL FESCUE. FOR THE PERIOD MAY 1 THRU JULY 31 SEED WITH 60 LBS. KENTUCKY 31 TALL FESCUE PER ACRE AND 2 LBS. PER ACRE (.05 LBS/1000 SQ.FT.) OF WEEPING LOVEGRASS. DURING THE PERIOD OF OCTOBER 16 THRU FEBRUARY 28, PROTECT SITE BY: OPTION (1) - 2 TONS PER ACRE 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 1-1/2 TO 2 TONS PER ACRE (70 TO 90 LBS/1000 SQ.FT.) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATIONS USING MULCH ANCHORING TOOL OR 218 GALLONS PER ACRE (5 GAL/1000 SQ.FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS, ON SLOPES 8 FEET OR HIGHER, USE 348 GALLONS PER ACRE (8 GAL/1000 SQ.FT.) FOR ANCHORING.

MAINTENANCE - INSPECT ALL SEEDING AREAS AND MAKE NEEDED REPAIRS, REPLACEMENTS AND RESEEDING.

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 BE RAKING, DISKING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.

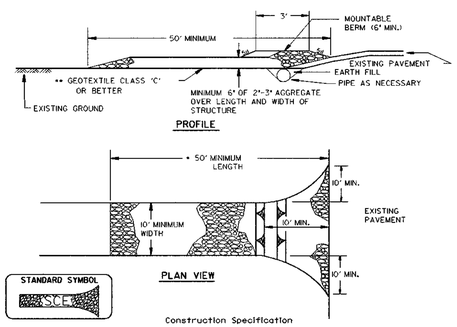
SOIL AMENDMENTS - APPLY 600 LBS. PER ACRE 10-10-10 FERTILIZER (14 LBS/1000 SQ.FT.)

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

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

Temporary And Permanent Seeding Notes



Construction Specification

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

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

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

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

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

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

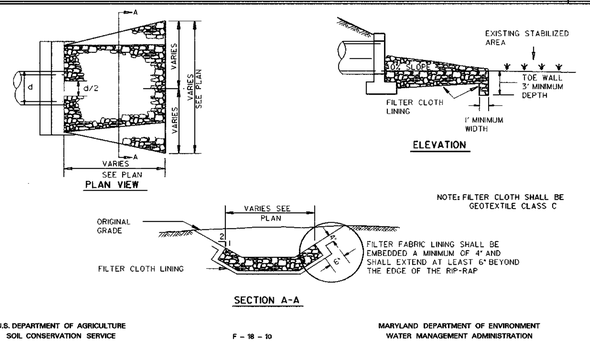
U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

F - 17 - 3

MARYLAND DEPARTMENT OF ENVIRONMENT
WATER MANAGEMENT ADMINISTRATION

Stabilized Construction Entrance

Not to Scale



U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

F - 18 - 9

MARYLAND DEPARTMENT OF ENVIRONMENT
WATER MANAGEMENT ADMINISTRATION

Stone Outlet Protection III

NOT TO SCALE

Construction Specifications

1. The subgrade for the filter, rip-rap, or gabion shall be prepared to the required lines and grades. Any fill required in the subgrade shall be compacted to a density of approximately that of the surrounding undisturbed material.

2. The rock or gravel shall conform to the specified grading limits when installed respectively in the rip-rap or filter.

3. Geotextile class C shall be protected from punching, cutting, or tearing. Any damage other than an occasional small hole shall be repaired by placing another piece of geotextile over the damaged port or by completely replacing the geotextile. All overlaps whether for repairs or for joining two pieces of geotextile shall be a minimum of one foot.

4. Stone for the rip-rap or gabion outlets may be placed by equipment. They shall be constructed to the full course thickness in one operation and in such a manner as to avoid displacement of underlying materials. The stone for rip-rap or gabion outlets shall be delivered and placed in a manner that will ensure that it is reasonably homogeneous with the smaller stones and spalls filling the voids between the larger stones. Rip-rap shall be placed in a manner to prevent damage to the filter blanket or geotextile. Hand placement will be required to the extent necessary to prevent damage to the permanent works.

5. The stone shall be placed so that it blends in with the existing ground. If the stone is placed too high then the flow will be forced out of the channel and scour adjacent to the stone will occur.

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

F - 18 - 8A, 9A, 10A

MARYLAND DEPARTMENT OF ENVIRONMENT
WATER MANAGEMENT ADMINISTRATION

Stone Outlet Protection Specifications

DEVELOPER'S CERTIFICATION:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND 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 OF DEVELOPER — DATE 10/21/97
PRINT NAME BELOW SIGNATURE
Howard L. Rensch

ENGINEER'S CERTIFICATION:

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

SIGNATURE OF ENGINEER — DATE 10.9.97
PRINT NAME BELOW SIGNATURE
Max Kantzer

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

U.S. NATIONAL RESOURCE CONSERVATION SERVICE — DATE 10-20-97

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

HOWARD S.C.D. — DATE 10/27/97

10.9.97
Date

STATE OF MARYLAND — MAX KANTZER — 16872 — REGISTERED PROFESSIONAL ENGINEER

Professional Engr. No. 16872

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 10/29/97

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 10/29/97

DIRECTOR — DATE 10/29/97

Date	No.	Revision Description
3-2-98	1	LIMIT OF DISTURBANCE

Montpelier
Research Park
HOWARD COUNTY MARYLAND

DMW
Daft · McCune · Walker, Inc.
A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals
200 East Pennsylvania Avenue
Towson, Maryland 21286
410 296 3333
Fax 296 4705

SUBDIVISION NAME: Montpelier			SECTION/AREA		LOT/PARCEL #: 124,125, & ROAD BED
PLAT# OR L/F: L.3691,F.505	BLOCK #: 17	ZONE: PEC	TAX/ZONE MAP: 41	ELEC. DISTRICT: 5th	CENSUS TRACT: 6051.02
WATER CODE: E 21			SEWER CODE: 6440000		

TITLE: SEDIMENT & EROSION CONTROL DETAILS

Des By: ZAL	Scale:		Proj. No. 941715
Drn By: TPC	Date: 10-9-97		8 OF 18
Chk By:	Approved:		

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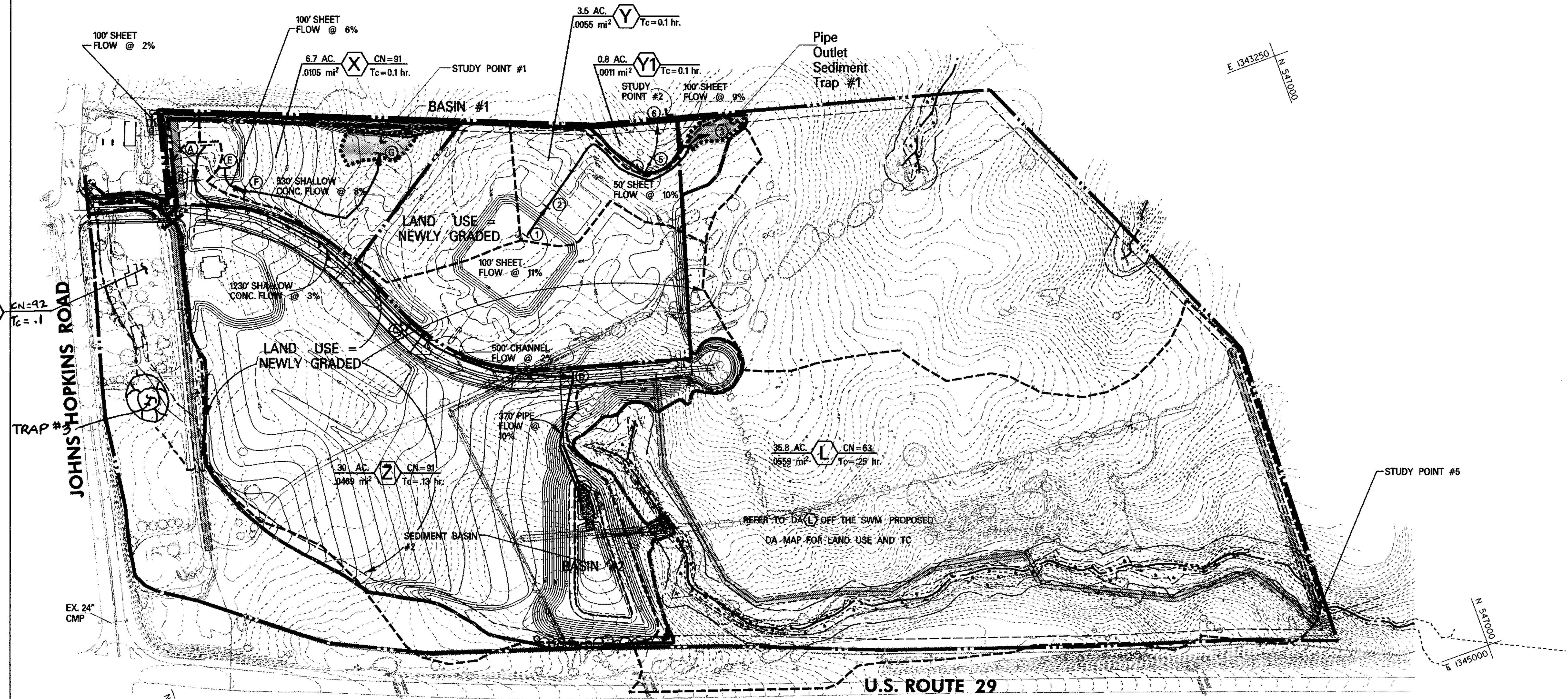
SDP-98-11



Sediment & Erosion Control D.A. Map (interim conditions)

Scale: 1" = 200'

NORTH

NOTE:

1. REFER TO THE SWM EXISTING CONDITIONS D.A. MAP ON SHEET 10 FOR EXISTING CONDITIONS INFORMATION.

2. A LAND USE OF ROW CROPS WAS USED FOR DA 'A' TO ESTABLISH AN EXISTING PEAK FLOW AT STUDY POINT #1 TO REFLECT ACTUAL FIELD CONDITIONS. (SAME D.A. AS ON SHEET 10.)

Landscape Specifications

SEE SHEET SHEET 5 FOR PLANTING PLAN

1. The contractor shall review engineering plans to become thoroughly familiar with the grading.

2. All equipment and tools shall be placed so as not to interfere or hinder the vehicular traffic flow.

3. The contractor shall coordinate with the general contractor regarding timing of installation of plant material.

4. The contractor shall insure that his work does not interrupt established or projected drainage patterns.

5. During planting operations, excess waste materials shall be promptly and frequently removed from the site.

6. Call Miss Utility a minimum of three days prior to any excavation. The contractor is advised of the existence of underground utilities on the site. Their exact location shall be verified in the field with the owner or general contractor prior to the commencement of any digging operations. In the event they are uncovered, the contractor shall be held responsible for all damage to utilities and such damage shall not result in any additional expenses to the owner. Any damage to unreported lines shall not be the responsibility of the contractor.

7. If utility lines are encountered in excavation of tree pits, other locations for trees shall be made by the contractor without additional compensation. No changes of location shall be made without approval of the landscape architect.

8. In the event of variation between quantities shown on the plant list and the plans, the plans shall control. The contractor is responsible for verifying all plant quantities prior to the commencement of work. All discrepancies shall be reported to the landscape architect for clarification prior to bidding. The contractor shall furnish plant material in sizes as specified in the plant list.

9. Plants shall be located as shown on the drawings or as designated in the field.

10. Plants shall conform to current "American Standards for Nursery Stock" by American Association of Nurserymen (AAN), particularly with regard to size, growth, size of ball, and density of branch structure. Plant material shall be tagged at the source by the landscape architect unless this requirement is specifically waived.

11. All plants (B&B or container) shall be properly identified by weather-proof labels securely attached thereto before delivery to project site. Labels shall identify plants by name, species, and size. Labels shall not be removed until the final inspection by the landscape architect or agent in charge.

12. Any material and/or work may be rejected by the landscape architect if it does not meet the requirements of the specifications. All rejected materials shall be removed from the site by the contractor.

13. No substitutions shall be made without written consent of the owner or landscape architect.

14. The landscape architect or owner shall have the right, at any stage of the operations, to reject any and all work and material which, in his opinion, does not meet the requirements of these plans and specifications.

15. The contractor shall be wholly responsible for stability and conditions of all trees and shrubs and shall be legally liable for any damage caused by instability of any plant materials. Staking of all trees shall be done utilizing a method agreed upon by the landscape architect, as indicated on the this sheet.

16. Maintenance shall begin after each plant has been installed and shall continue until 90 days after final acceptance by the architect or owner representative. Maintenance includes watering, pruning, weeding, fertilizing, mulching, replacement of sick or dead plants, and any other care necessary for the proper growth of the plant material. The contractor must be able to provide continued maintenance if requested by the owner.

17. Upon completion of all landscaping, an acceptance of the work shall be held. The contractor shall notify the landscape architect or owner for scheduling the inspection at least seven (7) days prior to the anticipated inspection date.

18. All trees shall be guaranteed for 12 months from the date of acceptance. All shrubs shall be guaranteed for 12 months from the date of acceptance. Replacement plants used shall be guaranteed for an additional 90 days.

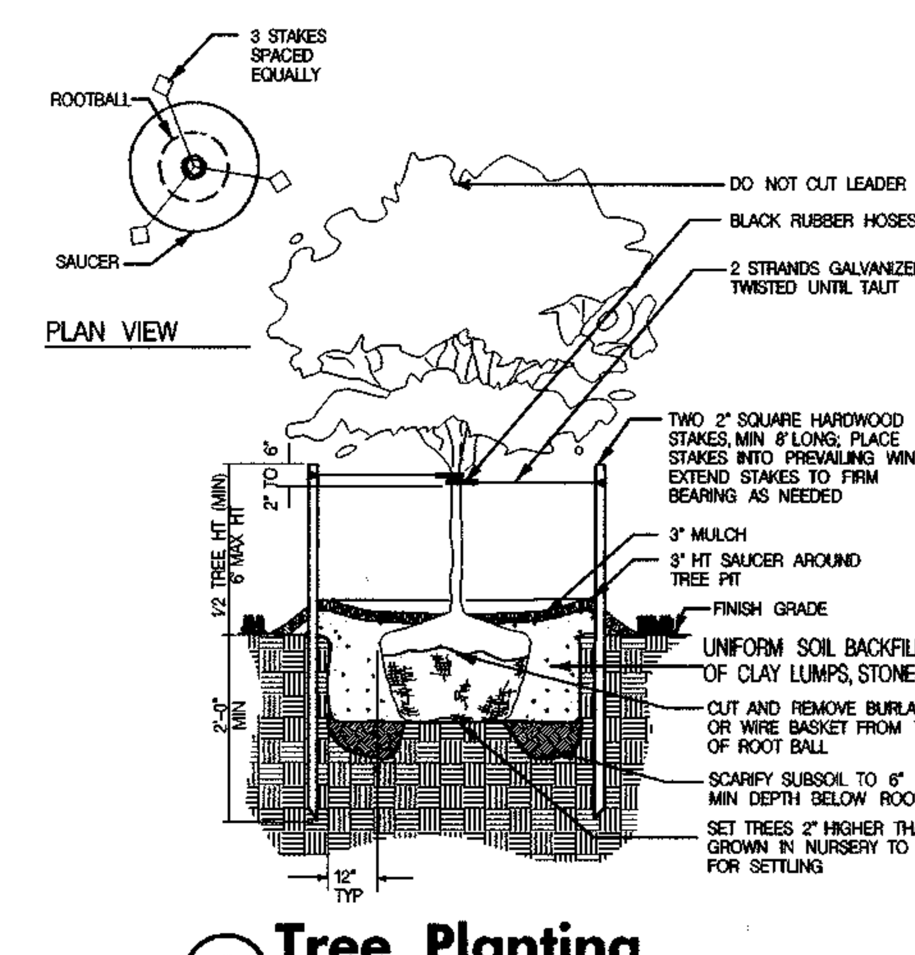
19. The contractor shall dispose of stumps and major roots of all plants to be removed. Any depressions caused by removal operations shall be refilled with fertile, friable soil placed and compacted so as to reestablish proper grade for new planting and/or lawn areas.

