NOTES:

1. OWNER: ROCK DULLES LP
   CARE ALLEN & ROCKS INC
   1960 GALLOWS ROAD
   STE 300
   VIENNA, VA 22182
   APPLICANT: BRANK BANKING & TRUST COMPANY OF VIRGINIA
   6400 ARLINGTON BLVD, 320
   FALLS CHURCH, VA 22042
2. THE PROPERTY IS DESIGNATED BY FAIRFAX COUNTY, VIRGINIA, AS TAX ASSESSMENT MAP NUMBER 016-1-01-0007B, AND IS ZONED C-6.
3. THE PROPERTY BEING COMPRISED OF PARCEL B-1, ROTONISU INVESTMENT CORPORATION, AS RECORDED IN DEED BOOK 3652 AT PAGE 52, IS NOW IN THE NAME OF ROCKS DULLES L.P., AS RECORDED IN DEED BOOK 7965 AT PAGE 927.
4. TOTAL AREA OF THE PROPERTY IS 309,074 SQUARE FEET OR 7.0954 ACRES. THE SPECIAL EXCEPTION AREA IS ±49,735 SQUARE FEET OR ±1.14 ACRES.
5. TO THE BEST OF OUR KNOWLEDGE, ALL UTILITY EASEMENTS HAVING A WIDTH OF 25 FEET OR MORE ON THIS PROPERTY ARE SHOWN.
6. THIS PLAT DOES NOT SHOW ALL COVENANTS, EASEMENTS, RESTRICTIONS OR DEDICATIONS WHICH MAY EXIST IN THE CHAIN OF TITLE.
7. THE PROPOSED DEVELOPMENT CONFORMS TO ALL APPLICABLE FAIRFAX COUNTY ORDINANCES, REGULATIONS AND ADOPTED STANDARDS.
8. BOUNDARY AND TOPOGRAPHIC INFORMATION IS TAKEN FROM A FIELD SURVEY PERFORMED BY THIS FIRM. CONTOUR INTERVAL IS 2 FEET.
9. PROPERTY IS SERVED BY PUBLIC WATER AND SEWER.
10. ACCORDING TO THE FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAP 5155250050D. DATED MARCH 1990, THIS PROPERTY IS SHOWN AS ZONE X, AREAS DETERMINED TO BE OUTSIDE OF THE 500-YEAR FLOOD PLAIN.
11. NO RESOURCE PROTECTION AREAS OR ENVIRONMENTAL QUALITY CORRIDORS, AS DEFINED, ARE DELINEATED ON THIS PROPERTY.
12. NO GRAVES OR OTHER EVIDENCE OF BURIAL PLACES ARE FOUND ON THIS PROPERTY.
13. EXISTING PARKING LOT LIGHTING TO BE RELOCATED.
14. THIS PLAN IS CONCEPTUAL AND IS INTENDED TO BE USED IN CONJUNCTION WITH THE LAND USE APPROVAL PROCESS ONLY. IT IS NOT AN ENGINEERING CONSTRUCTION DRAWING; AND, MINOR DEVIATIONS AND ADJUSTMENTS MAY BE REQUIRED.
15. THERE ARE NO TRAILS PLANNED FOR THIS PARCEL.
16. PER VDOT PLAN FOR ROUTE 228, STATE PROJECT U000-235-V09, PROPOSED ROAD AND SIDEWALK TO BE CONSTRUCTED BY VDOT HAVE BEEN SHOWN ON THIS PLAN.
17. APPROXIMATELY 113,100 SF OF CLEARING AND GRADING TO OCCUR AT TIME OF SITE PLAN.

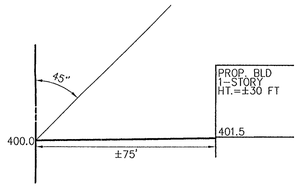
SHEET INDEX:

1. SPECIAL EXCEPTION PLAN
2. PRELIMINARY STORMWATER MANAGEMENT PLAN
3. EXISTING VEGETATION MAP
4. SILTATION AND DRAINAGE DIVIDE PLAN (FOR INFORMATION ONLY)
5. SWM/DRAINAGE COMPS. (FOR INFORMATION ONLY)
6. SWM/DRAINAGE COMPS. (FOR INFORMATION ONLY)
7. SWM/DRAINAGE COMPS. AND STORM PROFILES (FOR INFORMATION ONLY)
8. OUTFALL ANALYSIS
9. OUTFALL ANALYSIS

LEGEND

PROPOSED DECIDUOUS TREES

PROPOSED LARGE EVERGREEN TREES

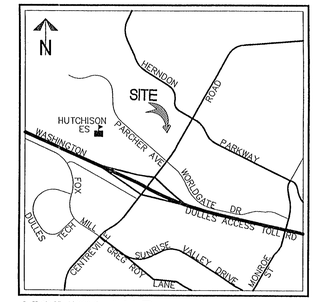


ANGLE OF BULK PLANE
SCALE: 1"=30'

ZONING TABULATION:
(LIMITS OF SPECIAL EXCEPTION)

C-6, COMMUNITY RETAIL COMMERCIAL DISTRICT

	REQUIRED	PROVIDED
MINIMUM LOT AREA	40,000 SF	±49,735 SF
MINIMUM LOT WIDTH	200 FT	±226 FT
MAX. BLDG. HT.	40 FT	±30 FT
MIN. YARD REQUIREMENTS		
FRONT	45' ABP, 40 FT	±75 FT
SIDE	N/A	N/A
REAR	20 FT	±58 FT
MAX. FAR	0.40	±0.04
OPEN SPACE	15% (7,460 SF)	±18% (±9,000 SF)
INT. PARKING LOT LANDSCAPING	5% (1,773 SF)	±10% (±3,500 SF)
TREE COVER	10% (4,603 SF)	±13% (±6,000 SF)



VICINITY MAP SCALE: 1"=2000'

PARCEL 7B - SHOPPING CENTER PARKING TABULATION
(PARKING BASED ON ENTIRE SHOPPING CENTER)

EX. PARKING REQUIRED:	429 SPACES
EX. PARKING PROVIDED:	542 SPACES (INCLUDING 14 ACCESSIBLE SPACES)
PROPOSED PARKING PROVIDED (WITH SE BANK LAYOUT):	554 SPACES (INCLUDING 11 ACCESSIBLE SPACES)
PROPOSED PARKING REQUIRED (WITH SE BANK LAYOUT):	438 SPACES

SHOPPING CENTER RATE (DEPARTMENT STORE AND BANK):
±109,392 SF OF GFA @ 4 SPACES/1000 SF
= 438 SPACES

*PROPOSED TOTAL PARKING SPACES NET GAIN: 12 SPACES

MINIMUM STORMWATER INFORMATION FOR REZONING, SPECIAL EXCEPTION, SPECIAL PERMIT AND DEVELOPMENT PLAN APPLICATIONS

The following information is required to be shown or provided in all zoning applications, or a waiver request of the submission requirement with justification shall be attached. Note: Waivers will be acted upon separately. Failure to adequately address the required submission information may result in a delay in processing this application.

This information is required under the following Zoning Ordinance paragraphs:
Special Permits (9-011 2J & 2L)
Cluster Subdivision (9-615 1G & 1N)
Development Plans PRC District (16-302 3 & 4L)
FDP P Districts (except PRC) (16-502 1F & 1Q)
Special Exceptions (9-011 2J & 2L)
Commercial Revitalization Districts (9-622 2A (12) & (14))
PRC Plan (16-303 1E & 1O)
Amendments (18-202 10F & 10I)

☑ 1. Plat is at a minimum scale of 1"=50' (unless it is depicted on one sheet with a minimum scale of 1"=100').

☑ 2. A graphic depicting the stormwater management facility(ies) and limits of clearing and grading accommodate the stormwater management facility(ies), storm drainage pipe systems and outlet protection, pond spillways, access roads, site outfalls, energy dissipation devices, and stream stabilization measures as shown on Sheet 1, 2, and 4

☑ 3. Provide:

Facility Name/ Type & No.	On-site area served (acres)	Off-site area served (acres)	Drainage area (acres)	Footprint area (sf)	Storage Volume (cf)	If pond, dam height (ft)
Ex. Dry Pond (e.g. apparatus, site drain, underground vault, etc.)	4.73	0.20	4.93	+/-5,050	21,735	no dam
Ex. Detention Pipe	3.09	0	2.09	N/A	5,597	N/A
	6.82	0.20	7.02		27,332 Totals	

☑ 4. Onsite drainage channels, outfalls and pipe systems are shown on Sheet 2+4. Pond inlet and outlet pipe systems are shown on Sheet 2+4.

☑ 5. Maintenance access (road) to stormwater management facility(ies) are shown on Sheet 2. Type of maintenance access road surface noted on the plat is asphalt. (asphalt, geoblock, gravel, etc.)

☑ 6. Landscaping and tree preservation shown in and near the stormwater management facility is shown on Sheet 2. (existing vegetation to remain)

☑ 7. A 'stormwater management narrative' which contains a description of how detention and best management practices requirements will be met is provided on Sheet 2.

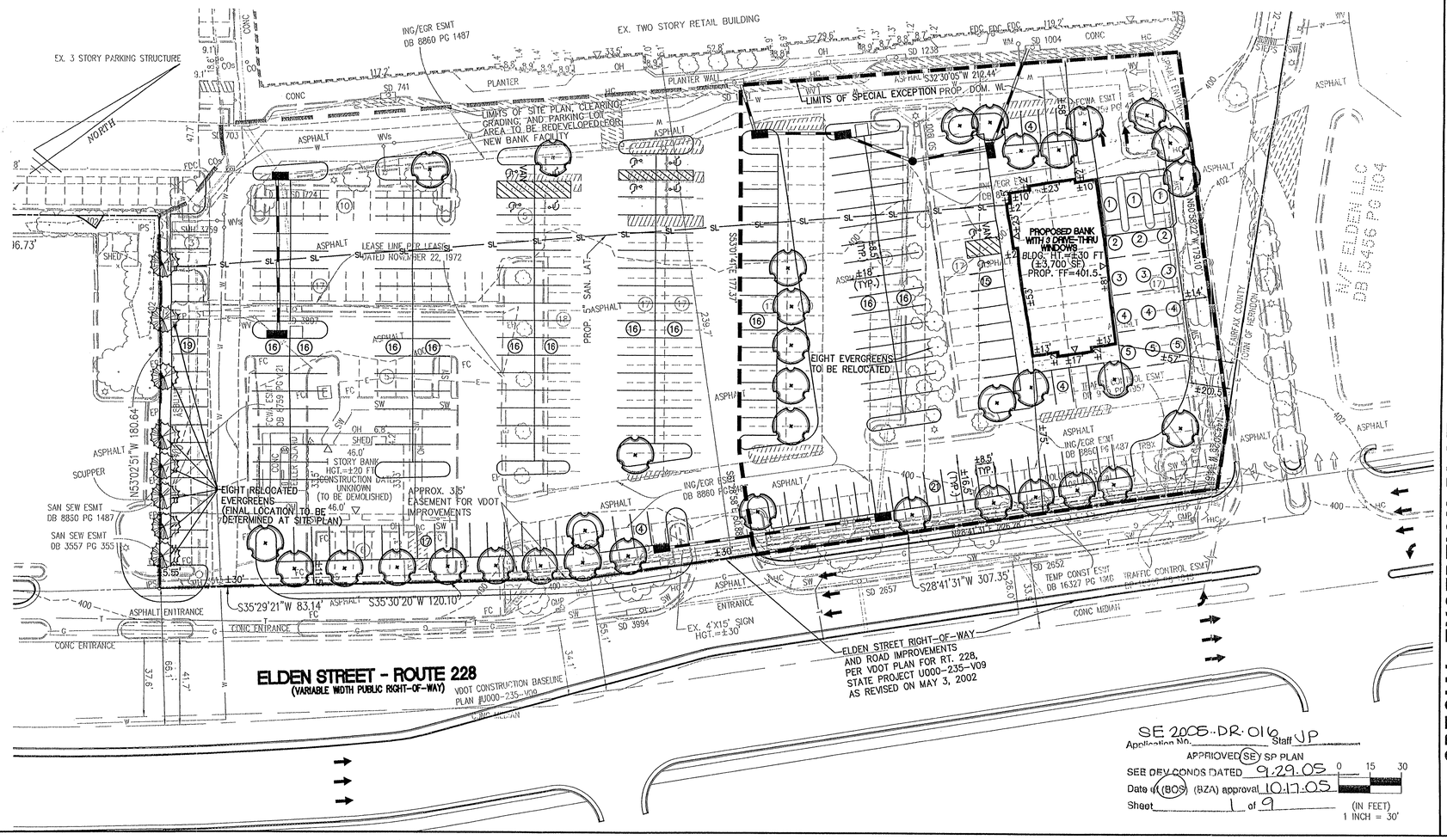
☑ 8. A description of the existing conditions of each numbered site outfall extended downstream from the site to a point which is at least 100 times the site area or which has a drainage area of at least one square mile (640 acres) is provided on Sheet 2.

☑ 9. A description of how the outfall requirements, including contributing drainage areas of the Public Facilities Manual will be satisfied is provided on Sheet 2.

☑ 10. Existing topography with maximum contour intervals of two (2) feet and a note as to whether it is an air survey or field run is provided on Sheets 1 and 2.

☐ 11. A submission waiver is requested for _____.

☐ 12. Stormwater management is not required because _____.



