

COMPREHENSIVE STORMWATER MANAGEMENT PERMIT

HIGH 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: **College Acres Development, LLC**
PROJECT: **College Acres Apartments**
ADDRESS: **4729-4757 College Acres Drive**
PERMIT #: **2020036**
DATE: **December 4, 2020**

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 December 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 November 5, 2020.
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. This permit shall become void unless the facilities are constructed in accordance with the approved stormwater management plans, specifications and supporting documentation, including information provided in the application and supplements.
4. The runoff from all built-upon area within any permitted drainage area must be directed into the permitted stormwater control system for that drainage area.
5. 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:
 - a. Any revision to any item shown on the approved plans, including the stormwater management measures, built-upon area, details, etc.
 - b. Redesign or addition to the approved amount of built-upon area or to the drainage area.
 - c. Further subdivision, acquisition, lease or sale of any part of the project area.
 - d. Filling in, altering, or piping of any vegetative conveyance shown on the approved plan.
 - e. Construction of any permitted future areas shown on the approved plans.

6. A copy of the approved plans and specifications shall be maintained on file by the Permittee.
7. During construction, erosion shall be kept to a minimum and any eroded areas of the system will be repaired immediately.
8. If the stormwater system was used as an Erosion Control device, it must be restored to design condition prior to operation as a stormwater treatment device, and prior to issuance of any certificate of occupancy for the project.
9. All areas must be maintained in a permanently stabilized condition. If vegetated, permanent seeding requirements must follow the guidelines established in the North Carolina Erosion and Sediment Control Planning and Design Manual unless an alternative is specified and approved by the City of Wilmington.
10. All applicable operation & maintenance agreements and easements pertaining to each stormwater treatment system shall be referenced on the final plat and recorded with the Register of Deeds upon final plat approval. If no plat is recorded for the site the operation and maintenance agreements and easements shall be recorded with the Register of Deeds so as to appear in the chain of title of all subsequent purchasers under generally accepted searching standards.
11. The stormwater management system shall be constructed in its entirety, vegetated and operational for its intended use prior to the construction of any built-upon surface unless prior approval is obtained. City Staff must be notified of any deviation prior to construction of the built-upon surface. Any deviation request shall include justification and must propose an alternative timeline or construction sequence. Notification shall not constitute approval. Any alternative timeline approved by City staff shall become an enforceable component of this permit.
12. The permittee shall at all times provide the operation and maintenance necessary to assure the permitted stormwater system functions at optimum efficiency. The approved Operation and Maintenance Agreement must be followed in its entirety and maintenance must occur at the scheduled intervals including, but not limited to:
 - a. Scheduled inspections (interval noted on the agreement).
 - b. Sediment removal.
 - c. Mowing and revegetation of slopes and the vegetated areas.
 - d. Maintenance of landscape plants, including those within the landscape buffer and on the vegetated shelf.
 - e. Immediate repair of eroded areas, especially slopes.
 - f. Debris removal and unclogging of outlet structure, orifice device, flow spreader, catch basins and/or piping.
 - g. Access to the outlet structure must be available at all times.
13. Records of inspection, maintenance and repair for the permitted stormwater system must be kept by the permittee for at least 5 years from the date of record and made available upon request to authorized personnel of the City of Wilmington. The records will indicate the date, activity, name of person performing the work and what actions were taken.

14. Upon completion of construction, before a Certificate of Occupancy shall be granted, and prior to operation or intended use of this permitted facility, the applicant shall submit to the City of Wilmington as-built plans for all stormwater management facilities. The plans shall show the final design specifications and the field location, type, depth, invert and planted vegetation of all measures, controls and devices, as installed. A certification shall be submitted, along with all supporting documentation that specifies, under seal that the as-built stormwater measures, controls and devices are in compliance with the approved stormwater management plans. A final inspection by City of Wilmington personnel will be required prior to issuance of a certificate of occupancy or operation of the permitted facility.
15. 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.
16. 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.
17. 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.
18. 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.
19. 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.
20. 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.



Public Services

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

21. 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.
22. 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.
23. 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.
24. 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 December, 2020.

