URBAN BIORETENTION PLANTER BOX (UPB2) - GENERAL NOTES:

1. AN URBAN BIORETENTION PLANTER BOX (UPB2 – THIS DESIGN SHEET) MUST BE LOCATED AT LEAST 10 FEET FROM THE RESIDENTIAL STRUCTURE, AND A UPB1 (A SECOND CATEGORY OF URBAN BIORETENTION PLANTER BOX – SEE UPB1 DESIGN SHEET) MUST BE PROPOSED IF ANY PORTION OF THE FACILITY IS TO BE WITHIN 10 FEET OF THE STRUCTURE.
2. THIS UPB2 DESIGN QUALIFIES FOR LEVEL 1 BMP CREDIT, PER VIRGINIA DEQ STORMWATER DESIGN SPECIFICATION NO. 9 (DEQ-9). HOWEVER, NO UPB2 CAN RECEIVE DISCHARGE FROM ANY OTHER FACILITY, FOR THIS DESIGN, SO BMPS IN-SERIES CANNOT BE PROPOSED.
3. ONLY ONSITE IMPERVIOUS AREA IS PERMITTED TO BE DRAINED TO A UPB2, AND THE MAXIMUM ONSITE IMPERVIOUS AREA CONTRIBUTING TO A SINGLE UPB2 IS LIMITED TO 5,500 SQ. FT., PER THE DIRECTOR.
4. THE UPB2 MUST BE SELF-CONTAINED, AND MUST BE A PRECAST OR CAST-IN-PLACE CONCRETE VAULT (COMPRISED OF FOUR WALLS & A FLOOR, BUT NO TOP), A MOLDED POLYPROPYLENE CELL, A CONCRETE MASONRY UNIT (CMU) STRUCTURE WITH A CONCRETE-SLAB BOTTOM, OR A LINER-CONTAINMENT FACILITY.
5. THE INSIDE LENGTH (L) AND WIDTH (W) DIMENSIONS MUST BE A MINIMUM OF 2 FEET EACH. THE STANDARD INSIDE DEPTH DIMENSION MUST BE 4 FEET OR 4.5 FEET + PORTION OF FILTER MEDIA DEPTH > 18 INCHES OR 24 INCHES, RESPECTIVELY (SEE UPB2 GENERALIZED SEC A-A AND TYP. UPB2 PLANVIEW, ON THIS SHEET).
6. THE UNDERDRAIN OUTLET PIPE MUST DISCHARGE TO A DRY WELL OUTLET (PREFERRED), OR TO THE EROSION-PROTECTED SURFACE OF ADJACENT OR FARTHER DOWNGRADIENT GROUND, OR TO AN EXISTING ADEQUATE CONVEYANCE FACILITY (AS LONG AS THE DISCHARGE POINT IS AT LEAST 10 FEET FROM THE BUILDING, 10 FEET FROM THE PROPERTY LINE OF DOWNGRADIENT PROPERTY, AND 5 FEET FROM ALL OTHER PROPERTY LINES). SEE THE PRETREATMENT/OUTLET PROTECTION DETAILS SHEET.
7. ATRIUM OR DOME GRATES OR EQUIVALENT TRASH SCREENING STRUCTURES MUST BE INSTALLED ON TOP OF ALL 8-INCH GRAVEL CHIMNEY PIPES AND 4-INCH AUXILIARY OVERFLOW PIPES.
8. A REASONABLY-SCALED FACILITY DRAINAGE AREA MAP MUST BE PROVIDED ON THIS SHEET TO IDENTIFY THE ONSITE IMPERVIOUS AREA REQUIRED TO DRAIN TO EACH UPB2 PROPOSED ON THIS SHEET. ALL CONTRIBUTING DOWNSPOUTS AND PIPES, ALL INFLOW AND OUTFLOW CONVEYANCE CONNECTIONS AND EROSION PROTECTIONS, AND ALL OUTLETS MUST ALSO BE SHOWN, ALONG WITH THE EXISTING AND PROPOSED ELEVATION CONTOURS, AND PERTINENT ELEVATION SPOT SHOTS.
9. THE CONTRACTOR IS TO ENSURE THE SPECIFIC GUTTERS, DOWNSPOUTS, AND PIPES DISCHARGE INTO THE SPECIFIC UPB2(S), AS DESIGNATED ON THE APPROVED PLAN. THE COUNTY SITE INSPECTOR MUST BE NOTIFIED IMMEDIATELY IF IT BECOMES APPARENT THIS REQUIREMENT CANNOT BE MET. THE PROPERTY OWNER/DEVELOPER AND DESIGN ENGINEER SHALL THEN BE RESPONSIBLE FOR PROPERLY REVISING THE APPROVED PLAN TO RESOLVE THE APPARENT DESIGN DISCREPANCIES.
10. ALL UPB2 MATERIALS MUST MEET THE REQUIREMENTS AND SPECIFICATIONS OF THE FAIRFAX COUNTY PUBLIC FACILITIES MANUAL (PFM) & DEQ BMP SPECIFICATION #9.
11. REFER TO THE LANDSCAPE PLAN FOR PROPOSED UPB2 PLANT/VEGETATION SCHEDULES AND LAYOUTS.
12. A UPB2 MUST MAINTAIN A MINIMUM SETBACK OF 2 FEET FROM ANY PROPERTY LINE, AND ITS HEIGHT ABOVE THE GROUND MUST NOT EXCEED THE MAXIMUM FENCE HEIGHT PERMITTED IN THE YARD IN WHICH IT IS LOCATED (TYPICALLY 4 FEET IN THE FRONT YARD AND 7 FEET IN THE SIDE AND REAR YARDS).
13. UNLESS OUTLET AND/OR INLET PIPES ARE CAST-IN-PLACE WITH PLANTER BOX SHELL, ENSURE ANNULAR SPACE BETWEEN A PIPE AND WALL CUT-OUT PERIMETER IS PROPERLY SEALED WITH FLEXIBLE, WATERTIGHT SEAL SUCH AS KOR-N-SEAL OR APPROVED EQUAL.
14. A UPB2 NORMALLY REQUIRES GROUNDWATER/BEDROCK TESTING (PER PFM). HOWEVER, IF WATER-TIGHT PLANTER BOX SHELL CONSTRUCTION (PER UPB1) IS PROPOSED, THIS TESTING WILL NOT BE REQUIRED WHEN APPROPRIATE BUOYANCY CALCULATIONS DEMONSTRATE THE WEIGHT OF THE PLANTER BOX SHELL, BY ITSELF, IS SUFFICIENT TO PRODUCE A SAFETY FACTOR OF AT LEAST 1.5 ASSUMING GROUNDWATER TABLE AT THE GROUND SURFACE.