SE 2005-DR-016 Staff JP
Application No.
APPROVED (SE) SP PLAN
SEE DEV CONDS DATED 9.29.05
Date of (BOS) (BZA) approval 10.17.05
Sheet 1 of 9
0 15 30 (IN FEET) 1 INCH = 30'

RECEIVED
Department of Planning & Zoning
OCT 03 2005
Zoning Evaluation Division

SPECIAL EXCEPTION PLAT

PROPOSED BB&T
DRANESVILLE DISTRICT
FAIRFAX COUNTY, VIRGINIA

WALTER L. PHILLIPS
INCORPORATED
CIVIL ENGINEERS LAND SURVEYORS PLANNERS LANDSCAPE ARCHITECTS
207 PARK AVENUE FALLS CHURCH, VIRGINIA 22046 WWW.WLPINC.COM
(703) 532-6163 FAX (703) 533-1301

DATE: 2/7/05 REV. 4/19/05 REV. 6/9/05, 10/3/05
SCALE 1" = 30'
DRAWN: MEF

COMMONWEALTH OF VIRGINIA
TERRANCE ANDERSON
3909
10-3-05
PROFESSIONAL ENGINEER

REVISION APPROVED BY

NO.	DESCRIPTION	DATE	REV. BY	APPROVED	DATE

File No. Tax Map No. 16-1 Job No. 99-014 Cadd Dwg. File: 99014SE1 Xref:

STORMWATER MANAGEMENT SUMMARY

I. LIMITS OF SITE PLAN PRE-DEVELOPMENT (EXISTING CONDITIONS)

A. CONTRIBUTING AREAS:

0.34 AC. @ 0.30 (GREEN AREA ON-SITE)
2.26 AC. @ 0.90 (ROOFS, DRIVEWAYS, SIDEWALKS, ETC.)
2.60 AC.

B. WEIGHTED "C":

$$\frac{(0.34)(0.30)+(2.26)(0.90)}{2.60} = 0.82$$

C. TIME OF CONCENTRATION = 5 MIN.

D. RUNOFF:

Q2 = (0.82)(5.45)(2.60) = 11.62 CFS
Q10 = (0.82)(7.27)(2.60) = 15.50 CFS
Q100 = 1.25(0.82)(9.84)(2.60) = 26.22 CFS

II. LIMITS OF SITE PLAN POST-DEVELOPMENT (PROPOSED CONDITIONS)

A. CONTRIBUTING AREAS:

0.38 AC. @ 0.30 (GREEN AREA ON-SITE)
2.22 AC. @ 0.90 (ROOFS, DRIVEWAYS, SIDEWALKS, ETC.)
2.60 AC.

B. WEIGHTED "C":

$$\frac{(0.38)(0.30)+(2.22)(0.90)}{2.60} = 0.81$$

C. RUNOFF:

Q2 = (0.81)(5.45)(2.60) = 11.48 CFS
Q10 = (0.81)(7.27)(2.60) = 15.31 CFS
Q100 = 1.25(0.81)(9.84)(2.60) = 25.90 CFS

SWM NARRATIVE

PROPOSED CHANGES TO THE SITE WILL NOT RESULT IN AN INCREASE IN THE AMOUNT OF IMPERVIOUS AREA, THEREFORE, NO SWM FACILITIES WILL BE PROVIDED AS PART OF THIS DEVELOPMENT. DETENTION FOR THE ENTIRE SITE AREA WAS PROVIDED FOR AT THE TIME OF THE CALDOR AT ROCKSPOINT SITE PLAN (6558-SP-04-1).

BMP FACILITY DESIGN CALCULATIONS

II. WATERSHED INFORMATION

PART 1: LIST ALL OF THE SUBAREAS AND "C" FACTORS USED IN THE BMP COMPUTATIONS

SUBAREA DESIGNATION AND DESCRIPTION (1)	"C" (2)	ACRES (3)
A_1 DRAINAGE AREA AROUND PROP. BANK	0.85	0.41
A_2 REMAINDER OF AREA WITHIN SE LIMITS	0.80	2.19
TOTAL		2.60

PART 2: COMPUTE THE WEIGHTED AVERAGE "C" FACTOR FOR THE SITE

(A) AREA OF THE SITE (a) 2.60 ACRES

(B) SUBAREA DESIGNATION (1)	"C" (2)		ACRES (3)	PRODUCT (4)
A_1 DRAINAGE AREA AROUND PROP. BANK	0.85	x	0.41	= 0.35
A_2 REMAINDER OF SITE WITHIN SE LIMITS	0.80	x	2.19	= 1.75
			(b) TOTAL	= 2.10

(C) WEIGHTED AVERAGE "C" FACTOR (b)/(a) = (c) 0.81

PART 3: COMPUTE THE TOTAL PHOSPHORUS REMOVAL FOR THE SITE

SUBAREA DESIGNATION (1)	BMP TYPE (2)	REMOVAL EFF. (%) (3)	AREA RATIO (4)	"C" FACTOR RATIO (5)	PRODUCT (6)
A_1	FILTERRA	60 x	0.41/2.60 x	0.85/0.81	= 9.93
				(a) TOTAL =	9.93%

PART 4: DETERMINE COMPLIANCE WITH PHOSPHORUS REMOVAL REQUIREMENT

(A) SELECT REQUIREMENT (a) 8.89%

* WATER SUPPLY OVERLAY DISTRICT (OCCOQUAN WATERSHED) = 50 %

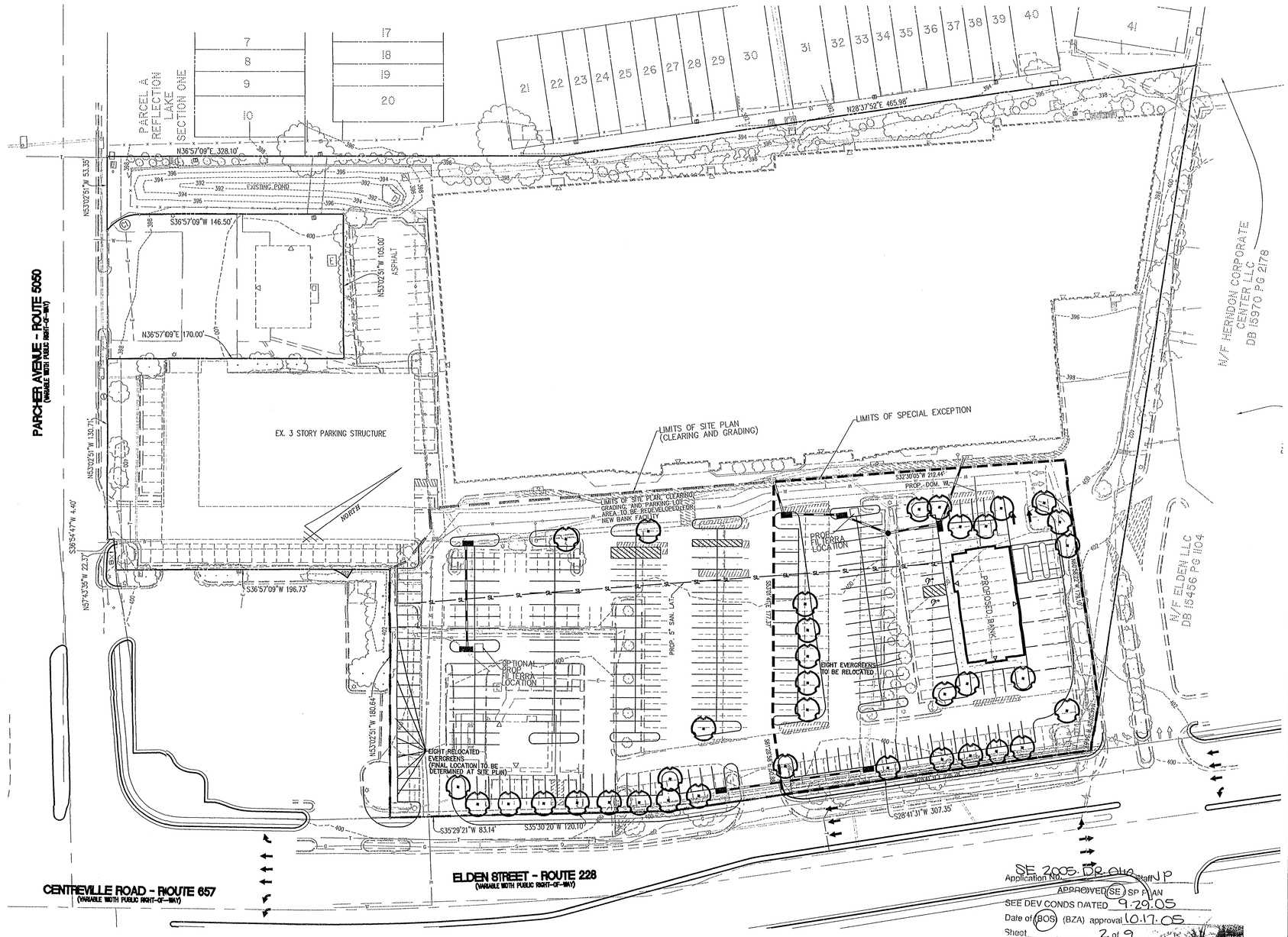
* CHESAPEAKE BAY PRESERVATION AREA (NEW DEVELOPMENT) = 40 %

* CHESAPEAKE BAY PRESERVATION AREA (REDEVELOPMENT) =
[1-0.9 x ("C"PRE/"C"POST)] x 100 =
[1-0.9 x (0.82/0.81)] x 100 = 8.89%

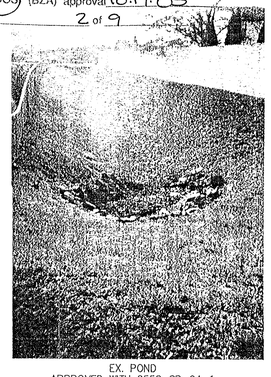
(B) IF LINE 3(a) 9.93 ≥ LINE 4(a) 8.89 THEN PHOSPHORUS REMOVAL REQUIREMENT IS SATISFIED.

BMP NARRATIVE

BMP FOR THE LIMITS OF SITE PLAN WILL BE PROVIDED BY TWO FILTERRA BMP DEVICES, WHICH HAVE A PHOSPHORUS REMOVAL EFFICIENCY OF 60%. ±0.41 AC OF SITE AREA FLOWS THROUGH THE FILTERRA, PROVIDING ±10% TOTAL PHOSPHORUS REMOVAL. THIS EXCEEDS THE ±8.89% REDEVELOPMENT PHOSPHORUS REMOVAL REQUIREMENT.



SE 2005-DR-014 Staff NP
Application No.
APPROVED (SE) SP PLAN
SEE DEV CONDS DATED 9.29.05
Date of (BOS) (BZA) approval 10.17.05
Sheet 2 of 9



EX. POND
APPROVED WITH 6558-SP-04-1

THIS PLAN IS CONCEPTUAL AND IS INTENDED TO BE USED IN CONJUNCTION WITH THE LAND USE APPROVAL PROCESS ONLY. IT IS NOT AN ENGINEERING CONSTRUCTION DRAWING; AND, MINOR DEVIATIONS AND ADJUSTMENTS MAY BE REQUIRED.

WALTER L. PHILLIPS
INCORPORATED
CIVIL ENGINEERS LAND SURVEYORS PLANNERS LANDSCAPE ARCHITECTS
207 PARK AVENUE FALLS CHURCH, VIRGINIA 22046 WWW.WLPINC.COM
(703) 532-6163 FAX (703) 533-1301

DATE: 2/17/05 REV. 4/19/05 REV. 4/25/05 REV. 5/9/05, 10/3/05
DRAWN: MEF
SCALE 1" = 40'

COMMONWEALTH OF VIRGINIA
TERRANCE M. ANDERSON
No. 9905
10-3-05
PROFESSIONAL ENGINEER

NO.	DESCRIPTION	DATE	REV. BY	APPROVED	DATE

REVISION APPROVED BY

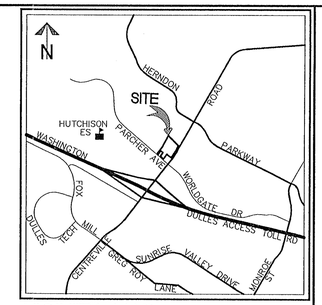
PRELIMINARY STORMWATER MANAGEMENT PLAN

PROPOSED BB&T

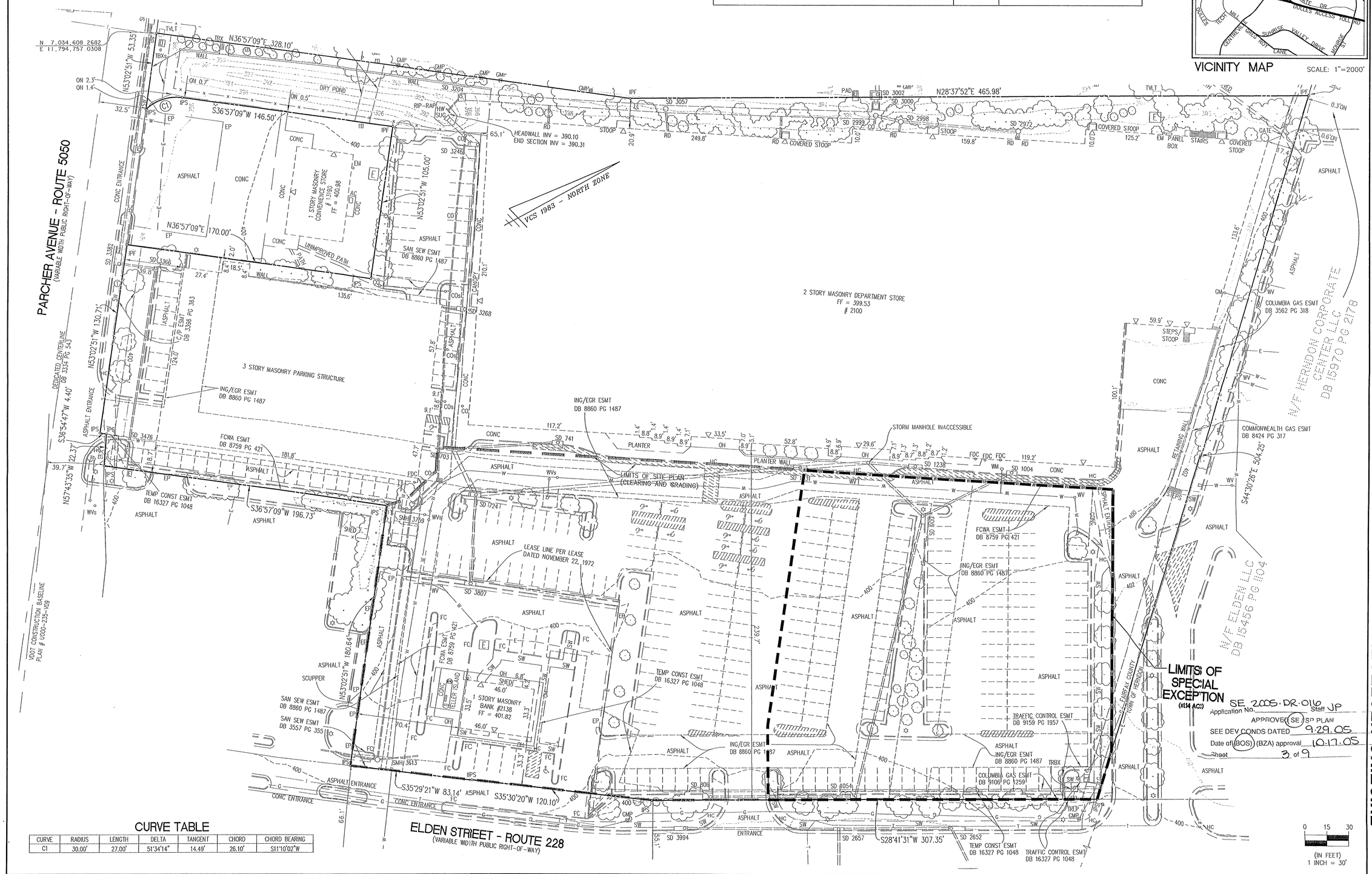
DRANESVILLE DISTRICT
FAIRFAX COUNTY, VIRGINIA