A handwritten signature in blue ink, which appears to read "Rich Christensen", is written over a horizontal line.

for Sterling Cheatham, City Manager
City of Wilmington



Public Services
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212 Operations Center Dr
Wilmington, NC 28412
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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.):

College Acres Apartments

2. Location of Project (street address):

4729-4757 College Acres Drive

City: Wilmington County: New Hanover Zip: 28403

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: College Acres Development, LLC

Signing Official & Title: David Despain, Manager

a. Contact information for Applicant / Signing Official:

Address: 5217 Market St

City: Wilmington

State: NC

Zip: 28403

Phone: 843-240-6770

Email: ddespain@carolinadevt.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: na

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: J. Branch Smith, PE

Consulting Firm: Paramounte Engineering, Inc.

a. Contact information for consultant listed above:

Mailing Address: 122 Cinema Drive

City: Wilmington

State: NC

Zip: 28403

Phone: (910) 791-6707

Email: bsmith@paramounte-eng.com

IV. PROJECT INFORMATION

1. Total Property Area: 241,061 square feet
2. Total Coastal Wetlands Area: 0 square feet
3. Total Surface Water Area: 0 square feet
4. Total Property Area (1) – Total Coastal Wetlands Area (2) – Total Surface Water Area (3) = Total Project Area: 241,061 square feet.
5. Existing Impervious Surface within Project Area: 37,150 square feet
6. Existing Impervious Surface to be Removed/Demolished: 37,150 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	53805
Impervious Pavement	55800
Pervious Pavement (total area / adjusted area w credit applied)	20800 / 0
Impervious Sidewalks	11600
Pervious Sidewalks (total area / adjusted area w credit applied)	/
Other Concrete Pads and Pool Area	2740
Future Development	2000
Total Onsite Newly Constructed Impervious Surface	125945

9. Total Onsite Impervious Surface
(Existing Impervious Surface to remain + Onsite Newly Constructed Impervious Surface) 125,945 square feet
10. Net Change in Onsite Impervious Surface (+ for net increase, - for net decrease) 88,795 square feet
11. Project percent of impervious area: (Total Onsite Impervious Surface / Total Project Area) x100 = 52% %
12. Total Offsite Newly Constructed Impervious Area (in square feet):

Impervious Pavement	1,100
Pervious Pavement (total area / adjusted area w credit applied)	/
Impervious Sidewalks	4640
Pervious Sidewalks (total area / adjusted area w credit applied)	/
Other (Describe)	
Total Offsite Newly Constructed Impervious Surface	5,740

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 # 1 Perv. Pvmt.	Type of SCM SCM # 2 SW Wetland	Type of SCM SCM #
Receiving Stream Name	Bradley Creek	Bradley Creek	
Receiving Stream Index Number	18-87-24-4-(1)	18-87-24-4-(1)	
Stream Classification	Sc;Hqw	Sc;Hqw	
Total Drainage Area (sf)	65300	153100	
On-Site Drainage Area (sf)	65300	136400	
Off-Site Drainage Area (sf)		16700	
Buildings/Lots (sf)	18115	35690	
Impervious Pavement (sf)	4750	51050	
Pervious Pavement (total / adjusted) (sf)	20800 / 0	/	/
Impervious Sidewalks (sf)	5000	6600	
Pervious Sidewalks (total / adjusted) (sf)	/	/	/
Other (sf)	2740		
Future Development (sf)	1000	1000	
Existing Impervious to remain (sf)			
Offsite (sf)		4500	
Total Impervious Area (sf)	31605	98840	
Percent Impervious Area (%)	48.4%	64.6%	

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.	<div>JBS</div>
2. One completed Supplement Form for each SCM proposed (signed, sealed and dated).	<div>JBS</div>
3. One completed Operation & Maintenance agreement for each <u>type</u> of SCM.	<div>JBS</div>
4. Proposed Deed Restrictions and Restrictive Covenants (for all subdivisions)	<div></div>
5. Appropriate stormwater permit review fee.	<div>JBS</div>
6. Minimum requirements identified on the Engineering Plan Review Checklist have been addressed.	<div>JBS</div>
7. One set of calculations (sealed, signed and dated).	<div>JBS</div>
8. A detailed narrative (one to two pages) describing the stormwater treatment/management system for the project.	<div>JBS</div>
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.	<div>JBS</div>
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.	<div>JBS</div>
11. One full set of plans <u>folded to 8.5" x 14"</u> .	<div>JBS</div>
12. A map delineating and labeling the drainage area for each SCM proposed.	<div>JBS</div>
13. A map delineating and labeling the drainage area for each inlet and conveyance proposed.	<div>JBS</div>
14. A digital copy of the entire submittal package (can be submitted via flash drive, CD, email, dropbox or other file sharing system).	<div>JBS</div>