PRETREATMENT NOTES:

1. SEE THE "PRETREATMENT/OUTLET PROTECTION DETAILS" SHEET FOR THE SPECIFICATIONS AND DETAILS FOR THE PRETREATMENT PRACTICES SELECTED FOR EACH PROPOSED UPB2 IN THE DESIGN DATA TABLES (THIS SHEET), INCLUDING:
2. GUTTER SCREEN MUST BE INSTALLED ALONG THE ENTIRE SECTION OF ANY ROOF THAT IS TO DRAIN TO A UPB2, IN ORDER TO HELP MAINTAIN THE CAPACITY OF THE CONTRIBUTING GUTTERS AND DOWNSPOUTS.
3. AN IN-LINE LEAF STRAINER MUST BE INSTALLED ON EACH DOWNSPOUT IN ORDER TO HELP MAINTAIN PIPE CAPACITY.
4. INFLOW ROCK MUST BE INSTALLED WHERE A PIPE ENTERS A UPB2, IN ORDER TO HELP PREVENT THE EROSION OF MULCH & SOIL MEDIA.
5. A DEBRIS TRAP IS REQUIRED ON ANY INFLOW PIPELINE THAT CONVEYS STORMWATER FROM ANY NON-ROOF IMPERVIOUS AREA, IN ORDER TO HELP MAINTAIN PIPE CAPACITY.

STRUCTURE AND FOUNDATION NOTES:

1. MEANS AND METHODS OF STRUCTURAL SUPPORT OF THE UPB2 ARE THE RESPONSIBILITY OF THE DESIGN ENGINEER AND ARE NOT REPRESENTED BY ANY FAIRFAX COUNTY DETAIL.
2. PERMITTED UPB2 CONTAINERS ARE LISTED IN GENERAL NOTE 4, ABOVE. THE STRUCTURAL DESIGN OF A UPB CONTAINER IS THE RESPONSIBILITY OF THE DESIGN ENGINEER. EXTERIOR STRUCTURAL SUPPORT MAY BE REQUIRED FOR MOLDED POLYPROPYLENE CELLS.

MATERIAL SPECIFICATIONS FOR UPB2(S):