EXISTING VEGETATION MAP INFORMATION

COVER TYPE	PRIMARY SPECIES	SUCCESSIONAL STAGE	CONDITION	ACREAGE	COMMENTS
DEVELOPED	MAPLE, HOLLY PINE	N/A	GOOD	49,735 SF	EXISTING BUILDINGS, ASPHALT PARKING LOTS, CONCRETE SIDEWALKS, LANDSCAPE/LAWN AREAS AND ISLANDS
TOTAL ACREAGE:				113,079 SF	



VICINITY MAP SCALE: 1"=2000'



SE 2005-DR-016 Staff JP
Application No.
APPROVED (SE) SP PLAN
SEE DEV CONDS DATED 9.29.05
Date of (BOS) (BZA) approval 10.17.05
Sheet 3 of 9

CURVE TABLE

CURVE	RADIUS	LENGTH	DELTA	TANGENT	CHORD	CHORD BEARING
C1	30.00'	27.00'	51°34'14"	14.49'	26.10'	S11°10'02"W

(IN FEET) 1 INCH = 30'

WALTER L. PHILLIPS
INCORPORATED
CIVIL ENGINEERS LAND SURVEYORS PLANNERS LANDSCAPE ARCHITECTS
207 PARK AVENUE FALLS CHURCH, VIRGINIA 22046
(703) 532-6163 FAX (703) 533-1801 WWW.WLPINC.COM

DATE: 2/17/05 REV. 4/5/05 REV. 4/19/05 REV. 6/9/05, 10/3/05 DRAWN:
SCALE: 1" = 30'

NO.	DESCRIPTION	DATE	REV. BY	APPROVED	DATE

REVISION APPROVED BY

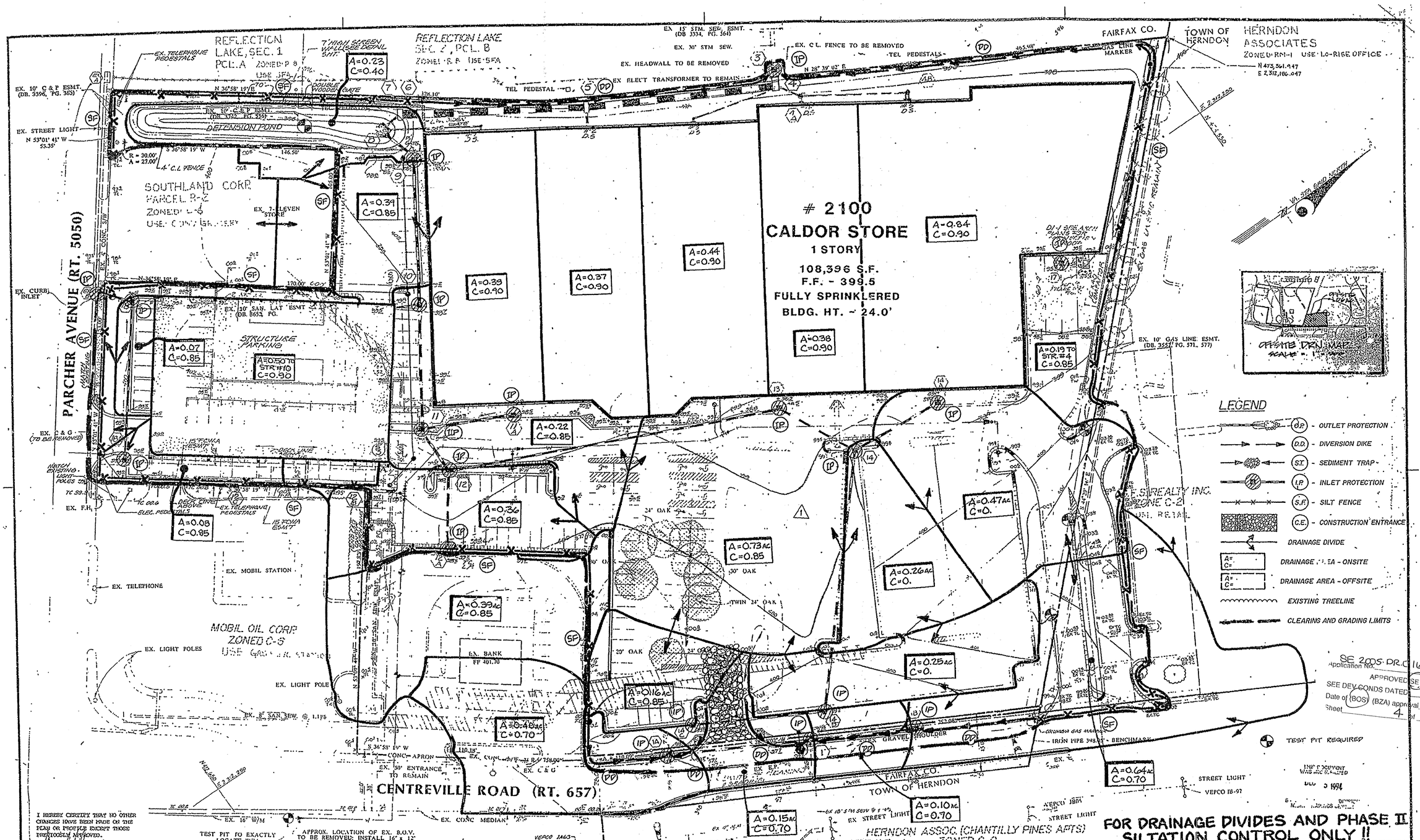
EXISTING VEGETATION MAP

PROPOSED BB & T

DRANESVILLE DISTRICT

FAIRFAX COUNTY, VIRGINIA

File No. FR-23 Tax Map No. 16-1 Job No. 99-014 Cadd Dwg. File: 99014EVM.DWG Xref:


REFLECTION LAKE, SEC. 1 PCL. A
REFLECTION LAKE SEC. 2, PCL. B
FAIRFAX CO.
TOWN OF HERNDON
HERNDON ASSOCIATES
DETENSION POND
SOUTHLAND CORP. PARCEL R-2
2100
CALDOR STORE
1 STORY
108,396 S.F.
F.F. - 399.5
FULLY SPRINKLERED
BLDG. HT. - 24.0'
PARCHER AVENUE (RT. 5050)
STRUCTURE PARKING
MOBIL OIL CORP. ZONED C-5
CENTREVILLE ROAD (RT. 657)
HERNDON ASSOC. (CHANTILLY PINES APTS) ZONED C-O
LEGEND
O.P. - OUTLET PROTECTION
D.D. - DIVERSION DIKE
S.T. - SEDIMENT TRAP
I.P. - INLET PROTECTION
S.F. - SILT FENCE
C.E. - CONSTRUCTION ENTRANCE
DRAINAGE DIVIDE
DRAINAGE AREA - ONSITE
DRAINAGE AREA - OFFSITE
EXISTING TREELINE
CLEARING AND GRADING LIMITS
TEST PIT REQUIRED
SE 2005-DR-016 Staff UP
APPROVED SE/DP PLAN
SEE DEV. CONDS DATED 9.29.05
Date of (BOS) (BZA) approval 10.17.05
Sheet 4 of 9
I HEREBY CERTIFY THAT NO OTHER CHANGES HAVE BEEN MADE ON THE PLAN OR PROFILE EXCEPT THOSE PREVIOUSLY APPROVED.
CERTIFYING ENGINEER
COMMONWEALTH OF VIRGINIA Stephen T. Schulte No. 02126A PROFESSIONAL ENGINEER 6/4/94
COMMONWEALTH OF VIRGINIA LARRY D. CARUTHERS (CERTIFICATE) No. 05165 PROFESSIONAL ENGINEER
REVISION APPROVED BY
No. DATE DESCRIPTION REVIEW APPROVED DATE
1 11/17/93 REVISED ENTIRE SHEET 7/4/94
ENGINEERS • ARCHITECTS • PLANNERS • SCIENTISTS • SURVEYORS • PHOTOGRAMMETRISTS
GREENHORNE & O'MARA, INC.
11211 WAPLES MILL ROAD, FAIRFAX, VIRGINIA 22030
(703) 385-9800
ANNAPOLIS MD • ATLANTA, GA • AURORA CO • BALTIMORE, MD • CULPEPER VA • DULUTH GA • EXPORT PA • GREENBELT MD
LEESBURG VA • MANASSAS, VA • ORLANDO, FL • RALEIGH, NC • ROCKVILLE, MD • TAMPA FL • WEST PALM BEACH FL
© Latest Date Exam
SILTATION PLAN PHASE II AND DRAINAGE DIVIDE PLAN
CALDOR AT ROCKSPOINT
PARCEL 4
DRANESVILLE DISTRICT
FAIRFAX COUNTY, VIRGINIA
JPS DESIGN
D.T. DRAWN
CHECKED
04/95 DATE
SCALE 1"=30'
SHEET 10 OF 17
JOB No.
FILE No. PP-016
FOR DRAINAGE DIVIDES AND PHASE II SILTATION CONTROL ONLY !!
FOR INFORMATION ONLY

SHEET 4 OF 9

SE 2005-DR-016
Application No. ______ Staff UP
APPROVED (SE)/SP PLAN
SEE DEV CONDS DATED 9.29.05
Date of (BOS) (BZA) approval 10.17.05
Sheet 5 of 9

· MANAGEMENT ABSTRACT — DETENTION POND

60" ... MANAGEMENT FOR THIS SITE WILL BE PROVIDED FOR UNDERGROUND ..PE DISCHARGE FROM THE SITE WILL BE COLLECTED BY A STORM SEWER DISCHARGES INTO A ~~LARGE TRAPAZOIDAL CHANNEL~~ WHICH POOLS THE ... SHAVES THE INITIAL PEAK RUN OFF FOR A MAJORITY OF THE SITE. THIS ...HARGE FROM THE ~~TRAPAZOIDAL DITCH~~ IS THEN CONVEYED TO THE ...STORAGE SYSTEM WHERE IT IS COMBINED WITH DRAINAGE COLLECTED BY THE PROPOSED CALDOR BUILDING AND A SMALL AREA OF PAVEMENT WHERE THE ...DING SPACES ARE LOCATED. THE BREAK DOWN OF DRAINAGE AREAS FOR THE ...FOLLOWS

... ...RAINING ... THE PROPOSED TRAPAZOIDAL DITCH.

	DRAINAGE AREA	C FACTOR	CA
	0.35	0.85	0.30
	0.11	0.85	0.09
	0.39	0.85	0.33
	0.21	0.85	0.18
3?	0.42	0.85	0.36
	0.56	0.85	0.48
12A	0.37	0.85	0.31
12B	0.03	0.85	0.03
12C	0.06	0.85	0.06
1?	0.43	0.85	0.37
11	0.19	0.85	0.16
RD	0.50	0.90	0.45
10	0.06	0.85	0.05
9	0.27	0.85	0.23
ROOF LEFT	0.55	0.90	0.50
DITCH	0.23	0.30	0.07

TOTAL AREA = 4.73 SUM CA= 3.97 C̄=0.84

AREAS DRAINING DIRECTLY INTO UNDERGROUND STORAGE PIPE

	AREA	C	CA
ROOF RIGHT	0.41	0.90	0.37
ROOF CENTER R	0.81	0.90	0.73
ROOF CENTER L	0.68	0.90	0.61
LOADING AREA	0.19	0.85	0.16
	2.09		1.87

C̄=0.89

TOTAL CONTROLLED FLOW = 5.86

ONSITE UNCONTROLLED DRAINAGE

	AREA	C	CA
ELDEN ST.	0.25	0.30	0.08
PARCHER ST.	0.07	0.45	0.03
BEHIND BLDG	0.39	0.45	0.18
	0.71		0.29

C̄=0.41

OFFSITE CONTROLLED DRAINAGE

	AREA	C	CA
7-ELEVEN	0.12	0.85	0.10
MOBIL	0.08	0.85	0.07
	0.20		0.17

C̄=0.85

ALLOWABLE RELEASE COMPUTATION

SITE AREA = 7.33 ACRES

PREDEVELOPMENT

WEIGHTED "C" COMPUTATION	AREA	C	CA	SUM CA	I	Q
EXISTING IMPERVIOUS	0.60	0.85	0.51			
PREDEVELOPMENT 2 YR	6.73	0.15	1.01	1.52	5.45	8.28
PREDEVELOPMENT 10 YR	6.73	0.30	2.02	2.53	7.27	18.39

OFFSITE CONTROLLED FLOW

	AREA	C	CA	I	Q
2 YEAR	0.20	0.85	0.17	5.45	0.93
10 YEAR	0.20	0.85	0.17	7.27	1.24

ONSITE UNCONTROLLED

	AREA	C	CA	I	Q
2 YEAR	0.71	0.41	0.29	5.45	1.59
10 YEAR	0.71	0.41	0.29	7.27	2.12

ALLOWABLE RELEASE

	PREDEVELOPMENT		OFFSITE CONTROLLED		ONSITE UNCONTROLLED	ALLOWABLE RELEASE
2 YEAR	8.28	+	0.93	-	1.59	= 7.62
10 YEAR	18.39	+	1.24	-	2.12	= 17.51

INFLOW HYDROGRAPH TO DITCH

CA= 3.97

TIME MIN	2 YEAR I IN/HR	2 YEAR Q CFS	10 YEAR I IN/HR	10 YEAR Q CFS	100 YEAR I IN/HR	100 YEAR Q CFS
0	0.00	0.0	0.00	0.0	0.00	0.0
5	5.45	21.6	7.27	28.9	9.84	39.1
10	3.51	13.9	4.68	18.6	6.37	25.3
15	2.60	10.3	3.46	13.7	4.73	18.8
20	2.08	8.3	2.77	11.0	3.74	14.8
25	1.72	6.8	2.29	9.1	3.13	12.4
30	1.46	5.8	1.94	7.7	2.65	10.5
35	1.28	5.1	1.68	6.7	2.33	9.3
40	1.10	4.4	1.47	5.8	2.07	8.2
45	1.00	4.0	1.31	5.2	1.88	7.5
50	0.89	3.5	1.18	4.7	1.69	6.7
55	0.82	3.3	1.08	4.3	1.55	6.2
60	0.74	2.9	0.99	3.9	1.42	5.6
65	0.68	2.7	0.91	3.6	1.30	5.2
70	0.62	2.5	0.83	3.3	1.18	4.7
75	0.56	2.2	0.74	2.9	1.07	4.2
80	0.49	1.9	0.66	2.6	0.95	3.3
85	0.43	1.7	0.58	2.3	0.83	3.3
90	0.37	1.5	0.50	2.0	0.71	2.8
95	0.31	1.2	0.41	1.6	0.59	2.3
100	0.25	1.0	0.33	1.3	0.47	1.9
105	0.19	0.8	0.25	1.0	0.36	1.4
110	0.12	0.5	0.17	0.7	0.24	1.0

