



**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: Par 5 Development Group, LLC**  
**PROJECT: Dollar General Pine Grove**  
**ADDRESS: 810 Pine Grove Drive**  
**PERMIT #: 2018053**  
**DATE: December 6, 2018**

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

This permit shall be effective from the date of issuance until December 6, 2028 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 December 6, 2018.
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.



**Public Services**

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

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 stormwater treatment systems as well as access to nearest right-of-way must be located in recorded easements.
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.



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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.
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 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.



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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.
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.

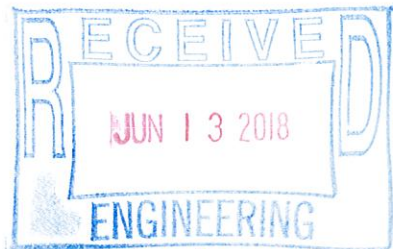
Stormwater Management Permit issued this the 6<sup>th</sup> day of December, 2018

A handwritten signature in blue ink, appearing to read 'S. Cheatham', is written over a horizontal line.

for Sterling Cheatham, City Manager  
City of Wilmington

N&T #17145

SWP2018053



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



\* unless otherwise  
Noted

**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.):

Dollar General - Wilmington - Pine Grove

2. Location of Project (street address):

810 Pine Grove Drive

City: Wilmington County: New Hanover Zip: 28409

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

From the intersection of US 17 North (Oleander Dr.) and Pine Grove Drive, turn right onto Pine Grove Drive. Project is ~4,500' 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: \_\_\_\_\_ 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:

Permits will be provided when received.

**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: Par 5 Development Group, LLC

Signing Official & Title: Rudy L. Pittman/ Managing Member

- a. Contact information for Applicant / Signing Official:

Street Address: 2075 Juniper Lake Road

City: West End State: NC Zip: 27376

Phone: 910-944-0881 Fax: 910-944-0882 Email: jody@par5development.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: See Authorization Letter

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: \_\_\_\_\_

Signing Official & Title: \_\_\_\_\_

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

Street Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Phone: \_\_\_\_\_ Fax: \_\_\_\_\_ Email: \_\_\_\_\_

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 runoff will be treated in two (2) infiltration SCM's: 1 Infiltration Basin &  
1 Infiltration Trench

2. Total Property Area: 41,828 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: 41,828 square feet.

6. Existing Impervious Surface within Property Area: 5,275 square feet

7. Existing Impervious Surface to be Removed/Demolished: 5,275 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	7,500
Impervious Pavement	13,345
Pervious Pavement (adj. total, with 0 % credit applied)	0
Impervious Sidewalks	3,620
Pervious Sidewalks (adj. total, with 0 % credit applied)	0
Other (describe)	0
Future Development	0
<b>Total Onsite Newly Constructed Impervious Surface</b>	<b>24,465</b>

10. Total Onsite Impervious Surface

(Existing Impervious Surface to remain + Onsite Newly Constructed Impervious Surface) = 24,465 square feet

11. Project percent of impervious area: (Total Onsite Impervious Surface / Total Project Area) x100 = 59 %

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

Impervious Pavement	250
Pervious Pavement (adj. total, with 0 % credit applied)	0
Impervious Sidewalks	130
Pervious Sidewalks (adj. total, with 0 % credit applied)	0
Other (describe)	0
<b>Total Offsite Newly Constructed Impervious Surface</b>	<b>380</b>

13. Total Newly Constructed Impervious Surface

(Total Onsite + Offsite Newly Constructed Impervious Surface) = 24845 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) BMP #	(Type of BMP) BMP #	(Type of BMP) BMP #
Receiving Stream Name	Hewletts Creek	Hewletts Creek	
Receiving Stream Index Number	18-87-26	18-87-26	
Stream Classification	SA; HQW	SA; HQW	
Total Drainage Area (sf)	23554	8364	0
On-Site Drainage Area (sf)	23554	8364	
Off-Site Drainage Area (sf)	0	0	
<b>Total Impervious Area (sf)</b>	<b>16040</b>	<b>7884</b>	<b>0</b>
Buildings/Lots (sf)	0	7500	
Impervious Pavement (sf)	13345	0	
Pervious Pavement, 0 % credit (sf)	0	0	
Impervious Sidewalks (sf)	2695	384	
Pervious Sidewalks, 0 % credit (sf)	0	0	
Other (sf)	0	0	
Future Development (sf)	0	0	
Existing Impervious to remain (sf)	0	0	
Offsite (sf)	0	0	
Percent Impervious Area (%)	68%	94.3%	

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

N/A

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## 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: J. Phillip Norris, P.E.