MATERIAL	SPECIFICATION	NOTES
FILTER MEDIA COMPOSITION (per DEQ-9)	FILTER MEDIA TO CONTAIN: 80% - 90% SAND 10%-20% SOIL FINES 3%-5% ORGANIC MATTER	THE VOLUME OF FILTER MEDIA BASED ON 110% OF THE PLAN VOLUME, TO ACCOUNT FOR SETTLING OR COMPACTION.
FILTER MEDIA TESTING (per DEQ-9)	AVAILABLE P BETWEEN L+ AND M, PER DCR 2005 NUTRIENT MANAGEMENT CRITERIA.	THE MEDIA SHOULD BE CERTIFIED BY THE SUPPLIER.
MULCH LAYER	USE AGED, DOUBLE SHREDDED HARDWOOD BARK MULCH (PARTICLE SIZE > 0.5-INCH).	LAY A 2-INCH LAYER, FREE OF CHEMICALS AND EXTRANEOUS MATERIAL, ABOVE THE FILTER BED.
ALTERNATIVE SURFACE COVER	USE RIVER STONE, PEA GRAVEL, COIR MATTING, OR JUTE MATTING.	LAY A 2-INCH LAYER TO SUPPRESS WEED GROWTH.
CHOKING LAYER	LAY A 3-INCH LAYER OF CHOKER STONE (TYPICALLY #8 OR #89 WASHED GRAVEL), ABOVE THE 9-INCH LAYER OF UNDERDRAIN STONE.	
STONE FOR UNDERDRAIN AND STORAGE LAYER	VDOT #57 STONE SHOULD BE DOUBLE-WASHED AND CLEAN AND FREE OF ALL FINES	LAY A 9-INCH LAYER ON THE UPB2 FLOOR AND OVER THE UNDERDRAIN, AFTER THE PIPES HAVE BEEN PLACED.
UNDERDRAINS	USE 4-INCH RIGID SCHEDULE 40 PVC PIPE, WITH 3/8-INCH PERFORATIONS AT 6 INCHES ON CENTER; LAY UNDERDRAIN AT 0.5% SLOPE (MIN.), AND SPACE PARALLEL PIPE RUNS AT NO MORE THAN 20 FEET.	LAY UNDERDRAIN ON THE UPB2 FLOOR, ALONG ITS LENGTH, AND CONNECT TO THE EXTERIOR OUTFALL WITH NON-PERFORATED PIPE. ENSURE 1 OF 3 EVENLY SPACED (IN GENERAL) ROWS OF PERFORATIONS ALONG THE PIPE LENGTH, IS FACE-DOWN.
GRAVEL CHIMNEY PIPE	USE 8-INCH RIGID SCHEDULE 40 PVC PIPE, WITH 1/2-INCH PERFORATIONS PROVIDED ONLY WITHIN BOTTOM 9 VERTICAL INCHES. FOOTPLATE TO BE FASTENED TO FLOOR AND COMPOSED OF RIGID PLASTIC OR NON-CORROSIVE METAL MATERIAL.	PIPE MUST BE ANCHORED TO FOOTPLATE. PERFORATIONS COMPRISING A ROW ARE TO BE LOCATED AT 4 INCHES ON CENTER AROUND THE PIPE PERIMETER, AND FOUR EVENLY- SPACED (AT 2 INCHES ON CENTER) ROWS ARE REQUIRED WITHIN THE BOTTOM 9 INCHES OF PIPE.
PLANT MATERIALS	-SELECT NATIVE PERENNIAL SEDGES OR GRASSES, HERBACEOUS PLANTS, OR SHRUBS. -SHRUBS A MINIMUM OF 30 INCHES HIGH SHOULD BE PLANTED A MINIMUM OF 10 FEET ON-CENTER. -PLANT GROUND COVER PLUGS AT 12 TO 18 INCHES ON-CENTER; PLANT CONTAINER-GROWN PLANTS AT 18 TO 24 INCHES ON-CENTER, DEPENDING ON THE INITIAL PLANT SIZE AND HOW LARGE IT WILL GROW. -TREES, LARGE SHRUBS, TURF, THE USE OF SEEDS, AND PLANTING ANNUALS OR VEGETABLES, IS NOT PERMITTED.	-PLANT MATERIALS MUST BE SELECTED PER THE RECOMMENDED PLANTS LIST AND INCLUDED IN THE LANDSCAPING PLAN. SEE THE LANDSCAPING PLAN FOR DETAILS. -PLANT SPACING MUST BE SUFFICIENT TO ENSURE A MINIMUM OF 75% COVERAGE WITHIN 2 YEARS. -PLANTS SHOULD COME FROM QUALIFIED SUPPLIERS, BE APPROPRIATE FOR STORMWATER APPLICATIONS, AND CONSIST OF NATIVE SPECIES.

MAINTENANCE NOTES FOR UPB2(S):