20. The contractor shall insure adequate vertical drainage in all plant beds.

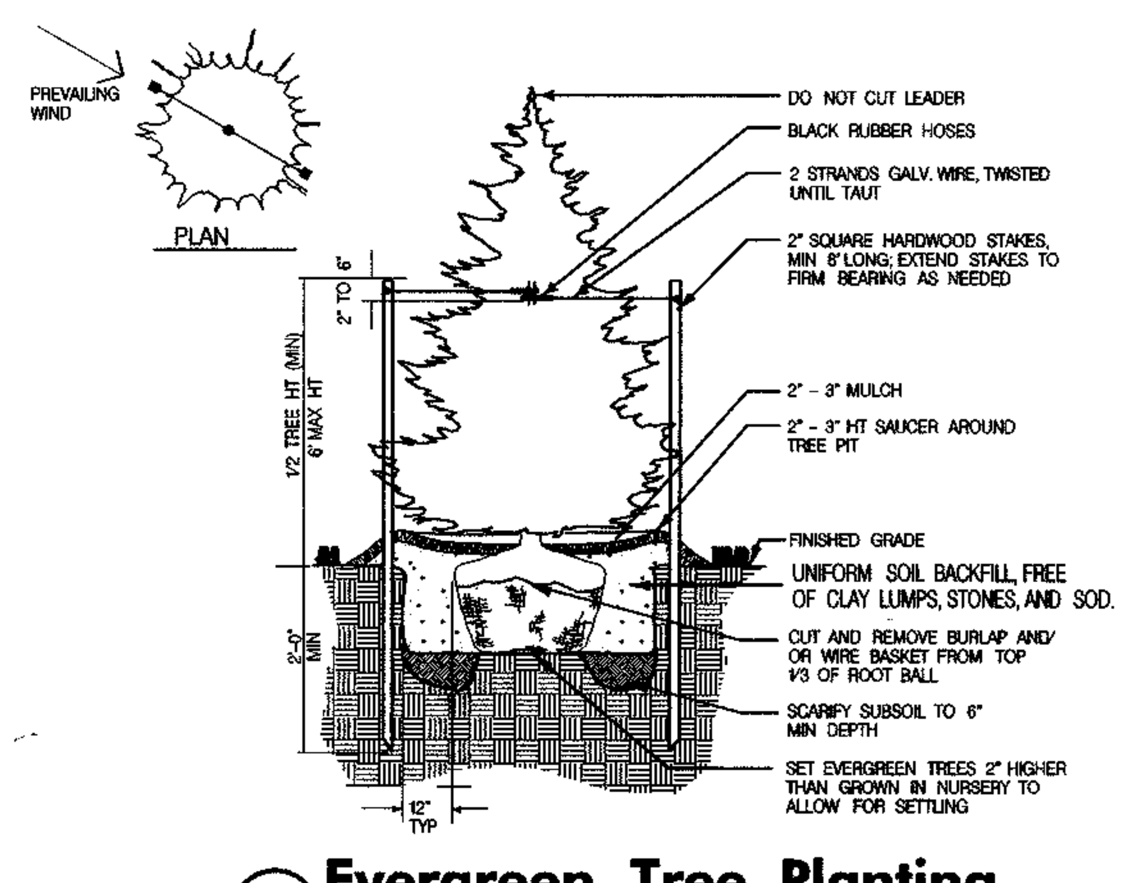
21. All disturbed areas of the site not planted with shrubs shall be fine graded and seeded.

Plant List

QTY	SYM	BOTANICAL NAME/ COMMON NAME	SIZE	REMARKS
TREES				
5	L	Liquidambar styraciflua American Sweetgum	2 1/2"- 3" CAL. 12-14' HT.	B & B FULL HEAD
9	PS	PINUS STROBUS Eastern White Pine	6-8' HT.	B & B UNSHEARED
SHRUBS				
25	VB	VIBURNUM PRUNIFOLIUM Blackhaw Viburnum	3-4' HT.	FULL

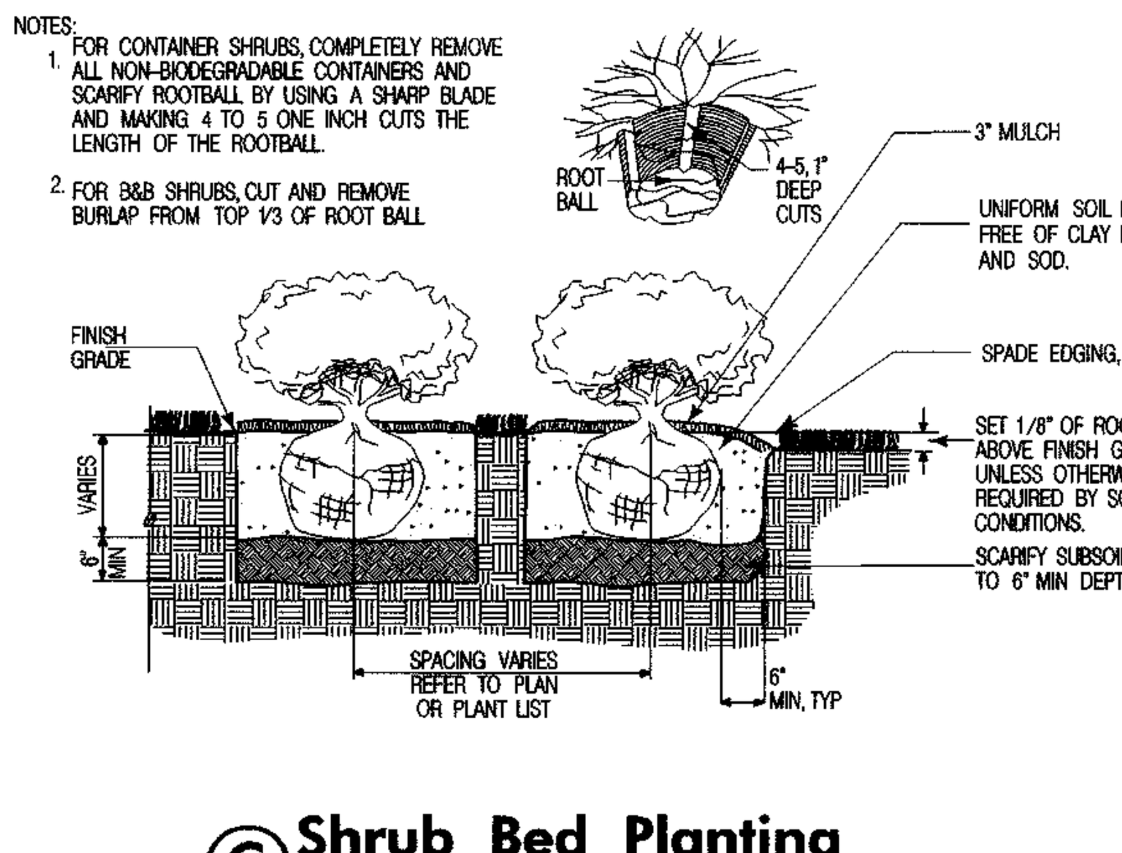


A Tree Planting
Not To Scale



B Evergreen Tree Planting
Not To Scale

NOTES:
1. FOR CONTAINER SHRUBS, COMPLETELY REMOVE ALL NON-BIODEGRADABLE CONTAINERS AND SCARIFY ROOTBALL BY USING A SHARP BLADE AND MAKING 4 TO 5 ONE INCH CUTS THE LENGTH OF THE ROOTBALL.
2. FOR B&B SHRUBS, CUT AND REMOVE BURLAP FROM TOP 1/3 OF ROOT BALL.



C Shrub Bed Planting
Not To Scale

Topsoil Specifications

FOR SEDIMENT CONTROL /STABILIZATION PURPOSES

21.0 STANDARD AND SPECIFICATIONS
FOR
TOPSOIL

Definition

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

Purpose

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

Conditions Where Practice Applies

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

a. The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.

b. The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.

c. The original soil to be vegetated contains material toxic to plant growth.

d. The soil is so acidic that treatment with limestone is not feasible.

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

Construction and Material Specifications

I. Topsoil salvaged from the existing site may be used provided that it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-SCS in cooperation with Maryland Agricultural Experimental Station.

II. Topsoil Specifications – Soil to be used as topsoil must meet the following:

i. Topsoil shall be a loam, sandy loam, clay loam, silt loam, sandy clay loam, loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Regardless, topsoil shall not be mixture of contrasting textured subsoils and shall contain less than 5% by volume of cinders, stones, slags, coarse fragments, gravel sticks, roots, trash, and other materials larger 1 1/2 inch in diameter.

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

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

II. For sites having disturbed areas under 5 acres:

i. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization – Section I – Vegetative Stabilization Methods and Materials.

III. For sites having disturbed areas over 5 acres:

I. On soil meeting Topsoil specifications, obtain test results dictating fertilizer and lime amendments required to bring the soil into compliance with the following:

a. pH for topsoil shall be between 6.0 and 7.5. If the tested soil demonstrates a pH of less than 6.0, sufficient lime shall be prescribed to raise the pH to 6.5 or higher.

b. Organic contents of topsoil shall be not less than 1.5 percent by weight.

c. Topsoil having soluble salt content greater than 500 parts per million shall not be used.

d. No sod or seed shall be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of phyto-toxic materials.

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

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

V. Topsoil Application

i. When topsoiling, maintain needed erosion and sediment control practices such as diversions, Grade Stabilization Structures, Earth Dikes, Slop Silt Fence and Sediment Traps and Basins.

ii. Grades on the areas to be topsoiled, which have been previously established, shall be maintained, albeit 4* – 8* higher in elevation.

iii. Topsoil shall be uniformly distributed in a 4* – 8* layer and lightly compacted to a minimum thickness of 4*. Spreading shall be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations shall be corrected in order to prevent the formation of depressions or water pockets.

iv. Topsoil shall not be placed while the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparation.

LEGEND

SYMBOL	DESCRIPTION
	DRAINAGE AREA
	STREAM
	EXISTING CONTOURS
	EXISTING TREES/ TREE LINE
	WETLAND/STREAM BUFFER
	WETLAND
400	PROPOSED CONTOURS
	FLOODPLAIN
	LIMIT OF DISTURBANCE
	20' WIDE UTILITY EASEMENT
	DRAINAGE FLOW LINE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 10/29/97
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 10/29/97
DIRECTOR — DATE 10/29/97

Date	No.	Revision Description
3-2-98	1	SEDIMENT CONTROL DRAINAGE AREA MAP

Montpelier Research Park

HOWARD COUNTY MARYLAND

OWNER/DEVELOPER: HOPKINS ROAD LIMITED PARTNERSHIP
9030 RED BRANCH ROAD, SUITE 200 COLUMBIA, MD 21045

DMW
Daft · McCune · Walker, Inc.
A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals
200 East Pennsylvania Avenue
Towson, Maryland 21286
410 296 3333
Fax 296 4705

10-9-97
Date

STATE OF MARYLAND — MAX KANTZER — No. 16872 — REGISTERED PROFESSIONAL ENGINEER

Professional Engr. No. 16872

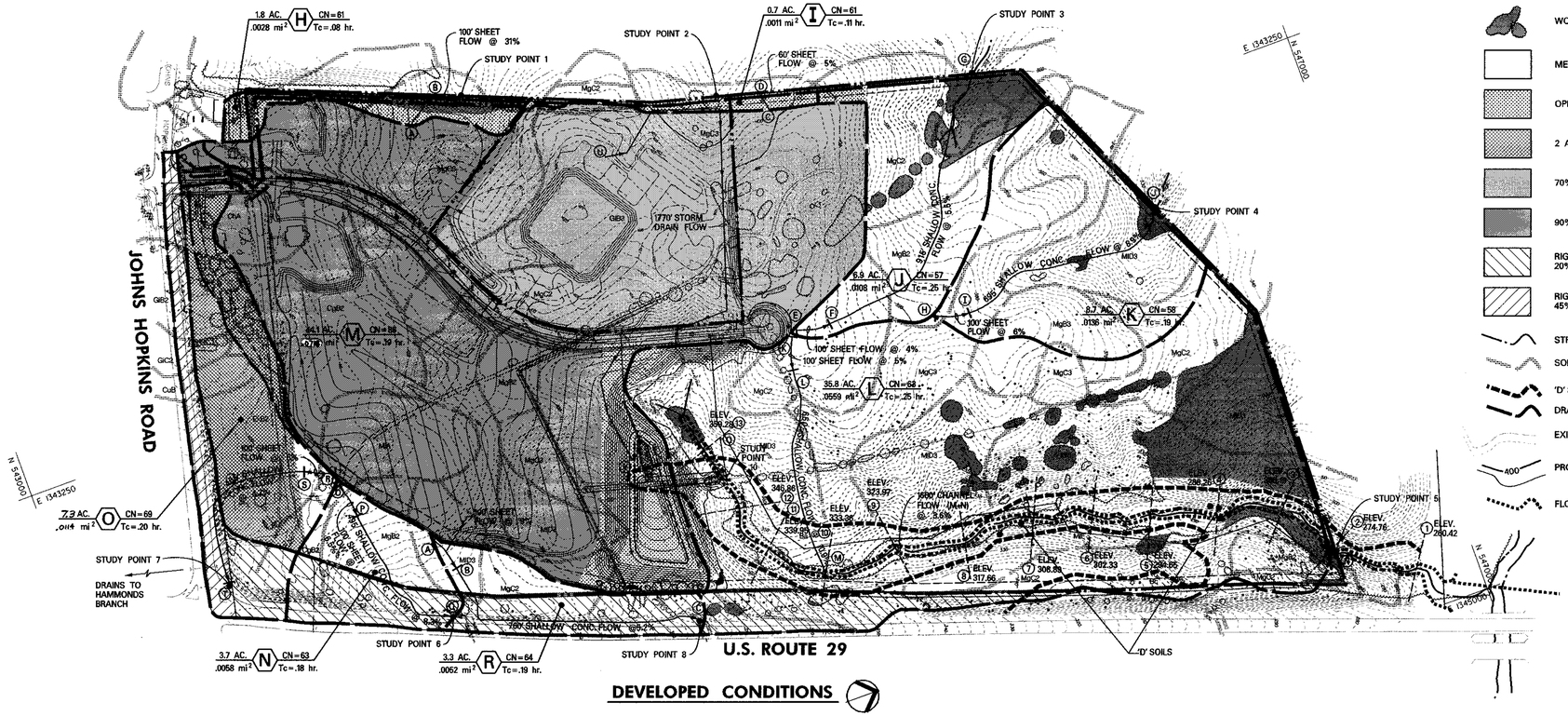
SUBDIVISION NAME	SECTION/AREA	LOT/PARCEL #
Montpelier		124,125, & ROAD BED

PLAT# OR L/F	BLOCK #	ZONE	TAX/ZONE MAP	ELECT. DISTRICT	CENSUS TRACT
L3691,F505	17	PEC	41	5th	6051.02

WATER CODE	SEWER CODE
E 21	6440000

TITLE **DRAINAGE AREA MAP/ LANDSCAPE PLANT LIST, SPECS.**

Des By: ZAL	Scale: 1" = 200'	Proj. No. 941715
Drn By: TPC	Date: 10–9–97	9 OF 18
Chk By:	Approved:	

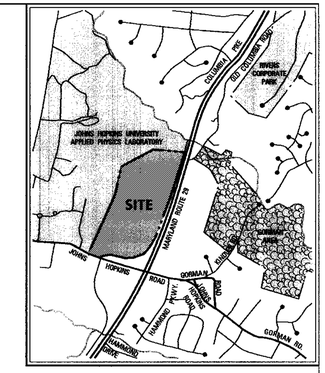


DEVELOPED CONDITIONS

NORTH

DEVELOPED CONDITIONS LAND USE LEGEND

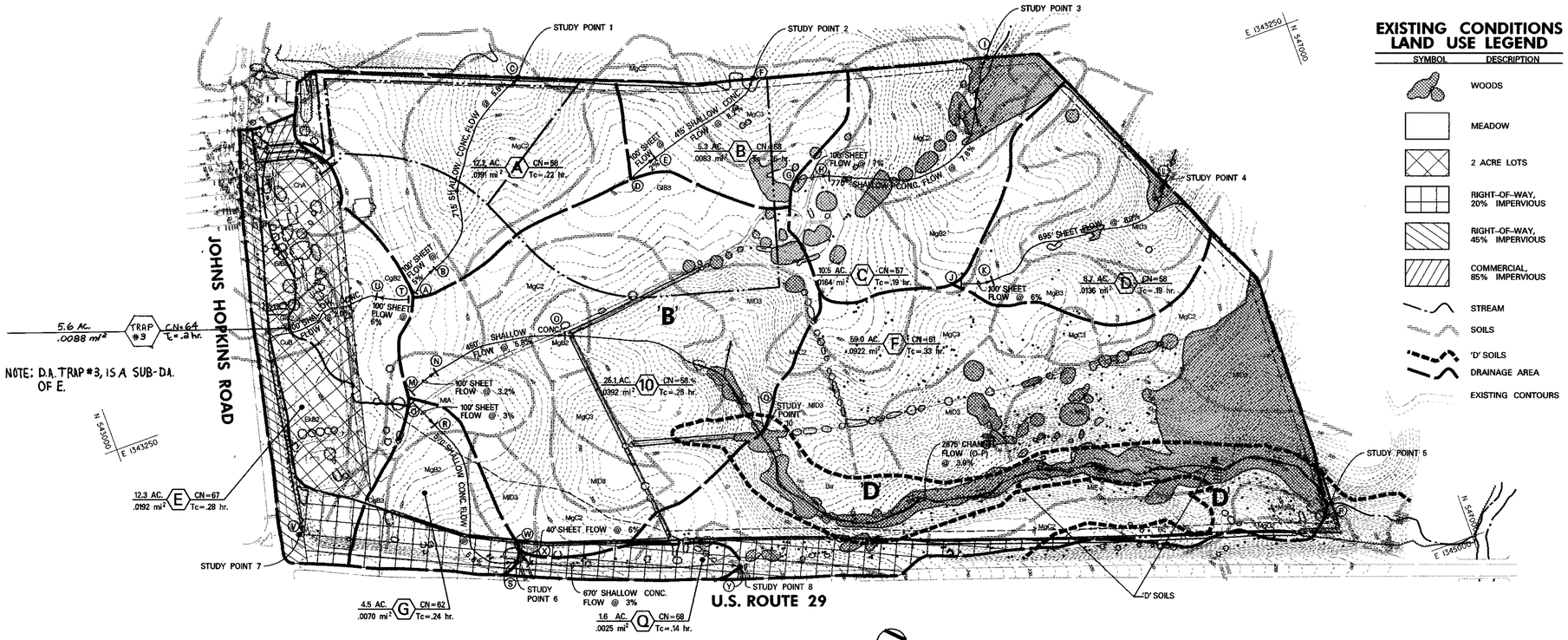
SYMBOL	DESCRIPTION
	WOODS
	MEADOW
	OPEN SPACE
	2 ACRE LOTS
	70% IMPERVIOUS
	90% IMPERVIOUS
	RIGHT-OF-WAY, 20% IMPERVIOUS
	RIGHT-OF-WAY, 45% IMPERVIOUS
	STREAM
	SOILS
	'D' SOILS
	DRAINAGE AREA
	EXISTING CONTOURS
400	PROPOSED CONTOURS
	FLOOD PLAIN



NORTH

LOCATION MAP

SCALE: 1" = 2000'



EXISTING CONDITIONS

NORTH

EXISTING CONDITIONS LAND USE LEGEND

SYMBOL	DESCRIPTION
	WOODS
	MEADOW
	2 ACRE LOTS
	RIGHT-OF-WAY, 20% IMPERVIOUS
	RIGHT-OF-WAY, 45% IMPERVIOUS
	COMMERCIAL, 85% IMPERVIOUS
	STREAM
	SOILS
	'D' SOILS
	DRAINAGE AREA
	EXISTING CONTOURS

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 10/29/97

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 10/29/97

DIRECTOR — DATE 10/29/97

Date	No.	Revision Description
3-4-98	1	REVISED DEVELOPED CONDITIONS DRAINAGE AREA

Montpelier
Research Park
HOWARD COUNTY MARYLAND

OWNER/DEVELOPER: HOPKINS ROAD LIMITED PARTNERSHIP
9030 RED BRANCH ROAD, SUITE 200 COLUMBIA, MD 21045

DMW
Daft · McCune · Walker, Inc.
A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals
200 East Pennsylvania Avenue, Towson, Maryland 21286
410 296 3333 Fax 296 4705

10.9.97 Date

STATE OF MARYLAND — NO. 16872 — REGISTERED PROFESSIONAL ENGINEER

Professional Engr. No. 16872

SUBDIVISION NAME: Montpelier			SECTION/AREA		LOT/PARCEL #: 124,125, & ROAD BED
PLAT# OR L/F: L3691,F505	BLOCK #: 17	ZONE: PEC	TAX/ZONE MAP: 41	ELECT. DISTRICT: 6th	CENSUS TRACT: 6051.02
WATER CODE: E 21			SEWER CODE: 6440000		

TITLE
STORMWATER MANAGEMENT DRAINAGE AREA MAPS

Des By: ZAL	Scale: 1" = 200'	Proj. No. 941715
Drn By: MSS	Date: 10-9-97	10 OF 18
Chk By:	Approved:	

Tue Sep 9 11:56:06 1997 d:\941715\941715.dwl SDP 98-11

NOTE:
PRIOR TO STAKEOUT OF S-500, CONTRACTOR TO VERIFY CROSS SECTION AND INVERT OF STREAM AND NOTIFY ENGINEER IF THERE ARE DISCREPANCIES.

