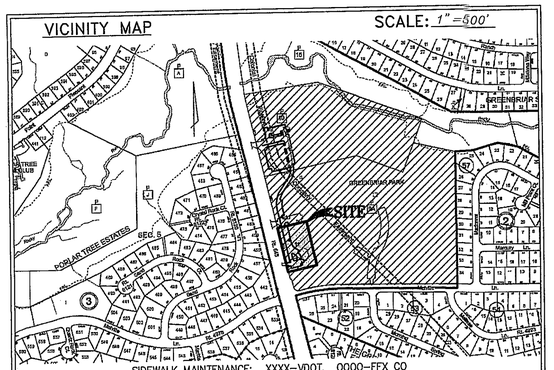
VICINITY MAP

SCALE: 1" =500'



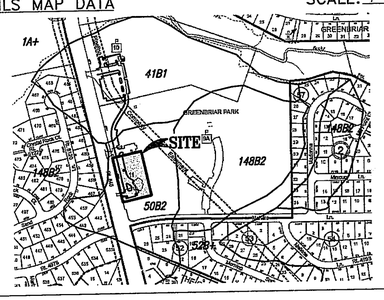
SIDEWALK MAINTENANCE: XXXX–VDOT, OOOO–FFX CO
TRAIL MAINTENANCE: OOOO–FFX CO
ALL OTHER WALKS/TRAILS TO BE OWNER MAINTAINED

TAX MAP REFERENCE NUMBER(S)

MAP PAGE #	DOUBLE CIRCLE #	BLOCK (SINGLE CIRCLE #)	LOT/PARCEL(S) #
45–3	1		11

SOILS MAP DATA

SCALE: 1" =500'



FORMAL SOILS REPORT TO BE APPROVED PRIOR TO SECOND SUBMISSION
SOILS MAP SOURCE: ☒ COUNTY MAP; ☐ PRIVATE SOILS SCIENTIST (FOR UNMAPPED SITES)

SOIL ID NUMBERS	SOIL SERIES NAME	FOUNDATION SUPPORT	SUBSURFACE DRAINAGE	SLOPE STABILITY	ERODABILITY	PROBLEM CLASS
50B2	IREDELL–MECKLENBURG	MARGINAL–BCP	MARGINAL–CPR	2–7%	MODERATE	A

SOILS WITH IDENTIFICATION NUMBERS 59, 66, 69, 141, 142, AND 152 MAY OVERLIE PARENT BEDROCK FORMATIONS WHICH HAVE BEEN FOUND TO CONTAIN NATURALLY OCCURRING ASBESTOS MINERALS. SPECIAL MINIMUM CONSTRUCTION MEASURES AND PRECAUTIONS ARE REQUIRED IN COMPLIANCE WITH HEALTH DEPARTMENT DIRECTIVES WITHIN THESE SOILS OR WITHIN FILL ORIGINATING FROM THESE SOILS.

TABULATIONS

SITE AREA:

EXISTING	= 1.52 ACRES (66,150 SF)
PROPOSED	= 1.52 ACRES (66,150 SF)
(NO RIGHT-OF-WAY DEDICATION IS REQUIRED)	
MAXIMUM GROSS FLOOR AREA (0.25 FAR)	= 16537 SF
EXISTING GROSS FLOOR AREA (0.05 FAR)	= 3192 SF (PER ASSESSMENTS)
MAXIMUM BUILDING HEIGHT	= 60 FEET
EXISTING MAX. BUILDING HEIGHT	= 22 FEET
PARKING TABULATION	
EXISTING PARKING	= 66 SPACES (52 OFFSITE* + 14 SPACES ONSITE)
PROPOSED PARKING	= 81 SPACES (52 OFFSITE* + 29 SPACES ONSITE) (2 SPACES SHALL BE ACCESSIBLE SPACES)

* A SHARED PARKING AGREEMENT DATED MARCH 18, 1987 WAS APPROVED BY THE BOARD OF SUPERVISORS. ON JANUARY 10, 2002, THE AGREEMENT WAS REVISED TO ALLOW UP TO 52 PARKING SPACES TO BE USED BY THE GREENBRIAR CIVIC ASSOCIATION.

NOTE: ANY NEW, EXTENDED OR REVISED SHARED PARKING AGREEMENT IN THE FUTURE MUST ALLOW FOR AT LEAST 32 OFFSITE PARKING SPACES SUCH THAT THE REQUIRED MINIMUM OF 61 SPACES IS SATISFIED.

REQUIRED PARKING	= 61 SPACES
- CIVIC ASSOCIATION	= 33 SPACES (1SP / 3 - OCCUPANCY OF 99) *
- CHURCH	= 25 SPACES (1 SP / 4 SEATS - 100 SEATS) *
- NURSERY SCHOOL	= 3 SPACES (0.19 PER CHILD - 15 CHILDREN)

MINIMUM YARDS:

- FRONT	= 30' MIN ((40 DEG ABP (<30'), BUT NOT <30'))
- SIDE	= 10' MIN ((35 DEG ABP (<10'), BUT NOT <10 '))
- REAR	= 25' MIN ((35 DEG ABP (<25'), BUT NON <25'))

* CIVIC ASSOCIATION (COMMUNITY CENTER) AND CHURCH PER SEPARATE SPECIAL PERMIT

SWM/BMP NARRATIVE FOR SPECIAL EXCEPTION

THE CONSTRUCTION OF NEW PARKING IMPROVEMENTS AS SHOWN ON THESE SHEETS SHALL BE PERFORMED UNDER THE DIRECTION OF THE FAIRFAX COUNTY PARK AUTHORITY IN A JOINT PROJECT WITH THE GREENBRIAR COMMUNITY CENTER. A PLAN UNDER ARTICLE 17 OF THE Z.O. TO CONSTRUCT THESE IMPROVEMENTS IS BEING REVIEWED EITHER CONCURRENTLY OR FOLLOWING THE APPROVAL OF THIS SPECIAL EXCEPTION. ACCORDINGLY, SWM/BMP'S SHALL BE PROVIDED FOR THE ENTIRE JOINT PROJECT. STORMWATER MANAGEMENT MAY BE PROVIDED VIA UNDERGROUND DETENTION AND BMP'S MAY BE MET THROUGH A COMBINATION OF OPEN SPACE, PERVIOUS PAVEMENT AND/OR VEGETATED SWALE IF NOT WAIVED BY DPWES. SPECIFICALLY, THE COMMUNITY CENTER SHALL PROVIDE OPEN SPACE TO BE MAINTAINED IN CONSERVATION EASEMENTS. NOTE THAT THE INFORMATION ON SHEET 5 IS NOT YET FORMALLY APPROVED (ARTICLE 17) AND IS SUBJECT TO THE REVIEW OF SUBSEQUENT PLANS. HENCE, THESE SHEETS HAVE BEEN LABELED "FOR INFORMATION ONLY".

LANDSCAPING NOTE:

THE FOLLOWING IS A LIST OF PREFFERED SPECIES OF PLANTS TO BE UTILIZED. THIS IS A LIST OF PREFERENCES, BUT THE FINAL PLANT SELECTION SHALL NOT BE LIMITED TO THIS LIST. ALL FINAL PLANT SELECTIONS SHOWN ON THE SITE PLAN SHALL BE SUBJECT TO APPROVAL BY FAIRFAX COUNTY.

CATEGORY II TREES – AMUR MAPLE & KOUSA DOGWOOD

CATEGORY III / IV TREES – WILLOW OAK, GINKGO, BLACK GUM & YOSHINO CHERRY

EVERGREEN SHRUBS – INKBERRY HOLLY, SCHIPKAENSIS CHERRY LAUREL, GLOSSY ABELIA, ARROWWOOD VIBURNUM

PLANTING WITHIN UTILITY EASEMENTS SHALL BE REVIEWED AND APPROVED BY THE EASEMENT HOLDER(S). IF THE EASEMENT HOLDER(S) DOES NOT GRANT PERMISSION TO INSTALL THE PROPOSED PLATS, THE APPLICANT SHALL WORK WITH THE URBAN FOREST MANAGEMENT DIVISION OF PUBLIC WORKS AND ENVIRONMENTAL SERVICES DEPARTMENT TO IDENTIFY SUITABLE ALTERNATIVE PLANTS AND / OR ALTERNATIVE PLANTING LOCATIONS. THE TRANSITIONAL SCREENING REQUIREMENT SHALL BE CONSIDERED SATISFIED IF THE LATTER SITUATION NEEDS TO BE UTILIZED.

NOTES

1) THE CURRENT ZONING IS R-3C (WSPOD).

2) THIS SITE IS LOCATED ON FAIRFAX COUNTY TAX MAP 45-3 ((1)) PARCEL 11.

3) THE CURRENT OWNER IS THE GREENBRIAR CIVIC ASSOCIATION.

4) THE PROPERTY IS SERVED BY PUBLIC WATER AND SEWER.

5) THE TOPOGRAPHY IS A RESULT OF A FIELD RUN SURVEY BY RINKER DESIGN ASSOCIATES, PC. (CONTOUR INTERVAL - 2' / U.S.G.S. DATUM)

6) THERE IS NO KNOWN RPA, FLOODPLAIN OR EQC FOUND ONSITE.

7) THERE ARE NO KNOWN EXISTING UTILITY EASEMENTS WITH A WIDTH OF 25' FEET OR MORE ONSITE.

8) TRAIL NOTE: A 10' WIDE CONCRETE WALKWAY SHALL BE PROVIDED AS PROPOSED WITH THE WIDENING OF STRINGFELLOW ROAD AS IS SHOWN ON SHEET 3.

9) TO THE BEST OF THE KNOWLEDGE OF THE FIRM PREPARING THIS PLAT, THERE ARE NO KNOWN GRAVES, OBJECTS OR STRUCTURES MARKING A PLACE OF BURIAL FOUND ONSITE.

WAIVER REQUESTED

1) THE TRANSITIONAL SCREENING AND BARRIER REQUIREMENTS WERE PREVIOUSLY WAIVER AND / OR MODIFIED BY THE BOARD OF ZONING APPEALS PURSUANT TO SPA 78-P-192-1. IN CONJUNCTION WITH THIS SPECIAL EXCEPTION, THE APPLICANT IS REQUESTING APPROVAL OF THE BARRIER WAIVER REQUEST AND MODIFICATION OF THE TRANSITIONAL SCREENING REQUIREMENT IN FAVOR OF THE LANDSCAPING AS SHOWN ON SHEET 3 OF THIS PLAT.

SHEET INDEX

1	COVER SHEET & NOTES/TABULATIONS
2	EXISTING CONDITIONS
3	PROPOSED PLAN
4	PROPOSED PLAN
5	SHEET FOR INFORMATION ONLY – SWM/BMP
6	SHEET FOR INFORMATION ONLY – SWM/BMP
6A	SHEET FOR INFORMATION ONLY – COVER SHEET
6B	SHEET FOR INFORMATION ONLY – OUTFALL ANALYSIS
6C	SHEET FOR INFORMATION ONLY – BMP COMPUTATION
6D	SHEET FOR INFORMATION ONLY – DETAILS
6E	SHEET FOR INFORMATION ONLY – DETAILS
6F	SHEET FOR INFORMATION ONLY – SWM COMPUTATION
6G	SHEET FOR INFORMATION ONLY – SWM COMPUTATION
6H	SHEET FOR INFORMATION ONLY – SWM COMPUTATION
6I	SHEET FOR INFORMATION ONLY – SWM COMPUTATION

Application No. SE 2010-SP-029 Staff B.K.

APPROVED (SE) SP PLAN
SEE DEV CONDS DATED March 8, 2011
Date of (BOS) (BZA) Approval March 8, 2011

Sheet 1 of 15
Concurrent w/ SPA 78-P-192-03

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Department of Planning & Zoning
MAR 18 2011
Zoning Evaluation Division

COMMONWEALTH OF VIRGINIA
GREGORY J. BUDNIK
Lic. No. 20119
02-25-2011
PROFESSIONAL ENGINEER

NO.	DESCRIPTION	DATE
2	ADDRESS COUNTY COMMENTS	02/25/11
1	ADDRESS COUNTY PRESTAFFING COMMENTS	12/27/10

REVISION BLOCK

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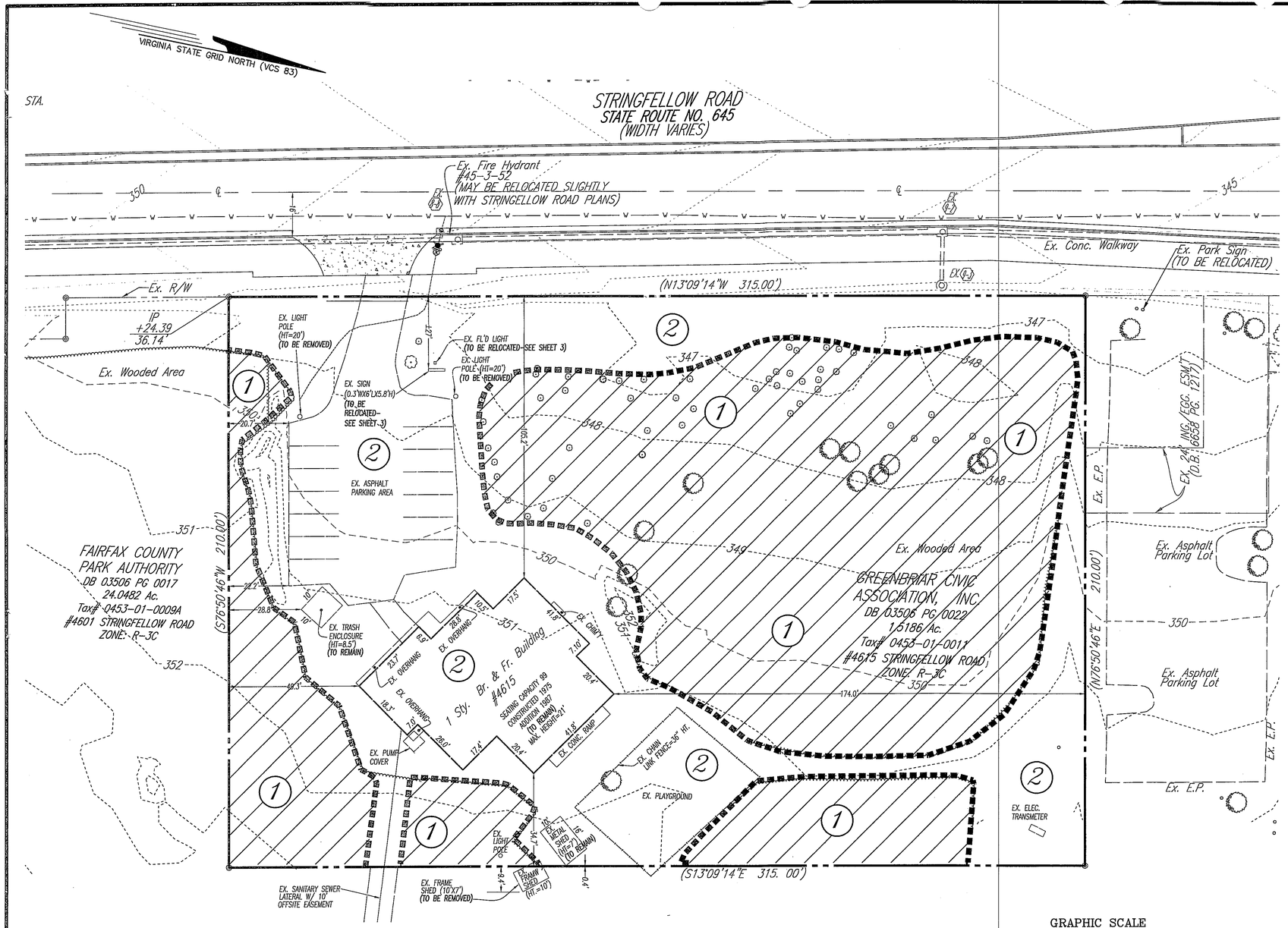
SPECIAL EXCEPTION PLAT
PLEASANT VALLEY PRESCHOOL

SPRINGFIELD MAGISTERIAL DISTRICT FAIRFAX COUNTY, VIRGINIA

SCALE: AS SHOWN
DATE: SEPT. 28, 2010
GJB FILE NO.: 756–SEP
SHEET: 1 OF 6



GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

EVM TABULATION:

SITE AREA = 1.5186 ACRES (66,150 SF)

EXISTING VEGETATION COVER TYPES:

(1) = UPLAND FOREST = ±32,460

(2) = DEVELOPED LAND = ±33,690

TOTAL EXISTING TREE CANOPY = 49%

NOTE: EXISTING HARDWOODS INCLUDE OAK, YELLOW POPLAR AND VIRGINIA PINE. THE OVERALL CONDITION IS GOOD.

EXISTING FEATURES AND EXISTING VEGETATION MAP

1"=20'

Application No. SE 2010-SP-029 Staff B.K.

APPROVED SE / SP PLAN
SEE DEV CONDS DATED March 8, 2011
Date of (BOS) (BZA) Approval March 8, 2011

Sheet 2 of 15
Concurrent w/ SPA 78-P-192-03

COMMONWEALTH OF VIRGINIA
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SPECIAL EXCEPTION PLAT

PLEASANT VALLEY PRESCHOOL

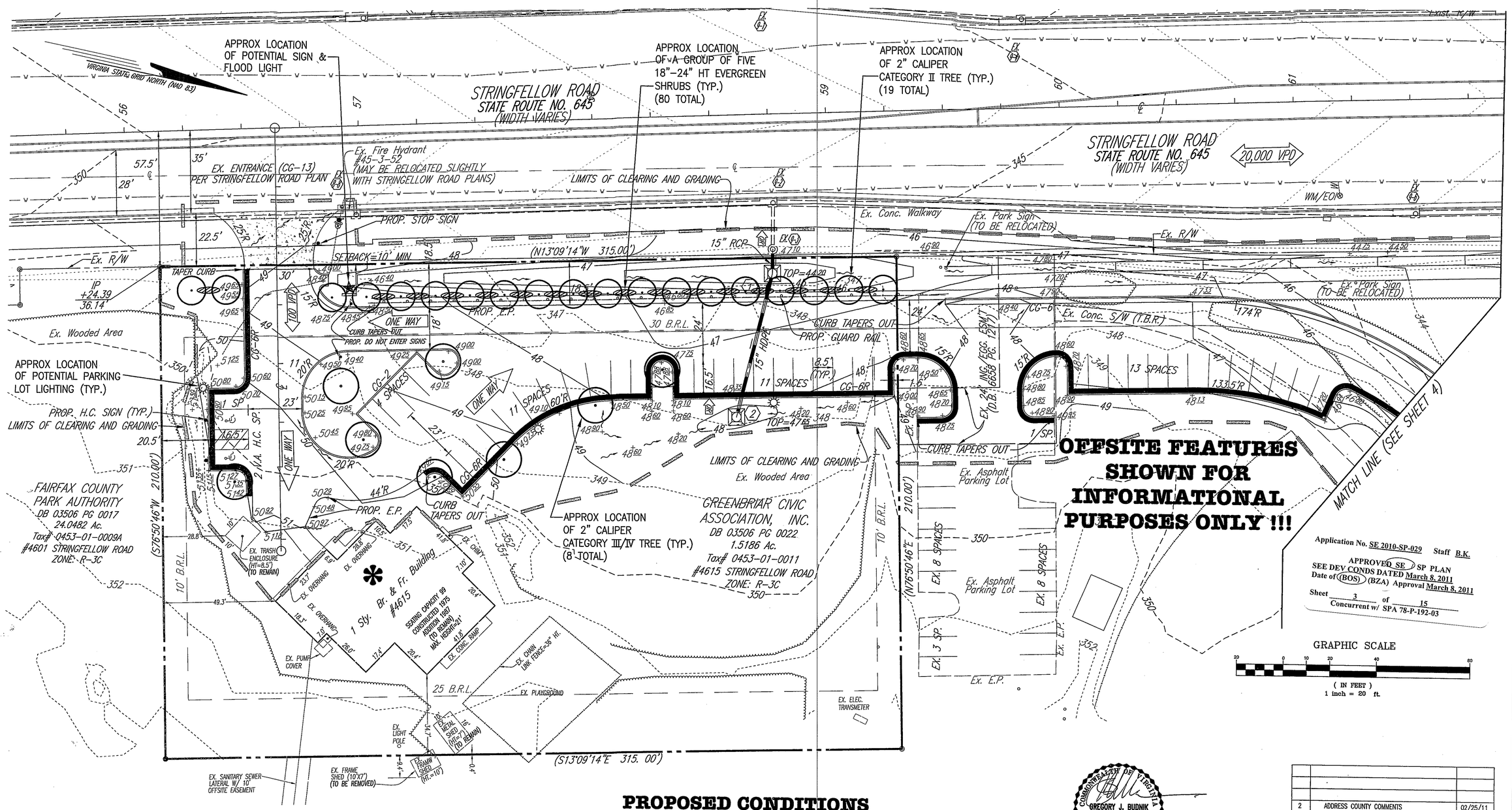
SPRINGFIELD MAGISTERIAL DISTRICT FAIRFAX COUNTY, VIRGINIA

SCALE: 1=20'

DATE: SEPT. 28, 2010

GJB FILE NO.: 756-SEP

SHEET: 2 OF 6



PROPOSED CONDITIONS

1"=20'

*** SEE SHEET 2 FOR INFORMATION REGARDING EXISTING FEATURES**

NOTE: BASED ON AN ADDENDUM TO THE REPORT OF GEOTECHNICAL FINDINGS AND RECOMMENDATIONS PREPARED BY THE VIRGINIA DEPARTMENT OF TRANSPORTATION AND DATED MAY 21, 2008, THE SUBBASE DEPTH IS BASED ON AN DESIGN CBR VALUE OF 3.4. SOIL TEST OF SUBGRADE MUST BE SUBMITTED FOR ACTUAL DETERMINATION OF REQUIRED SUBBASE THICKNESS PRIOR TO SUBBASE PLACEMENT.

NOTE: GEOTECHNICAL ENGINEER TO DETERMINE THE ADEQUACY OF THESE RECOMMENDED TYPICAL SECTIONS AND PROVIDE SUITABLE REPLACEMENTS BASED ON FIELD RUN INFORMATION AFTER CLEARING HAS BEGUN, IF NECESSARY PRIOR TO INSTALLATION.

NOTE: FOR PAVING WITHIN RIGHT OF WAY, IF NECESSARY, CONTRACTOR IS TO MATCH TO EXISTING TYPICAL SECTION.

NOTE: FILL TO BE COMPACTED TO 95% OF MAXIMUM DRY DENSITY AS DETERMINED BY THE STANDARD PROCTOR COMPACTION TEST (ASTM D698) WITHIN PLUS OR MINUS 2% OF OPTIMUM MOISTURE CONTENT OR AS DETERMINED BY THE GEOTECHNICAL ENGINEER.

NOTE: THE EXISTING UNDERGROUND UTILITIES SHOWN HEREON ARE BASED UPON AVAILABLE INFORMATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION OF ALL UTILITIES BEFORE COMMENCING WORK AND FOR ANY DAMAGES WHICH OCCUR BY HIS FAILURE TO LOCATE OR PRESERVE THESE UNDERGROUND UTILITIES. IF DURING CONSTRUCTION OPERATIONS THE CONTRACTOR SHOULD ENCOUNTER UTILITIES OTHER THAN THOSE SHOWN ON THE PLANS, HE SHALL IMMEDIATELY NOTIFY THE ENGINEER AND TAKE NECESSARY AND PROPER STEPS TO PROTECT THE FACILITY AND ASSURE CONTINUANCE OF SERVICE.

NOTE: ALL RADII ARE 5.0' UNLESS OTHERWISE NOTED.

NOTE: ALL CONSTRUCTION SHALL CONFORM TO FAIRFAX COUNTY AND VIRGINIA DEPARTMENT OF TRANSPORTATION STANDARDS AND SPECIFICATIONS.

NOTE: TEST PITS SHALL BE REQUESTED A MINIMUM OF 48 HOURS IN ADVANCE FOR THOSE UTILITIES REQUIRING THEM.

NOTE: FILL TO BE COMPACTED AS SPECIFIED IN THE SOILS REPORT.

COMMONWEALTH OF VIRGINIA
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ABBREVIATIONS

A=	– ARC LENGTH	F.H.	– FIRE HYDRANT	T.M.	– TAX MAP
B.O.V.	– BLOW OFF VALVE	H.C.	– HANDICAPPED	TEMP.	– TEMPORARY
B.R.L.	– BUILDING RESTRICTION LINE	INV.	– INVERT	T.B.R.	– TO BE REMOVED
℄	– CENTER LINE	LAT.	– LATERAL	TYP.	– TYPICAL
C.O.	– CLEAN OUT	M.H.	– MANHOLE	V.A.	– VAN ACCESSIBLE
CONC.	– CONCRETE	N/F	– NOW/FORMERLY	ELEV.	– ELEVATION
C&G	– CURB AND GUTTER	PG.	– PAGE	APPROX.	– APPROXIMATE
D.B.	– DEED BOOK	PVC	– POLYVINYL CHLORIDE	PVMT.	– PAVEMENT
DRN.	– DRAINAGE	RCP	– REINFORCED CONCRETE PIPE	P.I.N.	– PARCEL IDENTIFICATION NUMBER
LD	– LOADING DOCK	RET. WALL	– RETAINING WALL	W/L	– WATERLINE
D.I.P.	– DUCTILE IRON PIPE	R/W	– RIGHT OF WAY	INSTR.#	– INSTRUMENT NUMBER
ESMT.	– EASEMENT	SAN.	– SANITARY	L.S.	– LOADING SPACE
E.P.	– EDGE OF PAVEMENT	SEW.	– SEWER	O.D.	– OVERHEAD DOOR
ENT.	– ENTRANCE	S/W	– SIDEWALK	H.H.	– HAND HOLE
EX.	– EXISTING	SF	– SQUARE FEET		
⅋R	– FACE OF CURB RADIUS	STM.	– STORM		

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SPECIAL EXCEPTION PLAT
PLEASANT VALLEY PRESCHOOL

SPRINGFIELD MAGISTERIAL DISTRICT — FAIRFAX COUNTY, VIRGINIA

SCALE: 1"=20'
DATE: SEPT. 28, 2010
GJB FILE NO.: 756-SEP
SHEET: 3 OF 6

NOTE: THE EXISTING UNDERGROUND UTILITIES SHOWN HEREON ARE BASED UPON AVAILABLE INFORMATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION OF ALL UTILITIES BEFORE COMMENCING WORK AND FOR ANY DAMAGES WHICH OCCUR BY HIS FAILURE TO LOCATE OR PRESERVE THESE UNDERGROUND UTILITIES. IF DURING CONSTRUCTION OPERATIONS THE CONTRACTOR SHOULD ENCOUNTER UTILITIES OTHER THAN THOSE SHOWN ON THE PLANS, HE SHALL IMMEDIATELY NOTIFY THE ENGINEER AND TAKE NECESSARY AND PROPER STEPS TO PROTECT THE FACILITY AND ASSURE CONTINUANCE OF SERVICE.

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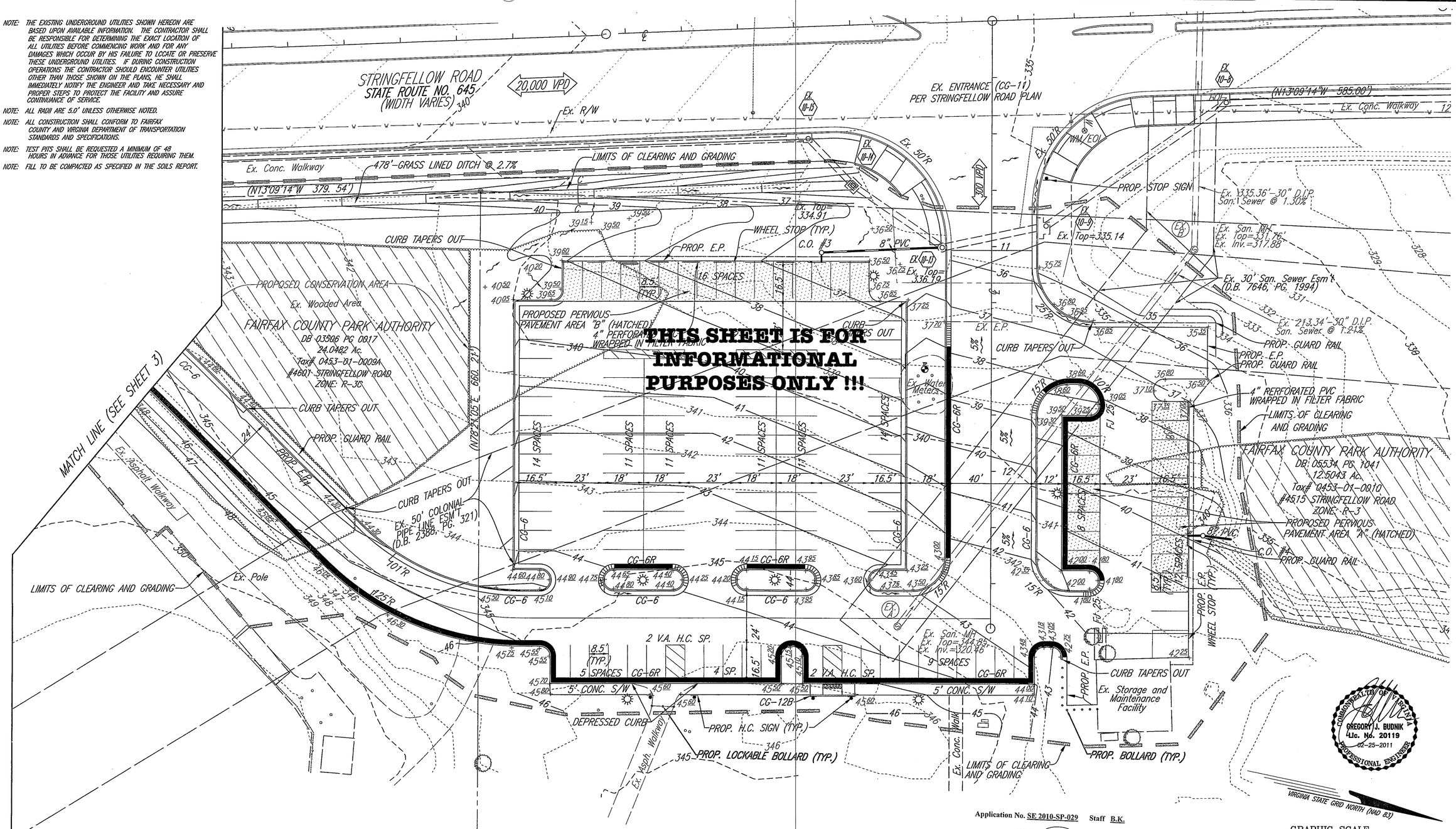

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Application No. SE 2010-SP-029 Staff B.K.