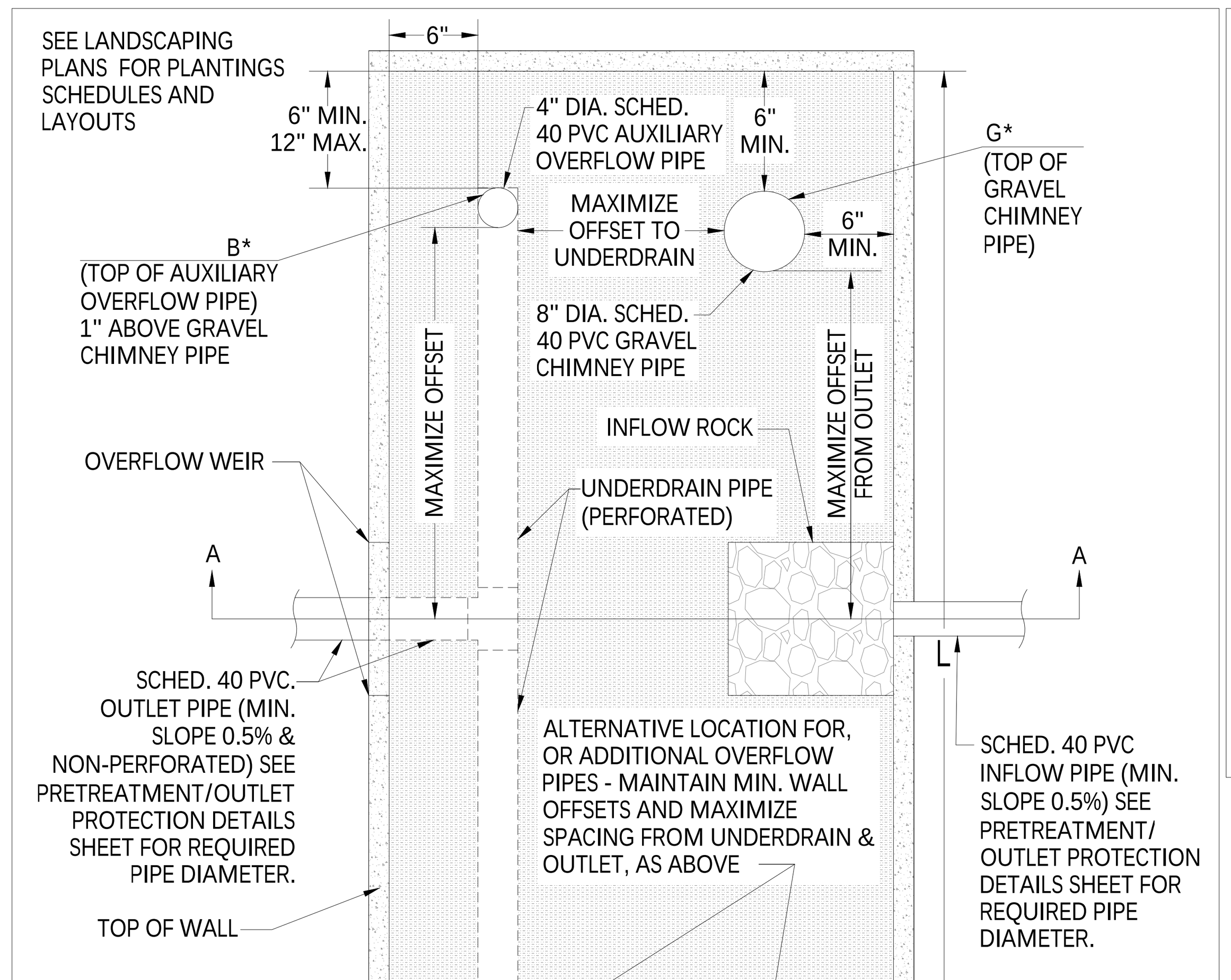
1. A PRIVATE MAINTENANCE AGREEMENT (PMA) IS REQUIRED BEFORE PLAN APPROVAL.
2. FIRST YEAR MAINTENANCE OPERATIONS SHOULD INCLUDE: A) INSPECTING FACILITIES AT LEAST TWICE AFTER STORMS EXCEEDING ½ INCH FOR THE FIRST 6 MONTHS AFTER INSTALLATION; B) WATERING ONCE A WEEK DURING THE FIRST 2 MONTHS, AND AS NEEDED DURING THE FIRST GROWING SEASON (APRIL-OCTOBER).
3. THIRD-PARTY LANDSCAPE MAINTENANCE CONTRACTS FOR UPB2(S) SHOULD INCLUDE SPECIFICS ABOUT UNIQUE BIORETENTION LANDSCAPING NEEDS, SUCH AS: MAINTAINING THE ELEVATION DIFFERENCES REQUIRED FOR NEEDED PONDING, PROPER MULCHING, SEDIMENT AND TRASH REMOVAL, AND LIMITED USE OF FERTILIZERS AND PESTICIDES.
4. CONSULT THE PMA ATTACHMENT A OR FAIRFAX FACT SHEET FOR BIORETENTION PRACTICES, FOR ADDITIONAL INFORMATION.

