consilication inspection che	ecklist: Permeable Pavement	ARLINGTO
Address/ Location:	Building Permit #:	VIRGINIA
LDA Permit #:	SWM#:	
Contractor:	Telephone:	
Professional*:	Telephone:	
Date Started:	Final Inspection Date:	7.

The following checklist provides a basic outline of the anticipated items for the construction inspection of permeable pavement. This checklist does not necessarily differentiate between the types of pavement materials and the different construction requirements. Inspectors should review the plans carefully, and adjust these items and the timing of inspection verification as needed to ensure the intent of the design is met. The standard for design of this practice is based on Virginia Stormwater BMP Clearinghouse and Arlington County Stormwater Guidance Manual.

	ems should be crossed off when completed. Items labeled "Certification of" must be cr d and initialed by the certifying inspector.	ossed off,
PRE	-CONSTRUCTION MEETING	DATE
	Walk through site with builder/contractor/subcontractor to review the SWPPP (erosion and sediment control plan, the stormwater management plan, and the Pollution Prevention plan)	
	Determine when permeable pavement is built in project construction sequence; before or after building construction and determine measures for protection and surface cleaning.	
	Identify the tentative schedule for construction, verify the certification of the installer (ICPI for permeable interlocking pavers or NRMCA for pervious concrete) and requirements and schedule for interim inspections.	
	Storage locations for aggregate material have been identified (hard surface or on geotextile).	
	Pre-construction meeting with the contractor designated to install the permeable pavement, County DES inspector, and person completing this checklist has been conducted.	
SED		DATE
	Access routes for delivery and construction vehicles identified.	
	Vehicle tire/track washing station location/maintenance (if specified in the erosion and sediment control plan/SWPPP).	
	Contributing drainage areas are stabilized and are not eroding.	
EXC	AVATION	DATE
	Excavated area marked with paint and/or stakes.	
	Excavation size and location conforms to plan.	
	Runoff is diverted around the excavation area to a stabilized conveyance.	
	If excavation is used as a sediment trap: verify that the bottom elevation of the proposed stone reservoir is lower than the bottom elevation of the existing trap.	

Permeable Pavement | January 2017

Construction Inspection Checklist	: Urban Bioretention – Planter Box	ARLINGTON
Address/ Location:	Building Permit #:	A K L I N G I O N VIRGINIA
LDA Permit #:	SVVM#:	
Contractor: Certifying	Telephone:	
Professional*:	Telephone:	

Date Started:

*Certifying professional must be a licensed Professional Engineer (PE), Landscape Architect (LA), or Land Surveyor (LS). The following checklist provides a basic outline of the anticipated items for the construction inspection of urban bioretention facilities. This checklist does not necessarily distinguish between all the design variations. Inspectors should review the plans carefully, and adjust these items and the timing of inspection verification as

Final Inspection Date:

needed to ensure the intent of the design is met. The standard for design of this practice is based on Virginia Stormwater BMP Clearinghouse and Arlington County Stormwater Guidance Manual. All items should be crossed off when completed. Items labeled "Certification of..." must be crossed off. dated and initialed by the certifying inspector. PRE-CONSTRUCTION MEETING DATE Pre-construction meeting with the contractor designated to install the planter boxes, County DES inspector, and person completing this checklist has been conducted. Stormwater has been diverted around the area of the bioretention practice and perimeter erosion control measures to protect the facility during construction have been installe EXCAVATION AND BOX CONSTRUCTION DATE Area is marked and the size and location conforms to plan. Excavation has achieved proper grades and the required geometry and elevations. Box is constructed using the material specified and to the required dimensions as shown on the approved plans. Constructed interior dimensions: Waterproofing is installed on sides and bottom of interior of the box as specified. Certification of Excavation and Box Construction Inspection: Inspector certifies the successful completion of the steps listed above and any necessary photos are attached. Photo required of: entire interior (sides and bottom) of planter box waterproofed. Material ticket required of waterproofing membrane if plastic membrane is used (no receipt required for liquid membrane)