DITCH ELEVATION STORAGE

ELEVATION FT	AREA SF	AVG. AREA SF	DEPTH FT	VOLUME CF	SUM VOLUME CF
390	0				0
		130	2	810	
392	810				810
		1070	2	3285	
394	2475				4095
		3051	2	6930	
396	4455				11025
		4572	2	10710	
398	6255				21735

DITCH ELEVATION DISCHARGE

8" DIA A=0.353 SF C=0.60 Q=CA)2GH — L=12 FT C=3.0 Q=CLH3/2 — A=6 SF C=0.60 Q=CA)2GH

ELEVATION FT	H FT	Q ORIFICE CFS	H FT	Q WEIR CFS	H FT	Q ORIFICE CFS	SUM Q CFS
390.0	0.0	0					0.00
390.5	0.5	1.20					1.20
391.0	1.0	1.70					1.70
391.5	1.5	2.08					2.08
392.0	2.0	2.40					2.40
392.5	2.5	2.68					2.68
393.0	3.0	2.94					2.94
393.5	3.5	3.18					3.18
394.0	4.0	3.40					3.40
394.5	4.5	3.60					3.60
395.0	5.0	3.80					3.80
395.5	5.5	3.98					3.98
396.0	6.0	4.16					4.16
396.4	6.4	4.29	0	0			4.29
396.5	6.5	4.33	0.1	1.12			5.45
396.6	6.6	4.36	0.2	3.20			7.56
396.7	6.7	4.39	0.3	5.92			10.31
396.8	6.8	4.43	0.4	9.12			13.55
396.9	6.9	4.46	0.5	12.72			17.18
397.0	7.0	4.49			0.35	17.09	21.58

POND DETENTION SYSTEM

2 YEAR STORM CALDOR AT ROCKSPOINT

TABLE 1.1 HYDROGRAPH TIME(min)	INFLOW(cfs)	TABLE 1.2 STORAGE DEPTH	VOLUME(cf)	TABLE 1.3 OUTFLOW DEPTH	OUTFLOW(cfs)
0	.0	390.00	0	390.00	.0
5	21.6	392.00	310	390.50	1.2
10	13.9	394.00	4095	391.00	1.7
15	10.3	396.00	11025	391.50	2.1
20	8.3	398.00	21735	392.00	2.4
25	6.8			392.50	2.7
30	5.8			393.00	2.9
35	5.1			393.50	3.2
40	4.4			394.00	3.4
45	4.0			394.50	3.6
50	3.5			395.00	3.8
55	3.3			395.50	4.0
60	2.9			396.00	4.2
65	2.7			396.40	4.3
70	2.5			396.50	5.5
75	2.2			396.60	7.6
80	1.9			396.70	10.3
85	1.7			396.80	13.5
90	1.5			396.90	17.2
95	1.2			397.00	21.6
100	1.0				
105	.8				
110	.5				
115	.2				
120	.0				

2 YEAR STORM CALDOR AT ROCKSPOINT

0 TIME MIN.	1 INFLOW CFS	2 CFS AVG INFLOW	3 VOL CF	4 STORAGE CARRY-OVER	5 TOTAL CFS	6 TRIAL WSE	7 OUTFLOW CFS	8 CFS AVG OUTFLOW	9 VOL. OUT CFS	10 BALANCE IN STORAGE CF	11 CORR. WSE
0	.0		0	0	0	.00	.0		0	0	.00
		10.8						1.5			
5	21.6		3240	0	3240	393.30	3.1		462	2777	393.30
		17.7						3.4			
10	13.9		5325	2777	8102	394.86	3.7		1024	7077	394.86
		12.1						3.9			
15	10.3		3629	7077	10707	395.57	4.0		1162	9545	395.57
		9.3						4.1			
20	8.3		2790	9545	12335	396.02	4.2		1225	11109	396.02
		7.6						4.2			
25	6.8		2265	11109	13374	396.20	4.2		1258	12115	396.20
		6.3						4.2			
30	5.8		1890	12115	14005	396.32	4.3		1273	12732	396.32
		5.5						4.3			
35	5.1		1635	12732	14367	396.38	4.3		1282	13084	396.38
		4.8						4.3			
40	4.4		1425	13084	14509	396.41	4.4		1300	13209	396.41
		4.2						4.3			
45	4.0		1260	13209	14469	396.40	4.3		1301	13168	396.40
		3.8						4.3			
50	3.5		1125	13168	14293	396.37	4.3		1286	13007	396.37
		3.4						4.3			
55	3.3		1020	13007	14027	396.32	4.3		1281	12745	396.32
		3.1						4.3			
60	2.9		930	12745	13675	396.26	4.2		1276	12399	396.26
		2.8						4.2			
65	2.7		839	12399	13239	396.18	4.2		1269	11970	396.18
		2.6						4.2			
70	2.5		780	11970	12750	396.09	4.2		1260	11489	396.09
		2.4						4.2			
75	2.2		705	11489	12194	395.98	4.2		1250	10943	395.98
		2.0						4.1			
80	1.9		614	10943	11558	395.80	4.1		1235	10322	395.80
		1.8						4.1			
85	1.7		539	10322	10862	395.60	4.0		1215	9647	395.60
		1.6						4.0			
90	1.5		480	9647	10127	395.40	3.9		1193	8933	395.40
		1.4						3.9			
95	1.2		405	8933	9338	395.18	3.9		1170	8167	395.18
		1.1						3.8			
100	1.0		330	8167	8497	394.94	3.8		1145	7351	394.94
		.9						3.7			
105	.8		270	7351	7621	394.70	3.7		1118	6503	394.70
		.7						3.6			
110	.5		195	6503	6698	394.44	3.6		1087	5610	394.44
		.4						3.5			
115	.2		105	5610	5715	394.16	3.5		1056	4659	394.16
		.1						3.4			
120	.0		30	4659	4689	393.78	3.3		1015	3674	393.78

10 YEAR STORM CALDOR AT ROCKSPOINT

TABLE 1.1 HYDROGRAPH TIME(min)	INFLOW(cfs)	TABLE 1.2 STORAGE DEPTH	VOLUME(cf)	TABLE 1.3 OUTFLOW DEPTH	OUTFLOW(cfs)
0	.0	390.00	0	390.00	.0
5	28.9	392.00	310	390.50	1.2
10	18.6	394.00	4095	391.00	1.7
15	13.7	396.00	11025	391.50	2.1
20	11.0	398.00	21735	392.00	2.4
25	9.1			392.50	2.7
30	7.7			393.00	2.9
35	6.7			393.50	3.2
40	5.8			394.00	3.4
45	5.2			394.50	3.6
50	4.7			395.00	3.8
55	4.3			395.50	4.0
60	3.9			396.00	4.2
65	3.6			396.40	4.3
70	3.3			396.50	5.5
75	2.9			396.60	7.6
80	2.6			396.70	10.3
85	2.3			396.80	13.5
90	2.0			396.90	17.2
95	1.6			397.00	21.6
100	1.3				
105	1.0				
110	.7				
115	.3				
120	.0				

10 YEAR STORM CALDOR AT ROCKSPOINT

0 TIME MIN.	1 INFLOW CFS	2 CFS AVG INFLOW	3 VOL CF	4 STORAGE CARRY-OVER	5 TOTAL CFS	6 TRIAL WSE	7 OUTFLOW CFS	8 CFS AVG OUTFLOW	9 VOL. OUT CFS	10 BALANCE IN STORAGE CF	11 CORR. WSE
0	.0		0	0	0	.00	.0		0	0	.00
		14.4						1.7			
5	28.9		4335	0	4335	393.86	3.3		500	3834	393.86
		23.7						3.7			
10	18.6		7125	3834	10959	395.66	4.0		1106	9852	395.66
		16.1						4.4			
15	13.7		4845	9852	14697	396.44	4.7		1318	13379	396.44
		[illegible]						7.6			
20	11.0		3704	13379	17084	396.71	10.5		2283	14800	396.71
		10.1						10.3			
25	9.1		3015	14800	17815	396.69	10.1		3084	14730	396.69
		8.4						9.4			
30	7.7		2520	14730	17250	396.64	8.6		2806	14444	396.64
		7.2						8.0			
35	6.7		2160	14444	16604	396.59	7.4		2404	14199	396.59
		6.3						7.0			
40	5.8		1875	14199	16074	396.55	6.5		2093	13981	396.55
		5.5						6.2			
45	5.2		1650	13981	15631	396.52	5.8		1847	13783	396.52
		5.0						5.5			
50	4.7		1485	13783	15268	396.48	5.3		1654	13614	396.48
		4.5						5.1			
55	4.3		1350	13614	14964	396.45	4.9		1521	13442	396.45
		4.1						4.7			
60	3.9		1230	13442	14672	396.42	4.5		1408	13264	396.42
		3.8						4.4			
65	3.6		1125	13264	14389	396.38	4.3		1317	13071	396.38
		3.5						4.3			
70	3.3		1035	13071	14106	396.34	4.3		1283	12823	396.34
		3.1						4.3			
75	2.9		930	12823	13753	396.27	4.2		1277	12475	396.27
		2.8						4.2			
80	2.6		825	12475	13300	396.19	4.2		1270	12030	396.19
		2.5						4.2			
85	2.3		735	12030	12765	396.09	4.2		1261	11504	396.09
		2.1						4.2			
90	2.0		645	11504	12149	395.96	4.1		1250	10898	395.96
		1.8						4.1			
95	1.6		540	10898	11438	395.76	4.1		1233	10205	395.76
		1.5						4.0			
100	1.3		435	10205	10640	395.54	4.0		1210	9430	395.54
		1.1						4.0			
105	1.0		345	9430	9775	395.30	3.9		1185	8589	395.30
		.8						3.9			
110	.7		254	8589	8844	395.04	3.8		1158	7686	395.04
		.5						3.8			
115	.3		150	7686	7836	394.75	3.7		1127	6709	394.75
		.2						3.6			
120	.0		45	6709	6754	394.45	3.6		1092	5662	394.45

100 YEAR STORM CALDOR AT ROCKSPOINT

TABLE 1.1 HYDROGRAPH TIME(min)	INFLOW(cfs)	TABLE 1.2 STORAGE DEPTH	VOLUME(cf)	TABLE 1.3 OUTFLOW DEPTH	OUTFLOW(cfs)
0	.0	390.00	0	390.00	.0
5	39.1	392.00	310	390.50	1.2
10	25.3	394.00	4095	391.00	1.7
15	18.8	396.00	11025	391.50	2.1
20	14.8	398.00	21735	392.00	2.4
25	12.4			392.50	2.7
30	10.5			393.00	[illegible]
35	9.3			393.50	[illegible]
40	8.2			394.00	[illegible]
45	7.5			394.50	[illegible]
50	6.7			395.00	3.8
55	6.2			395.50	[illegible]
60	5.6			396.00	[illegible]
65	5.2			396.40	[illegible]
70	4.7			396.50	[illegible]
75	4.2			396.60	7.6

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FAIRFAX COUNTY WATER AUTHORITY RECEIVED AUG 12 19[illegible] DESIGN DIVISION

COMMONWEALTH OF VIRGINIA
LARRY D. CARUTHERS
(CERTIFICATE) No. 015165
PROFESSIONAL ENGINEER

No	DATE	DESCRIPTION	REVIEW BY	APPROVED	DATE

REVISION APPROVED BY

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S.W.M. / DRAINAGE COMPS.

CALDOR AT ROCKSPOINT

PARCEL 4
DRAINESVILLE DISTRICT
FAIRFAX COUNTY, VIRGINIA

DESIGN: STS	SCALE: N/A		
DRAWN	12 OF 17		
CHECKED	SHEET		
DATE: 04/93	JOB No.	FILE No. RP-676	

FOR INFORMATION ONLY

[illegible]	3.8
[illegible]	3.3
90	2.8
95	2.3
100	1.9
105	1.4
110	1.0
115	.5
120	.0

396.70	10.3
396.80	13.5
396.90	17.2
397.00	21.6

100 YEAR STORM CALDOR AT ROCKSPOINT

0 TIME MIN.	1 INFLOW CFS	2 CFS AVG INFLOW	3 VOL CF	4 STORAGE CARRY-OVER	5 TOTAL CFS	6 TRIAL WSE	7 OUTFLOW CFS	8 CFS AVG OUTFLOW	9 VOL. OUT CFS	10 BALANCE IN STORAGE CF	11 CORR. WSE
0	.0		0	0	0	.00	.0		0	0	.00
		19.5						1.8			
5	39.1		5865	0	5865	394.36	3.5		531	5333	394.36
		32.2						4.4			
10	25.3		9660	5333	14993	396.49	5.4		1334	13658	396.49
		22.0						13.2			
15	18.8		6615	13658	20273	396.99	21.0		3959	16314	396.99
		16.8						18.7			
20	14.8		5040	16314	21354	396.88	16.4		5620	15733	396.88
		13.6						15.0			
25	12.4		4079	15733	19813	396.80	13.6		4500	15312	396.80
		11.4						12.6			
30	10.5		3434	15312	18747	396.74	11.6		3769	14978	396.74
		9.9						10.8			
35	9.3		2970	14978	17948	396.69	10.0		3233	14714	396.69
		8.8						9.5			
40	8.2		2625	14714	17339	396.65	8.9		2838	14501	396.65
		7.9						8.5			
45	7.5		2355	14501	16856	396.62	8.0		2535	14321	396.62
		7.1						7.6			
50	6.7		2130	14321	16451	396.59	7.3		2288	14163	396.59
		6.5						7.0			
55	5.2		1935	14163	16098	396.56	6.7		2088	14009	396.56
		5.9						6.4			
60	5.6		1770	14009	15779	396.53	6.1		1913	13866	396.53
		5.4						5.8			
65	5.2		1620	13866	15486	396.51	5.6		1751	13735	396.51
		5.0						5.4			
70	4.7		1485	13735	15220	396.48	5.2		1620	13599	396.48
		4.5						5.0			
75	4.2		1335	13599	14934	396.45	4.8		1510	13423	396.45
		4.0						4.6			
80	3.8		1200	13423	14623	396.41	4.4		1391	13232	396.41
		3.6						4.4			
85	3.3		1065	13232	14297	396.37	4.3		1306	12990	396.37
		3.1						4.3			
90	2.8		915	12990	13905	396.30	4.3		1280	12625	396.30
		2.6						4.2			
95	2.3		765	12625	13390	396.20	4.2		1272	12117	396.20
		2.1						4.2			
100	1.9		630	12117	12747	396.09	4.2		1262	11485	396.09
		1.6						4.2			
105	1.4		495	11485	11980	395.92	4.1		1247	10732	395.92
		1.2						4.1			
110	1.0		360	10732	11092	395.67	4.0		1225	9867	395.67
		.8						4.0			
115	.5		225	9867	10092	395.39	3.9		1196	8895	395.39
		.3						3.9			
120	.0		75	8895	8970	395.07	3.8		1164	7805	395.07

