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

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: **Lidl US Operations, LLC**
PROJECT: **Lidl Grocery Store Eastwood Road**
ADDRESS: **1451 Eastwood Road**
PERMIT #: **2019010**
DATE: **February 20, 2019**

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

This permit shall be effective from the date of issuance until February 20, 2029 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 February 20, 2019.

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.

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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.

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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.

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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.

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 20th day of February, 2019.

Rich Christensen

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.):

   Lidl Grocery Store Eastwood Road

2. Location of Project (street address):

   1451 EASTWOOD ROAD

   City: Wilmington County: New Hanover Zip: 28405

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

   THE PROJECT IS LOCATED ALONG HWY 74 APPROXIMATELY 2,600 LF NORTHWEST FROM THE INTERSECTON OF HWY 76 AND HWY 74.

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: N/A State – NCDENR/DWQ: N/A

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: N/A State – NCDENR/DWQ: N/A

3. Additional Project Permit Requirements (check all applicable):
   CAMA Major [Sedimentation/Erosion Control]
   NPDES Industrial Stormwater 404/401 Permit: Proposed Impacts: N/A
   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:

   N/A

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: LIDL US OPERATIONS, LLC

   Signing Official & Title: Forrest Etter - Development Manager

   a. Contact information for Applicant / Signing Official:

   Street Address: 1500 Sunday Drive, Suite 101

   City: Raleigh State: NC Zip: 27607

   Phone: 571-457-9049 Fax: N/A Email: forrest.etter@lidl.us

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

   City: N/A State: N/A Zip: N/A

   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: Matthew Miller / LIDL US Operations, LLC

   Signing Official & Title: Development Manager - Real Estate

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

Street Address: 1500 Sunday Drive, Suite 101

City: Raleigh State: NC Zip: 27607

Phone: 703.819.8699 Fax: N/A Email: matthew.miller@lidl.us

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

City: N/A State: N/A Zip: N/A

IV. PROJECT INFORMATION

1. In the space provided below, briefly summarize how the stormwater runoff will be treated.
   THE MAJORITY OF RUNOFF WILL BE TREATED IN A WET POND DESIGNED FOR 90% TSS REMOVAL. A PORTION OF TREATMENT WILL ALSO BE ACHIEVED IN PROPOSED BIORETENTION AREAS.
2. Total Property Area: 198,198 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: 198,198 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	29,089
Impervious Pavement	54,082
Pervious Pavement (adj. total, with 0 % credit applied)	24,741
Impervious Sidewalks	8,377
Pervious Sidewalks (adj. total, with 0 % credit applied)	0
Other (describe)	0
Future Development	0
Total Onsite Newly Constructed Impervious Surface	116,289

10. Total Onsite Impervious Surface
    (Existing Impervious Surface to remain + Onsite Newly Constructed Impervious Surface) = 116,289 square feet
11. Project percent of impervious area: (Total Onsite Impervious Surface / Total Project Area) x100 = 58.7 %

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

DRIVEWAY AREAS OUTSIDE OF PROPERTY LINE

Impervious Pavement	7,929	widening of Cavalier Road and right turn lane on Eastwood
Pervious Pavement (adj. total, with % credit applied)	N/A	
Impervious Sidewalks	0	relocating sidewalk only
Pervious Sidewalks (adj. total, with % credit applied)	N/A	
Other (describe)	N/A	
Total Offsite Newly Constructed Impervious Surface	7,929	

13. Total Newly Constructed Impervious Surface
(Total Onsite + Offsite Newly Constructed Impervious Surface) = 124,218 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	BIORETENTION BMP # 1	BIORETENTION BMP #	BIORETENTION BMP # 3
Receiving Stream Name			
Receiving Stream Index Number			
Stream Classification			
Total Drainage Area (sf)			
On-Site Drainage Area (sf)			
Off-Site Drainage Area (sf)			
Total Impervious Area (sf)			
Buildings/Lots (sf)			
Impervious Pavement (sf)			
Pervious Pavement (sf)			
Impervious Sidewalks (sf)			
Pervious Sidewalks (sf)			
Other (sf)			
Future Development (sf)			
Existing Impervious to remain (sf)			
Offsite (sf)			
Percent Impervious Area (%)			

REFER TO ATTACHMENT

15. How was the off-site impervious area listed above determined? Provide documentation:
Site Plan provided by adjacent developer.

CITY OF WILMINGTON ENGINEERING

BMP Drainage area information (continued)

