

COMPREHENSIVE STORMWATER MANAGEMENT PERMIT

LOW DENSITY DEVELOPMENT

SECTION 1 – APPROVAL

Having reviewed the application and all supporting materials, the City of Wilmington has determined that the application is complete and the proposed development meets the requirements of the City of Wilmington’s Comprehensive Stormwater Ordinance.

PERMIT HOLDER: **PBW Holdings, LLC**
PROJECT: **Switchyard**
ADDRESS: **3804 Market Street**
PERMIT #: **2022006**

Therefore, the above referenced site is hereby approved and subject to all conditions set forth in Section 2 of this approval and all applicable provisions of the City of Wilmington Comprehensive Stormwater Management Ordinance.

This permit shall be effective from the date of issuance until February 4, 2030 and shall be subject to the following specified conditions and limitations:

Section 2 - CONDITIONS

1. This approval is valid only for the stormwater management system as proposed on the approved stormwater management plans dated 2/1/2022.
2. The project will be limited to the amount and type of built-upon area indicated in Section IV of the Stormwater Management Application Form submitted as part of the approved stormwater permit application package, and per the approved plans.
3. The parcel is limited to a maximum of 108,546 square feet of built-upon area as indicated in the approved stormwater permit application package, and per the approved plans.
4. The permittee shall submit a revised stormwater management application packet to the City of Wilmington and shall have received approval prior to construction, for any modification to the approved plans, including, but not limited to, those listed below:
 - Any revision to any item shown on the approved plans, including the stormwater management measures, built-upon area, details, etc.
 - Redesign or addition to the approved amount of built-upon area or to the drainage area.
 - Further subdivision, acquisition, lease or sale of any part of the project area.
 - Filling in, altering, or piping of any vegetative conveyance shown on the approved plan.
 - Construction of any permitted future areas shown on the approved plans



Public Services

Engineering
414 Chestnut St, Suite 200
Wilmington, NC 28401
910 341-7807
910 341-5881 fax
wilmingtonnc.gov
Dial 711 TTY/Voice

5. This permit is not transferable except after application and approval by the City of Wilmington. In the event of a change of ownership, name change or change of address the permittee must submit a completed Name/Ownership Change form to the City of Wilmington at least 30 days prior to the change. It shall be signed by all applicable parties, and be accompanied by all required supporting documentation. Submittal of a complete application shall not be construed as an approved application. The application will be reviewed on its own merits by the City of Wilmington and may or may not be approved. The project must be in compliance with the terms of this permit in order for the transfer request to be considered. The permittee is responsible for compliance with all permit conditions until such time as the City of Wilmington approves the transfer request. Neither the sale of the project nor the conveyance of common area to a third party should be considered as an approved transfer of the permit.
6. Failure to abide by the conditions and limitations contained in this permit may subject the Permittee to enforcement action by the City of Wilmington, in accordance with Sections 18-52 and 18-53 and any other applicable section of the Land Development Code.
7. The City of Wilmington may notify the permittee when the permitted site does not meet one or more of the minimum requirements of the permit. Within the time frame specified in the notice, the permittee shall submit a written time schedule to the City of Wilmington for modifying the site to meet minimum requirements. The permittee shall provide copies of revised plans and certification in writing to the City of Wilmington that the changes have been made.
8. The issuance of this permit does not preclude the Permittee from complying with any and all statutes, rules, regulations, or ordinances, which may be imposed by other government agencies (local, state, and federal) having jurisdiction.
9. In the event that the facilities fail to perform satisfactorily, including the creation of nuisance conditions, the Permittee shall take immediate corrective action, including those as may be required by the City of Wilmington, such as the construction of additional or replacement stormwater management systems.
10. The permittee grants City of Wilmington Staff permission to enter the property during normal business hours for the purpose of inspecting all components of the permitted stormwater management facility.
11. The permit issued shall continue in force and effect until revoked or terminated by the City of Wilmington. The permit may be modified, revoked and reissued or terminated for cause. The filing of a request for a permit modification, revocation and re-issuance or termination does not stay any permit condition.
12. The approved stormwater management plans and all documentation submitted as part of the approved stormwater management permit application package for this project are incorporated by reference and are enforceable parts of the permit.