APPROVED SE SP PLAN
SEE DEV CONDS DATED March 8, 2011
Date of (BOS) (BZA) Approval March 8, 2011

Sheet 4 of 15
Concurrent w/ SPA 78-P-192-03

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

NO.	DESCRIPTION	DATE
2	ADDRESS COUNTY COMMENTS	02/25/11
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REVISION BLOCK

NOTE: THE EXISTING WATER METERS/VALVES LOCATED WITHIN THE COLONIAL EASEMENT SHOULD BE TESTED PITTED TO DETERMINE IF THEY CAN BE REMOVED, IF THEY HAVE BEEN ABANDONED.

NOTE: VPD BASED ON COUNTY PARK (412) TRIPS CREATED PER ACRE ON SUNDAY CHART ON PAGE 641 OF 7TH EDITION OF ITE'S TRIP GENERATION MANUAL.

LEGEND

PROPOSED	EXISTING	DESCRIPTION
		SANITARY MANHOLE
		SANITARY STRUCTURE NUMBER
		SANITARY CLEAN OUT NUMBER
		SANITARY CLEANOUT
		TELEPHONE MANHOLE
		ACCESSIBLE RAMP
		GUY WIRE
		WATER VALVE
		FIRE HYDRANT
		WATER METER
		STREET SIGN
		BOLLARD
		STORM SEWER STRUCTURE NUMBER
		ROOF DRAIN
		SPOT ELEVATION
		WATERLINE
		LIMITS OF CLEARING & GRADING
		EXISTING PROPERTY LINE
		EXISTING EDGE OF PAVEMENT
		CURB & GUTTER (CG-6)
		CURB & GUTTER (CG-6R)
		CURB & GUTTER (TRANSITION)
		STORM SEWER DRAIN
		TREE LINE
		UTILITY POLE
	230 VPD	VEHICLES PER DAY COUNT
		100 YR. FLOOD OVERLAND RELIEF PATH
		TEST PIT REQUIRED
		LIGHT POLE

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SPECIAL EXCEPTION PLAT
PLEASANT VALLEY PRESCHOOL
SPRINGFIELD MAGISTERIAL DISTRICT FAIRFAX COUNTY, VIRGINIA

COMMONWEALTH OF VIRGINIA
GREGORY J. BUDNIK
Lic. No. 20119
02-25-2011
PROFESSIONAL ENGINEER

SCALE: 1"=20'
DATE: SEPT. 28, 2010
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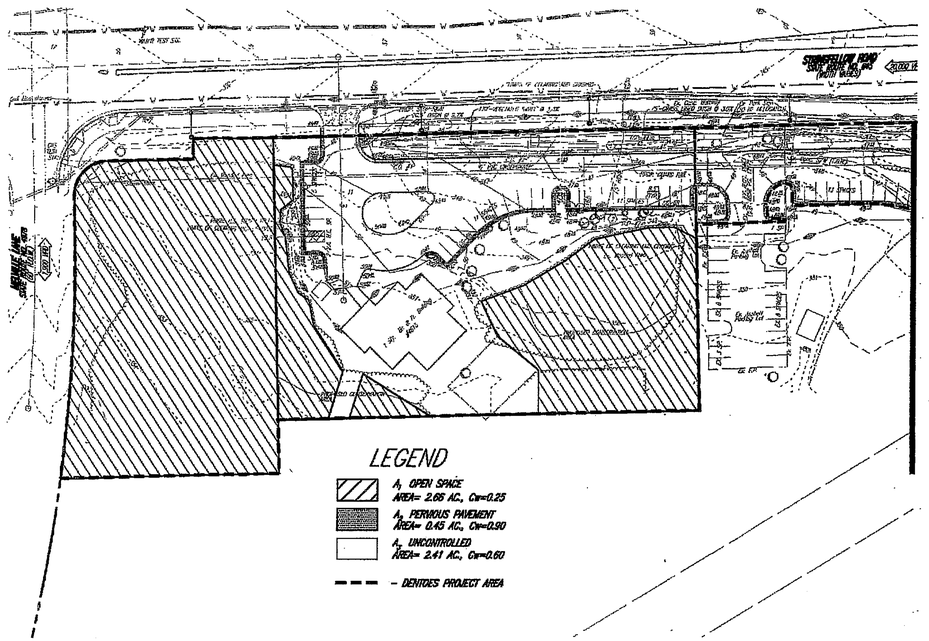
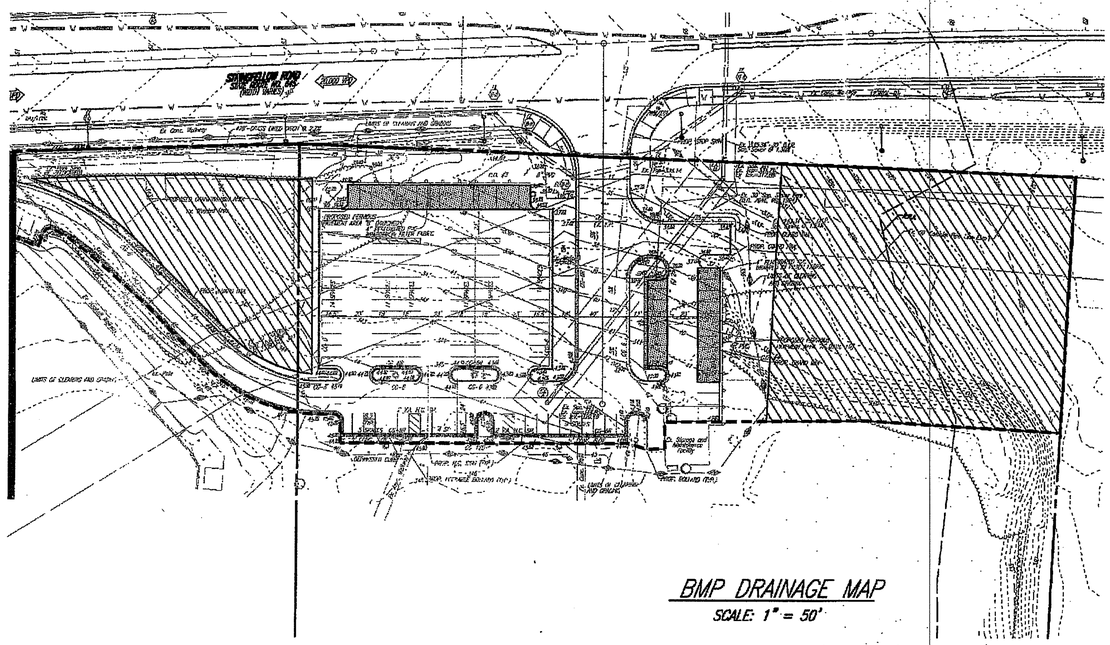
SHEET: 4 OF 6

05-126-H





BMP DRAINAGE MAP
SCALE: 1" = 50'

BMP FACILITY DESIGN CALCULATIONS

Part 1A: WATER QUALITY NARRATIVE

THE SITE IS LOCATED ALONG STRINGFELLOW ROAD IN FAIRFAX COUNTY TO THE NORTH OF THE INTERSECTION OF STRINGFELLOW ROAD AND MELVILLE DRIVE. THIS SITE IS PART OF GREENBRIAR PARK. IT IS PROPOSED TO CONSTRUCT A PARKING LOT ALONG WITH ASSOCIATED TRAVEL LANES. WE HAVE PROVIDED ON SITE STRUCTURAL METHODS TO PROVIDE BMP FOR THE PROPOSED DEVELOPMENT. FOR THE PURPOSE OF BMP COMPUTATIONS THE SITE AREA IS 5.92 AC. DUE TO THE NATURE OF THE PROJECT, IT IS CLASSIFIED AS REDEVELOPMENT AND THE BMP REQUIREMENT IS MET USING A COMBINATION OF CONSERVATION AREA, PERVIOUS PAVEMENT AND A VEGETATED SWALE. BY USING THE CONSERVATION AREA, PERVIOUS PAVEMENT AND THE VEGETATED SWALE WE HAVE ADOPTED A LOW IMPACT DEVELOPMENT APPROACH TO THE DEVELOPMENT IN ORDER TO MINIMIZE THE WATER QUALITY IMPACTS. THE STRUCTURAL METHODS HAVE BEEN DESIGNED TO PROVIDE COMPREHENSIVE BMPS FOR THE PROPOSED DEVELOPMENT.

Part 1B: WATERSHED INFORMATION

LIST OF SUB AREAS AND "C" FACTORS USED

SUBAREA DESIGNATION AND DESCRIPTION	C	ACRES
(1) IMP. AREA TO PERVIOUS PAVEMENT	0.90	0.45
(2) OPEN SPACE	0.25	2.68
(3) UNCONTROLLED AREA	0.60	2.81

Part 2: COMPUTE WEIGHTED AVERAGE "C" FACTOR FOR THE PROJECT

(A) TOTAL AREA OF THE PARCEL 5.92 AC (SEE BMP NARRATIVE)

(B) SUBAREA DESIGNATION	C	X	ACRES	= PRODUCT
(1) IMP. AREA TO PERVIOUS PAVEMENT	0.90		0.45	0.41
(2) OPEN SPACE	0.25		2.68	0.67
(3) UNCONTROLLED AREA	0.60		2.81	1.69
		TOTAL=	5.92	TOTAL= 2.77

(C) WEIGHTED AVERAGE "C" FACTOR FOR THE PARCEL= 2.77 / 5.92 = 0.47

Part 3: COMPUTE THE TOTAL PHOSPHORUS REMOVAL FOR THE PARCEL

FOR COMPLIANCE WITH PARCEL PHOSPHORUS REMOVAL, THE PHOSPHORUS REMOVED NEEDS TO BE 40%

SUBAREA DESIGNATION	BMP TYPE	REMOVAL EFFICIENCY	OFF SITE	AREA RATIO	"C" FACTOR RATIO	PRODUCT
(1)	PERVIOUS PAVEMENT	35		0.45 / 5.92	0.90 / 0.47	5.09
(2)	OPEN SPACE	100		2.68 / 5.92	1	45.27
(3)	UNCONTROLLED	0		2.81 / 5.92	0.60 / 0.47	0.00
					(a) TOTAL SITE PHOSPHORUS REMOVAL =	50.36

Part 4: DETERMINE COMPLIANCE WITH PHOSPHORUS REMOVAL REQUIREMENT

(A) SELECT REQUIREMENT FOR THE ENTIRE PARCEL: (a)= 50.00 %

(B) IF LINE 3(A) 50.36 >= Line 4(a) 50.00 then phosphorus removal requirement is satisfied.

Part 5: DETERMINE COMPLIANCE WITH SITE COVERAGE REQUIREMENT

SUM ALL THE UNCONTROLLED ONSITE AREAS AND COMPUTE A WEIGHTED AVERAGE "C" FACTOR. DO NOT INCLUDE QUALIFYING OPEN SPACE.

SUBAREA DESIGNATION	C	X	ACRES	= PRODUCT
(1) UNCONTROLLED ONSITE AREA	0.60		2.81	1.69
		TOTAL=	2.81	TOTAL= 1.69

(A) TOTAL EQUIVALENT UNCONTROLLED AREA (a) TOTAL 1.69
(B) TOTAL UNCONTROLLED AREA (b) 2.1
(C) WEIGHTED AVERAGE C FACTOR (a)/(b)= (c) 0.60

If line 5(b) < 20% of site area, then site coverage requirement is satisfied.Line 5(a) is the equivalent offsite area for which coverage may be required.

(D) 100 X 2.81 / 5.92 = 47.47 %

Part 6: DETERMINE THE OFFSITE AREAS FOR WHICH COVERAGE IS REQUIRED

For the offsite areas listed in part 1 which flow to proposed onsite BMPs compute the equivalent areas

SUBAREA DESIGNATION	C	X	ACRES	= PRODUCT
(6) N/A	0	X	0	= 0
(SEE PART 3)			(a) TOTAL 0	<5(a) = 0

IF THE EQUIVALENT OFFSITE AREA, LINE 6(A),DRAINING TO ALL PROPOSED FACILITIES IS GREATER THAN THE EQUIVALENT UNCONTROLLED AREA OF THE SITE SHOWN IN LINE 5(A); THEN, THE OFFSITE AREA CONTROLLED BY THE PROPOSED BMP FACILITIES MAY BE REDUCED UNTIL THE TWO ARE EQUAL. OTHERWISE, ALL UNCONTROLLED OFFSITE AREAS DRAINING TO THE PROPOSED BMP FACILITIES MUST BE INCLUDED. ALL OFFSITE AREAS THUS REDUCED SHOULD BE MARKED WITH AN "" WHEREVER THEY APPEAR IN THIS COMPUTATIONS.*

Part 7:

COMPUTE THE WEIGHTED C FACTOR FOR THE PROPOSED BMP FACILITY

(A) LIST THE AREAS TO BE CONTROLLED BY THE PROPOSED BMP.

SUBAREA DESIGNATION	C		ACRES		PRODUCT
(1) OPEN SPACE	0.25	x	2.68	=	0.67
(2) IMPERVIOUS	0.90	x	0.85	=	0.77
			3.19	=	1.44

Part 8: WEIGHTED AVERAGE C FACTOR= 0.41

DETERMINE THE STORAGE REQUIRED

ALL STRUCTURAL BMP'S HAVE BEEN SIZED ACCORDING TO CONTRIBUTING DRAINAGE AREAS. PLEASE REFER TO COMPUTATIONS FOR DETAILS.

PHOSPHOROUS REMOVAL REQUIREMENT

PER SECTION 6-0401.1 OF THE FAIRFAX COUNTY PFM, THE TOTAL PHOSPHOROUS REMOVAL FOR THIS SITE IS 50% BECAUSE THIS SITE IS LOCATED WITHIN THE WSPOD.

Application No. SE 2010-SP-029 Staff B.K.

APPROVED SE / SP PLAN
SEE DEV CONDS DATED March 8, 2011
Date of (BOS) (BZA) Approval March 8, 2011

Sheet 5 of 15
Concurrent w/ SPA 78-P-192-03

MAINTAINENCE NOTE: THE PROPOSED BMP FACILITIES ARE TO BE OWNED AND MAINTAINED BY THE OWNER.

rda
Rinker Design Associates, P.C.
Engineering * Surveying * Land Planning * Transportation * Environmental Services
9309 West Courthouse Road, Suite 300, Manassas VA, 20110 on the web @ www.rdachd.com
Telephone: (703) 368-7373 Fax: (703) 257-5443
"Turning Challenges Into Opportunities"

ADVANCE COPY

BMP COMPUTATIONS
GREENBRIAR PARK IMPROVEMENTS
SPRINGFIELD MAGISTERIAL DISTRICT
FAIRFAX COUNTY, VIRGINIA

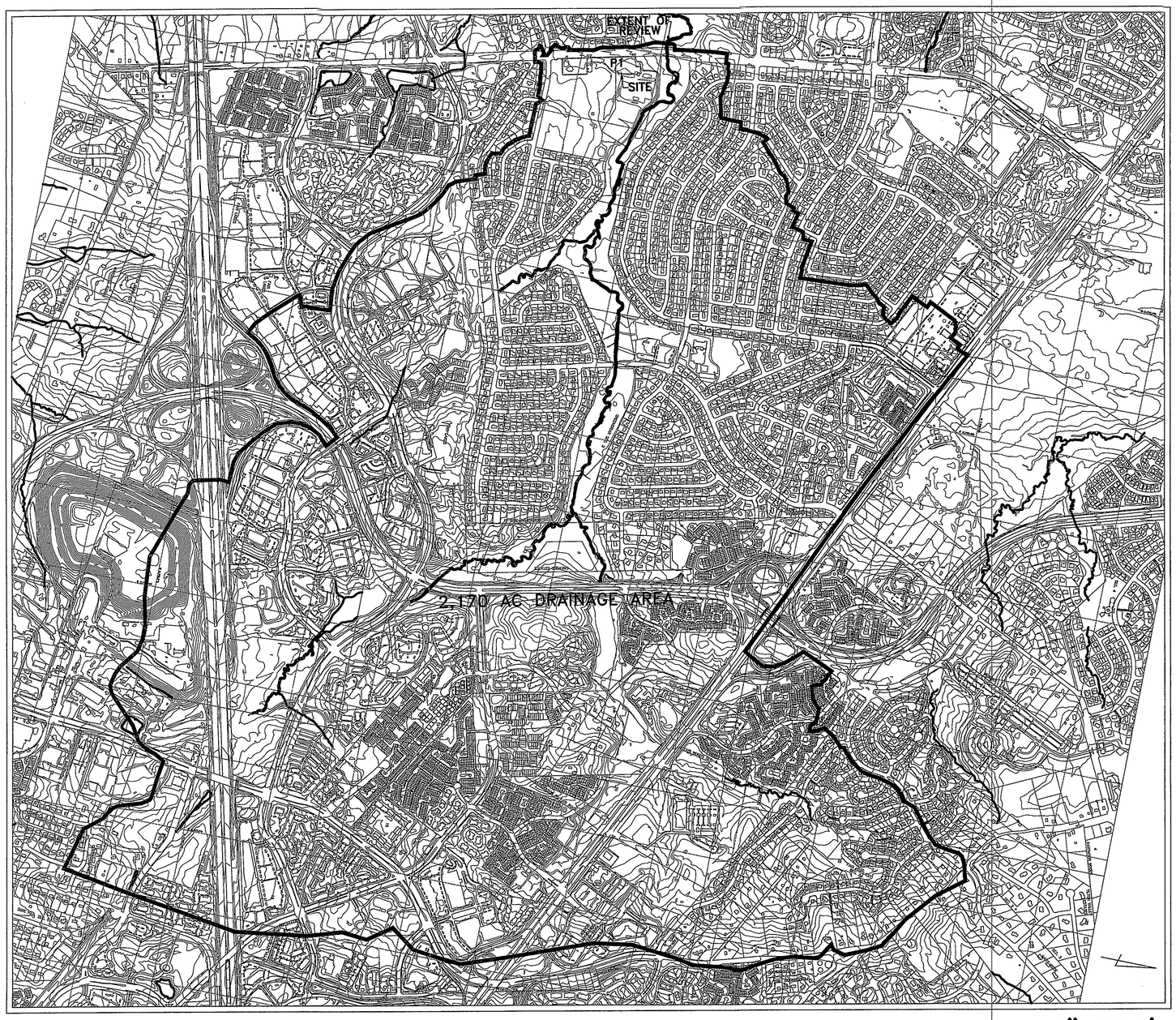
REVISIONS:

DATE: SEPTEMBER 15, 2009
SCALE: AS SHOWN
DESIGN: JDC/NVD
DRAFT: JDC/NVD
CHECKED BY: JDC
ARCH: N/A
JOB NUMBER: 05-126-H
SHEET: 11

DRAWING NAME:

NOTE FOR SPECIAL EXCEPTION PLAT (REVISED THROUGH 12-27-10)
CONSERVATION EASEMENTS SHOWN FOR ILLUSTRATIVE PURPOSES ONLY. EXACT LOCATION TO BE DETERMINED DURING ARTICLE 17 REVIEW OF SUBSEQUENT PLANS.

THIS SHEET IS FOR INFORMATION ONLY !!!



SCALE: 1"=750'

ADEQUATE OUTFALL NARRATIVE

PROJECT OVERVIEW:

THIS PROJECT PROPOSES ADDITIONS AND IMPROVEMENTS TO THE EXISTING PARKING LOT AT GREENBRIAR PARK. THE SITE IS LOCATED ADJACENT TO STRINGFELLOW ROAD (ROUTE 645), NORTH OF THE INTERSECTION OF STRINGFELLOW ROAD AND MELVILLE LANE. THE SITE IS LOCATED WITHIN THE CUB RUN WATERSHED. THERE ARE TWO EXISTING PARKING LOTS ON SITE, ONE OF WHICH IS GRAVEL. IT IS PROPOSED TO IMPROVE THIS GRAVEL PARKING LOT AND ALSO ADD ADDITIONAL PARKING SPACES. THIS PROJECT ALSO PROPOSES AN ACCESS WAY TO THE GREENBRIAR COMMUNITY CENTER. THE PROJECT ALSO PROPOSES ALL NECESSARY TEMPORARY AND PERMANENT EROSION CONTROL MEASURES TO MEET STATE AND LOCAL REGULATIONS, AS WELL AS A BMP FACILITY TO MEET REQUIREMENTS OF THE CHESAPEAKE BAY PRESERVATION ORDINANCE AND AN UNDERGROUND DETENTION FACILITY TO MEET ALL STATE AND COUNTY STORMWATER DETENTION REQUIREMENTS.

THE SITE CONSISTS OF ONE PRIMARY OUTFALLS (P1). PER SECTION 6-0200 OF THE PFM THIS OUTFALL HAS BEEN ANALYZED FOR ADEQUACY AND IS DESCRIBED AS FOLLOWS:

PRIMARY OUTFALLS

P1 (NORTH, CUB RUN)

THE SITE IS LOCATED WITHIN GREENBRIAR PARK. AS THE PROJECT DOES NOT INVOLVE THE ENTIRE AREA OF THE SITE, THE PROJECT AREA TAKES INTO ACCOUNT THE AREA THAT IS AFFECTED BY THE PROPOSED DEVELOPMENT. AS SHOWN ON THE OVERALL DRAINAGE MAP ON THIS SHEET, THE ENTIRE PROJECT AREA DRAINS WEST TOWARDS STRINGFELLOW ROAD. THE RUNOFF IS COLLECTED IN A DRAINAGE DITCH LOCATED ALONG STRINGFELLOW ROAD. THIS DITCH OUTFALLS INTO STORM STRUCTURES ALONG STRINGFELLOW ROAD. THIS STORM SYSTEM ULTIMATELY OUTFALLS INTO BIG ROCKY RUN. THE TOTAL CONTIBUTING DRAINAGE AREA FROM THE STORM SYSTEM AT THE OUTFALL POINT AT BIG ROCKY RUN IS APPROXIMATELY 11.52 AC. AS SHOWN ON THE OVERALL DRAINAGE MAP ON THIS SHEET, THE TOTAL DRAINAGE AREA TO ROCKY RUN AT THE INTERSECTION WITH STRINGFELLOW ROAD IS APPROXIMATELY 2,170 AC. AS THE TOTAL DRAINAGE AREA AT THE POINT OF ANALYSIS IS MORE THAN 100 TIMES GREATER THAN THE CONTIBUTING DRAINAGE AREA OF THE DEVELOPMENT SITE, PER 6-0203.2B, THIS MARKS THE EXTENT OF REVIEW FOR OUTFALL P1. AS BIG ROCKY RUN IS A NATURAL WATERCOURSE AND THE TOTAL DRAINAGE AREA TO THE POINT OF ANALYSIS WITHING CHANNEL IS MORE THAN 100 TIMES GREATER THAN THE CONTRIBUTING DRAINAGE AREA OF THE DEVELOPMENT SITE, PER 6-0203.3A, THE OUTFALL IS ADEQUATE.

SUMMARY:

THIS PLAN WILL CONTINUE TO HONOR ALL EXISTING MAJOR DRAINAGE DIVIDES. NO DIVERSION OF WATER FROM ONE MAJOR WATERSHED TO ANOTHER IS PROPOSED WITH THIS PLAN. NO DETRIMENTAL EFFECTS TO THE DOWNSTREAM DRAINAGE SYSTEM WILL OCCUR FOLLOWING CONSTRUCTION OF THE IMPROVEMENTS PROPOSED UNDER THIS SITE PLAN. OVERLAND RELIEF IS PROVIDED ON-SITE THROUGH THE PROPOSED GRADING AND DRIVE AISLES IN THE EVENT THE STORM SYSTEM BECOMES CLOGGED. ALL SITE OUTFALLS HAVE BEEN ANALYZED PER SECTION 6-0200 OF THE PFM. IT IS THE PROFESSIONAL OPINION OF THIS FIRM THAT ALL OUTFALLS ARE ADEQUATE AND IN THE EVENT OF THE 100-YEAR STORM, THERE WILL BE NO FLOODING OF EXISTING DOWNSTREAM DWELLINGS OR BUILDINGS CONSTRUCTED UNDER AN APPROVED BUILDING PERMIT, NOR WILL THERE BE ANY AGGRAVATION TO AN EXISTING FLOODING CONDITION AS A RESULT OF THE DEVELOPMENT OF THIS SITE.

Application No. SE 2010-SP-029 Staff B.K.

APPROVED (SE) SP PLAN
SEE DEV CONDS DATED March 8, 2011
Date of (BOS) (BZA) Approval March 8, 2011

Sheet 6 of 15
Concurrent w/ SPA 78-P-192-03

NO.	DESCRIPTION	DATE
2	ADDRESS COUNTY COMMENTS	02/25/11
1	ADDRESS COUNTY PRESTAFFING COMMENTS	12/27/10

REVISION BLOCK

THIS SHEET IS FOR INFORMATION ONLY !!!

Community Association Engineering
a division of **GJB Engineering, Inc.**
P.O. Box 1214
Newington, Virginia 22122
phone: 703-641-2000
internet: www.gjbengineering.com

THE SUBMITTING ENGINEER CERTIFIES THAT NO OTHER CHANGES HAVE BEEN MADE ON THE PLAN OR PROFILE EXCEPT THOSE PREVIOUSLY APPROVED.

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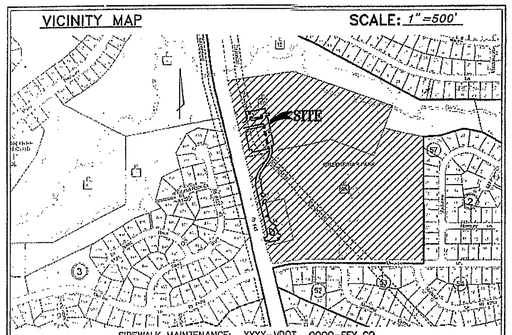
SPECIAL EXCEPTION PLAT
PLEASANT VALLEY PRESCHOOL
SPRINGFIELD MAGISTERIAL DISTRICT FAIRFAX COUNTY, VIRGINIA

SCALE: 1"=750'
DATE: REVISED DATE SEPT. 28, 2010
GJB FILE NO.: 756-SEP
SHEET: 6 OF 6

05-126-H

VICINITY MAP

SCALE: 1"=500'



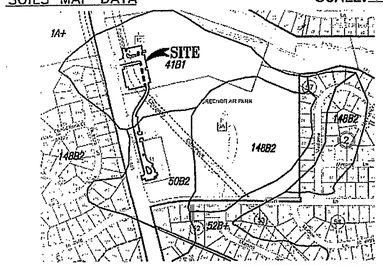
SIDEWALK MAINTENANCE: XXXX-VDOT, OOOO-FFX CO
TRAIL MAINTENANCE: OOOO-FFX CO
ALL OTHER WALKS/TRAILS TO BE OWNER MAINTAINED

TAX MAP REFERENCE NUMBER(S)

MAP PAGE #	DOUBLE CIRCLE #	BLOCK (SINGLE CIRCLE #)	LOT/PARCEL(S) #
45-3	1		9A
45-3	1		10
45-3	1		11

SOILS MAP DATA

SCALE: 1"=500'



FORMAL SOILS REPORT TO BE APPROVED PRIOR TO SECOND SUBMISSION
SOILS MAP SOURCE: ☒ COUNTY MAP: ☐ PRIVATE SOILS SCIENTIST (FOR UNMAPPED SITES)

SOIL ID NUMBERS	SOIL SERIES NAME	FOUNDATION SUPPORT	SUBSURFACE DRAINAGE	SLOPE STABILITY	ERODABILITY	PROBLEM CLASS
1A+	MIXED ALLUVIAL	POOR-F,B,W	POOR-F,W	0-2%	LOW	A
41B1	ROCKY LAND-IREDELL	MARGINAL-BCP	MARGINAL-CPR	2-7%	LOW	A
50B2	IREDELL-MECKLENBURG	MARGINAL-BCP	MARGINAL-CPR	2-7%	MODERATE	A
14BB2	IREDELL-MECKLENBURG	POOR-BCP	MARGINAL-CPR	2-7%	MODERATE	A

SOILS WITH IDENTIFICATION NUMBERS 59, 66, 69, 141, 142, AND 152 MAY OVERLIE PARENT BEDROCK FORMATIONS WHICH HAVE BEEN FOUND TO CONTAIN NATURALLY OCCURRING ASBESTOS MINERALS. SPECIAL MINIMUM CONSTRUCTION MEASURES AND PRECAUTIONS ARE REQUIRED IN COMPLIANCE WITH HEALTH DEPARTMENT DIRECTIVES WITHIN THESE SOILS OR WITHIN FILL ORIGINATING FROM THESE SOILS.

I HEREBY CERTIFY THAT ALL WETLANDS PERMITS REQUIRED BY LAW WILL BE OBTAINED PRIOR TO COMMENCING LAND DISTURBING ACTIVITIES.