UNDERGROUND PIPE DETENTION SYSTEM

UNDERGROUND PIPE INFLOW HYDROGRAPH

TIME MIN	2 YEAR DIRECT INFLOW CFS	2 YEAR ROUTED INFLOW CFS	2 YEAR SUM INFLOW CFS	10 YEAR DIRECT INFLOW CFS	10 YEAR ROUTED INFLOW CFS	10 YEAR SUM INFLOW CFS	100 YEAR DIRECT INFLOW CFS	100 YEAR ROUTED INFLOW CFS	100 YEAR SUM INFLOW CFS
0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	10.2	3.1	13.3	13.6	3.3	16.9	18.4	3.5	21.9
10	6.6	3.7	10.3	8.8	4.0	12.8	11.9	5.4	17.3
15	4.9	4.0	8.9	6.5	4.7	11.2	8.8	21.0	29.8
20	3.9	4.2	8.1	5.2	10.5	15.7	7.0	16.4	23.4
25	3.2	4.2	7.4	4.3	10.1	14.4	5.9	13.6	19.5
30	2.7	4.3	7.0	3.6	8.6	12.2	5.0	11.6	16.6
35	2.4	4.3	6.7	3.1	7.4	10.5	4.4	10.0	14.4
40	2.1	4.4	6.5	2.7	6.5	9.2	3.9	8.9	12.8
45	1.9	4.3	6.2	2.4	5.8	8.2	3.5	8.0	11.5
50	1.7	4.3	6.0	2.2	5.3	7.5	3.2	7.3	10.5
55	1.5	4.3	5.8	2.0	4.9	6.9	2.9	6.7	9.6
60	1.4	4.2	5.6	1.9	4.5	6.4	2.7	6.1	8.8
65	1.3	4.2	5.5	1.7	4.3	6.0	2.4	5.6	8.0
70	1.2	4.2	5.4	1.6	4.3	5.9	2.2	5.2	7.4
75	1.0	4.2	5.2	1.4	4.2	5.6	2.0	4.8	6.8
80	0.9	4.1	5.0	1.2	4.2	5.4	1.8	4.4	6.2
85	0.8	4.0	4.8	1.1	4.2	5.3	1.6	4.3	5.9
90	0.7	3.9	4.6	0.9	4.1	5.0	1.3	4.3	5.6
95	0.6	3.9	4.5	0.8	4.1	4.9	1.1	4.2	5.3
100	0.5	3.8	4.3	0.6	4.0	4.6	0.9	4.2	5.1
105	0.4	3.7	4.1	0.5	3.9	4.4	0.7	4.1	4.8
110	0.2	3.6	3.8	0.3	3.8	4.1	0.4	4.0	4.4
115	0.1	3.5	3.6	0.1	3.7	3.8	0.2	3.9	4.1
120	0.0	3.3	3.3	0.0	3.6	3.6	0.0	3.8	3.8

UNDERGROUND 60" PIPE ELEVATION DISCHARGE

DIA=12"
A=0.785 SF
C=0.60
Q=CA)2GH

L=4'
C=3.0
Q=CLH3/2

ELEVATION FT	Q ORIFICE CFS	H FT	Q WEIR CFS	SUM Q CFS
0.0	0.00			0.00
0.5	2.67			2.67
1.0	3.78			3.78
1.5	4.63			4.63
2.0	5.35			5.35
2.5	5.98			5.98
3.0	6.55			6.55
3.5	7.07			7.07
3.9	7.47	0.00	0.00	7.50
4.0	7.56	0.10	0.38	7.94
4.1	7.66	0.20	1.07	8.73
4.2	7.75	0.30	1.97	9.72
4.3	7.84	0.40	3.04	10.88
4.4	7.93	0.50	4.24	12.17
4.5	8.02	0.60	5.58	13.60
4.6	8.11	0.70	7.03	15.14
4.7	8.20	0.80	8.59	16.59
4.8	8.29	0.90	10.25	18.54
4.9	8.37	1.00	12.00	20.37
5.0	8.46	1.10	13.84	22.30
5.5	8.87	1.60	24.29	33.16
6.0	9.26	2.10	36.51	45.77

60 INCH PIPE ELEVATION STORAGE COMPUTATION

DEPTH FT	DEPTH/DIA	AREA SF	VOLUME CF
0	0	0	0
0.5	0.1	1.02	291
1	0.2	2.8	798
1.5	0.3	4.96	1414
2	0.4	7.34	2092
2.5	0.5	9.82	2799
3	0.6	12.3	3506
3.5	0.7	14.68	4184
4	0.8	16.84	4799
4.5	0.9	18.61	5304
5	1	19.64	5597

2 YEAR STORM 60 INCH PIPE CALDOR AT ROCKSPOINT

TABLE 1.1 HYDROGRAPH

TIME(min)	INFLOW(cfs)
0	.0
5	13.3
10	10.3
15	8.9
20	8.1
25	7.4
30	7.0
35	6.7
40	6.5
45	6.2
50	6.0
55	5.8
60	5.6
65	5.5
70	5.4
75	5.2
80	5.0
85	4.8
90	4.6
95	4.5
100	4.3
105	4.1
110	3.8
115	3.6
120	3.3

TABLE 1.2 STORAGE

DEPTH	VOLUME(cf)
.00	0
.50	291
1.00	798
1.50	1414
2.00	2092
2.50	2799
3.00	3506
3.50	4184
4.00	4799
4.50	5304
5.00	5597
6.00	5800

TABLE 1.3 OUTFLOW

DEPTH	OUTFLOW(cfs)
.00	.0
.50	2.7
1.00	3.8
1.50	4.6
2.00	5.4
2.50	6.0
3.00	6.6
3.50	7.1
3.90	7.5
4.00	7.9
4.10	8.7
4.20	9.7
4.30	10.9
4.40	12.2
4.50	13.6
4.60	15.1
4.70	16.6
4.80	18.5
4.90	20.4
5.00	22.3
5.50	33.2
6.00	45.8

2 YEAR STORM 60 INCH PIPE CALDOR AT ROCKSPOINT

0 TIME MIN.	1 INFLOW CFS	2 CFS AVG INFLOW	3 VOL CF	4 STORAGE CARRY-OVER	5 TOTAL CFS	6 TRIAL WSE	7 OUTFLOW CFS	8 CFS AVG OUTFLOW	9 VOL. OUT CFS	10 BALANCE IN STORAGE CF	11 CORR. WSE
0	.0		0	0	0	.00	.0		0	0	.00
		6.6						2.3			
5	13.3		1995	0	1995	1.42	4.5		675	1319	1.42
		11.8						5.4			
10	10.3		3540	1319	4859	2.81	6.3		1624	3235	2.81
		9.6						6.7			
15	8.9		2879	3235	6115	3.45	7.0		2002	4113	3.45
		8.5						7.2			
20	8.1		2550	4113	6663	3.76	7.4		2155	4507	3.76
		7.8						7.4			
25	7.4		2325	4507	6832	3.85	7.4		2219	4613	3.85
		7.2						7.4			
30	7.0		2160	4613	6773	3.80	7.4		2224	4548	3.80
		6.9						7.3			
35	6.7		2055	4548	6603	3.68	7.3		2197	4405	3.68
		6.6						7.2			
40	6.5		1980	4405	6385	3.54	7.1		2155	4229	3.54
		6.4						7.0			
45	6.2		1905	4229	6134	3.38	6.9		2108	4025	3.38
		6.1						6.9			
50	6.0		1830	4025	5855	3.21	6.8		2058	3797	3.21
		5.9						6.7			
55	5.8		1770	3797	5567	3.04	6.6		2005	3562	3.04
		5.7						6.5			
60	5.6		1710	3562	5272	2.87	6.4		1949	3322	2.87
		5.6						6.3			
65	5.5		1665	3322	4987	2.71	6.2		1893	3094	2.71
		5.5						6.1			
70	5.4		1635	3094	4729	2.56	6.1		1840	2889	2.56
		5.3						6.0			
75	5.2		1569	2889	4479	2.42	5.9		1790	2688	2.42
		5.1						5.8			
80	5.0		1530	2688	4218	2.28	5.7		1736	2482	2.28
		4.9						5.6			
85	4.8		1470	2482	3952	2.13	5.5		1681	2270	2.13
		4.7						5.4			
90	4.6		1410	2270	3680	1.97	5.3		1623	2057	1.97
		4.6						5.2			
95	4.5		1365	2057	3422	1.83	5.1		1562	1859	1.83
		4.4						5.0			
.00	4.3		1320	1859	3179	1.69	4.9		1502	1677	1.69
		4.2						4.8			
5	4.1		1260	1677	2937	1.56	4.7		1443	1494	1.56
		4.0						4.6			
0	3.8		1185	1494	2679	1.41	4.5		1378	1300	1.41
		3.7						4.3			
.15	3.6		1110	1300	2410	1.25	4.2		1302	1108	1.25
		3.5						4.1			
[illegible]	3.3		1035	1108	2143	1.10	3.9		1223	919	1.10

10 YEAR STORM 60 INCH PIPE CALDOR AT ROCKSPOINT

TABLE 1.1 HYDROGRAPH

TIME(min)	INFLOW(cfs)
0	.0
5	16.9
10	12.8
15	11.2
20	15.7
25	14.4
30	12.2
35	10.5
40	9.2
45	8.2
50	7.5
55	6.9
60	6.4
65	6.2
70	5.9
75	5.6
80	5.4
85	5.3
90	5.0
95	4.9
100	4.6
105	4.4
110	4.1
115	3.8
120	3.6

TABLE 1.2 STORAGE

DEPTH	VOLUME(cf)
.00	0
.50	291
1.00	798
1.50	1414
2.00	2092
2.50	2799
3.00	3506
3.50	4184
4.00	4799
4.50	5304
5.00	5597
6.00	5800

TABLE 1.3 OUTFLOW

DEPTH	OUTFLOW(cfs)
.00	.0
.50	2.7
1.00	3.8
1.50	4.6
2.00	5.4
2.50	6.0
3.00	6.6
3.50	7.1
3.90	7.5
4.00	7.9
4.10	8.7
4.20	9.7
4.30	10.9
4.40	12.2
4.50	13.6
4.60	15.1
4.70	16.6
4.80	18.5
4.90	20.4
5.00	22.3
5.50	33.2
6.00	45.8

10 YEAR STORM 60 INCH PIPE CALDOR AT ROCKSPOINT

0 TIME MIN.	1 INFLOW CFS	2 CFS AVG INFLOW	3 VOL CF	4 STORAGE CARRY-OVER	5 TOTAL CFS	6 TRIAL WSE	7 OUTFLOW CFS	8 CFS AVG OUTFLOW	9 VOL. OUT CFS	10 BALANCE IN STORAGE CF	11 CORR. WSE
0	.0		0	0	0	.00	.0		0	0	.00
		8.4						2.5			
5	16.9		2534	0	2534	1.77	5.0		753	1781	1.77
		14.8						6.1			
10	12.8		4455	1781	6236	3.67	7.3		1841	4395	3.67
		12.0						9.4			
15	11.2		3600	4395	7995	4.36	11.6		2834	5161	4.36
		13.4						12.9			
20	15.7		4034	5161	9196	4.54	14.2		3870	5325	4.54
		15.1						14.9			
25	14.4		4515	5325	9840	4.63	15.6		4460	5379	4.63
		13.3						13.9			
30	12.2		3990	5379	9369	4.40	12.2		4165	5204	4.40
		11.3						11.6			
35	10.5		3404	5204	8609	4.32	11.1		3491	5117	4.32
		9.8						10.3			
40	9.2		2954	5117	8072	4.18	9.5		3091	4981	4.18
		8.7						9.0			
45	8.2		2609	4981	7591	4.08	8.6		2713	4878	4.08
		7.9						8.2			
50	7.5		2355	4878	7233	3.98	7.8		2460	4772	3.98
		7.2						7.7			
55	6.9		2160	4772	6932	3.87	7.5		2296	4635	3.87
		6.6						7.4			
60	6.4		1995	4635	6630	3.69	7.3		2211	4419	3.69
		6.2						7.2			
65	6.0		1860	4419	6279	3.46	7.0		2146	4133	3.46
		6.0						6.9			
70	5.9		1785	4133	5918	3.25	6.8		2075	3842	3.25
		5.8						6.7			
75	5.6		1725	3842	5567	3.04	6.6		2009	3558	3.04
		5.5						6.5			
80	5.4		1650	3558	5208	2.83	6.4		1941	3266	2.83
		5.4						6.2			
85	5.3		1605	3266	4871	2.64	6.1		1874	2996	2.64
		5.1						6.0			
90	5.0		1545	2996	4541	2.45	5.9		1809	2732	2.45
		5.0						5.8			
95	4.9		1485	2732	4217	2.27	5.7		1741	2475	2.27
		4.8						5.6			
100	4.6		1425	2475	3900	2.10	5.5		1674	2226	2.10
		4.5						5.3			
[illegible]	4.4		1350	2226	3576	1.91	5.2		1603	1972	1.91
		4.3						5.1			
10	4.1		1275	1972	3247	1.73	5.0		1526	1720	1.73
		4.0						4.8			
115	3.8		1185	1720	2905	1.53	4.7		1445	1460	1.53

THIS DOCUMENT WAS MICROFILMED
MAR 4 1994
MICROGRAPHICS CENTER

FAIRFAX COUNTY WATER AUTHORITY
RECEIVED
AUG 12 1993
DESIGN DIVISION

SE 2005-DR-016 Application No.
Staff JP
APPROVED SE SP PLAN
SEE DEV CONDS DATED 9.29.05
Date of (BOS) (BZA) approval 10.17.05
Sheet 6 of 9

COMMONWEALTH OF VIRGINIA
LARRY D. CARUTHERS
CERTIFICATE No 015165
PROFESSIONAL ENGINEER

REVISION APPROVED BY

No	DATE	DESCRIPTION	REVIEW BY	APPROVED	DATE

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S.W.M. / DRAINAGE COMPS.