Basin Information	BIORETENTION BMP # 1	BIORETENTION BMP # 2	BIORETENTION BMP # 3
Receiving Stream Name	BRADLEY CREEK	BRADLEY CREEK	BRADLEY CREEK
Receiving Stream Index Number	18-87-24-4-(1)	18-87-24-4-(1)	18-87-24-4-(1)
Stream Classification	SC, HQW	SC, HQW	SC, HQW
Total Drainage Area (sf) (treated area)	3920	3049	3615
On-Site Drainage Area (sf)	3920	3049	3615
Off-Site Drainage Area (sf)	0	0	0
Total Impervious Area (sf) (treated area)	1699	1742	1699
Buildings/Lots (sf)	0	0	0
Impervious Pavement (sf)	1699	1742	1699
Pervious Pavement, % credit (sf)	0	0	0
Impervious Sidewalks (sf)	0	0	0
Pervious Sidewalks, % credit (sf)	0	0	0
Other (sf)	0	0	0
Future Development (sf)	0	0	0
Existing Impervious to remain (sf)	0	0	0
Offsite (sf)	0	0	0
Percent Impervious Area (%)	43	57	47
Basin Information	BIORETENTION BMP # 4	BIORETENTION BMP # 5	WETPOND BMP # 6
Receiving Stream Name	BRADLEY CREEK	BRADLEY CREEK	BRADLEY CREEK
Receiving Stream Index Number	18-87-24-4-(1)	18-87-24-4-(1)	18-87-24-4-(1)
Stream Classification	SC, HQW	SC, HQW	SC, HQW
Total Drainage Area (sf) (treated area)	3136	2788	195149
On-Site Drainage Area (sf)	3136	2788	195149
Off-Site Drainage Area (sf)	0	0	0
Total Impervious Area (sf) (treated area)	1742	1220	140525
Buildings/Lots (sf)		0	29089
Impervious Pavement (sf)	1742	1220	43537
Pervious Pavement, 0 % credit (sf)	0	0	24742
Impervious Sidewalks (sf)	0	0	6131
Pervious Sidewalks, % credit (sf)	0	0	0
Other (sf)	0	0	0
Future Development (sf)	0	0	0
Existing Impervious to remain (sf)	0	0	0
Offsite (sf)	0	0	37026 *
Percent Impervious Area (%)	56	44	72

* FUTURE ALLOCATION FOR ADJACENT TRACT (LOT 2)

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: Jordan Brewer, P.E.

   Consulting Firm: Kimley-Horn and Associates, Inc.

   a. Contact information for consultant listed above:

   Mailing Address: 421 Fayetteville Street, Suite 601

   City: Raleigh State: NC Zip: 27601

   Phone: 919.653.6654 Fax: _____ Email: jordan.brewer@kimley-horn.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.

SEAL

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)* , Forrest Etter 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.

SEAL

SARAH CRAVER NOTARY My Comm. Exp. 11-13-2021 PUBLIC WAKE COUNTY, NC

Signature: Forrest Etter

Date: 7/20/18

I, Sarah Craver, a Notary Public for the State of North Carolina County of Wake, do hereby certify that Forrest Etter personally appeared before me this day of July 20th, 2018, and acknowledge the due execution of the application for a stormwater permit. Witness my hand and official seal,

_____

My commission expires: 11/13/2021

SUPPLEMENT-EZ FORM COVER PAGE

Please indicate the types, quantities and locations of SCMs that will be used on this project:

	Quantity	Location(s)
Infiltration System		
Bioretention Cell	5	
Wet Pond	1	
Stormwater Wetland		
Permeable Pavement		
Sand Filter		
Rainwater Harvesting		
Green Roof		
Level Spreader-Filter Strip		
Disconnected Impervious Surface		
Treatment Swale		
Dry Pond		

Project Name:

LiDL Grocery Store

Address

1451 Eastwood Road

City / Town

Wilmington

Designer information for this project:

Name and Title:	W. Jordan Brewer, PE
Organization:	Kimley-Horn & Associates
Street address:	421 Fayetteville Street, Suite 600
City, State, Zip:	Raleigh, NC 27601
Phone number(s):	(919) 653-6654
Email:	jordan.brewer@kimley-horn.com

Applicant:

Company:	Lidl US Operations
Contact:	Forrest Etter
Mailing Address:	3815 Senator Ralph Scott Parkway
City, State, Zip:	Mebane, NC 27302
Phone number(s):	(571) 447-8533
Email:	forrest.etter@lidl.us

Designer

NORTH CAROLINA PROFESSIONAL SEAL 039196 ENGINEER W. JORDAN BREWER

Seal

W. Jordan Brewer

Signature of Designer

10/31/18

Date

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.

I am aware that there are significant penalties for submitting false information including the possibility of fines and imprisonment for knowing violations as well as a report being made to my professional board.

RECEIVED NOV - 1 2018 ENGINEERING

BIORETENTION CELL

LiDL Grocery Store

THE DRAINAGE AREA			1
Drainage area number	1 (CS-3)	**Break down of BUA in the drainage area (both new and existing):**	
Total coastal wetlands area (sq ft)	-	- Parking / driveway (sq ft)	1699 sf
Total surface water area (sq ft)	-	- Sidewalk (sq ft)	-
Total drainage area (sq ft)	3920 sf	- Roof (sq ft)	-
BUA associated with existing development (sq ft)	-	- Roadway (sq ft)	-
Proposed new BUA (sq ft)	1699 sf	- Other, please specify in the comment box below (sq ft)	-
Percent BUA of drainage area	43%	**Total BUA (sq ft)**	1699 sf

COMPLIANCE WITH THE APPLICABLE STORMWATER PROGRAM		
Stormwater program(s) that apply (please specify):	Design rainfall depth (in)	1.5 in
City of Wilmington Land Development Code NCDEQ Stormwater Design Manual	Minimum volume required (cu ft)	216 cf
	Design volume of SCM (cu ft)	216 cf