FILT	ER LAYER, UNDERDRAIN, AND STONE RESERVOIR PLACEMENT	DA
	All aggregates conform to specifications as certified by quarry.	
	Underdrain size and perforations meet the specifications (holes should be spaced 6" apart, maximum of 3 rows of holes). Placement of underdrain, observation wells, and underdrain fittings are in accordance with the approved plans.	
	Elevations of underdrain and outlet structure are in accordance with approved plans, or as adjusted to meet field conditions and denoted in Comments section below. Any planter boxes that are in series (drain from one to another), requires the submission of invert elevations.	

Placement of remaining lift of stone reservoir layer as needed to achieve the required reservoir depth

Urban Bioretention – Planter Box | January 2019

	Subgrade surface is free of rocks and roots, and large voids. Any voids should be refilled with the base aggregate to create a level surface for the placement of aggregates and underdrain (if required).			
	For Level 2 permeable pavement, ensure the bottom of the excavation is scarified prior to placement of stone.			
	No groundwater seepage or standing water is present. Any standing water is dewatered to an acceptable dewatering device.			
	The excavation has achieved the proper elevations and grade (0% slope) as noted on the approved plans.			
	Certification of Excavation Inspection: Inspector certifies the successful completion of the excavation steps listed above.			
	Photos required include excavated subgrade prior to covering with fabric and stone, and include measurement from subgrade to reference point (i.e., top of edge restraint, top of apron, top of garage entrance, top of flow barriers and flow barrier excavation cuts, etc.).			
EII T	ER LAYER, UNDERDRAIN, STONE RESERVOIR, AND BEDDING LAYER PLACEMENT	DATE		
	All aggregates, including, as required, the filter layer (choker stone & sand or geotextile), the reservoir layer, and bedding layer conform to specifications as certified by quarry.			
	Underdrain size and perforations meet the specifications (if applicable).			
	Placement of filter layer and initial layer of reservoir layer aggregates (approximately 2 inches) spread (not dumped) to avoid aggregate segregation.			
	Placement of underdrain, observation wells, and underdrain fittings in accordance with the approved plans.			
	Concrete curbs or plastic/metal edge restraints are installed.			
	Sides of excavation covered with geotextile, prior to placing stone reservoir aggregate; no tears or holes, or excessive wrinkles are present.			
	Flow barriers are properly installed (if applicable).			
	Stone reservoir layer and bedding layer is properly installed.			
	Certification of Filter Layer, Underdrain, Stone Reservoir and Bedding Layer Inspection: Inspector certifies the successful completion of the filter layer, underdrain, stone reservoir and bedding layer placement steps listed above. Photos and material delivery tickets for these items are attached.			
	 Photos required include: Non-woven geotextile fabric installed on bottom and sides of excavated subgrade; Perforated observation well prior to installation of stone; Perforated underdrain (if applicable) and connection to storm sewer or dry well; Depth of #2 or #3 stone installed (if applicable); Edge restraints; Depth of #57 stone installed; Depth of #8 stone installed. 			
	Photos required of flow barrier (if applicable): 12" height of berm; 12" height of cut for flow barrier; Impermeable liner; Distance between flow barriers. 			
	Material delivery tickets required include: Choker stone & sand or geotextile installed at subbase; Geotextile installed along sides; 			
	Permeable Pavement Jan	iuary 201		

	 Geotextile used as the impermeable barrier on gravel flow berms (if applicable); #2 or #3 stone (if applicable), #57 stone, #8 stone. 	
PER	MEABLE PAVERS OR PERVIOUS CONCRETE INSTALLATION	DATE
	Permeable paver surface is installed.	
	If pavers are used, the joints are full of #8 or #9 stone.	-
	Certification of Pavement Installation: Contractor and/or manufacturer certifies that permeable pavement has been placed in accordance with manufacturers specifications (ICPI Tech Spec #18 for interlocking concrete pavers or ACI#522.1-13 for pervious concrete). Photos required include:	
	ems checked above have been inspected by me (or by an individual under my responsible charg been completed to my satisfaction and meet the approved plans (or deviations are noted here).	e) and
Sign	ature: Date:	

Certifying Professional's License Number (or Seal):

Installer / Contractor's Certification (Required)

Permeable Interlocking Pavers: Attach copy of ICPI Certification

Pervious Concrete: <u>NRMCA Certification</u>* Number: _

*NRMCA Certification must be either Installer or Craftsman certification.