IF UNSUITABLE (PERVIOUS) MATERIAL IS ENCOUNTERED AT TIME OF CUT-OFF TRENCH INSTALLATION DEEPER THAN FOUR (4) FEET, IT WILL BE NECESSARY TO EXTEND THE CUT-OFF TRENCH DOWN UNTIL SUITABLE MATERIAL IS ENCOUNTERED AS DETERMINED BY A GEOTECHNICAL ENGINEER. FILL MATERIAL FOR THE CUT-OFF TRENCH AND IMPERVIOUS CORE SHALL CONFORM TO UNIFIED SOIL CLASSIFICATION GC, SC, CH, OR CL. CONSIDERATION MAY BE GIVEN TO THE USE OF OTHER MATERIALS IN THE EMBANKMENT IF DESIGN AND CONSTRUCTION ARE SUPERVISED BY A GEOTECHNICAL ENGINEER.

General Notes:

1. This facility is privately owned and shall be privately maintained.

2. This facility lies within the Middle Patuxent River watershed.

3. This facility is hazard class A.

INSPECTION SCHEDULE

Prior notification shall be given to the engineer so that inspections may be made at the following stages:

1. Upon completion of excavation to subfoundation and where required, installation of structural supports or reinforcement for sturctures, including but not limited to:
   a) Core trenches for structural embankments
   b) Inlet-outlet structures and anti-seep structures, watertight connectors on pipes; and
   c) Trenches for enclosed storm drainage facilities.
2. During placement of structural fill, concrete, and installation of piping and catch basins;
3. During backfill of foundations and trenches;
4. During embankment construction; and
5. Upon completion of final grading and establishment of permanent stabilization.

No work shall proceed until engineer inspects and approves the work previously completed.

MAINTENANCE SCHEDULE

Routine Maintenance

1. The facilities shall be inspected annually and after major storms. Inspections should be performed during wet weather to determine if the ponds are functioning properly. The facilities shall be inspected in accordance with the checklist and requirements contained within USDA, NRCS Standards and Specifications for Ponds (MD-378). The pond owner(s) and any heirs, successors, or assigns shall be responsible for the safety of the ponds and the countinued operation, surveillance, inspection, and maintenance there of. The pond owner(s) shall promptly notify the Soil Conservation District of any unusual observations that may be indications of distress such as exossive seepage, turbid seepage, sliding, or slumping.

2. The top and side slopes of the embankments shall be mowed a minimum of two (2) times a year, once in June and once in September. Other side slopes, the bottom of the pond, and maintenance access should be mowed as needed.

3. Debris and litter next to the outlet structure shall be removed during regular mowing operations and as needed.

4. Visible signs of erosion in the ponds as well as rip rap outlet areas shall be repaired as soon as it is noticed.

Non-Routine Maintenance

1. Structural components of the ponds such as the dam, the riser, and the pipes shall be repaired upon the detection of any damage. The components should be inspected during routine maintenance operations.

2. Sediment should be removed when its accumulation significantly reduces the design storage, interferes with the function of the riser, when deemed necessary for aesthetic reasons, or when deemed necessary by Howard County's Department(s) of Public Works / Zoning.

GEOTECH RECOMMENDATIONS

1. The earthwork operations should be accomplished during the drier seasons , preferably during the summer months, when rainfall is less.

2. Construct earth berms or other appropriate features along the top of any newly created or existing slope, where possible, to control surface run-off and minimize the formation of gullies down the face of the slope until slope stabilization is achieved.

3. Immediately after final grading, the slopes should be seeded, feterilized and covered with an appropriate mulch and binder.

4. Periodic examination of the slope areas during and after construction to locate and regrade any slope areas subjected to scouring from excessive surface run-off.

DESIGN FLOW SUMMARY

Pond 1	2-Year	10-Year	100-Year
Proposed Inflow (cfs)	112.29	206.11	309.42
Allowable Release (cfs)	N/A	N/A	N/A
Proposed Outflow (cfs)	1.97	15.52	84.63
Water Surface Elevation (ft)	370.57	372.47	374.12
Storage Provided (AC - ft)	5.33	8.57	11.45

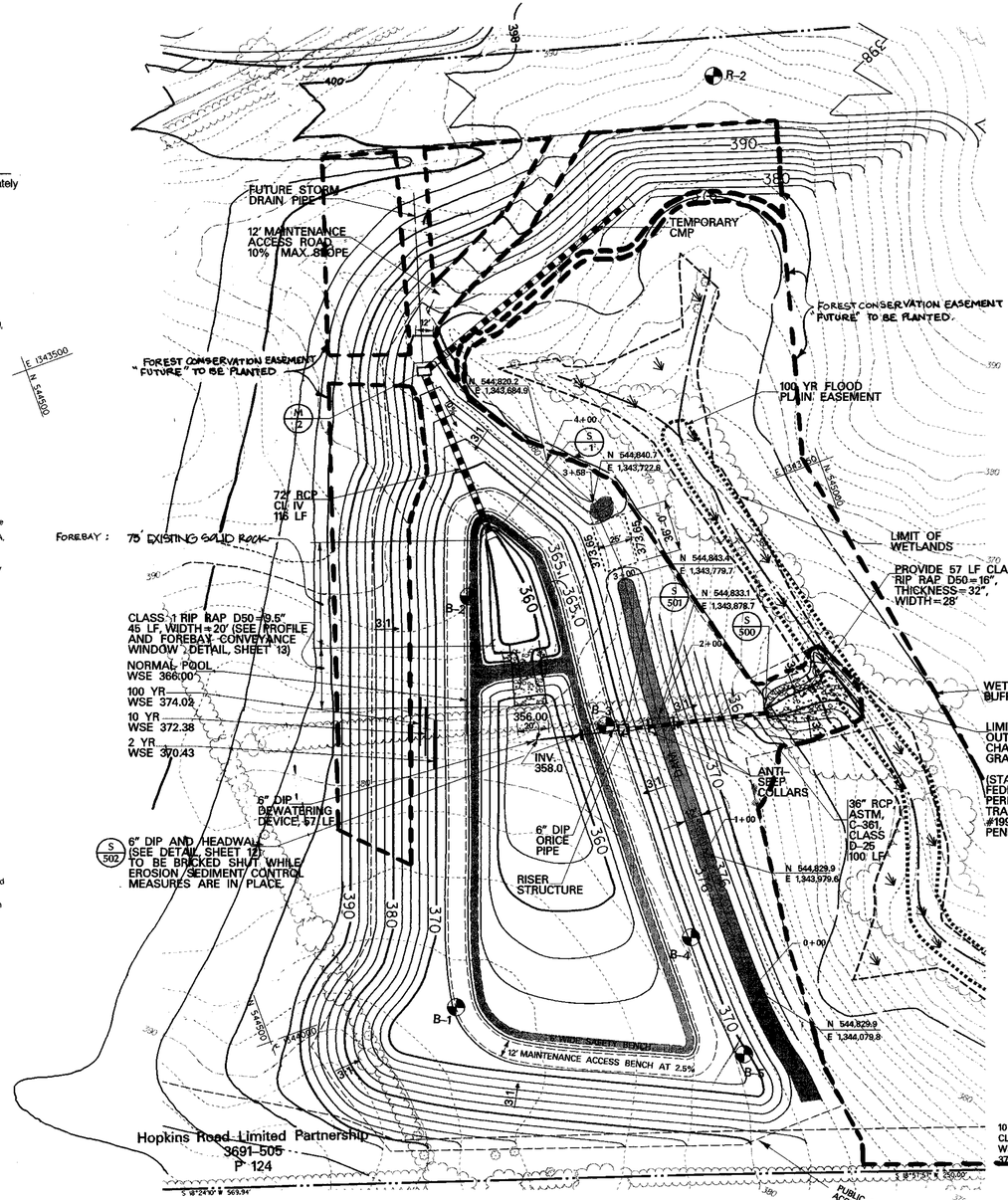
Structure Type	Retention, Wet Pond
Structure Classification	A
Structure Location	Urban
Watershed Area to Facility (Ac.)	45.6
Maximum Height of Fill (ft.)	10.0
Minimum Top of Dam Width (ft.)	12
Freeboard Provided (ft.)	2.08

Study Point 5

	2-Year	10-Year
Existing Peak (cfs)	18.46	29.37
Proposed Peak (cfs)	18.44	63.12

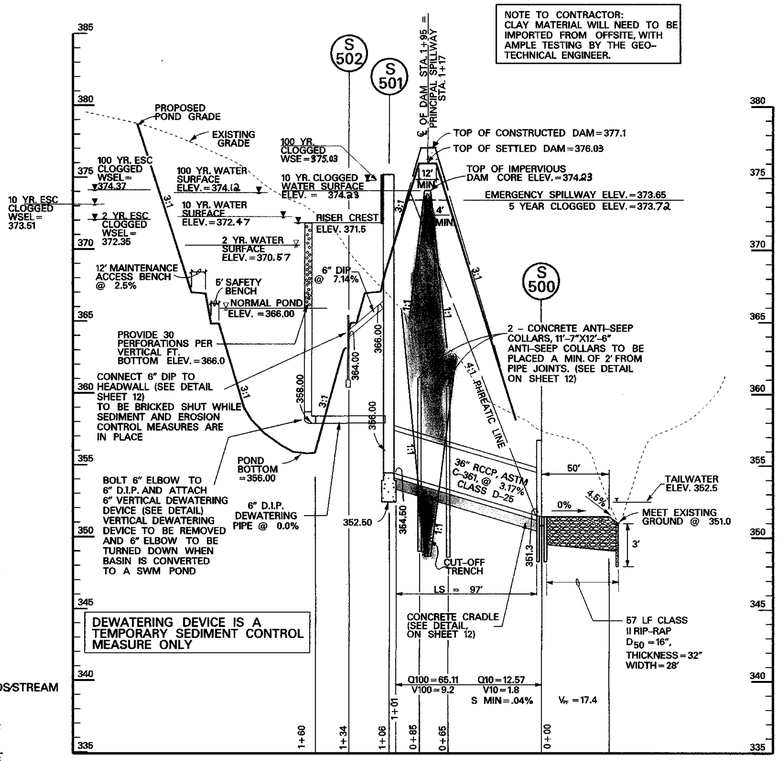
Study Point 10

	D.A.	RCN	Tc	2-Year	10-Year
Existing Peak (cfs)	25.1	58	.25	6.26	33.12
Proposed Peak (cfs)	44.1	88	.19	1.97	15.52



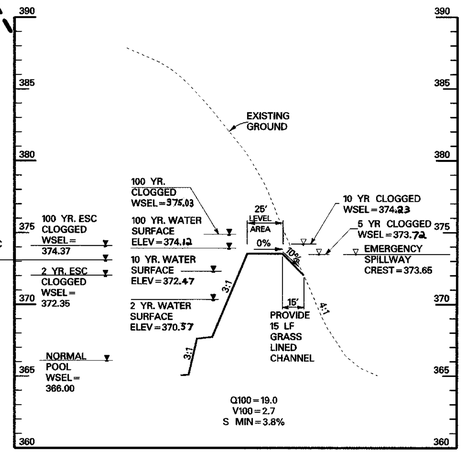
Storm Water Management Pond #1 & SEC BASIN #2

SCALE: 1" = 50'



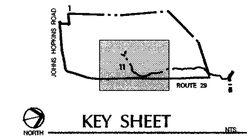
A 11 PRINCIPAL SPILLWAY - PROFILE

Scale: Horiz. = 1" = 50'
Vert. = 1" = 5'



B 11 PROFILE ALONG ℄ OF EMERGENCY SPILLWAY

Scale: Horiz. 1" = 50'
Vert. 1" = 5'



LEGEND

SYMBOL	DESCRIPTION
	FOREST CONSERVATION EASEMENT
	STREAM
B-3	SOIL BORING LOCATION
	EXISTING CONTOURS
	EXISTING TREES/ TREE LINE
	WETLAND/STREAM BUFFER
	WETLAND
	PROPOSED CONTOURS

SWM POND #1 & SEC BASIN #2

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 10/29/97

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 10/29/97

DIRECTOR — DATE 10/29/97

Date	No.	Revision Description
10-21-98	2	REVISED FOREBAY & STRUCTURE M-2.
3-4-98	1	REVISED WSE & GRADING

Montpelier
Research Park
HOWARD COUNTY MARYLAND

OWNER/DEVELOPER: HOPKINS ROAD LIMITED PARTNERSHIP
9030 RED BRANCH ROAD, SUITE 200 COLUMBIA, MD 21045

DMW
Daft · McCune · Walker, Inc.
A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals
200 East Pennsylvania Avenue, Towson, Maryland 21286, 410 296 3333, Fax 296 4705

SUBDIVISION NAME	SECTION/AREA		LOT/PARCEL #
Montpelier			124,125, & ROAD BED
PLAT# OR L/F	BLOCK #	ZONE	TAX/ZONE MAP	ELECT. DISTRICT	CENSUS TRACT
L.3691,F505	17	PEC	41	5th	6051.02
WATER CODE		SEWER CODE			
E 21		6440000			

TITLE
STORM WATER MANAGEMENT PLAN & NOTES

Des By: ZAL	Scale: 1" = 50'	Proj. No. 941715
Drn By: TPC, MSS	Date: 10-9-97	11 OF 18
Chk By:	Approved:	

10-9-97
Date

STATE OF MARYLAND — MAX KANTZER — No. 16872 — REGISTERED PROFESSIONAL ENGINEER

Professional Engr. No. 16872

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.
U.S.D.A. NATURAL RESOURCES CONSERVATION SERVICE — DATE 10-28-97

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF HOWARD SOIL CONSERVATION DISTRICT.
APPROVED: HOWARD SOIL CONSERVATION DISTRICT — DATE 11/27/97
PLAN NUMBER

DEVELOPERS CERTIFICATE:

I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF ENVIRONMENT-APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

SIGNATURE OF DEVELOPER — DATE 10-21-97
PRINT NAME BELOW SIGNATURE Howard C. Kernich

ENGINEERS CERTIFICATE:

I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN COMPLIANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

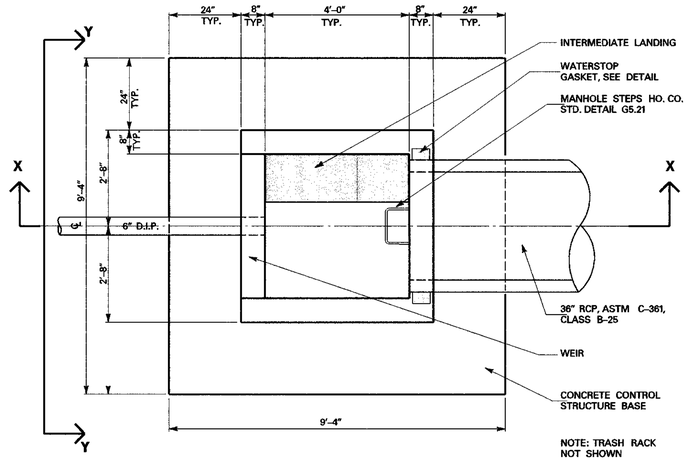
SIGNATURE OF ENGINEER — DATE 10-9-97
PRINT NAME BELOW SIGNATURE Max Kantzer

TREE RETENTION/SOIL PROTECTION AREAS WILL BE DELINEATED WITH FENCING AND/OR TEMPORARY SIGNAGE AS APPROPRIATE (SEE TREE PROJECTION FENCE AND TEMPORARY SIGNAGE DETAILS) PRIOR TO THE INSTALLATION OF SEDIMENT & EROSION CONTROL DEVICES OR THE BEGINNING OF ANY CONSTRUCTION ACTIVITY. FENCING SHALL NOT BE CONSIDERED INSTALLED CORRECTLY UNTIL REVIEWED BY A LANDSCAPE ARCHITECT OR QUALIFIED NATURAL RESOURCE PROFESSIONAL FAMILIAR WITH THE PLAN. ATTACHMENT OF SIGNS TO TREES IS PROHIBITED. ROOT PRUNING WILL BE PERFORMED AS SPECIFIED ON THIS PLAN (SEE ROOT PRUNING DETAIL).

