

ABBREVIATIONS
 INF = INFILTRATION TRENCH
 BIO = BIORETENTION AREA
 PP = PERMEABLE PAVER BLOCKS
 CONS = CONSERVATION EASEMENT

BMP Facility Design Calculations

Plan Name: OAKTON LIBRARY BMP RETROFITS
 Plan Number:

I. Water Quality Narrative
 THE NARRATIVE IS PROVIDED BELOW THE BMP

II. Watershed Information

Part 1 - List all of the Subareas and "C" Factors used in the

Subarea Designation and Description

Subarea Designation	Description
#1 - ONSITE, DEV. CONTROLLED TO INF	
#2 - ONSITE, DEV. UNCONTROLLED TO STORM MANHOLE	
#3 - ONSITE, DEV. CONTROLLED TO BIO/INF	
#4 - ONSITE, DEV. CONTROLLED TO INF	
#5 - ONSITE, DEV. CONTROLLED TO INF	
#6 - ONSITE, DEV. CONTROLLED TO BIO/INF	
#7 - ONSITE, DEV. UNCONTROLLED TO STORM INLET	
#8 - ONSITE, DEV. CONTROLLED TO PP	
#9 - ONSITE, DEV. CONTROLLED TO PP	
#9a - ONSITE, DEV. CONTROLLED TO PP	
#10 - ONSITE, UNDEV. UNCONTROLLED TO OFF-SITE	
#11 - ONSITE, DEV. UNCONTROLLED TO STORM INLET	
#12 - ONSITE, DEV. UNCONTROLLED TO STORM INLET	
#13 - ONSITE, DEV. UNCONTROLLED TO OFF-SITE	
#14 - ONSITE, UNDEV. UNCONTROLLED TO CONS	

NOTE: Rational formula "C" factors are taken from the general table 1 or 4-2 depending on the location of the BMP facility (Fairfax County AS-19 or Prince William County Design and Construction Standard)

Appendix 4-4a Calculations Worksheet

Part 2 - Compute the Weighted Average "C" Factor for the

Subarea Designation	"C" Factor	Area (Ac.)	Weighted "C"
#1	0.90	X	
#2	0.90	X	
#3	0.69	X	
#4	0.74	X	
#5	0.78	X	
#6	0.79	X	
#7	0.74	X	
#8	0.73	X	
#9	0.71	X	
#9a	0.72	X	
#10	0.36	X	
#11	0.32	X	
#12	0.41	X	
#13	0.33	X	
#14	0.30	X	

(C) Weighted average "C" factor

Part 3 - Compute the Total Phosphorus Removal for the

Subarea Designation	BMP Type	Removal Eff. (%)	Area (Ac.)	Removal Ratio
#1	INF	65	X	0.09
#3	BIO/INF	65	X	0.13
#4	INF	65	X	0.08
#5	BIO/INF	65	X	0.13
#6	BIO/INF	65	X	0.06
#8	PP	35	X	0.04
#9	PP	35	X	0.04
#9a	PP	35	X	0.05
#14	CONS	100	X	0.11

Appendix 4-4c Calculations Worksheet

D.A. 2
 A = 0.13 Ac.
 C = 0.90
 ROOF DRAIN
 (TO STORM
 MANHOLE)

D.A. 14
 A = 0.33 Ac.
 C = 0.90
 CONSERV.
 EASEMENT

D.A. 9
 A = 0.11 Ac.
 C = 0.71
 TO PP

D.A. 10
 A = 0.22 Ac.
 C = 0.36
 TO OFF-SITE

D.A. 9a
 A = 0.15 Ac.
 C = 0.72
 TO PP

- LEGEND**
- AREA DRAINING TO PERMEABLE PAVER BLOCKS
 - AREA DRAINING TO BIORETENTION/ INFILTRATION TRENCH
 - AREA IN CONSERVATION EASEMENT
 - AREA DRAINING TO INFILTRATION TRENCH

D.A. 1
 A = 0.27 Ac.
 C = 0.90
 ROOF DRAIN
 (TO INF)