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: _____

SEAL

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, _____ 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: _____ Date: _____

SEAL

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,

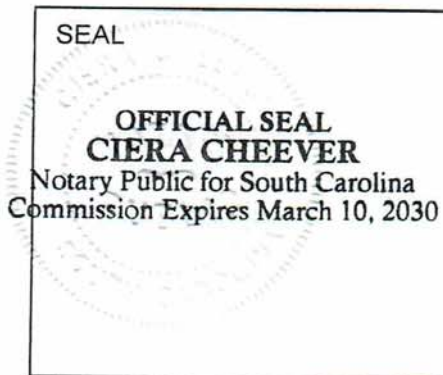
My commission expires: _____

VIII. APPLICANT'S CERTIFICATION

I, (print or type name of person listed in Contact Information, item 1) David DeSpain 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 stormwater rules under.

Signature: 

Date: 8-25-20



I, Ciera Cheever, a Notary Public for the State of South Carolina, County of Beaufort, do hereby certify that David Despain personally appeared before me this day of August, 25, and acknowledge the due execution of the application for a stormwater permit. Witness my hand and official seal,


My commission expires: March 2030

SUPPLEMENT-EZ COVER PAGE

FORMS LOADED

PROJECT INFORMATION

1	Project Name	College Acres Apartments
2	Project Area (ac)	5.53
3	Coastal Wetland Area (ac)	0
4	Surface Water Area (ac)	0
5	Is this project High or Low Density?	High
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	Is BUA other than as listed in .1003(4)(c-d) out of the setback?	
10	Is streambank stabilization proposed on this project?	

NUMBER AND TYPE OF SCMs:

11	Infiltration System	
12	Bioretention Cell	
13	Wet Pond	
14	Stormwater Wetland	1
15	Permeable Pavement	1
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	StormFilter	
24	Silva Cell	
25	Bayfilter	
26	Filterra	

FORMS LOADED

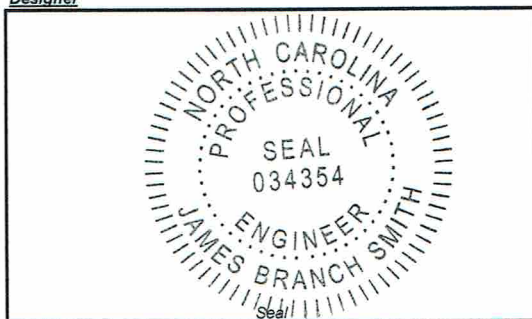
DESIGNER CERTIFICATION

27	Name and Title:	J. Branch Smith, PE
28	Organization:	Paramounte Engineering, Inc
29	Street address:	122 Cinema Dr
30	City, State, Zip:	Wilmington NC 28409
31	Phone number(s):	910-791-6707
32	Email:	bsmith@paramounte-eng.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



Signature of Designer

Date

10/30/20

DRAINAGE AREAS

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

FORMS LOADED

DRAINAGE AREA INFORMATION		Entire Site	1	2
4	Type of SCM		Perv Pavement	SW Wetland
5	Total BUA in project (sq ft)	130345 sf	31355 sf	98990 sf
6	New BUA on subdivided lots (subject to permitting) (sq ft)			
7	New BUA outside of subdivided lots (subject to permitting) (sf)	130445 sf	31605 sf	98840 sf
8	Offsite - total area (sq ft)			16700 sf
9	Offsite BUA (sq ft)			4500 sf
10	Breakdown of new BUA outside subdivided lots:			
	- Parking (sq ft)	55800 sf	4750 sf	51050 sf
	- Sidewalk (sq ft)	11600 sf	5000 sf	6600 sf
	- Roof (sq ft)	53805 sf	18115 sf	35690 sf
	- Roadway (sq ft)	sf		
	- Future (sq ft)	2000 sf	1000 sf	1000 sf
	- Other, please specify in the comment box below (sq ft)	2740 sf	2740 sf	sf
11	New infiltrating permeable pavement on subdivided lots (sq ft)			
12	New infiltrating permeable pavement outside of subdivided lots (sq ft)		20800 sf	
13	Exisitng BUA that will remain (not subject to permitting) (sq ft)			
14	Existing BUA that is already permitted (sq ft)			
15	Existing BUA that will be removed (sq ft)	37150 sf		37150 sf
16	Percent BUA		48%	64%
17	Design storm (inches)		1.50 in	1.50 in
18	Design volume of SCM (cu ft)		4160 cf	8654 cf
19	Calculation method for design volume		Simple	Simple
ADDITIONAL INFORMATION				
20	Please use this space to provide any additional information about the drainage area(s):			
Concrete Pads and Pool Area				