GENERAL MDC FROM 02H .1050			
#1 Is the SCM sized to treat the SW from all surfaces at build-out?	Yes	#7 If applicable, with the SCM be cleaned out after construction?	
#2 Is the SCM located on or near contaminated soils?	No	#8 Does the mainetenance access comply with General MDC (8)?	Yes
#3 What are the side slopes of the SCM (H:V)?	3:1	#9 Does the drainage easement comply with General MDC (9)?	Yes
#3 Does the SCM have retaining walls, gabion walls or other engineered side slopes?	No	#10 If the SCM is on a single family lot, does the plat comply with General MDC (10)?	
#4 Are the inlets, outlets, and receiving stream protected from erosion (10-year storm)?	Yes	#11 Is there an O&M Agreement that complies with General MDC (11)?	Yes
#5 Is there a a bypass for flows in excess of the design flow?	Yes	#12 Is there an O&M Plan that complies with General MDC (12)?	Yes
#6 What is the method for dewatering the SCM for maintenance?	Other	#13 Was the SCM designed by an NC licensed professional?	Yes

BIORETENTION CELL MDC FROM 02H .1052			
#1 SHWT elevation (fmsl)	14.35 ft	#6 Percentage of medium to coarse washed sand by volume	85%
#1 Bottom of the bioretention cell (fmsl)	16.92 ft	#6 Percentage of fines (silt and clay) by volume	10%
#1 Distance from bottom to SHWT (feet)	2.57 ft	#6 Percentage of organic matter by volume	5%
#2 Surface area of the bioretention cell (square feet)	362 sf	#6 Type of organic material	Peat Moss
#2 Design volume of the bioretention cell (cubic feet)	216 cf	#7 Phosphorus Index (P-Index) of media (unitless)	20
#2 Ponding depth of the design storm (inches)	9 in	#8 Will compaction be avoided during construction?	Yes
#3 Is the bioretention cell used for peak attenuation?	Yes	#9 Will cell be maintained to a one inch/hour standard?	Yes
#3 Depth of peak attenuation over planting surface (in)	9 in	#10 Describe the planting plan:	
#3 Height of peak attenuation outlet above the planting surface (in)	9 in	Ground covers for the bioretention basins are variegated sweet flat and bristly cattail sedge. The tree proposed is an Autumn Gold Bald Cypress.	
#4 Infiltration rate of the in situ soil (inch/hour)	1.2 in/hr		
#4 Diameter of the underdrain pipes (if applicable)	4 in		
#4 Does the design include Internal Water Storage (IWS)?	Yes	#11 Depth of mulch, if applicable (inches)	2 in
#4 if so, elevation of the top of the IWS (fmsl)	19.25 ft	#11 Type of mulch, if applicable	Triple shredded hardwood
#4 Elevation of the planting surface (fmsl)	20.75 ft	#12 How many clean out pipes are being installed?	1
#5 Will the cell contain trees and shrubs?	Yes	#12 Briefly describe the pretreatment that will be used:	
#5 Media depth (inches)	36 in	Permable pavement	

ADDITIONAL INFORMATION
Please use this space to provide any additional information about this bioretention cell that you think is relevant to the review:
All flow from the bioretention basins is conveyed to the wet pond for treatment and storage.