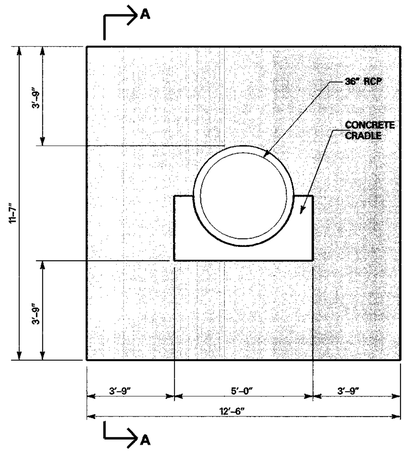
THE FOREST CONSERVATION EASEMENT HAS BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE FOREST CONSERVATION ACT. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT; HOWEVER, FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OF FOREST CONSERVATION EASEMENT ARE ALLOWED.

Note:
Trees, shrubs and other woody vegetation not allowed within twenty (20) feet of any portion of the embankment.

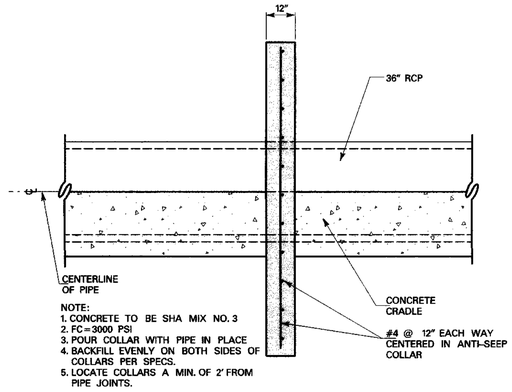
Tue Sep 9 11:37:47 1997 d:\941715\941715.dwg SDP-98-11



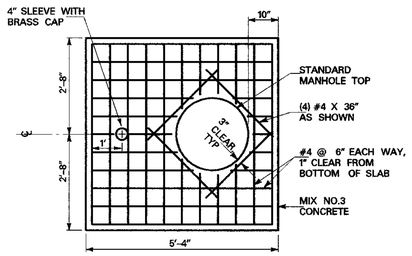
A 12 **Riser Structure – Plan with Top Slab Removed**
Scale: 1/2" = 1'-0"



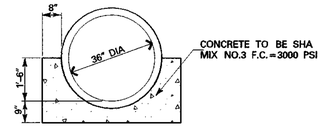
D 12 **Anti-Seep Collar – Elevation**
Not to Scale



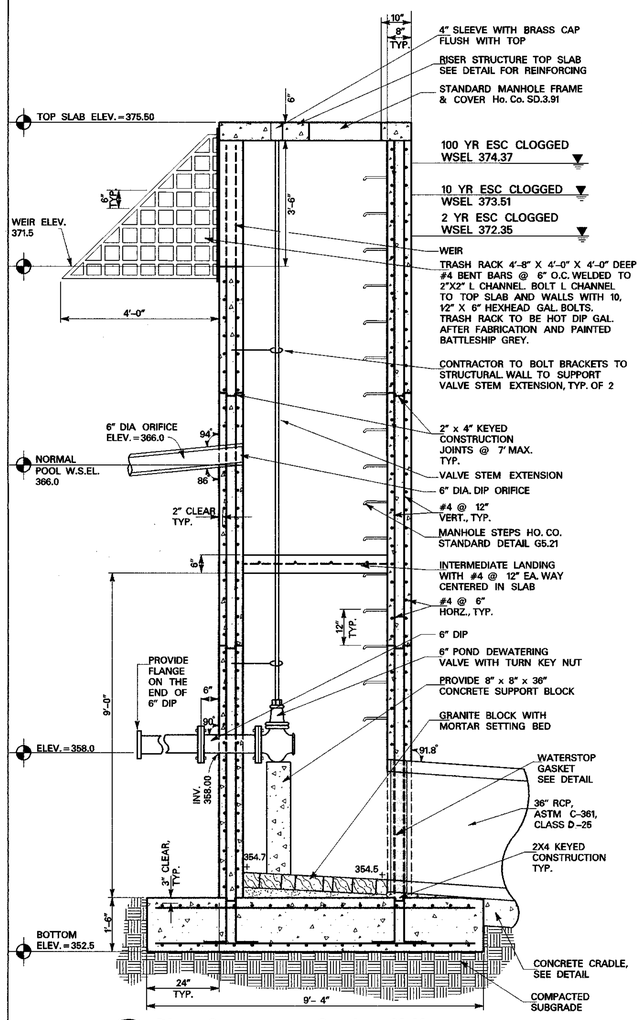
E 12 **Anti-Seep Collar – Section A-A**
Not to Scale



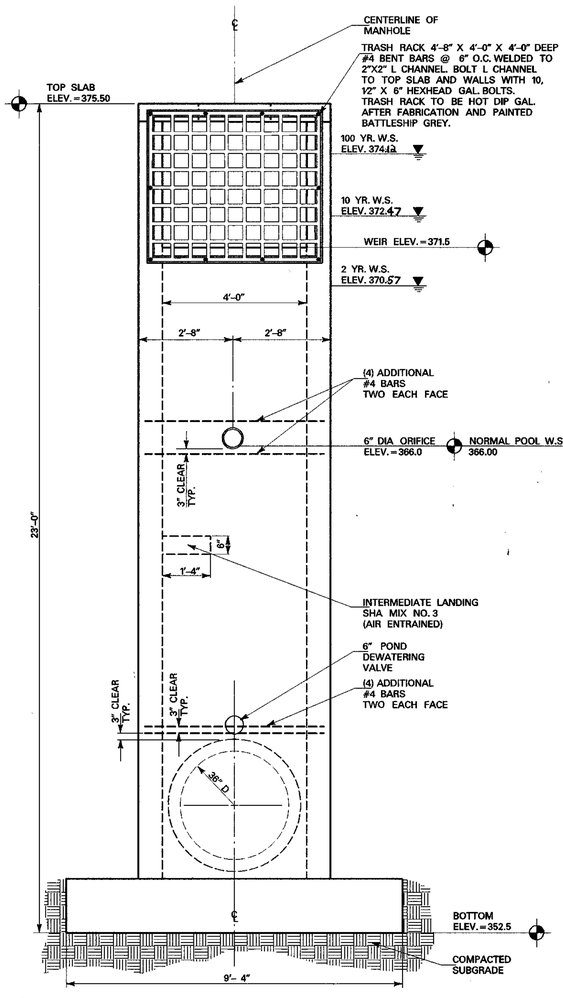
H 12 **Riser Structure – Top Slab**
Scale: 1/2" = 1'-0"



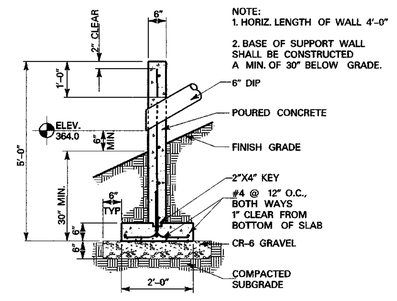
I 12 **A-2 Cradle**
Not to Scale



B 12 **Riser Structure – Section X-X**
Scale: 1/2" = 1'-0"



C 12 **Riser Structure – Section Y-Y**
Scale: 1/2" = 1'-0"



F 12 **Head Wall for 6" DIP Orifice Pipe**
Scale: 1/2" = 1'-0"

DEVELOPERS CERTIFICATE:

I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

SIGNATURE OF DEVELOPER — DATE 10/21/97
PRINT NAME BELOW SIGNATURE Howard L. Rarrech

ENGINEERS CERTIFICATE:

I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

SIGNATURE OF ENGINEER — DATE 10.9.97
PRINT NAME BELOW SIGNATURE Max Rantzer

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.
USDA NATURAL RESOURCES CONSERVATION SERVICE — DATE 10-28-97

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF HOWARD SOIL CONSERVATION DISTRICT.
APPROVED: HOWARD SOIL CONSERVATION DISTRICT — DATE 10/27/97
PLAN NUMBER

10-9-97
Date

Professional Engr. No. 16872

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 10/29/97
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 10/29/97
DIRECTOR — DATE 10/29/97

Date	No.	Revision Description
3-4-98	1	REVISED W.S.E.

Montpelier
Research Park
HOWARD COUNTY MARYLAND

DMW
Daft · McCune · Walker, Inc.
A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals
200 East Pennsylvania Avenue, Towson, Maryland 21286
410 296 3333 Fax 296 4705

SUBDIVISION NAME	SECTION/AREA	LOT/PARCEL #
Montpelier		124,125, & ROAD BED
PLAT # OR L/F	BLOCK # ZONE	TAX/ZONE MAP	ELECT. DISTRICT	CENSUS TRACT
L3691,F505	17 PEC	41	5th	6051.02
WATER CODE	SEWER CODE
E 21	6440000

TITLE
STORM WATER MANAGEMENT NOTES & DETAILS

Des By: ZAL	Scale: As Shown	Proj. No. 941715
Drn By: TPC	Date: 10-9-97	12 OF 18
Chk By: MM	Approved:	

Tue Sep 9 11:44:51 1997 dr\941715\941715.dwg SDP-98-11

STORMWATER MANAGEMENT POND

GENERAL CONSTRUCTION SPECIFICATIONS

1. GENERAL
All stormwater management facilities shall be constructed in accordance with Baltimore County's "Standard Specifications and Details for Construction (1985)" and the S.C.S. Maryland "Standards and Specifications for Ponds" (MD-378, 1992).

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

2. SITE PREPARATION
Areas designated for borrow areas, embankment, and structural works shall be cleared, grubbed and stripped of 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.

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 50 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.

3. EARTH FILL

MATERIAL. The fill material shall be taken from approved designated borrow area. It shall be free of roots, stumps, wood, rubbish, stones greater than 6", frozen or other objectionable materials. Fill material for the center of the embankment and cut off trench shall conform to Unified Soil Classification GC, SC, CH or CL. Consideration may be given to the use of other materials in the embankment if design and construction are supervised by a geotechnical engineer.

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 the 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 the 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.

All compaction is to be not less than 95 percent of the maximum dry density as determined by AASHTO Specification T-99 (Standard Proctor) with a moisture content within 2 percent of optimum. Each 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.

CUTOFF TRENCH AND IMPERVIOUS CORE. 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 at least 4 feet below existing grade or as shown on the plans. The side slopes of the trench shall be 1 to 1 or flatter. The top width of the impervious core shall be 4 feet minimum. The height of the core shall be as shown on the plans. The side slopes of the core 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 AND CUT-OFF TRENCH CONSTRUCTION

The site should be stripped of topsoil and any other unsuitable materials from the embankment or structure area in accordance with Soil Conservation Guidelines. After stripping operations have been completed, the exposed subgrade materials should be proofrolled with a loaded dump truck or similar equipment in the presence of a geotechnical engineer or his representative as indicated in Section 5.1. For areas that are not accessible to a dump truck, the exposed materials should be observed and testedby a geotechnical engineer or his representative utilizing a Dynamic cone Penetrometer. Any excessively soft of loose materials identified by proofrolling or penetrometer testing should be excavated to suitable firm soil, and then grades re-established by backfilling with suitable soil.

A representative of the Geotechnical Engineer should be present to monitor placement and compaction of fill for the embankment and cut-off trench. In accordance with Maryland Soil Conservation Specification 378, soils considered suitable for the center of the embankment and cut-off trench shall conform to Unified Soil Classification GC, SC, CH, or CL. A review of the site borings didnot indicate core or cut-off trench materials in the cut areas of the site. All fill materials must be placed and compacted in accordance with MD SCS 378 specifications.

4. STRUCTURAL 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 4 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 4 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 inches or greater over the structure or pipe.

5. REMOVAL AND REPLACEMENT OF DEFECTIVE FILL
Fill placed at densities lower than specified minimum density or at moisture contents outside the specified acceptable range of moisture content or otherwise not conforming to the requirements of the specifications shall be reworked to meet the requirements or removed and replaced by acceptable fill. The bottoms of such excavations shall be finished flat or gently curving and at the sides of such excavations the adjacent sound fill shall be trimmed to a slope not steeper than 3 feet horizontally to 1 foot vertically extending from the bottom of the excavation to the fill surface.

6. PIPE CONDUITS
All pipes shall be circular in cross section. All perforated pipe shall have a minimum of 3.31 square inches of opening per square foot of pipe surface (ex. 30 38 inch holes per square foot). Perforations are to be uniformly spaced around the full periphery of the pipe. Any holes blocked or partially blocked by bituminous coating shall be opened prior to installation.

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 Designation C-361.

2. Cradle – All reinforced concrete pipe conduits shall be laid in a concrete cradle for their entire length. This cradle shall consist of high slump concrete placed under the pipe and up the sides of the pipe at least 50 percent of its outside diameter with a minimum thickness of 6 inches, or as shown on the drawings.

3. Laying Pipe – Bell and spigot pipe shall be placed 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 cradle shall be placed so that all spaces under the pipe are filled. Care shall be exercised to prevent any deviation from the original line and grade of the pipe. The first joint must be located within 2 feet from the riser.

4. Backfilling shall conform to "Structural Backfill".

5. Connections – All connections (to anti-seep collars, riser, etc.) shall be watertight.

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

7. CAST-IN-PLACE CONCRETE STRUCTURES

1. Specifications: Maryland Department of Transportation, State Highway Administration (SHA) "Standard Specifications for Construction and Materials", October, 1993 edition, for materials and construction, including all interim specifications.

AASHTO "Standard Specifications for Highway Bridges", dated 1989, for design, including all interim specifications. Concrete design by the "Service Load Design Method".

2. Concrete: Shall meet the requirements of SHA Sections 414 and 902, Mix No. 3.

Contractor shall add color mix at plant in accordance with manufactures recommendation "C-12 Messa Beige" as manufactured by L. M. Scofield Company (213) 723-5285.

Contractor shall supply mix design for approval prior to application. Load and mix tickets shall be supplied for each truck delivery. No partial field mixes shall be allowed.

All concrete shall attain a minimum compressive strength of 3,500 PSI at 28 days. Design fc = 1,200 PSI.

All exposed edges shall be chamfered 3/4" x 3/4". All construction keys are shown nominal size.

3. Reinforcing Steel: Reinforcing steel shall conform to ASTM A-615, Grade 60. Where not indicated, bar lap splices shall be in accordance with AASHTO specifications. The minimum concrete cover shall be 2 inches unless otherwise noted. Design fs = 24,000 PSI.

4. Foundation: Presumed soil bearing capacity = 2,500 PSF. The engineer must approve all foundations prior to concrete placement. If unsuitable material is encountered, the material shall be undercut and backfilled with structural backfill.

8. ROCK RIP-RAP
Rock rip-rap shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 901.02.

The rip-rap shall be placed to the required thickness in one operation. The rock shall be delivered and placed in a manner that will insure the rip-rap in place shall be reasonably homogeneous with the larger rocks uniformly distributed and firmly in contact one to another with the smaller rocks filling the
voids between the larger rocks. Filter cloth shall be placed under all rip-rap and shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 921.09.

9. 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 the various parts of the work and
for maintaining the excavations, 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 of 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 locations being refilled shall be maintained below the bottom of the excavation at such locations which may require draining the water to sumps from which the water shall be pumped.

10. 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 Maryland Soil Conservation Service Standards and Specifications for Critical Area Planting (MD-342) or as shown on the accompanying drawings.

11. 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 to be employed during the construction process.

12. RECOMMENDED ADDITIOAL SERVICES

Additional soil and foundation engineering, testing, and consulting services recommended for this project are summarized below:

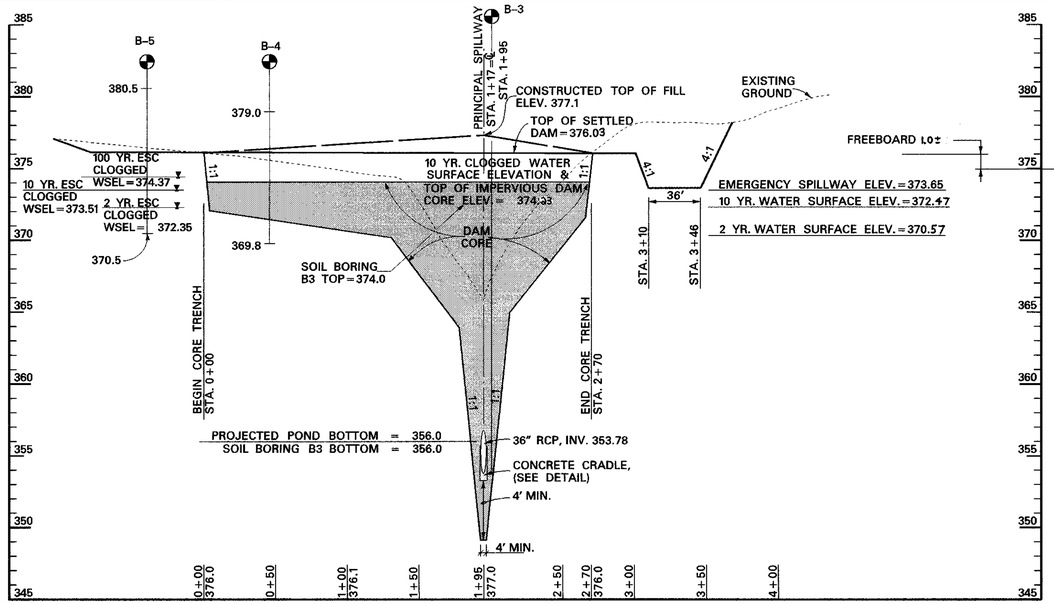
Site Preparation and Proofrolling: A Geotechnical Engineer or experienced Soils Inspector should inspect the site after it has been stripped and excavated. The inspector should determine if any undercutting or in-place densification is necessary to prepare a subgrade for fill placement.

