



Public Services

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

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: **NNP IV - Cape Fear River, LLC**
PROJECT: **Riverlights - Age Qualified Phase I**
ADDRESS: **4410 River Road**
PERMIT #: **2015034**
DATE: **10/7/2015**

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 10/17/2025 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 10/1/2015.
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.



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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. Prior to the sale of any lot, deed restrictions and restrictive covenants must be prepared, reviewed by city Staff and recorded with the register of Deeds.
11. 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.
12. 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.
13. 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.
14. 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.



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15. 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 Engineering personnel will be required prior to issuance of a certificate of occupancy or operation of the permitted facility.
16. 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.
17. 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.
18. 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.
19. 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.
20. 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.
21. 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.



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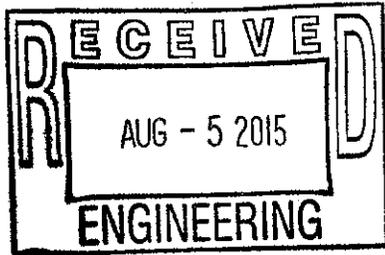
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22. The permit issued shall continue in force and effect until revoked or terminated by the City of Wilmington. The permit may be modified, revoked and reissued or terminated for cause. The filing of a request for a permit modification, revocation and re-issuance or termination does not stay any permit condition.
23. 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.
24. 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.
25. 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 7th day of October, 2015



for Sterling Cheatham, City Manager
City of Wilmington



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STORMWATER MANAGEMENT PERMIT APPLICATION FORM
 (Form SWP 2.2)

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.):

Riverlights- Age Qualified Phase 1

2. Location of Project (street address):

4410 River Road

City: Wilmington County: New Hanover Zip: 28412

3. Directions to project (from nearest major intersection):

From Carolina Beach Road (US-421), turn right at Independence Boulevard (SR1209) and a left at River Road (SR1100). This site is located between Barnard's Creek and Mott's Creek.

II. PERMIT INFORMATION

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

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

City of Wilmington: _____ State – NCDENR/DWQ: _____

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

If yes, list all applicable Stormwater Permit Numbers:

City of Wilmington: 2015001 State – NCDENR/DWQ: SW8-070672, SW8-070526

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

CAMA Major Sedimentation/Erosion Control

NPDES Industrial Stormwater 404/401 Permit: Proposed Impacts: _____

If any of these permits have already been acquired please provide the Project Name, Project/Permit Number, issue date and the type of each permit:

NHC grading permit #22-15

III. CONTACT INFORMATION

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

Applicant / Organization: NNP IV- Cape Fear River, LLC

Signing Official & Title: Bill Mumford, Vice President - Development

- a. Contact information for Applicant / Signing Official:

Street Address: 3410 River Road, Suite 103

City: Wilmington State: NC Zip: 28412

Phone: (704)877-5946 Fax: (704)877-5955 Email: bmumford@newlandco.com

Mailing Address (if different than physical address): _____

City: _____ State: _____ Zip: _____

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

The property owner (Skip to item 3)

Lessee* (Attach a copy of the lease agreement and complete items 2 and 2a below)

Purchaser* (Attach a copy of the pending sales agreement and complete items 2 and 2a below)

Developer* (Complete items 2 and 2a below.)

2. Print Property Owner's name and title below, if you are the lessee, purchaser, or developer. (This is the person who owns the property that the project is on.)

Property Owner / Organization: _____

Signing Official & Title: _____

- a. Contact information for Property Owner:

Street Address: _____

City: _____ State: _____ Zip: _____

Phone: _____ Fax: _____ Email: _____

Mailing Address (if different than physical address): _____

City: _____ State: _____ Zip: _____

3. (Optional) Print the name and title of another contact such as the project's construction supervisor or another person who can answer questions about the project:

Other Contact Person / Organization: Doug Brown

Signing Official & Title: Construction Manager

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

Street Address: 3410 River Road, Suite 103

City: Wilmington State: NC Zip: 28412

Phone: (910)442-2840 Fax: _____ Email: dbrown@newlandco.com

Mailing Address (if different than physical address): _____

City: _____ State: _____ Zip: _____

IV. PROJECT INFORMATION

1. In the space provided below, briefly summarize how the stormwater runoff will be treated.

Stormwater will be treated using two wet detention ponds, three bioretention, and two infiltration basins.

2. Total Property Area: 2,945,769 square feet

3. Total Coastal Wetlands Area: _____ square feet

4. Total Surface Water Area: 178,934 square feet

5. Total Property Area (2) – Total Coastal Wetlands Area (3) – Total Surface Water Area (4) = Total Project Area: 2,766,835 square feet.

6. Existing Impervious Surface within Property Area: 0 square feet

7. Existing Impervious Surface to be Removed/Demolished: 0 square feet

8. Existing Impervious Surface to Remain: 0 square feet

9. Total Onsite (within property boundary) Newly Constructed Impervious Surface (*in square feet*):

Buildings/Lots	513,240
Impervious Pavement	248,423
Pervious Pavement (adj. total, with 75 % credit applied)	0
Impervious Sidewalks	79,699
Pervious Sidewalks (adj. total, with % credit applied)	0
Other (describe)	0
Future Development	107,949
Total Onsite Newly Constructed Impervious Surface	949,311

10. Total Onsite Impervious Surface

(Existing Impervious Surface to remain + Onsite Newly Constructed Impervious Surface) = 949,311 square feet

11. Project percent of impervious area: (Total Onsite Impervious Surface / Total Project Area) x100 = 34.31 %

12. Total Offsite Newly Constructed Impervious Area (improvements made outside of property boundary, in square feet):

Impervious Pavement	
Pervious Pavement (adj. total, with % credit applied)	
Impervious Sidewalks	
Pervious Sidewalks (adj. total, with % credit applied)	
Other (describe)	
Total Offsite Newly Constructed Impervious Surface	0

13. Total Newly Constructed Impervious Surface

(Total Onsite + Offsite Newly Constructed Impervious Surface) = 949,311 square feet

14. Complete the following information for each Stormwater BMP drainage area. If there are more than three drainage areas in the project, attach an additional sheet with the information for each area provided in the same format as below. Low Density projects may omit this section and skip to Section V.