BIORETENTION CELL

LiDL Grocery Store

THE DRAINAGE AREA				2
Drainage area number	2 (CS-4)	**Break down of BUA in the drainage area (both new and existing):**		
Total coastal wetlands area (sq ft)	-	- Parking / driveway (sq ft)	1742 sf	
Total surface water area (sq ft)	-	- Sidewalk (sq ft)	-	
Total drainage area (sq ft)	3049 sf	- Roof (sq ft)	-	
BUA associated with existing development (sq ft)	-	- Roadway (sq ft)	-	
Proposed new BUA (sq ft)	1742 sf	- Other, please specify in the comment box below (sq ft)	-	
Percent BUA of drainage area	57%	**Total BUA (sq ft)**	1742 sf	
COMPLIANCE WITH THE APPLICABLE STORMWATER PROGRAM				
Stormwater program(s) that apply (please specify):		Design rainfall depth (in)	1.5 in	
City of Wilmington Land Development Code NCDEQ Stormwater Design Manual		Minimum volume required (cu ft)	216 cf	
		Design volume of SCM (cu ft)	216 cf	
GENERAL MDC FROM 02H .1050				
#1 Is the SCM sized to treat the SW from all surfaces at build-out?	Yes	#7 If applicable, with the SCM be cleaned out after construction?		
#2 Is the SCM located on or near contaminated soils?	No	#8 Does the mainetenance access comply with General MDC (8)?	Yes	
#3 What are the side slopes of the SCM (H:V)?	3:1	#9 Does the drainage easement comply with General MDC (9)?	Yes	
#3 Does the SCM have retaining walls, gabion walls or other engineered side slopes?	No	#10 If the SCM is on a single family lot, does the plat comply with General MDC (10)?		
#4 Are the inlets, outlets, and receiving stream protected from erosion (10-year storm)?	Yes	#11 Is there an O&M Agreement that complies with General MDC (11)?	Yes	
#5 Is there a a bypass for flows in excess of the design flow?	Yes	#12 Is there an O&M Plan that complies with General MDC (12)?	Yes	
#6 What is the method for dewatering the SCM for maintenance?	Other	#13 Was the SCM designed by an NC licensed professional?	Yes	
BIORETENTION CELL MDC FROM 02H .1052				
#1 SHWT elevation (fmsl)	14.35 ft	#6 Percentage of medium to coarse washed sand by volume	85%	
#1 Bottom of the bioretention cell (fmsl)	16.38 ft	#6 Percentage of fines (silt and clay) by volume	10%	
#1 Distance from bottom to SHWT (feet)	2.03 ft	#6 Percentage of organic matter by volume	5%	
#2 Surface area of the bioretention cell (square feet)	362 sf	#6 Type of organic material	Peat Moss	
#2 Design volume of the bioretention cell (cubic feet)	216 cf	#7 Phosphorus Index (P-Index) of media (unitless)	20	
#2 Ponding depth of the design storm (inches)	9 in	#8 Will compaction be avoided during construction?	Yes	
#3 Is the bioretention cell used for peak attenuation?	Yes	#9 Will cell be maintained to a one inch/hour standard?	Yes	
#3 Depth of peak attenuation over planting surface (in)	9 in	#10 Describe the planting plan:		
#3 Height of peak attenuation outlet above the planting surface (in)	9 in	Ground covers for the bioretention basins are variegated sweet flat and bristly cattail sedge. The tree proposed is an Autumn Gold Bald Cypress.		
#4 Infiltration rate of the in situ soil (inch/hour)	1.2 in/hr			
#4 Diameter of the underdrain pipes (if applicable)	4 in			
#4 Does the design include Internal Water Storage (IWS)?	Yes	#11 Depth of mulch, if applicable (inches)	2 in	
#4 if so, elevation of the top of the IWS (fmsl)	18.71 ft	#11 Type of mulch, if applicable	Triple shredded hardwood	
#4 Elevation of the planting surface (fmsl)	20.21 ft	#12 How many clean out pipes are being installed?	1	
#5 Will the cell contain trees and shrubs?	Yes	#12 Briefly describe the pretreatment that will be used:		
#5 Media depth (inches)	36 in	Permable pavement		
ADDITIONAL INFORMATION				
Please use this space to provide any additional information about this bioretention cell that you think is relevant to the review:				
All flow from the bioretention basins is conveyed to the wet pond for treatment and storage.				

BIORETENTION CELL

LiDL Grocery Store

THE DRAINAGE AREA			3
Drainage area number	3 (CS-5)	**Break down of BUA in the drainage area (both new and existing):**	
Total coastal wetlands area (sq ft)	-	- Parking / driveway (sq ft)	1699 sf
Total surface water area (sq ft)	-	- Sidewalk (sq ft)	-
Total drainage area (sq ft)	3615 sf	- Roof (sq ft)	-
BUA associated with existing development (sq ft)	-	- Roadway (sq ft)	-
Proposed new BUA (sq ft)	1699 sf	- Other, please specify in the comment box below (sq ft)	-
Percent BUA of drainage area	47%	**Total BUA (sq ft)**	1699 sf
COMPLIANCE WITH THE APPLICABLE STORMWATER PROGRAM			
Stormwater program(s) that apply (please specify):		Design rainfall depth (in)	1.5 in
City of Wilmington Land Development Code NCDEQ Stormwater Design Manual		Minimum volume required (cu ft)	216 cf
		Design volume of SCM (cu ft)	216 cf
GENERAL MDC FROM 02H .1050			
#1 Is the SCM sized to treat the SW from all surfaces at build-out?	Yes	#7 If applicable, with the SCM be cleaned out after construction?	
#2 Is the SCM located on or near contaminated soils?	No	#8 Does the mainetenance access comply with General MDC (8)?	Yes
#3 What are the side slopes of the SCM (H:V)?	3:1	#9 Does the drainage easement comply with General MDC (9)?	Yes
#3 Does the SCM have retaining walls, gabion walls or other engineered side slopes?	No	#10 If the SCM is on a single family lot, does the plat comply with General MDC (10)?	
#4 Are the inlets, outlets, and receiving stream protected from erosion (10-year storm)?	Yes	#11 Is there an O&M Agreement that complies with General MDC (11)?	Yes
#5 Is there a a bypass for flows in excess of the design flow?	Yes	#12 Is there an O&M Plan that complies with General MDC (12)?	Yes
#6 What is the method for dewatering the SCM for maintenance?	Other	#13 Was the SCM designed by an NC licensed professional?	Yes
BIORETENTION CELL MDC FROM 02H .1052			
#1 SHWT elevation (fmsl)	14.35 ft	#6 Percentage of medium to coarse washed sand by volume	85%
#1 Bottom of the bioretention cell (fmsl)	16.92 ft	#6 Percentage of fines (silt and clay) by volume	10%
#1 Distance from bottom to SHWT (feet)	2.57 ft	#6 Percentage of organic matter by volume	5%
#2 Surface area of the bioretention cell (square feet)	362 sf	#6 Type of organic material	Peat Moss
#2 Design volume of the bioretention cell (cubic feet)	216 cf	#7 Phosphorus Index (P-Index) of media (unitless)	20
#2 Ponding depth of the design storm (inches)	9 in	#8 Will compaction be avoided during construction?	Yes
#3 Is the bioretention cell used for peak attenuation?	Yes	#9 Will cell be maintained to a one inch/hour standard?	Yes
#3 Depth of peak attenuation over planting surface (in)	9 in	#10 Describe the planting plan:	
#3 Height of peak attenuation outlet above the planting surface (in)	9 in	Ground covers for the bioretention basins are variegated sweet flat and bristly cattail sedge. The tree proposed is an Autumn Gold Bald Cypress.	
#4 Infiltration rate of the in situ soil (inch/hour)	1.2 in/hr		
#4 Diameter of the underdrain pipes (if applicable)	4 in		
#4 Does the design include Internal Water Storage (IWS)?	Yes	#11 Depth of mulch, if applicable (inches)	2 in
#4 if so, elevation of the top of the IWS (fmsl)	19.25 ft	#11 Type of mulch, if applicable	Triple shredded hardwood
#4 Elevation of the planting surface (fmsl)	20.75 ft	#12 How many clean out pipes are being installed?	1
#5 Will the cell contain trees and shrubs?	Yes	#12 Briefly describe the pretreatment that will be used:	
#5 Media depth (inches)	36 in	Permable pavement	
ADDITIONAL INFORMATION			
Please use this space to provide any additional information about this bioretention cell that you think is relevant to the review:			
All flow from the bioretention basins is conveyed to the wet pond for treatment and storage.			