SIGNATURE

OWNER/DEVELOPER JOHN D. CUMMINGS (NAME) OWNER'S AGENT (TITLE)

NO.	DESCRIPTION	REVIEW BY	APPROVED	DATE

REVISIONS APPROVED BY DIVISION OF DESIGN REVIEW

PROJECT OVERVIEW

THIS PROJECT PROPOSES TO UPGRADE THE PARKING AREA FOR GREENBRIAR PARK IN CONJUNCTION WITH VDOT'S STRINGFELLOW ROAD WIDENING/IMPROVEMENT PLAN (VDOT PLAN#0645029384C501). THESE UPGRADES SHOWN WITH THIS PLAN WILL TAKE PLACE ON PROPERTIES OWNED BY THE FAIRFAX COUNTY PARK AUTHORITY AND THE GREENBRIAR CIVIC ASSOCIATION, INC. VDOT WILL BE CONSTRUCTING THESE IMPROVEMENTS AS PART OF AN AGREEMENT WITH THE FAIRFAX COUNTY PARK AUTHORITY AND THE GREENBRIAR CIVIC ASSOCIATION, INC. IN RETURN FOR THE RIGHT OF WAY NECESSARY TO COMPLETE THE STRINGFELLOW WIDENING. THE SUBJECT PARCELS ARE LOCATED TO THE EAST OF STRINGFELLOW ROAD (ROUTE 645) AND NORTH OF THE INTERSECTION OF STRINGFELLOW ROAD AND MELVILLE LANE (ROUTE 4978). CURRENTLY, ON THE PARK AUTHORITY'S PROPERTY, THERE IS ONLY A LARGE GRAVEL AREA AND PARKING IS FIRST COME FIRST SERVE. THERE ARE ALSO A FEW PARKING SPACES ON THE CIVIC ASSOCIATION'S PROPERTY. BY UPGRADING THIS AREA TO ASPHALT AND ADDING PAVEMENT MARKINGS, THE FUNCTIONALITY AND AESTHETICS OF THE OVERALL PARK WILL BE INCREASED. THE NEW PARKING LOT WILL UTILIZE TRAVELWAYS TO CONNECT THE PARK AUTHORITY'S PROPERTY WITH THE CIVIC ASSOCIATION'S AND CREATE A REASONABLE TRAFFIC PATTERN THROUGH THE SITE. ADDITIONAL IMPROVEMENTS TO THE SITE INCLUDE STORM SEWER IMPROVEMENTS AND VARIOUS LOW IMPACT STORM WATER MANAGEMENT AND BEST MANAGEMENT PRACTICES MEASURES. THE SITE IS LOCATED WITHIN THE CUB RUN WATERSHED. THE TOTAL DISTURBED AREA ASSOCIATED WITH THIS SITE PLAN IS APPROXIMATELY 3.74 ACRES. THE EXISTING STORM STRUCTURES SHOWN IN THIS PLAN ARE PROPOSED WITH VDOT'S STRINGFELLOW WIDENING PLAN. THERE IS A 50' COLONIAL PIPE LINE EASEMENT BISECTING THE SITE IN THE NORTHERN AREA OF THE PROJECT. THE PIPES' EXACT LOCATION AND DEPTHS WILL NEED TO BE CONFIRMED BY THE CONTRACTOR. THE PROPOSED GRADING ABOVE THESE EASEMENTS WILL BE HELD VERY CLOSE TO THE CURRENT GRADES SO AS TO NOT AFFECT THE AMOUNT OF COVER CURRENTLY OVER THESE PIPES. EXTRA CAUTION WILL BE TAKEN WHEN WORKING IN THE EASEMENT AREA. IT SHOULD ALSO BE NOTED THAT THE GREENBRIAR CIVIC ASSOCIATION HAS AN EXISTING BUILDING ON-SITE THAT SERVES AS A COMMUNITY CENTER. THIS FACILITY IS AROUND 2,000 SQUARE FEET IN SIZE. NO IMPROVEMENTS OR ADDITIONS WILL BE MADE TO THIS FACILITY WITH THIS MINOR SITE PLAN. THIS MINOR SITE PLAN SHALL BE KNOWN AS "GREENBRIAR PARK IMPROVEMENTS."

EROSION AND SEDIMENT CONTROL

ALL EROSION AND SEDIMENT CONTROLS THAT SHALL BE USED FOR THIS PLAN WILL BE IN ACCORDANCE WITH THE DETAILS ON SHEET 6 OF THE VESCH. THE CONTROLS SHALL BE INSTALLED AS SHOWN ON THE TWO PHASED E&S PLAN WHICH CAN BE SEEN ON SHEETS 8 AND 9. A DETAILED NARRATIVE CAN BE SEEN ON SHEET 7.

SOILS

THE SOILS REPORT FOR THIS PROJECT WAS PREPARED AS AN ADDENDUM TO THE REVISED SOIL SURVEY AND PAVEMENT DESIGN RECOMMENDATIONS FOR THE WIDENING OF ROUTE 645 STRINGFELLOW ROAD TO FOUR LANES PREPARED BY THE VIRGINIA DEPARTMENT OF TRANSPORTATION AND DATED MAY 21, 2008. THE ADDENDUM CAN BE SEEN ON SHEET 23.

TRAILS

THERE ARE NO TRAILS PROPOSED WITH THIS MINOR SITE PLAN. VDOT'S STRINGFELLOW ROAD WIDENING/IMPROVEMENT PLAN DOES PROPOSE A 10' CONCRETE WALK ALONG THE FRONTAGE OF THE SITE WHICH WILL SATISFY THE COUNTY WIDE TRAILS PLAN.

BEST MANAGEMENT PRACTICES (BMP) / CHESAPEAKE BAY

BMP'S FOR THIS PROJECT WILL BE PROVIDED THROUGH THE USE OF CONSERVATION AREAS/EASEMENTS AND PERVIOUS PAVEMENT. PLEASE SEE SHEET 13 FOR DETAILS.

STORMWATER DETENTION

STORMWATER DETENTION FOR THIS PROJECT WILL BE PROVIDED FOR THE ADDITIONAL IMPERVIOUS AREA CREATED. THE REQUIRED STORAGE VOLUME HAS BEEN PROVIDED IN A STONE BED UNDER THE PERVIOUS PAVEMENT SECTIONS. PLEASE SEE SHEETS 16 THROUGH 19 FOR COMPUTATIONS AND SHEET 14 AND 15 FOR DETAILS.

DRAINAGE ANALYSIS

THERE WILL BE A NET INCREASE IN THE PEAK STORMWATER RUNOFF AND STORMWATER MANAGEMENT MEASURES HAVE BEEN TAKEN TO REDUCE THIS FLOW. THE EXISTING STORM WATER PIPE NETWORK PROPOSED WITH THE STRINGFELLOW ROAD PLAN IS ADEQUATE TO TRANSPORT THIS FLOW TO BIG ROCKY RUN. PLEASE SEE SHEET 12 FOR ADEQUATE OUTFALL ANALYSIS AND STORM WATER CALCULATIONS.

STREET LIGHTS

PROPOSED ALONG STRINGFELLOW ROAD WITH VDOT'S STRINGFELLOW ROAD WIDENING/IMPROVEMENT PLAN (#0645029384C501).

FRONTAGE/RIGHT-OF-WAY IMPROVEMENTS

ALL FRONTAGE IMPROVEMENTS, INCLUDING VDOT DEDICATIONS ARE EXISTING ALONG STRINGFELLOW ROAD HAVE BEEN PROPOSED WITH VDOT'S STRINGFELLOW ROAD WIDENING/IMPROVEMENT PLAN (#0645029384C501).

TRANSITIONAL SCREENING AND BARRIERS

NO CHANGES TO THE TRANSITIONAL SCREENING AND BARRIER REQUIREMENTS ARE PROPOSED WITH THIS MINOR SITE PLAN. HOWEVER, LANDSCAPING BASED OFF OF SE 2010-SP-029 AND SPA 78-P-192-03 HAS BEEN INCLUDED ON SHEET 20. IT SHOULD BE NOTED THAT VDOT'S STRINGFELLOW ROAD WIDENING/IMPROVEMENT PLAN INTENDS TO PLANT NUMEROUS TREES THROUGHOUT THE FRONTAGE OF THAT PROJECT UPON COMPLETION.

TREE COVER COMPUTATIONS

ONLY INTERIOR PARKING LOT LANDSCAPING AND PERIPHERAL PARKING LOT LANDSCAPING FOR THE NEW PARKING AREAS HAVE BEEN PROVIDED.

INTERIOR PARKING LOT LANDSCAPING

SEE SHEETS 20 FOR DETAILS OF THE INTERIOR PARKING LOT LANDSCAPING.

OUTFALL NARRATIVE

THE SITE IS LOCATED WITHIN GREENBRIAR PARK. AS THE PROJECT DOES NOT INVOLVE THE ENTIRE AREA OF THE SITE, THE PROJECT AREA TAKES INTO ACCOUNT THE AREA THAT IS AFFECTED BY THE PROPOSED DEVELOPMENT. AS SHOWN ON THE OVERALL DRAINAGE MAP ON SHEET 17, THE ENTIRE PROJECT AREA DRAINS WEST TOWARDS STRINGFELLOW ROAD. THE RUNOFF IS COLLECTED IN A DRAINAGE DITCH LOCATED ALONG STRINGFELLOW ROAD. THIS DITCH OUTFALLS INTO STORM STRUCTURES ALONG STRINGFELLOW ROAD. THIS STORM SYSTEM ULTIMATELY OUTFALLS INTO BIG ROCKY RUN. THE TOTAL CONTIBUTING DRAINAGE AREA FROM THE STORM SYSTEM AT THE OUTFALL POINT AT BIG ROCKY RUN IS APPROXIMATELY 11.52 AC. AS SHOWN ON THE OVERALL DRAINAGE MAP ON SHEET 17, THE TOTAL DRAINAGE AREA TO BIG ROCKY RUN AT THE INTERSECTION WITH STRINGFELLOW ROAD IS APPROXIMATELY 2,170 AC. AS THE TOTAL DRAINAGE AREA AT THE POINT OF ANALYSIS IS MORE THAN 100 TIMES GREATER THAN THE CONTIBUTING DRAINAGE AREA OF THE DEVELOPMENT SITE, PER 6-0203.2B, THIS MARKS THE EXTENT OF REVIEW FOR THE OUTFALL. AS BIG ROCKY RUN IS A NATURAL WATERCOURSE AND THE TOTAL DRAINAGE AREA TO THE POINT OF ANALYSIS WITHIN THE CHANNEL IS MORE THAN 100 TIMES GREATER THAN THE CONTRIBUTING DRAINAGE AREA OF THE DEVELOPMENT SITE, PER 6-0203.3A, THE OUTFALL IS ADEQUATE.

IT IS OUR PROFESSIONAL OPINION THAT IN THE EVENT OF THE 100-YEAR STORM EVENT, RUNOFF WILL EXIT THIS SITE BEFORE FLOODING ANY OF THE STRUCTURES REFLECTED HEREON.

WATERSHED

CUB RUN

DISTURBED AREA IN WATERSHED

3.74 ACRES

WETLANDS

THERE ARE NO KNOWN WETLANDS ON THIS PARCEL.

RPA CERTIFICATION

THIS PROJECT CONFORMS TO THE CHESAPEAKE BAY PRESERVATION ORDINANCE AMENDMENT WHICH WAS ADOPTED BY THE BOARD OF SUPERVISORS ON JULY 7, 2003; EFFECTIVE ON NOVEMBER 18, 2003 AND AMENDMENTS THROUGH JULY OF 2005. THERE ARE NO RPA'S LOCATED WITHIN THE LIMITS OF DISTURBANCE.

OVERLAND RELIEF STATEMENT

THIS SITE HAS BEEN GRADED TO PROVIDE OVERLAND RELIEF IN THE EVENT OF BLOCKAGE OR FAILURE OF THE STORM SEWER SYSTEM.

ARMY CORPS OF ENGINEERS NOTE

A COPY OF THIS MINOR SITE PLAN WAS SENT TO THE ARMY CORPS OF ENGINEERS ON SEPTEMBER 18, 2009 PER THE REQUIREMENTS OF THE "LETTER TO INDUSTRY" #06-03 DATED APRIL 13, 2006.

GENERAL NOTES

1. THE BOUNDARY INFORMATION DEPICTED HEREON IS TAKEN FROM FIELD-RUN SURVEYS DONE BY THIS FIRM. PARCEL 45-3((1))-9A WAS CREATED IN DEED BOOK 3506 AT PAGE 17; PARCEL 45-3((1))-10 WAS CREATED IN DEED BOOK 5534 AT PAGE 1041; PARCEL 45-3((1))-11 WAS CREATED IN DEED BOOK 3506 AT PAGE 22.
2. THE TOPOGRAPHY INFORMATION DEPICTED HEREON IS TAKEN FROM FIELD SURVEYS DONE BY THIS FIRM. (CONTOUR INTERVAL = 2', USGS DATUM)
3. ALL STANDARD PARKING SPACES SHALL BE 8.5 FEET WIDE WITH A STALL DEPTH OF 18 FEET, UNLESS OTHERWISE DIMENSIONED. A 1.5' REDUCTION IS ALLOWED WHERE WHEEL STOPS OR CURB IS PROVIDED.
4. ALL HANDICAPPED SPACES SHALL CONFORM WITH THE REQUIREMENTS OF THE AMERICANS WITH DISABILITIES ACT. HC SPACES SHALL BE 8' WIDE, MINIMUM. HC ACCESS AISLE SHALL BE 8' WIDE FOR VAN ACCESSIBLE SPACES AND 5' WIDE FOR OTHER ACCESS AISLES.
5. ALL DRIVE AISLES SHALL BE A MINIMUM OF 23 FEET WIDE, UNLESS OTHERWISE SHOWN.
6. ALL RADII SHALL BE 5 FEET UNLESS OTHERWISE SPECIFIED.
7. A 100 YEAR FLOOD PLAIN AND A RESOURCE PROTECTION AREA HAVE BEEN LOCATED ON THIS SITE. BOTH AREAS WILL NOT BE DISTURBED DURING CONSTRUCTION AND THE REQUIREMENTS OF THE COUNTY'S CHESAPEAKE BAY PRESERVATION ORDINANCE AND DETENTION REQUIREMENTS HAVE BEEN MET ON-SITE.
8. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO ADEQUATELY PROTECT THE PUBLIC FROM ONGOING CONSTRUCTION OPERATIONS AND PROVIDE A SAFE WORK ENVIRONMENT IN ACCORDANCE WITH OSHA AND OTHER FEDERAL, STATE, AND LOCAL ORDINANCES.
9. ACCORDING TO THE DEEDS OF RECORD FOR THIS PROPERTY, THE COUNTY'S PUBLISHED ZONING AND TOPOGRAPHY MAPS, AND FROM AN ON-SITE VISIT; NO DELINEATION OF ANY GRAVE, OBJECT, OR STRUCTURE MARKING A PLACE OF BURIAL WAS INDICATED ON-SITE.
10. BASED UPON INSPECTIONS, NO HAZARDOUS WASTES, TOXIC SUBSTANCES OR PETROLEUM PRODUCTS HAVE BEEN GENERATED, UTILIZED, STORED, TREATED OR DISPOSED OF ON THIS SITE.
11. METHODS AND MATERIALS USED SHALL CONFORM TO CURRENT FAIRFAX COUNTY AND VDOT STANDARDS AND SPECIFICATIONS.
12. IF NECESSARY, ALL UTILITIES, INCLUDING ALL POLES, ARE TO BE RELOCATED AT THE DEVELOPER'S EXPENSE, PRIOR TO CONSTRUCTION.
13. OPEN CUTTING OF PAVED OR SURFACE TREATED ROADS IS NOT PERMITTED. ALL UTILITIES, WHICH WILL BE PLACED UNDER EXISTING STREETS ARE TO BE BORED OR JACKED. ANY EXCEPTIONS, DUE TO EXTENUATING CIRCUMSTANCES, ARE TO BE ADDRESSED AT THE PERMIT STAGE.
14. THE DEVELOPER IS RESPONSIBLE FOR THE REHABILITATION OF ANY EXISTING PAVEMENT, SIDEWALKS AND/OR UTILITIES WITHIN OR CONTIGUOUS TO EXISTING RIGHT-OF-WAY WHICH ARE DAMAGED AS A RESULT OF PROJECT CONSTRUCTION.
15. ADDITIONAL DITCH LININGS OR SILTATION AND EROSION CONTROL MEASURES SHALL BE PROVIDED, AT THE DEVELOPER'S EXPENSE, AS DETERMINED NECESSARY BY VDOT AND/OR FAIRFAX COUNTY DURING FIELD REVIEW. ALL COSTS SHALL BE ASSUMED BY THE DEVELOPER.
16. FAIRFAX COUNTY SHALL OBTAIN A PERMIT FOR ALL SIDEWALKS WITHIN THE R/W THAT DO NOT QUALIFY FOR VDOT MAINTENANCE.
17. ALL STORM SEWER ON-SITE IS TO BE PRIVATELY MAINTAINED, UNLESS OTHERWISE INDICATED BY A COUNTY EASEMENT.
18. THE EXISTING UNDERGROUND UTILITIES SHOWN HEREON ARE BASED UPON AVAILABLE INFORMATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION OF ALL UTILITIES BEFORE COMMENCING WORK AND FOR ANY DAMAGES WHICH OCCUR BY HIS FAILURE TO LOCATE OR PRESERVE THESE UNDERGROUND UTILITIES IF DURING CONSTRUCTION OPERATIONS THE CONTRACTOR SHOULD ENCOUNTER UTILITIES OTHER THAN THOSE SHOWN ON THE PLANS, HE SHALL IMMEDIATELY NOTIFY THE ENGINEER AND TAKE NECESSARY AND PROPER STEPS TO PROTECT THE FACILITY AND ASSURE CONTINUANCE OF SERVICE.
19. ALL CONSTRUCTION SHALL CONFORM TO FAIRFAX COUNTY AND VIRGINIA DEPARTMENT OF TRANSPORTATION STANDARDS AND SPECIFICATIONS.
20. TEST PITS SHALL BE REQUESTED A MINIMUM OF 48 HOURS IN ADVANCE FOR THOSE UTILITIES REQUIRING THEM.
21. FILL TO BE COMPACTED TO 95% OF MAXIMUM DENSITY AS DETERMINED BY ASTM SPECIFICATION D-698, WITHIN PLUS OR MINUS 2% OF OPTIMUM MOISTURE CONTENT, UNLESS OTHERWISE SPECIFIED BY THE GEOTECHNICAL REQUIREMENTS.
22. ALL NON-STANDARD PIPES SIZES SHALL COMPLY WITH FAIRFAX COUNTY BUILDING CODE REQUIREMENTS.
23. A NON-EXCLUSIVE EASEMENT FOR INGRESS-EGRESS, PUBLIC EMERGENCY AND MAINTENANCE AND POLICE VEHICLES IS HEREBY GRANTED TO FAIRFAX COUNTY.

CONSTRUCTION NOTES

1. ALL SUBGRADE, SUBBASE, BASE AND SHOULDER MATERIAL SHALL BE PLACED AND COMPACTED TO A MINIMUM OF 95% MAXIMUM DRY DENSITY AT OPTIMUM MOISTURE CONTENT WITHIN THE TOLERANCE SPECIFIED IN THE CURRENT EDITION OF THE V.D.O.T. ROAD AND BRIDGE SPECIFICATIONS.
2. THE CONTRACTOR SHALL PROVIDE ADEQUATE MEANS OF CLEANING TRUCKS AND OR OTHER EQUIPMENT OF MUD PRIOR TO ENTERING THE RIGHT-OF-WAY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CLEAN ALL STREETS, ALLAY DUST AND TAKE WHATEVER MEASURES NECESSARY TO INSURE THE ROAD(S) ARE MAINTAINED IN A CLEAN, MUD AND DUST FREE CONDITION AT ALL TIMES.
3. ADJUST MANHOLE, VALVE, AND METER BOX COVERS BEFORE PLACING ASPHALT SEAL CAP.
4. PROPOSED TOP OF CURB GRADES SHALL BE FIELD ADJUSTED AS REQUIRED TO CONFORM TO THE INTENT OF THE TYPICAL SECTION. A SMOOTH GRADE SHALL BE MAINTAINED FROM THE CENTERLINE TO THE PROPOSED EDGE OF PAVEMENT OR FACE OF CURB TO PRECLUDE THE FORMING OF FALSE GUTTERS AND/OR THE PONDING OF WATER ON THE ROADWAY. THE EXISTING PAVEMENT SHALL BE RECAPPED, MILLED AND/OR REMOVED AND REPLACED AS REQUIRED TO ACCOMPLISH THIS REQUIREMENT. ALL CURB FORMS SHALL BE INSPECTED FOR HORIZONTAL AND VERTICAL ALIGNMENT BY FAIRFAX COUNTY OR THEIR AUTHORIZED REPRESENTATIVES PRIOR TO PLACING OF CONCRETE.
5. THE CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS WITH SEED AND MULCH OR SOD IN ACCORDANCE WITH THE RESTORATION SCHEDULE NOTED ON THE APPROPRIATE PLAN SHEET.
6. THE PAVEMENT DESIGN IN THE CONSTRUCTION PLANS WAS PREPARED BASED ON PRELIMINARY SUBSURFACE INFORMATION INCLUDING LABORATORY CALIFORNIA BEARING RATIO (CBR) TESTS THAT WERE PERFORMED. WHEN THE CONTRACTOR REACHES THE SUBGRADE ELEVATION, ADDITIONAL CBR TEST LOCATIONS MAY BE DIRECTED BY THE GEOTECHNICAL ENGINEER FOR SELECTED LOCATIONS BASED ON ACTUAL FIELD CONDITIONS OBSERVED. THE CBR SAMPLES AND TESTS SHALL BE PERFORMED BY THE COUNTY MATERIAL TESTING LABORATORY OR A GEOTECHNICAL ENGINEERING FIRM UNDER CONTRACT WITH THE FAIRFAX COUNTY. THE RESULTS OF THE ENGINEER'S EVALUATION OF THE CBR LABORATORY TESTS SHALL BE OBTAINED IN WRITING PRIOR TO THE PLACEMENT OF ANY SUBBASE OR BASE MATERIAL IN THE AREA(S) UNDER CONSIDERATION. THE PROPOSED PAVEMENT DESIGN FOR THE AREA(S) UNDER CONSIDERATION WILL EITHER BE CONFIRMED OR ADJUSTED BY THE ENGINEER BASED ON THE RESULT OF THE CBR TEST RESULTS.

County of Fairfax, Virginia

Supervisor Pat Herrity
Board Matter
November 16, 2010
Concurrent Processing and Expediting
of SE 2010-SP-029 and SPA 78-P-192-03

Background: SE 2010-SP-029 (concurrent with SPA 78-P-192-03) is a request by the Pleasant Valley Preschool to amend their existing special permit for a community center and to request a special exception for a child care center, to permit the continued operation of the existing pre-school, with minor site modifications. The Pleasant Valley Preschool currently operates within the Greenbriar Community Center on Stringfellow Road under special permit, which permitted both the community center and child care uses. The widening of Stringfellow Road has required the granting of easements and other considerations from both the Park Authority and the Greenbriar Civic Association; in lieu of payment, an agreement was reached which would provide for the construction of the proposed joint parking lot, which will connect the existing Greenbriar Community Center parking lot with the adjacent Park Authority parking lot, and permit the implementation of a shared parking agreement for the benefit of all. There are no changes to the operation of the preschool, including the maximum enrollment of 15; staff of 3; or the hours of operation, which are from 9:00 am to noon, Monday through Friday. As child care uses are no longer governed by special permit, it is necessary to file a new special exception for the child care use.

Motion: Due to the straightforward nature of this application, I move that the public hearings for the applications be expedited and that all plans associated with these applications be concurrently processed. The applicant is aware that this action should not be construed to prejudice the consideration of these applications in any way.

Application No. SE 2010-SP-029 Staff B.K.

APPROVED SE / SP PLAN
SEE DEV CONDS DATED March 8, 2011
Date of (BOS) / (BZA) Approval March 8, 2011

Sheet 7 of 15
Concurrent w/ SPA 78-P-192-03

SUPERVISOR PAT HERRITY
SPRINGFIELD DISTRICT
FAIRFAX COUNTY BOARD OF SUPERVISORS
6140 Rolling Road
Springfield, VA 22152
703-451-8373 TTY 711 Fax 703-451-3047
Springfield@fairfaxcounty.gov

SITE TABULATIONS

ZONE = R-3C, R-3
USE = RECREATION FACILITY, PARKS (GOVERNMENT) - OUTDOOR BALL FIELDS
PARCEL AREAS: 24.0482+12.5043+1.5180=38.0711 ACRES (1,658,377 SQUARE FEET)

MAXIMUM BUILDING HEIGHT:
NO PROPOSED BUILDING

GROSS FLOOR AREA:
NO PROPOSED BUILDING

FLOOR AREA RATIO (FAR):
NO PROPOSED BUILDING

OPEN SPACE:
REQUIRED 50%=829,189 SQUARE FEET
PROPOSED 85%=1,409,620 SQUARE FEET

YARD REQUIREMENTS:
NO PROPOSED BUILDING

PARKING TABULATIONS

PARKING SHOWN IN THIS MINOR SITE PLAN IS FOR GREENBRIAR PARK

THE PARKING REQUIRED FOR THIS SITE IS TO BE DETERMINED BY THE DIRECTOR, HOWEVER FCPA HAS STATED THAT THEY WOULD LIKE 190 SPACES.

PARKING PROVIDED: 185 SPACES
HANDICAP SPACES REQUIRED: 6
HANDICAP SPACES PROVIDED: 6 (6 VAN ACCESSIBLE)
TOTAL SPACES PROVIDED: 191

LOADING SPACES REQUIRED: 0
LOADING SPACES PROVIDED: 0

SHEET INDEX

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2 OVERALL PLAN
3 EXISTING CONDITIONS
4 MINOR SITE PLAN
5 MINOR SITE PLAN
6 EROSION & SEDIMENT CONTROL NOTES & DETAILS
7 EROSION & SEDIMENT CONTROL NOTES & NARRATIVE
8 EROSION & SEDIMENT CONTROL PLAN - PHASE I
9 EROSION & SEDIMENT CONTROL PLAN - PHASE II & DRAINAGE DIVIDE MAP
10 FIRE LANE PLAN
11 STORM SEWER & DITCH PROFILES & COMPUTATIONS
12 ADEQUATE OUTFALL ANALYSIS MAP & NARRATIVE
13 BMP COMPUTATIONS
14 PERVIOUS PAVEMENT DETAILS PERVIOUS PAVEMENT AREA A
15 PERVIOUS PAVEMENT DETAILS PERVIOUS PAVEMENT AREA B
16 SWM COMPUTATIONS PERVIOUS PAVEMENT AREA A
17 SWM COMPUTATIONS PERVIOUS PAVEMENT AREA A
18 SWM COMPUTATIONS PERVIOUS PAVEMENT AREA B
19 SWM COMPUTATIONS PERVIOUS PAVEMENT AREA B
20 LANDSCAPE PLAN
21 LANDSCAPE NOTES AND DETAILS
22 MISC. DETAILS
23 GEOTECHNICAL ADDENDUM

THESE SHEETS FROM VDOT PLAN#0645029384C501 HAVE BEEN INCLUDED FOR INFORMATION PURPOSES ONLY!

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JOHN DAVID CUMMINGS
LICENSED PROFESSIONAL ENGINEER
1-7-11

COVER SHEET & NOTES/TABULATIONS & DETAILS

GREENBRIAR PARK IMPROVEMENTS
SPRINGFIELD MAGISTERIAL DISTRICT
FAIRFAX COUNTY, VIRGINIA
3230-MSP-03-2

REVISIONS:

DATE: JANUARY 7, 2011
SCALE: AS SHOWN
DESIGN: JDC/NVD
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ARCH: N/A
JOB NUMBER: 05-126-H
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SHEET: SPECIAL EXCEPTION
6A OF 6

DRAWING NAME: M:\WORK\04030\04030HG\Siteplan\MINOR SITE PLAN.001-NOTES.dwg 5/29/2007 9:24:15 AM EDT

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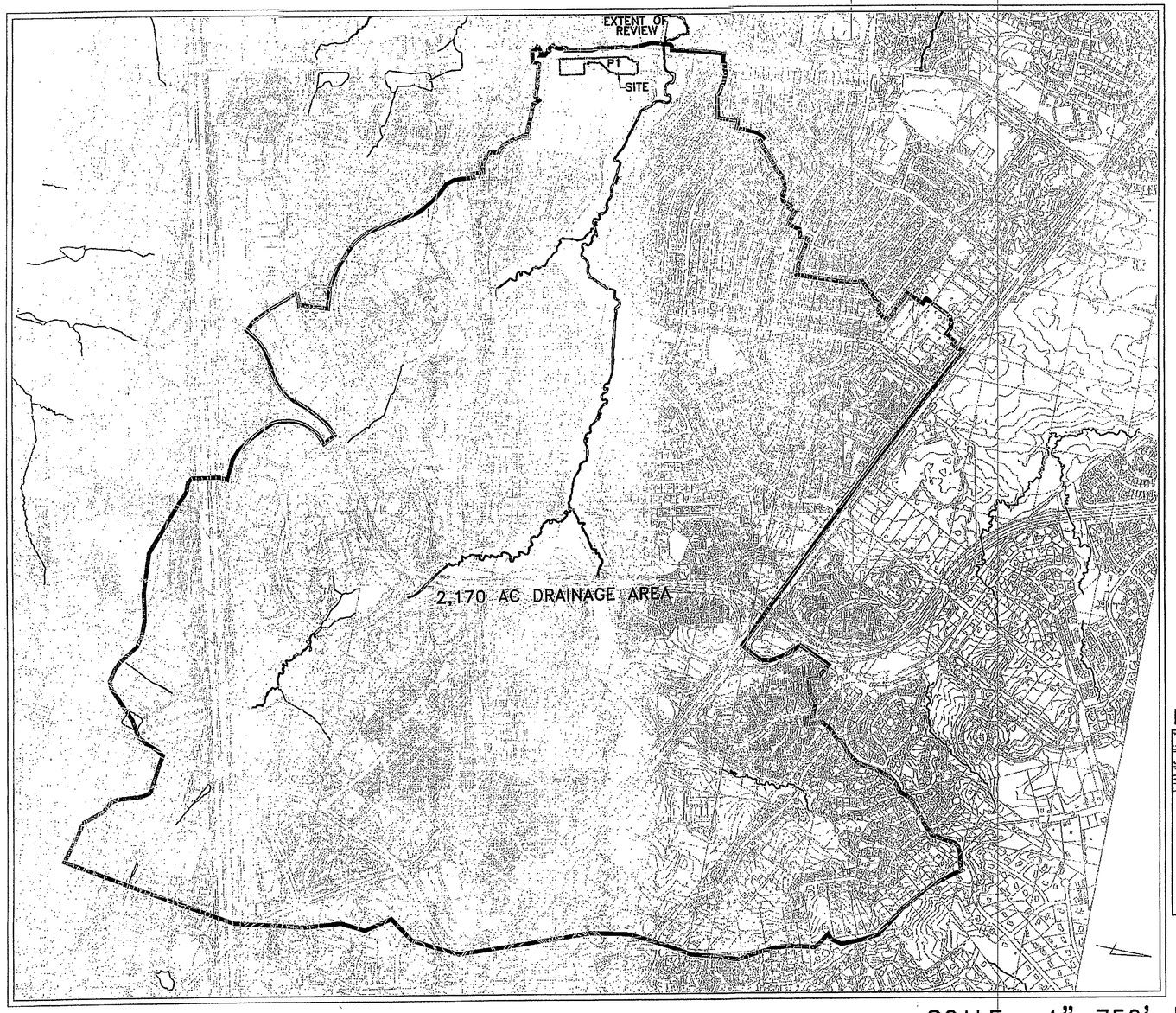


SCALE: 1"=750'

ADEQUATE OUTFALL NARRATIVE

PROJECT OVERVIEW:

THIS PROJECT PROPOSES ADDITIONS AND IMPROVEMENTS TO THE EXISTING PARKING LOT AT GREENBRIAR PARK. THE SITE IS LOCATED ADJACENT TO STRINGFELLOW ROAD (ROUTE 645), NORTH OF THE INTERSECTION OF STRINGFELLOW ROAD AND MELVILLE LANE. THE SITE IS LOCATED WITHIN THE CUB RUN WATERSHED. THERE ARE TWO EXISTING PARKING LOTS ON SITE, ONE OF WHICH IS GRAVEL. IT IS PROPOSED TO IMPROVE THIS GRAVEL PARKING LOT AND ALSO ADD ADDITIONAL PARKING SPACES. THIS PROJECT ALSO PROPOSES AN ACCESS WAY TO THE GREENBRIAR COMMUNITY CENTER. THE PROJECT ALSO PROPOSES ALL NECESSARY TEMPORARY AND PERMANENT EROSION CONTROL MEASURES TO MEET STATE AND LOCAL REGULATIONS, AS WELL AS A BMP FACILITY TO MEET REQUIREMENTS OF THE CHESAPEAKE BAY PRESERVATION ORDINANCE AND AN UNDERGROUND DETENTION FACILITY TO MEET ALL STATE AND COUNTY STORMWATER DETENTION REQUIREMENTS.