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13. The permittee shall submit a renewal request with all required forms and documentation at least 180 days prior to the expiration date of this permit.
14. If any one or more of the conditions of this permit is found to be unenforceable or otherwise invalidated, all remaining conditions shall remain in full effect.

Stormwater Management Permit issued this the 4th day of February, 2022

A handwritten signature in blue ink, appearing to read "A. Caudle", is written over a horizontal line.

for Anthony Caudle, City Manager
City of Wilmington

RECEIVED

By waltonj at 4:48 pm, Dec 03, 2021



Public Services
Engineering
212 Operations Center Dr
Wilmington, NC 28412
910 341-7807
91 341-5881 fax
wilmingtonnc.gov
Dial 711 TTY/Voice

STORMWATER MANAGEMENT PERMIT APPLICATION FORM
(Form SWP 2.3)

I. GENERAL INFORMATION

1. Project Name (subdivision, facility, or establishment name - should be consistent with project name on plans, specifications, letters, operation and maintenance agreements, etc.):

Switchyard

2. Location of Project (street address):

3804 Market Street (Formerly Wetsig Road, changing Name to Switchyard Lane)

City: Wilmington County: New Hanover Zip: _____

II. PERMIT INFORMATION

1. Specify the type of project (check one): Low Density High Density
 Offsite Stormwater System Drainage Plan Redevelopment Other

If the project drains to an Offsite System, list the Stormwater Permit Number(s):

City of Wilmington: _____ State – NCDEQ/DEMLR: _____

2. Is the project currently covered (whole or in part) by an existing City or State (NCDEQ/DEMLR) Stormwater Permit? Yes No

If yes, list all applicable Stormwater Permit Numbers:

City of Wilmington: _____ State – NCDEQ/DEMLR: _____

3. Additional Project Permit Requirements (check all applicable):

CAMA Major Sedimentation/Erosion Control 404/401 Permit

III. CONTACT INFORMATION

1. Print Applicant / Signing Official's name and title (the developer, property owner, lessee, designated government official, individual, etc. who owns the project):

Applicant / Organization: PBW Holdings, LLC

Signing Official & Title: David Spetrino, Jr., Executive Manager

a. Contact information for Applicant / Signing Official:

Address: 18 Palmetto Drive
City: Wrightsville Beach State: NC Zip: 28480
Phone: 910-443-0746 Email: spetrino@pbcdesignbuild.com

b. Please check the appropriate box. The applicant listed above is:

- The property owner/Purchaser (Skip to item 3)
- Lessee (Attach a copy of the lease agreement and complete items 2 and 2a below)
- Developer (Complete items 2 and 2a below.)

2. Print Property Owner's name and title (if different from the applicant).

Property Owner / Organization: _____

Signing Official & Title: _____

a. Contact information for Property Owner:

Street Address: _____
City: _____ State: _____ Zip: _____
Phone: _____ Email: _____

3. (Optional) Other Contact name and title (such as a construction supervisor) who would like to be copied on all correspondence:

Other Contact Person / Organization: _____

Signing Official & Title: _____

a. Contact information for person listed in item 3 above:

Street Address: _____
City: _____ State: _____ Zip: _____
Phone: _____ Email: _____

4. Agent Authorization: Complete this section if you wish to designate authority to another individual and/or firm (such as a consulting engineer and /or firm) so that they may provide information on your behalf for this project (such as addressing requests for additional information).