Certification of Filter Layer and Underdrain Placement Inspection: Inspector certifies the successful completion of the filter layer and underdrain placement steps listed above. Photos and material delivery tickets for these items are attached. Photos required include: Perforated underdrain pipe with a solid vertical overflow pipe; Depth of #57 stone; Depth of choker stone (pea gravel or #8). Material delivery tickets required: #57 stone and choker stone (pea gravel or #8) BIORETENTION SOIL MEDIA PLACEMENT DATE Soil media is certified by supplier or contractor as meeting the project specifications and comes from an approved soil media vendor. No filter fabric is to be used between the stone layer and the soil layer. Soil media is placed in 12-inch lifts to the design top elevation of the bioretention area. Elevation has been verified after settlement (2 to 4 days after initial placement). Certification of Soil Media Placement Inspection: Inspector certifies the successful completion of the soil media steps listed above. Photos and material delivery tickets for these items are attached. Photo required includes a measurement of the soil media installed. Material delivery ticket required from an approved soil media vendor. PRETREATMENT AND PLANT INSTALLATION DATE Placement of energy dissipaters and pretreatment practices (splash block/rocks, gutter guards, etc.) are nstalled in accordance with the approved plans. Overflow has atrium grate installed. Downspouts are installed in accordance with the approved plans providing the correct drainage area The number and spacing of plants are installed in accordance with the approved plans. If there is no approved landscape plan for the planter boxes, the plants are to be chosen from VA DEQ Stormwater Design Specification No. 9: Table 9.6 Popular Native Plant Materials for Bioretention. A 2-3 inch layer of shredded hardwood mulch has been installed. Certification of Pretreatment and Plant Installation Inspection: Inspector certifies the successful ompletion of the pretreatment, energy dissipaters, plants, overflow grates and mulch as listed above Photos and copies of material delivery tickets are attached. Photos required for this step for each planter include: Overall photo showing the number of plants installed; Location of downspout/inflow pipe with the appropriate splash block/rocks; Distance from the top of mulch to the top of the overflow pipe; Distance from the top of mulch to the top of the planter box. Material delivery tickets required for this step include: Approved plants listing number and species; Shredded hardwood mulch. DRY WELL OR CONNECTION TO STORM SEWER DATE Dry well is constructed to the correct dimensions and proper materials including the proper geotextile,

stone, and overflow mechanism (pop-up emitter) per the plan (if applicable). Urban Bioretention – Planter Box | January 2019

	Underdrain is directly tied into the public storm sewer system and the connection has been witnessed by DES inspector (if applicable).		
	Certification of Dry Well or Connection to Storm Sewer: Inspector certifies the successful completion of the dry well or connection to the storm sewer. Photos and material delivery tickets for these items are attached. Photos required for dry well include:		
COM	IMENTS (CLARIFICATION, DEVIATIONS, ETC.)	DATE	
		DATE	
<u> </u>			
	All items checked above have been inspected by me (or by an individual under my responsible charge) and have been completed to my satisfaction and meet the approved plans (or deviations are noted here).		

