



Public Services

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

June 1, 2020

Mr. Matt Scharf, Manager Mosley Park, LLC 1319 Military Cutoff Road, Suite CC, PMB 172 Wilmington, NC 28405

Subject: Stormwater Management Permit No. 2018033R1

Studio 17 Apartments

Drainage Plan

Dear Mr. Scharf:

The City of Wilmington Engineering Division has received a request for a revision to the Stormwater Management Permit for Studio 17 Apartments. Having reviewed the application and all supporting materials, the City of Wilmington has determined that the proposed revision meets the requirements of the City of Wilmington's Comprehensive Stormwater Ordinance.

The revisions include:

- Addition of Pervious Sidewalks
- Addition of a Phasing Plan

Please be aware all terms and conditions of the permit Issued on August 6, 2018 remain in full force and effect. Any additional changes to the approved plans must be approved by this office prior to construction. The issuance of the plan revision does not preclude the permittee from complying with all other applicable statutes, rules, regulations, or ordinances which may have jurisdiction over the proposed activity and obtaining a permit or approval prior to construction.

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

Sincerely,

Richard Christensen

for Sterling Cheatham, City Manager City of Wilmington

cc: Howard Resnik, PE, CSD Engineering

Patrick O'Mahony, Associate Planner, City of Wilmington





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STORMWATER MANAGEMENT PERMIT APPLICATION FORM (Form SWP 2.3)

I.	GENERAL INFORMATION
1.	Project Name (subdivision, facility, or establishment name - should be consistent with project name or plans, specifications, letters, operation and maintenance agreements, etc.): Studio 17 Apartments
2.	Location of Project (street address): 514 S. 17th Street
	City: Wilmington County: New Hanover Zip: 28401
II.	PERMIT INFORMATION
1.	Specify the type of project (check one):
2.	Is the project currently covered (whole or in part) by an existing City or State (NCDEQ/DEMLR) Stormwater Permit? Yes No
	If yes, list all applicable Stormwater Permit Numbers:
	City of Wilmington: 2018033 State – NCDEQ/DEMLR:
3.	Additional Project Permit Requirements (check all applicable): CAMA Major Sedimentation/Erosion Control 404/401 Permit
III.	CONTACT INFORMATION
1.	Print Applicant / Signing Official's name and title (the developer, property owner, lessee, designated government official, individual, etc. who owns the project):
	Applicant / Organization: Mosley Park, LLC
	Signing Official & Title: Matt Scharf, Manager



	a. Contact information for Applicant / Signing		4.70	
	Address: 1319 Military Cutoff Road, Suite C			
	City: Wilmington	_State:	NC	zip:
	Phone: 910-538-9901	_Email:	ma	att@realpropertiesllc.com
	b. Please check the appropriate box. The app	olicant lis	sted a	above is:
	The property owner/Purchaser (Skip to item 3 Lessee (Attach a copy of the lease agreement and Developer (Complete items 2 and 2a below.)		items	2 and 2a below)
2.	Print Property Owner's name and title (if different fr	om the a	pplica	nt).
	Property Owner / Organization:			
	Signing Official & Title:			
	a. Contact information for Property Owner:			
	Street Address:			
	City:			
	Phone:	_Email:	_	
3.	(Optional) Other Contact name and title (such as a on all correspondence:	construc	tion s	upervisor) who would like to be copied
	Other Contact Person / Organization:			
	Signing Official & Title:			
	a. Contact information for person listed in iter			
	Street Address:			
	City:	_State:		Zip:
	Phone:	Email:	_	
4.	Agent Authorization: Complete this section if you wish firm (such as a consulting engineer and /or firm) so that project (such as addressing requests for additional info	they ma		
	Consulting Engineer: Howard Resnik, PE			
	Consulting Firm: CSD Engineering			
	a. Contact information for consultant listed ab	ove:		
	Mailing Address: PO Box 4041			
	City: Wilmington	_State:	NC	Zip: 28406
	Phone: 910-791-4441	— Email:		ward@csd-engineering.com