Consulting Engineer: Howard Resnik, PE; Rodney Wright

Consulting Firm: CSD Engineering

a. Contact information for consultant listed above:

Mailing Address: PO Box 4041
City: Wilmington State: NC Zip: 28406
Phone: 910-791-4441 Email: howard@csd-engineering.com

IV. PROJECT INFORMATION

1. Total Property Area: 452,279 square feet
2. Total Coastal Wetlands Area: n/a square feet
3. Total Surface Water Area: _____ square feet
4. Total Property Area (1) – Total Coastal Wetlands Area (2) – Total Surface Water Area (3) = Total Project Area: _____ square feet.
5. Existing Impervious Surface within Project Area: 6,837 square feet
6. Existing Impervious Surface to be Removed/Demolished: 6,837 square feet
7. Existing Impervious Surface to Remain: 0 square feet
8. Total Onsite (within property boundary) Newly Constructed Impervious Surface (in square feet):

Buildings/Lots	40,323
Impervious Pavement	62,219
Pervious Pavement (total area / adjusted area w credit applied)	/
Impervious Sidewalks	5,502
Pervious Sidewalks (total area / adjusted area w credit applied)	/
Other (Describe)	
Future Development	502
Total Onsite Newly Constructed Impervious Surface	108,546

9. Total Onsite Impervious Surface
(Existing Impervious Surface to remain + Onsite Newly Constructed Impervious Surface) 0 square feet
10. Net Change in Onsite Impervious Surface (+ for net increase, - for net decrease) +101,709 square feet
11. Project percent of impervious area: (Total Onsite Impervious Surface / Total Project Area) x100 = 24 %
12. Total Offsite Newly Constructed Impervious Area (in square feet):

Impervious Pavement	
Pervious Pavement (total area / adjusted area w credit applied)	/
Impervious Sidewalks	
Pervious Sidewalks (total area / adjusted area w credit applied)	/
Other (Describe)	
Total Offsite Newly Constructed Impervious Surface	

* Note: Onsite Pervious Concrete for Conservation Resource Setback encroachment only. No Impervious Credit Applied.
ES

13. Complete the following information for each Stormwater SCM drainage area. Low Density and Drainage Plan projects (with no permeable pavements) may omit this section and skip to Section V.

Basin Information	Type of SCM SCM #	Type of SCM SCM #	Type of SCM SCM #
Receiving Stream Name			
Receiving Stream Index Number			
Stream Classification			
Total Drainage Area (sf)			
On-Site Drainage Area (sf)			
Off-Site Drainage Area (sf)			
Buildings/Lots (sf)			
Impervious Pavement (sf)			
Pervious Pavement (total / adjusted) (sf)	/	/	/
Impervious Sidewalks (sf)			
Pervious Sidewalks (total / adjusted) (sf)	/	/	/
Other (sf)			
Future Development (sf)			
Existing Impervious to remain (sf)			
Offsite (sf)			
Total Impervious Area (sf)			
Percent Impervious Area (%)			

Basin Information	Type of SCM SCM #	Type of SCM SCM #	Type of SCM SCM #
Receiving Stream Name			
Receiving Stream Index Number			
Stream Classification			
Total Drainage Area (sf)			
On-Site Drainage Area (sf)			
Off-Site Drainage Area (sf)			
Buildings/Lots (sf)			
Impervious Pavement (sf)			
Pervious Pavement (total / adjusted) (sf)	/	/	/
Impervious Sidewalks (sf)			
Pervious Sidewalks (total / adjusted) (sf)	/	/	/
Other (sf)			
Future Development (sf)			
Existing Impervious to remain (sf)			
Offsite (sf)			
Total Impervious Area (sf)			
Percent Impervious Area (%)			

V. SUBMITTAL REQUIREMENTS

Only complete application packages will be accepted and reviewed by the City. A complete package includes all of the items listed below. Copies of forms, deed restrictions, checklists as well as detailed instructions on how to complete this application form may be downloaded from the City of Wilmington Plan Review website below:

<https://www.wilmingtonnc.gov/departments/engineering/plan-review/stormwater-permits>

The complete application package should be submitted to the following address:

City of Wilmington – Engineering
Plan Review Section
212 Operations Center Dr.
Wilmington, NC 28412

Please indicate that the following required information have been provided by initialing in the space provided for each item.