Basin Information	BMP #1	BMP #2	BMP #3
Receiving Stream Name	Cape Fear	Cape Fear	Cape Fear
Receiving Stream Index Number	18-(71)	18-(71)	18-(71)
Stream Classification	SC	SC	SC
Total Drainage Area (sf)	1,594,625	290,451	73,383
On-Site Drainage Area (sf)	1,594,625	290,451	73,383
Off-Site Drainage Area (sf)	0	0	0
Total Impervious Area (sf)	687,846	153,558	35,082
Buildings/Lots (sf)	447,720	25,480	0
Impervious Pavement (sf)	180,721	25,072	17,335
Pervious Pavement (sf)	0	0	0
Impervious Sidewalks (sf)	59,405	8,057	4,747
Pervious Sidewalks (sf)	0	0	0
Other (sf)	0	0	0
Future Development (sf)	0	94,949	13,000
Existing Impervious to remain (sf)	0	0	0
Offsite (sf)	0	0	0
Percent Impervious Area (%)	43.1	52.9	47.8

15. How was the off-site impervious area listed above determined? Provide documentation:

BMP Drainage area information (continued)

Basin Information	Bioretention BMP # 5	Infiltration BMP # 7	Bioretention BMP # 6
Receiving Stream Name	Cape Fear	Cape Fear	
Receiving Stream Index Number	18-(71)	18-(71)	
Stream Classification	SC	SC	
Total Drainage Area (sf)	103128	282244	0
On-Site Drainage Area (sf)	103128	282244	
Off-Site Drainage Area (sf)			
Total Impervious Area (sf)	25480	47345	0
Buildings/Lots (sf)	25480	14560	
Impervious Pavement (sf)		25295	
Pervious Pavement, % credit (sf)			
Impervious Sidewalks (sf)		7490	
Pervious Sidewalks, % credit (sf)			
Other (sf)			
Future Development (sf)			
Existing Impervious to remain (sf)			
Offsite (sf)			
Percent Impervious Area (%)	24.71	16.77	
Basin Information	Infiltration BMP #	(Type of BMP) BMP #	(Type of BMP) BMP #
Receiving Stream Name			
Receiving Stream Index Number			
Stream Classification			
Total Drainage Area (sf)	0	0	0
On-Site Drainage Area (sf)			
Off-Site Drainage Area (sf)			
Total Impervious Area (sf)	0	0	0
Buildings/Lots (sf)			
Impervious Pavement (sf)			
Pervious Pavement, % credit (sf)			
Impervious Sidewalks (sf)			
Pervious Sidewalks, % credit (sf)			
Other (sf)			
Future Development (sf)			
Existing Impervious to remain (sf)			
Offsite (sf)			
Percent Impervious Area (%)			

V. SUBMITTAL REQUIREMENTS

1. Supplemental and Operation & Maintenance Forms - One applicable City of Wilmington Stormwater BMP supplement form and checklist must be submitted for **each** BMP specified for this project. One applicable proposed operation and maintenance (O&M) form must be submitted for **each type** of stormwater BMP. Once approved, the operation and maintenance forms must be referenced on the final plat and recorded with the register of deeds office.
2. Deed Restrictions and Restrictive Covenants - For all subdivisions, outparcels, and future development, the appropriate property restrictions and protective covenants are required to be recorded prior to the sale of any lot. Due to variability in lot sizes or the proposed BUA allocations, a table listing each lot number, lot size, and the allowable built-upon area must be provided as an attachment to the completed and notarized deed restriction form. The appropriate deed restrictions and protective covenants forms can be downloaded at the link listed in section V (3). Download the latest versions for each submittal.

In instances where the applicant is different than the property owner, it is the responsibility of the property owner to sign the deed restrictions and protective covenants form while the applicant is responsible for ensuring that the deed restrictions are recorded.

By the notarized signature(s) below, the permit holder(s) certify that the recorded property restrictions and protective covenants for this project, if required, shall include all the items required in the permit and listed on the forms available on the website, that the covenants will be binding on all parties and persons claiming under them, that they will run with the land, that the required covenants cannot be changed or deleted without concurrence from the City of Wilmington, and that they will be recorded prior to the sale of any lot.

3. Only complete application packages will be accepted and reviewed by the City. A complete package includes all of the items listed on the City Engineering Plan Review Checklist, including the fee. Copies of the Engineering Plan Review Checklist, all Forms, Deed Restrictions as well as detailed instructions on how to complete this application form may be downloaded from:

<http://www.wilmingtonnc.gov/PublicServices/Engineering/PlanReview/StormwaterPermits.aspx>

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

VI. CONSULTANT INFORMATION AND AUTHORIZATION

1. Applicant: 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: Nick Lauretta, PE, LEED AP

Consulting Firm: McKim & Creed, Inc.

a. Contact information for consultant listed above:

Mailing Address: 243 N. Front Street

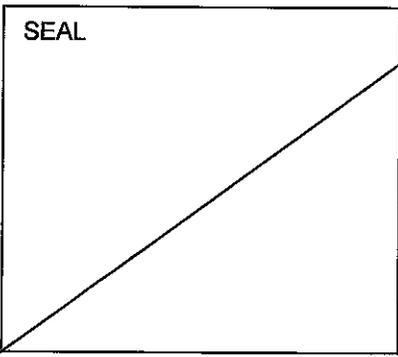
City: Wilmington State: NC Zip: 28401

Phone: 910-398-2882 Fax: 910-251-8282 Email: nlauretta@mckimcreed.com

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

I, (print or type name of person listed in Contact Information, item 2), certify that I own the property identified in this permit application, and thus give permission to (print or type name of person listed in Contact Information, item 1) with (print or type name of organization listed in Contact Information, item 1) 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 (entity listed in Contact Information, item 1) 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: _____