Fill Placement and Compaction: A Geotechnical Engineer or experienced Soils Inspector should witness any required filling operations and should take sufficient in-place density tests to verify that the specified degree of fill compaction is achieved. He should observe and approve borrow materials used and should determine if their existing moisture contents are suitable.

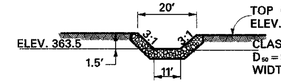
13. SEE SHEET 9 FOR TOPSOIL SPECIFICATIONS.

14. SEE SHEET 8 FOR PERMENANT AND TEMPORARY SEEDING SPECIFICATIONS.

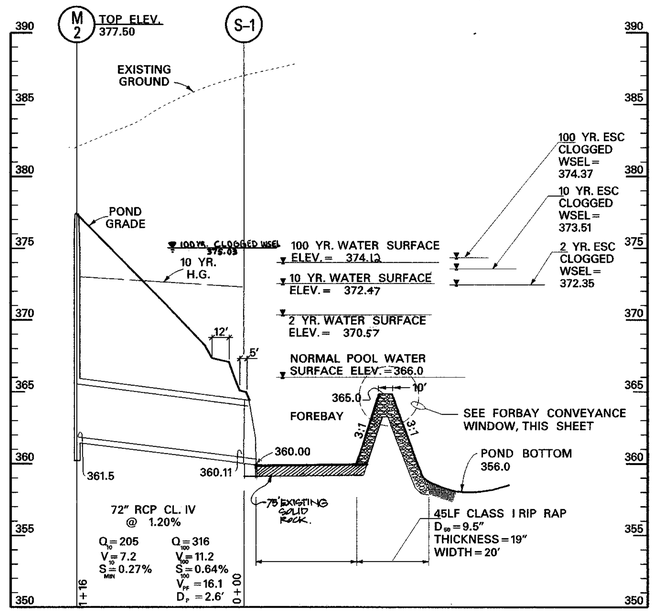
15. CONTRACTOR SHALL IMPORT CLAY MATERIAL FROM OFFSITE, WITH AMPLE TESTING BY THE GEOTECHNICAL ENGINEER.



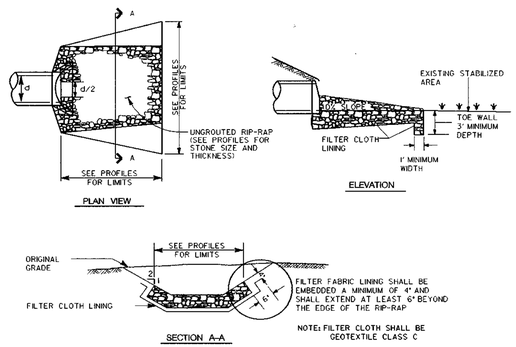
B 13 Profile Along ℄ of Dam
Scale: Horiz. 1" = 50'
Vert. 1" = 5'



Forebay Conveyance Window for Structure S-1
Not to Scale



C 13 Storm Drain Profile
Scale: Horiz. 1" = 50'
Vert. 1" = 5'



A 13 Stone Outlet Protection III
Not to Scale

Stone Outlet Protection Specifications

Construction Specifications

1. The subgrade for the filter, rip-rap, or gabion shall be prepared to the required lines and grades. Any fill required in the subgrade shall be compacted to a density of approximately that of the surrounding undisturbed material.

2. The rock or gravel shall conform to the specified grading limits when installed respectively in the rip-rap or filter.

3. Geotextile class C shall be protected from punching, cutting, or tearing. Any damage other than an occasional small hole shall be repaired by placing another piece of geotextile over the damaged part or by completely replacing the geotextile. All overlaps whether for repairs or for joining two pieces of geotextile shall be a minimum of one foot.

4. Stone for the rip-rap or gabion outlets may be placed by equipment. They shall be constructed to the full course thickness in one operation and in such a manner as to avoid displacement of underlying materials. The stone for rip-rap or gabion outlets shall be delivered and placed in a manner that will ensure that it is reasonably homogeneous with the smaller stones and spalls filling the voids between the larger stones. Rip-rap shall be placed in a manner to prevent damage to the filter blanket or geotextile. Hand placement will be required to the extent necessary to prevent damage to the permanent works.

5. The stone shall be placed so that it blends in with the existing ground. If the stone is placed too high then the flow will be forced out of the channel and scour adjacent to the stone will occur.

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.
Edward L. Simmons 10-28-97
U.S.D.A. NATURAL RESOURCES CONSERVATION SERVICE DATE

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF HOWARD SOIL CONSERVATION DISTRICT.
APPROVED: Robert W. Zellers 10/27/97
HOWARD SOIL CONSERVATION DISTRICT DATE
PLAN NUMBER

DEVELOPERS CERTIFICATE:
I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.
SIGNATURE OF DEVELOPER Howard L. Bernath 10/21/97
PRINT NAME BELOW SIGNATURE DATE

ENGINEERS CERTIFICATE:
I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.
SIGNATURE OF ENGINEER Max Kantzer 10.9.97
PRINT NAME BELOW SIGNATURE DATE

STRUCTURE SCHEDULE

NO.	TYPE	SIZE	INV. IN	INV. OUT	TOP ELEV.	REMARKS	LOCATION CENTER OF STRUCTURE EAST	NORTH
M-2	MODIFIED A-10 INLET	W=4.0'	-	361.50	377.50	A-10 INLET W/ MODIFIED 10" TOP SLAB AND MANHOLE RINGS TO GRADE.	1343595.8	544761.1
S-1	CONCRETE END SECTION	72"	360.11	360.00	——	HOWARD CO. STD. DETAIL SD 5.51	1343718.8	544766.0
S-501	RISER STRUCT. (SEE DETAILS)	——	——	——	——	SEE DETAIL SHEET 12	1343879.5	544807.2
S-502	HEADWALL SUPPORT DETAIL FOR 6" D.I.P.	——	364.00	——	365.5	SEE DETAIL SHEET 12	1343872.5	544778.1
S-500	TYPE 'A' HEADWALL	FOR 36" PIPE	351.30		355.8	HOWARD CO. STD. DETAIL SD 5.11	1343902.6	544905.7

10-9-97
Date

Professional Engr. No. 16872

Date	No.	Revision Description
10-21-97	2	REVISED STRUCTURE SCHEDULE AND FOREBAY.
3-4-98	1	REVISED WSE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 10/29/97
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 10/29/97
DIRECTOR — DATE 10/22/97

Montpelier
Research Park
HOWARD COUNTY MARYLAND

DMW
Daft · McCune · Walker, Inc.
A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals
200 East Pennsylvania Avenue
Towson, Maryland 21286
410 296 3333
Fax 296 4705

SUBDIVISION NAME	Montpelier
SECTION/AREA	
LOT/PARCEL #	124,125, & ROAD BED
PLAT# OR L/F	L3691,F505
BLOCK #	17
ZONE	PEC
TAX/ZONE MAP	41
ELECT. DISTRICT	5th
CENSUS TRACT	6051.02
WATER CODE	E 21
SEWER CODE	6440000

TITLE: STORM WATER MANAGEMENT DETAILS

Des By: ZAL	Scale: As Shown	Proj. No. 941715
Drn By: TPC, MSS	Date: 10-9-97	13 OF 18
Chk By:	Approved:	

Tue Sep 9 13:05:03 1997 d:\941715\941715.dwg SDP-98-11

Project Name Montpelier — Boring # B-2 — Location Howard County, Maryland — Job # 97021A

SAMPLER: Datum — ; Surf. Elev. 388± * ; Date Started 01-31-97 ; Hammer Wt. 140 Lbs. ; Hammer Drop 30 Inches ; Pipe Size 2.0 Inches OD ; Hole Diameter 8" ; Rock Core Dia. — ; Boring Method HSA ; Foreman S. Connelly ; Inspector — ; Date Completed 01-31-97

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Size, Proportion)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					
	Brown, very moist, soft, silt, some mica, little fine sand, trace fine roots (ML)	1.5		I	1-2-2	1	17"	10" Topsoil
	Orange brown, very moist, very loose, micaceous sandy silt/silty sand (ML/SM)	4.0		D	2-2-3	2	17"	Groundwater encountered at 19.0' while drilling
	Greenish brown, moist to dry, loose to medium dense, micaceous silty sand (SM)		5	D	5-5-5	3	18"	Caved to 17.7' at Completion
				D	3-3-5	4	16"	Backfilled at Completion
				D	11-9-13	5	18"	* Surface elevation estimated from site plan
		19.0	15	D	25-50/4"	6	6"	
	White and brown, wet, very dense, micaceous silty fine to medium sand (SM)		20					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED. PT-PRESSED SHELBY TUBE; CA-CONTINUOUS FLIGHT AUGER; RC-ROCK CORE
SAMPLE CONDITIONS: D-DISINTEGRATED; I-INTACT; U-UNDISTURBED; L-LOST
GROUND WATER DEPTH: AT COMPLETION 16.9 FT.; AFTER ___ FT.; AFTER ___ FT.
BORING METHOD: HSA-HOLLOW STEM AUGERS; CFA-CONT. FLIGHT AUGERS; DC-DRIVING CASING; MD-MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30":COUNT MADE AT 6" INTERVALS

Project Name Montpelier — Boring # B-2 — Location Howard County, Maryland — Job # 97021A

SAMPLER: Datum — ; Surf. Elev. 388± * ; Date Started 01-31-97 ; Hammer Wt. 140 Lbs. ; Hammer Drop 30 Inches ; Pipe Size 2.0 Inches OD ; Hole Diameter 8" ; Rock Core Dia. — ; Boring Method HSA ; Foreman S. Connelly ; Inspector — ; Date Completed 01-31-97

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Size, Proportion)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		20.0					
	White and brown, wet, very dense, micaceous silty fine to medium sand (SM)	23.0						
	Gray, dry, very dense, micaceous fine sand, little silt with decomposing rock fragments (SM) (decomposed rock)			D	50/2"	7	2"	
		28.6	25.0	D	50/1"	8	1"	
	Bottom of Hole at 28.6'		30.0					
			35.0					
			40.0					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED. PT-PRESSED SHELBY TUBE; CA-CONTINUOUS FLIGHT AUGER; RC-ROCK CORE
SAMPLE CONDITIONS: D-DISINTEGRATED; I-INTACT; U-UNDISTURBED; L-LOST
GROUND WATER DEPTH: AT COMPLETION 16.9 FT.; AFTER ___ FT.; AFTER ___ FT.
BORING METHOD: HSA-HOLLOW STEM AUGERS; CFA-CONT. FLIGHT AUGERS; DC-DRIVING CASING; MD-MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30":COUNT MADE AT 6" INTERVALS

Project Name Montpelier — Boring # B-3 — Location Howard County, Maryland — Job # 97021A

SAMPLER: Datum — ; Surf. Elev. 374± * ; Date Started 01-31-97 ; Hammer Wt. 140 Lbs. ; Hammer Drop 30 Inches ; Pipe Size 2.0 Inches OD ; Hole Diameter 8" ; Rock Core Dia. — ; Boring Method HSA ; Foreman S. Connelly ; Inspector — ; Date Completed 01-31-97

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Size, Proportion)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					
	Dark brown, very moist, soft, micaceous silt, trace fine roots and sand (ML)	1.0		D	2-2-2	1	17"	5" Topsoil
	Brown to greenish brown, very moist to dry, loose to medium dense, micaceous silty sand (SM)			D	3-3-4	2	17"	No groundwater encountered while drilling
			5	D	6-5-4	3	16"	Caved in to 12.5' at Completion
				D	5-9-10	4	16"	Backfilled at Completion
		13.0						
	Greenish brown, dry, very dense to dense, micaceous silty sand (SM) (decomposed rock)			D	18-50/6"	5	12"	* Surface elevation estimated from site plan
			15	D	11-13-25	6	14"	
	Bottom of Hole at 20.0'							

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

Project Name Montpelier — Boring # B-1 — Location Howard County, Maryland — Job # 97021A

SAMPLER: Datum — ; Surf. Elev. 387± * ; Date Started 01-31-97 ; Hammer Wt. 140 Lbs. ; Hammer Drop 30 Inches ; Pipe Size 2.0 Inches OD ; Hole Diameter 8" ; Rock Core Dia. — ; Boring Method HSA ; Foreman S. Connelly ; Inspector — ; Date Completed 01-31-97

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Size, Proportion)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					
	Brown, very moist, soft, micaceous silt, little fine sand, trace fine roots (ML)	2.0		I	1-1-3	1	16"	7" Topsoil
	Brown, greenish brown, moist to dry, medium dense to dense, micaceous silty sand (SM)			I	2-5-7	2	18"	No groundwater encountered while drilling
			5	D	6-12-15	3	17"	Backfilled at Completion
				D	7-12-18	4	17"	* Surface elevation estimated from site plan
				D	7-12-28	5	18"	
		17.5						
	Greenish brown, dry, very dense, micaceous silty sand (SM) (decomposed rock)			D	50/5"	6	5"	
			20					

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

Project Name Montpelier — Boring # B-1 — Location Howard County, Maryland — Job # 97021A

SAMPLER: Datum — ; Surf. Elev. 387± * ; Date Started 01-31-97 ; Hammer Wt. 140 Lbs. ; Hammer Drop 30 Inches ; Pipe Size 2.0 Inches OD ; Hole Diameter 8" ; Rock Core Dia. — ; Boring Method HSA ; Foreman S. Connelly ; Inspector — ; Date Completed 01-31-97

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Size, Proportion)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		20.0					
	Greenish brown, dry, very dense, micaceous silty sand (SM) (decomposed rock)			D	50/5"	7	5"	
		28.8	25.0	D	50/4"	8	4"	
	Bottom of Hole at 28.8'		30.0					
			35.0					
			40.0					

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

Project Name Montpelier — Boring # B-4 — Location Howard County, Maryland — Job # 97021A

SAMPLER: Datum — ; Surf. Elev. 379± * ; Date Started 01-31-97 ; Hammer Wt. 140 Lbs. ; Hammer Drop 30 Inches ; Pipe Size 2.0 Inches OD ; Hole Diameter 8" ; Rock Core Dia. — ; Boring Method HSA ; Foreman S. Connelly ; Inspector — ; Date Completed 01-31-97

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Size, Proportion)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					
	Brown to reddish brown, very moist, very loose to loose, micaceous sandy silt, trace fine roots in top 1.0' (ML)			I	2-2-2	1	14"	5" Topsoil
		4.5		D	2-2-5	2	17"	No groundwater encountered while drilling
	Brown to greenish brown, moist, loose to very dense, micaceous silty sand (SM)		5	D	3-4-4	3	16"	Caved in to 6.0' at Completion
		9.2		D	3-50/2"	4	6"	Backfilled at Completion
	Refusal on boulder at 9.2'		10					* Surface elevation estimated from site plan
			15					
			20					

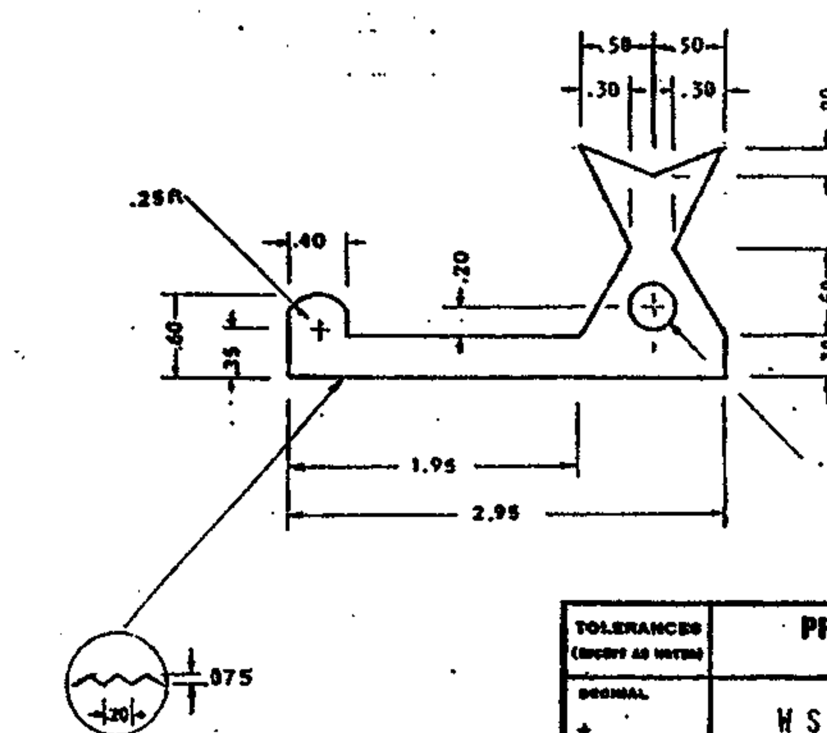
SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED. PT-PRESSED SHELBY TUBE; CA-CONTINUOUS FLIGHT AUGER; RC-ROCK CORE
SAMPLE CONDITIONS: D-DISINTEGRATED; I-INTACT; U-UNDISTURBED; L-LOST
GROUND WATER DEPTH: AT COMPLETION Dry FT.; AFTER ___ FT.; AFTER ___ FT.
BORING METHOD: HSA-HOLLOW STEM AUGERS;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