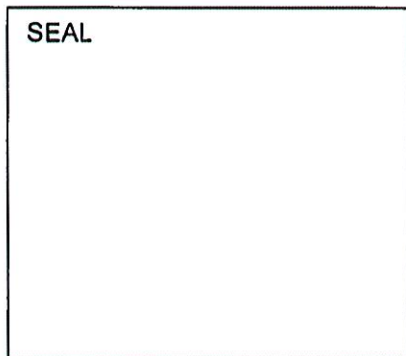
	Initials
1. One completed Stormwater Management Permit Application Form.	<u>MB</u>
2. One completed Supplement Form for each SCM proposed (signed, sealed and dated).	<u>MB</u>
3. One completed Operation & Maintenance agreement for each <u>type</u> of SCM.	<u>MB</u>
4. Proposed Deed Restrictions and Restrictive Covenants (for all subdivisions)	<u>MB</u>
5. Appropriate stormwater permit review fee.	<u>MB</u>
6. Minimum requirements identified on the Engineering Plan Review Checklist have been addressed.	<u>MB</u>
7. One set of calculations (sealed, signed and dated).	<u>MB</u>
8. A detailed narrative (one to two pages) describing the stormwater treatment/management system for the project.	<u>MB</u>
9. A USGS map identifying the site location. If the receiving stream is reported as class SA or the receiving stream drains to class SA waters within ½ mile of the site boundary, include the ½ mile radius on the map.	<u>MB</u>
10. A copy of the soils report, if applicable. Must meet NCDEQ SCM Manual and MDC requirements for the type of SCM proposed. The report must include boring logs and a map of boring locations.	<u>N/A</u>
11. One full set of plans <u>folded to 8.5" x 14"</u> .	<u>MB</u>
12. A map delineating and labeling the drainage area for each SCM proposed.	<u>MB</u>
13. A map delineating and labeling the drainage area for each inlet and conveyance proposed.	<u>MB</u>
14. A digital copy of the entire submittal package (can be submitted via flash drive, CD, email, dropbox or other file sharing system).	<u>MB</u>

VI. PROPERTY OWNER AUTHORIZATION (If Section III(2) has been filled out, complete this section)

I, _____, certify that I own the property identified in this permit application, and thus give permission to _____ with _____ to develop the project as currently proposed. A copy of the lease agreement or pending property sales contract has been provided with the submittal, which indicates the party responsible for the operation and maintenance of the stormwater system.

As the legal property owner I acknowledge, understand, and agree by my signature below, that if my designated agent _____ dissolves their company and/or cancels or defaults on their lease agreement, or pending sale, responsibility for compliance with the City of Wilmington Stormwater Permit reverts back to me, the property owner. As the property owner, it is my responsibility to notify the City of Wilmington immediately and submit a completed Name/Ownership Change Form within 30 days; otherwise I will be operating a stormwater treatment facility without a valid permit. I understand that the operation of a stormwater treatment facility without a valid permit is a violation of the City of Wilmington Municipal Code of Ordinances and may result in appropriate enforcement including the assessment of civil penalties.

Signature: _____ Date: _____



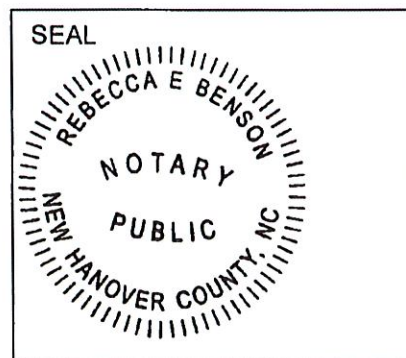
I, _____, a Notary Public for the State of _____, County of _____, do hereby certify that _____ personally appeared before me this day of _____, _____, and acknowledge the due execution of the application for a stormwater permit. Witness my hand and official seal,

My commission expires: _____

VII. APPLICANT'S CERTIFICATION

I, DAVID A SPETRINO JR, certify that the information included on this permit application form is, to the best of my knowledge, correct and that the project will be constructed in conformance with the approved plans, that the required deed restrictions and protective covenants will be recorded, and that the proposed project complies with the requirements of the applicable rules under the City's Comprehensive Stormwater Ordinance.