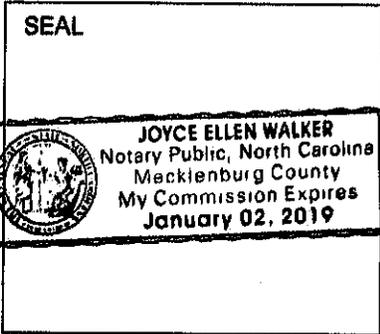
I, _____, a Notary Public for the State of _____, County of _____, do hereby certify that _____ personally appeared before me this day of _____,

and acknowledge the due execution of the application for a stormwater permit. Witness my hand and official seal,

My commission expires: _____

VIII. APPLICANT'S CERTIFICATION

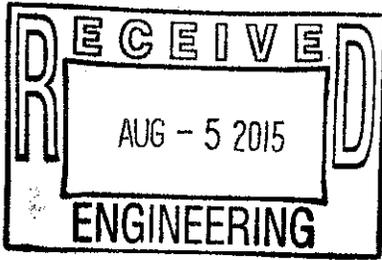
I, (print or type name of person listed in Contact Information, item 1), Bill Mumford certify that the information included on this permit application form is, to the best of my knowledge, correct and that the project will be constructed in conformance with the approved plans, that the required deed restrictions and protective covenants will be recorded, and that the proposed project complies with the requirements of the applicable stormwater rules under.



Signature: [Handwritten Signature]
Date: 6-9-2015

I, Joyce Ellen Walker, a Notary Public for the State of North Carolina, County of Mecklenburg do hereby certify that William Mumford personally appeared before me this 9th day of June, 2015, and acknowledge the due execution of the application for a stormwater

permit. Witness my hand and official seal,
Joyce Ellen Walker
My commission expires: January 2, 2019



STORMWATER MANAGEMENT PERMIT APPLICATION FORM
 401 CERTIFICATION APPLICATION FORM

WET DETENTION BASIN SUPPLEMENT

This form must be filled out, printed and submitted.

The Required Items Checklist (Part III) must be printed, filled out and submitted along with all of the required information.

I. PROJECT INFORMATION

Project name	RiverLights- Age Qualified Phase 1
Contact person	Nick Laurretta, PE
Phone number	910-343-1048
Date	7/27/2015
Drainage area number	1

II. DESIGN INFORMATION

Site Characteristics

Drainage area	1,594,626 ft ²
Impervious area, post-development	687,846 ft ²
% impervious	43.14 %
Design rainfall depth	1.0 in

Storage Volume: Non-SA Waters

Minimum volume required	58,233 ft ³
Volume provided	134,450 ft ³

OK

OK, volume provided is equal to or in excess of volume required.

Storage Volume: SA Waters

1.5" runoff volume	ft ³
Pre-development 1-yr, 24-hr runoff	ft ³
Post-development 1-yr, 24-hr runoff	ft ³
Minimum volume required	ft ³
Volume provided	ft ³

Peak Flow Calculations

Is the pre/post control of the 1yr 24hr storm peak flow required?	Y (Y or N)
1-yr, 24-hr rainfall depth	3.8 in
Rational C, pre-development	0.30 (unitless)
Rational C, post-development	0.50 (unitless)
Rainfall intensity: 1-yr, 24-hr storm	0.16 in/hr
Pre-development 1-yr, 24-hr peak flow	0.00 ft ³ /sec
Post-development 1-yr, 24-hr peak flow	58.47 ft ³ /sec
Pre/Post 1-yr, 24-hr peak flow control	58.47 ft ³ /sec

OK

Elevations

Temporary pool elevation	12.30 fmsl
Permanent pool elevation	10.50 fmsl
SHWT elevation (approx. at the perm. pool elevation)	10.94 fmsl
Top of 10ft vegetated shelf elevation	11.00 fmsl
Bottom of 10ft vegetated shelf elevation	10.00 fmsl
Sediment cleanout, top elevation (bottom of pond)	5.00 fmsl
Sediment cleanout, bottom elevation	4.00 fmsl
Sediment storage provided	1.00 ft

Is there additional volume stored above the state-required temp. pool? Y (Y or N)

Elevation of the top of the additional volume	12.3 fmsl
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OK

II. DESIGN INFORMATION

Surface Areas

Area, temporary pool	79,505 ft ²	
Area REQUIRED, permanent pool	58,363 ft ²	
SA/DA ratio	3.66 (unitless)	
Area PROVIDED, permanent pool, A _{perm_pool}	66,781 ft ²	OK
Area, bottom of 10ft vegetated shelf, A _{bot_shelf}	57,928 ft ²	
Area, sediment cleanout, top elevation (bottom of pond), A _{bot_pond}	32,969 ft ²	

Volumes

Volume, temporary pool	134,450 ft ³	OK
Volume, permanent pool, V _{perm_pool}	257,346 ft ³	
Volume, forebay (sum of forebays if more than one forebay)	52,672 ft ³	
Forebay % of permanent pool volume	20.5% %	OK

SA/DA Table Data

Design TSS removal	90 %	
Coastal SA/DA Table Used?	Y (Y or N)	
Mountain/Piedmont SA/DA Table Used?	N (Y or N)	
SA/DA ratio	3.66 (unitless)	

Average depth (used in SA/DA table):