CALDOR AT ROCKSPOINT
PARCEL 4
DRAINESVILLE DISTRICT
FAIRFAX COUNTY, VIRGINIA

STS DESIGN	SCALE N/A
DRAWN	13 OF 17
CHECKED	SHEET
04/93 DATE	JOB No. / PP. 676 FILE No.

FOR INFORMATION ONLY

DETENTION COMPUTATIONS FOR 60" PIPE

100 YEAR STORM CALDOR AT ROCKSPOINT

TABLE 1.1 HYDROGRAPH

TIME(min)	INFLOW(cfs)
0	.0
5	39.1
10	25.3
15	18.8
20	14.8
25	12.4
30	10.5
35	9.3
40	8.2
45	7.5
50	6.7
55	6.2
60	5.6
65	5.2
70	4.7
75	4.2
80	3.8
85	3.3
90	2.8
95	2.3
100	1.9
105	1.4
110	1.0
115	.5
120	.0

TABLE 1.2 STORAGE

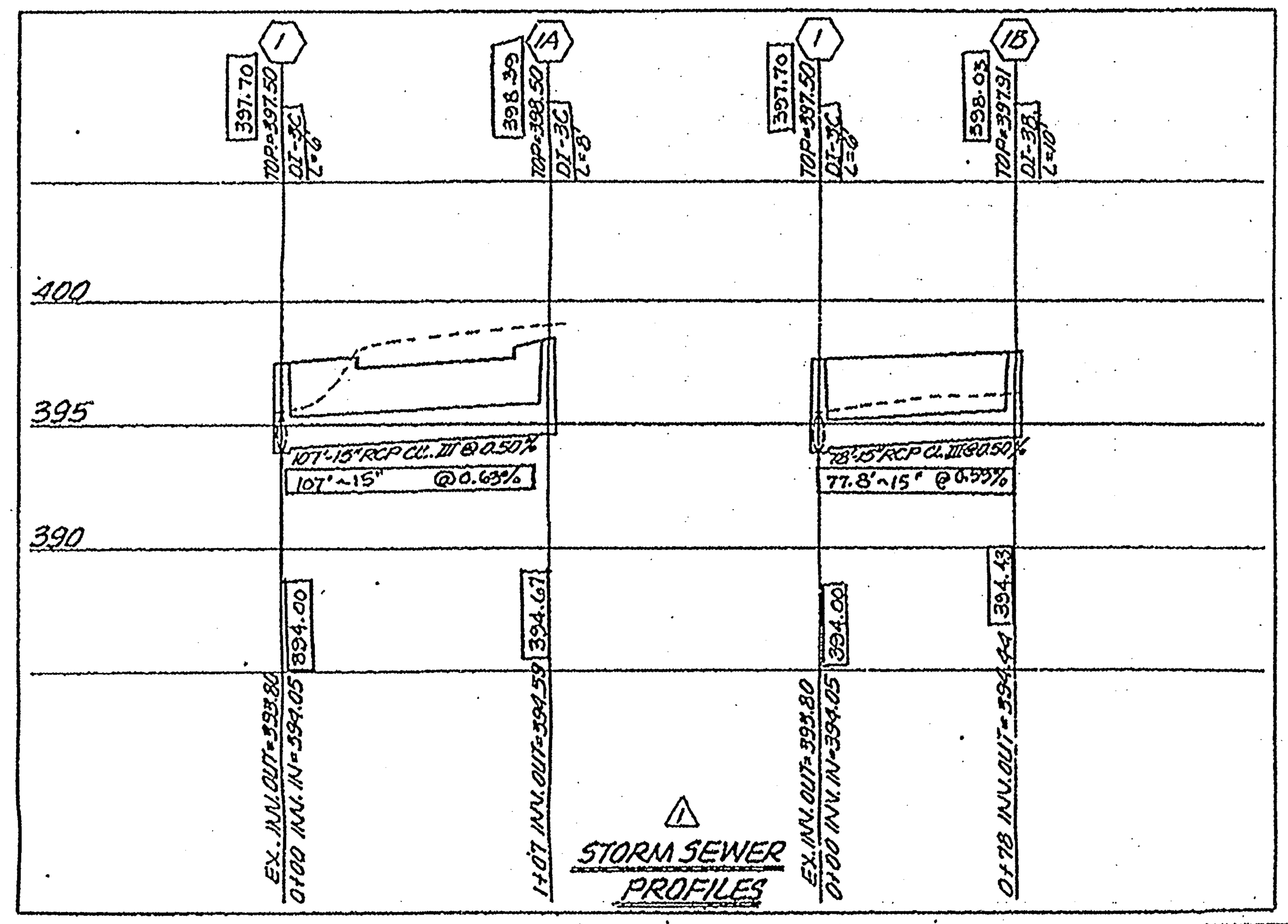
DEPTH	VOLUME(cf)
390.00	0
392.00	310
394.00	4095
396.00	11025
398.00	21735

TABLE 1.3 OUTFLOW

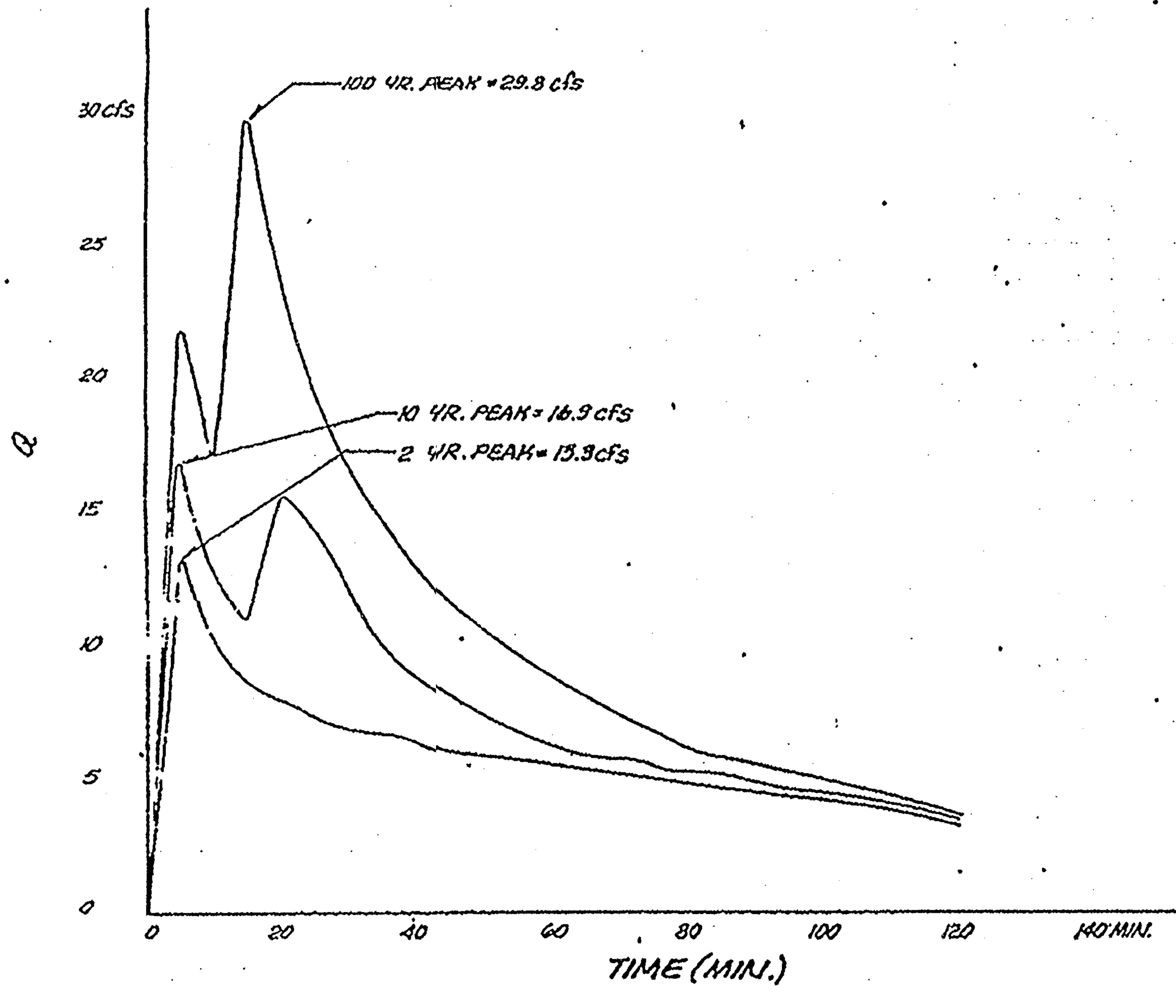
DEPTH	OUTFLOW(cfs)
390.00	.0
390.50	1.2
391.00	1.7
391.50	2.1
392.00	2.4
392.50	2.7
393.00	2.9
393.50	3.2
394.00	3.4
394.50	3.6
395.00	3.8
395.50	4.0
396.00	4.2
396.40	4.3
396.50	5.5
396.60	7.6
396.70	10.3
396.80	13.5
396.90	17.2
397.00	21.6

100 YEAR STORM 60 INCH PIPE CALDOR AT ROCKSPOINT

0 ME N.	1 INFLOW CFS	2 CFS AVG INFLOW	3 VOL CF	4 STORAGE CARRY-OVER	5 TOTAL CFS	6 TRIAL WSE	7 OUTFLOW CFS	8 CFS AVG OUTFLOW	9 VOL. OUT CFS	10 BALANCE IN STORAGE CF	11 CORR. WSE
0	.0		0	0	0	.00	.0		0	0	.00
		10.9						2.8			
5	21.9		3284	0	3284	2.24	5.7		848	2436	2.24
		19.6						10.0			
10	17.3		5880	2436	8316	4.54	14.3		2987	5329	4.54
		23.5						22.4			
15	29.8		7065	5329	12394	5.38	30.5		6720	5674	5.38
		26.6						26.8			
20	23.4		7980	5674	13654	5.04	23.1		8049	5604	5.04
		21.4						21.7			
25	19.5		6435	5604	12039	4.89	20.2		6505	5534	4.89
		18.1						18.4			
30	16.6		5415	5534	10949	4.70	16.6		5527	5421	4.70
		15.5						15.7			
35	14.4		4650	5421	10071	4.58	14.9		4719	5351	4.58
		13.6						13.9			
40	12.8		4079	5351	9431	4.46	13.0		4173	5258	4.46
		12.1						12.4			
45	11.5		3645	5258	8903	4.38	11.9		3724	5179	4.38
		11.0						11.3			
50	10.5		3300	5179	8479	4.29	10.7		3390	5089	4.29
		10.1						10.3			
55	9.6		3015	5089	8104	4.21	9.9		3090	5013	4.21
		9.2						9.5			
60	8.8		2759	5013	7773	4.13	9.1		2839	4934	4.13
		8.4						8.7			
65	8.0		2520	4934	7454	4.05	8.3		2606	4847	4.05
		7.7						8.0			
70	7.4		2310	4847	7157	3.96	7.8		2410	4746	3.96
		7.1						7.6			
75	6.8		2130	4746	6876	3.84	7.4		2277	4598	3.84
		6.5						7.3			
80	6.2		1950	4598	6548	3.64	7.2		2197	4351	3.64
		6.0						7.1			
85	5.9		1814	4351	6166	3.39	7.0		2126	4040	3.39
		5.8						6.8			
90	5.6		1725	4040	5765	3.15	6.7		2050	3714	3.15
		5.5						6.6			
95	5.3		1635	3714	5349	2.91	6.4		1973	3376	2.91
		5.2						6.3			
100	5.1		1560	3376	4936	2.67	6.2		1893	3043	2.67
		5.0						6.0			
105	4.8		1485	3043	4528	2.44	5.9		1812	2715	2.44
		4.6						5.8			
110	4.4		1380	2715	4095	2.20	5.6		1725	2370	2.20
		4.3						5.4			
115	4.1		1275	2370	3645	1.94	5.3		1629	2015	1.94
		4.0						5.1			
120	3.8		1185	2015	3200	1.69	4.9		1526	1673	1.69



STORM SEWER PROFILES



HYDROGRAPH FOR ULTIMATE INFLOW

INLET DESIGN COMPUTATIONS

Form LD 204
Rev 6-85

RTE ______ PROJ ______ DATE ______

INLET NUMBER	TYPE	LENGTH (FT)	STATION	DRAINAGE AREA (AC)	C	CA	Σ CA	I IN/HR	Q INCR (CFS)	Q CARRY-OVER (CFS)	Q_T GUTTER FLOW	S GUTTER SLOPE (FT/FT)	Sx CROSS SLOPE (FT/FT)	T (SPREAD)	W(FT)	W/T	Sw(FT/FT)	Sw/Sx	Eo(#10)	a	Sw=a/(12W)	Se(FT/FT)= Sx + SwEo	LT(FT) 15 P EFFEC LENGTH FT L/LT	d(FT)	E(#16) h(FT)	Qi INTERCEPTED CFS d/h	Qb CARRY-OVER CFS T SPREAD @ SAG FT	SHEET OF REMARK
76	DI-3B	6'		.35	.85	.30		7.27	2.18															.27	.46	.58	6.65	SUMP
15	DI-3B	6'		.11	.85	.09			0.65															.12	.46	.27	1.49	SUMP
14	DI-3B	6'		.21	.85	.18			1.31															.20	.46	.43	3.33	SUMP
14A	DI-3C	6'		.22	.85	.19			1.38															.21	.46	.45	3.78	SUMP
13A	DI-3C	6'		.42	.85	.36			2.62															.31	.46	.67	8.63	SUMP
13	DI-3C	8'		.56	.85	.48			3.49															.31	.46	.68	8.86	SUMP
11A	DI-3C	6'		.22	.85	.19			1.36															.20	.46	.44	3.55	SUMP
11	DI-3C	6'		.04	.85	.05			0.25															.07	.46	.15	0.83	SUMP
10	DI-3B	6'		.06	.85	.05			0.36															.08	.46	.18	1.00	SUMP
9	DI-3B	6'		.39	.85	.33			2.41															.29	.46	.63	7.75	SUMP
18	DI-3B	6'		.07	.85	.06			0.44															.09	.46	.20	1.10	SUMP
12A	DI-3C	6'		.39	.85	.33			2.41															.29	.46	.63	7.75	SUMP
1A	DI-3B	12'		1.08	.70	.83		3.5	2.83	—	2.83	.007	.0082	3.28	2	0.22	0.0833	4.0	0.57	3.5	0.146	.184	11.1	1.08	1.00	2.84		
1	DI-3C	6'	L	.39	.70	.41		3.5	1.45	—	1.45	.001	.0092	10.95	2		0.0833	4.0					3.6	.17	.46	1.57	0.23	SUMP
			R	0.11	.70	.08																						
12	DI-3C	6'		.30	.85	.31		7.27	2.25															.29	.46	.62	7.76	SUMP
1B	DI-3C	6'		.03	.9	.02		7.27	0.2															.10	.46	.22	1.3	SUMP
14C	3B	6'		.16	.85	.14		7.27	.99		.99													.17	.46	.36	2.00	SUMP
14B	3C	6'		.25	.85			7.27	1.54		1.54													.22	.46	.48	4.40	SUMP
14A	3C	6'		.47	.85			7.27	2.90		2.90													.32	.46	.70	9.20	SUMP
14	3B	6'		.26	.85			7.27	1.61		1.61													.23	.46	.50	2.88	SUMP
1A	3B	8'		.40	.7			3.5	0.98		0.98	.023	.02	3.46	2	.58	.0833	4.0	.96	3.5	.146	.161	7.4	1.08	1.00	.98		
1B	3B	10'		.64	.7			3.5	1.57		1.57	.01	.02	6.19	2	.32	.0833	4.0	.76	3.5	.146	.132	8.3	1.20	1.00	1.57		
1	3C	6'		15/10	.7	11/07		3.5	37/25		37/25	.001	.02	5.15	2								3.60	.09	.46	.20		