Signature: [Signature] Date: 08/23/2021



I, Rebecca E. Benson, a Notary Public for the State of North Carolina, County of New Hanover, do hereby certify that David A. Spetrino, Jr personally appeared before me this day of August 23, 2021, and acknowledge the due execution of the application for a stormwater permit. Witness my hand and official seal,
Rebecca E. Benson
My commission expires: 10.16.21

SUPPLEMENT-EZ COVER PAGE

RECEIVED

By waltonj at 4:48 pm, Dec 03, 2021

FORMS LOADED

PROJECT INFORMATION

1	Project Name	Switchyard
2	Project Area (ac)	10.38
3	Coastal Wetland Area (ac)	
4	Surface Water Area (ac)	
5	Is this project High or Low Density?	Low
6	Does this project use an off-site SCM?	No

COMPLIANCE WITH 02H .1003(4)

7	Width of vegetated setbacks provided (feet)	
8	Will the vegetated setback remain vegetated?	
9	If BUA is proposed in the setback, does it meet NCAC 02H.1003(4)(c-d)?	
10	Is streambank stabilization proposed on this project?	No

NUMBER AND TYPE OF SCMs:

11	Infiltration System	
12	Bioretention Cell	
13	Wet Pond	
14	Stormwater Wetland	
15	Permeable Pavement	
16	Sand Filter	
17	Rainwater Harvesting (RWH)	
18	Green Roof	
19	Level Spreader-Filter Strip (LS-FS)	
20	Disconnected Impervious Surface (DIS)	
21	Treatment Swale	
22	Dry Pond	
23	Storm Filter	
24	Silva Cell	
25	Bayfilter	
26	Filterra	

FORMS LOADED

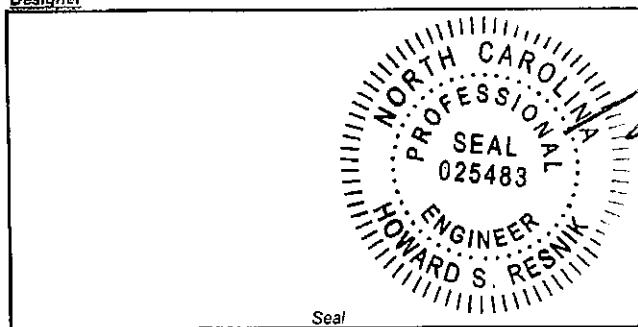
DESIGNER CERTIFICATION

27	Name and Title:	Howard Resnik, PE
28	Organization:	CSD Engineering
29	Street address:	PO BOX 4041
30	City, State, Zip:	Wilmington NC 28406
31	Phone number(s):	910-791-4441
32	Email:	howard@csd-engineering.com

Certification Statement

I certify, under penalty of law that this Supplement-EZ form and all supporting information were prepared under my direction or supervision; that the information provided in the form is, to the best of my knowledge and belief, true, accurate, and complete; and that the engineering plans, specifications, operation and maintenance agreements and other supporting information are consistent with the information provided here.

Designer



[Handwritten Signature]
Signature of Designer

12-2-21
Date

DRAINAGE AREAS

1	Is this a high density project?	No
2	If so, number of drainage areas/SCMs	0
3	Does this project have low density areas?	Yes
4	If so, number of low density drainage areas	1
5	Is all/part of this project subject to previous rule versions?	No