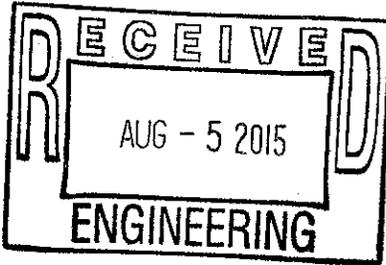
Calculation option 1 used? (See Figure 10-2b)	N (Y or N)	
Volume, permanent pool, V _{perm_pool}	257,346 ft ³	
Area provided, permanent pool, A _{perm_pool}	66,781 ft ²	
Average depth calculated	3.84 ft	OK
Average depth used in SA/DA, d _{av} . (Round to nearest 0.5ft)	4.0 ft	OK
Calculation option 2 used? (See Figure 10-2b)	N (Y or N)	
Area provided, permanent pool, A _{perm_pool}	ft ²	
Area, bottom of 10ft vegetated shelf, A _{bot_shelf}	ft ²	
Area, sediment cleanout, top elevation (bottom of pond), A _{bot_pond}	ft ²	
"Depth" (distance b/w bottom of 10ft shelf and top of sediment)	ft	
Average depth calculated	ft	
Average depth used in SA/DA, d _{av} . (Round to nearest 0.5ft)	ft	

Drawdown Calculations

Drawdown through orifice?	Y (Y or N)	
Diameter of orifice (if circular)	3.00 in	
Area of orifice (if-non-circular)	in ²	
Coefficient of discharge (C _d)	0.60 (unitless)	
Driving head (H _o)	1.80 ft	
Drawdown through weir?	N (Y or N)	
Weir type	(unitless)	
Coefficient of discharge (C _w)	(unitless)	
Length of weir (L)	ft	
Driving head (H)	ft	
Pre-development 1-yr, 24-hr peak flow	0.00 ft ³ /sec	
Post-development 1-yr, 24-hr peak flow	58.47 ft ³ /sec	
Storage volume discharge rate (through discharge orifice or weir)	0.18 ft ³ /sec	Storage volume discharge rate greater than pre-dev. 1yr24hr.
Storage volume drawdown time	3.68 days	OK, draws down in 2-5 days.

Additional Information

Vegetated side slopes	3 :1	OK
Vegetated shelf slope	10 :1	OK
Vegetated shelf width	10.0 ft	OK
Length of flowpath to width ratio	6 :1	OK
Length to width ratio	5.0 :1	OK
Trash rack for overflow & orifice?	Y (Y or N)	OK
Freeboard provided	3.7 ft	OK
Vegetated filter provided?	N (Y or N)	OK
Recorded drainage easement provided?	Y (Y or N)	OK
Captures all runoff at ultimate build-out?	Y (Y or N)	OK
Drain mechanism for maintenance or emergencies is:	Pump	



STORMWATER MANAGEMENT PERMIT APPLICATION FORM
401 CERTIFICATION APPLICATION FORM
WET DETENTION BASIN SUPPLEMENT

*This form must be filled out, printed and submitted.
The Required Items Checklist (Part III) must be printed, filled out and submitted along with all of the required information.*

I. PROJECT INFORMATION

Project name	RiverLights- Age Qualified Phase 1
Contact person	Nick Lauretta, PE
Phone number	910-343-1048
Date	7/27/2015
Drainage area number	2

II. DESIGN INFORMATION

Site Characteristics

Drainage area	290,451 ft ²
Impervious area, post-development	153,558 ft ²
% impervious	52.87 %
Design rainfall depth	1.0 in

Storage Volume: Non-SA Waters

Minimum volume required	12,727 ft ³
Volume provided	38,019 ft ³

Insufficient required volume.

OK, volume provided is equal to or in excess of volume required.

Storage Volume: SA Waters

1.5" runoff volume	ft ³
Pre-development 1-yr, 24-hr runoff	ft ³
Post-development 1-yr, 24-hr runoff	ft ³
Minimum volume required	ft ³
Volume provided	ft ³

Peak Flow Calculations

Is the pre/post control of the 1yr 24hr storm peak flow required?	Y (Y or N)
1-yr, 24-hr rainfall depth	3.9 in
Rational C, pre-development	0.30 (unitless)
Rational C, post-development	0.50 (unitless)
Rainfall intensity: 1-yr, 24-hr storm	0.17 in/hr
Pre-development 1-yr, 24-hr peak flow	0.00 ft ³ /sec
Post-development 1-yr, 24-hr peak flow	5.65 ft ³ /sec
Pre/Post 1-yr, 24-hr peak flow control	5.65 ft ³ /sec

OK

Elevations

Temporary pool elevation	13.85 fmsl
Permanent pool elevation	12.00 fmsl
SHWT elevation (approx. at the perm. pool elevation)	11.87 fmsl
Top of 10ft vegetated shelf elevation	12.50 fmsl
Bottom of 10ft vegetated shelf elevation	11.50 fmsl
Sediment cleanout, top elevation (bottom of pond)	7.50 fmsl
Sediment cleanout, bottom elevation	6.50 fmsl
Sediment storage provided	1.00 ft

Data not needed for calculation option #1, but OK if provided.

Data not needed for calculation option #1, but OK if provided.

Is there additional volume stored above the state-required temp. pool?	Y (Y or N)
Elevation of the top of the additional volume	13.9 fmsl

OK

II: DESIGN INFORMATION

Surface Areas

Area, temporary pool	22,332 ft ²	
Area REQUIRED, permanent pool	15,394 ft ²	
SA/DA ratio	5.30 (unitless)	
Area PROVIDED, permanent pool, A_{perm_pool}	17,877 ft ²	OK
Area, bottom of 10ft vegetated shelf, A_{bot_shelf}	14,532 ft ²	
Area, sediment cleanout, top elevation (bottom of pond), A_{bot_pond}	7,943 ft ²	

Volumes

Volume, temporary pool	38,019 ft ³	OK
Volume, permanent pool, V_{perm_pool}	52,489 ft ³	
Volume, forebay (sum of forebays if more than one forebay)	11,619 ft ³	
Forebay % of permanent pool volume	22.1% %	Insufficient forebay volume.