STORMWATER WETLAND

1	Drainage area number	2
2	Design volume of SCM (cu ft)	8654 cf
GENERAL MDC FROM 02H .1050		
3	Is the SCM sized to treat the SW from all surfaces at build-out?	No
4	Is the SCM located away from contaminated soils?	Yes
5	What are the side slopes of the SCM (H:V)?	3:1
6	Does the SCM have retaining walls, gabion walls or other engineered side slopes?	No
7	Are the inlets, outlets, and receiving stream protected from erosion (10-year storm)?	Yes
8	Is there an overflow or bypass for inflow volume in excess of the design volume?	Yes
9	What is the method for dewatering the SCM for maintenance?\	Pump (preferred)
10	If applicable, will the SCM be cleaned out after construction?	Yes
11	Does the maintenance access comply with General MDC (8)?	Yes
12	Does the drainage easement comply with General MDC (9)?	Yes
13	If the SCM is on a single family lot, does (will?) the plat comply with General MDC (10)?	
14	Is there an O&M Agreement that complies with General MDC (11)?	Yes
15	Is there an O&M Plan that complies with General MDC (12)?	Yes
16	Does the SCM follow the device specific MDC?	Yes
17	Was the SCM designed by an NC licensed professional?	Yes
STORMWATER WETLAND MDC FROM 02H .1054		
18	Are the inlet(s) and outlet located in a manner that avoids short-circuiting?	Yes
19	Are berms or baffles provided to improve the flow path?	No
20	Does the orifice drawdown from below the top surface of the permanent pool?	Yes
21	Does the wetland minimize impacts to the receiving channel from the 1-yr, 24-hr storm?	Yes
22	Is a trash rack or other device provided to protect the outlet system?	Yes