D.A. 11
 A = 0.07 Ac.
 C = 0.32
 TO STORM INLET

D.A. 8
 A = 0.11 Ac.
 C = 0.73
 TO PP

D.A. 7
 A = 0.11 Ac.
 C = 0.74
 TO STORM INLET

D.A. 4
 A = 0.23 Ac.
 C = 0.74
 TO INF

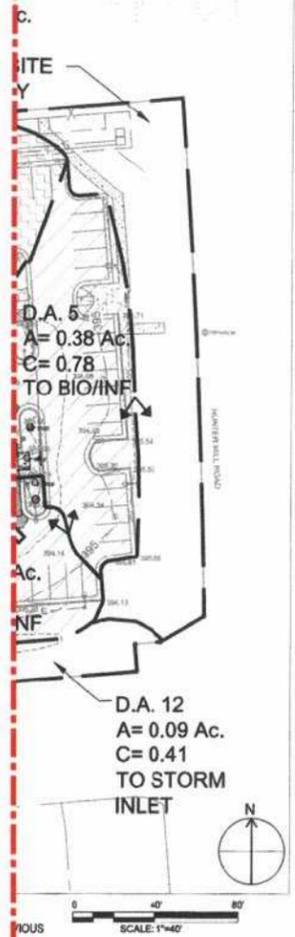
D.A. 3
 A = 0.37 Ac.
 C = 0.69
 TO BIO/INF

D.A. 13
 A = 0.24 Ac.
 C = 0.33
 TO OFF-SITE
 ROADWAY

D.A. 6
 A = 0.16 Ac.
 C = 0.79
 TO BIO/INF

D.A. 5
 A = 0.38 Ac.
 C = 0.78
 TO BIO/INF

D.A. 12
 A = 0.09 Ac.
 C = 0.41
 TO STORM
 INLET



QUALITY TREATMENT. IN ORDER TO MEET THE PROPOSED UNDER THIS PLAN, IN ADDITION, A 0.33 AC. DEDICATED AND RECORDED AS DB 22862, PG 1722, AN ISLAND OF THE EAST PARKING AREA AND FACILITY HAS TWO STORMTECH ISOLATOR ROWS, TREATS A PORTION OF THE LIBRARY ROOF, AND HAS SEVERAL INFLOW METHODS THAT INCLUDE W (D.A. 3), AND FINALLY A SPLITTER MANHOLE FOR FACILITY RELIES ON INFILTRATION (1.0 INCH PER EXISTING STORM SYSTEM, THE DRAINS ARE ABOVE IS NOT FEASIBLE. THE FACILITY PROVIDES IS SHOWN IN THE BMP MAP.

HOURLY RATE) SO A SERIES OF UNDERDRAINS AND A TO AN EXISTING CURB INLET NEAR THE SYSTEM. THE 8 AND 9, AS SHOWN IN THE BMP MAP.

TION FACILITY, AND THE PERMEABLE PAVERS CEEDS THE REQUIREMENT OF 40%.

TER AREAS DRAINING TO NEARBY INLETS OFF-SITE. NO DISTURBANCE WOULD BE REQUIRED AND IT WAS A. 10 DRAINS THROUGH TO THE CONSERVATION

TORMWATER RUNOFF.

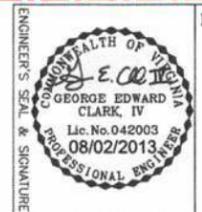
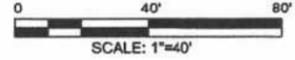
DEVELOPMENT FLOW DOES NOT EXCEED THE

Northern Virginia BMP Handbook 11/5/92

Design 2 (4.0 x Volume of runoff from mean storm)

BMP MAP

ABBREVIATION
 D.A. = DRAINAGE AREA OF SUBAREA (PERVIOUS AREA + IMPERVIOUS AREA)



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 3859 CENTERVIEW DRIVE, SUITE 100
 CHANTILLY, VA 20151
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NO.	DESCRIPTION	BY	APPROVED	DATE