FORMS LOADED

DRAINAGE AREA INFORMATION		Entire Site	LD 1
4	Type of SCM		
5	Total drainage area (sq ft)	452279	452279
6	Onsite drainage area (sq ft)	452279	452279
7	Offsite drainage area (sq ft)		
8	Total BUA in project (sq ft)	108546 sf	108546 sf
9	New BUA on subdivided lots (subject to permitting) (sq ft)		
10	New BUA not on subdivided lots (subject to permitting) (sf)	108546 sf	108546 sf
11	Offsite BUA (sq ft)		
12	Breakdown of new BUA not on subdivided lots:		
	- Parking (sq ft)	62219 sf	62219 sf
	- Sidewalk (sq ft)	5502 sf	5502 sf
	- Roof (sq ft)	40323 sf	40323 sf
	- Roadway (sq ft)		
	- Future (sq ft)	502 sf	502 sf
	- Other, please specify in the comment box below (sq ft)		
13	New infiltrating permeable pavement on subdivided lots (sq ft)		
14	New infiltrating permeable pavement not on subdivided lots (sq ft)		
15	Existing BUA that will remain (not subject to permitting) (sq ft)		
16	Existing BUA that is already permitted (sq ft)		
17	Existing BUA that will be removed (sq ft)		
18	Percent BUA	24%	24%
19	Design storm (inches)	1.5 in	1.5 in
20	Design volume of SCM (cu ft)		
21	Calculation method for design volume		

ADDITIONAL INFORMATION

22 Please use this space to provide any additional information about the drainage area(s):

LOW DENSITY

DESIGN REQUIREMENTS FOR LOW DENSITY PROJECTS FROM O2H .1003		
1	Is project below density thresholds set forth in the applicable stormwater rule?	Yes
2	Does project maximize dispersed flow and minimize channelization of flow?	Yes
3	Has the use of piping been minimized per .1003(2)(c)?	Yes
4	Side slopes of the vegetated conveyances (H:V)	3:1
5	Maximum velocity in the vegetated conveyances during the 10-year storm?	2
6	Are curb outlet swales proposed?	Yes
7	Maximum longitudinal slope of curb outlet swale(s) (%)	1%
8	Bottom width of curb outlet swale(s) (feet)	2 ft
9	Maximum side slope of curb outlet swale(s) (H:V)	3
10	Minimum length of curb outlet swale(s) (feet)	100 ft
11	Are treatment swales used instead of curb outlet swales?	No
12	Is stormwater released at the edge of the setback as dispersed flow?	Yes
13	Have stormwater outlets been designed to prevent downslope erosion?	Yes
14	Are variations to rule .1003 proposed?	No
ADDITIONAL INFORMATION		
15	Please use this space to provide any additional information about this low density project:	

Swale #	Drainage Area (ac)	BUA (ac)	Pervious area (ac)	C	Q (cfs)	Slope (%)	V _{slow} (fps)	V _{actual} (fps)	Flow depth (ft)
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
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25									
26									
27									
28									
29									
30									

* See Attached

SWALE CALCULATIONS

Formulas	
$Q = CIA$	$Z_{avg} = AR^{2.3}$
$AR^{2.3} = Qn / (1.49s^{0.5})$ or $Z_{avg} = Z_{req}$	$Z_{req} = Qn / (1.49s^{0.5})$
$A = By + My^2$	$V = Q / A$
$R = A / P$	Spread = $y / \text{road cross slope}$
$P = B + 2y(1 + M^2)^{0.5}$	

Objective: solve for y so $Z_{avg} = Z_{req}$

		Swale 1						ITERATION					
		INPUT				OUTPUT				BALANCE			
FLOW (cfs)	s	B	M	n	y	A	P	R	Z_{avg}	Z_{REQ}	V (ft/s)		
10yr	5.92	0.003	2	3	0.03	0.60	3.49	7.03	0.50	2.18	2.18	1.70	1.00

		Swale 2						ITERATION					
		INPUT				OUTPUT				BALANCE			
FLOW (cfs)	s	B	M	n	y	A	P	R	Z_{avg}	Z_{REQ}	V (ft/s)		
10yr	2.08	0.003	2	3	0.03	0.48	1.63	5.00	0.33	0.77	0.77	1.28	1.00

		Swale 3						ITERATION					
		INPUT				OUTPUT				BALANCE			
FLOW (cfs)	s	B	M	n	y	A	P	R	Z_{avg}	Z_{REQ}	V (ft/s)		
10yr	11.06	0.003	2	3	0.03	1.06	5.52	8.73	0.63	4.07	4.07	2.00	1.00

Operation & Maintenance Agreement

Project Name: Switchyard
Project Location: 3804 Market Street

Cover Page

Maintenance records shall be kept on the following SCM(s). This maintenance record shall be kept in a log in a known set location. Any deficient SCM elements noted in the inspection will be corrected, repaired, or replaced immediately. These deficiencies can affect the integrity of structures, safety of the public, and the pollutant removal efficiency of the SCM(s).

