CITY OF WILMINGTON
NORTH CAROLINA

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

December 22, 2016

Mr. Harold W. Wells, IV
Wells Real Estate Holdings, LLC
1 North Third Street
Wilmington, NC 28401

Subject: **Stormwater Management Permit No. 2016024R1**
Wells Insurance Oleander Drive Site
Drainage Plan

Dear Mr. Wells:

The City of Wilmington Engineering Division has received a request for a revision to the Stormwater Management Permit for Wells Insurance Oleander Drive Site. Having reviewed the application and all supporting materials, the City of Wilmington has determined that the proposed revision meets the requirements of the City of Wilmington's Comprehensive Stormwater Ordinance.

The revisions include:

See approved plans dated December 22, 2016.

Please be aware all terms and conditions of the permit Issued on August 22, 2016 remain in full force and effect. Any additional changes to the approved plans must be approved by this office prior to construction. The issuance of the plan revision does not preclude the permittee from complying with all other applicable statutes, rules, regulations or ordinances which may have jurisdiction over the proposed activity, and obtaining a permit or approval prior to construction.

The revised stamped, approved stormwater management drawings will be released for construction by the Wilmington Planning Division under separate cover. Please replace any old plan sheets from the approved set with the new, revised sheet. An electronic copy of the approved drawing set, permit, application and supplementary documents will be maintained by the Wilmington Engineering Division. If you have any questions, or need additional information, please contact Richard Christensen at (910) 341-7813 or richard.christensen@wilmingtonnc.gov

Sincerely,

for Sterling Cheatham, City Manager
City of Wilmington

cc: T. Jason Clark, PE, Norris & Tunstall Consulting Engineers, P.C.
Jeff Walton, Associate Planner, City of Wilmington

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414 Chestnut St, Suite 200
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CITY OF WILMINGTON NORTH CAROLINA

NT #15005
(DA Revision)

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.):

   Wells Insurance Oleander Drive Site

2. Location of Project (street address):

   5712 Oleander Drive

   City: Wilmington County: New Hanover Zip: 28403

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

   Project is on Oleander Drive approximately 2.2 miles East of the intersection of Oleander Drive & College Road. Project site is on the right.

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: 2016024 (08-22-16) State – NCDENR/DWQ: _____

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:

   All required permits have been applied for & are currently under review.

CITY OF WILMINGTON ENGINEERING

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: Wells Real Estate Holdings, LLC

   Signing Official & Title: Harold W. Wells, IV, Manager

   a. Contact information for Applicant / Signing Official:

   Street Address: 1 North Third Street

   City: Wilmington State: NC Zip: 28401

   Phone: 910-251-5402 Fax: N/A Email: halwells@wellsins.com

   Mailing Address (if different than physical address): Same as Above

   City: _____ State: _____ Zip: _____

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

   - [x] 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: Norris & Tunstall Consulting Engineers, P.C.

   Signing Official & Title: T. Jason Clark, P.E.

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

Street Address: 902 Market Street

City: Wilmington State: NC Zip: 28401

Phone: 910-343-9653 Fax: 910-343-9604 Email: jclark@ntengineers.com cc: anorris@ntengineers.com

Mailing Address (if different than physical address): Same as Above

City: _____ State: _____ Zip: _____

IV. PROJECT INFORMATION

1. In the space provided below, briefly summarize how the stormwater runoff will be treated.
   Project utilizes pervious pavement (designed to NC DEQ BMP Standards) for parking area and sidewalks.
2. Total Property Area: 32,625 square feet
3. Total Coastal Wetlands Area: 0 square feet
4. Total Surface Water Area: 0 square feet
5. Total Property Area (2) – Total Coastal Wetlands Area (3) – Total Surface Water Area (4) = Total Project Area: 32,625 square feet.
6. Existing Impervious Surface within Property Area: 2,720 square feet
7. Existing Impervious Surface to be Removed/Demolished: 0 square feet
8. Existing Impervious Surface to Remain: 2,720 square feet
9. Total Onsite (within property boundary) Newly Constructed Impervious Surface (*in square feet*):

Buildings/Lots	6,509
Impervious Pavement	0
Pervious Pavement (adj. total, with 75 % credit applied)	2,032
Impervious Sidewalks	0
Pervious Sidewalks (adj. total, with 75 % credit applied)	488
Other (describe) Concrete Curb & Gutter	850
Future Development	0
Total Onsite Newly Constructed Impervious Surface	9,879