911
 FAIRFAX COUNTY, VIRGINIA
 DEPARTMENT OF PUBLIC WORKS
 AND ENVIRONMENTAL SERVICES
 CAPITAL FACILITIES

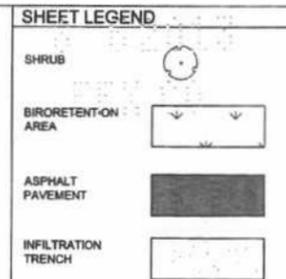
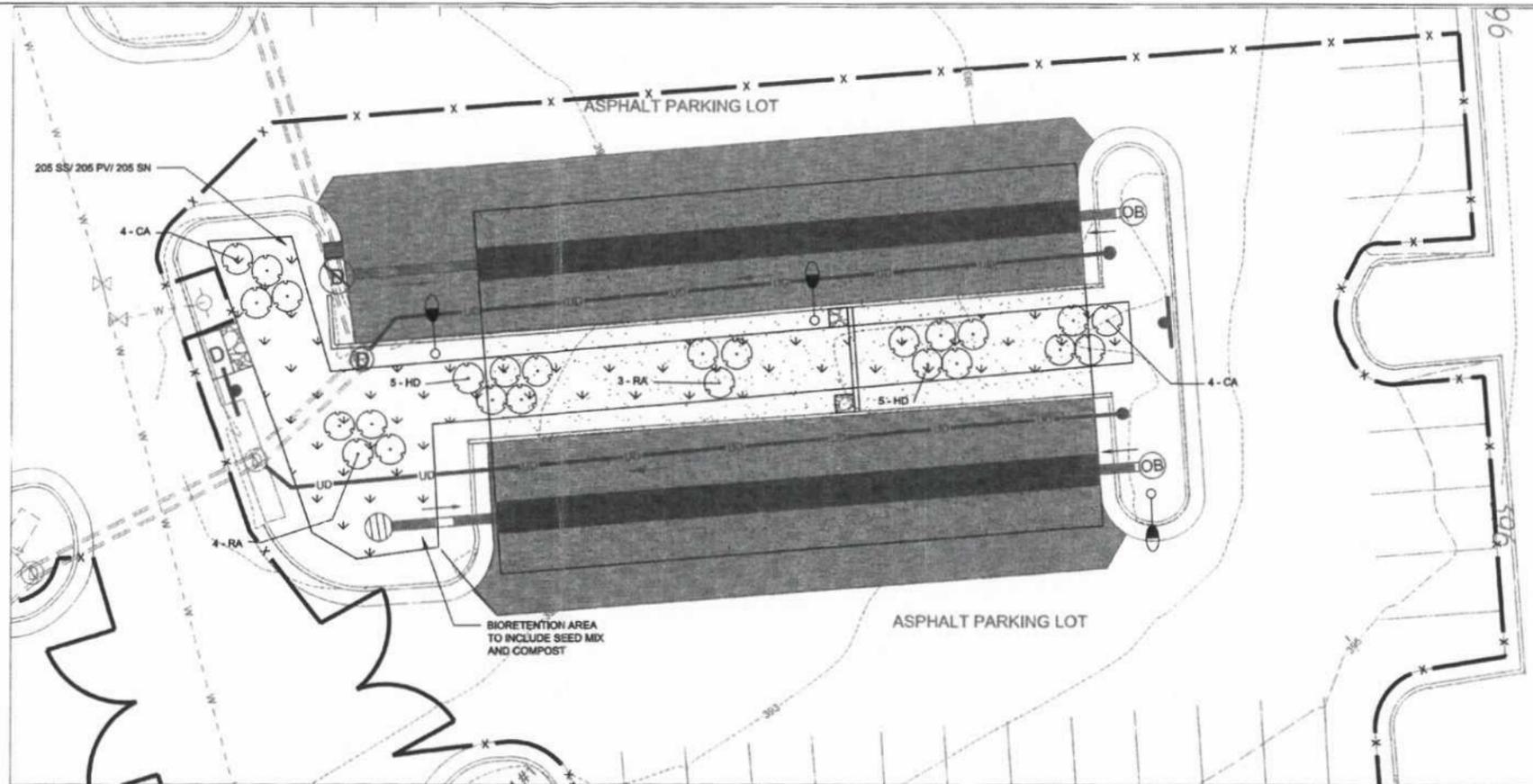
**OAKTON LIBRARY BMP RETROFITS
 BMP CALCS. AND NARRATIVE**