STORM SEWER DESIGN COMPUTATIONS

L & D 229

ROU. ______ PROJ. ______
COUNTY ______ DISTRICT ______
DESCRIPTION ______
SHEET ______ OF ______

FROM POINT (1)	TO POINT (2)	AREA DRAIN. "A" ACRES (3)	RUN-OFF COEF. C (4)	CA INCREMENT (5)	CA ACCUMULATED (6)	INLET TIME MINUTES (7)	RAIN FALL IN./HR. (8)	RUNOFF Q C.F.S. (9)	INVERT ELEVATIONS UPPER END (10)	INVERT ELEVATIONS LOWER END (11)	LENGTH FT. (12)	SLOPE FT./FT. (13)	DIA. IN. (14)	CAPACITY C.F.S. (15)	VEL. F.P.S. (16)	FLOW TIME SEC. (17)	REMARKS ELLIPTICAL PIPE EQUIV. (18)
14C	14B	.16	.85	.14	.14	5	7.27	1.02	396.41	395.90	102	.005	15"	4.6	2.8		CL.IV PIPE
14B	14	.25	.85	.21	.35			2.54	395.90	394.90	200	.005	15"	4.6	3.6		
14A	14	.47	.85	.40	.40				395.26	394.90	72	.005	15"	4.6	3.7		
14	13	.26	.85	.22	.97				394.65	394.32	65	.005	18"	7.5	4.7		
13A	13	.42	.85	.36	.36			2.6	395.17	394.57	120	.005	15"	4.6	3.4		
13	12	.56	.85	.48	1.60			11.6	393.82	392.56	252	.005	24"	16.0	4.9		
12A	12	.39	.85	.50	.50			3.65	393.91	393.31	60	.010	15"	6.65	5.2		
17	4A	.19	.90	.17	.17			1.24	392.80	390.36	235	.0104	10"	2.2	3.8	SEE	ARCH. PLUMB. PLANS
4B	4A	.84	.90	.76	.76			5.53	394.00	392.40	80	.0200	15"	9.0	7.0		
12	11	.36	.85	—	2.20			15.39	392.31	392.12	38	.005	27"	22.	5.2.		
11A	11	.22	.85	.24	.24			1.74	393.80	393.12	68	.010	15"	4.6	3.4		
11	10	.04	.85	.10	2.54			18.47	391.87	391.40	94	.005	30"	29	5.4		38"x24" ERCP
DECK	10	.50	.90	.45	.45			3.27	393.94	393.63	15	.0208	12"	5	6.0		
10	9	.06	.85	.05	3.04			22.10	391.15	390.60	110	.005	30"	29	6.5		38"x24" ERCP
9	8	.39	.85	.23	3.31			24.06	390.55	390.20	30	.005	30"	29	6.5		38"x24" ERCP
7	6								390.00	389.87	13'	1.00	8	SEE S.W.M. COMPUTATIONS			
6	5	SEE STORM WATER							387.02	386.60	140'	.003	60				
5	4	MANAGEMENT							386.60	386.16	145'	.003	60				
4	3	COMPUTATIONS							386.16	386.06	10'	.001	30				
18A	18	.08	.85										12	2.5	3.0		
18	EX.B	.07	.85	.06	.06	5	7.27	.44	394.75	394.60	25	.005	15	4.6	3.4		
EX.B	EX.A	.27	.85	.23	.29	5	7.27	2.11	394.50	392.54	167	.012	15	7.0	5.5		
1B	1	.64	.70	.45	.45	5	7.27	3.27	394.44	391.05	78	.0150	15	4.6	3.8		
1A	1	.40	.70	.28	.28	5	7.27	2.04	394.59	394.05	107	.005	15	4.6	3.5		
1	MI	15/10	.70	.18	.91	5	7.27	6.62	393.80	392.84	30	.0319	18	18.5	10.0		MANHOLE MI
DS #4	4A	.38	.90	.34	.34	5	7.27	2.49	393.10	393.00	5	.0208	10	3.0	5.5		
4A	4	—	—	—	1.27	5	7.27	9.23	389.90	389.70	20	.0100	18	10.5	5.8		
DS#3	4	.44	.90	.40	.40	5	7.27	2.91	394.35	391.00	67	.0150	10	4.8	8.8		
DS#2	5	.37	.90	.34	.34	5	7.27	2.49	391.21	391.60	10	.020	10	3.0	5.5		

I HEREBY CERTIFY THAT NO OTHER CHANGES HAVE BEEN MADE ON THE PLAN OR PROFILE EXCEPT THOSE PREVIOUSLY APPROVED.

CERTIFYING ENGINEER

COMMONWEALTH OF VIRGINIA
Stephen T. Schulte
No. 021264
6/14/94
PROFESSIONAL ENGINEER

SE 2005-DR-016
Application No. ______ Staff UP
APPROVED (SE) SP PLAN
SEE DEV CONDS DATED 9.29.05
Date of (BOS) (BZA) approval 10.17.05
Sheet 7 of 9

THIS DOCUMENT WAS MICROFILMED
JAN 18 1995
BY COMMUNICATION DIVISION ... CENTER

COMMONWEALTH OF VIRGINIA
LARRY D. CARUTHERS
(CERTIFICATE) No. 015165
PROFESSIONAL ENGINEER

REVISION · APPROVED BY

No	DATE	DESCRIPTION	REVIEW BY	APPROVED	DATE
1	11/93	ADDED STM. SEW. PROFILES 1 TO 1A AND 1 TO 1B. REVISED STORM SEWER DESIGN COMPUTATIONS			

© Latest Date Hereon

ENGINEERS • ARCHITECTS • PLANNERS • SCIENTISTS • SURVEYORS • PHOTOGRAMMETRISTS

GREENHORNE & O'MARA, INC.

11211 WAPLES MILL ROAD, FAIRFAX, VIRGINIA 22030

(703) 385-9800

ANNAPOLIS, MD • ATLANTA, GA • BALTIMORE, MD • CULPEPER, VA • BEAVER, CO • DULUTH, GA • FAIRFAX, VA • FREDERICKSBURG, VA • GREENBELT, MD • HARRISBURG, PA • LEESBURG, VA • MANASSAS, VA • ORLANDO, FL • RALEIGH, NC • ROCKVILLE, MD • TAMPA, FL • VERO BEACH, FL • WALDORF, MD • WEST PALM BEACH, FL

AS-BUILT

S.W.M./DRAINAGE COMPUTATIONS AND STORM SEWER PROFILES

CALDOR AT ROCKSPOINT

PARCEL 4

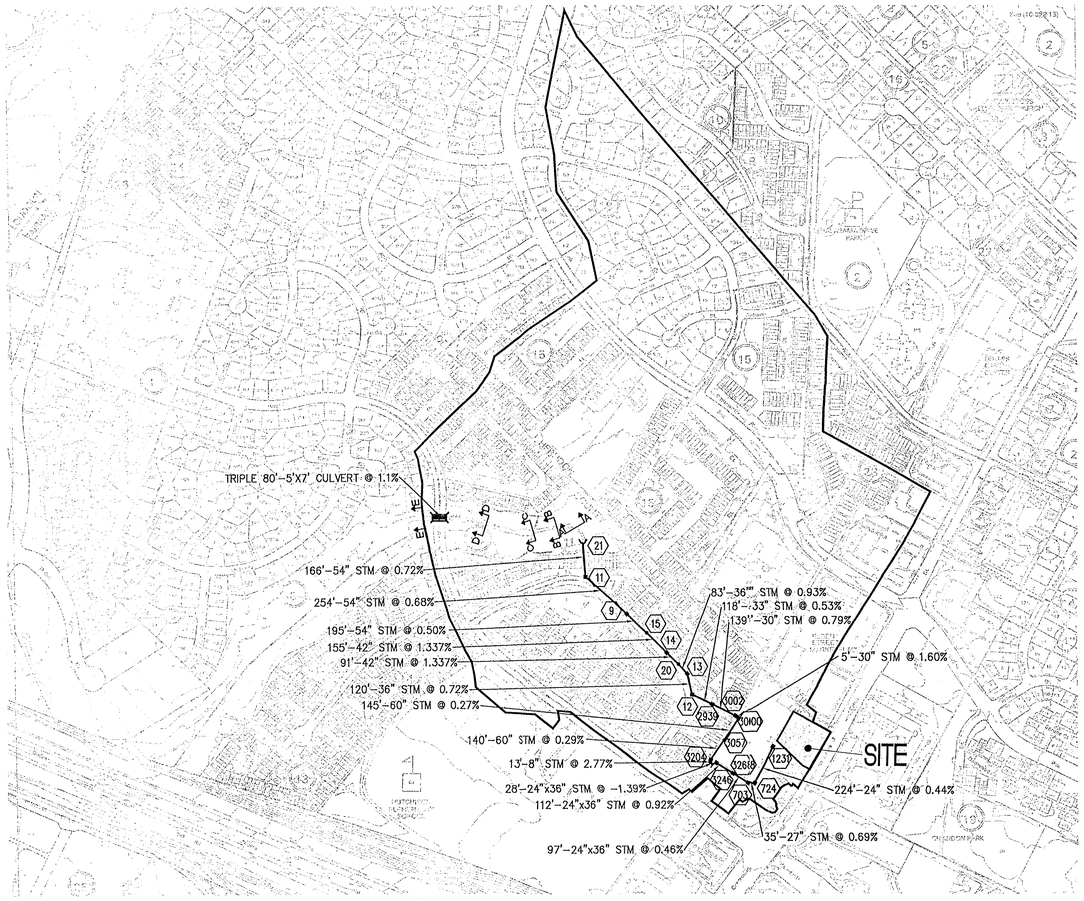
DRAINESVILLE DISTRICT
FAIRFAX COUNTY, VIRGINIA

DESIGN JPS	SCALE N/A
DRAWN	14 OF 17
CHECKED	SHEET 6/16
DATE 04/93	JOB No.	FILE No. PP-616

SITE / STORM ASBUILT SET: SHEET 6 OF 16

D C B A 1 5 10 A B C D

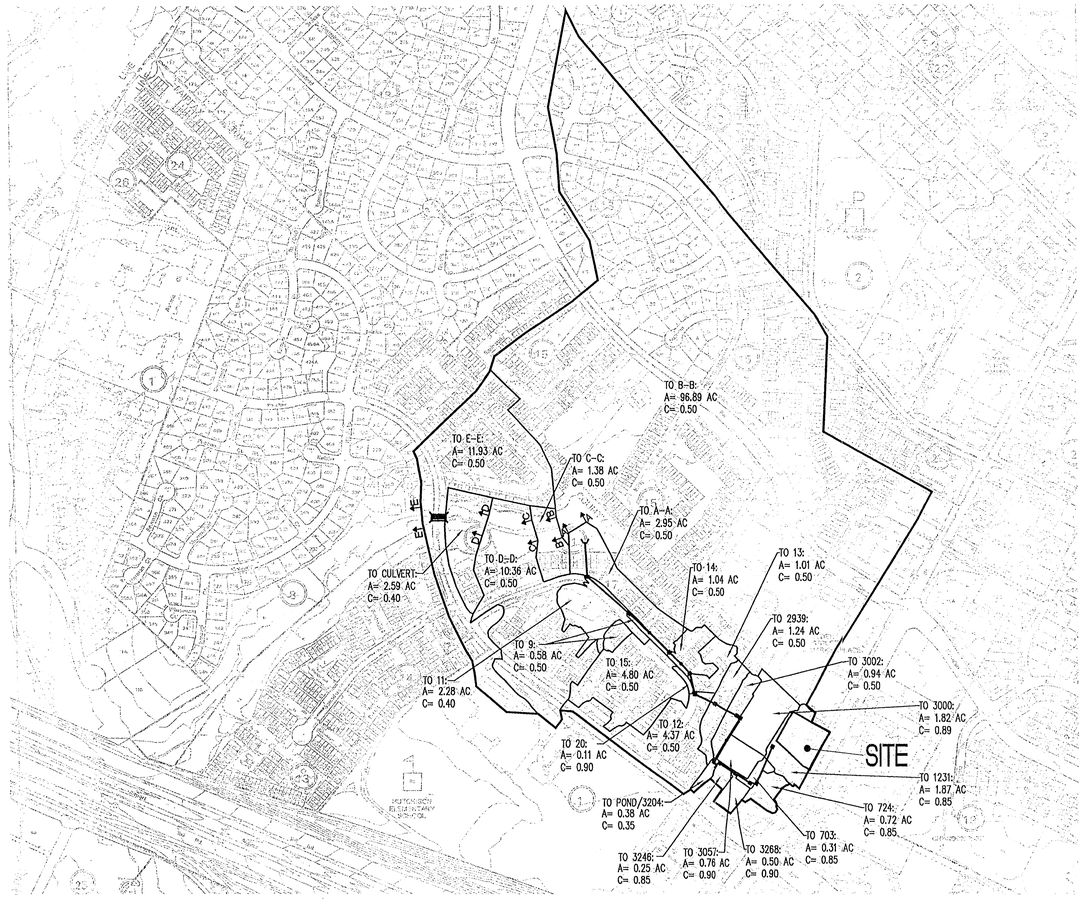
FOR INFORMATION ONLY



OUTFALL #1 STORM SEWER MAP

1" = 400'