BIORETENTION CELL

THE DRAINAGE AREA			4
Drainage area number	4 (CS-6)	**Break down of BUA in the drainage area (both new and existing):**	
Total coastal wetlands area (sq ft)	-	- Parking / driveway (sq ft)	3136 sf
Total surface water area (sq ft)	-	- Sidewalk (sq ft)	-
Total drainage area (sq ft)	3136 sf	- Roof (sq ft)	-
BUA associated with existing development (sq ft)	-	- Roadway (sq ft)	-
Proposed new BUA (sq ft)	1742 sf	- Other, please specify in the comment box below (sq ft)	-
Percent BUA of drainage area	56%	**Total BUA (sq ft)**	3136 sf
COMPLIANCE WITH THE APPLICABLE STORMWATER PROGRAM			
Stormwater program(s) that apply (please specify):		Design rainfall depth (in)	1.5 in
City of Wilmington Land Development Code NCDEQ Stormwater Design Manual		Minimum volume required (cu ft)	215 cf
		Design volume of SCM (cu ft)	215 cf
GENERAL MDC FROM 02H .1050			
#1 Is the SCM sized to treat the SW from all surfaces at build-out?	Yes	#7 If applicable, with the SCM be cleaned out after construction?	
#2 Is the SCM located on or near contaminated soils?	No	#8 Does the mainetenance access comply with General MDC (8)?	Yes
#3 What are the side slopes of the SCM (H:V)?	3:1	#9 Does the drainage easement comply with General MDC (9)?	Yes
#3 Does the SCM have retaining walls, gabion walls or other engineered side slopes?	No	#10 If the SCM is on a single family lot, does the plat comply with General MDC (10)?	
#4 Are the inlets, outlets, and receiving stream protected from erosion (10-year storm)?	Yes	#11 Is there an O&M Agreement that complies with General MDC (11)?	Yes
#5 Is there a a bypass for flows in excess of the design flow?	Yes	#12 Is there an O&M Plan that complies with General MDC (12)?	Yes
#6 What is the method for dewatering the SCM for maintenance?	Other	#13 Was the SCM designed by an NC licensed professional?	Yes
BIORETENTION CELL MDC FROM 02H .1052			
#1 SHWT elevation (fmsl)	14.35 ft	#6 Percentage of medium to coarse washed sand by volume	85%
#1 Bottom of the bioretention cell (fmsl)	16.92 ft	#6 Percentage of fines (silt and clay) by volume	10%
#1 Distance from bottom to SHWT (feet)	2.57 ft	#6 Percentage of organic matter by volume	5%
#2 Surface area of the bioretention cell (square feet)	361 sf	#6 Type of organic material	Peat Moss
#2 Design volume of the bioretention cell (cubic feet)	215 cf	#7 Phosphorus Index (P-Index) of media (unitless)	20
#2 Ponding depth of the design storm (inches)	9 in	#8 Will compaction be avoided during construction?	Yes
#3 Is the bioretention cell used for peak attenuation?	Yes	#9 Will cell be maintained to a one inch/hour standard?	Yes
#3 Depth of peak attenuation over planting surface (in)	9 in	#10 Describe the planting plan:	
#3 Height of peak attenuation outlet above the planting surface (in)	-	Ground covers for the bioretention basins are variegated sweet flat and bristly cattail sedge. The tree proposed is an Autumn Gold Bald Cypress.	
#4 Infiltration rate of the in situ soil (inch/hour)	1.2 in/hr		
#4 Diameter of the underdrain pipes (if applicable)	4 in		
#4 Does the design include Internal Water Storage (IWS)?	Yes	#11 Depth of mulch, if applicable (inches)	2 in
#4 if so, elevation of the top of the IWS (fmsl)	19.25 ft	#11 Type of mulch, if applicable	Triple shredded hardwood
#4 Elevation of the planting surface (fmsl)	20.75 ft	#12 How many clean out pipes are being installed?	1
#5 Will the cell contain trees and shrubs?	Yes	#12 Briefly describe the pretreatment that will be used:	
#5 Media depth (inches)	36 in	Permable pavement	
ADDITIONAL INFORMATION			
Please use this space to provide any additional information about this bioretention cell that you think is relevant to the review:			
All flow from the bioretention basins is conveyed to the wet pond for treatment and storage.			