THE SITE CONSISTS OF ONE PRIMARY OUTFALL (P1). PER SECTION 6-0200 OF THE PFM THIS OUTFALL HAS BEEN ANALYZED FOR ADEQUACY AND IS DESCRIBED AS FOLLOWS:

PRIMARY OUTFALLS

P1 (NORTH, CUB RUN)

THE SITE IS LOCATED WITHIN GREENBRIAR PARK, SINCE THIS PROJECT DOES NOT INVOLVE THE ENTIRE AREA OF THE SITE, THE PROJECT AREA INCLUDES ONLY THE AREA THAT IS AFFECTED BY THE PROPOSED DEVELOPMENT. AS SHOWN ON THE OVERALL DRAINAGE MAP ON THIS SHEET, THE ENTIRE PROJECT AREA DRAINS WEST TOWARDS STRINGFELLOW ROAD. THE RUNOFF IS COLLECTED IN A DRAINAGE DITCH LOCATED ALONG STRINGFELLOW ROAD. THIS DITCH OUTFALLS INTO STORM STRUCTURES ALONG STRINGFELLOW ROAD. THESE STORM STRUCTURES WERE PROPOSED WITH VDOT'S STRINGFELLOW ROAD WIDENING/IMPROVEMENT PLAN (#06450293384C501). THE CAPACITIES AND FLOWS WITHIN THE STORM SYSTEM ADJACENT TO THIS PROJECT CAN BE SEEN ON SHEET 11. THE OUTFALL FROM PERVIOUS PAVEMENT AREA "A" TIES DIRECTLY INTO THE VDOT STORM SYSTEM AT STRUCTURE 10-13. THE OUTFALL FROM PERVIOUS PAVEMENT SECTION "B" OUTFALLS FREELY INTO A GRASS SWALE. THE 10-YEAR FLOW OF 0.02 CFS SHOULD BE NON-EROSIVE TO THE EXISTING GRASS SECTION DRAINING INTO THE RPA AND THEN BIG ROCKY RUN. THE STORM SYSTEM ULTIMATELY OUTFALLS INTO BIG ROCKY RUN. THE TOTAL CONTIBUTING DRAINAGE AREA FROM THE STORM SYSTEM AT THE OUTFALL POINT AT BIG ROCKY RUN IS APPROXIMATELY 11.52 AC. AS SHOWN ON THE OVERALL DRAINAGE MAP ON THIS SHEET, THE TOTAL DRAINAGE AREA TO ROCKY RUN AT THE INTERSECTION WITH STRINGFELLOW ROAD IS APPROXIMATELY 2,170 AC. SINCE THE TOTAL DRAINAGE AREA AT THE POINT OF ANALYSIS IS MORE THAN 100 TIMES GREATER THAN THE CONTIBUTING DRAINAGE AREA OF THE DEVELOPMENT SITE, PER 6-0203.2B, THIS MARKS THE EXTENT OF REVIEW FOR OUTFALL P1. BIG ROCKY RUN IS A NATURAL WATERCOURSE AND THE TOTAL DRAINAGE AREA TO THE POINT OF ANALYSIS WITHIN THE CHANNEL IS MORE THAN 100 TIMES GREATER THAN THE CONTRIBUTING DRAINAGE AREA OF THE DEVELOPMENT SITE, THEREFORE PER 6-0203.3A, THE OUTFALL IS ADEQUATE.

SUMMARY:

THIS PLAN WILL CONTINUE TO HONOR ALL EXISTING MAJOR DRAINAGE DIVIDES. NO DIVERSION OF WATER FROM ONE MAJOR WATERSHED TO ANOTHER IS PROPOSED WITH THIS PLAN. NO DETRIMENTAL EFFECTS TO THE DOWNSTREAM DRAINAGE SYSTEM WILL OCCUR FOLLOWING CONSTRUCTION OF THE IMPROVEMENTS PROPOSED UNDER THIS SITE PLAN. OVERLAND RELIEF IS PROVIDED ON-SITE THROUGH THE PROPOSED GRADING AND DRIVE AISLES IN THE EVENT THE STORM SYSTEM BECOMES CLOGGED. ALL SITE OUTFALLS HAVE BEEN ANALYZED PER SECTION 6-0200 OF THE PFM. IT IS THE PROFESSIONAL OPINION OF THIS FIRM THAT ALL OUTFALLS ARE ADEQUATE AND IN THE EVENT OF THE 100-YEAR STORM, THERE WILL BE NO FLOODING OF EXISTING DOWNSTREAM DWELLINGS OR BUILDINGS CONSTRUCTED UNDER AN APPROVED BUILDING PERMIT, NOR WILL THERE BE ANY AGGRAVATION TO AN EXISTING FLOODING CONDITION AS A RESULT OF THE DEVELOPMENT OF THIS SITE.

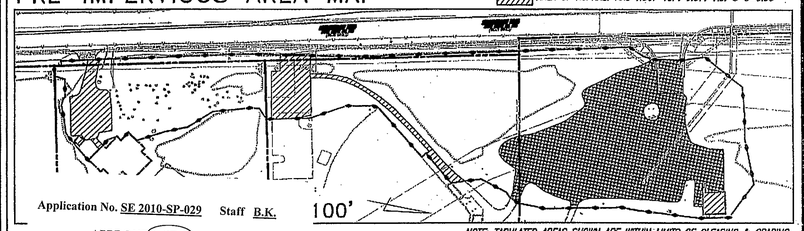
LEGEND

PRE-DEVELOPMENT IMPERVIOUS AREA = 1.353 AC. @ C=0.80

AREA OF GRAVEL: 0.976 AC. @ C=0.75

AREA OF ASPHALT AND ROOF TOP: 0.377 AC. @ C=0.90

PRE-IMPERVIOUS AREA MAP



NOTE: TABULATED AREAS SHOWN ARE WITHIN LIMITS OF CLEARING & GRADING

Application No. SE 2010-SP-029 Staff B.K.

APPROVED SE SP PLAN
SEE DEV CONDS DATED March 8, 2011
Date of (BOS) (BZA) Approval March 8, 2011

Sheet 8 of 15
Concurrent w/ SPA 78-P-192-03

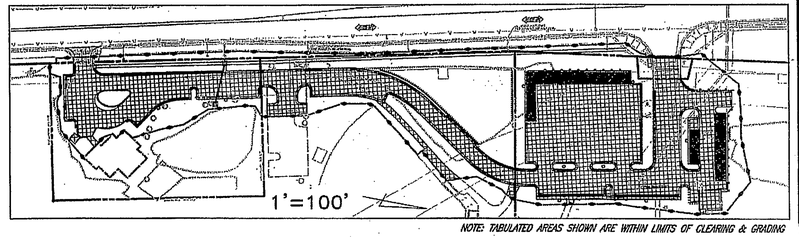
LEGEND

POST-DEVELOPMENT IMPERVIOUS AREA = 1.867 AC.

PERVIOUS PAVEMENT

POST-IMPERVIOUS AREA MAP

NOTE: AREA SHOWN WITHIN LIMITS OF CLEARING & GRADING



NOTE: TABULATED AREAS SHOWN ARE WITHIN LIMITS OF CLEARING & GRADING

NO.	DESCRIPTION	REVIEW BY	APPROVED	DATE

REVISIONS APPROVED BY DIVISION OF DESIGN REVIEW

PRE & POST RUNOFF CALCULATION

TOTAL SITE AREA = 3.803 AC. (WITHIN LIMITS OF CLEARING & GRADING)

PRE-DEVELOPMENT: Q2=[(1.353 AC. x 0.80)+(2.450 AC. x 0.30)] * 5.45 IN/HR = 9.90 CFS
Q10=[(1.353 AC. x 0.80)+(2.450 AC. x 0.30)] * 7.27 IN/HR = 13.21 CFS

POST-DEVELOPMENT: Q2=[[(1.867 AC. - 0.52) x 0.90]+[1.936 AC. x 0.30]] * 5.45 IN/HR + 0.02 CFS + 0.01 CFS = 9.80 CFS
Q10=[[(1.867 AC. - 0.52) x 0.90]+[1.936 AC. x 0.30]] * 7.27 IN/HR + 0.03 CFS + 0.02 CFS = 13.09 CFS

NOTE: ADDITIONAL FLOWS ADDED TO POST DEVELOPMENT EQUATIONS ARE FROM PERVIOUS PAVEMENT AREAS A AND B.

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ADEQUATE OUTFALL ANALYSIS MAP & NARRATIVE

GREENBRIAR PARK IMPROVEMENTS
SPRINGFIELD MAGISTERIAL DISTRICT
FAIRFAX COUNTY, VIRGINIA

REVISIONS:

DATE: SEPTEMBER 15, 2009
SCALE: AS SHOWN
DESIGN: JDC/NVD
DRAFT: JDC/NVD
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ARCH: N/A
JOB NUMBER: 05-126-H
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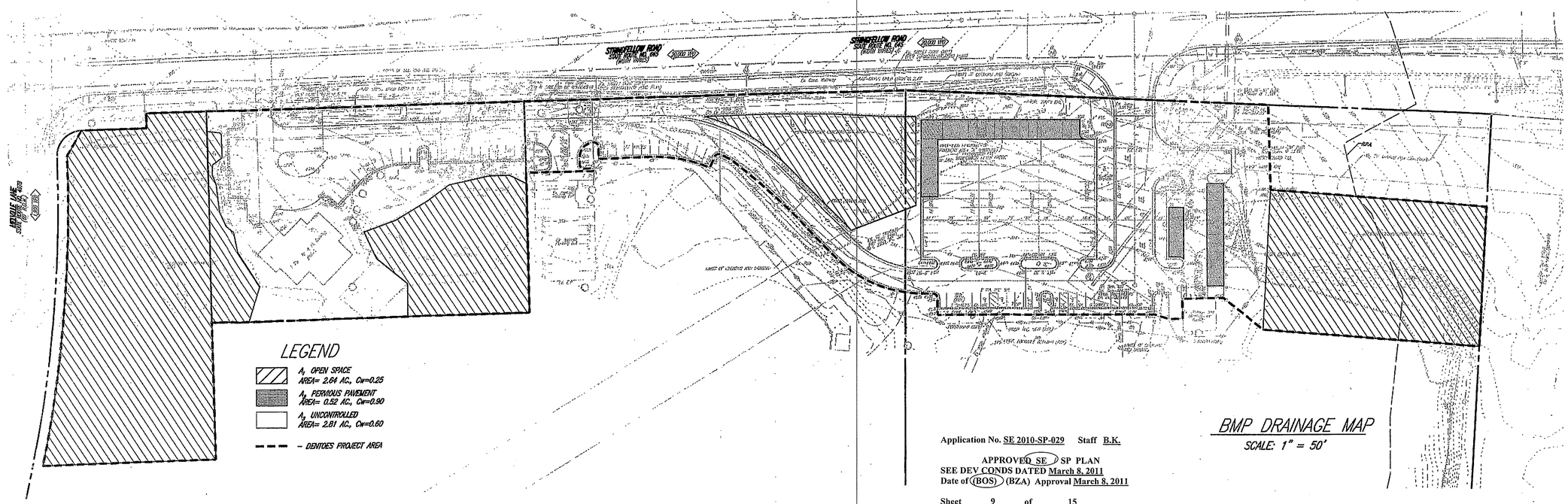

BMP DRAINAGE MAP
SCALE: 1" = 50'

Application No. SE 2010-SP-029 Staff B.K.

APPROVED SE SP PLAN
SEE DEV CONDS DATED March 8, 2011
Date of (BOS) (BZA) Approval March 8, 2011

Sheet 9 of 15
Concurrent w/ SPA 78-P-192-03

BMP FACILITY DESIGN CALCULATIONS

Part 1A: WATER QUALITY NARRATIVE

THE SITE IS LOCATED ALONG STRINGFELLOW ROAD IN FAIRFAX COUNTY TO THE NORTH OF THE INTERSECTION OF STRINGFELLOW ROAD AND MELVILLE DRIVE. THIS SITE IS PART OF GREENBRIAR PARK. IT IS PROPOSED TO CONSTRUCT A PARKING LOT ALONG WITH ASSOCIATED TRAVEL LANES. WE HAVE PROVIDED ON SITE STRUCTURAL METHODS TO PROVIDE BMP FOR THE PROPOSED DEVELOPMENT. FOR THE PURPOSE OF BMP COMPUTATIONS THE SITE AREA IS 3.87 AC. DUE TO THE NATURE OF THE PROJECT, IT IS CLASSIFIED AS REDEVELOPMENT AND THE BMP REQUIREMENT IS MET USING A COMBINATION OF CONSERVATION AREA, PERVIOUS PAVEMENT AND A VEGETATED SWALE. BY USING THE CONSERVATION AREA, PERVIOUS PAVEMENT AND THE VEGETATED SWALE WE HAVE ADOPTED A LOW IMPACT DEVELOPMENT APPROACH TO THE DEVELOPMENT IN ORDER TO MINIMIZE THE WATER QUALITY IMPACTS. THE STRUCTURAL METHODS HAVE BEEN DESIGNED TO PROVIDE COMPREHENSIVE BMPS FOR THE PROPOSED DEVELOPMENT.

Part 1B: WATERSHED INFORMATION

LIST OF SUB AREAS AND "C" FACTORS USED

SUBAREA DESIGNATION AND DESCRIPTION	C	ACRES
(1) IMP. AREA TO PERVIOUS PAVEMENT	0.90	0.52
(2) OPEN SPACE	0.25	2.64
(3) UNCONTROLLED AREA	0.60	2.81

Part 2: COMPUTE WEIGHTED AVERAGE "C" FACTOR FOR THE PROJECT

(A) TOTAL AREA OF THE PARCEL 5.92 AC (SEE BMP NARRATIVE)

(B) SUBAREA DESIGNATION

	C	X	ACRES	= PRODUCT
(1) IMP. AREA TO PERVIOUS PAVEMENT	0.90		0.52	0.47
(2) OPEN SPACE	0.25		2.64	0.66
(3) UNCONTROLLED AREA	0.60		2.81	1.69
		TOTAL=	5.97	TOTAL= 2.82

(C) WEIGHTED AVERAGE "C" FACTOR FOR THE PARCEL= 2.82 / 5.97 = 0.47

Part 3: COMPUTE THE TOTAL PHOSPHORUS REMOVAL FOR THE PARCEL

FOR COMPLIANCE WITH WSPOD PHOSPHORUS REMOVAL, THE PHOSPHORUS REMOVED NEEDS TO BE 50%

SUBAREA DESIGNATION	BMP TYPE	REMOVAL EFFICIENCY	OFF SITE	AREA RATIO	"C" FACTOR RATIO	PRODUCT
(1)	PERVIOUS PAVEMENT	35		0.52 / 5.97	0.90 / 0.47	5.84
(2)	OPEN SPACE	100		2.64 / 5.97	1	44.22
(3)	UNCONTROLLED	0		2.81 / 5.97	0.60 / 0.47	0.00
					(a) TOTAL SITE PHOSPHORUS REMOVAL =	50.06

Part 4: DETERMINE COMPLIANCE WITH PHOSPHORUS REMOVAL REQUIREMENT

(A) SELECT REQUIREMENT FOR THE ENTIRE PARCEL: (a)= 50.00 %

(B) IF LINE 3(A) 50.06 >= Line 4(a) 50.00 then phosphorus removal requirement is satisfied.

Part 5: DETERMINE COMPLIANCE WITH SITE COVERAGE REQUIREMENT

SUM ALL THE UNCONTROLLED ONSITE AREAS AND COMPUTE A WEIGHTED AVERAGE "C" FACTOR. DO NOT INCLUDE QUALIFYING OPEN SPACE.

SUBAREA DESIGNATION	C	X	ACRES	=	PRODUCT
(1) UNCONTROLLED ONSITE AREA	0.60		2.81		1.69
		TOTAL=	2.81	TOTAL=	1.69

(A) TOTAL EQUIVALENT UNCONTROLLED AREA (a) TOTAL 1.69
(B) TOTAL UNCONTROLLED AREA (b) 2.81
(C) WEIGHTED AVERAGE C FACTOR (a)/(b)= (c) 0.60

If line 5(b) < 20% of site area, then site coverage requirement is satisfied.Line 5(a) is the equivalent offsite area for which coverage may be required.

(D) 100 X 2.81 / 5.97 = 47.07 %

Part 6: DETERMINE THE OFFSITE AREAS FOR WHICH COVERAGE IS REQUIRED

For the offsite areas listed in part 1 which flow to proposed onsite BMPs compute the equivalent areas

SUBAREA DESIGNATION	C	X	ACRES	= PRODUCT
(6) N/A	0	X	0	= 0

(SEE PART 3) (a) TOTAL 0 <5(a) = 0

IF THE EQUIVALENT OFFSITE AREA, LINE 6(A),DRAINING TO ALL PROPOSED FACILITIES IS GREATER THAN THE EQUIVALENT UNCONTROLLED AREA OF THE SITE SHOWN IN LINE 5(A); THEN, THE OFFSITE AREA CONTROLLED BY THE PROPOSED BMP FACILITIES MAY BE REDUCED UNTIL THE TWO ARE EQUAL. OTHERWISE, ALL UNCONTROLLED OFFSITE AREAS DRAINING TO THE PROPOSED BMP FACILITIES MUST BE INCLUDED. ALL OFFSITE AREAS THUS REDUCED SHOULD BE MARKED WITH AN "" WHEREVER THEY APPEAR IN THIS COMPUTATIONS.*

Part 7:

COMPUTE THE WEIGHTED C-FACTOR FOR THE PROPOSED BMP FACILITY

(A) LIST THE AREAS TO BE CONTROLLED BY THE PROPOSED BMP.

SUBAREA DESIGNATION	C		ACRES		PRODUCT
(1) OPEN SPACE	0.25	x	2.64	=	0.66
(2) IMPERVIOUS	0.90	x	1.87	=	1.68
			4.46	=	2.34

Part 8: WEIGHTED AVERAGE C FACTOR= 0.52

DETERMINE THE STORAGE REQUIRED

ALL STRUCTURAL BMP'S HAVE BEEN SIZED ACCORDING TO CONTRIBUTING DRAINAGE AREAS. PLEASE REFER TO COMPUTATIONS FOR DETAILS.

PHOSPHOROUS REMOVAL REQUIREMENT

PER SECTION 6-0401.1 OF THE FAIRFAX COUNTY PFM, THE TOTAL PHOSPHOROUS REMOVAL FOR THIS SITE IS 50% BECAUSE THIS SITE IS LOCATED WITHIN THE WSPOD.

MAINTAINENCE NOTE: THE PROPOSED BMP FACILITIES ARE TO BE OWNED AND MAINTAINED BY THE OWNER.

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LICENSED PROFESSIONAL ENGINEER

BMP COMPUTATIONS
GREENBRIAR PARK IMPROVEMENTS
SPRINGFIELD MAGISTERIAL DISTRICT
FAIRFAX COUNTY, VIRGINIA

REVISIONS:

DATE: JANUARY 7, 2011
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ARCH: N/A
JOB NUMBER: 05-126-H
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05-126-H

CONSTRUCTION REQUIREMENTS

1. THE OWNER SHALL PROVIDE FOR INSPECTION DURING CONSTRUCTION OF THE FACILITY BY A LICENSED PROFESSIONAL (IN ACCORDANCE WITH STANDARD PRACTICE, THE ACTUAL INSPECTIONS MAY BE PERFORMED BY AN INDIVIDUAL UNDER RESPONSIBLE CHARGE OF THE LICENSED PROFESSIONAL).
2. THE LICENSED PROFESSIONAL SHALL CERTIFY THAT THE FACILITY WAS CONSTRUCTED IN ACCORDANCE WITH THE APPROVED PLANS.
3. THE LICENSED PROFESSIONAL'S CERTIFICATION ALONG WITH ANY MATERIAL DELIVERY TICKETS AND CERTIFICATIONS FROM THE MATERIAL SUPPLIERS SHALL BE SUBMITTED TO COUNTY PRIOR TO BOND RELEASE.
4. FOR PROJECTS REQUIRING AS-BUILT PLANS, THE REQUIRED CERTIFICATION AND SUPPORTING DOCUMENTS SHALL BE SUBMITTED WITH OR INCORPORATED IN THE AS-BUILT PLANS.
5. FOR PROJECTS THAT DO NOT REQUIRE AS-BUILT PLANS, THE CERTIFICATION AND SUPPORTING DOCUMENTS SHALL BE SUBMITTED WITH THE RUP OR NON-RUP REQUEST.
6. PERVIOUS PAVEMENT FACILITIES SHALL BE CONSTRUCTED AFTER THE DRAINAGE AREA TO THE FACILITY IS COMPLETELY STABILIZED.
7. EROSION AND SEDIMENT CONTROLS FOR CONSTRUCTION OF THE FACILITY SHALL BE INSTALLED AS SPECIFIED IN THE EROSION AND SEDIMENT CONTROL PLAN.
8. PRELIMINARY GRADING OF THE AREA WHERE PERVIOUS PAVEMENT IS TO BE INSTALLED MAY BE PERFORMED AT THE TIME THE REST OF THE SITE IS MASS GRADED PROVIDED THAT POSITIVE DRAINAGE IS MAINTAINED AND THE AREA IS STABILIZED.
9. AREAS WHERE PERVIOUS PAVEMENT IS TO BE INSTALLED SHOULD NOT BE USED FOR TEMPORARY SEDIMENT BASINS.
10. WHERE UNAVOIDABLE, THE INVERT OF THE SEDIMENT BASIN SHALL BE A MINIMUM OF 2 FEET ABOVE THE FINAL DESIGN ELEVATION OF THE BOTTOM OF THE AGGREGATE BASE.
11. FOR FACILITIES DESIGNED FOR FULL OR PARTIAL EXFILTRATION, THE FLOOR OF THE FACILITY SHALL BE SHALL BE SCARIFIED TO A MINIMUM DEPTH OF 6 INCHES TO REDUCE SOIL COMPACTION AND LEVELED BEFORE THE FILTER FABRIC AND STONE ARE PLACED.
12. ANY AREAS OF THE FACILITY WHERE A TEMPORARY SEDIMENT BASIN WAS LOCATED ALSO SHALL HAVE 2 TO 3 INCHES OF SAND INCORPORATED INTO THE IN-SITU SOILS.
13. FILTER FABRIC SHALL BE PLACED ON THE BOTTOM AND SIDES OF THE FACILITY. STRIPS OF FILTER FABRIC SHALL OVERLAP BY A MINIMUM OF 2 FEET. FABRIC SHALL BE SECURED MINIMUM OF 4 FEET BEYOND THE EDGE OF EXCAVATION.
14. FOLLOWING PLACEMENT OF THE AGGREGATE AND AGAIN AFTER PLACEMENT OF THE PAVEMENT, THE FILTER FABRIC SHOULS BE FOLDED OVERPLACEMENT TO PROTECT INSTALLATION FROM SEDIMENT INPUTS.
15. EXCESS FILTER FABRIC SHALL NOT BE TRIMMED UNTIL THE SITE IS FULLY STABILIZED.
16. AFTER INSTALLATION OF THE FILTER FABRIC OVER THE SOIL SUBGRADE, A 2 INCH LIFT OF AGGREGATE SHALL BE PLACED FOR THE UNDERDRAIN BEDDING.
17. UNDERDRAIN PIPING SHALL BE INSTALLED AND SUFFICIENT AGGREGATE SHALL BE PLACED ARROND AND OVER THE UNDERDRAIN PIPE TO PREVENT DAMAGE TO THE PIPE PRIOR TO COMPACTION.
18. AGGREGATE SHALL BE PLACED IN 4 TO 8 INCH LIFTS AND COMPACTED WITH A STATIC ROLLER
19. AT LEAST 4 PASSES SHOULD BE MADE WITH A MINIMUM 10-TON STATIC ROLLER. THE INITIAL PASS OF THE ROLLER CAN BE WITH VIBRATION TO CONSOLIDATE THE BASE MATERIAL.
20. THE FINAL PASSES OF THE ROLLER SHOULD BE WITHOUT VIBRATION. NO VISIBLE MOVEMENT SHOULD OCCUR IN THE BASE MATERIAL WHEN COMPACTION IS COMPLETE.

INSTALLATION OF POROUS ASPHALT PAVEMENT

1. THE CHOKER COURSE SHALL BE PLACED IN A SINGLE LIFT. THE CHOKER COURSE SHALL BE LEVELED AND PRESSED (CHOKED) INTO THE AGGREGATE BASE WITH AT LEAST 4 PASSES OF A 10 TON (9 T) STEEL DRUM STATIC ROLLER. THE CHOKER COURSE MATERIAL SHOULD BE MOIST TO FACILITATE MOVEMENT INTO THE AGGREGATE BASE.

2. POROUS ASPHALT PAVEMENT IS INSTALLED SIMILARLY TO REGULAR ASPHALT PAVEMENT. THE PAVEMENT SHALL BE LAID IN A SINGLE LIFT OVER THE CHOKER COURSE. THE LAYING TEMPRATURE SHALL BE BETWEEN 230°F AND 260°F, WITH A MINIMUM AIR TEMPRATURE OF 50°F, TO MAKE SURE THAT THE SURFACE DOES NOT STIFFEN BEFORE COMPACTION.

3. COMPACTION OF THE SURFACE COURSE SHOULD BE COMPLETED WHEN THE SURFACE IS COOL ENOUGH TO RESIST A 10-TON ROLLER. ONE OR TWO PASSES OF THE ROLLER ARE REQUIRED FOR PROPER COMPACTION. MORE ROLLING COULD CAUSE A REDUCTION IN THE POROSITY OF THE PAVEMENT.

4. THE MIXING PLANT SHALL CERTIFY TO THE AGGREGATE MIX, THE ABRASION LOSS FACTOR, AND THE ASPHALT CONTENT IN THE MIX. THE ASPHALT MIX SHALL BE TESTED FOR ITS RESISTANCE TO STRIPPING BY WATER USING ASTM 1664. IF THE ESTIMATED COATING AREA IS NOT ABOVE 95%, ADDITIONAL ANTISTRIPPING AGENTS SHALL BE ADDED TO THE MIX.

5. THE MIX SHALL BE TRANSPORTED TO THE SITE IN A CLEAN VEHICLE WITH SMOOTH DUMP BEDS SPRAYED WITH A NON-PETROLEUM RELEASE AGENT. THE MIX SHALL BE COVERED DURING TRANSPORTATION TO CONTROL COOLING.

6. THE FULL PERMEABILITY OF THE PAVEMENT SURFACE SHALL BE TESTED BY APPLICATION OF CLEAN WATER AT A RATE OF AT LEAST 5 GPM OVER THE SURFACE. ALL WATER MUST INFILTRATE DIRECTLY WITHOUT PUDDLE FORMATION OR SURFACE RUNOFF.

7. THE FACILITY SHALL BE INSPECTED AT 18-30 HOURS AFTER A SIGNIFICANT RAINFALL [0.5-1.0 INCH] OR ARTIFICIAL FLOODING TO DETERMINE THAT THE FACILITY IS DRAINING PROPERLY.

NO.	DESCRIPTION	REVIEW BY	APPROVED	DATE

REVISIONS APPROVED BY DIVISION OF DESIGN REVIEW

MATERIALS SPECIFICATIONS

1. POROUS ASHPALT PAVEMENT SHALL BE A MINIMUM OF 2.5 INCHES THICK AND CONFORM TO VDOT ROAD AND BRIDGE SPECIFICATIONS FOR ASPHALT MATERIALS (SECTION 210) AND ASPHALT CEMENT (SECTION 211) EXCEPT FOR AGGREGATE GRADATION. THE ASPHALT MIX SHALL BE 5.75% TO 6.0% OF DRY AGGREGATE BY WEIGHT. THE ASPHALT BINDER SHALL BE MODIFIED WITH AN ELASTOMERIC POLYMER TO PRODUCE A BINDER MEETING THE REQUIREMENTS OF PG 76-22 (AASHTO MP-1) AND APPLIED AT A RATE OF 3.0% BY TOTAL WEIGHT OF THE BINDER. DRAIN DOWN OF THE ASPHALT BINDER SHALL BE NO GREATER THAN 0.3% (ASTM D 6390). THE AGGREGATE GRADATION SHALL BE AS SPECIFIED IN THE TABLE ON THIS SHEET. POROUS PAVEMENT SHALL HAVE A MINIMUM CONNECTED VOID SPACE OF 18%.

2. THE AGGREGATE BASE COURSE SHALL CONSIST OF WASHED VDOT #57 STONE. THE THICKNESS OF THE BASE COURSE IS DETERMINED BY RUNOFF STORAGE NEEDS, THE INFILTRATION RATE OF IN-SITU SOILS, STRUCTURAL REQUIREMENTS OF THE PAVEMENT SUB-BASE, DEPTH TO WATERTABLE AND BEDROCK, AND FROST DEPTH CONDITIONS. VDOT #2 OR #3 STONE MAY BE SUBSTITUTED AS THE BASE COURSE MATERIAL PROVIDED AN ADEQUATE CHOKER COURSE OF VDOT #57 STONE IS PROVIDED BETWEEN THE AGGREGATE BASE COURSE AND THE BEDDING COURSE. ALL STONE SHALL BE WASHED WITH LESS THAN 1%PASSING A #200 SIEVE.