IV. PROJECT INFORMATION

1.	Total Property Area: 28,125 square feet
2.	Total Coastal Wetlands Area: 0 square feet
3.	Total Surface Water Area: 0square feet
4.	Total Property Area (1) – Total Coastal Wetlands Area (2) – Total Surface Water Area (3) = Total Project Area: 28,125 square feet.
5.	Existing Impervious Surface within Project Area: 11,180 square feet
6.	Existing Impervious Surface to be Removed/Demolished: 5,203square feet
7.	Existing Impervious Surface to Remain: 5,977 square feet

8.	Total Onsite (within property boundary) Newly C	onstructed Impervious Surface (in square feet):

Buildings/Lots	7,241		
Impervious Pavement	1,241		
Pervious Pavement (total area / adjusted area w credit applied)		1	0
Impervious Sidewalks		1,451	
Pervious Sidewalks (total area / adjusted area w credit applied)	1,028	1	0
Other (Describe)			
Future Development		0	
Total Onsite Newly Constructed Impervious Surface		9,933	

9. Total Onsite Impervious Surface
(Existing Impervious Surface to remain + Onsite Newly Constructed Impervious Surface) 15,910 square feet

10. Net Change in Onsite Impervious Surface (+ for net increase, - for net decrease) +4,730 square feet

11. Project percent of impervious area: (Total Onsite Impervious Surface / Total Project Area) x100 = 57 %

12. Total Offsite Newly Constructed Impervious Area (in square feet):

Impervious Pavement	372
Pervious Pavement (total area / adjusted area w credi	t applied) /
Impervious Sidewalks	
Pervious Sidewalks (total area / adjusted area w credi	t applied) /
Other (Describe)	
Total Offsite Newly Constructed Impervious Surface	ce 372



13. Complete the following information for each Stormwater SCM drainage area. Low Density and Drainage Plan projects (with no permeable pavements) may omit this section and skip to Section V.

Basin Information	Type of SCM SCM #	Type of SCM SCM#	Type of SCM SCM #
Receiving Stream Name	Burnt Mill Creek		
Receiving Stream Index Number	18-74-63-2		
Stream Classification	C;Sw		
Total Drainage Area (sf)	1458		
On-Site Drainage Area (sf)	1458		
Off-Site Drainage Area (sf)	0		
Buildings/Lots (sf)	0		
Impervious Pavement (sf)	0		
Pervious Pavement (total / adjusted) (sf)	/ 0	/	1
Impervious Sidewalks (sf)	114		
Pervious Sidewalks (total / adjusted) (sf)	1028 / 0	/	1
Other (sf)			
Future Development (sf)			
Existing Impervious to remain (sf)			
Offsite (sf)			
Total Impervious Area (sf)	114		
Percent Impervious Area (%)	7.8		

Basin Information	Type of SCM SCM#	Type of SCM SCM#	Type of SCM SCM#
Receiving Stream Name			
Receiving Stream Index Number			
Stream Classification			
Total Drainage Area (sf)			
On-Site Drainage Area (sf)			
Off-Site Drainage Area (sf)			
Buildings/Lots (sf)	<u></u>		k
Impervious Pavement (sf)			
Pervious Pavement (total / adjusted) (sf)	/	. /	1
Impervious Sidewalks (sf)			
Pervious Sidewalks (total / adjusted) (sf)	1	/	1
Other (sf)			
Future Development (sf)			
Existing Impervious to remain (sf)			
Offsite (sf)			
Total Impervious Area (sf)			
Percent Impervious Area (%)			



V. SUBMITTAL REQUIREMENTS

Only complete application packages will be accepted and reviewed by the City. A complete package includes all of the items listed below. Copies of forms, deed restrictions, checklists as well as detailed instructions on how to complete this application form may be downloaded from the City of Wilmington Plan Review website below:

https://www.wilmingtonnc.gov/departments/engineering/plan-review/stormwater-permits

The complete application package should be submitted to the following address:

City of Wilmington – Engineering Plan Review Section 212 Operations Center Dr. Wilmington, NC 28412

Please indicate that the following required information have been provided by initialing in the space provided for each item.