BIORETENTION CELL

THE DRAINAGE AREA			5
Drainage area number	5 (CS-7)	**Break down of BUA in the drainage area (both new and existing):**	
Total coastal wetlands area (sq ft)	-	- Parking / driveway (sq ft)	1220 sf
Total surface water area (sq ft)	-	- Sidewalk (sq ft)	-
Total drainage area (sq ft)	2788 sf	- Roof (sq ft)	-
BUA associated with existing development (sq ft)	-	- Roadway (sq ft)	-
Proposed new BUA (sq ft)	1220 sf	- Other, please specify in the comment box below (sq ft)	-
Percent BUA of drainage area	44%	**Total BUA (sq ft)**	1220 sf
COMPLIANCE WITH THE APPLICABLE STORMWATER PROGRAM			
Stormwater program(s) that apply (please specify):		Design rainfall depth (in)	1.5 in
City of Wilmington Land Development Code NCDEQ Stormwater Design Manual		Minimum volume required (cu ft)	157 cf
		Design volume of SCM (cu ft)	157 cf
GENERAL MDC FROM 02H .1050			
#1 Is the SCM sized to treat the SW from all surfaces at build-out?	Yes	#7 If applicable, with the SCM be cleaned out after construction?	
#2 Is the SCM located on or near contaminated soils?	No	#8 Does the mainetenance access comply with General MDC (8)?	Yes
#3 What are the side slopes of the SCM (H:V)?	3:1	#9 Does the drainage easement comply with General MDC (9)?	Yes
#3 Does the SCM have retaining walls, gabion walls or other engineered side slopes?	No	#10 If the SCM is on a single family lot, does the plat comply with General MDC (10)?	
#4 Are the inlets, outlets, and receiving stream protected from erosion (10-year storm)?	Yes	#11 Is there an O&M Agreement that complies with General MDC (11)?	Yes
#5 Is there a a bypass for flows in excess of the design flow?	Yes	#12 Is there an O&M Plan that complies with General MDC (12)?	Yes
#6 What is the method for dewatering the SCM for maintenance?	Other	#13 Was the SCM designed by an NC licensed professional?	Yes
BIORETENTION CELL MDC FROM 02H .1052			
#1 SHWT elevation (fmsl)	14.35 ft	#6 Percentage of medium to coarse washed sand by volume	85%
#1 Bottom of the bioretention cell (fmsl)	16.92 ft	#6 Percentage of fines (silt and clay) by volume	10%
#1 Distance from bottom to SHWT (feet)	2.57 ft	#6 Percentage of organic matter by volume	5%
#2 Surface area of the bioretention cell (square feet)	286 sf	#6 Type of organic material	Peat Moss
#2 Design volume of the bioretention cell (cubic feet)	157 cf	#7 Phosphorus Index (P-Index) of media (unitless)	20
#2 Ponding depth of the design storm (inches)	9 in	#8 Will compaction be avoided during construction?	Yes
#3 Is the bioretention cell used for peak attenuation?	Yes	#9 Will cell be maintained to a one inch/hour standard?	Yes
#3 Depth of peak attenuation over planting surface (in)	9 in	#10 Describe the planting plan:	
#3 Height of peak attenuation outlet above the planting surface (in)	-	Ground covers for the bioretention basins are variegated sweet flat and bristly cattail sedge. The tree proposed is an Autumn Gold Bald Cypress.	
#4 Infiltration rate of the in situ soil (inch/hour)	1.2 in/hr		
#4 Diameter of the underdrain pipes (if applicable)	4 in		
#4 Does the design include Internal Water Storage (IWS)?	Yes	#11 Depth of mulch, if applicable (inches)	2 in
#4 if so, elevation of the top of the IWS (fmsl)	19.25 ft	#11 Type of mulch, if applicable	Triple shredded hardwood
#4 Elevation of the planting surface (fmsl)	20.75 ft	#12 How many clean out pipes are being installed?	1
#5 Will the cell contain trees and shrubs?	Yes	#12 Briefly describe the pretreatment that will be used:	
#5 Media depth (inches)	36 in	Permable pavement	
ADDITIONAL INFORMATION			
Please use this space to provide any additional information about this bioretention cell that you think is relevant to the review:			
All flow from the bioretention basins is conveyed to the wet pond for treatment and storage.			