Signature:

Certifying Professional's License Number (or Seal):

Permeable Pavement | January 2017

Urban Bioretention – Planter Box | January 2019

File No. AH-24

Tax Map No. 32-16

Job No. 18-086 Cadd Dwg. File: Q:\sdskproj\18086\dwg\Engineering\GP\18086C-0703.dwg

Add	Iress/	Building ARLI	NGT GINIA
	ation:	Permit #:	
LD/	A Permit #:	SWM#:	
Cor	tractor:	Telephone:	
Dat	e Started:	Final Inspection Date:	
storr	construction inspection checklist to be used onl nwater management facilities like a planter box. ems should be checked and dated when comple		
PRE			DATE
	Pre-construction meeting with the contractor design and person completing this checklist has been cond		
	All pervious areas of the contributing drainage areas of vegetation or erosion control measures are still in the area.		
	Area of dry well has not been impacted during cons	truction.	
EXC	AVATION		DATE
	Excavation of the dry well has achieved proper grac the bottom of the excavation. Constructed dimension		
	Placement of filter fabric, as required.		
	Submittals Required:		
	 Excavated area prior to installation of stone Non-woven geotextile fabric installed on sid 		
	Material delivery tickets:		
	o Geotextile		
FILT			DATE
FILT			DATE
	ER LAYER AND UNDERDRAIN PLACEMENT	he well, once inside the stone reservoir it is	DATE
	ER LAYER AND UNDERDRAIN PLACEMENT All aggregates conform to specifications. Inflow pipe placed. The pipe is solid until it enters th		DATE

Dry Well | September 2017

STO	NE RESERVOIR AGGREGATE PLACEMENT	DATE	
	Remaining stone aggregate placed (not dumped) in 6-inch lifts.		
	Top surface of dry well in accordance with approved plans.		
	Submittals Required: Photos: • • Depth of stone; • • Fabric installed on top of gravel; • • Completed facility with appropriate surface cover and pop-up emitter. Material delivery tickets: • • Stone; • Fabric.		
LOC	ATION	DATE	
	 <u>Submittals Required</u>: Markup of plat or approved plan with the dry well locations and the downspout that each dry well is connected to 		
CON	IMENTS (CLARIFICATION, DEVIATIONS, ETC.)	DATE	

Dry Well | September 2017

*NOTE: CONTRACTOR TO COMPLETE CHECKLISTS FOR CERTIFICATE OF OCCUPANCY

WALTER L. PHILLIPS, INC. DOES NOT PERFORM THE CONSTRUCTION INSPECTION CERTIFICATION.

ARLINGTON COUNTY, VIRGINIA STORMWATER FACILITY MAINTENANCE AND MONITORING AGREEM

THIS AGREEMENT ("Agreement"), made and entered into this day of by and between -NAME OF PROPERTY OWNER-, (hereinafter the "Landowner"), a Board of Arlington County, Virginia, a body corporate and politic (the "County");

WITNESSETH:

WHEREAS, the Landowner is the owner of certain real property located and s Arlington County, Virginia by virtue of a Deed recorded in Deed Book -BOOK-, Page Instrument Number -INSTRUMENT NUMBER- (the "Property"), in the Land Record County, Virginia (the "Land Records"); and

WHEREAS, the Property is identified in the records of the Arlington County I Estate Assessments by Real Property Code (RPC) number(s) -RPC NUMBERS-; and

WHEREAS, the Landowner or its representative has submitted to the County, approval, building and development plans for the Property entitled -NAME OF GRAI addressed as -ADDRESS OF PROJECT-, identified by Building Permit number(s) -B PERMIT NUMBER-, Land Disturbance Permit (LDA) number -LAND DISTURBAN NUMBER-; and identified by Stormwater Management (SWM) number -SWM NUM "Plans"), which, in their final approved form as determined by the County's records, a part hereof and are incorporated by reference herein; and

WHEREAS, the Plans depict the proposed construction of certain required fact for the control of stormwater quality and/or quantity within the confines of the Propert

WHEREAS, Chapter 60 (Stormwater Management Ordinance) and Chapter 61 Preservation Ordinance) of the Arlington County Code (collectively the "Code") requi stormwater management facilities, as shown on the Plans, be constructed and adequate the Landowner, its successors and assigns; and

WHEREAS, the Landowner desires to comply with the Code, construct the afor management facilities ("Facilities") as shown on the Plans, and enter into the followin hereinafter set forth.