SUGGESTED MAINTENANCE ACTIVITIES FOR UPB2(S)

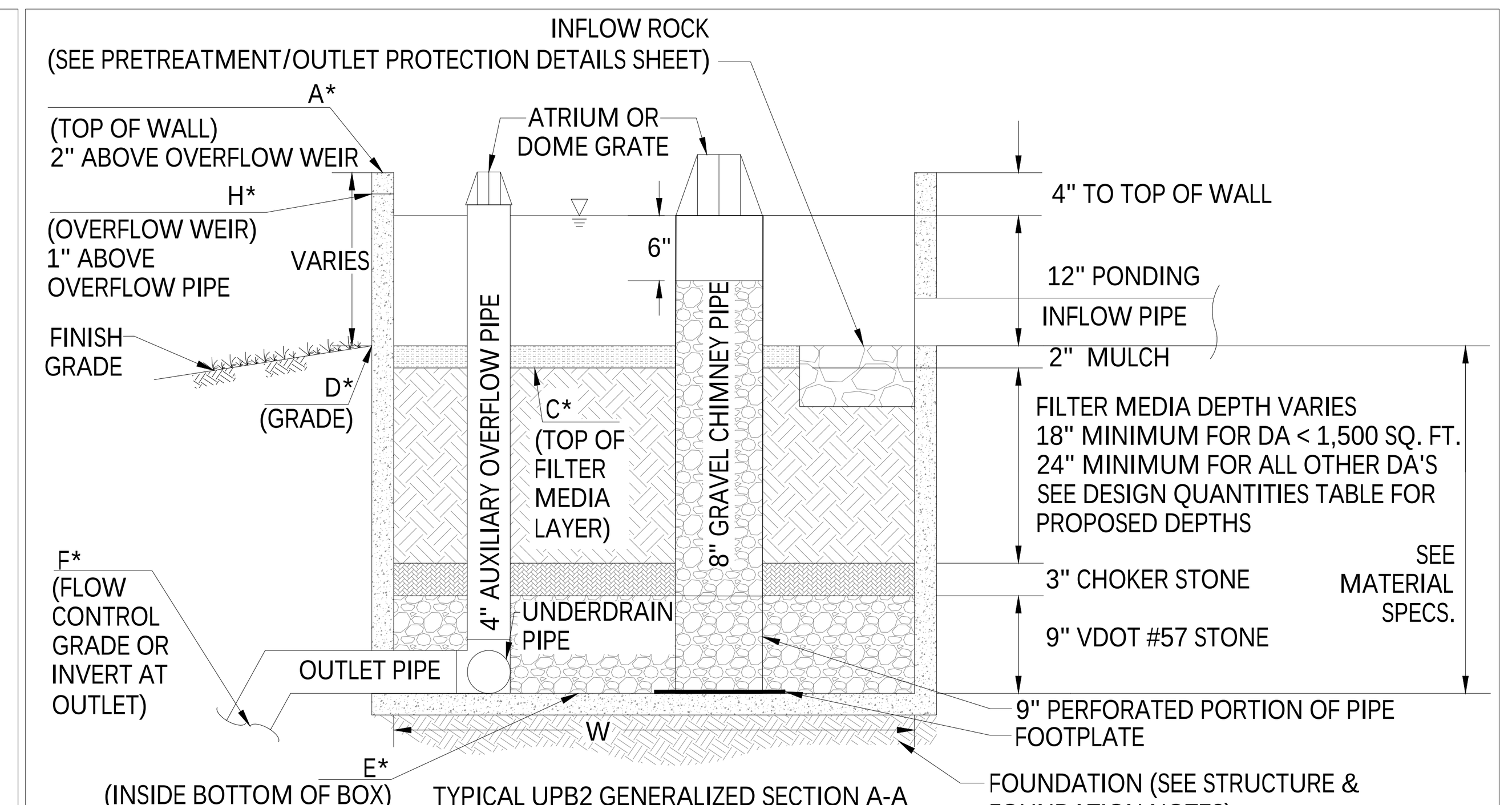
MAINTENANCE TASKS	FREQUENCY
• SPOT WEEDING, EROSION REPAIR, TRASH & SEDIMENT REMOVAL, DEBRIS REMOVAL FROM GRAVEL CHIMNEY PIPE, AND MULCH RAKING	TWICE DURING APR.-OCT.
• ADD REINFORCEMENT PLANTING TO MAINTAIN THE DESIRED VEGETATION DENSITY OF 75-90%. • REMOVE INVASIVE AND DEAD PLANTS USING RECOMMENDED CONTROL METHODS. • INSPECT INLETS AND PRETREATMENT DEVICES INCLUDING GUTTERS, DOWNSPOUTS, INFLOW PIPES, AND GRAVEL CHIMNEY PIPES, AND INSPECT THE OUTLET SYSTEM INCLUDING UNDERDRAIN CAPS, DISCHARGE PIPES, DRY WELLS, AND POP-UP EMITTERS FOR BLOCKAGES OR CLOGS.	AS NEEDED
• SPRING INSPECTION AND CLEANUP • SUPPLEMENT MULCH TO MAINTAIN A 2-INCH LAYER • PRUNE SHRUBS • REPAIR PHYSICAL DETERIORATION OF PLANTER BOX • REMOVE, THOROUGHLY WASH AND RESTORE THE UPPER 6-INCHES OF GRAVEL IN THE GRAVEL CHIMNEY PIPE. DO THIS INSTEAD FOR THE UPPER 12-INCHES, IF DIRT & DEBRIS ARE EVIDENT AT THE 6-INCH DEPTH	ANNUALLY
• REPLACE THE MULCH OR SURFACE COVER LAYER	EVERY 3 YEARS