CONTRACT NO. XXXXXXXXXX PROJECT NO. 302/004839
 SCALE 1"=40' DESIGNED BY: GFC
 DRAFTED BY: RJB CHECKED BY: TAS SHEET CJ601

FUND# xxx

GENERAL NOTES:

1. LANDSCAPE CONTRACTOR SHALL VERIFY ALL QUANTITIES AND SHALL NOTIFY LANDSCAPE ARCHITECT OF ANY DISCREPANCIES.
2. THE LANDSCAPE CONTRACTOR SHALL VERIFY THE EXISTENCE OF AND STAKE ALL UTILITIES PRIOR TO CONSTRUCTION. EXCAVATION OF PLANT PITS LOCATED WITHIN 5' OF UTILITIES SHALL BE PERFORMED BY HAND. ANY UTILITY/PLANT MATERIAL CONFLICTS SHALL BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION OR ANY FIELD ADJUSTMENTS.
3. THE LANDSCAPE CONTRACTOR SHALL SUPPLY ALL PLANT MATERIALS IN QUANTITIES SUFFICIENT TO COMPLETE THE PLANTINGS SHOWN ON ALL DRAWINGS. ALL PLANTS SHALL MEET SPECIES AND SIZE SPECIFIED ON THE APPROVED PLANS. THE CONTRACTOR SHALL GUARANTEE PLANT HEALTH AND SURVIVABILITY FOR ONE YEAR FROM DATE OF PROJECT ACCEPTANCE. ANY MATERIAL NOT MEETING SPECIFICATIONS OR DISPLAYING POOR HEALTH SHALL BE REPLACED AT CONTRACTOR'S EXPENSE.
4. ALL PLANT MATERIAL SHALL MEET THE STANDARD SPECIFIED IN AMERICAN STANDARD FOR NURSERY STOCK (ANSI Z60.1). NOTIFY LANDSCAPE ARCHITECT A MINIMUM OF ONE WEEK PRIOR TO PLANT DELIVERY TO SCHEDULE ON-SITE INSPECTION UPON DELIVERY. INSTALLED PLANT MATERIAL NOT MEETING SPECIFICATIONS SHALL BE REMOVED AND REPLACED AT CONTRACTOR'S EXPENSE.
5. THE LANDSCAPE ARCHITECT RESERVES THE RIGHT TO MAKE PLANTING BED FIELD CHANGES TO ACCOMMODATE SITE CONDITIONS AND TO ACHIEVE THE DESIGN INTENT. THE LANDSCAPE CONTRACTOR SHALL FLAG ALL TREE AND BURLINE LOCATIONS FOR APPROVAL BY LANDSCAPE ARCHITECT PRIOR TO ANY INSTALLATION.
6. ALL PLANTS SHALL BE PLANTED AS SPECIFIED IN VIRGINIA COOPERATIVE EXTENSION PUBLICATION 430-295, "TREE AND SHRUB PLANTING GUIDELINES."
7. PFM 12-0705 SHALL BE FOLLOWED FOR TREE AND SHRUB GUIDELINES, TO INCLUDE STORAGE, MULCHING, WATERING, ETC.
8. TREES SHALL NOT BE INSTALLED WITHIN 4 FEET OF ANY BARRIER.
9. DO NOT CREATE MOUNDS FOR TREES IN PARKING ISLANDS. INSTALL ALL PLANTS WITH TOP OF ROOT BALL AT GRADE.
10. THE LANDSCAPE CONTRACTOR SHALL CONDUCT REPRESENTATIVE SOIL ANALYSIS PRIOR TO THE INSTALLATION OF ANY PLANT MATERIAL. THE LANDSCAPE CONTRACTOR SHALL NOTIFY THE LANDSCAPE ARCHITECT OF ANY IMPROPER SOIL CONDITION (NUTRITIONAL DEFICIENCIES, WETNESS, MUCK, DEBRIS, ETC.) AND SHALL RECOMMEND FOR APPROVAL, PRIOR TO INSTALLATION, ALL SOIL AMENDMENTS THAT MAY BE NECESSARY TO PROMOTE HEALTHY, VIGOROUS PLANT GROWTH.
11. THE LANDSCAPE CONTRACTOR SHALL REPAIR OR REPLACE ANY EXISTING VEGETATION DISTURBED BY PLANT MATERIAL INSTALLATION ACTIVITIES. THIS REPAIR/REPLACEMENT SHALL BLEND SEAMLESSLY WITH THE EXISTING LANDSCAPE. LANDSCAPE CONTRACTOR SHALL SOO ALL DISTURBED AREAS.
12. THE LANDSCAPE CONTRACTOR SHALL COORDINATE WITH THE GENERAL CONTRACTOR IN PREPARING PLANTING AREA FINAL GRADE ELEVATIONS.
13. LANDSCAPE CONTRACTOR SHALL NOTIFY LANDSCAPE ARCHITECT A MINIMUM OF 48 HOURS PRIOR TO COMPLETION TO SCHEDULE FINAL WALK THROUGH. A FINAL WALK THROUGH SHALL NOT BE PERFORMED IF PREVIOUS PUNCH LIST ITEMS ARE NOT COMPLETED.
14. BIORETENTION FACILITIES SHALL BE POSTED WITH PERMANENT SIGNS DESIGNATING THE AREA AS A WATER QUALITY MANAGEMENT AREA PER PFM 6-1307.3C, PLATE 61-6.