The SCM(s) on this project include (check all that apply & corresponding O&M sheets will be added automatically):

Infiltration Basin	Quantity:		Location(s):	
Infiltration Trench	Quantity:		Location(s):	
Bioretention Cell	Quantity:		Location(s):	
Wet Pond	Quantity:	0	Location(s):	
Stormwater Wetland	Quantity:		Location(s):	
Permeable Pavement	Quantity:	1	Location(s):	North Parking Lot
Sand Filter	Quantity:		Location(s):	
Rainwater Harvesting	Quantity:		Location(s):	
Green Roof	Quantity:		Location(s):	
Level Spreader - Filter Strip	Quantity:		Location(s):	
Proprietary System	Quantity:		Location(s):	
Treatment Swale	Quantity:		Location(s):	
Dry Pond	Quantity:		Location(s):	
Disconnected Impervious Surface	Present:	No	Location(s):	
User Defined SCM	Present:	No	Location(s):	
Low Density	Present:	Yes	Type:	

I acknowledge and agree by my signature below that I am responsible for the performance of the maintenance procedures listed for each SCM above, and attached O&M tables. I agree to notify NCDEQ of any problems with the system or prior to any changes to the system or responsible party.

Responsible Party:	<u>PBW Holdings, LLC</u>
Title & Organization:	<u>David Spetrino, JR , Executive Manager</u>
Street address:	<u>18 Palmetto Drive</u>
City, state, zip:	<u>Wrightsville Beach NC 28480</u>
Phone number(s):	<u>910-443-0746</u>
Email:	<u>spetrino@pbcdesignbuild.com</u>

Signature: _____

Date: 12-2-21

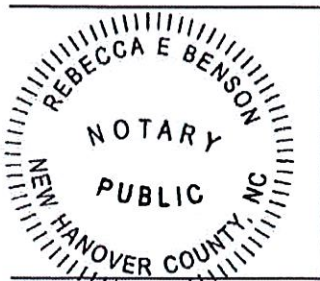
Rebecca E. Benson, a Notary Public for the State of North Carolina

County of New Hanover, do hereby certify that David A. Spetrino, Jr

personally appeared before me this 2nd day of December 2021 and

in my knowledge the due execution of the Operations and Maintenance Agreement.

In witness my hand and official seal, Rebecca E. Benson



RECEIVED
By waltonj at 4:49 pm, Dec 03, 2021

My commission expires 10.16.26

Permeable Pavement Maintenance Requirements

Once a year, the Simple Infiltration Test shall be performed and any deficiencies in surface permeability shall be addressed.

At all times, the permeable pavement shall be kept free of:

- Debris and particulate matter through frequent blowing that removes such debris, particularly during the fall and spring.
- Piles of soil, sand, mulch, building materials or other materials that could deposit particulates on the pavement.
- Piles of snow and ice.
- Chemicals of all kinds, including deicers.

After the permeable pavement is constructed, it shall be inspected ~~quarterly~~ **quarterly and within 24 hours after every storm event greater than 1.0 inches (or 1.5 inches if in a Coastal County)**. Records of operation and maintenance shall be kept in a known set location and shall be available upon request.

action activities shall be performed as follows. Any problems that are found shall be repaired immediately.