SA/DA Table Data

Design TSS removal	90 %	
Coastal SA/DA Table Used?	Y (Y or N)	
Mountain/Piedmont SA/DA Table Used?	N (Y or N)	
SA/DA ratio	5.30 (unitless)	

Average depth (used in SA/DA table):

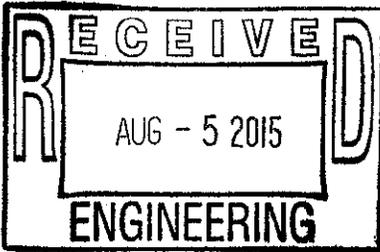
Calculation option 1 used? (See Figure 10-2b)	Y (Y or N)	
Volume, permanent pool, V_{perm_pool}	52,489 ft ³	
Area provided, permanent pool, A_{perm_pool}	17,877 ft ²	
Average depth calculated	3.26 ft	OK
Average depth used in SA/DA, d_{avr} , (Round to nearest 0.5ft)	3.5 ft	OK
Calculation option 2 used? (See Figure 10-2b)	N (Y or N)	
Area provided, permanent pool, A_{perm_pool}	ft ²	
Area, bottom of 10ft vegetated shelf, A_{bot_shelf}	ft ²	
Area, sediment cleanout, top elevation (bottom of pond), A_{bot_pond}	ft ²	
"Depth" (distance b/w bottom of 10ft shelf and top of sediment)	ft	
Average depth calculated	ft	
Average depth used in SA/DA, d_{avr} , (Round to nearest 0.5ft)	ft	

Drawdown Calculations

Drawdown through orifice?	Y (Y or N)	
Diameter of orifice (if circular)	1.75 in	
Area of orifice (if non-circular)	in ²	
Coefficient of discharge (C_D)	0.60 (unitless)	
Driving head (H_o)	1.85 ft	
Drawdown through weir?	N (Y or N)	
Weir type	(unitless)	
Coefficient of discharge (C_w)	(unitless)	
Length of weir (L)	ft	
Driving head (H)	ft	
Pre-development 1-yr, 24-hr peak flow	0.00 ft ³ /sec	
Post-development 1-yr, 24-hr peak flow	5.65 ft ³ /sec	
Storage volume discharge rate (through discharge orifice or weir)	0.06 ft ³ /sec	Storage volume discharge rate greater than pre-dev. 1yr24hr.
Storage volume drawdown time	2.33 days	OK, draws down in 2-5 days.

Additional Information

Vegetated side slopes	3 :1	OK
Vegetated shelf slope	10 :1	OK
Vegetated shelf width	10.0 ft	OK
Length of flowpath to width ratio	3 :1	OK
Length to width ratio	2.4 :1	OK
Trash rack for overflow & orifice?	Y (Y or N)	OK
Freeboard provided	2.2 ft	OK
Vegetated filter provided?	N (Y or N)	OK
Recorded drainage easement provided?	Y (Y or N)	OK
Captures all runoff at ultimate build-out?	Y (Y or N)	OK
Drain mechanism for maintenance or emergencies is:	Pump	



Permit No. _____
(to be provided by DWQ)

STORMWATER MANAGEMENT PERMIT APPLICATION FORM
401 CERTIFICATION APPLICATION FORM
INFILTRATION BASIN SUPPLEMENT

This form must be filled out, printed and submitted.

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I. PROJECT INFORMATION

Project Name	Riverights- Age Qualified Phase 1
Contact Person	Nick Lauretta, PE
Phone Number	910-343-1048
Date	7/27/2015
Drainage Area Number	3

II. DESIGN INFORMATION

Site Characteristics

Drainage area	73,383.00	ft ²
Impervious area	35,082.00	ft ²
Percent impervious	47.81	%
Design rainfall depth	1.00	in

Peak Flow Calculations

1-yr, 24-hr rainfall depth	3.94	in
1-yr, 24-hr intensity	0.16	in/hr
Pre-development 1-yr, 24-hr discharge	0.00	ft ³ /sec
Post-development 1-yr, 24-hr discharge	0.23	ft ³ /sec
Pre/Post 1-yr, 24-hr peak flow control	0.23	ft ³ /sec

Storage Volume: Non-SA Waters

Minimum design volume required	2,937.00	ft ³	
Design volume provided	3,955.00	ft ³	OK for non-SA waters

Storage Volume: SA Waters

1.5" runoff volume		ft ³
Pre-development 1-yr, 24-hr runoff volume		ft ³
Post-development 1-yr, 24-hr runoff volume		ft ³
Minimum required volume		ft ³
Volume provided		ft ³

Soils Report Summary

Soil type	Kureb Sand (Kr)
Infiltration rate	26.20 in/hr
SHWT elevation	11.87 fmsl

Basin Design Parameters

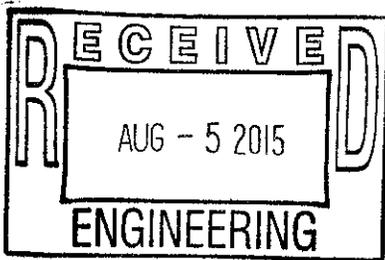
Drawdown time	0.04	days	OK
Basin side slopes	3.00	:1	OK
Basin bottom elevation	18.00	fmsl	OK
Storage elevation	19.30	fmsl	
Storage Surface Area	3,499.00	ft ²	
Top elevation	22.00	fmsl	