WET POND

LiDL Grocery Store

THE DRAINAGE AREA			1
Drainage area number	6	Break down of BUA in the drainage area (both new and existing):	
Total coastal wetlands area (sq ft)	-	- Parking / driveway (sq ft)	68279 sf
Total surface water area (sq ft)	-	- Sidewalk (sq ft)	6131 sf
Total drainage area (sq ft)	195149 sf	- Roof (sq ft)	29089 sf
BUA associated with existing development (sq ft)	-	- Roadway (sq ft)	-
Proposed new BUA (sq ft)	140525 sf	- Other, please specify in the comment box below (sq ft)	37026 sf
Percent BUA of drainage area	72%	Total BUA (sq ft)	140525 sf

COMPLIANCE WITH THE APPLICABLE STORMWATER PROGRAM		
Stormwater program(s) that apply (please specify):	Design rainfall depth (in)	1.5 in
City of Wilmington Land Development Code NCDEQ Stormwater Design Manual MDC	Minimum volume required (cu ft)	16972 cf
	Design volume of SCM (cu ft)	16972 cf

GENERAL MDC FROM 02H .1050			
#1 Is the SCM sized to treat the SW from all surfaces at build-out?	Yes	#7 If applicable, with the SCM be cleaned out after construction?	Yes
#2 Is the SCM located on or near contaminated soils?	No	#8 Does the mainetenance access comply with General MDC (8)?	Yes
#3 What are the side slopes of the SCM (H:V)?	3:1	#9 Does the drainage easement comply with General MDC (9)?	Yes
#3 Does the SCM have retaining walls, gabion walls or other engineered side slopes?	Yes	#10 If the SCM is on a single family lot, does the plat comply with General MDC (10)?	
#4 Are the inlets, outlets, and receiving stream protected from erosion (10-year storm)?	Yes	#11 Is there an O&M Agreement that complies with General MDC (11)?	Yes
#5 Is there a a bypass for flows in excess of the design flow?	No	#12 Is there an O&M Plan that complies with General MDC (12)?	Yes
#6 What is the method for dewatering the SCM for maintenance?	Pump (preferred)	#13 Was the SCM designed by an NC licensed professional?	Yes

WET POND MDC FROM 02H .1053			
#1 Method used	SA/DA	#6 Width of the vegetated shelf (feet)	6 ft
#1 Surface area of the main permanent pool (square feet)	7829 sf	#6 Location of vegetated shelf	@ Normal Pool
#1 Volume of the main permanent pool (cubic feet)	33981 cf	#6 Elevation of top of shelf (fmsl)	16.5 ft
#2 Average depth of the main pool (feet)	4.89 ft	#6 Elevation of bottom of shelf (fmsl)	15.5 ft
#2 Was the vegetated shelf included in the calculation of average depth?	Yes	#6 Slope of vegetated shelf (H:V)	6:1
#2 Elevation of the bottom of the permanent pool (fmsl)	8.5 ft	#7 Diameter of drawdown orifice (inches)	1.5 in
#2 Elevation of the top of the permanent pool (fmsl)	16 ft	#7 Drawdown time for the temporary pool (hours)	111 hrs
#2 Elevation of the top of the temporary pool (fmsl)	17.55 ft	#7 Does the orifice drawdown from below the top surface of the permanent pool?	Yes
#3 Depth provided for sediment storage (inches)	12 in	#8 Does the pond minimize impacts to the receiving channel from the 1-yr, 24-hr storm?	Yes
#4 Are the inlet(s) and outlet located in a manner that avoids short-circuiting?	Yes	#9 Are fountains proposed?	No
#4 Describe any measures, such as berms or baffles, that will be taken to improve the flow path:		#9 If yes, is documentation provided per Wet Pond MDC (9)?	
Gabion basket forebay		#10 Is a trash rack or other device provided to protect the outlet system?	Yes
#5 Volume of the forebay (cubic feet)	6113 cf	#11 Are the dam and embankment planted in non-clumping turf grass?	Yes
#5 Is this 15-20% of the volume in the main pool?	Yes	#11 Species of turf that will be used on the dam and embankment	Tifway Hybrid Bermuda grass
#5 Depth of forebay at entrance (inches)	90 in	#11 Describe the planting plan for the vegetated shelf:	
#5 Depth of forebay at exit (inches)	90 in	The vegetated shelf will be planted with Joe Pye Weed, Rose Mallow, and Plumegrass shrubs, as well as Blue Flag, Soft Rush, and Pickerel Weed groundcovers.	
#5 Does water flow out of the forebay in a non-erosive manner?	Yes		
#5 Clean-out depth for forebay (inches)	24 in		
#5 Will the forebay be cleaned out when the depth is reduced to less than the above?	Yes		

ADDITIONAL INFORMATION

Please use this space to provide any additional information about this wet pond that you think is relevant to the review:

The site utilizes five bioretention basins. Any bypass from the bioretention basins is conveyed to the wet pond for treatment and storage. No drainage area treated by the bioretention areas are included with this treatment.

Other section for the breakdown of BUA is for future development adjacent to the site.

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 monculture 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 monculture 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.