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

a. Contact information for consultant listed above:

Mailing Address: 1429 Ash-Little River Road

City: Ash State: NC Zip: 28420

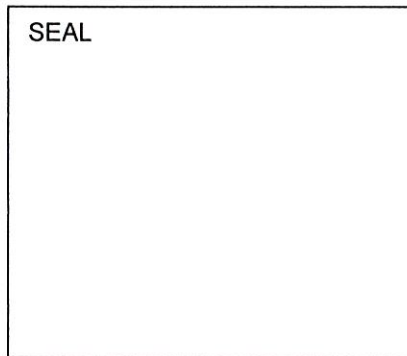
Phone: 910-287-5900 Fax: 910-287-5902 Email: pnorris@ntengineers.com

**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*) SEE AUTHORIZATION LETTER, 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: \_\_\_\_\_

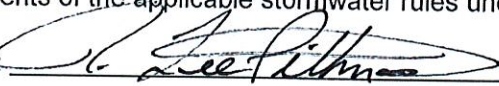


I, \_\_\_\_\_, a Notary Public for the State of \_\_\_\_\_, County of \_\_\_\_\_, do hereby certify that \_\_\_\_\_ personally appeared before me this day of \_\_\_\_\_, \_\_\_\_\_, and acknowledge the due execution of the application for a stormwater permit. Witness my hand and official seal,

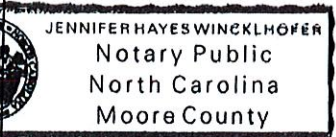
My commission expires: \_\_\_\_\_

**VIII. APPLICANT'S CERTIFICATION**

I, (print or type name of person listed in Contact Information, item 1) , Rudy L. Pittman, Managing Member 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: 4/7/18

SEAL



JENNIFER HAYES WINCKLHOFER  
Notary Public  
North Carolina  
Moore County

I, Jennifer Hayes Winckhofer, a Notary Public for the State of North Carolina, County of Moore, do hereby certify that Rudy L. Pittman personally appeared before me this 7 day of JUNE, 2018, and acknowledge the due execution of the application for a stormwater permit. Witness my hand and official seal,  
Jennifer Hayes Winckhofer  
My commission expires: 04-21-2021

**SUPPLEMENT-EZ FORM COVER PAGE**



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

Quantity	Location(s)
2	1 Infiltration Basin & 1 Infiltration Trench (See Plans)
	Bioretention Cell
	Wet Pond
	Stormwater Wetland
	Permeable Pavement
	Sand Filter
	Rainwater Harvesting
	Green Roof
	Level Spreader-Filter Strip
	Disconnected Impervious Surface
	Treatment Swale
	Dry Pond

NT #11145

**Project Name:**

Dollar General - Wilmington - Pine Grove

**Address**

810 Pine Grove Drive

**City / Town**

Wilmington

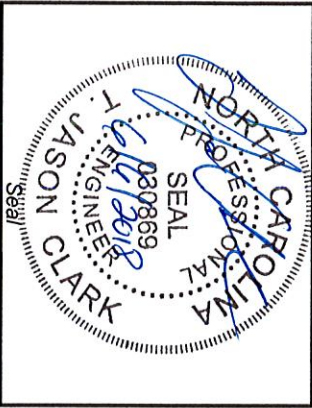
**Designer Information for this project:**

Name and Title:	T. Jason Clark, P.E.
Organization:	Norris & Tunstall Consulting Engineers, P.C.
Street address:	902 Market Street
City, State, Zip:	Wilmington, NC 28401
Phone number(s):	910-343-9653
Email:	jclark@ntengineers.com

**Applicant:**

Company:	Par 5 Development Group, LLC
Contact:	Rudy L. Pitman, Managing Member
Mailing Address:	2075 Juniper Lake Road
City, State, Zip:	West End, NC 27376
Phone number(s):	910-944-0881
Email:	jody@par5development.com