NOTE: STRUCTURES AS NUMBERED WITH REFLECTION LAKES PLAN



OUTFALL DRAINAGE DIVIDE MAP

1" = 400'

OUTFALL STORM SEWER COMPUTATIONS

from point	to point	area (A) acres	C	CA	inlet time (minutes)	rainfall (in/hr)	runoff (CFS) increment	runoff (CFS) accumulated	length (ft)	slope (ft/ft)	diameter (in)	capacity (CFS)
1231	724	1.87	0.85	1.59	5	7.27	11.56	11.56	224	0.004	24	14.31
724	703	0.72	0.85	0.61	5	7.27	4.45	16.01	35	0.007	27	25.91
703	3268	0.31	0.85	0.26	5	7.27	1.92	17.93	97	0.005	24x36	29.00
3268	3246	0.50	0.90	0.45	5	7.27	3.27	21.20	112	0.004	24x36	25.94
3246	POND	0.25	0.85	0.21	5	7.27	1.54	22.74	28	0.005	24x36	29.00
POND	3204	0.38	0.35	0.13	5	7.27	0.97	3.30*	13	0.028	8	10.63**
3204	3057	0	0	0	5	7.27	0	3.30	140	0.003	60***	142.65
3057	3000	0.76	0.90	0.68	5	7.27	4.97	8.27	145	0.003	60***	142.65
3000	3002	1.82	0.89	1.62	5	7.27	11.78	5.00*	5	0.016	30	51.88
3002	2939	0.94	0.50	0.47	5	7.27	3.42	8.42	139	0.008	30	36.69
2939	12	1.24	0.50	0.62	5	7.27	4.51	12.93	118	0.005	33	37.40
12	13	4.37	0.50	2.19	5	7.27	15.92	28.85	120	0.007	36	55.80
13	20	1.01	0.50	0.51	5	7.27	3.71	32.56	83	0.009	36	63.28
20	14	0.11	0.90	0.10	5	7.27	0.73	33.29	91	0.014	42	119.04
14	15	1.04	0.50	0.52	5	7.27	3.78	37.07	155	0.014	42	119.04
15	9	4.80	0.50	2.40	5	7.27	17.45	54.52	195	0.005	54	139.04
9	11	0.58	0.50	0.29	5	7.27	2.11	56.63	254	0.007	54	164.53
11	21	2.28	0.40	0.91	5	7.27	6.62	63.25	166	0.007	54	164.53

*5 MIN. RELEASE RATE FROM DETENTION STRUCTURE
**MAX. DISCHARGE FOR OUTLET STRUCTURE AS DESIGNED WITH 6558-SP-04
***60" DETENTION PIPE AS DESIGNED WITH 6558-SP-04

OUTFALL NARRATIVE

ONSITE STORMWATER MANAGEMENT DETENTION MEASURES ARE NOT PROVIDED FOR THE PROPOSED PROJECT DUE TO A DECREASE IN IMPERVIOUS AREA POST-DEVELOPMENT. THE STORMWATER OUTFALL FOR THIS SITE IS CONVEYED DOWNSTREAM VIA STORM SEWER, RIP-RAP CHANNEL FLOW, AND A CULVERT SYSTEM. WE HAVE DETERMINED THE EXISTING DRAINAGE DIVIDES, AND VERIFIED THE EXISTING OFFSITE STORM SEWER, CULVERTS, AND CHANNEL SECTIONS USING RECORD AS-BUILT, TOPOGRAPHY INFORMATION, AND IN THE FIELD.

AFTER THE RUNOFF FLOWS THROUGH THE STORM SEWER SYSTEM TO THE ONSITE POND WHERE IT IS DETAINED AND RELEASED, THEN ENTERS A 60" DETENTION PIPE. AFTER THE RUNOFF IS DETAINED AND RELEASED FROM THE DETENTION PIPE, IT TRAVELS TO THE NORTHWEST VIA A STORM SEWER SYSTEM THROUGH THE REFLECTION LAKE SUBDIVISION, UNTIL BEING DISCHARGED TO AN OPEN CHANNEL AT STRUCTURE #21. AT THIS POINT, THE RUNOFF ENTERS A FAIRFAX COUNTY MAPPED FLOODPLAIN. THE OPEN CHANNEL FLOWS THROUGH THE REFLECTION LAKE SUBDIVISION TO A CULVERT THAT GOES UNDER PARCHER ROAD. IMMEDIATELY AFTER BEING DISCHARGED INTO THE CHANNEL ON THE OPPOSITE SIDE OF THE CULVERT, THE DRAINAGE SHED IS 100 TIMES THE SITE AREA. THE OUTFALL ANALYSIS IS COMPLETE AT THIS POINT PER FAIRFAX COUNTY PFM SECTION 6-0203.6C. THE TOTAL DRAINAGE AREA TO THIS OUTFALL POINT IS ±150 ACRES. THE AREA ENCLOSED BY THE LIMITS OF SPECIAL EXCEPTION IS 1.14 AC. SEE CHANNEL SECTIONS, STORM SEWER COMPUTATIONS AND CULVERT COMPUTATION FOR ANALYSIS. THE LIMITS OF THIS STUDY ARE AS DEPICTED ON THE OFFSITE DRAINAGE AREA MAP SHOWN ON THIS SHEET.

BASED ON FIELD REVIEW AND ENGINEERING ANALYSIS THE EXISTING RIP-RAP CHANNEL IS ADEQUATE AND MEETS CURRENT DESIGN REQUIREMENTS.

CULVERT COMPUTATION (STR. #4 TO #3)- 10 YEAR STORM

Application No. SE 2005-DR-016 Staff JP
APPROVED (SE) SP PLAN
SEE DEV CONDS DATED 9-29-05
Date of (BOS) (BZA) approval 10-17-05
Sheet 8 of 9

Project BB&T
Plan Sheet No. Designer
Rev. Date Date 8/24/05
Sheet of

HYDROLOGICAL DATA:
D.A.= 137.4 AC.

AHW Controls STATION
100YR FLOOD PLAIN ELEV.
DESIGN AHW DEPTH ELEV.
STRUCTURES ELEV.
FREQ. TW ELEV.

SHOULDER ELEV.
℄ ELEV. 368
SKEW COVER
INV. EL. 358.5 So= 1.1% INV. EL. 359.4
ORIG. GR. ELEV. N/A L= 80 FT ORIG. GR. ELEV. N/A

DISCHARGE'S USED
Q10 YR= 476.35 CFS
Q= CFS
Q= CFS
Q= CFS
Q= CFS

RISK ASSESSMENT ADT
DETOURS AVAILABLE LENGTH
OVER TOPPING STAGE
FLOOD PLAIN MANAGEMENT
CRITERIA AND SIGNIFICANT IMPACT

CULVERT TYPE & SIZE	Q	Q/B	HEADWATER COMPUTATIONS: INLET CONT. HW/D	INLET CONT. HW	OUTLET CONTROL Ko	dc	d+H/2	ho	H	LSo	HW	CONT. HW ELEV.	OUTLET VELOCITY		END TREAT.	COMMENTS
EX. TRIPLE 5'x7' CULVERTS	476.35	31.76	0.7	4.9								364.3		6.5 FPS		

NOTE: CULVERT IS ADEQUATE TO CARRY 10 YEAR DESIGN FLOW WITHOUT OVER TOPPING

DESIGN FLOOD EXCEED. PROB ELEV.
OVERTOP FLOOD EXCEED. PROB ELEV.
BASE FLOOD 1% EXCEED. PROB ELEV.

WALTER L. PHILLIPS
INCORPORATED
CIVIL ENGINEERS LAND SURVEYORS PLANNERS LANDSCAPE ARCHITECTS
207 PARK AVENUE FALLS CHURCH, VIRGINIA 22046
(703) 532-6163 FAX (703) 533-1301 WWW.WLPINC.COM

SCALE: 1" = 30' DATE: 8/25/05 REV: 10/3/05 DRAWN: MEF

COMMONWEALTH OF VIRGINIA TERRANCE J. ANDERSON LICENSED PROFESSIONAL ENGINEER 10-3-05

NO.	DESCRIPTION	DATE	REV. BY	APPROVED	DATE

REVISION APPROVED BY

OUTFALL ANALYSIS

PROPOSED BB&T

DRANESVILLE DISTRICT

FAIRFAX COUNTY, VIRGINIA

CHANNEL SECTION A-A

Input Data

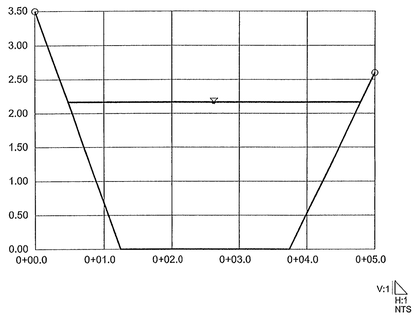
Slope	0.039700	ft/ft
Discharge	55.44	cfs

Natural Channel Points

Station (ft)	Elevation (ft)
0+00	3.50
0+01	0.00
0+04	0.00
0+05	2.60

Results

Mannings Coefficient	0.040	
Water Surface Elevation	2.16	ft
Elevation Range	0.00 to 3.50	
Flow Area	7.4	ft²
Wetted Perimeter	7.20	ft
Top Width	4.31	ft
Actual Depth	2.16	ft
Critical Elevation	2.18	ft
Critical Slope	0.038616	ft/ft
Velocity	7.52	ft/s
Velocity Head	0.88	ft
Specific Energy	3.04	ft
Froude Number	1.01	
Flow Type	Supercritical	



CHANNEL SECTION B-B

Input Data

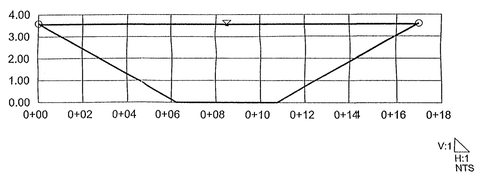
Slope	0.020000	ft/ft
Discharge	319.47	cfs

Natural Channel Points

Station (ft)	Elevation (ft)
0+00	3.60
0+06	0.00
0+11	0.00
0+17	3.60

Results

Mannings Coefficient	0.040	
Water Surface Elevation	3.56	ft
Elevation Range	0.00 to 3.60	
Flow Area	38.0	ft²
Wetted Perimeter	18.76	ft
Top Width	16.85	ft
Actual Depth	3.56	ft
Critical Elevation	3.54	ft
Critical Slope	0.020540	ft/ft
Velocity	8.41	ft/s
Velocity Head	1.10	ft
Specific Energy	4.66	ft
Froude Number	0.99	
Flow Type	Subcritical	



CHANNEL SECTION C-C

Input Data

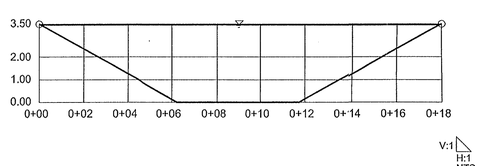
Slope	0.018000	ft/ft
Discharge	323.21	cfs

Natural Channel Points

Station (ft)	Elevation (ft)
0+00	3.50
0+06	0.00
0+12	0.00
0+18	3.50

Results

Mannings Coefficient	0.040	
Water Surface Elevation	3.45	ft
Elevation Range	0.00 to 3.50	
Flow Area	40.2	ft²
Wetted Perimeter	19.61	ft
Top Width	17.81	ft
Actual Depth	3.45	ft
Critical Elevation	3.35	ft
Critical Slope	0.020355	ft/ft
Velocity	8.04	ft/s
Velocity Head	1.00	ft
Specific Energy	4.45	ft
Froude Number	0.94	
Flow Type	Subcritical	



CHANNEL SECTION D-D

Input Data

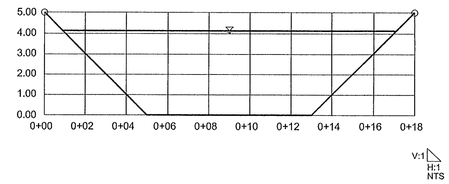
Slope	0.010400	ft/ft
Discharge	351.48	cfs

Natural Channel Points

Station (ft)	Elevation (ft)
0+00	5.00
0+05	0.00
0+13	0.00
0+18	5.00

Results

Mannings Coefficient	0.040	
Water Surface Elevation	4.12	ft
Elevation Range	0.00 to 5.00	
Flow Area	49.9	ft²
Wetted Perimeter	19.64	ft
Top Width	16.23	ft
Actual Depth	4.12	ft
Critical Elevation	3.38	ft
Critical Slope	0.021362	ft/ft
Velocity	7.05	ft/s
Velocity Head	0.77	ft
Specific Energy	4.89	ft
Froude Number	0.71	
Flow Type	Subcritical	



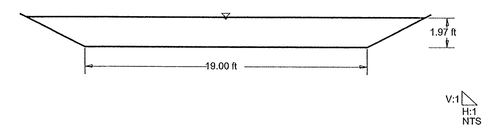
CHANNEL SECTION E-E

Input Data

Mannings Coefficient	0.040	
Slope	0.028000	ft/ft
Left Side Slope	0.50	V : H
Right Side Slope	0.50	V : H
Bottom Width	19.00	ft
Discharge	389.63	cfs

Results

Depth	1.97	ft
Flow Area	45.3	ft²
Wetted Perimeter	27.83	ft
Top Width	26.90	ft
Critical Depth	2.17	ft
Critical Slope	0.020000	ft/ft
Velocity	8.60	ft/s
Velocity Head	1.15	ft
Specific Energy	3.12	ft
Froude Number	1.17	
Flow Type	Supercritical	



SE 2005-DR-016 Staff UP
Application No.: _____ Staff: _____
APPROVED (SE) SP PLAN
SEE DEV CONDS DATED 9.29.05
Date of (BOS) (BZA) approval 10.16.05
Sheet 9 of 9

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(703) 532-6163 FAX (703) 533-1301

SCALE: 1" = 40' DATE: 8/25/05 10/3/05 DRAWN: MEF

COMMONWEALTH OF VIRGINIA TERRANCE M. ANDERSON 9959 PROFESSIONAL ENGINEER 10-3-05

NO.	DESCRIPTION	DATE	REV. BY	APPROVED	DATE

REVISION APPROVED BY

OUTFALL ANALYSIS

PROPOSED BB&T

DRANESVILLE DISTRICT

FAIRFAX COUNTY, VIRGINIA