3. UNDERDRAINS SHALL BE PVC PIPE CONFORMING TO THE REQUIREMENTS OF ASTM F758, TYPE PS 28 OR ASTM F949; HDPE PIPE CONFORMING TO THE REQUIREMENT OF AASHTO M252 OR M294, TYPE S; OR OTHER APPROVED RIGID PLASTIC PIPE WITH A SMOOTH INTERIOR. UNDERDRAINS SHALL BE PERFORATED WITH 4 ROWS OF 3/8 INCH HOLES WITH A HOLE SPACING OF 3.25 ± 0.25 INCHES OR A COMBINATION OF HOLE SIZE AND SPACING THAT PROVIDES A MINIMUM INLET AREA GREATER THAN OR EQUAL TO 1.76 SQUARE INCHES PER LINEAR FOOT OF PIPE OR BE PERFORATED WITH SLOTS 0.125 INCHES IN WIDTH THAT PROVIDES A MINIMUM INLET AREA GREATER THAN OR EQUAL TO 1.5 SQUARE INCHES PER LINEAR FOOT OF PIPE.

4. FILTER FABRIC SHALL BE A NEEDLED NON-WOVEN, POLYPROYLENE GEO-TEXTILE MEETING THE REQUIREMENTS LISTED IN THE TABLE ON THIS SHEET. HEAT SET TO HEAT-CALENDARED FABRICS ARE NOT PERMITTED.

PERVIOUS PAVEMENT DESIGN (AREA "A")

WATER QUALITY VOLUME

FOR FIRST 0.5 INCHES OF RUNOFF

IMPERVIOUS AREA DRAINING TO PERVIOUS PAVEMENT=0.682 AC.

BECAUSE OF THE PROXIMITY OF THE COLONIAL PIPE LINE EASEMENT, THE AREA OF PERVIOUS PAVEMENT IS LIMITED TO 3,995 SQUARE FEET WHICH WILL TREAT ONLY 0.311 OF THE 0.682 IMPERVIOUS ACRES DRAINING TO IT.

(INCLUDING AREA OF PERVIOUS PAVEMENT)

$WQv = 1,815$ cf/AC.
$= 1,815 \times 0.311$
$= 564.46$ cf.

MINIMUM AREA OF PERVIOUS PAVEMENT

$Ap = (WQv)/[(Kp/12)x(Ts)]$
$Kp = 1.1$ in/hr
$Ts = 2$ hrs
$Ap = (564.46)/[(1.1/12)x(2)]$
$Ap = 3,078.90$ sq. ft.

PROVIDED AREA OF PERVIOUS PAVEMENT = 3,995 sq.ft.

PERVIOUS PAVEMENT AREA (As) = 3,995 sq.ft.
IMPERVIOUS AREA = 13,540 sq.ft.

13,540/3,995=3.39 THEREFORE RATIO = 3.39:1 < 3.4:1
HENCE AREA IS ACCEPTABLE AND ADEQUATE.

10 YEAR 2-HR. STORM VOLUME

$V10 = 10,890 \times 0.311$
$= 3,387$ cf.

REQUIRED DISCHARGE RATE

$Qu = (V10/Td)/3600$
$= (3,387/24)/3600$
$= 0.0392$ cfs.

STORAGE VOLUME

$Vs = Vds-[(Ks)x(As)x(Ts)/12]-[3600x(Qu)x(Ts)]$
$= 3,387-[3600x0.0392x2]$
$= 3,105$ cf.

STORAGE DEPTH

$dg = Vs/[(ng)x(As)] + 0.5$
$= 3,105/[0.4x3,995] + 0.5$
$= 2.44$ ft.

PROVIDE DEPTH OF 2.5 ft.

FACILITY DRAIN TIME

$Td = Vs/ [(Ks)x(As)/12 + 3,600x(Qu)]$
$Td = 3,105/[3,600 \times 0.0392]$
$= 22.00$ hrs.

DRAIN TIME IS LESS THAN 24 HRS. THEREFORE ACCEPTABLE.

AGGREGATE GRADATION

U.S. STANDARD SIEVE SIZE	PERCENT PASSING
1/2 in	100
3/8 in	92-98
#4	34-40
#8	14-20
#16	7-13
#30	0-4
#200	0-2

FILTER FABRIC SPECIFICATIONS

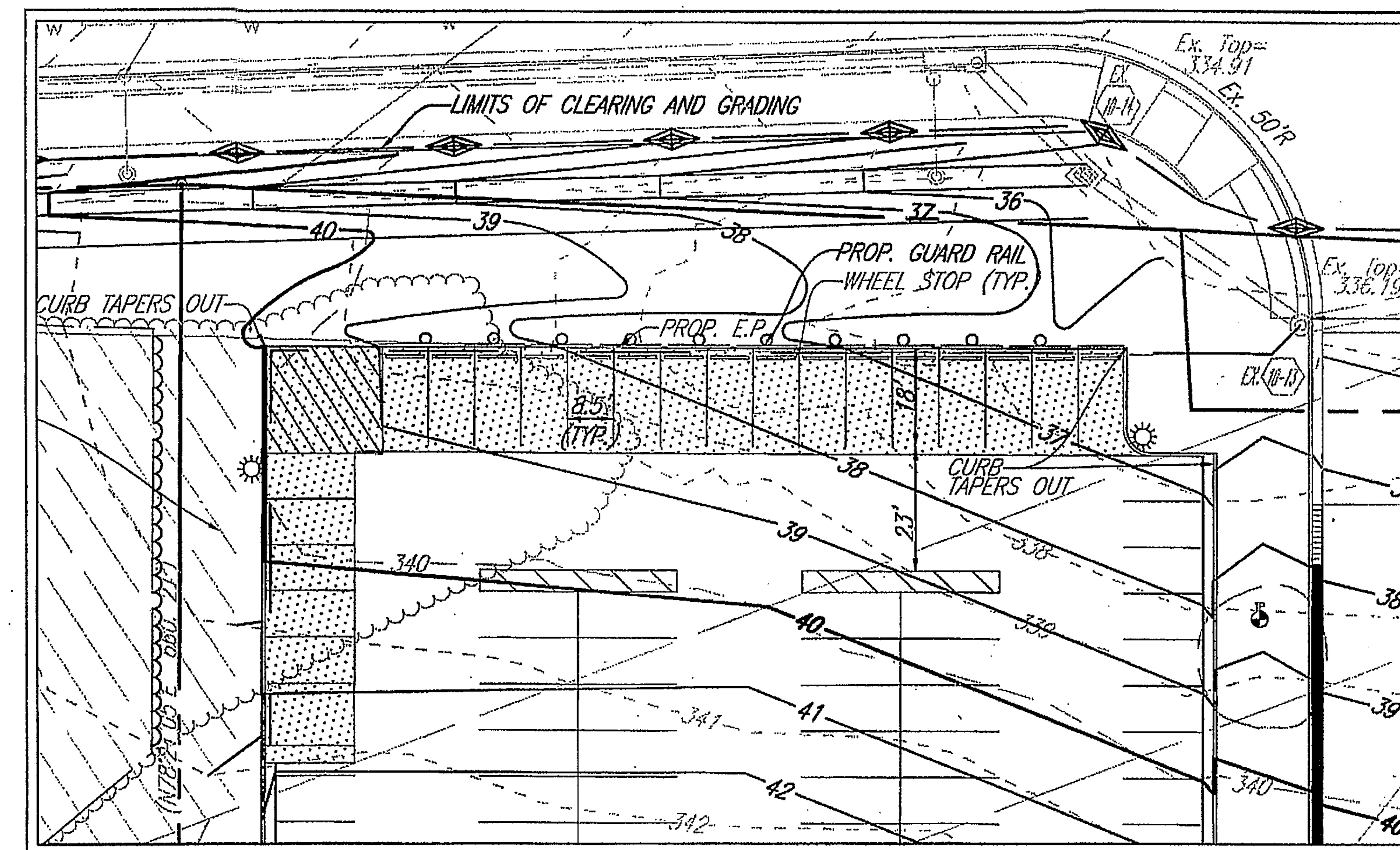
GRAB TENSILE STRENGTH (ASTM D4632)	≥ 120 lbs
MULLEN BURST STRENGTH (ASTM D3786)	≥ 225 lbs/in²
UV RESISTANCE (ASTM D4355)	70% strength after 500 hours
FLOW RATE (ASTM D4491)	≥ 125 gal/min/ft²
APPRAENT OPENING SIZE (AOS) (ASTM D4751)	US #70 or #80 sieve

SIZE OF REQUIRED ORIFICE

$A = Qu/Cx(2xgxHo)^{0.5}$
$= 0.0392/0.6x(2x32.2x2.5)^{0.5}$
$= 0.005$ sq. ft

DIAMETER OF ORIFICE

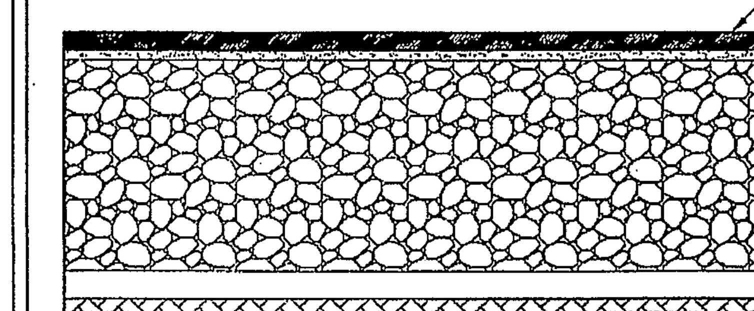
$D = 2x(A/3.14)^{0.5}$
$= 2x(0.005/3.14)^{0.5}$
$= 0.080$ ft. $= 0.96$ in.



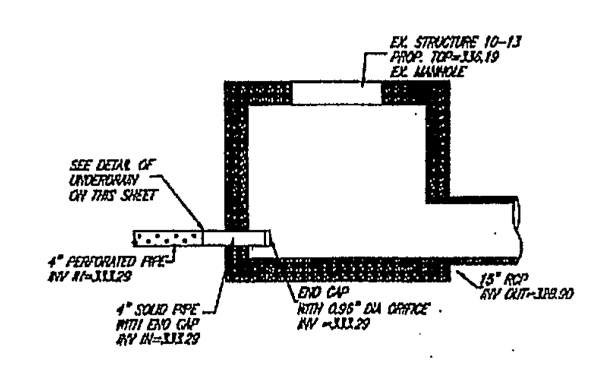
PERVIOUS PAVEMENT AREA "A"
SITE PLAN
(SCALE: 1"=20')

PERVIOUS PAVEMENT NOTES:

1. PERVIOUS PAVEMENT TO BE LOCATED UNDER THE PARKING AREAS AS SHOWN.
2. EACH PERVIOUS PAVEMENT CELL TO HAVE A 2.5' GRAVEL STORAGE RESERVOIR TO PROVIDE STORMWATER STORAGE VOLUME.
3. THE OBSERVATION WELL CLEAN OUT SHALL BE TRAFFIC RATED AND FLUSH WITH PAVEMENT.
4. THE PERVIOUS PAVEMENT SHOULD BE CLEANED/VACUUMED ON AN ANNUAL BASIS TO PREVENT GRIT/SAND/SALT FROM CLOGGING THE VOIDS.

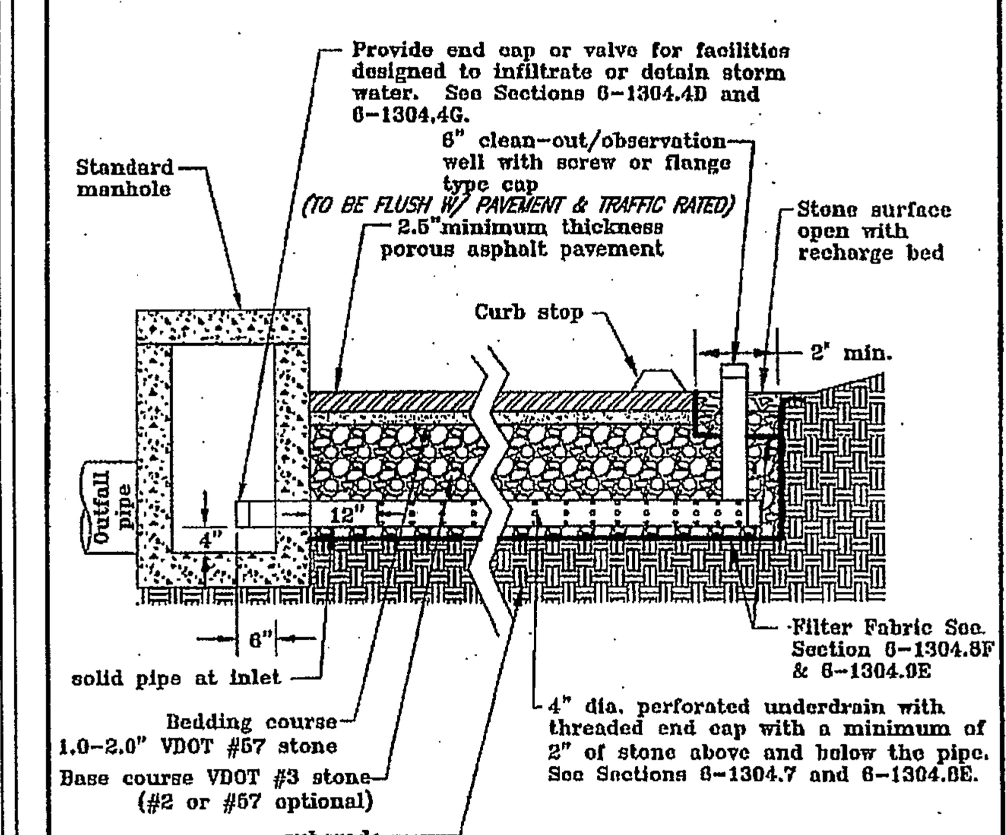


PERVIOUS PAVEMENT CROSS SECTION
(NOT TO SCALE)



EX. STRUCTURE 10-13 DETAILS
(N.T.S)

FAIRFAX COUNTY PUBLIC FACILITIES MANUAL



Notes:
1) The Director may approve variations of this design provided the facility meets the requirements of Sec. 6-1304 et seq.
2) All pipe shall be in accordance with Section 6-1304.8E.

CROSS SECTION (NTS)

Ref. Sec. 6-1304 et seq. Rev. 3-07	POROUS ASPHALT PAVEMENT EXTENDED AGGREGATE BASE	PLATE NO.	STD. NO.
		78-6	

Application No. SE 2010-SP-029 Staff B.K.
APPROVED SE / SP PLAN
SEE DEV CONDS DATED March 8, 2011
Date of (BOS) (BZA) Approval March 8, 2011
Sheet 10 of 15
Concurrent w/ SPA 78-P-192-03

rda
Rinker Design Associates, P.C.
Engineering * Surveying * Land Planning * Transportation * Environmental Services
9300 West Courthouse Road, Suite 300, Manassas, VA 20110 on the web @ www.rdacivil.com
Telephone: (703) 368-7373 Fax: (703) 257-6443
"Turning Challenges into Opportunities"

PERVIOUS PAVEMENT DETAILS
PERVIOUS PAVEMENT AREA "A"
GREENBRIAR PARK IMPROVEMENTS
SPRINGFIELD MAGISTERIAL DISTRICT
FAIRFAX COUNTY, VIRGINIA

REVISIONS:

DATE: JANUARY 7, 2011
SCALE: AS SHOWN
DESIGN: JDC/NVD
DRAFT: JDC/NVD
CHECKED BY: JDC
ARCH: N/A
JOB NUMBER: 05-126-H
SHEET 14

SHEET: SPECIAL EXCEPTION
6D OF 6

PLEASE RETURN TO COMMUNITY ASSOCIATION ENGINEERING
703-541-2000 www.cae.us.com

THIS SHEET IS FOR INFORMATION ONLY, NOT FOR CONSTRUCTION !!!

10:27:29 AM EST

05-126-H

CONSTRUCTION REQUIREMENTS

1. THE OWNER SHALL PROVIDE FOR INSPECTION DURING CONSTRUCTION OF THE FACILITY BY A LICENSED PROFESSIONAL (IN ACCORDANCE WITH STANDARD PRACTICE, THE ACTUAL INSPECTIONS MAY BE PERFORMED BY AN INDIVIDUAL UNDER RESPONSIBLE CHARGE OF THE LICENSED PROFESSIONAL).
2. THE LICENSED PROFESSIONAL SHALL CERTIFY THAT THE FACILITY WAS CONSTRUCTED IN ACCORDANCE WITH THE APPROVED PLANS.
3. THE LICENSED PROFESSIONAL'S CERTIFICATION ALONG WITH ANY MATERIAL DELIVERY TICKETS AND CERTIFICATIONS FROM THE MATERIAL SUPPLIERS SHALL BE SUBMITTED TO COUNTY PRIOR TO BOND RELEASE.
4. FOR PROJECTS REQUIRING AS-BUILT PLANS, THE REQUIRED CERTIFICATION AND SUPPORTING DOCUMENTS SHALL BE SUBMITTED WITH OR INCORPORATED IN THE AS-BUILT PLANS.
5. FOR PROJECTS THAT DO NOT REQUIRE AS-BUILT PLANS, THE CERTIFICATION AND SUPPORTING DOCUMENTS SHALL BE SUBMITTED WITH THE RUP OR NON-RUP REQUEST.
6. PERVIOUS PAVEMENT FACILITIES SHALL BE CONSTRUCTED AFTER THE DRAINAGE AREA TO THE FACILITY IS COMPLETELY STABILIZED.
7. EROSION AND SEDIMENT CONTROLS FOR CONSTRUCTION OF THE FACILITY SHALL BE INSTALLED AS SPECIFIED IN THE EROSION AND SEDIMENT CONTROL PLAN.
8. PRELIMINARY GRADING OF THE AREA WHERE PERVIOUS PAVEMENT IS TO BE INSTALLED MAY BE PERFORMED AT THE TIME THE REST OF THE SITE IS MASS GPADED PROVIDED THAT POSITIVE DRAINAGE IS MAINTAINED AND THE AREA IS STABILIZED.
9. AREAS WHERE PERVIOUS PAVEMENT IS TO BE INSTALLED SHOULD NOT BE USED FOR TEMPORARY SEDIMENT BASINS.
10. WHERE UNAVOIDABLE, THE INVERT OF THE SEDIMENT BASIN SHALL BE A MINIMUM OF 2 FEET ABOVE THE FINAL DESIGN ELEVATION OF THE BOTTOM OF THE AGGREGATE BASE.
11. FOR FACILITIES DESIGNED FOR FULL OR PARTIAL EXFILTRATION, THE FLOOR OF THE FACILITY SHALL BE SHALL BE SCARIFIED TO A MINIMUM DEPTH OF 6 INCHES TO REDUCE SOIL COMPACTION AND LEVELED BEFORE THE FILTER FABRIC AND STONE ARE PLACED.
12. ANY AREAS OF THE FACILITY WHERE A TEMPORARY SEDIMENT BASIN WAS LOCATED ALSO SHALL HAVE 2 TO 3 INCHES OF SAND INCORPORATED INTO THE IN-SITU SOILS.
13. FILTER FABRIC SHALL BE PLACED ON THE BOTTOM AND SIDES OF THE FACILITY. STRIPS OF FILTER FABRIC SHALL OVERLAP BY A MINIMUM OF 2 FEET. FABRIC SHALL BE SECURED MINIMUM OF 4 FEET BEYOND THE EDGE OF EXCAVATION.
14. FOLLOWING PLACEMENT OF THE AGGREGATE AND AGAIN AFTER PLACEMENT OF THE PAVEMENT, THE FILTER FABRIC SHOULS BE FOLDED OVERPLACEMENT TO PROTECT INSTALLATION FROM SEDIMENT INPUTS.
15. EXCESS FILTER FABRIC SHALL NOT BE TRIMMED UNTIL THE SITE IS FULLY STABILIZED.
16. AFTER INSTALLATION OF THE FILTER FABRIC OVER THE SOIL SUBGRADE, A 2 INCH LIFT OF AGGREGATE SHALL BE PLACED FOR THE UNDERDRAIN BEDDING.
17. UNDERDRAIN PIPING SHALL BE INSTALLED AND SUFFICIENT AGGREGATE SHALL BE PLACED ARROND AND OVER THE UNDERDRAIN PIPE TO PREVENT DAMAGE TO THE PIPE PRIOR TO COMPACTION.
18. AGGREGATE SHALL BE PLACED IN 4 TO 8 INCH LIFTS AND COMPACTED WITH A STATIC ROLLER
19. AT LEAST 4 PASSES SHOULD BE MADE WITH A MINIMUM 10-TON STATIC ROLLER. THE INITIAL PASS OF THE ROLLER CAN BE WITH VIBRATION TO CONSOLIDATE THE BASE MATERIAL.
20. THE FINAL PASSES OF THE ROLLER SHOULD BE WITHOUT VIBRATION. NO VISIBLE MOVEMENT SHOULD OCCUR IN THE BASE MATERIAL WHEN COMPACTION IS COMPLETE.

INSTALLATION OF POROUS ASPHALT PAVEMENT

1. THE CHOKER COURSE SHALL BE PLACED IN A SINGLE LIFT. THE CHOKER COURSE SHALL BE LEVELED AND PRESSED (CHOKED) INTO THE AGGREGATE BASE WITH AT LEAST 4 PASSES OF A 10 TON (9 T) STEEL DRUM STATIC ROLLER. THE CHOKER COURSE MATERIAL SHOULD BE MOIST TO FACILITATE MOVEMENT INTO THE AGGREGATE BASE.

2. POROUS ASPHALT PAVEMENT IS INSTALLED SIMILARLY TO REGULAR ASPHALT PAVEMENT. THE PAVEMENT SHALL BE LAID IN A SINGLE LIFT OVER THE CHOKER COURSE. THE LAYING TEMPRATURE SHALL BE BETWEEN 230'F AND 260'F, WITH A MINIMUM AIR TEMPRATURE OF 50'F, TO MAKE SURE THAT THE SURFACE DOES NOT STIFFEN BEFORE COMPACTION.

3. COMPACTION OF THE SURFACE COURSE SHOULD BE COMPLETED WHEN THE SURFACE IS COOL ENOUGH TO RESIST A 10-TON ROLLER. ONE OR TWO PASSES OF THE ROLLER ARE REQUIRED FOR PROPER COMPACTION. MORE ROLLING COULD CAUSE A REDUCTION IN THE POROSITY OF THE PAVEMENT.

4. THE MIXING PLANT SHALL CERTIFY TO THE AGGREGATE MIX, THE ABRASION LOSS FACTOR, AND THE ASPHALT CONTENT IN THE MIX. THE ASPHALT MIX SHALL BE TESTED FOR ITS RESISTANCE TO STRIPPING BY WATER USING ASTM 1664. IF THE ESTIMATED COATING AREA IS NOT ABOVE 95%, ADDITIONAL ANTISTRIPPING AGENTS SHALL BE ADDED TO THE MIX.

5. THE MIX SHALL BE TRANSPORTED TO THE SITE IN A CLEAN VEHICLE WITH SMOOTH DUMP BEDS SPRAYED WITH A NON-PETROLEUM RELEASE AGENT. THE MIX SHALL BE COVERED DURING TRANSPORTATION TO CONTROL COOLING.

6. THE FULL PERMEABILITY OF THE PAVEMENT SURFACE SHALL BE TESTED BY APPLICATION OF CLEAN WATER AT A RATE OF AT LEAST 5 GPM OVER THE SURFACE. ALL WATER MUST INFILTRATE DIRECTLY WITHOUT PUDDLE FORMATION OR SURFACE RUNOFF.

7. THE FACILITY SHALL BE INSPECTED AT 18-30 HOURS AFTER A SIGNIFICANT RAINFALL [0.5-1.0 INCH] OR ARTIFICIAL FLOODING TO DETERMINE THAT THE FACILITY IS DRAINING PROPERLY.

NO.	DESCRIPTION	REVIEW	BY	APPROVED	DATE

REVISIONS APPROVED BY DIVISION OF DESIGN REVIEW

MATERIALS SPECIFIC TIONS

1. POROUS ASHPALT PAVEMENT SHALL BE A MINIMUM OF 2.5 INCHES THICK AND CONFORM TO VDOT ROAD AND BRIDGE SPECIFICATIONS FOR ASPHALT MATERIALS (SECTION 210) AND ASPHALT CEMENT (SECTION 211) EXCEPT FOR AGGREGATE GRADATION. THE ASPHALT MIX SHALL BE 5.75% TO 6.0% OF DRY AGGREGATE BY WEIGHT. THE ASPHALT BINDER SHALL BE MODIFIED WITH AN ELASTOMERIC POLYMER TO PRODUCE A BINDER MEETING THE REQUIREMENTS OF PG 76-22 (AASHTO MP-1) AND APPLIED AT A RATE OF 3.0% BY TOTAL WEIGHT OF THE BINDER. DRAIN DOWN OF THE ASPHALT BINDER SHALL BE NO GREATER THAN 0.3% (ASTM D 6390). THE AGGREGATE GRADATION SHALL BE AS SPECIFIED IN THE TABLE ON THIS SHEET. POROUS PAVEMENT SHALL HAVE A MINIMUM CONNECTED VOID SPACE OF 18%.

2. THE AGGREGATE BASE COURSE SHALL CONSIST OF WASHED VDOT #57 STONE. THE THICKNESS OF THE BASE COURSE IS DETERMINED BY RUNOFF STORAGE NEEDS, THE INFILTRATION RATE OF IN-SITU SOILS, STRUCTURAL REQUIREMENTS OF THE PAVEMENT SUB-BASE, DEPTH TO WATERTABLE AND BEDROCK, AND FROST DEPTH CONDITIONS. VDOT #2 OR #3 STONE MAY BE SUBSTITUTED AS THE BASE COURSE MATERIAL PROVIDED AN ADEQUATE CHOKER COURSE OF VDOT #57 STONE IS PROVIDED BETWEEN THE AGGREGATE BASE COURSE AND THE BEDDING COURSE. ALL STONE SHALL BE WASHED WITH LESS THAN 1%PASSING A #200 SIEVE.

3. UNDERDRAINS SHALL BE PVC PIPE CONFORMING TO THE REQUIREMENTS OF ASTM F758, TYPE PS 28 OR ASTM F949; HDPE PIPE CONFORMING TO THE REQUIREMENT OF AASHTO M252 OR M294, TYPE S; OR OTHER APPROVED RIGID PLASTIC PIPE WITH A SMOOTH INTERIOR. UNDERDRAINS SHALL BE PERFORATED WITH 4 ROWS OF 3/8 INCH HOLES WITH A HOLE SPACING OF 3.25 ± 0.25 INCHES OR A COMBINATION OF HOLE SIZE AND SPACING THAT PROVIDES A MINIMUM INLET AREA GREATER THAN OR EQUAL TO 1.76 SQUARE INCHES PER LINEAR FOOT OF PIPE OR BE PERFORATED WITH SLOTS 0.125 INCHES IN WIDTH THAT PROVIDES A MINIMUM INLET AREA GREATER THAN OR EQUAL TO 1.5 SQUARE INCHES PER LINEAR FOOT OF PIPE.

4. FILTER FABRIC SHALL BE A NEEDLED NON-WOVEN, POLYPROYLENE GEO-TEXTILE MEETING THE REQUIREMENTS LISTED IN THE TABLE ON THIS SHEET. HEAT SET TO HEAT-CALENDARED FABRICS ARE NOT PERMITTED.

PERVIOUS PAVEMENT DESIGN (AREA "B")

WATER QUALITY VOLUME

FOR FIRST 0.5 INCHES OF RUNOFF

IMPERVIOUS AREA DRAINING TO PERVIOUS PAVEMENT=0.255 AC.

BECAUSE OF THE FINITE AREA OF PARKING IN THIS LOCATION, THE AREA OF PERVIOUS PAVEMENT IS LIMITED TO 2,682 SQUARE FEET WHICH WILL TREAT ONLY 0.209 OF THE 0.255 IMPERVIOUS ACRES DRAINING TO IT. (INCLUDING AREA OF PERVIOUS PAVEMENT)

WQv = 1,815 cf/AC.
= 1,815 x 0.209
= 379.34 cf.

MINIMUM AREA OF PERVIOUS PAVEMENT

Ap = (WQv)/[(Kp/12)x(Ts)]
Kp = 1.1 in/hr
Ts = 2 hrs
Ap = (379.34)/[(1.1/12)x(2)]
Ap = 2,069.13 sq. ft.

PROVIDED AREA OF PERVIOUS PAVEMENT = 2,682 sq.ft.

PERVIOUS PAVEMENT AREA (As) = 2,682 sq.ft.
IMPERVIOUS AREA = 9,104 sq.ft.

9,104/2,682=3.39 THEREFORE RATIO = 3.39:1 < 3.4:1
HENCE AREA IS ACCEPTABLE AND ADEQUATE.

10 YEAR 2-HR. STORM VOLUME

V10 = 10,890 x 0.209
= 2,276 cf.

REQUIRED DISCHARGE RATE

Qu = (V10/Td)/3600
= (2,276/24)/3600
= 0.026 cfs.

STORAGE VOLUME

Vs = Vds-[(Ks)x(As)x(Ts)/12]-[3600x(Qu)x(Ts)]
= 2,276-[3600x0.026x2]
= 2,089 cf.

STORAGE DEPTH

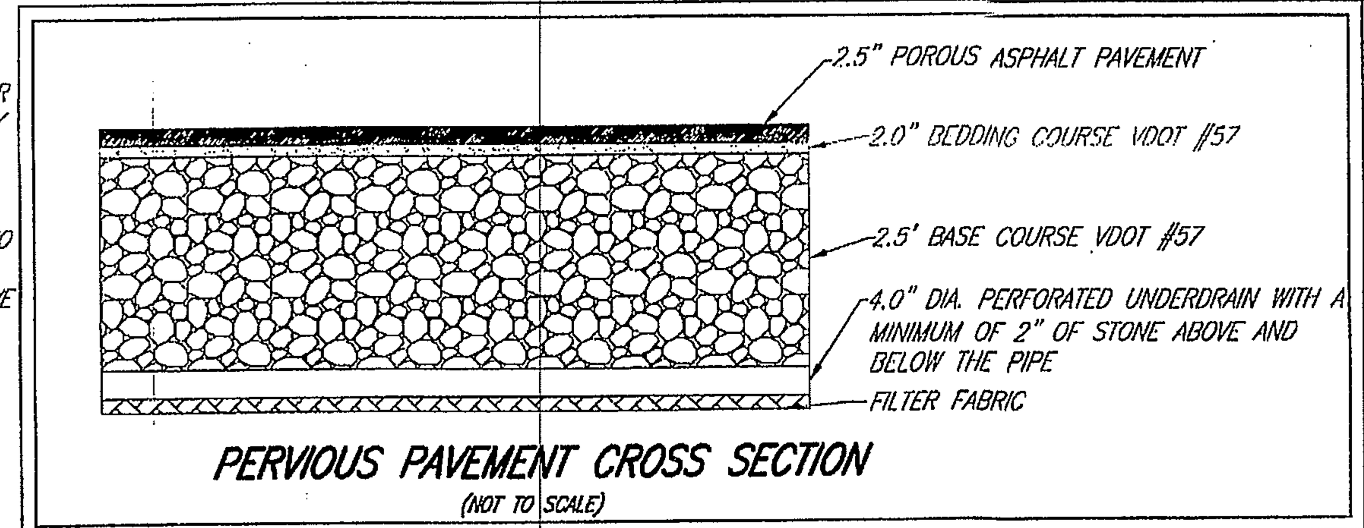
dg = Vs/[(ng)x(As)] + 0.5
= 2,089/[0.4x2,682] + 0.5
= 2.45 ft.