AGREEMENT

NOW, THEREFORE, in consideration of the foregoing premises and the mutu contained herein, the Landowner and the County enter into this agreement subject to the and conditions:

1. The Facilities on the Property shall be constructed by the Landowner, its suc assigns, in accordance with the approved Plans.

2. The Landowner, its successors and assigns, shall perform the maintenance s Facilities as outlined and specified on the approved Plans and shall maintain the Facilit working order to ensure the approved design functions.

3. The Landowner, successors and assigns, shall be responsible for the inspect maintenance of the Facilities, according to the inspection qualifications, frequency, and requirements noted or required by the Plans, the Code or other regulatory requirements the inspection shall be to ensure the safe and proper function of the Facilities. The insp include but not be limited to the inspection of berms, vegetation, filtration media, inlet structures, pond areas, access, and any other related appurtenances. An annual inspect submitted to the County. Deficiencies shall be noted in the inspection report. If defici they shall be promptly corrected by the Landowner, or its successors and assigns, and reflecting such corrections shall be submitted to the County indicating the safe and pro the Facilities.

4. Should the Landowner, its successors and assigns, fail to complete the inspeparagraph 3 above, the Landowner, its successors and assigns hereby grant permission authorized agents and employees, to enter upon the Property and to inspect the Facilitie County deems necessary, and such inspection shall be performed at the Landowner, its assigns expense. Whenever reasonably possible, the County shall attempt to notify the successors and assigns, prior to entering the Property. The purpose of inspection shall safe and proper function of the Facilities, investigate reported deficiencies, and/or to re complaints. The County shall provide to the Landowner, or its successors and assigns, inspection results and of any directive from the County outlining any necessary repairs required to the Facilities, including a date by which such necessary repairs or maintena completed.

5. In the event the Landowner, its successors and assigns, fails to complete the inspections, or provide the inspection reports, or complete any repairs or maintenance days following the date required or in cases involving flooding, on or before the date re County shall have the right to enter the Property and take any and all steps necessary to to bring the operation and function of the Facilities into compliance with all applicable standards, and to charge the cost of any inspection, or repairs or maintenance and relat functions to the Landowner, its successors and assigns. This provision shall not be con the County to erect any structure of a permanent nature on the Property that is not asso proper function and operation of the Facilities. It is expressly understood and agreed the shall be under no obligation to maintain or repair the said Facilities, and in no event sh Agreement be construed to impose any such obligation on the County.

6. In the event the County, pursuant to this Agreement, performs work of any 1 any funds in the performance of said work for labor, use of equipment, supplies, mater on account of the Landowner's or its successors' and assigns' failure to perform such we Landowner, its successors and assigns, shall reimburse the County, upon demand, with receipt thereof for all costs incurred by the County hereunder. If not paid within such County shall post a lien against the Property in the amount of such costs, plus interest

Rate, and may enforce it in the same manner as a lien for Real Property taxes may be County may also proceed to collect amounts due in any manner not prohibited by law

7. The Landowner, its successors and assigns, shall indemnify and hold harm agents and employees for any and all damages, accidents, casualties, occurrences or c arise or be asserted against the County resulting from any repairs, construction, or cor required to be performed by the County to bring the Facilities into compliance with al and design standards due to Landowner's, its successors' and assigns', failure to comp Agreement.

8. The Landowner, its successors and assigns, shall indemnify and hold harm agents and employees for any and all damages, accidents, casualties, occurrences or c arise or be asserted against the County resulting from any construction or maintenance by the Landowner, its successors and assigns.

9. In the event a claim based upon the indemnities of paragraphs 7 or 8 is asse County, its agents or employees, the County shall promptly notify the Landowners, th assigns, who shall defend, at their own expense, any suit based on such claim. If, as a any judgment against the County, its agents or employees is allowed, the Landowner, assigns shall incur all costs and expenses associated therewith.