**Designer**



Signature of Designer

Date 6/6/2018

**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.



# INFILTRATION SYSTEMS

NAT #11145

Rev. 11-21-18

Dollar General - Wilmington - Pine Grove

## THE DRAINAGE AREA

Drainage area number	Infiltration Basin #1	Break down of BUA in the drainage area (both new and existing):
Total coastal wetlands area (sq ft)	0 SF	- Parking / driveway (sq ft)
Total surface water area (sq ft)	0 SF	- Sidewalk (sq ft)
Total drainage area (sq ft)	23554 sf	- Roof (sq ft)
BUA associated with existing development (sq ft)	0 SF	- Roadway (sq ft)
Proposed new BUA (sq ft)	16040 sf	- Other, please specify in the comment box below (sq ft)
Percent BUA of drainage area	69%	<b>Total BUA (sq ft)</b>
		16040 sf

## COMPLIANCE WITH THE APPLICABLE STORMWATER PROGRAM

Stormwater program(s) that apply (please specify):	Design rainfall depth (in)	3.83 IN
Coastal Stormwater	Minimum volume required (cu ft)	3267 cf
	Design volume of SCM (cu ft)	4388 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 maintenance 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)?	N/A
#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 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?	Pump (preferred)	#13 Was the SCM designed by an NC licensed professional?	Yes

## INFILTRATION SYSTEM MDC FROM 02H .1051

#1 SHWT elevation (fmsl)	43.57 FT	#5 Length (ft)	~150 FT
#1 Was the soil investigated in the footprint and at the elevation of the infiltration system?	Yes	#5 Width (ft)	~43 FT
#1 Soil infiltration rate (in/hr)	10.3 in/hr	#5 Depth/Height (ft)	1.84 FT
#1 Briefly describe the hydraulic properties and characteristics of the soil profile: Sandy with high infiltration rates.		#5 Surface area of the bottom of the infiltration system (sq feet)	1490 sf
		#5 Ponding depth of the design volume (in)	4.2 IN
		#5 Estimated dewatering time (hours)	2.55 HRS
#2 SHWT elevation (fmsl)	43.57 FT	#5 For trenches only: Perforated pipe diameter, if applicable (inches)	
#2 Bottom of the infiltration system (fmsl)	45.57 FT	#5 For trenches only: Number of laterals	
#2 Is a detailed hydrogeologic study attached if the separation is between 1 and 2 feet?	N/A	#5 For trenches only: Stone type, if applicable	
#3 Proposed slope of the subgrade surface (%)	0%	#5 For trenches only: Stone void ratio (%)	
#3 Are terraces or baffles provided?	No	#5 For trenches only: Is stone free of fines?	
#4 Describe the pretreatment that will be provided:		#5 For trenches only: Is the stone wrapped in geotextile fabric?	
Sheet Flow		#6 Is the infiltration system located underground?	No
		#6 If so, has at least one infiltration port been provided?	N/A

## ADDITIONAL INFORMATION

Please use this space to provide any information about this infiltration system that you think is relevant to the review.  
 \* Minimum volume required is the difference between 1-Yr pre-post runoff volumes.  
 \*\* Design volume is the actual volume provided in the SCM.



# INFILTRATION SYSTEMS

WT #11145

Rev. 11-21-18

Dollar General - Wilmington - Pine Grove

## THE DRAINAGE AREA

Drainage area number	Infiltration Trench #2	Break down of BUA in the drainage area (both new and existing):
Total coastal wetlands area (sq ft)	0 SF	- Parking / driveway (sq ft)
Total surface water area (sq ft)	0 SF	- Sidewalk (sq ft)
Total drainage area (sq ft)	8364 sf	- Roof (sq ft)
BUA associated with existing development (sq ft)	0 SF	- Roadway (sq ft)
Proposed new BUA (sq ft)	7884 sf	- Other, please specify in the comment box below (sq ft)
Percent BUA of drainage area	94.3%	Total BUA (sq ft)