PROVIDE DEPTH OF 2.5 ft.

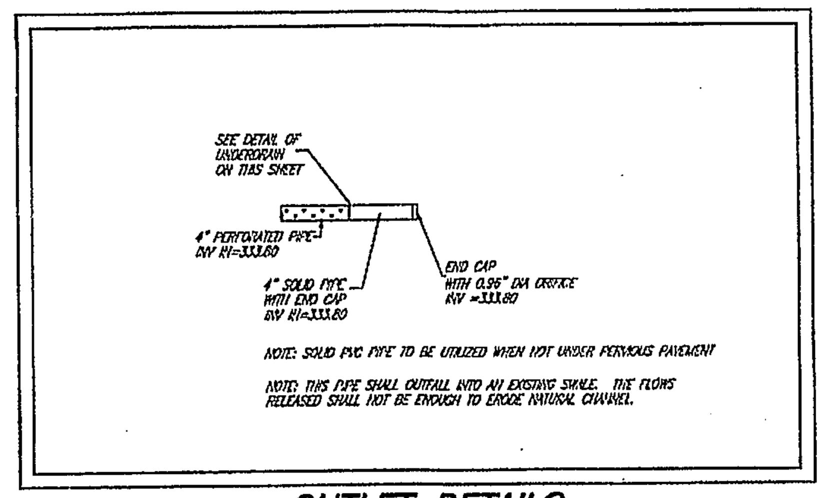
FACILITY DRAIN TIME

Td = Vs/ [(Ks)x(As)/12 + 3,600x(Qu)]
Td = 2,089/[3,600 x 0.026]
= 22.32 hrs.

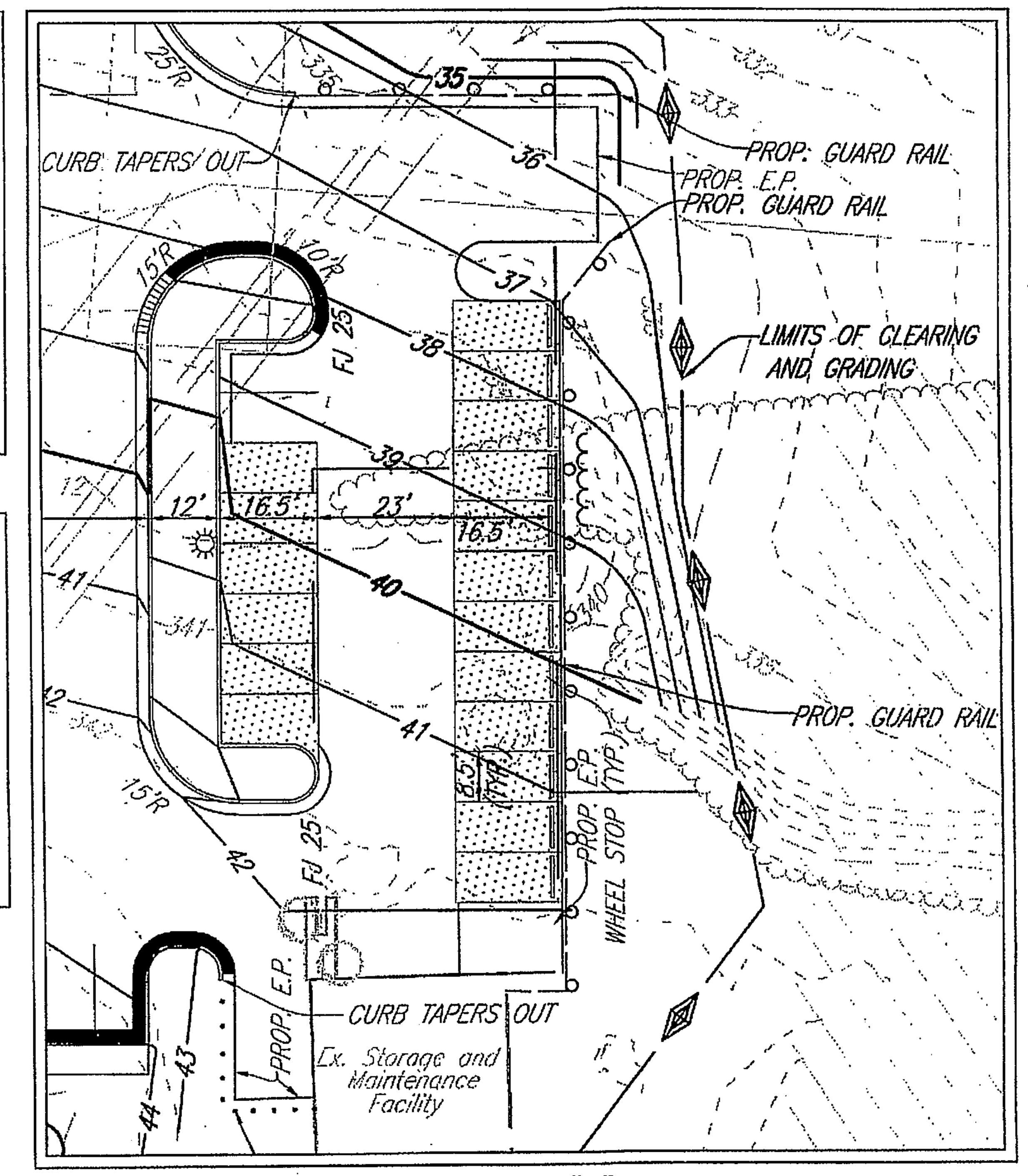
DRAIN TIME IS LESS THAN 24 HRS. THEREFORE ACCEPTABLE.



PERVIOUS PAVEMENT CROSS SECTION
(NOT TO SCALE)



OUTLET DETAILS
(N.T.S)



PERVIOUS PAVEMENT AREA "B" SITE PLAN
(SCALE: 1"=20')

PERVIOUS PAVEMENT NOTES:

1. PERVIOUS PAVEMENT TO BE LOCATED UNDER THE PARKING AREAS AS SHOWN.
2. EACH PERVIOUS PAVEMENT CELL TO HAVE A 3' GRAVEL STORAGE RESERVOIR TO PROVIDE STORMWATER STORAGE VOLUME.
3. THE OBSERVATION WELL CLEAN OUT SHALL BE TRAFFIC RATED AND FLUSH WITH PAVEMENT.
4. THE PERVIOUS PAVEMENT SHOULD BE CLEANED/VACUUMED ON AN ANNUAL BASIS TO PREVENT GRIT/SAND/SALT FROM CLOGGING THE VOIDS.

AGGREGATE GRADATION

U.S. STANDARD SIEVE SIZE	PERCENT PASSING
1/2 in	100
3/8 in	92-98
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#30	0-4
#200	0-2

FILTER FABRIC SPECIFICATIONS

GRAB TENSILE STRENGTH (ASTM D4632)	≥ 120 lbs
MULLEN BURST STRENGTH (ASTM D3786)	≥ 225 lbs/in²
UV RESISTANCE (ASTM D4355)	70% strength after 500 hours
FLOW RATE (ASTM D4491)	≥ 125 gal/min/ft²
APPRAENT OPENING SIZE (AOS) (ASTM D4751)	US #70 or #80 sieve

SIZE OF REQUIRED ORIFICE

A = Qu/Cx(2xgxHo)^0.5
= 0.026/0.6x(2x32.2x2.5)^0.5
= 0.0034 sq. ft

DIAMETER OF ORIFICE

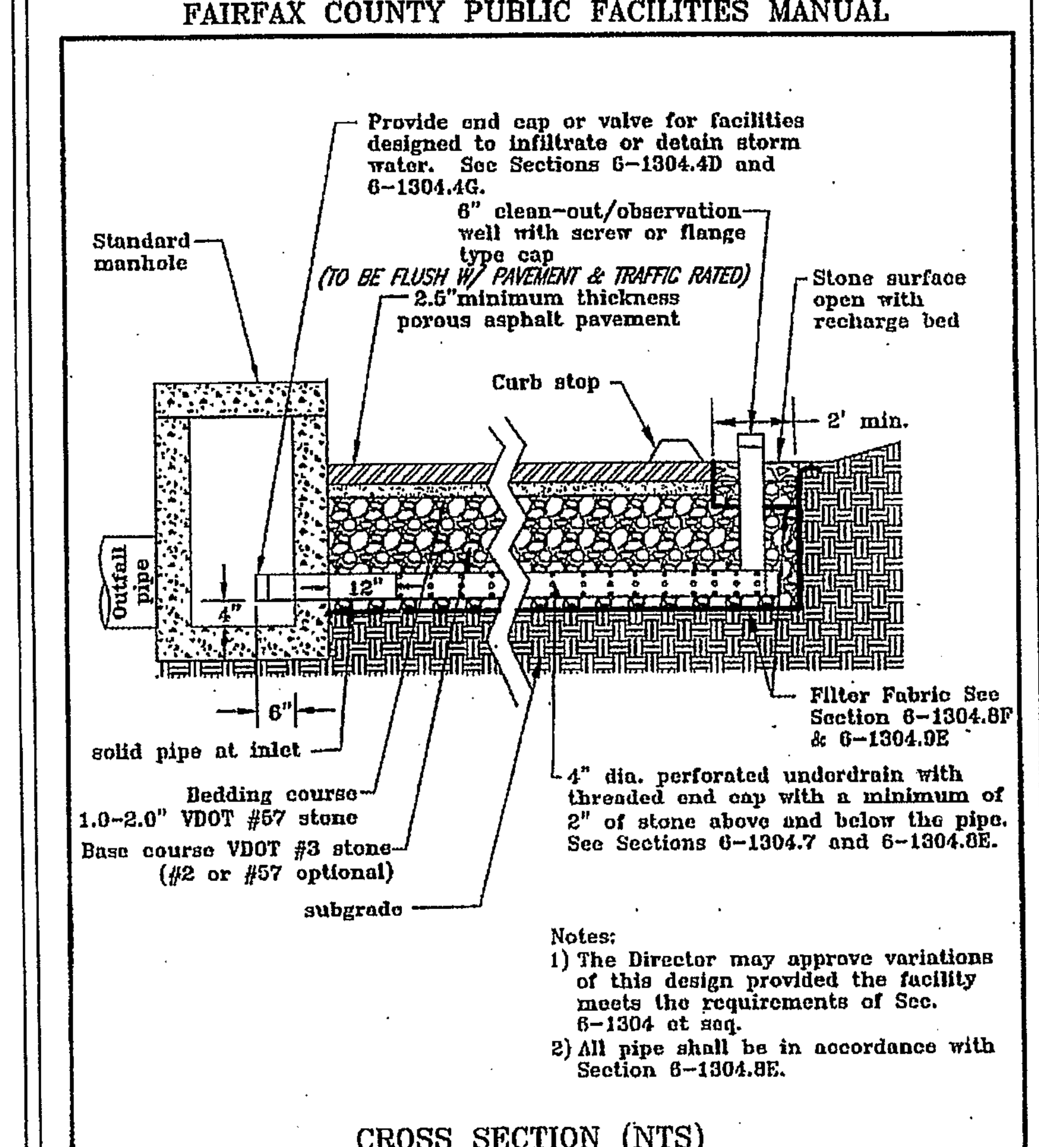
D = 2x(A/3.14)^0.5
= 2x(0.0034/3.14)^0.5
= 0.066 ft. = 0.79 in.

Application No. SE 2010-SP-029 Staff B.K.

APPROVED SE / SP PLAN
SEE DEV CONDS DATED March 8, 2011
Date of (BOS) (BZA) Approval March 8, 2011

Sheet 11 of 15
Concurrent w/ SPA 78-P-192-03

FAIRFAX COUNTY PUBLIC FACILITIES MANUAL



CROSS SECTION (NTS)

Ref. Sec. 6-1304 et seq.	POROUS ASPHALT PAVEMENT EXTENDED AGGREGATE BASE	PLATE NO.	STD. NO.
Rev. 3-07		78-6	

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PERVIOUS PAVEMENT DETAILS
PERVIOUS PAVEMENT AREA "B"
GREENBRIAR PARK IMPROVEMENTS
SPRINGFIELD MAGISTERIAL DISTRICT
FAIRFAX COUNTY, VIRGINIA

REVISIONS:

DATE: JANUARY 7, 2011
SCALE: AS SHOWN
DESIGN: JDC/NVD
DRAFT: JDC/NVD
CHECKED BY: JDC
ARCH: N/A
JOB NUMBER: 05-126-H
SHEET 15

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SHEET: SPECIAL EXCEPTION
6E OF 6

05-126-H

INDIVIDUAL OUTLET RATING TABLES

Type.... Individual Outlet Curves　　　　Page 12.04
Name.... Outlet 1

File.... V:\05126\63581\Comps\SWM-BMP\PondPack\PERVIOUS PAVEMENT AREA A.PPW

RATING TABLE FOR ONE OUTLET TYPE

Structure ID = OO (Orifice-Circular)

Upstream ID = (Pond Water Surface)
DNstream ID = CO (Culvert-Circular)

Pond WS. Elev. ft	Device Q cfs	(into) HW HGL ft	Converge DS HGL ft	Next DS HGL ft	DS HGL Error +/-ft	Q SUM Error +/-cfs	DS Chan. TW ft	TW Error +/-ft
333.29	.00	...	...	...	...	...	Free Outfall	
		WS below an invert; no flow.						
333.54	.01	333.54	333.37	333.37	.000	.000	Free Outfall	
		H =.17						
333.79	.02	333.79	333.39	333.39	.000	.000	Free Outfall	
		H =.40						
334.04	.02	334.04	333.40	333.40	.000	.000	Free Outfall	
		H =.64						
334.29	.02	334.29	333.41	333.41	.000	.000	Free Outfall	
		H =.88						
334.54	.03	334.54	333.42	333.42	.000	.000	Free Outfall	
		H =1.12						
334.79	.03	334.79	333.43	333.43	.000	.000	Free Outfall	
		H =1.36						
335.04	.03	335.04	333.44	333.44	.000	.000	Free Outfall	
		H =1.60						
335.29	.03	335.29	333.44	333.44	.000	.000	Free Outfall	
		H =1.85						
335.54	.03	335.54	333.45	333.45	.000	.000	Free Outfall	
		H =2.09						
335.79	.04	335.79	333.45	333.45	.000	.000	Free Outfall	
		H =2.34						
336.04	.04	336.04	333.46	333.46	.000	.000	Free Outfall	
		H =2.58						
336.13	.04	336.13	333.46	333.46	.000	.000	Free Outfall	
		H =2.67						

SWM COMPUTATIONS - INPUT DATA

Type.... Outlet Input Data　　　　Page 12.01
Name.... Outlet 1

File.... V:\05126\63581\Comps\SWM-BMP\PondPack\PERVIOUS PAVEMENT AREA A.PPW

REQUESTED POND WS ELEVATIONS:

Min. Elev. = 333.29 ft
Increment = .25 ft
Max. Elev. = 336.13 ft

****
OUTLET CONNECTIVITY
****

---> Forward Flow Only (UpStream to DnStream)
<--- Reverse Flow Only (DnStream to UpStream)
<---> Forward and Reverse Both Allowed

Structure	No.		Outfall	E1, ft	E2, ft
Orifice-Circular	OO	--->	CO	333.290	336.125
Culvert-Circular	CO	--->	TW	333.290	336.125
TW SETUP, DS Channel					

OUTLET STRUCTURE INPUT DATA

Structure ID = OO
Structure Type = Orifice-Circular

# of Openings = 1
Invert Elev. = 333.29 ft
Diameter = .0800 ft
Orifice Coeff. = .600

OUTLET STRUCTURE INPUT DATA

Structure ID = CO
Structure Type = Culvert-Circular

No. Barrels = 1
Barrel Diameter = .3300 ft
Upstream Invert = 333.29 ft
Dnstream Invert = 333.00 ft
Horiz. Length = 34.00 ft
Barrel Length = 34.00 ft
Barrel Slope = .00853 ft/ft

OUTLET CONTROL DATA...
Mannings n = .0130
Ke = .5000 (forward entrance loss)
Kb = .137139 (per ft of full flow)
Kr = .5000 (reverse entrance loss)
HW Convergence = .001 +/- ft

INLET CONTROL DATA...
Equation form = 1
Inlet Control K = .0098
Inlet Control M = 2.0000
Inlet Control c = .03980
Inlet Control Y = .6700
T1 ratio (HW/D) = 1.155
T2 ratio (HW/D) = 1.303
Slope Factor = -.500

Use unsubmerged inlet control Form 1 equ. below T1 elev.
Use subnerged inlet control Form 1 equ. above T2 elev.

In transition zone between unsubmerged and submerged inlet control,
interpolate between flows at T1 & T2...
At T1 Elev = 333.67 ft ---> Flow = .17 cfs
At T2 Elev = 333.72 ft ---> Flow = .20 cfs

INDIVIDUAL OUTLET RATING TABLES CONT'D

Type.... Individual Outlet Curves　　　　Page 12.05
Name.... Outlet 1

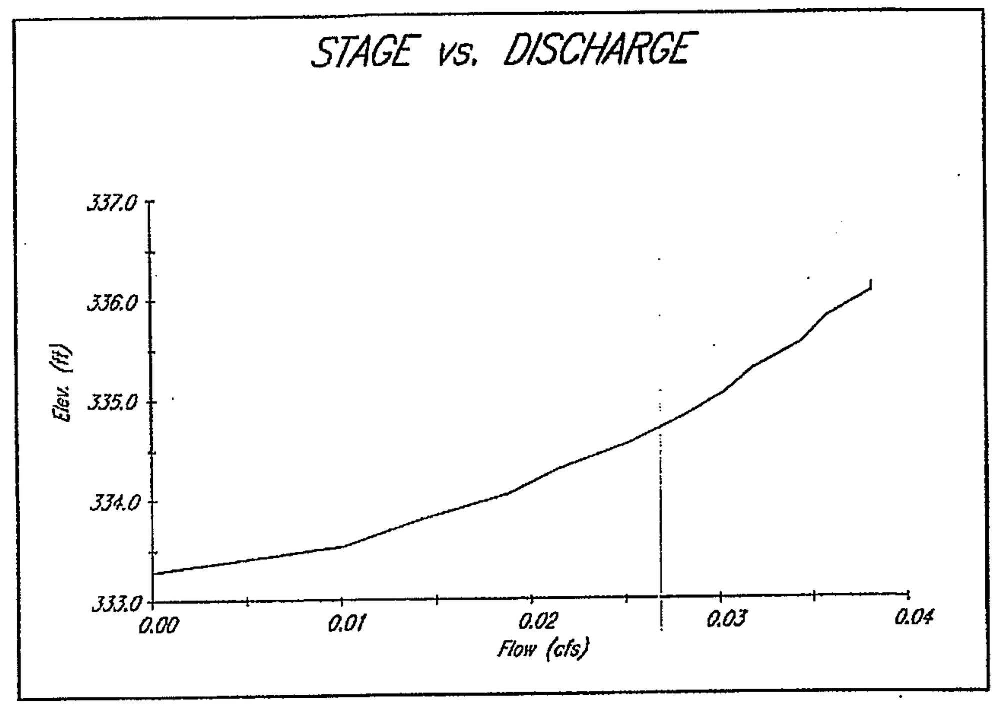
File.... V:\05126\63581\Comps\SWM-BMP\PondPack\PERVIOUS PAVEMENT AREA A.PPW

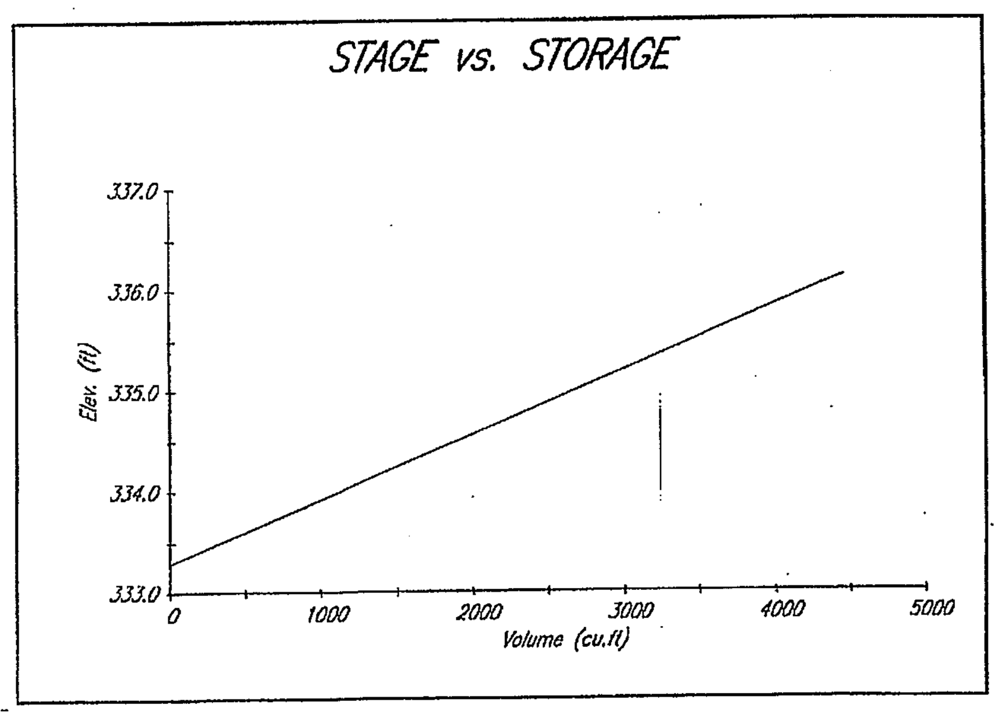
RATING TABLE FOR ONE OUTLET TYPE

Structure ID = CO (Culvert-Circular)

Mannings open channel maximum capacity: .18 cfs
UPstream ID = OO (Orifice-Circular)
DNstream ID = TW (Pond Outfall)

Pond WS. Elev. ft	Device Q cfs	(into) HW HGL ft	Converge DS HGL ft	Next DS HGL ft	DS HGL Error +/-ft	Q SUM Error +/-cfs	DS Chan. TW ft	TW Error +/-ft
333.29	.00	...	...	...	...	...	Free Outfall	
		WS below an invert; no flow.						
333.54	.01	333.37	Free	Free	.000	.000	Free Outfall	
		CRIT. DEPTH CONTROL		Vh= .020ft	Dcr= .057ft		CRIT. DEPTH Hev= .00ft	
333.79	.01	333.39	Free	Free	.000	.001	Free Outfall	
		CRIT. DEPTH CONTROL		Vh= .023ft	Dcr= .067ft		CRIT. DEPTH Hev= .00ft	
334.04	.02	333.40	Free	Free	.000	.000	Free Outfall	
		CRIT. DEPTH CONTROL		Vh= .026ft	Dcr= .075ft		CRIT. DEPTH Hev= .00ft	
334.29	.02	333.41	Free	Free	.000	.001	Free Outfall	
		CRIT. DEPTH CONTROL		Vh= .028ft	Dcr= .080ft		CRIT. DEPTH Hev= .00ft	
334.54	.03	333.42	Free	Free	.000	.000	Free Outfall	
		CRIT. DEPTH CONTROL		Vh= .031ft	Dcr= .088ft		H. JUMP IN PIPE Hev= .00ft	
334.79	.03	333.43	Free	Free	.000	.000	Free Outfall	
		CRIT. DEPTH CONTROL		Vh= .033ft	Dcr= .093ft		CRIT. DEPTH Hev= .00ft	
335.04	.03	333.44	Free	Free	.000	.000	Free Outfall	
		CRIT. DEPTH CONTROL		Vh= .034ft	Dcr= .095ft		CRIT. DEPTH Hev= .00ft	
335.29	.03	333.44	Free	Free	.000	.001	Free Outfall	
		CRIT. DEPTH CONTROL		Vh= .035ft	Dcr= .098ft		CRIT. DEPTH Hev= .00ft	
335.54	.04	333.45	Free	Free	.000	.000	Free Outfall	
		CRIT. DEPTH CONTROL		Vh= .037ft	Dcr= .103ft		H. JUMP IN PIPE Hev= .00ft	
335.79	.04	333.45	Free	Free	.000	.001	Free Outfall	
		CRIT. DEPTH CONTROL		Vh= .037ft	Dcr= .103ft		H. JUMP IN PIPE Hev= .00ft	
336.04	.04	333.46	Free	Free	.000	.000	Free Outfall	
		CRIT. DEPTH CONTROL		Vh= .039ft	Dcr= .108ft		CRIT. DEPTH Hev= .00ft	
336.13	.04	333.46	Free	Free	.000	.001	Free Outfall	
		CRIT. DEPTH CONTROL		Vh= .039ft	Dcr= .108ft		CRIT. DEPTH Hev= .00ft	





NO.	DESCRIPTION	REVIEW	BY	APPROVED	DATE

REVISIONS APPROVED BY DIVISION OF DESIGN REVIEW

Application No. SE 2010-SP-029　Staff B.K.
APPROVED SE / SP PLAN
SEE DEV CONDS DATED March 8, 2011
Date of (BOS) (BZA) Approval March 8, 2011
Sheet 12 of 15
Concurrent w/ SPA 78-P-192-03

MASTER NETWORK SUMMARY

Type.... Master Network Summary　　　　Page 1.01
Name.... Watershed
File.... V:\05126\63581\Comps\SWM-BMP\PondPack\Pervious Pavement Area A.ppw

MASTER DESIGN STORM SUMMARY

Network Storm Collection: Fairfax County-D

Return Event	Total Depth in	Rainfall Type	RNF ID
2	2.0000	Synthetic Curve	TypeII 24hr
10	3.6000	Synthetic Curve	TypeII 24hr

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID		Type	Return Event	HYG Vol cu.ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage cu.ft
*OUT 10		JCT	2	1473		13.9111	.02		
*OUT 10		JCT	10	3582		12.8282	.03		
POND 10	IN	POND	2	1591		11.9119	.69		
POND 10	IN	POND	10	3700		11.9119	1.57		
POND 10	OUT	POND	2	1476		13.9111	.02	333.94	1036
POND 10	OUT	POND	10	3585		12.8282	.03	334.92	2612
SUBAREA 10		AREA	2	1591		11.9119	.69		
SUBAREA 10		AREA	10	3700		11.9119	1.57		

COMPOSITE RATING CURVE

Type.... Composite Rating Curve　　　　Page 12.06
Name.... Outlet 1

File.... V:\05126\63581\Comps\SWM-BMP\PondPack\Pervious Pavement Area A.ppw

***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Converge		Notes
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
333.29	.00	Free Outfall		(no Q: OO,CO)
333.54	.01	Free Outfall		OO,CO
333.79	.01	Free Outfall		OO,CO
334.04	.02	Free Outfall		OO,CO
334.29	.02	Free Outfall		OO,CO
334.54	.03	Free Outfall		OO,CO
334.79	.03	Free Outfall		OO,CO
335.04	.03	Free Outfall		OO,CO
335.29	.03	Free Outfall		OO,CO
335.54	.03	Free Outfall		OO,CO
335.79	.04	Free Outfall		OO,CO
336.04	.04	Free Outfall		OO,CO
336.13	.04	Free Outfall		OO,CO

LEVEL POOL ROUTING DATA

Type.... Pond E-V-Q Table　　　　Page 13.01
Name.... POND 10
File.... V:\05126\63581\Comps\SWM-BMP\PondPack\PERVIOUS PAVEMENT AREA A.PPW

LEVEL POOL ROUTING DATA

HYG Dir = V:\05126\63581\Comps\SWM-BMP\PondPack\
Inflow HYG file = work_pad.hyg - POND 10 IN 2
Outflow HYG file = work_pad.hyg - POND 10 OUT 2

Pond Node Data = POND 10
Pond Volume Data = POND 10
Pond Outlet Data = Outlet 1

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 333.29 ft
Starting Volume = 0 cu.ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0833 hrs

Elevation ft	Outflow cfs	Storage cu.ft	Area sq.ft	Infilt. cfs	Q Total cfs	2S/t + O cfs
333.29	.00	0	3995	.00	.00	.00
333.54	.01	400	3995	.00	.01	2.67
333.79	.01	799	3995	.00	.01	5.34
334.04	.02	1199	3995	.00	.02	8.01
334.29	.02	1598	3995	.00	.02	10.68
334.54	.03	1998	3995	.00	.03	13.35
334.79	.03	2397	3995	.00	.03	16.01
335.04	.03	2797	3995	.00	.03	18.68
335.29	.03	3196	3995	.00	.03	21.35
335.54	.03	3596	3995	.00	.03	24.01
335.79	.04	3995	3995	.00	.04	26.68
336.04	.04	4395	3995	.00	.04	29.35
336.13	.04	4530	3995	.00	.04	30.25

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PROFESSIONAL ENGINEER

SWM COMPUTATIONS
PERVIOUS PAVEMENT AREA "A"
GREENBRIAR PARK IMPROVEMENTS
SPRINGFIELD MAGISTERIAL DISTRICT
FAIRFAX COUNTY, VIRGINIA

REVISIONS:

DATE: JANUARY 5, 2011
SCALE: AS SHOWN
DESIGN: JDC/NVD
DRAFT: JDC/NVD
CHECKED BY: JDC
ARCH: N/A
JOB NUMBER: 05-126-H
SHEET 16

DRAWING NAME:

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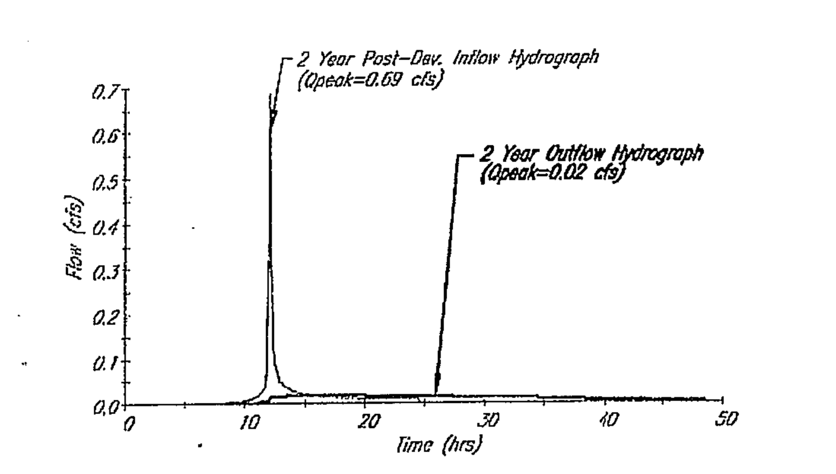
SHEET: SPECIAL EXCEPTION
6F OF 6

2 YEAR STORM CALCULATIONS

2 Year Hydrograph's



2 YEAR POND ROUTING SUMMARY

```
Type.... Pond Routing Summary                              Page 13.08
 Name.... POND 10      OUT   Tag: 2                         Event: 2 yr
 File.... V:\05126\63581\Comps\SWM-BMP\PondPack\PERVIOUS PAVEMENT AREA A.PPW
 Storm... TypeII  24hr   Tag: 2

                 LEVEL POOL ROUTING SUMMARY

 HYG Dir            = V:\05126\63581\Comps\SWM-BMP\PondPack\
 Inflow  HYG file = work_pad.hyg - POND 10       IN  2
 Outflow HYG file = work_pad.hyg - POND 10       OUT 2

 Pond Node   Data = POND 10
 Pond Volume Data = POND 10
 Pond Outlet Data = Outlet 1

 No Infiltration

 INITIAL CONDITIONS
 ----------------------------------
 Starting WS Elev    =   333.29 ft
 Starting Volume     =        0 cu.ft
 Starting Outflow    =      .00 cfs
 Starting Infiltr.   =      .00 cfs
 Starting Total Qout=       .00 cfs
 Time Increment      =    .0833 hrs

 INFLOW/OUTFLOW HYDROGRAPH SUMMARY
 ==================================================
 Peak Inflow      =       .69 cfs    at   11.9119 hrs
 Peak Outflow     =       .02 cfs    at   13.9111 hrs
 --------------------------------------------------
 Peak Elevation   =    333.94 ft
 Peak Storage =          1036 cu.ft
 ==================================================

 MASS BALANCE (cu.ft)
 ---------------------------
 + Initial Vol    =        0
 + HYG Vol IN     =     1591
 - Infiltration   =        0
 - HYG Vol OUT    =     1476
 - Retained Vol   =      116
                     -------
 Unrouted Vol = -              cu.ft  (.001% of Inflow Volume)
```

2 YEAR POST DEVELOPMENT INFLOW HYDROGRAPH

```
Type.... Node: Pond Inflow Summary                         Page 13.03
Name.... POND 10      IN                                    Event: 2 yr
File.... V:\05126\63581\Comps\SWM-BMP\PondPack\PERVIOUS PAVEMENT AREA A.PPW
Storm... TypeII  24hr   Tag: 2

          TOTAL NODE INFLOW...
          HYG File = V:\05126\63581\Comps\SWM-BMP\PondPack\work_pad.hyg
          HYG ID   = POND 10      IN
          HYG Tag  = 2
          ----------------------------------
          Peak Discharge =       .69 cfs
          Time to Peak   =   11.9119 hrs
          HYG Volume     =      1591 cu.ft
          ----------------------------------
```

HYDROGRAPH ORDINATES (cfs)
Output Time Increment = .0833 hrs
Time on left represents time for first value in each row.