Basin Bottom Dimensions

Basin length	115.00	ft
Basin width	54.00	ft
Bottom Surface Area	2,593.00	ft ²

Additional Information

Maximum runoff to each inlet to the basin?	1.66	ac-in	OK
Length of vegetative filter for overflow	--	ft	OK
Distance to structure	50.00	ft	OK
Distance from surface waters	270.00	ft	OK
Distance from water supply well(s)	--	ft	OK
Separation from impervious soil layer	--	ft	OK
Naturally occurring soil above shwt	6.10	ft	OK
Bottom covered with 4-in of clean sand?	Y	(Y or N)	OK
Proposed drainage easement provided?	Y	(Y or N)	OK
Captures all runoff at ultimate build-out?	Y	(Y or N)	OK
Bypass provided for larger storms?	N	(Y or N)	Must provide bypass for larger flows
Pretreatment device provided	Catch Basin No discharge from 10-yr storm, no bypass provided		



Permit No. _____
(to be provided by DWQ)

STORMWATER MANAGEMENT PERMIT APPLICATION FORM
401 CERTIFICATION APPLICATION FORM
INFILTRATION BASIN SUPPLEMENT

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I. PROJECT INFORMATION

Project Name	Riverlights- Age Qualified Phase 1
Contact Person	Nick Lauretta, PE
Phone Number	910-343-1048
Date	7/27/2015
Drainage Area Number	5

II. DESIGN INFORMATION

Site Characteristics

Drainage area	103,128.00	ft ²
Impervious area	25,480.00	ft ²
Percent impervious	24.71	%
Design rainfall depth	1.00	in

Peak Flow Calculations

1-yr, 24-hr rainfall depth	3.94	in
1-yr, 24-hr intensity	0.16	in/hr
Pre-development 1-yr, 24-hr discharge	0.00	ft ³ /sec
Post-development 1-yr, 24-hr discharge	0.23	ft ³ /sec
Pre/Post 1-yr, 24-hr peak flow control	0.23	ft ³ /sec

Storage Volume: Non-SA Waters

Minimum design volume required	2,341.00	ft ³	
Design volume provided	6,785.00	ft ³	OK for non-SA waters

Storage Volume: SA Waters

1.5" runoff volume		ft ³
Pre-development 1-yr, 24-hr runoff volume		ft ³
Post-development 1-yr, 24-hr runoff volume		ft ³
Minimum required volume		ft ³
Volume provided		ft ³

Soils Report Summary

Soil type	Kureb Sand (Kr)
Infiltration rate	18.40 in/hr
SHWT elevation	18.57 fmsl

Basin Design Parameters

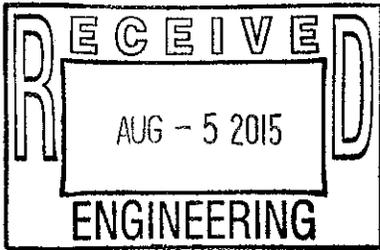
Drawdown time	0.05	days	OK
Basin side slopes	3.00	:1	OK
Basin bottom elevation	22.00	fmsl	OK
Storage elevation	22.90	fmsl	
Storage Surface Area	8,072.00	ft ²	
Top elevation	24.00	fmsl	

Basin Bottom Dimensions

Basin length	155.00	ft
Basin width	68.00	ft
Bottom Surface Area	7,005.00	ft ²

Additional Information

Maximum runoff to each inlet to the basin?	1.19	ac-in	OK
Length of vegetative filter for overflow	--	ft	OK
Distance to structure	40.00	ft	OK
Distance from surface waters	840.00	ft	OK
Distance from water supply well(s)	--	ft	OK
Separation from impervious soil layer	--	ft	OK
Naturally occurring soil above swt	3.43	ft	OK
Bottom covered with 4-in of clean sand?	Y	(Y or N)	OK
Proposed drainage easement provided?	Y	(Y or N)	OK
Captures all runoff at ultimate build-out?	Y	(Y or N)	OK
Bypass provided for larger storms?	N	(Y or N)	Must provide bypass for larger flows
Pretreatment device provided	Vegetated Swale		No discharge from 10-yr storm, no bypass provided



STORMWATER MANAGEMENT PERMIT APPLICATION FORM
 401 CERTIFICATION APPLICATION FORM
INFILTRATION BASIN SUPPLEMENT

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I. PROJECT INFORMATION

Project Name	Riverlights- Age Qualified Phase 1
Contact Person	Nick Lauletta, PE
Phone Number	910-343-1048
Date	7/27/2015
Drainage Area Number	7

II. DESIGN INFORMATION

Site Characteristics

Drainage area	282,244.00	ft ²
Impervious area	47,345.00	ft ²
Percent impervious	16.77	%
Design rainfall depth	1.00	in

Peak Flow Calculations

1-yr, 24-hr rainfall depth	3.94	in
1-yr, 24-hr intensity	0.16	in/hr
Pre-development 1-yr, 24-hr discharge	0.00	ft ³ /sec
Post-development 1-yr, 24-hr discharge	4.43	ft ³ /sec
Pre/Post 1-yr, 24-hr peak flow control	4.43	ft ³ /sec

Storage Volume: Non-SA Waters

Minimum design volume required	4,727.00	ft ³	
Design volume provided	17,646.00	ft ³	OK for non-SA waters

Storage Volume: SA Waters

1.5" runoff volume		ft ³
Pre-development 1-yr, 24-hr runoff volume		ft ³
Post-development 1-yr, 24-hr runoff volume		ft ³
Minimum required volume		ft ³
Volume provided		ft ³

Soils Report Summary

Soil type	Kureb Sand (Kr)	
Infiltration rate	27.30	in/hr
SHWT elevation	12.00	fmsl