94.3%

## COMPLIANCE WITH THE APPLICABLE STORMWATER PROGRAM

Stormwater program(s) that apply (please specify):	Design rainfall depth (in)	3.83 IN
Coastal Stormwater	Minimum volume required (cu ft)	2265 cf
	Design volume of SCM (cu ft)	2283 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?	Yes	#8 Does the maintenance access comply with General MDC (8)?	Yes
#3 What are the side slopes of the SCM (H:V)?	1:1	#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)?	Yes
#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 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?	Pump (preferred)	#13 Was the SCM designed by an NC licensed professional?	Yes

## INFILTRATION SYSTEM MDC FROM 02H .1051

#1 SHWT elevation (fmsl)	41.25 FT	#5 Length (ft)	75 ft
#1 Was the soil investigated in the footprint and at the elevation of the infiltration system?	Yes	#5 Width (ft)	10.5 FT
#1 Soil infiltration rate (in/hr)	9.1 in/hr	#5 Depth/Height (ft)	4 ft
#1 Briefly describe the hydraulic properties and characteristics of the soil profile: Sandy with high infiltration rates.		#5 Surface area of the bottom of the infiltration system (sq feet)	788 sf
		#5 Ponding depth of the design volume (in)	12.12 IN
		#5 Estimated dewatering time (hours)	3.8 HRS
#2 SHWT elevation (fmsl)	41.25 FT	#5 For trenches only: Perforated pipe diameter, if applicable (inches)	30 in
#2 Bottom of the infiltration system (fmsl)	43.25 FT	#5 For trenches only: Number of laterals	2
#2 Is a detailed hydrogeologic study attached if the separation is between 1 and 2 feet?	NIH	#5 For trenches only: Stone type, if applicable	#57
#3 Proposed slope of the subgrade surface (%)	0%	#5 For trenches only: Stone void ratio (%)	40%
#3 Are terraces or baffles provided?	NO	#5 For trenches only: Is stone free of fines?	Yes
#4 Describe the pretreatment that will be provided:		#5 For trenches only: Is the stone wrapped in geotextile fabric?	Yes
Sump in Yard Inlets		#6 Is the infiltration system located underground?	Yes
		#6 If so, has at least one infiltration port been provided?	Yes

## ADDITIONAL INFORMATION

Please use this space to provide any information about this infiltration system that you think is relevant to the review.

\* Minimum volume required is the difference between 1-Yr pre-post runoff volumes.  
\*\* Design volume is the actual volume provided in the SCM.

Inlet + Outlet Box



## Infiltration Basin Operation and Maintenance Agreement

NJT #19145

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.

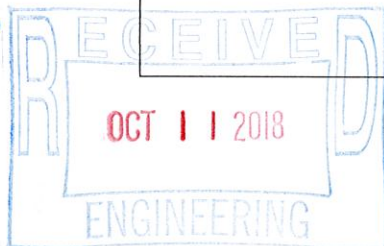
**Important maintenance procedures:**

- 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.



<b>BMP element:</b>	<b>Potential problem:</b>	<b>How I will remediate the problem:</b>
<b>The forebay</b>	Sediment has accumulated and reduced the depth to 75% of the original design 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.
	Erosion has occurred or riprap is displaced.	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 pesticides are used, wipe them on the plants rather than spraying.
<b>The main treatment area</b>	A visible layer of sediment has accumulated.	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. Replace any media that was removed in the process. Revegetate disturbed areas immediately.
	Water is standing more than 5 days after a storm event.	Replace the top few inches of filter media and see if this corrects the standing water problem. If so, revegetate immediately. If not, consult an appropriate professional for a more extensive repair.
	Weeds and noxious plants are growing in the main treatment area.	Remove the plants by hand or by wiping them with pesticide (do not spray).
<b>The embankment</b>	Shrubs or trees have started to grow on the embankment.	Remove shrubs or trees immediately.
	An annual inspection by an appropriate professional shows that the embankment needs repair.	Make all needed repairs.
<b>The outlet device</b>	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.
<b>The receiving water</b>	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: Dollar General - Wilmington - Pine Grove