Time hrs					
8.2467	.00	.00	.00	.00	.00
8.6632	.00	.00	.00	.00	.00
9.0797	.00	.00	.00	.00	.00
9.4962	.00	.00	.00	.01	.01
9.9127	.01	.01	.01	.01	.01
10.3292	.01	.01	.01	.01	.01
10.7457	.01	.02	.02	.02	.02
11.1622	.02	.03	.03	.03	.04
11.5787	.07	.13	.23	.38	.69
11.9952	.59	.25	.12	.10	.09
12.4117	.08	.06	.06	.05	.05
12.8282	.05	.04	.04	.04	.04
13.2447	.04	.03	.03	.03	.03
13.6612	.03	.03	.03	.03	.03
14.0777	.02	.02	.02	.02	.02
14.4942	.02	.02	.02	.02	.02
14.9107	.02	.02	.02	.02	.02
15.3272	.02	.02	.02	.02	.02
15.7437	.02	.02	.02	.02	.02
16.1602	.02	.02	.02	.01	.01
16.5767	.01	.01	.01	.01	.01
16.9932	.01	.01	.01	.01	.01
17.4097	.01	.01	.01	.01	.01
17.8262	.01	.01	.01	.01	.01
18.2427	.01	.01	.01	.01	.01
18.6592	.01	.01	.01	.01	.01
19.0757	.01	.01	.01	.01	.01
19.4922	.01	.01	.01	.01	.01
19.9087	.01	.01	.01	.01	.01
20.3252	.01	.01	.01	.01	.01
20.7417	.01	.01	.01	.01	.01

2 YEAR POST DEVELOPMENT OUTFLOW HYDROGRAPH

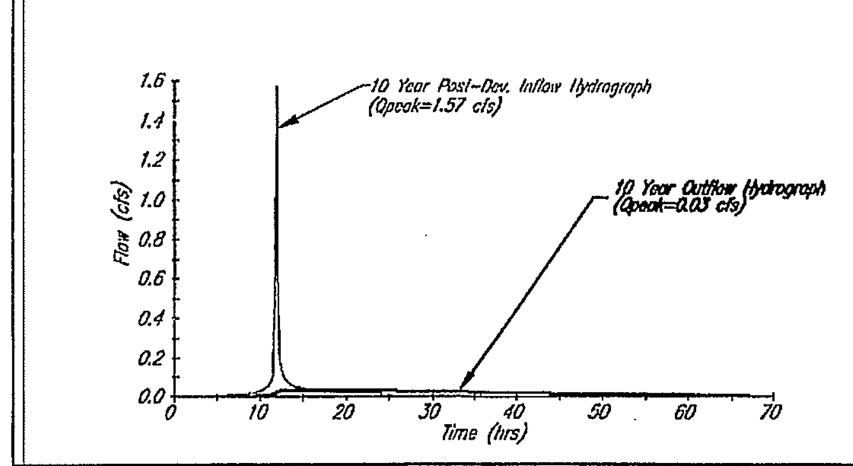
```
Type.... Pond Routed HYG (total out)                       Page 13.09
 Name.... POND 10      OUT   Tag: 2                         Event: 2 yr
 File.... V:\05126\63581\Comps\SWM-BMP\PondPack\PERVIOUS PAVEMENT AREA A.PPW
 Storm... TypeII  24hr   Tag: 2

          POND ROUTED TOTAL OUTFLOW HYG...
          HYG File = V:\05126\63581\Comps\SWM-BMP\PondPack\work_pad.hyg
          HYG ID   = POND 10      OUT
          HYG Tag  = 2
          ----------------------------------
          Peak Discharge =       .02 cfs
          Time to Peak   =   13.9111 hrs
          HYG Volume     =      1476 cu.ft
          ----------------------------------
```

HYDROGRAPH ORDINATES (cfs)
Output Time Increment = .0833 hrs
Time on left represents time for first value in each row.

Time hrs					
8.2467	.00	.00	.00	.00	.00
8.6632	.00	.00	.00	.00	.00
9.0797	.00	.00	.00	.00	.00
9.4962	.00	.00	.00	.00	.00
9.9127	.00	.00	.00	.00	.00
10.3292	.00	.00	.00	.00	.00
10.7457	.00	.00	.00	.00	.00
11.1622	.00	.00	.00	.00	.00
11.5787	.00	.00	.01	.01	.01
11.9952	.01	.01	.01	.01	.02
12.4117	.02	.02	.02	.02	.02
12.8282	.02	.02	.02	.02	.02
13.2447	.02	.02	.02	.02	.02
13.6612	.02	.02	.02	.02	.02
14.0777	.02	.02	.02	.02	.02
14.4942	.02	.02	.02	.02	.02
14.9107	.02	.02	.02	.02	.02
15.3272	.02	.02	.02	.02	.02
15.7437	.02	.02	.02	.02	.02
16.1602	.02	.02	.02	.02	.02
16.5767	.02	.02	.02	.02	.02
16.9932	.02	.02	.02	.02	.02
17.4097	.02	.02	.02	.02	.02
17.8262	.02	.02	.02	.02	.02
18.2427	.02	.02	.02	.02	.02
18.6592	.02	.02	.02	.02	.02
19.0757	.02	.02	.02	.02	.02
19.4922	.02	.02	.02	.02	.02
19.9087	.02	.02	.02	.02	.02
20.3252	.02	.02	.02	.02	.02
20.7417	.02	.02	.02	.02	.02
21.1582	.02	.02	.02	.02	.02
21.5747	.02	.02	.02	.02	.02
21.9912	.02	.02	.02	.02	.02
22.4077	.02	.02	.02	.02	.02
22.8242	.02	.02	.02	.02	.02
23.2407	.02	.02	.02	.02	.02
23.6572	.02	.02	.02	.02	.02
24.0737	.02	.02	.01	.01	.01
24.4902	.01	.01	.01	.01	.01
24.9067	.01	.01	.01	.01	.01
25.3232	.01	.01	.01	.01	.01
25.7397	.01	.01	.01	.01	.01
26.1562	.01	.01	.01	.01	.01
26.5727	.01	.01	.01	.01	.01
26.9892	.01	.01	.01	.01	.01
27.4057	.01	.01	.01	.01	.01
27.8222	.01	.01	.01	.01	.01
28.2387	.01	.01	.01	.01	.01
28.6552	.01	.01	.01	.01	.01
29.0717	.01	.01	.01	.01	.01
29.4882	.01	.01	.01	.01	.01
29.9047	.01	.01	.01	.01	.01
30.3212	.01	.01	.01	.01	.01
30.7377	.01	.01	.01	.01	.01
31.1542	.01	.01	.01	.01	.01
31.5707	.01	.01	.01	.01	.01
31.9872	.01	.01	.01	.01	.01
32.4037	.01	.01	.01	.01	.01
32.8202	.01	.01	.01	.01	.01
33.2367	.01	.01	.01	.01	.01
33.6532	.01	.01	.01	.01	.01
34.0697	.01	.01	.01	.01	.01
34.4862	.01	.01	.01	.01	.01
34.9027	.01	.01	.01	.01	.01
35.3192	.01	.01	.01	.01	.01
35.7357	.01	.01	.01	.01	.01
36.1522	.01	.01	.01	.01	.01
36.5687	.01	.01	.01	.01	.01
36.9852	.01	.01	.01	.01	.01
37.4017	.01	.01	.01	.01	.01
37.8182	.01	.01	.01	.01	.01
38.2347	.01	.01	.01	.01	.01
38.6512	.01	.01	.01	.01	.01
39.0677	.01	.01	.01	.01	.01
39.4842	.01	.01	.01	.01	.01
39.9007	.01	.01	.01	.01	.01
40.3172	.01	.01	.01	.01	.01
40.7337	.01	.01	.01	.01	.01
41.1502	.01	.01	.01	.01	.01
41.5667	.01	.01	.01	.01	.01
41.9832	.01	.00	.00	.00	.00
42.3997	.00	.00	.00	.00	.00
42.8162	.00	.00	.00	.00	.00
43.2327	.00	.00	.00	.00	.00
43.6492	.00	.00	.00	.00	.00
44.0657	.00	.00	.00	.00	.00
44.4822	.00	.00	.00	.00	.00
44.8987	.00	.00	.00	.00	.00
45.3152	.00	.00	.00	.00	.00
45.7317	.00	.00	.00	.00	.00
46.1482	.00	.00	.00	.00	.00
46.5647	.00	.00	.00	.00	.00
46.9812	.00	.00	.00	.00	.00
47.3977	.00	.00	.00		

10 YEAR STORM CALCULATIONS

10 Year Hydrograph's



10 YEAR POND ROUTING SUMMARY

```
Type.... Pond Routing Summary                              Page 13.12
 Name.... POND 10      OUT   Tag: 10                        Event: 10 yr
 File.... V:\05126\63581\Comps\SWM-BMP\PondPack\PERVIOUS PAVEMENT AREA A.PPW
 Storm... TypeII  24hr   Tag: 10

                 LEVEL POOL ROUTING SUMMARY

 HYG Dir            = V:\05126\63581\Comps\SWM-BMP\PondPack\
 Inflow  HYG file = work_pad.hyg - POND 10       IN  10
 Outflow HYG file = work_pad.hyg - POND 10       OUT 10

 Pond Node   Data = POND 10
 Pond Volume Data = POND 10
 Pond Outlet Data = Outlet 1

 No Infiltration

 INITIAL CONDITIONS
 ----------------------------------
 Starting WS Elev    =   333.29 ft
 Starting Volume     =        0 cu.ft
 Starting Outflow    =      .00 cfs
 Starting Infiltr.   =      .00 cfs
 Starting Total Qout=       .00 cfs
 Time Increment      =    .0833 hrs

 INFLOW/OUTFLOW HYDROGRAPH SUMMARY
 ==================================================
 Peak Inflow      =      1.57 cfs    at   11.9119 hrs
 Peak Outflow     =       .03 cfs    at   12.8282 hrs
 --------------------------------------------------
 Peak Elevation   =    334.92 ft
 Peak Storage =          2612 cu.ft
 ==================================================

 MASS BALANCE (cu.ft)
 ---------------------------
 + Initial Vol    =        0
 + HYG Vol IN     =     3700
 - Infiltration   =        0
 - HYG Vol OUT    =     3585
 - Retained Vol   =      115
                     -------
 Unrouted Vol =            0 cu.ft  (.000% of Inflow Volume)
```

10 YEAR POST DEVELOPMENT INFLOW HYDROGRAPH

```
Type.... Node: Pond Inflow Summary                         Page 13.06
 Name.... POND 10      IN                                   Event: 10 yr
 File.... V:\05126\63581\Comps\SWM-BMP\PondPack\PERVIOUS PAVEMENT AREA A.PPW
 Storm... TypeII  24hr   Tag: 10

          TOTAL NODE INFLOW...
          HYG File = V:\05126\63581\Comps\SWM-BMP\PondPack\work_pad.hyg
          HYG ID   = POND 10      IN
          HYG Tag  = 10
          ----------------------------------
          Peak Discharge =      1.57 cfs
          Time to Peak   =   11.9119 hrs
          HYG Volume     =      3700 cu.ft
          ----------------------------------
```

HYDROGRAPH ORDINATES (cfs)
Output Time Increment = .0833 hrs
Time on left represents time for first value in each row.

Time hrs					
5.3312	.00	.00	.00	.00	.00
5.7477	.00	.00	.00	.00	.00
6.1642	.00	.00	.00	.00	.00
6.5807	.00	.00	.00	.01	.01
6.9972	.01	.01	.01	.01	.01
7.4137	.01	.01	.01	.01	.01
7.8302	.01	.01	.01	.01	.01
8.2467	.01	.01	.01	.01	.01
8.6632	.01	.01	.02	.02	.02
9.0797	.02	.02	.02	.02	.02
9.4962	.02	.02	.02	.02	.02
9.9127	.03	.03	.03	.03	.03
10.3292	.03	.04	.04	.04	.04
10.7457	.05	.05	.05	.06	.06
11.1622	.07	.08	.09	.10	.11
11.5787	.20	.37	.59	.93	1.57
11.9952	1.29	.53	.25	.21	.19
12.4117	.16	.14	.12	.11	.10
12.8282	.10	.09	.09	.08	.08
13.2447	.07	.07	.07	.07	.06
13.6612	.06	.06	.06	.05	.05
14.0777	.05	.05	.05	.05	.05
14.4942	.05	.04	.04	.04	.04
14.9107	.04	.04	.04	.04	.04
15.3272	.04	.04	.04	.04	.03
15.7437	.03	.03	.03	.03	.03
16.1602	.03	.03	.03	.03	.03
16.5767	.03	.03	.03	.03	.03
16.9932	.03	.03	.03	.03	.03
17.4097	.03	.03	.03	.03	.03
17.8262	.03	.03	.02	.02	.02

```
Type.... Pond Routed HYG (total out)                       Page 13.13
Name.... POND 10      OUT   Tag: 10                         Event: 10 yr
File.... V:\05126\63581\Comps\SWM-BMP\PondPack\PERVIOUS PAVEMENT AREA A.PPW
Storm... TypeII  24hr   Tag: 10

          POND ROUTED TOTAL OUTFLOW HYG...
          HYG File = V:\05126\63581\Comps\SWM-BMP\PondPack\work_pad.hyg
          HYG ID   = POND 10      OUT
          HYG Tag  = 10
          ----------------------------------
          Peak Discharge =       .03 cfs
          Time to Peak   =   12.8282 hrs
          HYG Volume     =      3585 cu.ft
          ----------------------------------
```

HYDROGRAPH ORDINATES (cfs)
Output Time Increment = .0833 hrs
Time on left represents time for first value in each row.

Time hrs					
5.3312	.00	.00	.00	.00	.00
5.7477	.00	.00	.00	.00	.00
6.1642	.00	.00	.00	.00	.00
6.5807	.00	.00	.00	.00	.00
6.9972	.00	.00	.00	.00	.00
7.4137	.00	.00	.00	.00	.00
7.8302	.00	.00	.00	.00	.00
8.2467	.00	.00	.00	.00	.00
8.6632	.00	.00	.00	.00	.00
9.0797	.00	.00	.00	.00	.00
9.4962	.00	.00	.00	.00	.00
9.9127	.00	.00	.00	.00	.00
10.3292	.00	.00	.01	.01	.01
10.7457	.01	.01	.01	.01	.01
11.1622	.01	.01	.01	.01	.01
11.5787	.01	.01	.01	.02	.02
11.9952	.02	.03	.03	.03	.03
12.4117	.03	.03	.03	.03	.03
12.8282	.03	.03	.03	.03	.03
13.2447	.03	.03	.03	.03	.03
13.6612	.03	.03	.03	.03	.03
14.0777	.03	.03	.03	.03	.03
14.4942	.03	.03	.03	.03	.03
14.9107	.03	.03	.03	.03	.03
15.3272	.03	.03	.03	.03	.03
15.7437	.03	.03	.03	.03	.03
16.1602	.03	.03	.03	.03	.03
16.5767	.03	.03	.03	.03	.03
16.9932	.03	.03	.03	.03	.03
17.4097	.03	.03	.03	.03	.03
17.8262	.03	.03	.03	.03	.03
18.2427	.03	.03	.03	.03	.03
18.6592	.03	.03	.03	.03	.03
19.0757	.03	.03	.03	.03	.03
19.4922	.03	.03	.03	.03	.03
19.9087	.03	.03	.03	.03	.03
20.3252	.03	.03	.03	.03	.03
20.7417	.03	.03	.03	.03	.03
21.1582	.03	.03	.03	.03	.03
21.5747	.03	.03	.03	.03	.03
21.9912	.03	.03	.03	.03	.03
22.4077	.03	.03	.03	.03	.03
22.8242	.03	.03	.03	.03	.03
23.2407	.03	.03	.03	.03	.03
23.6572	.03	.03	.03	.03	.03
24.0737	.03	.03	.03	.03	.03
24.4902	.03	.03	.03	.03	.03
24.9067	.03	.03	.03	.03	.03
25.3232	.03	.03	.03	.03	.03
25.7397	.03	.03	.03	.03	.03
26.1562	.03	.03	.03	.03	.03
26.5727	.03	.03	.03	.03	.03
26.9892	.03	.03	.03	.03	.03
27.4057	.03	.03	.03	.03	.03
27.8222	.03	.03	.03	.03	.03
28.2387	.03	.03	.03	.02	.02
28.6552	.02	.02	.02	.02	.02
29.0717	.02	.02	.02	.02	.02
29.4882	.02	.02	.02	.02	.02
29.9047	.02	.02	.02	.02	.02
30.3212	.02	.02	.02	.02	.02
30.7377	.02	.02	.02	.02	.02
31.1542	.02	.02	.02	.02	.02
31.5707	.02	.02	.02	.02	.02
31.9872	.02	.02	.02	.02	.02
32.4037	.02	.02	.02	.02	.02
32.8202	.02	.02	.02	.02	.02
33.2367	.02	.02	.02	.02	.02
33.6532	.02	.02	.02	.02	.02
34.0697	.02	.02	.02	.02	.02
34.4862	.02	.02	.02	.02	.02
34.9027	.02	.02	.02	.02	.02
35.3192	.02	.02	.02	.02	.02
35.7357	.02	.02	.02	.02	.02
36.1522	.02	.02	.02	.02	.02
36.5687	.02	.02	.02	.02	.02

Application No. SE 2010-SP-029 Staff B.K.

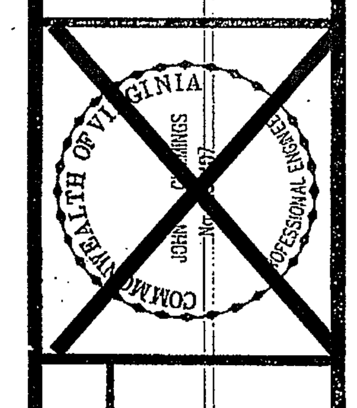
APPROVED SE SP PLAN
SEE DEV CONDS DATED March 8, 2011
Date of (BOS) (BZA) Approval March 8, 2011

Sheet 13 of 15
Concurrent w/ SPA 78-P-192-03

NO.	DESCRIPTION	REVIEW	BY	APPROVED	DATE

REVISIONS APPROVED BY
DIVISION OF DESIGN REVIEW

Rinker Design Associates, P.C.
Engineering * Surveying * Land Planning * Transportation * Environmental Services
9300 West Courthouse Road, Suite 300, Manassas VA, 20110 on the web @ www.rdacivil.com
Telephone: (703) 368-7373 Fax: (703) 257-5443
"Turning Challenges into Opportunities"



SWM COMPUTATIONS
PERVIOUS PAVEMENT AREA "A"
GREENBRIAR PARK IMPROVEMENTS
SPRINGFIELD MAGISTERIAL DISTRICT
FAIRFAX COUNTY, VIRGINIA

REVISIONS:

DATE: JANUARY 5, 2011
SCALE: AS SHOWN
DESIGN: JDC/NVD
DRAFT: JDC/NVD
CHECKED BY: JDC
ARCH: N/A
JOB NUMBER: 05-126-H
SHEET 17

DRAWING NAME:

THIS SHEET IS FOR INFORMATION ONLY, NOT FOR CONSTRUCTION !!!

05-126-H

INDIVIDUAL OUTLET RATING TABLES

Type.... Individual Outlet Curves — Page 12.04
Name.... Outlet 1

File.... V:\05126\63581\Comps\SWM-BMP\PondPack\PERVIOUS PAVEMENT AREA B.PPW

RATING TABLE FOR ONE OUTLET TYPE

Structure ID = OO (Orifice-Circular)

Upstream ID = (Pond Water Surface)
DNstream ID = CO (Culvert-Circular)

Pond WS. Elev. ft	Device Q cfs	(Into) HW HGL ft	Converge DS HGL ft	Next DS HGL ft	DS HGL Error +/-ft	Q SUM Error +/-cfs	DS Chan. TW ft	TW Error +/-ft
333.80	.00	...	...	...	...	...	Free Outfall	
		WS below an invert; no flow.						
334.05	.01	334.05	333.86	333.86	.000	.000	Free Outfall	
		H =.19						
334.30	.01	334.30	333.89	333.89	.000	.000	Free Outfall	
		H =.41						
334.55	.01	334.55	333.89	333.89	.000	.000	Free Outfall	
		H =.66						
334.80	.02	334.80	333.90	333.90	.000	.000	Free Outfall	
		H =.90						
335.05	.02	335.05	333.91	333.91	.000	.000	Free Outfall	
		H =1.14						
335.30	.02	335.30	333.91	333.91	.000	.000	Free Outfall	
		H =1.39						
335.55	.02	335.55	333.92	333.92	.000	.000	Free Outfall	
		H =1.63						
335.80	.02	335.80	333.92	333.92	.000	.000	Free Outfall	
		H =1.88						
336.05	.02	336.05	333.93	333.93	.000	.000	Free Outfall	
		H =2.12						
336.30	.03	336.30	333.93	333.93	.000	.000	Free Outfall	
		H =2.37						
336.55	.03	336.55	333.93	333.93	.000	.000	Free Outfall	
		H =2.62						
336.63	.03	336.63	333.94	333.94	.000	.000	Free Outfall	
		H =2.69						

SWM COMPUTATIONS - INPUT DATA

Type.... Outlet Input Data — Page 12.01
Name.... Outlet 1

File.... V:\05126\63581\Comps\SWM-BMP\PondPack\PERVIOUS PAVEMENT AREA B.PPW

REQUESTED POND WS ELEVATIONS:

Min. Elev. = 333.80 ft
Increment = .25 ft
Max. Elev. = 336.63 ft

****
OUTLET CONNECTIVITY
****

---> Forward Flow Only (UpStream to DnStream)
<--- Reverse Flow Only (DnStream to UpStream)
<---> Forward and Reverse Both Allowed

Structure	No.		Outfall	E1, ft	E2, ft
Orifice-Circular	OO	--->	CO	333.800	336.625
Culvert-Circular	CO	--->	TW	333.800	336.625
TW SETUP, DS Channel					

OUTLET STRUCTURE INPUT DATA

Structure ID = OO
Structure Type = Orifice-Circular

# of Openings = 1
Invert Elev. = 333.80 ft
Diameter = .0660 ft
Orifice Coeff. = .600

Structure ID = CO
Structure Type = Culvert-Circular

No. Barrels = 1
Barrel Diameter = .3300 ft
Upstream Invert = 333.80 ft
Dnstream Invert = 333.00 ft
Horiz. Length = 40.00 ft
Barrel Length = 40.01 ft
Barrel Slope = .02000 ft/ft

OUTLET CONTROL DATA...
Mannings n = .0130
Ke = .5000 (forward entrance loss)
Kb = .137139 (per ft of full flow)
Kr = .5000 (reverse entrance loss)
HW Convergence = .001 +/- ft

INLET CONTROL DATA...
Equation form = 1
Inlet Control K = .0098
Inlet Control M = 2.0000
Inlet Control c = .03980
Inlet Control Y = .6700
T1 ratio (HW/D) = .000
T2 ratio (HW/D) = 1.297
Slope Factor = -.500

Use unsubmerged inlet control Form 1 equ. below T1 elev.
Use submerged inlet control Form 1 equ. above T2 elev.