SCM element:	Potential problem:	How to remediate the problem:
The perimeter of the permeable pavement	Areas of bare soil and/or erosive gullies have formed.	Regrade the soil if necessary to remove the gully, plant ground cover and water until it is established. Provide lime and a one-time fertilizer application.
	A vegetated area drains toward the	Regrade the area so that it drains away from the pavement, then plant ground cover and water until
The surface of the permeable pavement	Trash/debris is present	Remove the trash/debris.
	Weeds are present.	Do not pull the weeds (may pull out media as well). Spray them with a systemic herbicide such as glyphosate and then return within the week to remove them by hand. (Another option is to pour boiling water
	Sediment has accumulated on the permeable pavement surface.	Remove the sediment with a mechanical sweeper, regenerative air cleaner or vacuum truck as appropriate.
	The permeable pavement surface is rutting, cracking, slumping or otherwise	Consult an appropriate professional.
Observation well	Water is present more than three days after a storm event.	Clean out any clogged underdrain pipes. Consult an appropriate professional for clogged soil subgrade.
Educational sign	The sign is missing or damaged.	Replace the sign.
The receiving water	Erosion or other signs of damage have occurred at the outlet.	Repair the damage and improve the flow dissipation structure.
	Discharges from the permeable pavement are causing erosion or sedimentation in the receiving water.	Contact the local NCDEQ Regional Office.

Low Density Maintenance Requirements

Important maintenance procedures:

The drainage area to the vegetated conveyance or vegetated receiving area will be carefully managed to reduce the sediment load to the vegetated conveyance or vegetated receiving area.

After the initial fertilization to establish the grass in the vegetated conveyance or the vegetated receiving area, fertilizer will not be applied to the vegetated receiving areas.

The vegetated conveyance or vegetated receiving area will be inspected **quarterly**. Records of operation and maintenance will be kept in a known set location and will be available upon request.

Inspection activities shall be performed as follows. Any problems that are found shall be repaired immediately.

SCM element:	Potential problem:	How to remediate the problem:
Vegetation	Vegetation is too short or too long.	Maintain grassed vegetation such that the swale or vegetated area does not erode during the peak flow from the 10-year storm
Vegetated receiving areas	Trash/debris is present.	Remove the trash/debris.
	Areas of bare soil and/or erosive gullies have formed.	Regrade the soil if necessary to remove the gully, and then re-sod (or plant with other appropriate species) and water until established. Provide lime and a one-time fertilizer application.
	Trees and/or other woody vegetation are present in the swale.	Remove the trees and woody vegetation from the swale, regrade the swale if necessary and re-establish grass as shown on the approved plans.
Vegetated conveyances / swales / roadside ditches (other than curb outlet swales)	Trash/debris is present.	Remove the trash/debris.
	Areas of bare soil and/or erosive gullies have formed.	Regrade the soil if necessary to remove the gully, and then re-sod (or plant with other appropriate species) and water until established. Provide lime and a one-time fertilizer application.
	Sediment covers the grass at the bottom of the swale.	Remove sediment and dispose in an area that will not impact streams or SCMs. Re-sod if necessary.
	The side slope is steeper than the approved configuration.	Regrade the slopes to the permitted configuration per the approved plan and reestablish vegetation. If as-built or existing conditions do not allow the slopes to be regraded, contact the applicable permitting agency.
	Grass is dead, diseased or dying.	Determine the source of the problem: soils, hydrology, disease, etc. Remedy the problem and replace plants. Provide a one-time fertilizer application to establish the ground cover if necessary.
	Trees and/or other woody vegetation are present in the vegetated conveyance.	Remove the trees and woody vegetation from the vegetated conveyance, regrade the vegetated conveyance if necessary and re-establish grass as shown on the approved plans.

Curb outlet swales or vegetated areas	The longitudinal slope exceeds 5%.	Regrade to meet the permitted longitudinal slope as shown on the approved plans.
	The swale profile does not match the approved detail.	Regrade the swale to the approved profile as shown on the approved plans.
	The length of the swale or vegetated area is less than 100 feet.	Extend the swale to achieve the 100-foot minimum length. If as-built or existing conditions do not allow the slopes to be regraded, contact the applicable permitting agency.
The outlet device (if applicable)	Clogging has occurred.	Clean out the outlet device. Dispose of the sediment off-site.
	The outlet device is damaged	Repair or replace the outlet device.
The receiving water	Erosion or other signs of damage have occurred at the outlet.	Repair the damage and improve the flow dissipation structure.
	Discharges from the site are causing erosion or sedimentation in the receiving water.	Contact the local NCDEQ Regional Office.