BMP drainage basin number: 1

Print name: Rudy L. Pittman

Title: Managing Member of Par 5 Development Group, LLC

Address: 2075 Juniper Lake Road West End, NC 27376

Phone: 910-944-0881

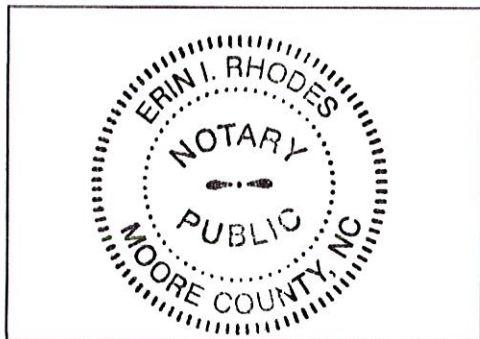
Signature: [Handwritten Signature]

Date: 9-6-18

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, Erin I. Rhodes, a Notary Public for the State of North Carolina, County of Moore, do hereby certify that R. Lee Pittman personally appeared before me this 6 day of September, 2018, and acknowledge the due execution of the forgoing infiltration basin maintenance requirements. Witness my hand and official seal,

Erin I. Rhodes



SEAL

My commission expires 8-22-2022

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

## Infiltration Trench Operation and Maintenance Agreement

N&T #19145

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 of the infiltration trench will be carefully managed to reduce the sediment load to the sand filter.
- The water level in the monitoring wells will be recorded once a month and after every storm event greater than 1.5 inches if in a Coastal County.

The infiltration trench 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 grass filter strip or other pretreatment area	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.
	Sediment has accumulated to a depth of greater than six inches.	Search for the source of the sediment and remedy the problem if possible. Remove the sediment and dispose of it in a location where it will not cause impacts to streams or the BMP.
The flow diversion structure (if applicable)	The structure is clogged.	Unclog the conveyance and dispose of any sediment off-site.
	The structure is damaged.	Make any necessary repairs or replace if damage is too large for repair.



<b>BMP element:</b>	<b>Potential problem:</b>	<b>How I will remediate the problem:</b>
<b>The trench</b>	Water is ponding on the surface for more than 24 hours after a storm.	Remove the accumulated sediment from the infiltration system and dispose in a location that will not impact a stream or the BMP.
	The depth in the trench is reduced to 75% of the original design depth.	Remove the accumulated sediment from the infiltration system and dispose in a location that will not impact a stream or the BMP.
	Grass or other plants are growing on the surface of the trench.	Remove the plants, preferably by hand. If pesticide is used, wipe it on the plants rather than spraying.
<b>The observation well(s)</b>	The water table is within one foot of the bottom of the system for a period of three consecutive months.	Contact the DWQ Stormwater Unit immediately at 919-733-5083.
	The outflow pipe is clogged.	Provide additional erosion protection such as reinforced turf matting or riprap if needed to prevent future erosion problems.
	The outflow pipe is damaged.	Repair or replace the pipe.
<b>The emergency overflow berm</b>	Erosion or other signs of damage have occurred at the outlet.	The emergency overflow berm will be repaired or replaced if beyond repair.
<b>The receiving water</b>	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 City of Wilmington of any problems with the system or prior to any changes to the system or responsible party.

Project name: Dollar General - Wilmington - Pine Grove

BMP drainage basin number: 2

Print name: Rudy L. Pittman

Title: Managing Member of Par 5 Development Group, LLC

Address: 2075 Juniper Lake Road West End, NC 27376

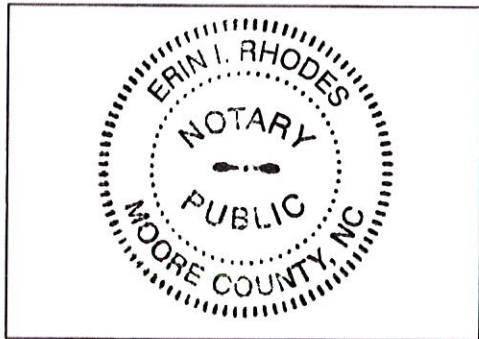
Phone: 910-944-0881

Signature: 

Date: 9-6-18

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, Erin I. Rhodes, a Notary Public for the State of North Carolina county of Moore, do hereby certify that R. Lee Pittman personally appeared before me this 6 day of September, 2018, and acknowledge the due execution of the forgoing infiltration trench maintenance requirements. Witness my hand and official seal, Erin I. Rhodes



SEAL

My commission expires 8-22-2022