In transition zone between unsubmerged and submerged inlet control,
interpolate between flows at T1 & T2...
At T1 Elev = 333.80 ft ---> Flow = .17 cfs
At T2 Elev = 334.23 ft ---> Flow = .20 cfs

INDIVIDUAL OUTLET RATING TABLES CONT'D

Type.... Individual Outlet Curves — Page 12.05
Name.... Outlet 1

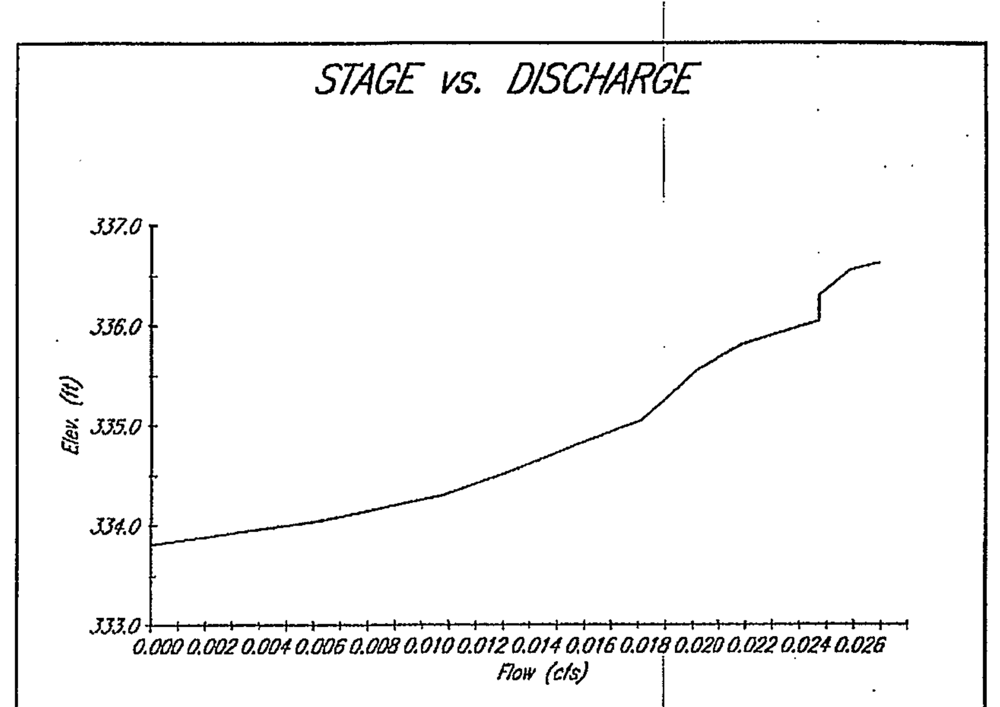
File.... V:\05126\63581\Comps\SWM-BMP\PondPack\PERVIOUS PAVEMENT AREA B.PPW

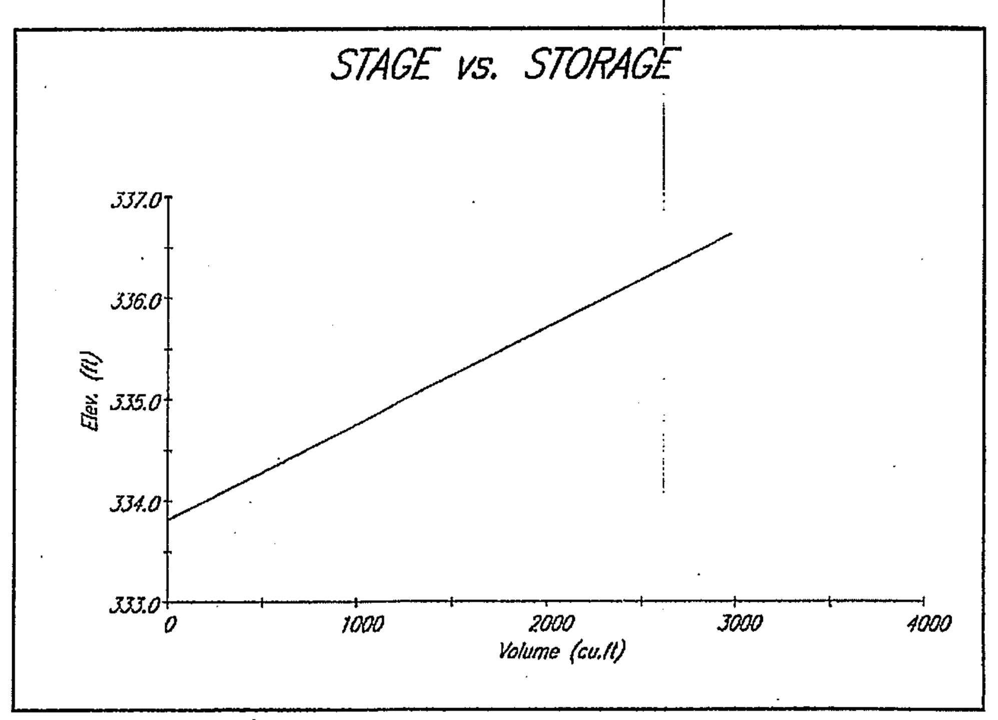
RATING TABLE FOR ONE OUTLET TYPE

Structure ID = CO (Culvert-Circular)

Mannings open channel maximum capacity: .28 cfs
UPstream ID = OO (Orifice-Circular)
DNstream ID = TW (Pond Outfall)

Pond WS. Elev. ft	Device Q cfs	(Into) HW HGL ft	Converge DS HGL ft	Next DS HGL ft	DS HGL Error +/-ft	Q SUM Error +/-cfs	DS Chan. TW ft	TW Error +/-ft
333.80	.00	...	...	...	...	...	Free Outfall	
		WS below an invert; no flow.						
334.05	.01	333.86	Free	Free	.000	.001	Free Outfall	
		CRIT. DEPTH CONTROL		Vh= .014ft	Dcr= .041ft		CRIT. DEPTH Hev= .00ft	
334.30	.01	333.89	Free	Free	.000	.000	Free Outfall	
		CRIT. DEPTH CONTROL		Vh= .020ft	Dcr= .057ft		CRIT. DEPTH Hev= .00ft	
334.55	.01	333.89	Free	Free	.000	.000	Free Outfall	
		CRIT. DEPTH CONTROL		Vh= .022ft	Dcr= .062ft		CRIT. DEPTH Hev= .00ft	
334.80	.02	333.90	Free	Free	.000	.000	Free Outfall	
		CRIT. DEPTH CONTROL		Vh= .023ft	Dcr= .067ft		CRIT. DEPTH Hev= .00ft	
335.05	.02	333.91	Free	Free	.000	.000	Free Outfall	
		CRIT. DEPTH CONTROL		Vh= .025ft	Dcr= .072ft		CRIT. DEPTH Hev= .00ft	
335.30	.02	333.91	Free	Free	.000	.000	Free Outfall	
		CRIT. DEPTH CONTROL		Vh= .026ft	Dcr= .075ft		CRIT. DEPTH Hev= .00ft	
335.55	.02	333.92	Free	Free	.000	.001	Free Outfall	
		CRIT. DEPTH CONTROL		Vh= .027ft	Dcr= .077ft		CRIT. DEPTH Hev= .00ft	
335.80	.02	333.92	Free	Free	.000	.001	Free Outfall	
		CRIT. DEPTH CONTROL		Vh= .028ft	Dcr= .080ft		CRIT. DEPTH Hev= .00ft	
336.05	.02	333.93	Free	Free	.000	.001	Free Outfall	
		CRIT. DEPTH CONTROL		Vh= .030ft	Dcr= .085ft		CRIT. DEPTH Hev= .00ft	
336.30	.02	333.93	Free	Free	.000	.001	Free Outfall	
		CRIT. DEPTH CONTROL		Vh= .030ft	Dcr= .085ft		CRIT. DEPTH Hev= .00ft	
336.55	.03	333.93	Free	Free	.000	.001	Free Outfall	
		CRIT. DEPTH CONTROL		Vh= .031ft	Dcr= .088ft		CRIT. DEPTH Hev= .00ft	
336.63	.03	333.94	Free	Free	.000	.000	Free Outfall	
		CRIT. DEPTH CONTROL		Vh= .032ft	Dcr= .090ft		CRIT. DEPTH Hev= .00ft	





NO.	DESCRIPTION	REVIEW BY	APPROVED	DATE

REVISIONS APPROVED BY
DIVISION OF DESIGN REVIEW

Application No. SE 2010-SP-029 Staff B.K.

APPROVED (SE) SP PLAN
SEE DEV CONDS DATED March 8, 2011
Date of (BOS) (BZA) Approval March 8, 2011

Sheet 14 of 15
Concurrent w/ SPA 78-P-192-03

MASTER NETWORK SUMMARY

Type.... Master Network Summary — Page 1.01
Name.... Watershed
File.... V:\05126\63581\Comps\SWM-BMP\PondPack\PERVIOUS PAVEMENT AREA B.PPW

MASTER DESIGN STORM SUMMARY

Network Storm Collection: Fairfax County-D

Return Event	Total Depth in	Rainfall Type	RNF ID
2	2.0000	Synthetic Curve	TypeII 24hr
10	3.6000	Synthetic Curve	TypeII 24hr

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol cu.ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage cu.ft
*OUT 10	JCT	2	937		13.1614	.01		
*OUT 10	JCT	10	2355		13.4113	.02		
POND 10	IN POND	2	1070		11.9119	.46		
POND 10	IN POND	10	2490		11.9119	1.06		
POND 10	OUT POND	2	940		12.0785	.01	334.44	688
POND 10	OUT POND	10	2359		12.0785	.02	335.44	1763

COMPOSITE RATING CURVE

Type.... Composite Rating Curve — Page 12.06
Name.... Outlet 1

File.... V:\05126\63581\Comps\SWM-BMP\PondPack\PERVIOUS PAVEMENT AREA B.PPW

***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Converge		Notes
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
333.80	.00	Free Outfall		(no Q: OO,CO)
334.05	.01	Free Outfall		OO,CO
334.30	.01	Free Outfall		OO,CO
334.55	.01	Free Outfall		OO,CO
334.80	.02	Free Outfall		OO,CO
335.05	.02	Free Outfall		OO,CO
335.30	.02	Free Outfall		OO,CO
335.55	.02	Free Outfall		OO,CO
335.80	.02	Free Outfall		OO,CO
336.05	.02	Free Outfall		OO,CO
336.30	.02	Free Outfall		OO,CO
336.55	.03	Free Outfall		OO,CO
336.63	.03	Free Outfall		OO,CO

LEVEL POOL ROUTING DATA

Type.... Pond E-V-Q Table — Page 13.01
Name.... POND 10
File.... V:\05126\63581\Comps\SWM-BMP\PondPack\PERVIOUS PAVEMENT AREA B.PPW

LEVEL POOL ROUTING DATA

HYG Dir = V:\05126\63581\Comps\SWM-BMP\PondPack\
Inflow HYG file = work_pad.hyg - POND 10 IN 2
Outflow HYG file = work_pad.hyg - POND 10 OUT 2

Pond Node Data = POND 10
Pond Volume Data = POND 10
Pond Outlet Data = Outlet 1

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 333.80 ft
Starting Volume = 0 cu.ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0833 hrs

Elevation ft	Outflow cfs	Storage cu.ft	Area sq.ft	Infilt. cfs	Q Total cfs	2S/t + O cfs
333.80	.00	0	2682	.00	.00	.00
334.05	.01	268	2682	.00	.01	1.79
334.30	.01	536	2682	.00	.01	3.59
334.55	.01	805	2682	.00	.01	5.38
334.80	.02	1073	2682	.00	.02	7.17
335.05	.02	1341	2682	.00	.02	8.96
335.30	.02	1609	2682	.00	.02	10.75
335.55	.02	1877	2682	.00	.02	12.54
335.80	.02	2146	2682	.00	.02	14.33
336.05	.02	2414	2682	.00	.02	16.12
336.30	.02	2682	2682	.00	.02	17.91
336.55	.03	2950	2682	.00	.03	19.70
336.63	.03	3031	2682	.00	.03	20.24

rda
Rinker Design Associates, P.C.
Engineering * Surveying * Land Planning * Transportation * Environmental Services
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"Turning Challenges into Opportunities"

COMMONWEALTH OF VIRGINIA — JOHN D. CUMMINGS — No. 035?07 — PROFESSIONAL ENGINEER

SWM COMPUTATIONS
PERVIOUS PAVEMENT AREA "B"
GREENBRIAR PARK IMPROVEMENTS
SPRINGFIELD MAGISTERIAL DISTRICT
FAIRFAX COUNTY, VIRGINIA

REVISIONS:

DATE: JANUARY 5, 2011
SCALE: AS SHOWN
DESIGN: JDC/NVD
DRAFT: JDC/NVD
CHECKED BY: JDC
ARCH: N/A
JOB NUMBER: 05-126-H
SHEET 18

DRAWING NAME:

PLEASE RETURN TO COMMUNITY ASSOCIATION ENGINEERING
703-541-2000 www.cae.us.com

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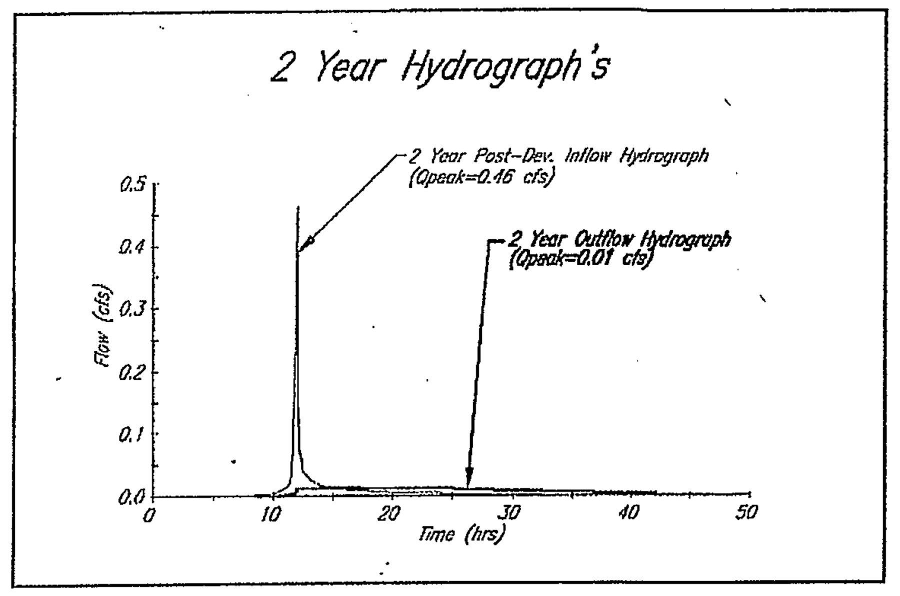
SHEET: SPECIAL EXCEPTION
6H OF 6

2 YEAR STORM CALCULATIONS



2 YEAR POND ROUTING SUMMARY

Type.... Pond Routing Summary — Page 13.08
Name.... POND 10 OUT Tag: 2 — Event: 2 yr
File.... V:\05126\63581\Comps\SWM-BMP\PondPack\PERVIOUS PAVEMENT AREA B.PPW
Storm... TypeII 24hr Tag: 2

LEVEL POOL ROUTING SUMMARY

HYG Dir = V:\05126\63581\Comps\SWM-BMP\PondPack\
Inflow HYG file = work_pad.hyg - POND 10 IN 2
Outflow HYG file = work_pad.hyg - POND 10 OUT 2

Pond Node Data = POND 10
Pond Volume Data = POND 10
Pond Outlet Data = Outlet 1

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 333.80 ft
Starting Volume = 0 cu.ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0833 hrs

INFLOW/OUTFLOW HYDROGRAPH SUMMARY

Peak Inflow = .46 cfs at 11.9119 hrs
Peak Outflow = .01 cfs at 12.0785 hrs

Peak Elevation = 334.44 ft
Peak Storage = 688 cu.ft

MASS BALANCE (cu.ft)

+ Initial Vol = 0
+ HYG Vol IN = 1070
- Infiltration = 0
- HYG Vol OUT = 940
- Retained Vol = 130

Unrouted Vol = - cu.ft (.001% of Inflow Volume)

2 YEAR POST DEVELOPMENT INFLOW HYDROGRAPH

Type.... Node: Pond Inflow Summary — Page 13.03
Name.... POND 10 IN — Event: 2 yr
File.... V:\05126\63581\Comps\SWM-BMP\PondPack\PERVIOUS PAVEMENT AREA B.PPW
Storm... TypeII 24hr Tag: 2

TOTAL NODE INFLOW...
HYG file = V:\05126\63581\Comps\SWM-BMP\PondPack\work_pad.hyg
HYG ID = POND 10 IN
HYG Tag = 2

Peak Discharge = .46 cfs
Time to Peak = 11.9119 hrs
HYG Volume = 1070 cu.ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0833 hrs
Time on left represents time for first value in each row.

Time hrs					
8.4966	.00	.00	.00	.00	.00
8.9131	.00	.00	.00	.00	.00
9.3296	.00	.00	.00	.00	.00
9.7461	.00	.00	.00	.00	.00
10.1626	.01	.01	.01	.01	.01
10.5791	.01	.01	.01	.01	.01
10.9956	.01	.01	.02	.02	.02
11.4121	.02	.03	.05	.09	.16
11.8286	.26	.46	.40	.17	.08
12.2451	.07	.06	.05	.04	.04
12.6616	.04	.03	.03	.03	.03
13.0781	.03	.03	.02	.02	.02
13.4946	.02	.02	.02	.02	.02
13.9111	.02	.02	.02	.02	.02
14.3276	.02	.02	.02	.01	.01
14.7441	.01	.01	.01	.01	.01
15.1606	.01	.01	.01	.01	.01
15.5771	.01	.01	.01	.01	.01
15.9936	.01	.01	.01	.01	.01
16.4101	.01	.01	.01	.01	.01
16.8266	.01	.01	.01	.01	.01
17.2431	.01	.01	.01	.01	.01
17.6596	.01	.01	.01	.01	.01
18.0761	.01	.01	.01	.01	.01
18.4926	.01	.01	.01	.01	.01
18.9091	.01	.01	.01	.01	.01
19.3256	.01	.01	.01	.01	.01
19.7421	.01	.01	.01	.01	.01
20.1586	.01	.01	.01	.01	.01
20.5751	.01	.01	.01	.01	.01
20.9916	.01	.01	.01	.01	.01

2 YEAR POST DEVELOPMENT OUTFLOW HYDROGRAPH

Type.... Pond Routed HYG (total out) — Page 13.09
Name.... POND 10 OUT Tag: 2 — Event: 2 yr
File.... V:\05126\63581\Comps\SWM-BMP\PondPack\PERVIOUS PAVEMENT AREA B.PPW
Storm... TypeII 24hr Tag: 2

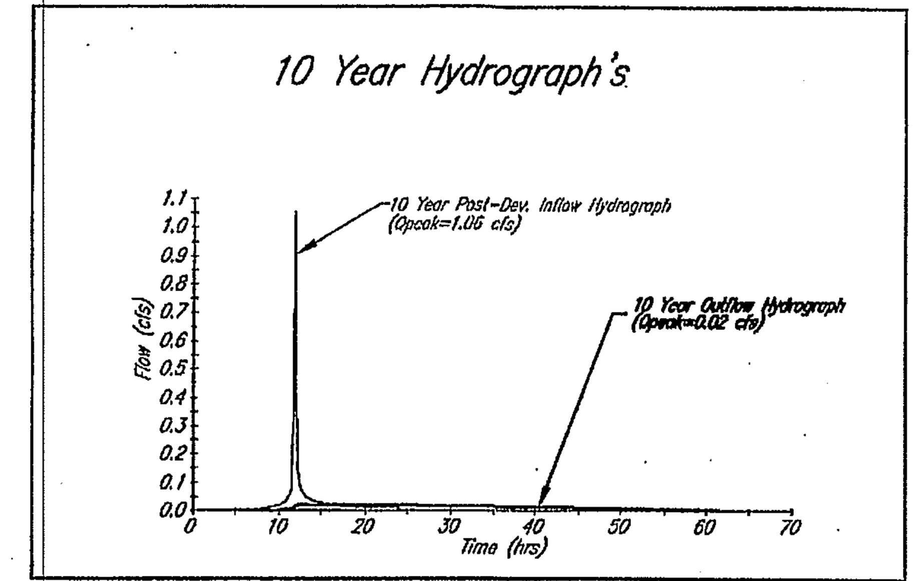
POND ROUTED TOTAL OUTFLOW HYG...
HYG file = V:\05126\63581\Comps\SWM-BMP\PondPack\work_pad.hyg
HYG ID = POND 10 OUT
HYG Tag = 2

Peak Discharge = .01 cfs
Time to Peak = 12.0785 hrs
HYG Volume = 940 cu.ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0833 hrs
Time on left represents time for first value in each row.

Time hrs					
8.4966	.00	.00	.00	.00	.00
8.9131	.00	.00	.00	.00	.00
9.3296	.00	.00	.00	.00	.00
9.7461	.00	.00	.00	.00	.00
10.1626	.00	.00	.00	.00	.00
10.5791	.00	.00	.00	.00	.00
10.9956	.00	.00	.00	.00	.00
11.4121	.00	.00	.00	.00	.00
11.8286	.00	.01	.01	.01	.01
12.2451	.01	.01	.01	.01	.01
12.6616	.01	.01	.01	.01	.01
13.0781	.01	.01	.01	.01	.01
13.4946	.01	.01	.01	.01	.01
13.9111	.01	.01	.01	.01	.01
14.3276	.01	.01	.01	.01	.01
14.7441	.01	.01	.01	.01	.01
15.1606	.01	.01	.01	.01	.01
15.5771	.01	.01	.01	.01	.01
15.9936	.01	.01	.01	.01	.01
16.4101	.01	.01	.01	.01	.01
16.8266	.01	.01	.01	.01	.01
17.2431	.01	.01	.01	.01	.01
17.6596	.01	.01	.01	.01	.01
18.0761	.01	.01	.01	.01	.01
18.4926	.01	.01	.01	.01	.01
18.9091	.01	.01	.01	.01	.01
19.3256	.01	.01	.01	.01	.01
19.7421	.01	.01	.01	.01	.01
20.1586	.01	.01	.01	.01	.01
20.5751	.01	.01	.01	.01	.01
20.9916	.01	.01	.01	.01	.01
21.4081	.01	.01	.01	.01	.01
21.8246	.01	.01	.01	.01	.01
22.2411	.01	.01	.01	.01	.01
22.6576	.01	.01	.01	.01	.01
23.0741	.01	.01	.01	.01	.01
23.4906	.01	.01	.01	.01	.01
23.9071	.01	.01	.01	.01	.01
24.3236	.01	.01	.01	.01	.01
24.7401	.01	.01	.01	.01	.01
25.1566	.01	.01	.01	.01	.01
25.5731	.01	.01	.01	.01	.01
25.9896	.01	.01	.01	.01	.01
26.4061	.01	.01	.01	.01	.01
26.8226	.01	.01	.01	.01	.01
27.2391	.01	.01	.01	.01	.01
27.6556	.01	.01	.01	.01	.01
28.0721	.01	.01	.01	.01	.01
28.4886	.01	.01	.01	.01	.01
28.9051	.01	.01	.01	.01	.01
29.3216	.01	.01	.01	.01	.01
29.7381	.01	.01	.01	.01	.01
30.1546	.01	.01	.01	.01	.01
30.5711	.01	.01	.01	.01	.01
30.9876	.01	.01	.01	.01	.01
31.4041	.01	.01	.01	.01	.01
31.8206	.01	.01	.01	.01	.01
32.2371	.01	.01	.01	.01	.01
32.6536	.01	.01	.01	.01	.01
33.0701	.01	.01	.01	.01	.01
33.4866	.01	.01	.01	.01	.01
33.9031	.01	.01	.01	.01	.01
34.3196	.01	.01	.01	.01	.01
34.7361	.01	.01	.01	.01	.01
35.1526	.01	.01	.01	.01	.01
35.5691	.01	.01	.01	.01	.01
35.9856	.00	.00	.00	.00	.00
36.4021	.00	.00	.00	.00	.00
36.8186	.00	.00	.00	.00	.00
37.2351	.00	.00	.00	.00	.00
37.6516	.00	.00	.00	.00	.00
38.0681	.00	.00	.00	.00	.00
38.4846	.00	.00	.00	.00	.00
38.9011	.00	.00	.00	.00	.00
39.3176	.00	.00	.00	.00	.00
39.7341	.00	.00	.00	.00	.00
40.1506	.00	.00	.00	.00	.00
40.5671	.00	.00	.00	.00	.00
40.9836	.00	.00	.00	.00	.00
41.4001	.00	.00	.00	.00	.00
41.8166	.00	.00	.00	.00	.00

10 YEAR STORM CALCULATIONS



10 YEAR POND ROUTING SUMMARY

Type.... Pond Routing Summary — Page 13.12
Name.... POND 10 OUT Tag: 10 — Event: 10 yr
File.... V:\05126\63581\Comps\SWM-BMP\PondPack\PERVIOUS PAVEMENT AREA B.PPW
Storm... TypeII 24hr Tag: 10

LEVEL POOL ROUTING SUMMARY

HYG Dir = V:\05126\63581\Comps\SWM-BMP\PondPack\
Inflow HYG file = work_pad.hyg - POND 10 IN 10
Outflow HYG file = work_pad.hyg - POND 10 OUT 10

Pond Node Data = POND 10
Pond Volume Data = POND 10
Pond Outlet Data = Outlet 1

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 333.80 ft
Starting Volume = 0 cu.ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0833 hrs

INFLOW/OUTFLOW HYDROGRAPH SUMMARY

Peak Inflow = 1.06 cfs at 11.9119 hrs
Peak Outflow = .02 cfs at 12.0785 hrs

Peak Elevation = 335.44 ft
Peak Storage = 1763 cu.ft

MASS BALANCE (cu.ft)

+ Initial Vol = 0
+ HYG Vol IN = 2490
- Infiltration = 0
- HYG Vol OUT = 2359
- Retained Vol = 130

Unrouted Vol = - cu.ft (.000% of Inflow Volume)

10 YEAR POST DEVELOPMENT INFLOW HYDROGRAPH

Type.... Node: Pond Inflow Summary — Page 13.06
Name.... POND 10 IN — Event: 10 yr
File.... V:\05126\63581\Comps\SWM-BMP\PondPack\PERVIOUS PAVEMENT AREA B.PPW
Storm... TypeII 24hr Tag: 10

TOTAL NODE INFLOW...
HYG file = V:\05126\63581\Comps\SWM-BMP\PondPack\work_pad.hyg
HYG ID = POND 10 IN
HYG Tag = 10

Peak Discharge = 1.06 cfs
Time to Peak = 11.9119 hrs
HYG Volume = 2490 cu.ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0833 hrs
Time on left represents time for first value in each row.

Time hrs					
5.4978	.00	.00	.00	.00	.00
5.9143	.00	.00	.00	.00	.00
6.3308	.00	.00	.00	.00	.00
6.7473	.00	.00	.00	.00	.00
7.1638	.00	.00	.00	.00	.00
7.5803	.01	.01	.01	.01	.01
7.9968	.01	.01	.01	.01	.01
8.4133	.01	.01	.01	.01	.01
8.8298	.01	.01	.01	.01	.01
9.2463	.01	.01	.01	.01	.01
9.6628	.01	.02	.02	.02	.02
10.0793	.02	.02	.02	.02	.02
10.4958	.03	.03	.03	.03	.03
10.9123	.04	.04	.04	.05	.05
11.3288	.06	.07	.07	.13	.25
11.7453	.40	.62	1.06	.87	.36
12.1618	.17	.14	.13	.11	.09
12.5783	.08	.07	.07	.07	.06
12.9948	.06	.05	.05	.05	.05
13.4113	.05	.04	.04	.04	.04
13.8278	.04	.04	.03	.03	.03
14.2443	.03	.03	.03	.03	.03
14.6608	.03	.03	.03	.03	.03
15.0773	.03	.03	.03	.03	.03
15.4938	.02	.02	.02	.02	.02
15.9103	.02	.02	.02	.02	.02
16.3268	.02	.02	.02	.02	.02
16.7433	.02	.02	.02	.02	.02
17.1598	.02	.02	.02	.02	.02
17.5763	.02	.02	.02	.02	.02
17.9928	.02	.02	.02	.02	.02

10 YEAR POST DEVELOPMENT OUTFLOW HYDROGRAPH

Type.... Pond Routed HYG (total out) — Page 13.13
Name.... POND 10 OUT Tag: 10 — Event: 10 yr
File.... V:\05126\63581\Comps\SWM-BMP\PondPack\PERVIOUS PAVEMENT AREA B.PPW
Storm... TypeII 24hr Tag: 10

POND ROUTED TOTAL OUTFLOW HYG...
HYG file = V:\05126\63581\Comps\SWM-BMP\PondPack\work_pad.hyg
HYG ID = POND 10 OUT
HYG Tag = 10

Peak Discharge = .02 cfs
Time to Peak = 12.0785 hrs
HYG Volume = 2359 cu.ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0833 hrs
Time on left represents time for first value in each row.

Time hrs					
5.4978	.00	.00	.00	.00	.00
5.9143	.00	.00	.00	.00	.00
6.3308	.00	.00	.00	.00	.00
6.7473	.00	.00	.00	.00	.00
7.1638	.00	.00	.00	.00	.00
7.5803	.00	.00	.00	.00	.00
7.9968	.00	.00	.00	.00	.00
8.4133	.00	.00	.00	.00	.00
8.8298	.00	.00	.00	.00	.00
9.2463	.00	.00	.00	.00	.00
9.6628	.00	.00	.00	.00	.00
10.0793	.00	.00	.00	.00	.00
10.4958	.00	.00	.00	.00	.00
10.9123	.00	.00	.00	.00	.01
11.3288	.01	.01	.01	.01	.01
11.7453	.01	.01	.01	.02	.02
12.1618	.02	.02	.02	.02	.02
12.5783	.02	.02	.02	.02	.02
12.9948	.02	.02	.02	.02	.02
13.4113	.02	.02	.02	.02	.02
13.8278	.02	.02	.02	.02	.02
14.2443	.02	.02	.02	.02	.02
14.6608	.02	.02	.02	.02	.02
15.0773	.02	.02	.02	.02	.02
15.4938	.02	.02	.02	.02	.02
15.9103	.02	.02	.02	.02	.02
16.3268	.02	.02	.02	.02	.02
16.7433	.02	.02	.02	.02	.02
17.1598	.02	.02	.02	.02	.02
17.5763	.02	.02	.02	.02	.02
17.9928	.02	.02	.02	.02	.02
18.4093	.02	.02	.02	.02	.02
18.8258	.02	.02	.02	.02	.02
19.2423	.02	.02	.02	.02	.02
19.6588	.02	.02	.02	.02	.02
20.0753	.02	.02	.02	.02	.02
20.4918	.02	.02	.02	.02	.02
20.9083	.02	.02	.02	.02	.02
21.3248	.02	.02	.02	.02	.02
21.7413	.02	.02	.02	.02	.02
22.1578	.02	.02	.02	.02	.02
22.5743	.02	.02	.02	.02	.02
22.9908	.02	.02	.02	.02	.02
23.4073	.02	.02	.02	.02	.02
23.8238	.02	.02	.02	.02	.02
24.2403	.02	.02	.02	.02	.02
24.6568	.02	.02	.02	.02	.02
25.0733	.02	.02	.02	.02	.02
25.4898	.02	.02	.02	.02	.02
25.9063	.02	.02	.02	.02	.02
26.3228	.02	.02	.02	.02	.02
26.7393	.02	.02	.02	.02	.02
27.1558	.02	.02	.02	.02	.02
27.5723	.02	.02	.02	.02	.02
27.9888	.02	.02	.02	.02	.02
28.4053	.02	.02	.02	.02	.02
28.8218	.02	.02	.02	.02	.02
29.2383	.02	.02	.02	.02	.02
29.6548	.02	.02	.02	.02	.02
30.0713	.02	.02	.02	.02	.02
30.4878	.02	.02	.02	.02	.02
30.9043	.02	.02	.02	.02	.02
31.3208	.02	.02	.02	.02	.02
31.7373	.02	.02	.02	.02	.02
32.1538	.02	.02	.02	.02	.02
32.5703	.02	.02	.02	.02	.02
32.9868	.02	.02	.02	.02	.02
33.4033	.02	.02	.02	.02	.02
33.8198	.01	.01	.01	.01	.01
34.2363	.01	.01	.01	.01	.01
34.6528	.01	.01	.01	.01	.01
35.0693	.01	.01	.01	.01	.01
35.4858	.01	.01	.01	.01	.01
35.9023	.01	.01	.01	.01	.01
36.3188	.01	.01	.01	.01	.01
36.7353	.01	.01	.01	.01	.01

Application No. SE 2010-SP-029 Staff B.K.
APPROVED SE / SP PLAN
SEE DEV CONDS DATED March 8, 2011
Date of (BOS) (BZA) Approval March 8, 2011
Sheet 15 of 15
Concurrent w/ SPA 78-P-192-03

NO.	DESCRIPTION	REVIEW BY	APPROVED	DATE

REVISIONS APPROVED BY
DIVISION OF DESIGN REVIEW

Rinker Design Associates, P.C.
Engineering * Surveying * Land Planning * Transportation * Environmental Services
9300 West Courthouse Road, Suite 300, Manassas VA, 20110 ... on the web @ www.rdacivil.com
Telephone: (703) 368-7373 — Fax: (703) 257-5443
"Turning Challenges into Opportunities"

COMMONWEALTH OF VIRGINIA — JOHN D. CUMMINGS — No. 035... — PROFESSIONAL ENGINEER

SWM COMPUTATIONS
PERVIOUS PAVEMENT AREA "B"
GREENBRIAR PARK IMPROVEMENTS
SPRINGFIELD MAGISTERIAL DISTRICT
FAIRFAX COUNTY, VIRGINIA

REVISIONS:

DATE: JANUARY 5, 2011
SCALE: AS SHOWN
DESIGN: JDC/NVD
DRAFT: JDC/NVD
CHECKED BY: JDC
ARCH: N/A
JOB NUMBER: 05-126-H
SHEET 19

05-126-H
DRAWING NAME:

PLEASE RETURN TO COMMUNITY ASSOCIATION ENGINEERING
703-541-2000 www.cae.us.com

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SHEET: SPECIAL EXCEPTION
6I OF 6