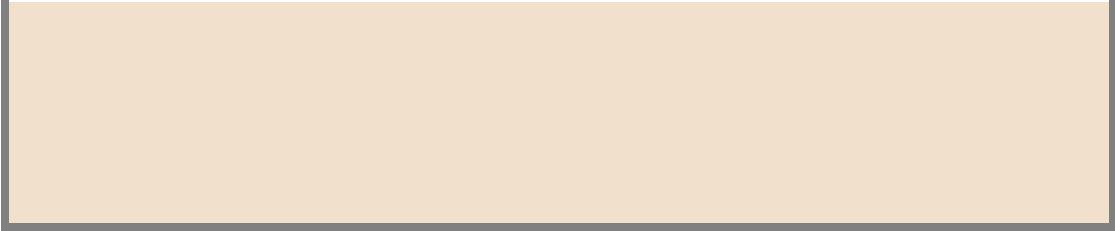
STORMWATER WETLAND

Elevations		
23	Elevation, peak attenuation above temporary pool (if applicable) (fmsl)	36.86
24	Elevation, temporary pool (top of the temporary inundation zone) (fmsl)	35.20
25	Elevation, permanent pool (top of the shallow water zone) (fmsl)	34.00
26	Elevation, bottom of shallow water zone (fmsl)	33.25
27	Elevation, bottom of forebay deep pool at deepest point (at forebay entrance) (fmsl)	30.67
	Elevation, bottom of forebay deep pool at shallowest point (at forebay exit) (fmsl)	33.00
28	Elevation, bottom of non-forebay deep pool at deepest point (fmsl)	30.25
Planting Zones		
30	Area, total surface area of the SW wetland at temporary pool elev. (sq ft)	7,794.00
31	Area, temporary inundation zone at temporary pool elev. (sq ft)	2,373.00
32	Area, shallow water zone at temporary pool elev. (sq ft)	3,309.00
33	Area, forebay at temporary pool elev. (sq ft)	1,084.00
34	Area, non-forebay deep pool at temporary pool elev. (sq ft)	1,000.00
35	Percent area provided, temporary inundation zone (should be 30-45%)	30%
36	Percent area provided, shallow water zone (should be 35-45%)	42%
37	Percent area provided, deep pool (forebay) (should be 10-15%)	14%
38	Percent area provided, deep pool (non-forebay) (should be 5-15%)	13%
Depths and Outlet		
39	Peak attenuation depth above temporary inundation zone (inches)	19.92 in
40	Temporary inundation zone depth (temporary pool to permanent pool) (inches)	14 in
	Shallow water zone depth (permanent pool to bottom of wetland) (inches)	9 in
41	Depth, forebay at entrance (permanent pool to bottom of forebay entrance) (inches)	40 in
	Depth, forebay at exit (permanent pool to bottom of forebay exit) (inches)	12 in
42	Depth, non-forebay deep pools (permanent pool to deep pool bottom) (inches)	36 in
	If there is an orifice, diameter (inches)	1.5 in
43	If there is a weir, weir height (inches)	-
44	If there is a weir, weir length (inches)	-
45	Drawdown time for the temporary pool (days)	2.75
Soil and Plants		
46	Soil amendment depth (inches)	12 in
47	Has a soil amendment specification been provided?	Yes
48	Has a landscaping plan that meets SW Wetland MDC (12) been provided?	Yes
49	Number of plants per 200 square feet (#) in the shallow water zone:	
50	Does the temporary inundation zone planting comply with SW Wetland MDC (14)?	Yes
	Are the dam structure and temporary fill slopes planted in non-clumping turfgrass?	Yes
51	Will cattails be planted in the wetland?	No
ADDITIONAL INFORMATION		
52	Please use this space to provide any additional information about the stormwater wetland(s):	

PERMEABLE PAVEMENT

1	Drainage area number	0
2	Design volume of SCM (cu ft)	4160 cf
3	Area of permeable pavement to be installed (square feet)	20800 sf
4	Area of screened roof runoff that is directed to pavement (square feet)	17865 sf
5	Area of additional built-upon area runoff that is directed to pavement (square feet)	13490 sf
6	Area of incidental, unavoidable runoff from adjacent stable pervious areas (square feet)	13145 sf
GENERAL MDC FROM 02H .1050		
7	Is the SCM sized to treat the SW from all surfaces at build-out?	No
8	Is the SCM located away from contaminated soils?	Yes
5	What are the side slopes of the SCM (H:V)?	1:1
6	Does the SCM have retaining walls, gabion walls or other engineered side slopes?	No
7	Are the inlets, outlets, and receiving stream protected from erosion (10-year storm)?	Yes
8	Is there an overflow or bypass for inflow volume in excess of the design volume?	Yes
9	What is the method for dewatering the SCM for maintenance?	Other
10	If applicable, will the SCM be cleaned out after construction?	Yes
11	Does the maintenance access comply with General MDC (8)?	Yes
12	Does the drainage easement comply with General MDC (9)?	Yes
13	If the SCM is on a single family lot, does (will?) the plat comply with General MDC (10)?	Yes
14	Is there an O&M Agreement that complies with General MDC (11)?	Yes
15	Is there an O&M Plan that complies with General MDC (12)?	Yes
16	Does the SCM follow the device specific MDC?	Yes
17	Was the SCM designed by an NC licensed professional?	Yes
PERMEABLE PAVEMENT MDC FROM 02H .1055		
18	Is this a detention or infiltration permeable pavement system?	Infiltration
19	Proposed slope of the subgrade surface (%)	0-1%
20	Are terraces or baffles provided?	No
21	SHWT elevation (fmsl)	34.67
22	Storage elevation of the design rainfall depth (fmsl)	
23	Will toxic pollutants be stored or handled on or near the permeable pavement?	No
24	Does the proposed pavement surface comply with .1055(6)?	Yes
25	Will runoff from pervious surfaces be directed away from the pavement?	Yes
26	Maximum adjacent area directed to a single point onto the permeable pavement (sq ft)	100 sf
27	Is at least one observation well per terrace been provided at the low point(s)?	Yes
28	Have edge restraints been provided?	Yes
29	Will the subgrade be graded when dry?	Yes
30	Will the permeable pavement be protected from sediment during construction?	Yes
31	Will an in-situ permeability test be conducted after site stabilization?	Yes
For Infiltrating Pavement Systems		
32	Was the soil investigated in the footprint and at the elevation of the subgrade?	Yes
33	Soil infiltration rate (in/hr)	0-13.91 in/hr
34	Is a detailed hydrogeologic study attached if the separation is between 1 and 2 feet?	No
35	Is additional media being added to the soil profile?	No
36	Proposed slope of the subgrade surface (%)	0-1%
37	Top of the subgrade (bottom of the aggregate) (fmsl)	36.67
38	Dewatering time (hours)	5.49 hrs
For Detention Pavement Systems		
39	Drawdown time (hours)	
Aggregate		
40	Aggregate depth (in)	6 in
41	Aggregate porosity (n)	40%
42	Size of aggregate to be used in the subbase	#57
43	Will the aggregate be washed?	Yes
ADDITIONAL INFORMATION		
44	Please use this space to provide any additional information about the permeable pavement system(s):	