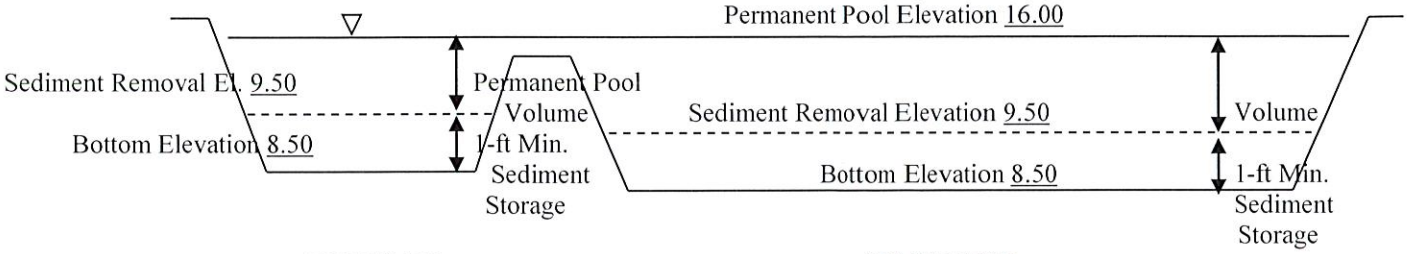
The measuring device used to determine the sediment elevation shall be such that it will give an accurate depth reading and not readily penetrate into accumulated sediments.

When the permanent pool depth reads _6.50_ feet in the main pond, the sediment shall be removed.

When the permanent pool depth reads _6.50_ feet in the forebay, the sediment shall be removed.

BASIN DIAGRAM

(fill in the blanks)



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: Lidl Grocery Store Eastwood Road

BMP drainage basin number: 1

Print name: Forrest Etter

Title: Development Manager

Address: 3815 Senator Ralph Parkway, Mebane, NC 27302

Phone: (571) 447-8533

Signature: Forrest Etter

Date: 10/1/18

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, Sarah Craver, a Notary Public for the State of North Carolina, County of Wake, do hereby certify that Forrest Etter personally appeared before me this 1st day of October, 2018, and acknowledge the due execution of the forgoing wet detention basin maintenance requirements. Witness my hand and official seal,

SARAH CRAVER NOTARY My Comm. Exp. 11-13-2021 PUBLIC WAKE COUNTY, NC

SEAL

My commission expires 11/13/2021

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

Bioretention 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 operation and maintenance procedures:

- Immediately after the bioretention cell is established, the plants will be watered twice weekly if needed until the plants become established (commonly six weeks).
- Snow, mulch or any other material will NEVER be piled on the surface of the bioretention cell.
- Heavy equipment will NEVER be driven over the bioretention cell.
- Special care will be taken to prevent sediment from entering the bioretention cell.
- Once a year, a soil test of the soil media will be conducted.

After the bioretention cell is established, I will inspect it **once a month 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 problems:	How I will remediate the problem:
The entire BMP	Trash/debris is present.	Remove the trash/debris.
The perimeter of the bioretention cell	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, stone verge 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.
	Stone verge is clogged or covered in sediment (if applicable).	Remove sediment and clogged stone and replace with clean stone.

BMP element:	Potential problems:	How I will remediate the problem:
The pretreatment area	Flow is bypassing pretreatment area and/or gullies have formed.	Regrade if necessary to route all flow to the pretreatment area. Restabilize the area after grading.
	Sediment has accumulated to a depth greater than three inches.	Search for the source of the sediment and remedy the problem if possible. Remove the sediment and restabilize the pretreatment area.
	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.
The bioretention cell: vegetation	Best professional practices show that pruning is needed to maintain optimal plant health.	Prune according to best professional practices.
	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.
	Tree stakes/wires are present six months after planting.	Remove tree stake/wires (which can kill the tree if not removed).
The bioretention cell: soils and mulch	Mulch is breaking down or has floated away.	Spot mulch if there are only random void areas. Replace whole mulch layer if necessary. Remove the remaining much and replace with triple shredded hard wood mulch at a maximum depth of three inches.
	Soils and/or mulch are clogged with sediment.	Determine the extent of the clogging - remove and replace either just the top layers or the entire media as needed. Dispose of the spoil in an appropriate off-site location. Use triple shredded hard wood mulch at a maximum depth of three inches. Search for the source of the sediment and remedy the problem if possible.
	An annual soil test shows that pH has dropped or heavy metals have accumulated in the soil media.	Dolomitic lime shall be applied as recommended per the soil test and toxic soils shall be removed, disposed of properly and replaced with new planting media.

BMP element:	Potential problems:	How I will remediate the problem:
The underdrain system (if applicable)	Clogging has occurred.	Wash out the underdrain system.
The drop inlet	Clogging has occurred.	Clean out the drop inlet. Dispose of the sediment off-site.
	The drop inlet is damaged	Repair or replace the drop inlet.
The receiving water	Erosion or other signs of damage have occurred at the outlet.	Contact the NC Division of Water Quality 401 Oversight Unit at 919-733-1786.

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: Lidl Grocery Store Eastwood Roas

BMP drainage basin number: 3, 4, 5, 6, 7

Print name: Andrew Gartrell

Title: Development Manager

Address: 4708 Southpoint Parkway, Fredericksburg, Virginia 2207

Phone: 571-457-9049

Signature: Andrew Gartrell

Date: 9/7/17

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, Victoria Bauers, a Notary Public for the State of Virginia, County of Spotsylvania, do hereby certify that Andrew Gartrell personally appeared before me this 7th day of September, 2017, and acknowledge the due execution of the forgoing bioretention maintenance requirements. Witness my hand and official seal,

Victoria Renee Bauers
Commonwealth of Virginia
Notary Public
Commission No. 7683504
My Commission Expires 12/31/2020

SEAL

My commission expires 12/31/2020