10. Total Onsite Impervious Surface
    (Existing Impervious Surface to remain + Onsite Newly Constructed Impervious Surface) = 12,599 square feet
11. Project percent of impervious area: (Total Onsite Impervious Surface / Total Project Area) x100 = 39 %

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

Impervious Pavement	0
Pervious Pavement (adj. total, with % credit applied)	0
Impervious Sidewalks	840
Pervious Sidewalks (adj. total, with % credit applied)	0
Other (describe)	0
Total Offsite Newly Constructed Impervious Surface	840

13. Total Newly Constructed Impervious Surface
(Total Onsite + Offsite Newly Constructed Impervious Surface) = 10719 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	(Type of BMP) Pervious Pavement BMP # PC-1	(Type of BMP) BMP #	(Type of BMP) BMP #
Receiving Stream Name	Bradley Creek		
Receiving Stream Index Number	18-87-24-4 (1)		
Stream Classification	SC; HQW		
Total Drainage Area (sf)	14370	0	0
On-Site Drainage Area (sf)	14370		
Off-Site Drainage Area (sf)	0		
Total Impervious Area (sf)	6814	0	0
Buildings/Lots (sf)	3444		
Impervious Pavement (sf)	0		
Pervious Pavement, 75 % credit (sf)	2032		
Impervious Sidewalks (sf)	0		
Pervious Sidewalks, 75 % credit (sf)	488		
Other (sf) Concrete Curb + Gutter	850		
Future Development (sf)	0		
Existing Impervious to remain (sf)	0		
Offsite (sf)	0		
Percent Impervious Area (%)	47.4		

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

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
   414 Chestnut Street, Suite 200
   Wilmington, NC 28402

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: T. Jason Clark, P.E.

   Consulting Firm: Norris & Tunstall Consulting Engineers, P.C.

   a. Contact information for consultant listed above:

   Mailing Address: 902 Market Street

   City: Wilmington State: NC Zip: 28401

   Phone: 910-343-9653 Fax: 910-343-9604 Email: jclark@ntengineers.com cc: anorris@ntengineers.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:_____

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: _____

CITY OF WILMINGTON ENGINEERING

VIII. APPLICANT'S CERTIFICATION

I, *(print or type name of person listed in Contact Information, item 1)* Harold W. Wells, IV, Manager 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: 5/12/16

SEAL
DANA M. BARNHARDT
NOTARY PUBLIC
COLUMBUS CO., NC

I, Dana M. Barnhardt, a Notary Public for the State of North Carolina County of Columbus, do hereby certify that Harold W. Wells IV personally appeared before me this day of May 12, 2016 and acknowledge the due execution of the application for a stormwater permit. Witness my hand and official seal,

Dana M. Barnhardt

My commission expires: November 2, 2020

Permit No._____
(to be provided by DWQ)

NCDENR

STORMWATER MANAGEMENT PERMIT APPLICATION FORM
401 CERTIFICATION APPLICATION FORM

PERMEABLE PAVEMENT SUPPLEMENT

This form must be completely 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.

NWT #15005

I. PROJECT INFORMATION

Project Name	Wells Insurance Oleander Drive Site
Contact Person	T. Jason Clark, P.E. / Norris & Tunstall Consulting Engineers, P.C.
Phone Number	910-343-9653
Date	10-28-16 (Revised), 07-14-16 (Revised), 5/10/2016
Drainage Area	PC-1