CONSTRUCTION NOTES FOR UPB2(S):

1. CONSTRUCTION OF A UPB2'S OUTER SHELL OR CONTAINER AND ANY REQUIRED FOUNDATION MUST BE APPROPRIATELY SEQUENCED WITH THE CONSTRUCTION OF THE RESIDENTIAL STRUCTURE, AS AN ACCESSORY STRUCTURE. THE SITE PREPARATION AND PROTECTION PRACTICES NORMALLY APPLIED FOR SUCH A STRUCTURE ARE ACCEPTABLE. ALSO, ENSURE THE EMERGENCY OVERFLOW WEIR NOTCH IS INSTALLED IN THE APPROPRIATE SHELL/CONTAINER WALL, AND AT THE DESIGN LOCATION, ELEVATION, AND LENGTH; AND THE WALL OPENING FOR THE UNDERDRAIN OUTLET IS PROPERLY LOCATED AND SIZED.
2. INSTALLATION OF THE UPB2'S INTERNAL BIORETENTION COMPONENTS SHOULD THEN PROCEED ALONG THE FOLLOWING STEPS:
   - A) INSTALL THE APPROVED WATERPROOFING, AS REQUIRED;
   - B) INSTALL THE UNDERDRAIN SYSTEM ON THE FLOOR OF THE UPB2 SHELL, ENSURING MINIMUM PIPE SLOPES ARE MAINTAINED AND THE CONNECTED (NON-PERFORATED) 4-INCH OVERFLOW PIPE EXTENDS VERTICALLY TO AT LEAST THE TOP OF THE SHELL WALLS. ALSO, INSTALL THE FOOTPLATE FOR THE 8-INCH GRAVEL CHIMNEY PIPE ON THE UPB2 FLOOR, ANCHOR THE PIPE TO THE PLATE (WITH THE PERFORATED SECTION OF THE PIPE LOCATED NEAREST THE PLATE), AND ENSURE THE PIPE TOP REACHES AT LEAST TO THE TOP SHELL WALLS;
   - C) ENSURE THE UNDERDRAIN SYSTEM IS CONNECTED TO THE OUTLET PIPE, AND CAN FREELY DRAIN, AND PACK A 9-INCH DEPTH OF #57 STONE AROUND THE UNDERDRAIN AND VERTICAL PIPES;
   - D) PLACE A 3-INCH LAYER OF CHOKER STONE/PEA GRAVEL ABOVE THE 9-INCH #57 STONE LAYER, AND AROUND THE PERIMETER(S) OF THE VERTICAL PIPE(S);
   - E) OBTAIN THE THOROUGHLY MIXED SOIL MEDIA FROM A QUALIFIED VENDOR, STORE MATERIAL ON AN ADJACENT IMPERVIOUS AREA OR PLASTIC SHEETING, AND VERIFY THE MEDIA MEETS THE SPECIFICATIONS. KEEP THE MEDIA MOISTENED TO AVOID SEPARATION DURING INSTALLATION;
     - 1) PLACE AND SPREAD THE MEDIA BY HAND ABOVE THE CHOKER STONE AND AROUND THE PERIMETER(S) OF THE VERTICAL PIPE(S), IN 8- TO 12-INCH LIFTS (WITH NO MACHINERY ALLOWED DIRECTLY ON THE MEDIA), UNTIL THE DESIRED TOP ELEVATION OF THE MEDIA HAS BEEN ACHIEVED. (SEE SECTION A-A AND THE DESIGN QUANTITIES TABLE ON THIS SHEET FOR THE REQUIRED SOIL MEDIA DEPTH.) LIFTS MAY BE LIGHTLY WATERED TO ENCOURAGE SETTLEMENT.
     - 2) AFTER THE FINAL LIFT IS PLACED, THE MEDIA SHOULD BE RAKED (TO LEVEL IT), SATURATED, AND ALLOWED TO SETTLE FOR AT LEAST ONE WEEK. APPLY ADDITIONAL MEDIA, AS NEEDED, TO ACHIEVE THE DESIGN ELEVATION;
   - F) FILL THE CHIMNEY PIPE(S) WITH #57 STONE, TO 8-INCHES ABOVE THE MEDIA SURFACE, AND CUT THE TOPS OF THE 4-INCH AUXILIARY OVERFLOW AND 8-INCH CHIMNEY PIPES TO THE RESPECTIVE DESIGN ELEVATIONS (THE GRAVEL LEVEL(S) SHOULD BE ABOUT 6-INCHES BELOW THE TOP(S) OF THE 8-INCH CHIMNEY PIPE(S), AT THIS POINT). INSTALL THE TRASH GRATES/SCREENS;
   - G) PREPARE PLANTING HOLES FOR ANY SHRUBS, INSTALL THE PLANT MATERIAL PER THE LANDSCAPING PLAN AND PFM 12-0505, AND WATER ACCORDINGLY. PLANTING MUST TAKE PLACE AFTER INSTALLATION IS COMPLETED AND DURING THE FOLLOWING PERIODS: MARCH 15 THROUGH JUNE 15, AND SEPT. 15 THROUGH NOV. 15, UNLESS OTHERWISE APPROVED BY THE DIRECTOR. INSTALL ANY TEMPORARY IRRIGATION;
   - H) PLACE 2-INCH SURFACE COVER LAYER, TYPICALLY MULCH, ABOVE THE FILTER MEDIA. IF THE DESIGN SPECIFIES COIR OR JUTE MATTING BE USED IN LIEU OF MULCH, THE MATTING WILL NEED TO BE INSTALLED PRIOR TO PLANTING (STEP G), AND HOLES OR SLITS WILL HAVE TO BE CUT IN THE MATTING TO INSTALL THE PLANTS.
   - I) INSTALL THE PRETREATMENT PRACTICES AND CONNECT INFLOW PIPES TO THE UPB2(S).
   - J) THE UPB2(S) MUST BE INSPECTED AT 12-24 HOURS AND 36-48 HOURS AFTER A SIGNIFICANT RAINFALL (0.5-1.0 INCHES) OR ARTIFICIAL FLOODING TO DETERMINE THAT THE FACILITY IS DRAINING PROPERLY. RESULTS OF THE INSPECTION MUST BE PROVIDED TO LDS BEFORE CONSERVATION ESCROW RELEASE.
3. CONSTRUCTION INSPECTION MUST BE PROVIDED IN ACCORDANCE WITH PFM 6-1307.11.
4. CONSTRUCTION CONTRACTS SHOULD INCLUDE A CARE & REPLACEMENT WARRANTY TO ENSURE 85% PLANT SURVIVAL DURING THE FIRST GROWING SEASON FOLLOWING INSTALLATION.