Project Name Montpelier — Boring # B-5 — Location Howard County, Maryland — Job # 97021A

SAMPLER: Datum — ; Surf. Elev. 380.5± * ; Date Started 01-31-97 ; Hammer Wt. 140 Lbs. ; Hammer Drop 30 Inches ; Pipe Size 2.0 Inches OD ; Hole Diameter 8" ; Rock Core Dia. — ; Boring Method HSA ; Foreman S. Connelly ; Inspector — ; Date Completed 01-31-97

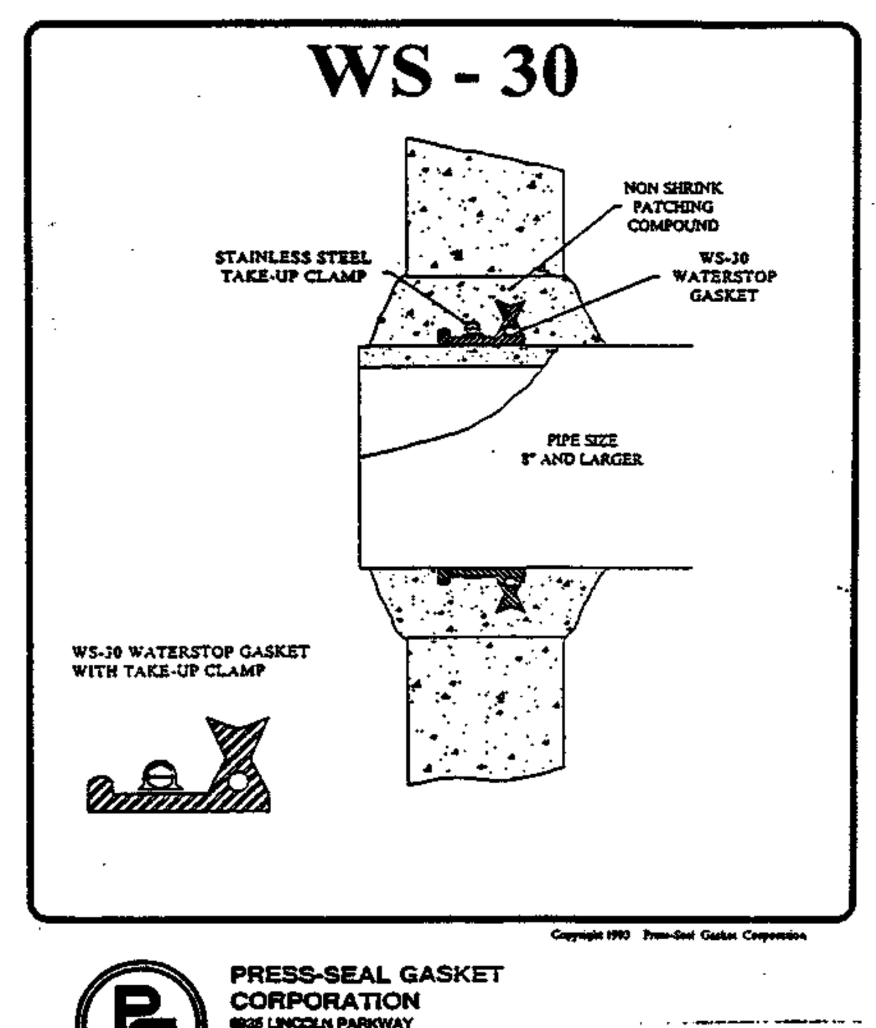
ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Size, Proportion)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					
	Brown to reddish brown, very moist to moist, very loose to loose, micaceous silt, some fine sand (ML)			D	1-2-2	1	16"	7" Topsoil
				D	3-4-6	2	18"	No groundwater encountered while drilling
			5	D	3-3-4	3	16"	Caved in to 6.5' at Completion
		8.5						
	Greenish brown, moist, medium dense, micaceous silty sand, with decomposed rock fragments & quartz (SM)	10.0		D	9-13-15	4	17"	Backfilled at Completion
	Bottom of Hole at 10.0'							* Surface elevation estimated from site plan
			15					
			20					

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



ORIGINAL DWG # 1129 JAN 23, 1983

PRESS-SEAL GASKET CORPORATION, FORT WAYNE, INDIANA — WS-30 — SCALE FULL — DRAWN BY F.H. DEEB — TITLE WATER STOP — DATE 4-25-83 — DRAWING NUMBER 1129-c

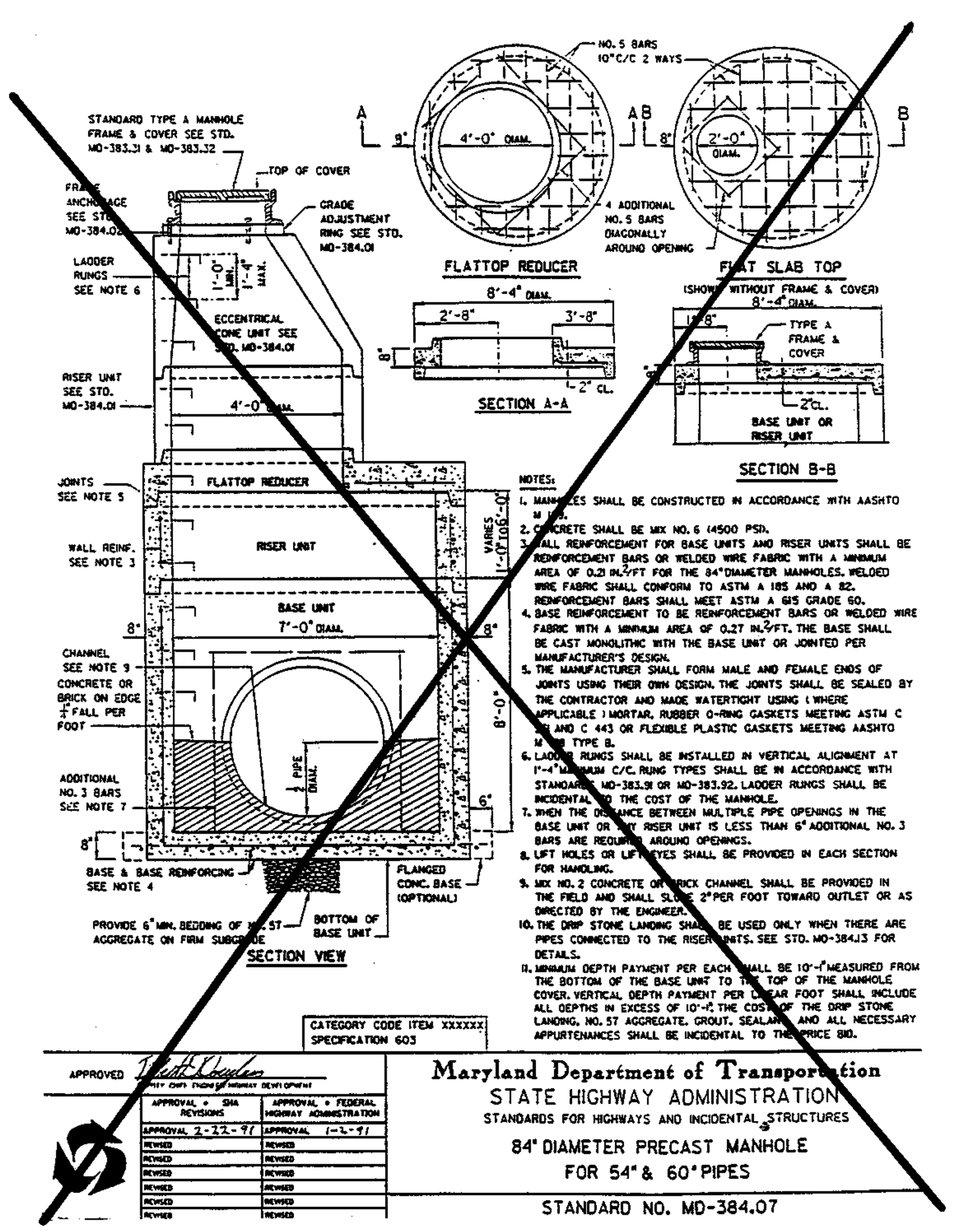


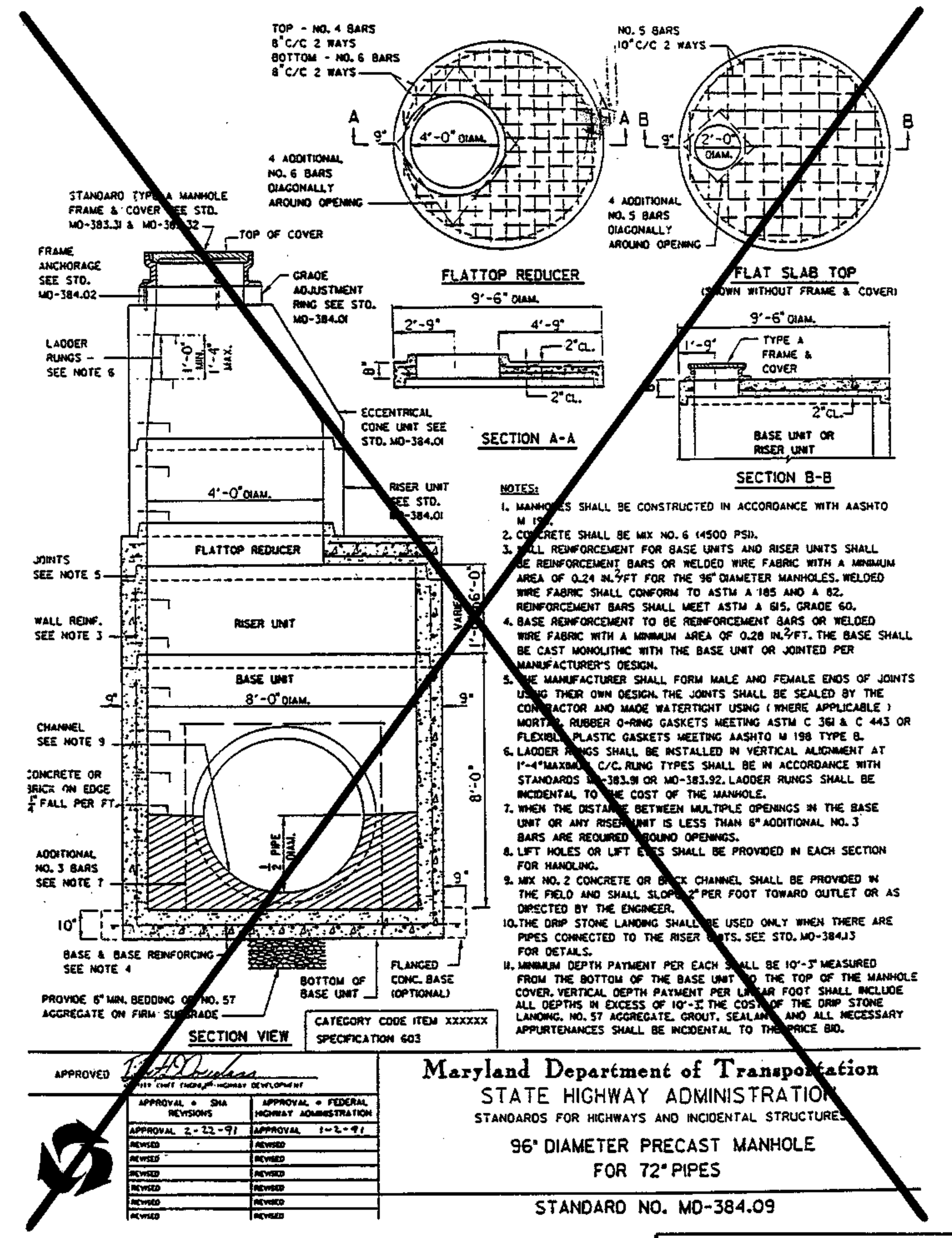
PRESS-SEAL GASKET CORPORATION, FORT WAYNE, INDIANA

NOTE: PRECAST RISER STRUCTURE WITH NON-SHRINK PATCHING COMPOUND IS NOT PERMITTED FOR USE IN BALTIMORE COUNTY. THIS WATER STOP MUST BE CAST IN-PLACE WITH THE RISER.

(OR EQUIVALENT)

WATER STOP DETAIL
NOT TO SCALE





DEVELOPER'S CERTIFICATION:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND 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 OF DEVELOPER — DATE 10/21/97
PRINT NAME BELOW SIGNATURE: Howard L. Resnack

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

U.S.D.A. NATURAL RESOURCES CONSERVATION SERVICE — DATE 10-28-97

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

APPROVED: HOWARD SOIL CONSERVATION DISTRICT — DATE 10/27/97

PLAN NUMBER

ENGINEERS CERTIFICATE:

I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

SIGNATURE OF ENGINEER — DATE 10/21/97
PRINT NAME BELOW SIGNATURE Max Kantzer

10/21/97

Professional Engr. No.16872

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 10/29/97
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 10/29/97
DIRECTOR — DATE 10/29/97

Date	No.	Revision Description
10-21-98	1	REMOVED MANHOLE DETAILS

Montpelier
Business Park
HOWARD COUNTY MARYLAND

DMW
Daft · McCune · Walker, Inc.
A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals
200 East Pennsylvania Avenue, Towson, Maryland 21286
410 296 3333 Fax 296 4705

SUBDIVISION NAME	SECTION/AREA	LOT/PARCEL #
Montpelier		124,125, & ROAD BED

PLAT# OR L/F	BLOCK #	ZONE	TAX/ZONE MAP	ELECT. DISTRICT	CENSUS TRACT
L3691,F505	17	PEC	41	5th	6051.2

WATER CODE E21 — SEWER CODE 6440000

TITLE: **STORM WATER MANAGEMENT DETAILS**

Des By: ZAL	Scale:	Proj. No. 941715
Drn By: TPC	Date: 10-9-97	
Chk By:	Approved:	14 OF 18

1.4± ACRES EXISTING FOREST
0.7± ACRES CLEARED
0.7± ACRES RETAINED

0.5± ACRES POTENTIAL AFFORESTATION

32" TULIP POPLAR
35" TULIP POPLAR
33" TULIP POPLAR
33.5" TULIP POPLAR
32" RED MAPLE

0.8± ACRES FOREST CONSERVATION AREA A

0.5± ACRES POTENTIAL AFFORESTATION

0.1± ACRES AFFORESTATION PLANTING ZONE 1

NOTE:
THE FOREST CONSERVATION EASEMENTS HAVE BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTRY CODE, FOREST CONSERVATION ACT. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT; HOWEVER, FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OF FOREST CONSERVATION EASEMENT ARE ALLOWED.

Johns Hopkins University
Applied Physics Laboratory
400/0625
P 289

0.2± ACRES EXISTING FOREST
0.0 ACRES CLEARED
0.2± ACRES RETAINED

0.1± ACRES AFFORESTATION PLANTING ZONE 1

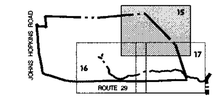
NO GRADING PROPOSED AT THIS TIME

0.3± ACRES FOREST CONSERVATION AREA B

MATCHLINE SEE SHEET 16

MATCHLINE SEE SHEET 17

NORTH



KEY SHEET

NORTH NTS

LEGEND

SYMBOL	DESCRIPTION
	SLOPES = >25%
	SLOPE = 15%-25%
	STREAM
MID3 MgC3	SOILS
	EXISTING CONTOURS
	APPROX. LOCATION SPECIMEN TREE EXISTING TREES/ TREE LINE
	WETLAND/STREAM BUFFER
	WETLAND
400	PROPOSED CONTOURS
	FLOODPLAIN
	LIMIT OF DISTURBANCE
	FOREST CONSERVATION EASEMENT
20'	20' WIDE UTILITY EASEMENT
	FOREST TO BE CLEARED
	EXISTING FOREST TO BE RETAINED
	AFFORESTATION
	POTENTIAL AFFORESTATION
	FOREST PROTECTION FENCE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 10/29/97

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 10/29/97

DIRECTOR — DATE 10/29/97

Date	No.	Revision Description

Montpelier
Research Park
HOWARD COUNTY MARYLAND

OWNER/DEVELOPER: HOPKINS ROAD LIMITED PARTNERSHIP
9030 RED BRANCH ROAD, SUITE 200 COLUMBIA, MD 21045

DMW
Daft · McCune · Walker, Inc.
A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals
200 East Pennsylvania Avenue
Towson, Maryland 21286
410 296 3333
Fax 296 4705

SUBDIVISION NAME		SECTION/AREA			LOT/PARCEL #
Montpelier					124,125, & ROAD BED
PLAT# OR L/F	BLOCK #	ZONE	TAX/ZONE MAP	ELECT. DISTRICT	CENSUS TRACT
L.9691,F505	17	PEC	41	5th	6051.02
WATER CODE		SEWER CODE			
E 21		6440000			