PERMEABLE PAVEMENT



Operation & Maintenance Agreement

Project Name: ~~Cottages @ College Acres~~ **COTTAGE ACRES APARTMENTS**

Project Location: **College Acres Drive, Wilmington, NC**

Cover Page

Maintenance records shall be kept on the following BMP(s). This maintenance record shall be kept in a log in a known set location. Any deficient BMP 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 BMP(s).

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

Bioretention Cell	Quantity:		Location(s):	
Dry Detention Basin	Quantity:		Location(s):	
Grassed Swale	Quantity:		Location(s):	
Green Roof	Quantity:		Location(s):	
Infiltration Basin	Quantity:		Location(s):	
Infiltration Trench	Quantity:		Location(s):	
Level Spreader/VFS	Quantity:		Location(s):	
Permeable Pavement	Quantity:	1	Location(s):	Parking Lot
Proprietary System	Quantity:		Location(s):	
Rainwater Harvesting	Quantity:		Location(s):	
Sand Filter	Quantity:		Location(s):	
Stormwater Wetland	Quantity:	1	Location(s):	Corner of Bankatt Racine & Cottage Acres
Wet Detention Basin	Quantity:		Location(s):	
Disconnected Impervious Area	Present:	No	Location(s):	
User Defined BMP	Present:	No	Location(s):	

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

* Responsible Party: **College Acres Development, LLC**

Title & Organization: **David DeSpain, Mgr**

Street address: **5217 Market Street**

City, state, zip: **Wilmington, NC 28403**

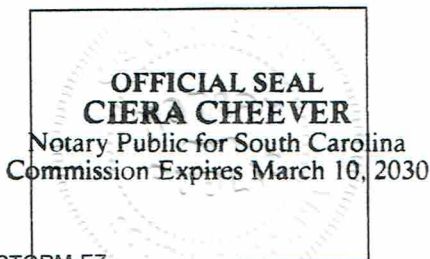
Phone number(s): **843-240-6770**

Email: **ddeSpain@carolinadevt.com**

Signature: _____

Date: 8-25-20

I, Ciera Cheever, a Notary Public for the State of South Carolina
County of Beaufort, do hereby certify that David Despain
personally appeared before me this 25 day of August and
acknowledge the due execution of the Operations and Maintenance Agreement.
Witness my hand and official seal, Ciera Cheever



Permeable Pavement Maintenance Requirements

At all times, the 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.

The permeable pavement will be inspected **once a quarter**. 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.