II. DESIGN INFORMATION

Soils Report Summary

Hydrologic soil group (HSG) of subgrade	A		
Infiltration rate	1.20	in/hr	

Pavement Design Summary

BUA Credit for Permeable Pavement Footprint: **75% BUA Credit**

Permeable Pavement (PP) design type	Infiltration - HSG A/B		
SA of PP being proposed (A_p)	10,076	ft^2	
Resulting BUA counted as impervious for main application form	2,519	ft^2	
Adjacent BUA directed to PP (A_c)	4,294	ft^2	OK
Ratio of A_c to A_p	0.43	(unitless)	
Flow from pervious surfaces is directed away from PP?	Yes		OK
Design rainfall depth	1.5"	in	
Permeable pavement surface course type	PC		
Layer 1 - Washed aggregate size *(ex. No. 57)*	No. 57		
Layer 1 - Aggregate porosity (n)	0.40	(unitless)	OK
Layer 2 - Washed aggregate size *(ex. No. 57)*	No. 57		
Layer 2 - Aggregate porosity (n)	0.40	(unitless)	OK
Minimum total aggregate depth for design rainfall (D_{wq})	5.4	in	
Drawdown/infiltration time for D_{wq}	0.4	days	OK
How is 10-yr, 24-hr storm handled?	bypassed		Underdrain Required
Aggregate depth to infiltrate 10-yr, 24-hr storm (D_{10})	N/A	in	
Drawdown/infiltration time of 10-yr, 24-hr storm	N/A	days	
Actual provided total aggregate depth	6.0	in	OK
Top of aggregate base layer elevation	18.50	fmsl	
Storage elevation of design rainfall depth	18.50	fmsl	
Overflow elevation	19.00	fmsl	
Bottom elevation at subgrade	18.00	fmsl	#REF!
SHWT elevation	16.00	fmsl	
Underdrain diameter	0	in	

DA Plan Only

-1.5" Storm (10-yr. based over header curb to SD System)

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Permit No._____
(to be provided by DWQ)

Detention Systems *(skip for infiltration systems)*

Diameter of orifice	N/A	in	
Coefficient of discharge (C_D)	N/A	(unitless)	
Driving head (H_o)	N/A	ft	
Storage volume discharge rate (through discharge orifice)	N/A	ft^3/sec	
Storage volume drawdown time	N/A	days	Insufficient drawdown time. Must be within 2-5 days.
Pre-development 1-yr, 24-hr peak flow	N/A	ft^3/sec	
Post-development 1-yr, 24-hr peak flow	N/A	ft^3/sec	

Additional Information

Slope of soil subgrade at bottom of permeable pavement	0.50	%	OK
Slope of the permeable pavement surface	0.83	%	OK
Construction sequence minimizes compaction to soils?	Yes		OK
Subsoil preparation specified (must select one)	scarified		
Meets industry standards for structural requirements?	Yes		OK
Washed stone is specified for the aggregate?	Yes		OK
Required signage specified on plans?	Yes		OK
Number of observation wells provided	3		OK
Distance to structure	5.00	ft	
Distance to surface waters	N/A	ft	OK
Distance to water supply well(s)	N/A	ft	OK

Baffles to be used where subgrade bottom slope greater than 0.5%

Permit No._____
(to be provided by DWQ)

III. REQUIRED ITEMS CHECKLIST

Please indicate the page or plan sheet numbers where the supporting documentation can be found. **An incomplete submittal package will result in a request for additional information. This will delay final review and approval of the project.** Initial in the space provided to indicate the following design requirements have been met. If the applicant has designated an agent, the agent may initial below. **If a requirement has not been met, attach justification.**

	Initials	Page/ Plan Sheet No.
1. Plans (1" = 50' or larger) of the entire site showing: - Design at ultimate build-out, - Off-site drainage (if applicable), - Delineated drainage basins (include Rational C coefficient per basin), - Location of permeable pavement, - Roof and other surface flow directed away from permeable pavement, - Location of the permeable pavement sign(s).		C1, C2
2. Section view of the permeable pavement (1" = 20' or larger) showing: - All layers (including details about the surface course), and - SHWT		C2
3. A detail of what the permeable pavement sign.		C2
4. A site specific soils report that is based upon an actual field investigation, soil borings, and infiltration tests within the footprint of the proposed permeable pavement. The soils investigation shall state the infiltation rate, SHWT elevation, and information about any confining layers. County soil maps are not an acceptable source of soils information. (Projects in the WiRO - The results of the soils report must be verified in the field by DWQ, by completing & submitting the soils investigation request form.)		See Calculations
5. A construction sequence that shows how the permeable pavement will be protected from sediment until the entire drainage area is stabilized.		See Narrative
6. The supporting calculations.		Enclosed
7. A copy of the signed and notarized operation and maintenance (O&M) agreement.		Enclosed
8. A copy of the deed restrictions (if required).	N/A	N/A

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Permit Number:_____
(to be provided by City of Wilmington)
Drainage Area / Lot Number:_____

Permeable Pavement Operation and Maintenance Agreement

NNT #15005

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 operation and maintenance procedures:

- Stable groundcover will be maintained in the drainage area to reduce the sediment load to the permeable pavement.
- The area around the perimeter of the permeable pavement will be stabilized and mowed, with clippings removed.
- Any weeds that grow in the permeable pavement will be sprayed with pesticide immediately. Weeds will not be pulled, since this could damage the fill media.
- Once a year, the permeable pavement surface will be vacuum swept.
- At no time shall wet sweeping (moistening followed by sweeping) be allowed as a means of maintenance.
- There shall be no repair or treatment of Permeable Pavement surfaces with other types of pavement surfaces. All repairs to Permeable Pavement surfaces must be accomplished utilizing permeable pavement which meets the original pavement specifications.
- Concentrated runoff from roof drains, piping, swales or other point sources, directly onto the permeable pavement surface shall not be allowed. These areas must be diverted away from the permeable pavement.

Initial Inspection: Permeable Pavements shall be inspected monthly for the first three months for the following:

BMP element:	Potential problem:	How to remediate the problem:
The perimeter of the permeable pavement	Areas of bare soil and/or erosive gullies have formed.	In the event that rutting or failure of the groundcover occurs, the eroded area shall be repaired immediately and permanent groundcover re-established. Appropriate temporary Erosion Control measures (such as silt fence) shall be installed in the affected area during the establishment of permanent groundcover, and any impacted area of permeable pavement is to be cleaned via vacuum sweeping.
The surface of the permeable pavement	Rutting / uneven settlement	This indicates inadequate compaction of the pavement base / sub-base. If rutting or uneven settlement on the order of ½ inch or greater occurs, permeable pavement shall be removed and base / sub-base re-compacted, smoothed, and permeable pavement shall then be re-installed. Base and sub-base compaction shall be monitored by a licensed geotechnical engineer to ensure that infiltration capacity of base and sub-base are not compromised by compaction and smoothing processes.
	The pavement does not dewater between storms, or water is running off.	Vacuum sweep the pavement. If the pavement still does not dewater, consult a professional.

Permit Number:_____
(to be provided by City of Wilmington)
Drainage Area / Lot Number:_____

The permeable pavement 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 to remediate the problem:
The perimeter of the permeable pavement	Areas of bare soil and/or erosive gullies have formed.	Regrade the soil if necessary to remove the gully, 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 3 to 6 inches (remove clippings).
The surface of the permeable pavement	Trash/debris is present.	Remove the trash/debris.
	Weeds are growing on the surface of the permeable pavement.	Do not pull the weeds (may pull out media as well). Spray them with pesticide.
	Sediment is present on the surface.	Vacuum sweep the pavement.
	The structure is deteriorating or damaged.	Consult an appropriate professional. Damaged areas of the pavement shall be removed and repaired.
	The pavement does not dewater between storms.	Vacuum sweep the pavement. If the pavement still does not dewater, consult a professional. Permanently clogged pavement shall be removed and repaired.

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 City of Wilmington of any problems with the system or prior to any changes to the system or responsible party.

Project name: Wells Insurance Oleander Drive Site

BMP drainage area or lot number: PC-1

Print name: Harold W. Wells, IV

Title: Manager of Wells Real Estate Holdings, LLC

Address: 1 North Third Street, Wilmington, NC 28401

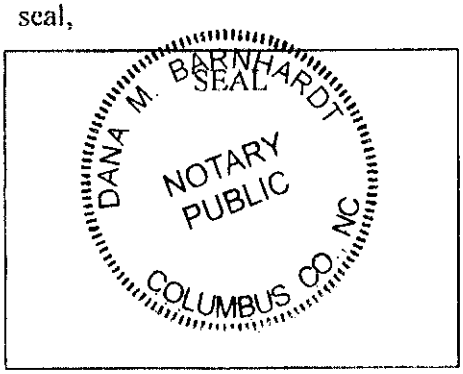
Phone: 910-251-5402

Signature: _____

Date: 5/12/16

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, Dana M. Barnhardt, a Notary Public for the State of North Carolina, County of Columbus, do hereby certify that Harold W. Wells IV personally appeared before me this ____ day of May 12, 2016, and acknowledge the due execution of the forgoing permeable pavement maintenance requirements. Witness my hand and official seal,



My commission expires November 2, 2020