ENT	
, 20, and The County	
ituated in e <u>-PAGE-</u> or	
ds of Arlington	10. The Landowner, its successors and assigns, hereby grant permission unto the County, its authorized agents and employees to enter and access the Property, upon prior written notification from
Department of Real	the County, to install, operate, and maintain at the County's sole expense equipment desired to monitor the stormwater flow characteristics, including pollutant content of the influent and effluent, at
for review and	intermediate points on the Property, and within the Facility. No entry or access to the Property by the County pursuant to this paragraph will unreasonably interfere with the Landowner's, its successors' and assigns' use or operation of the Property.
<u>DING PLAN-, UILDING JCE PERMIT</u>	11. The Landowner, its successors and assigns, hereby grant permission unto the County, its
BER- (the tre expressly made	authorized agents, employees, and official guests to enter and access the Property, upon written request by the County, but at the convenience of Landowner, its successors and assigns, in order to conduct educational tours of the Facilities. The County agrees that it shall hold Landowner harmless for any and
ilities that provide	all damages, accidents, casualties, occurrences or claim which might arise or be asserted against the Landowner occurring as a result of such tours to the extent that such claims arise from the negligence of
ty; and	the County. The purpose of such tours shall be to expand the base of knowledge in the stormwater management field amongst public and private sector planners, engineers, scientists and other interested
(Chesapeake Bay ire that on-site ely maintained by	parties. 12. This Agreement shall be recorded among the Land Records, shall constitute a covenant
	running with the title of the Property or equitable servitude, and shall be binding on the Landowner, its administrators, executors, assigns, heirs and other successors in interest. Proof of recordation of this
presaid stormwater ag agreement all as	agreement shall be provided to the Arlington County Department of Environmental Services by the Landowner, its successors and assigns prior to the issuance by the County of the Building Permit for the Property.
	WITNESS the following signatures and seals:
al covenants he following terms	(Landowner)
	-PRINTED NAME-
ccessors and	Print or Type Name -TITLE-
chedule for the ties in good	Title
ion and	
d reporting s. The purpose of	
pection shall and outlet ion report must be	Certificate of Acknowledgment:
encies are noted, a certification	City/County of Commonwealth of Virginia
oper function of	The foregoing instrument was acknowledged before me this day of, 20
ection required by to the County, its	by (Name of person seeking acknowledgment)
es whenever the s successors and e Landowner, its	
be to verify the espond to citizen	Notary Public's signature
, copies of the s or maintenance ance shall be	Notary registration number:
ince shan be	My commission expires:
e necessary within thirty (30)	Hand Publice
equired, the o inspect, and/or c codes and design	KAREN L. S. WHITE Lic. No.041850
ed administrative nstrued to allow ciated with the	CA 07/17/19
hat the County all this	BMP CHECKLIST & SWM AGREEMENT
nature, or expends	
ials and the like ork, the	Engineers • Surveyors • Planners Landscape Architects • Arborists 207 PARK AVENUE
nin 30 days of 30-day period, the	DLI DS TAILS CHURCH, VIRGINIA 22046 (703) 532-6163 Falls Church, VIRGINIA 22046 (703) 532-6163
at the Judgment enforced. The	INCORPORATED ESTABLISHED 1945
less the County, its	ARLINGTON, VIRGINIA
laims which might rective actions ll applicable codes	DEPARTMENT OF ENVIRONMENTAL SERVICES
ply with this	4219/4221 LORCOM LANE THE PROPERTY OF R.A. PHILLIPS
less the County, its laims which might	GRADING PLAN
e of the Facilities	4219/4221 LORCOM LANE, ARLINGTON, VIRGINIA 22207 SCALE: NONE DRAWN CR CHECKED TPB/KW
erted against the heir successors and	SUBMITTED DATE 03/05/2019 05/07/2019
a result of a claim, its successors and	06/24/2019 07/17/2019 APPROVED DATE
	DIRECTOR OF ENVIRONMENTAL SERVICES SHEET: C-0705