TYPICAL UPB2 GENERALIZED PLANVIEW (TOP OF MULCH BED)
N.T.S.



TYPICAL UPB2 GENERALIZED SECTION A-A
N.T.S.

Planter Box ID	Distance to Structure Centerline Along Selected Wall & CL Offset Distance from Selected Wall											
	Dist. from Inside Left Corner				Offset Distance from Referenced Wall							
	Outlet Pipe		Weir Crest		8" Chimney Pipe				4" Overflow Pipe			
	Ft. to CL	Along	Ft. to CL	Along	Ft. to CL	From	Ft. to CL	From	Ft. to CL	From	Ft. to CL	From
UPB2- 100	7.00	FW	8.00	FW	1.00	LW	1.00	BW	0.69	LW	0.69	FW
	Offsets - 2nd 8-in & 4-in overflows:				1.00	RW	1.00	BW	0.69	RW	0.69	FW
UPB2- 200	8.00	FW	9.00	FW	1.00	LW	1.00	BW	0.69	LW	0.69	FW
	Offsets - 2nd 8-in & 4-in overflows:				1.00	RW	1.00	BW	0.69	RW	0.69	FW
UPB2- 300	9.00	FW	10.00	FW	1.00	LW	1.00	BW	0.69	LW	0.69	FW
	No other 8-in & 4-in offsets required-XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX											

URBAN BIORETENTION - PLANTER BOX (UPB2) - FOR INFILL LOTS: DESIGN DATA

Planter Box ID	Elevations (ft) A	B	C	D	E	F	G	H	Weir Len. (ft)	Overflow Pipes	Chimney Pipes
UPB2- 100	256.50	256.25	255.00	252.00	250.00	249.00	256.17	256.33	8.4	2	2
UPB2- 200	256.00	255.75	254.50	252.00	250.00	249.00	255.67	255.83	8.4	2	2
UPB2- 300	255.50	255.25	254.00	252.00	250.00	249.00	255.17	255.33	6.7	1	1

Planter Box ID	Drainage Area Source	PRETREATMENT PRACTICES for Roof Gutter	for Downspout	for Inflow Pipeline	OUTLET PROTECTION
UPB2- 100	Roof Only	Gutter Screen	In-line Leaf Strainer/Separator	Inflow Rock	Small Rock Riprap
UPB2- 200	Other IA Only			Debris Trap + Inflow Rock	Turf/Sod
UPB2- 300	Roof + Other IA	Gutter Screen	In-line Leaf Strainer/Separator	Debris Trap + Inflow Rock	Exist. Imperv. Surface

URBAN BIORETENTION FOR INFILL LOTS: PLANTER BOX (UPB2) DESIGN QUANTITIES TABLE

(A UPB2 MUST be located at least 10' from a residential structure and drain only impervious area)

A separate stand-alone design & Design Quantities Table is required for each lot

Enter the requested design data in the yellow cells below.