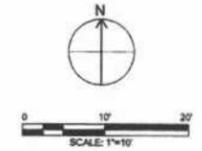
BIORETENTION AREA TO receive SEED MIX and COMPOST Indicated below:
Seed Mix Details

Scientific Name	Common Name	Percent of Mix
Sunny Meadow Mix		
<i>Andropogon virginicus</i>	Broomsedge	5
<i>Asclepias tuberosa</i>	Butterfly Weed	10
<i>Chamaecrista fasciculata</i>	Partridge Pea	10
<i>Coreopsis lanceolata</i>	Lance-Leaf Coreopsis	10
<i>Liatris spicata</i>	Marsh Blazing Star	10
<i>Lupinus perennis</i>	Wild Lupine	5
<i>Schizachyrium scoparium</i>	Little Bluestem	40
<i>Sorghastrum nutans</i>	Indian Grass	10
		Total: 100
Cover Crop		
<i>Lolium multiflorum</i>	Annual rye	Total: 100

Plant any trees, shrubs, or potted plants prior to application of specified compost blanket. Apply 3-inch blanket of specified compost prior to or during seed application. Compost shall be Solimite Compost available from Loudoun Composting 44150 Wade Drive, Chantilly, VA 20152. Phone: 703-327-8428, FAX: 703-327-0649 or an approved equal. The paper work (shipping invoices), samples and STA certifications for all compost used shall be submitted and approved prior to installation. Alternates must be STA approved by the U.S. Composting Council's Seal of Testing Assurance Program.