BMP element:	Potential problem:	How to remediate the problem:
The entire BMP	Trash/debris is present.	Remove the trash/debris.
The perimeter of the permeable pavement	Areas of bare soil and/or erosive gullies	Regrade the soil if necessary to remove the gully, then plant ground cover and water until established.
	A vegetated area drains toward the pavement.	Regrade the area so that it drains away from the pavement, then plant ground cover and water until established.
The inlet device	The pipe is clogged.	Unclog the pipe. Dispose of the sediment off-site.
	The pipe is cracked or otherwise damaged.	Replace the pipe.
	Erosion is occurring in the swale.	Regrade the swale if necessary to smooth it over and provide erosion control devices such as reinforced turf matting or riprap to avoid future problems with erosion.
	Stone verge is clogged or covered in sediment (if applicable).	Remove sediment and replace with clean stone.
The surface of the permeable pavement	Trash/debris present	Remove the trash/debris.
	Weeds	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 on them or steam them.)
	Sediment	Vacuum sweep the pavement.
	Rutting, cracking or slumping or damaged structure	Consult an appropriate professional.
Observation well	Water present more than five days after a storm event	Clean out clogged underdrain pipes. Consult an appropriate professional for clogged soil subgrade.
Educational sign	Missing or is damaged.	Replace the sign.
The outlet device	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.	Contact the local NC Department of Environment and Natural Resources Regional Office.

Stormwater Wetland Maintenance Requirements

Important maintenance procedures:

- Immediately following construction of the stormwater wetland, bi-weekly inspections will be conducted and wetland plants will be watered bi-weekly until vegetation becomes established (commonly six weeks).
- No portion of the stormwater wetland will be fertilized after the first initial fertilization that is required to establish the wetland plants.
- Stable groundcover will be maintained in the drainage area to reduce the sediment load to the wetland.
- Once a year, a dam safety expert should inspect the embankment.

After the stormwater wetland is established, it shall be inspected **monthly 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 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.

BMP element:	Potential problem:	How I will remediate the problem:
Entire BMP	Trash/debris is present.	Remove the trash/debris.
The perimeter of the BMP	Areas of bare soil and/or erosive gullies have formed.	Regrade the soil if necessary to remove the gully, and then plant a ground cover and water until it is established. Provide lime and a one-time fertilizer application.
	Vegetation is too short or too long.	Maintain vegetation at a height of approximately six inches.
Forebay	Sediment has accumulated in the forebay to a depth that inhibits the forebay from	Search for the source of the sediment and remedy the problem if possible. Remove the sediment and dispose of it in a location where it will not cause impacts to streams or the BMP.
	Erosion has occurred.	Provide additional erosion protection such as reinforced turf matting or riprap if needed to prevent future erosion problems.
	Weeds are present.	Remove the weeds, preferably by hand. If a pesticide is used, wipe it on the plants rather than spraying.
The inlet device	The pipe is clogged.	Unclog the pipe. Dispose of the sediment off-site.
	The pipe is cracked or otherwise damaged.	Replace the pipe.
	Erosion is occurring in the swale.	Regrade the swale if necessary to smooth it over and provide erosion control devices such as reinforced turf matting or riprap to avoid future problems with erosion.
	Stone verge is clogged or covered in sediment (if applicable).	Remove sediment and replace with clean stone.

Stormwater Wetland Maintenance Requirements (Continued)

Deep pool, shallow water and shallow land areas	Algal growth covers over 50% of the deep pool and shallow water areas.	Consult a professional to remove and control the algal growth.
	Cattails, phragmites or other invasive plants cover 50% of the deep pool and shallow	Remove invasives by physical removal or by wiping them with pesticide (do not spray) – consult a professional.
	Shallow land remains flooded more than 5 days after a storm event.	Unclog the outlet device immediately.
	Plants are 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.
	Best professional practices show that pruning is needed to maintain optimal plant	Prune according to best professional practices.

	Sediment has accumulated and reduced the depth to 75% of the original design	Search for the source of the sediment and remedy the problem if possible. Remove the sediment and dispose of it in a location where it will not cause impacts to streams or the BMP.
Embankment	A tree has started to grow on the embankment.	Consult a dam safety specialist to remove the tree.
	An annual inspection by appropriate professional shows that the embankment	Make all needed repairs.
	Evidence of muskrat or beaver activity is present.	Consult a professional to remove muskrats or beavers.
Micropool	Sediment has accumulated and reduced the depth to 75% of the original design	Search for the source of the sediment and remedy the problem if possible. Remove the sediment and dispose of it in a location where it will not cause impacts to streams or the BMP.
The outlet device	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.	Contact the local NC Department of Environment and Natural Resources Regional Office.