Basin Design Parameters

Drawdown time	0.04	days	OK
Basin side slopes	3.00	:1	OK
Basin bottom elevation	15.00	fmsl	OK
Storage elevation	17.00	fmsl	
Storage Surface Area	10,250.00	ft ²	
Top elevation	18.00	fmsl	

Basin Bottom Dimensions

Basin length	218.00	ft
Basin width	50.00	ft
Bottom Surface Area	7,424.00	ft ²

Additional Information

Maximum runoff to each inlet to the basin?	0.43	ac-in	OK
Length of vegetative filter for overflow	-	ft	OK
Distance to structure	50.00	ft	OK
Distance from surface waters	-	ft	OK
Distance from water supply well(s)	-	ft	OK
Separation from impervious soil layer	-	ft	OK
Naturally occurring soil above swt	3.00	ft	OK
Bottom covered with 4-in of clean sand?	Y	(Y or N)	OK
Proposed drainage easement provided?	Y	(Y or N)	OK
Capures all runoff at ultimate build-out?	Y	(Y or N)	OK
Bypass provided for larger storms?	N	(Y or N)	Must provide bypass for larger flows
Pretreatment device provided	Catch Basin		No discharge from 10-yr storm; no bypass provided

Permit Number: _____
 (to be provided by City of Wilmington)
 BMP Drainage Basin #: _____

Wet Detention Basin Operation and Maintenance Agreement

I will keep a maintenance record on this BMP. This maintenance record will 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 removal efficiency of the BMP.

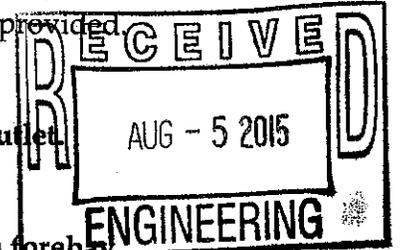
The wet detention basin system is defined as the wet detention basin, pretreatment including forebays and the vegetated filter if one is provided.

This system (check one):

does does not incorporate a vegetated filter at the outlet.

This system (check one):

does does not incorporate pretreatment other than a forebay.



Important maintenance procedures:

- Immediately after the wet detention basin is established, the plants on the vegetated shelf and perimeter of the basin should be watered twice weekly if needed, until the plants become established (commonly six weeks).
- No portion of the wet detention pond should be fertilized after the first initial fertilization that is required to establish the plants on the vegetated shelf.
- Stable groundcover should be maintained in the drainage area to reduce the sediment load to the wet detention basin.
- If the basin must be drained for an emergency or to perform maintenance, the flushing of sediment through the emergency drain should be minimized to the maximum extent practical.
- Once a year, a dam safety expert should inspect the embankment.

After the wet detention pond is established, it should be inspected **once a month and within 24 hours after every storm event greater than 1.5 inches**. Records of operation and maintenance should be kept in a known set location and must 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:
The entire BMP	Trash/debris is present.	Remove the trash/debris.
The side slopes of the wet detention basin	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.

Permit Number: _____
 (to be provided by City of Wilmington)
 BMP Drainage Basin #: _____

BMP element:	Potential problem:	How I will remediate the problem:
The inlet device: pipe or swale	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.
The forebay	Sediment has accumulated to a depth greater than the original design depth for sediment storage.	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 pesticide is used, wipe it on the plants rather than spraying.
The vegetated shelf	Best professional practices show that pruning is needed to maintain optimal plant health.	Prune according to best professional practices
	The plant community and coverage is significantly (>25%) different from approved landscape plan.	Restore plant vegetation to approved condition. If landscape plan needs to be adjusted to specify vegetation more appropriate for site conditions, contact City Stormwater or Engineering Staff.
	Cattails or other invasive plants cover >25% of the veg't shelf. A monoculture of plants must be avoided)	Remove all invasives by physical removal or by wiping them with pesticide (do not spray) - consult a professional.
	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 a soil test indicates it is necessary.
The main treatment area	Sediment has accumulated to a depth greater than the original design sediment storage depth.	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.

Permit Number: _____
 (to be provided by City of Wilmington)
 BMP Drainage Basin #: _____

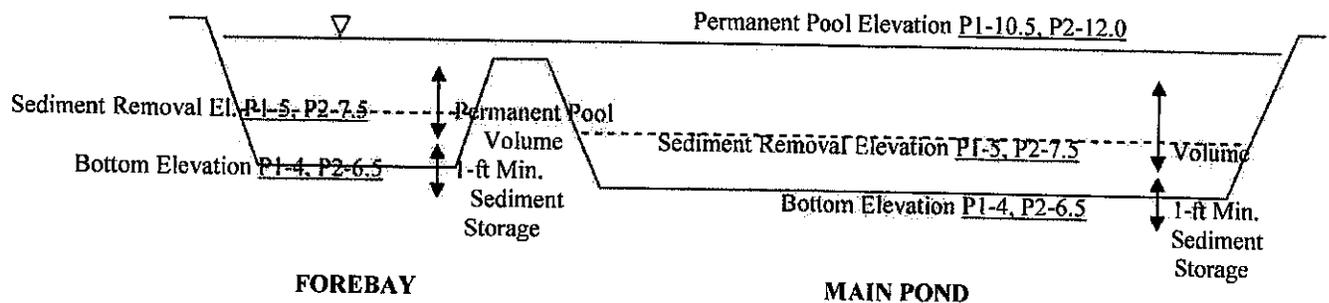
BMP element:	Potential problem:	How I will remediate the problem:
The main treatment area (continued)	Algal growth covers over 25% of the area.	Consult a professional to remove and control the algal growth.
	Cattails or other invasive plants cover >25% of the veg't shelf. A monoculture of plants must be avoided)	Remove all invasives by physical removal or by wiping them with pesticide (do not spray) - consult a professional.
The embankment	Shrubs have started to grow on the embankment.	Remove shrubs immediately.
	Evidence of muskrat or beaver activity is present.	Use traps to remove muskrats and consult a professional to remove beavers.
	A tree has started to grow on the embankment.	Consult a dam safety specialist to remove the tree.
	An annual inspection by an appropriate professional shows that the embankment needs repair. (if applicable)	Make all needed repairs.
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 Division of Water Quality Regional Office, or the 401 Oversight Unit at 919-733-1786.