Net additional impervious area created by proposed project: 9000 sq. ft.
***MUST* match net additional impervious area value identified on Cover Sheet**
For UPB2(s) proposed on this sheet:
Total **onsite** impervious area drained to UPB2(s): 7000 sq. ft.
*onsite pervious area and all offsite area **MUST NOT** drain into UPB2(s)*
% of equivalent net impervious area to be drained to UPB2(s): 78 %
Total required stormwater volume to be detained by UPB2(s): 1493 cu. ft.
Number of individual UPB2(s) proposed: 3
Is Level 1 Water Quality credit to be claimed for proposed UPB2(s)? YES

*Provide the total contributing onsite impervious area, inside width (W) dimension, and soil media depth for each proposed UPB2, below, to obtain the required inside length (L) dimension, soil media surface area, and other design quantities. NOTE: the min. dim. for both W & L is 2.0 ft., and the max. allowed contributing onsite (only) impervious area to a UPB2 is 5500 sq. ft., with no pervious area allowed - **offsite flows must be bypassed.***

*Data table #1 (below) **MUST** be used 1st for entering individual UPB2 design data, #2 used 2nd, etc. Not following this order may lead to erroneous "remaining" quantities.*

#1 UPB2- 100 (enter plan number for UPB2)
Contributing **onsite** impervious area = 2500 sq. ft.
area must not be greater than 5500 sq. ft.: ok
pervious and offsite area prohibited
Stormwater volume required to be detained = 533 cu. ft.
Inside width (W) of UPB2 = **W =** 10.0 ft.
W must be 2.0 ft. or greater: ok
Required inside length (L) of UPB2 = **L =** 28.1 ft.
L must be 2.0 ft. or greater: ok
Proposed Soil Media Depth (18" or 24" min.) = 48 in.
18" minimum if DA < 1500 sq. ft., otherwise 24" minimum
Remaining **onsite** imperv. area to be captured by UPB2(s) = 4500 sq. ft.

#2 UPB2- 200 (enter plan number for UPB2)
Contributing **onsite** impervious area = 2500 sq. ft.
area must not be greater than 5500 sq. ft.: ok
pervious and offsite area prohibited
Stormwater volume required to be detained = 533 cu. ft.
Inside width (W) of UPB2 = **W =** 15.0 ft.
W must be 2.0 ft. or greater: ok
Required inside length (L) of UPB2 = **L =** 18.7 ft.
L must be 2.0 ft. or greater: ok
Proposed Soil Media Depth (18" or 24" min.) = 42 in.
18" minimum if DA < 1500 sq. ft., otherwise 24" minimum
Remaining **onsite** imperv. area to be captured by UPB2(s) = 2000 sq. ft.

#3 UPB2- 300 (enter plan number for UPB2)
Contributing **onsite** impervious area = 2000 sq. ft.
area must not be greater than 5500 sq. ft.: ok
pervious and offsite area prohibited
Stormwater volume required to be detained = 427 cu. ft.
Inside width (W) of UPB2 = **W =** 8.0 ft.
W must be 2.0 ft. or greater: ok
Required inside length (L) of UPB2 = **L =** 28.1 ft.
L must be 2.0 ft. or greater: ok
Proposed Soil Media Depth (18" or 24" min.) = 36 in.
18" minimum if DA < 1500 sq. ft., otherwise 24" minimum
Remaining **onsite** imperv. area to be captured by UPB2(s) = 0 sq. ft.

CERTIFICATION OF NO CHANGE

I HEREBY CERTIFY THAT NO CHANGES HAVE BEEN MADE TO, OR ARE PROPOSED FOR, THE UPB2 STANDARD DESIGN SHEET NOTES, SPECIFICATIONS OR DETAILS; AND NO CHANGES HAVE BEEN MADE TO, OR ARE PROPOSED FOR, THE DESIGN CALCULATIONS GENERATED FOR THIS PROJECT BY THE UPB2 STANDARD DESIGN CALCULATIONS SPREADSHEET.

SIGNATURE ______________________

DESIGNER ______________________
NAME DATE

SCALE: 1" = XX'
(MAX. SCALE 1"=30')

DRAINAGE MAP(S) AND ADDITIONAL CALCULATIONS/NOTES

DESIGN ENGINEER / SURVEYOR
FIRM NAME:
ADDRESS:
PHONE NO:
PROJ. MANAGER:
FAX NO:
EMAIL:

PROFESSIONAL SEAL
DATE
PROFESSIONAL SEAL
DATE

PROJECT NAME
DISTRICT
FAIRFAX COUNTY, VIRGINIA

URBAN BIORETENTION PLANTER BOX 2 (UPB2)

FAIRFAX COUNTY STANDARD DESIGN SHEETS FOR INFILL LOTS

SHEET ___ OF ___

First Draft V 1.0