10.9.97
Date

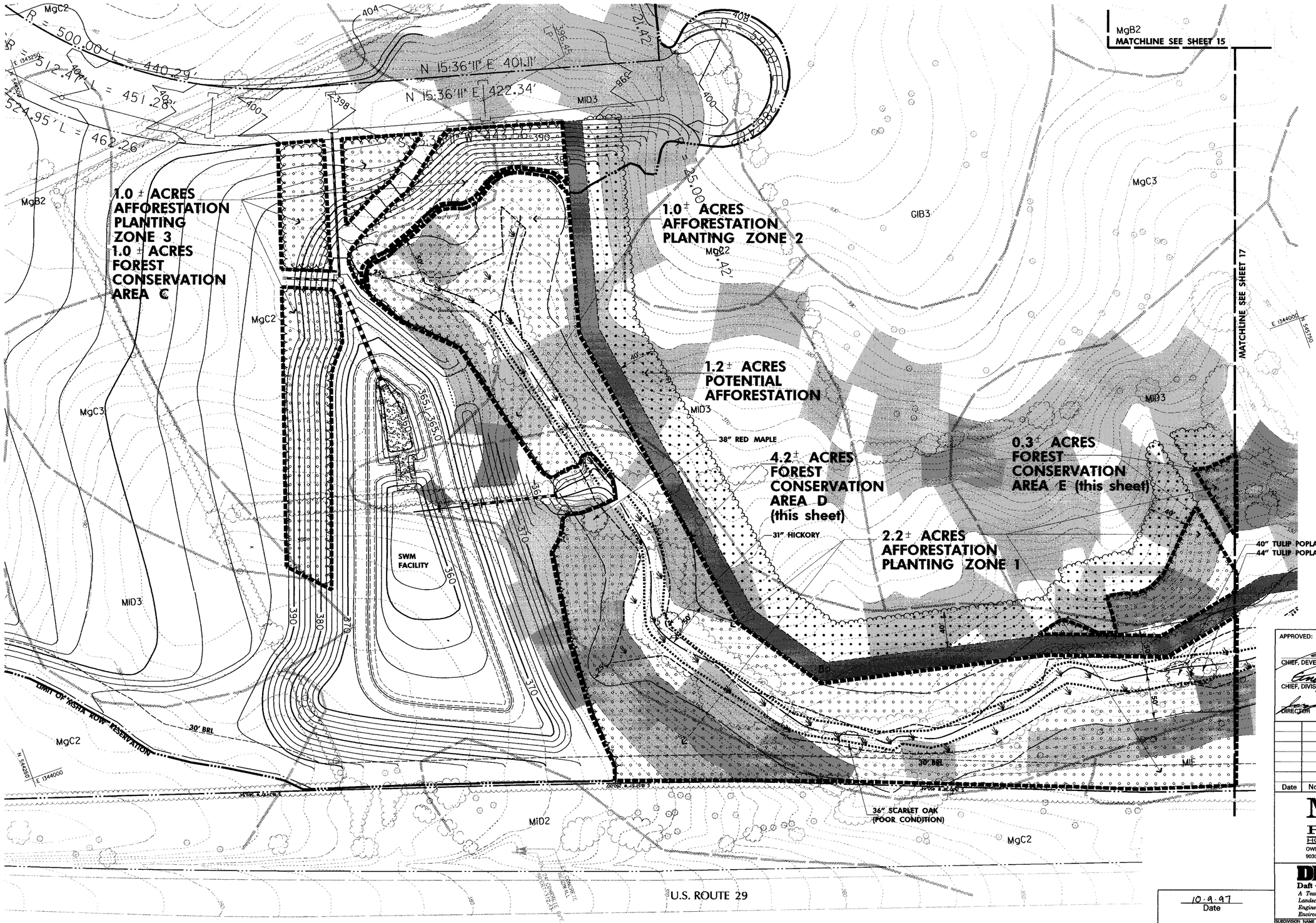
STATE OF MARYLAND — MELANIE MOSER — 551 — REGISTERED LANDSCAPE ARCHITECT

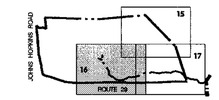
Landscape Architect No. 551

TITLE
NW FOREST CONSERVATION AFFORESTATION PLAN

Des By:	JAR	Scale:	1" = 50'	Proj. No.	941715
Drn By:	TPC	Date:	10-9-97	15	OF 18
Chk By:		Approved:			

Tue Sep 9 16:49:52 1997 d:\941715\941715.fc2 SDP-98-11





KEY SHEET

LEGEND

SYMBOL	DESCRIPTION
	SLOPES= >25%
	SLOPE= 15%-25%
	STREAM
MID3	SOILS
MgC3	EXISTING CONTOURS
	APPROX. LOCATION SPECIMEN TREE EXISTING TREES/ TREE LINE
	WETLAND/STREAM BUFFER
	WETLAND
400	PROPOSED CONTOURS
	FLOODPLAIN
	LIMIT OF DISTURBANCE
	FOREST CONSERVATION EASEMENT
20'	20' WIDE UTILITY EASEMENT
	FOREST TO BE CLEARED
	EXISTING FOREST TO BE RETAINED
	AFFORESTATION
	POTENTIAL AFFORESTATION
	FOREST PROTECTION FENCE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 10/29/97

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 10/29/97

DIRECTOR — DATE 10/28/97

Date	No.	Revision Description

Montpelier
Research Park
HOWARD COUNTY MARYLAND

OWNER/DEVELOPER: HOPKINS ROAD LIMITED PARTNERSHIP
9030 RED BRANCH ROAD, SUITE 200 COLUMBIA, MD 21045

DMW
Daft · McCune · Walker, Inc.
A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals
200 East Pennsylvania Avenue, Towson, Maryland 21286
410 296 3333 Fax 296 4705

10-9-97
Date

STATE OF MARYLAND — MELANIE MOSER — No. 551 — LANDSCAPE ARCHITECT

Landscape Architect No. 551

SUBDIVISION NAME		SECTION/AREA		LOT/PARCEL #
Montpelier				124,125, & ROAD BED
PLAT# OR L/F	BLOCK #	ZONE	TAX/ZONE MAP	ELECT. DISTRICT	CENSUS TRACT
L.3691,F505	17	PEC	41	5th	6051.02
WATER CODE			SEWER CODE	
E 21			6440000	

TITLE
SE FOREST CONSERVATION/ AFFORESTATION PLAN

Des By: JAR	Scale: 1" = 50'	Proj. No. 941715	
Drn By: TPC	Date: 10-9-97	16 OF 18	
Chk By:	Approved:		

NORTH

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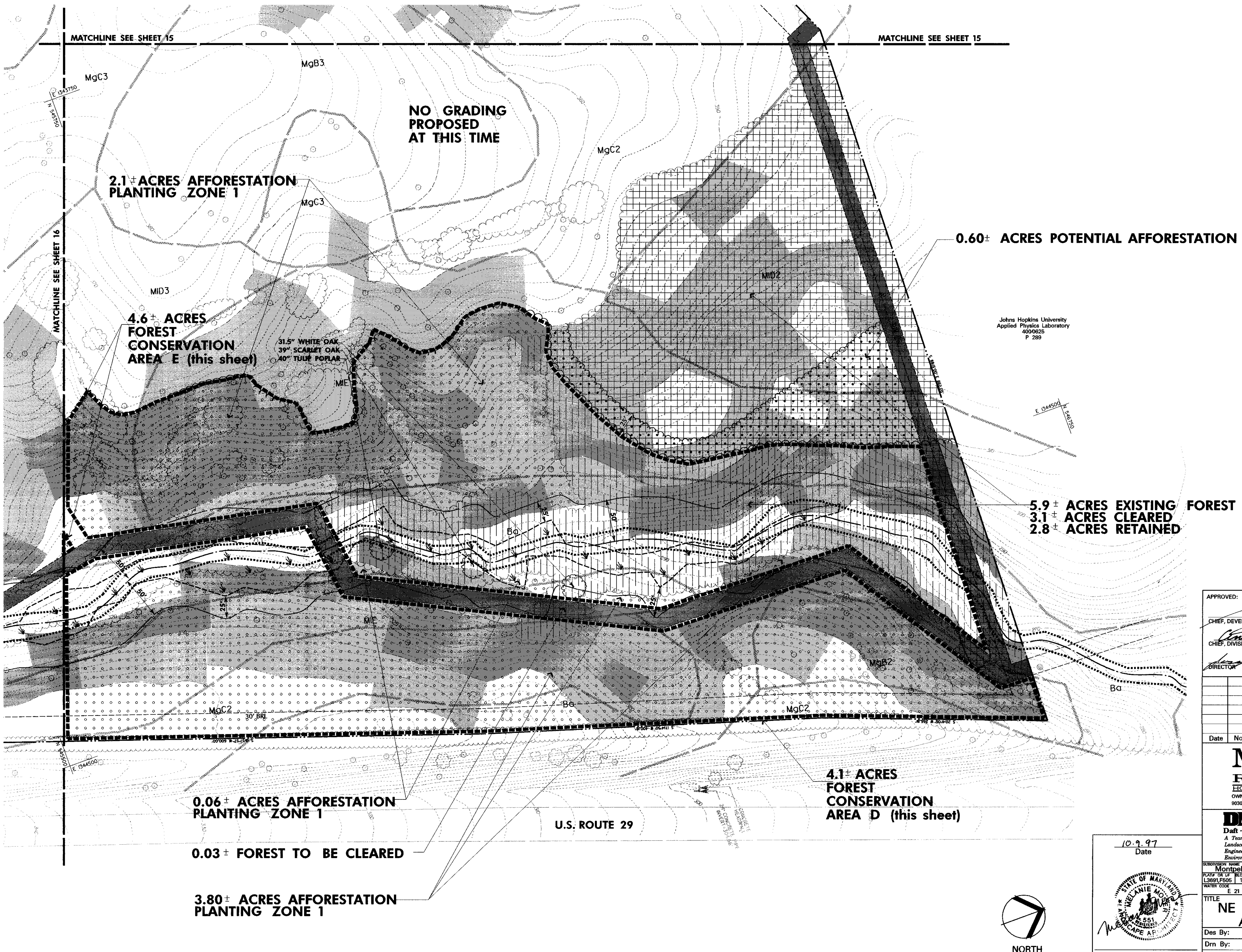

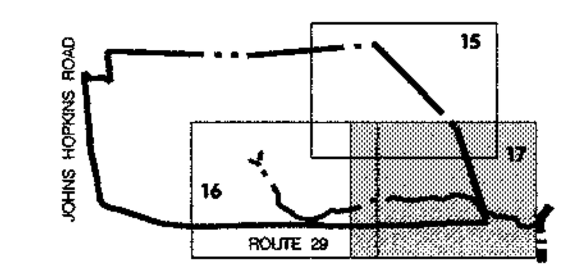

KEY SHEET
NTS

LEGEND

SYMBOL	DESCRIPTION
	SLOPES= >25%
	SLOPE= 15%–25%
	STREAM
	SOILS
	EXISTING CONTOURS
	APPROX. LOCATION SPECIMEN TREE
	EXISTING TREES/ TREE LINE
	WETLAND/STREAM BUFFER
	WETLAND
	PROPOSED CONTOURS
	FLOODPLAIN
	LIMIT OF DISTURBANCE
	FOREST CONSERVATION EASEMENT
	20' WIDE UTILITY EASEMENT
	FOREST TO BE CLEARED
	EXISTING FOREST TO BE RETAINED
	AFFORESTATION
	POTENTIAL AFFORESTATION
	FOREST PROTECTION FENCE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 10/29/97

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 10/29/97

DIRECTOR — DATE 10/29/97

Date	No.	Revision Description

Montpelier
Research Park
HOWARD COUNTY MARYLAND

OWNER/DEVELOPER: HOPKINS ROAD LIMITED PARTNERSHIP
9030 RED BRANCH ROAD, SUITE 200 COLUMBIA, MD 21045

DMW
Daft · McCune · Walker, Inc.
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200 East Pennsylvania Avenue, Towson, Maryland 21286, 410 296 3333, Fax 296 4705

10.9.97
Date

Landscape Architect No. 551

SUBDIVISION NAME	SECTION/AREA	LOT/PARCEL #
Montpelier		124,125, & ROAD BED

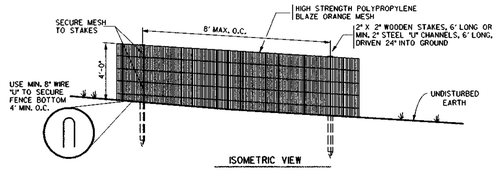
PLAT# OR L/F	BLOCK #	ZONE	TAX/ZONE MAP	ELECT. DISTRICT	CENSUS TRACT
L3691,F505	17	PEC	41	5th	6051.02

WATER CODE	SEWER CODE
E 21	6440000

TITLE
NE FOREST CONSERVATION/ AFFORESTATION PLAN

Des By: JAR	Scale: 1" = 50'	Proj. No. 941715
Drn By: TPC	Date: 10-9-97	17 OF 18
Chk By:	Approved:	

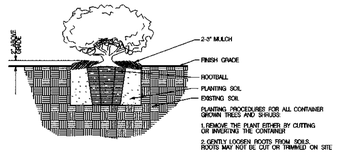
Tue Sep 9 11:54:10 1997 d:\941715\941715.fc4 SDP-98-11



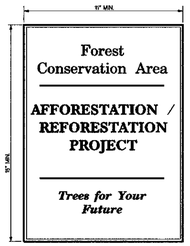
NOTES:

1. THIS DETAIL IS FOR FOREST PROTECTION DEVICE ONLY
2. FOREST RETENTION AREA WILL BE SET AS PART OF THE REVIEW PROCESS
3. BOUNDARIES OF FOREST RETENTION AREA SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLING THE DEVICE
4. ROOT DAMAGE SHALL BE AVOIDED
5. PROTECTION SIGNAGE MAY ALSO BE USED
6. FOREST PROTECTION FENCE SHALL BE MAINTAINED THROUGHOUT CONTRUCTION

Forest Protection Fence
Not To Scale

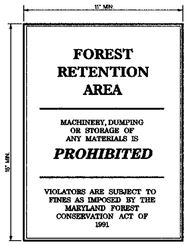


Planting of Container Grown Material
Not To Scale



SIGNS TO BE PLACED ON METAL POSTS 5' +/- ABOVE FINISH GRADE. PLACE SIGNS EVERY 100' AROUND PERIMETER OF FOREST CONSERVATION AREA.

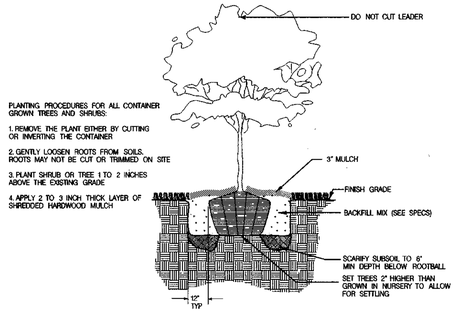
Permanent Signage
Not To Scale



SIGNS TO BE PLACED ON METAL POSTS 5' +/- ABOVE FINISH GRADE. PLACE SIGNS EVERY 100' AROUND PERIMETER OF FOREST RETENTION AREA.

SIGNS MAY NOT BE ATTACHED TO TREES.

Temporary Signage
Not To Scale



Typical Tree Planting (For container grown)
Not To Scale

Forest Conservation Worksheet

1. BASIC SITE DATA
   - Gross Site Area ..... 104.0 Acres
   - Area within 100 year floodplain ..... 1.2 Acres
   - Area within MSHA row reservation ..... 7.5 Acres
   - Net tract area ..... 95.3 Acres
   - Land use category (R-RLD, R-RMD, R-S, C/O,I) ..... PEC

2. INFORMATION FOR CALCULATIONS
   - a. Net tract area ..... 95.3 Acres
   - b. Reforestation threshold 15% x A ..... 14.3 Acres
   - c. Afforestation threshold 15% x A ..... 14.3 Acres
   - d. Existing forest on net tract area ..... 7.5 Acres
   - e. Forest areas to be cleared ..... 3.8 Acres
   - f. Forest areas to be retained ..... 3.7 Acres

3. DETERMINING REQUIREMENTS: AFFORESTATION OR REFORESTATION

   AFFORESTATION: If existing forest areas area are less than the afforestation minimum (if D is less than C), afforestation requirements apply.

4. AFFORESTATION CALULATIONS
   - a. Net tract area ..... 95.3 Acres
   - b. Afforestation minimum 15% x A ..... 14.3 Acres
   - c. Existing forest on net tract area ..... 7.5 Acres
   - d. Forest areas to be cleared ..... 3.8 Acres
   - e. Forest areas to be retained ..... 3.7 Acres

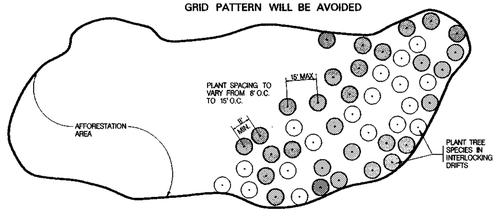
   Clearing below the Minimum

   If existing forests are less than the afforestation minimum (if D is less than C) and clearing is proposed, the flowing calulations apply:

   Afforestation for unforested areas below minimum C-D ..... 6.8 Acres
   afforestation for clearing below minimum Ex2 ..... 7.6 Acres
   Total afforestation required C-D + Ex2 ..... 14.4 Acres

   Afforestation requires the total forest area to be equal to the minimum and it requires compensation for clearing.

GRID PATTERN WILL BE AVOIDED



Planting Design Schematic
Not To Scale

GOALS & OBJECTIVES

Development of the Montpelier site under the current Forest Conservation Act requires the reforestation of approximately 14.4 acres. Approximately 10.4 acres of afforestation /reforestation will occur on site. Potentially 2.8 acres of additional afforestation /reforestation is available on site. The remaining 1.2 acres will be satisfied by fee in-lieu payment at a rate of $0.30 per square foot of forest cleared, or $15,682.00.

A portion of the forest conservation mitigation requirements have been fulfilled by the forest conservation plan for this project. With any further subdivision or site development plans, the remaining obligations must be satisfied.