The measuring device used to determine the sediment elevation shall be such that it will give an accurate depth reading and not readily penetrate into accumulated sediments.

When the permanent pool depth reads 1 feet in the main pond, the sediment shall be removed.

When the permanent pool depth reads 1 feet in the forebay, the sediment shall be removed.

BASIN DIAGRAM
 (fill in the blanks)



Permit Number: _____
(to be provided by City of Wilmington)

BMP Drainage Basin #: _____

Permit Number: _____
(to be provided by City of Wilmington)

I acknowledge and agree by my signature below that I am responsible for the performance of the maintenance procedures listed above. I agree to notify the City of Wilmington of any problems with the system or prior to any changes to the system or responsible party.

Project name: River Lights - Age Qualified

BMP drainage basin number: 1 and 2

Print name: William Mumford, NNP IV-Cape Fear River, LLC

Title: Asst. Vice President

Address: 13777 Ballantyne Corporate Place, Suite 250 Charlotte, NC 28277

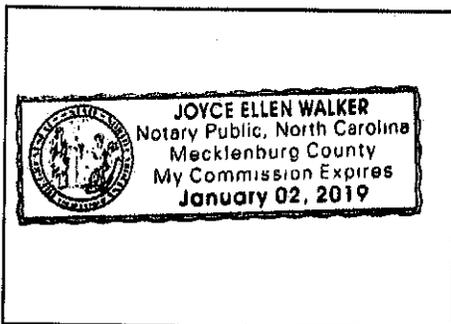
Phone: 704-887-5946

Signature: *William Mumford*

Date: 6-9-2015

Note: The legally responsible party should not be a homeowners association unless more than 50% of the lots have been sold and a resident of the subdivision has been named the president.

I, JOYCE ELLEN WALKER, a Notary Public for the State of NORTH CAROLINA, County of MECKLENBURG, do hereby certify that WILLIAM MUMFORD personally appeared before me this 9th day of June, 2015, and acknowledge the due execution of the forgoing wet detention basin maintenance requirements. Witness my hand and official seal,

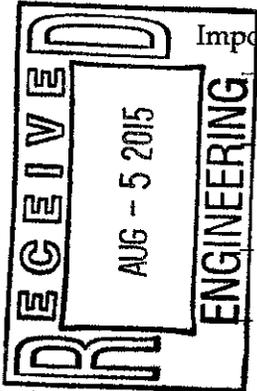


SEAL

Joyce Ellen Walker
My commission expires *January 02, 2019*

Infiltration Basin Operation and Maintenance Agreement

I will keep a maintenance record on this BMP. This maintenance record will 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 removal efficiency of the BMP.



Important maintenance procedures:

The drainage area will be carefully managed to reduce the sediment load to the infiltration basin.

Immediately after the infiltration basin is established, the vegetation will be watered twice weekly if needed until the plants become established (commonly six weeks).

No portion of the infiltration basin will be fertilized after the initial fertilization that is required to establish the vegetation.

The vegetation in and around the basin will be maintained at a height of approximately six inches.

After the infiltration basin is established, it will be inspected **once a quarter and within 24 hours after every storm event greater than 1.5 inches**. 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:
The entire BMP	Trash/debris is present.	Remove the trash/debris.
The perimeter of the infiltration basin	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.
The inlet device: pipe or swale	The pipe is clogged (if applicable).	Unclog the pipe. Dispose of the sediment off-site.
	The pipe is cracked or otherwise damaged (if applicable).	Replace the pipe.
	Erosion is occurring in the swale (if applicable).	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.

Permit Number: _____
(to be provided by City of Wilmington)

I acknowledge and agree by my signature below that I am responsible for the performance of the maintenance procedures listed above. I agree to notify the City of Wilmington of any problems with the system or prior to any changes to the system or responsible party.

Project name: River Lights -Age Qualified

BMP drainage basin number: 3, 5 and 7

Print name: William Mumford, NNP IV-Cape Fear River, LLC

Title: Asst. Vice President

Address: 13777 Ballantyne Corporate Place, Suite 250, Charlotte, NC 28277

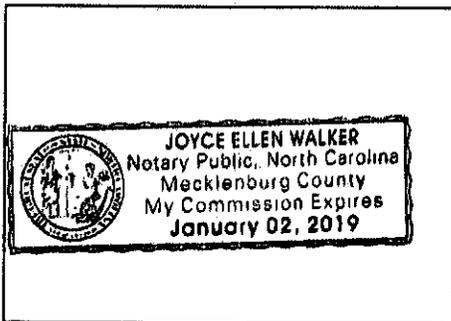
Phone: 704-887-5946

Signature: *William Mumford*

Date: 6.9.2015

Note: The legally responsible party should not be a homeowners association unless more than 50% of the lots have been sold and a resident of the subdivision has been named the president.

I, Joyce Ellen Walker, a Notary Public for the State of NORTH CAROLINA, County of MECKLENBURG, do hereby certify that William Mumford personally appeared before me this 9th day of JUNE, 2015, and acknowledge the due execution of the forgoing infiltration basin maintenance requirements. Witness my hand and official seal,



SEAL

My commission expires January 2, 2019

Permit Number: _____
(to be provided by City of Wilmington)