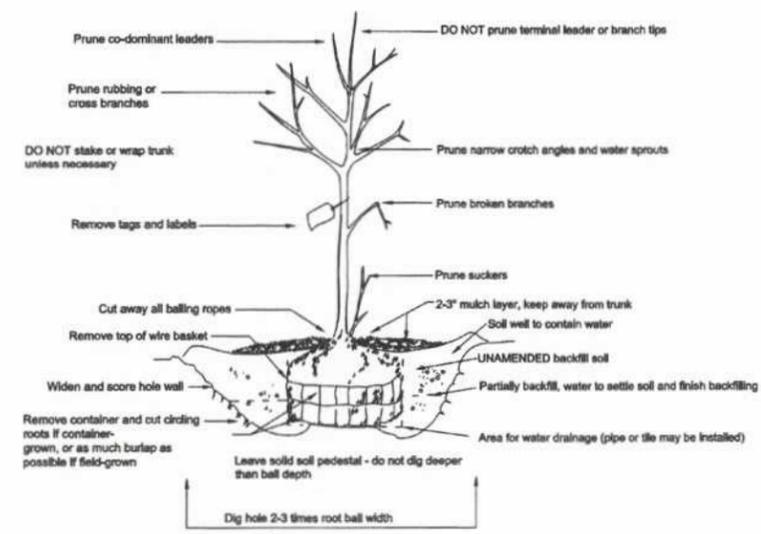
Broadcast, pump or hand seed at 100/1000 ft² and annual rye (*Lolium multiflorum*) at 10/1000 ft² on top of applied 3-inch blanket of specified compost. Seed may be mixed with specified compost to assist in hand seeding. Substitute winter wheat for annual rye if seeding after October 1. Reforest and mulch all areas with less than 80% germination.

Custom seed ERNST mix or approved equivalent. Seed can be purchased through ERNST Conservation Seeds at 9050 Mercer Pike, Meadville, Pennsylvania 16335 (800) 873-3321 (Toll Free); (814) 336-3404 (Phone); (814) 336-5181 (Fax). The paper work (shipping invoices), and certifications for all seed mixes shall be submitted and approved prior to installation.

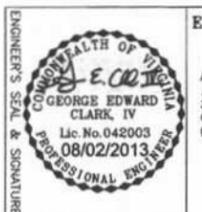


SYMBOL	QTY.	BOTANICAL NAME	COMMON NAME	STATUS	SIZE	COMMENTS
SHRUBS/ SMALL TREES						
CA	8	CEANOTHUS AMERICANUS	NEW JERSEY TEA	NATIVE	12'-18"	CONTAINER
RA	7	RHUS AROMATICA	FRAGRANT SUMAC	NATIVE	18'-24"	CONTAINER
HD	10	HYPERICUM DENSIFLORUM	BUSHY ST. JOHN'S WORT	NATIVE	12'-18"	CONTAINER
HERBACEOUS						
PV	205	PHYSOSTEGIA VIRGINICA				
SN	205	SORGHASTRUM NUTANS				
SS	205	SCHIZACHYRIUM SCOPARIUM				

Description	Size	Quantity Ordered
<i>Andropogon virginicus</i>	50LP	1
<i>Asclepias tuberosa</i>	50LP	4
<i>Aster oblongifolius</i> 'Raydon's Favorite'	50LP	2
<i>Baptisia sph</i> 'Screaming Yellow'	50LP	1
Freight Charges - Handling/Box	EA	1
Freight Charges - Outside Carrier	EA	1
<i>Panicum</i> 'Cape Breeze' PP24895	50LP	2
<i>Physostegia v.</i> 'Pink Manners' PP23482	50LP	3
<i>Pycnanthemum flexuosum</i>	50LP	3
<i>Solidago odora</i>	50LP	1



TREE & SHRUB PLANTING DETAIL
Source: "Tree and Shrub Planting Guidelines," Virginia Cooperative Extension, Virginia Polytechnic Institute and State University
N.T.S.



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EMERGENCY POLICE - FIRE - RESCUE 911

FAIRFAX COUNTY, VIRGINIA
DEPARTMENT OF PUBLIC WORKS
AND ENVIRONMENTAL SERVICES
CAPITAL FACILITIES

OAKTON LIBRARY BMP RETROFITS
LANDSCAPE PLAN

CONTRACT NO. XXXXXXXX PROJECT NO. 302/004839

SCALE 1"=10'

DESIGNED BY: GEC
DRAFTED BY: RJG
CHECKED BY: TAS

SHEET LS101



GAKTON LIBRARY

1766PP

1767PP

1768PP

1765BR

1821TR

WLK0472003934

WLK0472007161

WLK0472029147

WLK0472028665

WLK0472049471

WLK0472007170

NORBORNE PL

LYNNHAVEN PL

HUNTERMILL RD