The objective of afforestation /reforestation at Montpelier is to establish a fast growing hardwood forest which mirrors the species composition of the surrounding existing forests. Initially, exotic invasive plant material will be removed from the afforestation /reforestation area prior to any planting. Then the soil will be stabilized with a warm season grass (annual-rye). Within two years pl post-construction stabilization, young container grown stock will be installed, as studies indicate significantly higher survival rates for such plants. Afforestation /reforestation plantings will be established adjacent to the stream, wetland, and floodplain resources in an effort to augment the existing vegetation thereby increasing the functional value of subject areas and providing a higher level of buffering protection to adjacent water resources. A portion of the plantings will be established in the storm water management facility to provide shade and improve water quality. A Forest Conservation Easement will be placed on portions of the existing forest to remain and on all afforestation /reforestation areas.

FOREST RETENTION

Tree retention/Soil Protection areas will be delineated with temporary signage as appropriate. See Temporary Signage Detail prior to the beginning of any construction activity. Attachment of signs to trees is prohibited.

Forest protection fencing and retention area signage to be installed during later phases of construction where grading has not been indicated.

PRECONSTRUCTION MEETING/CONSTRUCTION PERIOD PRACTICES

Before construction begins, a required preconstruction meeting shall be held. The principle contractors, engineer, Howard County Inspectors and a qualified forest professional familiar with the plan shall be present. All items pertaining to forest retention, tree preservation, and construction period practices shall be discussed.

Any changes to the plan due to on-site conditions must be approved by the Howard County Department of Planning and Zoning.

No grading, excavation, utility placement, sediment and erosion control activities, or vehicular traffic will occur within forest retention areas.

Storage of equipment and materials shall not be permitted in the forest retention areas.

There will be no burial or disposal of discarded material on-site within the retention area.

There will be no open burning within 100 feet of woodlands.

Temporary structures including, but not limited to construction trailers, sanitary facilities, etc. shall not be placed within the forest retention areas.

Employee parking shall not be permitted in the forest retention areas.

POST CONSTRUCTION MANAGEMENT/MAINTENANCE BY CONTRACTOR

All dead trees or tree limbs which pose an immediate safety hazard will be felled. Trees dropped within the forest retention area will not be removed.

All temporary forest protection structures will be removed after construction and permanent signage will be placed where indicated on the plan.

A 2-year Contractor's Maintenance and Monitoring Period shall begin at mobilization. Seventy five percent survivorship must be guaranteed for this period. The site shall be inspected at the end of the two year period to ascertain survivorship and provide for replacement if necessary.

The Contractor's maintenance of new planting shall consist of watering, cultivating, weeding, and mulching as necessary to insure survival.

Contractor shall protect planting areas and plants at all times against damage of all kinds for duration of maintenance period. Maintenance includes temporary protection barriers and signs as required for protection. If any plants become damaged or injured, because sufficient protection was not provided, treat or replace as directed by Landscape Architect at no additional cost to Owner.

ALL FOREST RETENTION & AFFORESTATION AREAS SHOWN ON THIS PLAN TO BE PLACED IN FOREST CONSERVATION EASEMENT (POTENTIAL AFFORESTATION AREA NOT INCLUDED)

STANDARDS AND SPECIFICATIONS FOR PLANTING

1. PLANT MATERIAL SELECTION

A. Nursery grown plant materials greater than 1" caliper should meet or exceed the requirements of the American Nurserymen Specifications, i.e. should be typical of the species and variety, have a normal habit of growth, be first quality, sound, vigorous, well-branched, have healthy, well-furnished root systems, and be free of disease, insect pests and mecanical injuries.

B. Planting stock less than 1" caliper should meet the following standards:

Seedling/whips:

Hardwoods – 1/4" to 1/2" caliper with roots not less than 8" long
Shrubs – 1/2" or larger caliper with 8" root system.

2. PLANTING SITE PREPARATION

Soils shall not be disturbed outside the area necessary for planting individual specimens and the removal of exotic invasive plant material. These areas should be stabilized as shown on the temporary seeding notes on sheet 6.

3.PLANTING PERIOD

All material shall be planted between September 15 and May 31. Material shall not be installed when ground is frozen.

4.PLANT MATERIAL STORAGE

Plants should be planted within 24 hours of delivery if possible. Plant material which are left unplanted for more than 24 hours shall be protected from direct sun and weather and kept moist. Nursery stock should not be left unplanted for more than two weeks.

5.ON-SITE INSPECTION

Prior to planting, planting stock shall be inspected by the landscape architect or other qualified professional familiar with this plan. Plant material not conforming to standard nurseryman specifications for size, form, vigor, roots, trunk wounds, insects and disease should be replaced.

6.TOPSOIL FOR PLANTING SOIL

A. On-site material or imported from same source as topsoil used on site for finish grading.

1. Uniform composition, free of subsoil, clay lumps, stones, stumps, roots or similar objects larger than 1 inch.
2. Topsoil must be free of plants or plant parts of bermudagrass, quackgrass, Johnsongrass, nutsedge, poison ivy, Canada thistle, or others as specified.
3. All topsoil shall be tested by a recognized laboratory for pH and soluble salts. A pH of 4.5 to 7.5 is required. Soluble salts shall not be higher than 500 parts per million.

7. ADDITIVE FOR BACKFILL MIX

A. Wood Residuals:

1. Source shall be well composted, not chemically treated.
2. Physical properties – grading:

U.S. Sieve	Dry Weight Percent Passing
36"	100
1/4"	90 – 100
No. 8	70 – 100
No. 35	0 – 30

3. Organic content by ash analysis: 90 – 100 percent dry weight
4. Chemistry:

Range

a. Saturation Extract Conductivity (EC) ———— Nil – 3.5
b. Reaction (pH) ———— 3.0 – 5.5

5. Salinity: Maximum saturation extract conductivity 1.0 millimhos per cm at 25 degrees centigrade.

B. Sand

1. Physical Properties – Grading:

U.S. Sieve	Dry Weight Percent Passing
No. 4	100
No. 10	95 – 100
No. 18	90 – 100
No. 35	65 – 100
No. 60	0 – 50
No.140	0 – 20
No. 270	0 – 7

2. Chemistry:

Saturation Extract Conductivity (EC) ———— Nil – 3.0
Sodium Absorption Ratio (SAR) ———— Nil – 6.0
Boron – ppm in saturation extract solution ———— Nil – 1.0
Reaction (pH) ———— 6.0 – 7.5
Available calcium – sodium acetate extractable – ppm ——— Nil – 2000 dry weight

C. Treble Superphosphate: Commercial product containing 19 to 20 percent available phosphoric acid.

8. MULCH

A. Shredded long fiber hardwood.

B. Mulch shall have been shredded within the last six (6) months.

9. PLANTING MIX

A. Planting mix shall be prepared at approved on-site staging area using approved on-site existing soil. Mix minimum quantities of 20 cubic yards or sufficient mix for entire job if less than 20 cubic yards is required.

B. Thoroughly mixed in the following proportions for tree and shrub planting mix:

.5 cy Existing soil
.2 cy Sharp sand
.3 cy Wood residuals
4.5 lbs. Treble superphosphate
5 lbs. Dolomite limestone (eliminate for acid loving plants)

10. LAYOUT AND EXCAVATION OF PLANTING AREAS

A. Plants shall be placed in each zone at random locations shown at spacing as indicated on the plan.

B. The Landscape Architect or qualified professional will check location of plants in the field and shall adjust to exact position before planting begins.

C. Subsoil shall not be worked when moisture content is so great that excessive compaction will occur, nor when it is so dry that clods will not readily break. Water shall be applied, if necessary, to bring soil to an optimum moisture content before tilling and planting.

D. Tree pits shall not be excavated more than 24 hours in advance of planting operation. Tree pits shall be excavated to the following dimensions:

Excavation for	Width	Depth
Canned Trees	Can + 12 in.	Can + 4 in.
B&B Trees	Ball + 12 in.	Ball + 4 in.

E. Excavate shrub pits to the following depths:

Excavation for	Width	Depth
Shrubs	Ball or Can + 8 in.	Can + 4 in., not less than 12 in.

11. PREPARING PLANT MATERIALS FOR PLANTING

A. Container stock shall be removed carefully after cans have been cut on two sides with approved cutter. Do not use spade to cut cans. Do not lift or handle container plants by tops, stems or trunks at any time.

B. Do not bind or handle any plant with wire or rope at any time so as to damage bark or break branches. Lift and handle plants only from bottom of ball.

C. Balled and burlapped (B&B) plants shall have firm balls of earth. Plants moved with a ball will not be accepted if the ball is cracked or broken before or during planting operations. B&B material shall be dug only when dormant. Pre-dug, stored B&B material shall be inspected and approved at the storage site.

D. Do not force roots for bare rooted trees into excavated pits – custom dig pits to receive roots without deformation.

12. MIXING

A. Mix soil base, amendments and chemical additives by mechanical means.

B. Soil and sand bases shall be completely pulverized and free of lumps or aggregated material. Moisture content of base materials shall not be such that chemical granular or pelletized additives become dissolved during the mixing process.

C. Mix media in quantities of not less than 20 cubic yards or mix total quantity required if less than 50 cubic yards. The Contractor shall be responsible for continuity between batches.

D. Contaminating backfill mix with unmixed soil in backfill mixing lots shall be avoided.

13. INSTALLATION OF CONTAINERIZED PLANT MATERIAL

A. Scarify the walls and bottom of all plant pits immediately prior to the placement of plant and backfill mix. The Contractor shall remove all glazing of soil caused by an auger or mechanical hole digger.

B. Place B&B plants carefully in the prepared planting pit. Do not disturb root ball or untie twine or roping until backfill settlement is complete and tree is staked, if applicable. Fill planting pit by flooding each 6 inches of backfill for balls greater than 24 inch diameter. Fill plant pits with soil mix to depth to receive plant root ball, so that top of ball is 2 inches above finished grade. Wrap trunks with double layer of tree wrap.

C. Wells around trees and shrubs: after planting is complete, form a soil well 3 inches high around each plant, extending to the outer limit of the plant pit in accordance with planting details shown on the Drawings.

D. Smooth planted areas to conform to specified grades after full settlement as occurred. Contractor shall bear final responsibility for proper surface drainage of planted areas. Any discrepancy in the drawings or specifications, obstructions on the site, or prior work done by another party, which Contractor feels precludes establishing proper drainage, shall be brought to the attention of the Landscape Architect in writing.

E. Water all plants immediately again after planting.

F. Spread mulch in required areas to the compacted depth of 2 inches.

GUARANTEE:

A MINIMUM SURVIVAL RATE OF 75% IS TO BE GUARANTEED BY THE DEVELOPER AT THE END OF THE TWO YEAR MAINTENANCE PERIOD.

Reforestation Planting

Species	Size	Spacing	Quantity
ZONE 1 (steep slopes)			
Acer saburn	24" whips /Cont.	8'-11' mdm	200
Prunus serotina	24" whips /Cont.	8'-11' mdm	200
Fraxinus pennsylvanicum	24" whips /Cont.	8'-11' mdm	200
Quercus alba	24" whips /Cont.	8'-11' mdm	200
Amelanchier arborea	24" whips /Cont.	8'-11' mdm	200
Liriodendron tulipifera	24" whips /Cont.	8'-11' mdm	200
Juglans nigra	24" whips /Cont.	8'-11' mdm	200
Quercus coccinea	24" whips /Cont.	8'-11' mdm	200
Sassafras albidum	24" whips /Cont.	8'-11' mdm	200
Viburnum prunifolium	24" whips /Cont.	8'-11' mdm	300
Lindera benzoin	24" whips /Cont.	8'-11' mdm	260
Hamamelis virginiana	24" whips /Cont.	8'-11' mdm	300
Viburnum acerifolium	24" whips /Cont.	8'-11' mdm	300
		Total	2940
ZONE 2 (wetland)			
Quercus alba	24" whips /Cont.	8'-11' mdm	20
Acer rubrum	24" whips /Cont.	8'-11' mdm	30
Salix nigra	24" whips /Cont.	8'-11' mdm	30
Magnolia virginiana	24" whips /Cont.	8'-11' mdm	35
Liquidambar styraciflua	24" whips /Cont.	8'-11' mdm	35
Betula nigra	24" whips /Cont.	8'-11' mdm	35
Vaccinium corymbosum	24" whips /Cont.	8'-11' mdm	65
Viburnum dentatum	24" whips /Cont.	8'-11' mdm	65
		Total	315
ZONE 3 (pond, road)			
Acer rubrum	1" cal./cont.	8'-11' mdm	30
Prunus serotina	1" cal./cont.	8'-11' mdm	30
Fraxinus pennsylvanicum	1" cal./cont.	8'-11' mdm	30
Juglans nigra	1" cal./cont.	8'-11' mdm	30
Carpinus caroliniana	1" cal./cont.	8'-11' mdm	30
Lindera benzoin	24" whips /Cont.	8'-11' mdm	90
Hamamelis virginiana	24" whips /Cont.	8'-11' mdm	80
		Total	330

NOTE:

1. THE PRECISE LOCATION OF PLANT MASSINGS WILL BE LOCATED IN THE FIELD BY LANDSCAPE ARCHITECT.
2. GRID PATTERNS WILL BE AVOIDED
3. IF EXOTIC INVASIVE PLANT MATERIAL IS REMOVED WITHIN THE STREAM BUFFER, THE AREA SHOULD BE STABILIZED AS NOTED.
4. PLANT MATERIAL MAY BE GROUPED IN CLUSTERS OF NO MORE THAN 5 TO 7 WHIPS OF THE SAME PLANT. PLANTS WILL BE INSTALLED IN A RANDOM FASHION.

Conditions and Managment Practices for Working in Nontidal Wetlands and Buffers

A. REMOVE EXCAVATED MATERIAL, CONSTRUCTION MATERIAL OR DEBRIS TO AN UPLAND DISPOSAL AREA OUTSIDE OF ANY WATERWAY, FLOODPLAIN, NONTIDAL WETLAND, OR BUFFER;

B. IF BACKFILL IS OBTAINED, USE CLEAN MATERIAL FREE OF WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DELETERIOUS SUBSTANCE.

C. PLACE MATERIALS IN A LOCATION AND MANNER WHICH DOES NOT ADVERSELY IMPACT SURFACE OR SUBSURFACE WATER FLOW INTO OR OUT OF THE NONTIDAL WETLAND;

D. MAINTAIN THE HYDROLOGIC REGIME OF NONTIDAL WETLANDS OUTSIDE THE LIMITS OF DISTURBANCE.

E. RECTIFY ANY NONTIDAL WETLANDS AND BUFFERS TEMPORARILY IMPACTED BY THE PERMITTED ACTIVITY. ALL STABILIZATION IN THE WETLAND AND BUFFER SHALL BE OF THE FOLLOWING RECOMMENDED SPECIES: ANNUAL RYEGRASS (Lolium multiflorum). MILLET (Setaria Italica), OATS (Uninda sp.) AND /OR RYE (Secale cereale). OTHER NON-PERSISTENT VEGETATION MAY BE ACCEPTABLE, BUT MUST BE APPROVED BY THE NONTIDAL WETLANDS AND WATERWAYS DIVISION. KENTUCKY 31 FESCUE SHALL NOT BE UTILIZED IN THE WETLAND OR BUFFER. ALL TEMPORARY FILLS SHALL BE REMOVED IN THEIR ENTIRETY ON OR BEFORE THE COMPLETION OF CONSTRUCTION;

F. TO PROTECT IMPORTANT AQUATIC SPECIES, IN-STREAM WORK IS PROHIBITED AS DETERMINED BY THE CASSIFICATION OF THE STREAM AS FOLLOWS:

USE I WATERS. IN-STREAM WORK MAY NOT BE CONDUCTED DURING THE PERIOD MARCH 1 – JUNE 15 INCLUSIVE, DURING ANY YEAR.

G. NO REMOVAL OF VEGETATION, GRADING, FILLING, DRAINING, OR OTHER ALTERATION OF THE NONTIDAL WETLANDS OR BUFFER OUTSIDE THE LIMITS OF DISTURBANCE SHALL OCCUR WITHOUT WRITTEN AUTHORIZATION FROM THE WATER MANAGEMENT ADMINISTRATION.

10.9.97
Date

STATE OF MARYLAND — MELANIE MOSER — 551 — REGISTERED LANDSCAPE ARCHITECT

Landscape Architect No. 551

Forest Conservation Chart

- 7.5± ACRES EXISTING FOREST
- 3.8± ACRES TO BE CLEARED
- 3.7± ACRES TO BE RETAINED
- 14.4± ACRES AFFORESTATION/REFORESTATION REQUIRED
- 10.4± ACRES AFFORESTATION/REFORESTATION ON SITE
- 2.8± ACRES POTENTIAL AFFORESTATION/REFORESTATION
- 1.2± ACRES FEE IN-LIEU
- 15.3± ACRES FOREST CONSERVATION EASEMENT
  - .8± ACRES AREA A
  - .3± ACRES AREA B
  - 1.0± ACRES AREA C
  - 8.3± ACRES AREA D
  - 4.9± ACRES AREA E

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 10/29/97

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 10/24/97

DIRECTOR — DATE 10/24/97

Date	No.	Revision Description

Montpelier
Research Park
HOWARD COUNTY MARYLAND

DMW
Daft · McCune · Walker, Inc.
A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals
200 East Pennsylvania Avenue
Towson, Maryland 21286
410 296 3333
Fax 296 4705

SUBDIVISION NAME		SECTION/AREA		LOT#/PARCEL #
Montpelier				124,125, & ROAD BED
PLAT# OR L/F	BLOCK #	ZONE	TAX/ZONE MAP	ELECT. DISTRICT	CENSUS TRACT
L3691,F505	17	PEC	41	5th	6051.02
WATER CODE			SEWER CODE	
E 21			6440000	

TITLE
FOREST CONSERVATION/ AFFORESTATION DETAILS & NOTES

Des By: JAR	Scale:		Proj. No. 941715
Drn By: TPC	Date: 10-9-97		18 OF 18
Chk By:	Approved:		

Tue Sep 9 11:56:40 1997 d:\941715\941715.dgn SDP-98-11