		Hillais
1.	One completed Stormwater Management Permit Application Form.	M3
2.	One completed Supplement Form for each SCM proposed (signed, sealed and dated).	M3
3.	One completed Operation & Maintenance agreement for each type of SCM.	MS
4.	Proposed Deed Restrictions and Restrictive Covenants (for all subdivisions)	N/A
5.	Appropriate stormwater permit review fee.	LOR DELIVER
6.	Minimum requirements identified on the Engineering Plan Review Checklist have been addressed.	M3
7.	One set of calculations (sealed. signed and dated).	_M3
8.	A detailed narrative (one to two pages) describing the stormwater treatment/management system for the project.	_M3
9.	A USGS map identifying the site location. If the receiving stream is reported as class SA or the receiving stream drains to class SA waters within $\frac{1}{2}$ mile of the site boundary, include the $\frac{1}{2}$ mile radius on the map.	M3
10.	A copy of the soils report, if applicable. Must meet NCDEQ SCM Manual and MDC requirements for the type of SCM proposed. The report must include boring logs and a map of boring locations.	_M3
11.	One full set of plans folded to 8.5" x 14".	M3
12.	A map delineating and labeling the drainage area for each SCM proposed.	M3
13.	A map delineating and labeling the drainage area for each inlet and conveyance proposed.	NIA
14.	A digital copy of the entire submittal package (can be submitted via flash drive, CD, email, dropbox or other file sharing system).	m3



	ORIZATION (If Section III(2) has been filled out, complete this section)
thus give permission to	
to develop the project as currently p	roposed. A copy of the lease agreement or pending property sales contract al, which indicates the party responsible for the operation and maintenance of
agentagreement, or pending sale, respondance to me, the property owner. As immediately and submit a complete a stormwater treatment facility without a stormwater treatment facility without stormwater treatment stormwater stor	wledge, understand, and agree by my signature below, that if my designated dissolves their company and/or cancels or defaults on their lease sibility for compliance with the City of Wilmington Stormwater Permit reverts the property owner, it is my responsibility to notify the City of Wilmington di Name/Ownership Change Form within 30 days; otherwise I will be operating but a valid permit. I understand that the operation of a stormwater treatment lation of the City of Wilmington Municipal Code of Ordinances and may result a the assessment of civil penalties. Date:
SEAL Notary Public New Hanover County County A CAROLIMITATION	I, Matthew C Maready, a Notary Public for the State of North Carolina, County of New Hanger, do hereby certify that School personally appeared before me this day of 19th, 2020 and acknowledge the due execution of the application for a stormwater permit. Witness my hand and official seal,
approved plans, that the required de	certify that the information included on this permit application correct and that the project will be constructed in conformance with the sed restrictions and protective covenants will be recorded, and that the requirements of the applicable rules under the City's Comprehensive
Stormwater Ordinance.	equirements of the applicable files under the City's Complehensive
Signature:	Date:
SEAL	I,, a Notary Public for the State of, County of, do hereby certify that personally appeared before me this day of, and acknowledge the due execution of the application for a stormwater
	permit. Witness my hand and official seal, My commission expires:

SUPPLEMENT-EZ COVER PAGE

EORMS LOADED

Project Name	Studio 17
Project Area (ac)	0.65
3 Coastal Wetland Area (ac)	0
4 Surface Water Area (ac)	0
5 Is this project High or Low Density?	High
6 Does this project use an off-site SCM?	No

COM	PLIANCE WITH 02H .1003(4)	
7_	Width of vegetated setbacks provided (feet)	0
8	Will the vegetated setback remain vegetated?	
9	Is BUA other that as listed in: 1003(4)(c-d) out of the setback?	
10	Is streambank stabilization proposed on this project?	No

NUME	ER AND TYPE OF SCMs:	
11	Infiltration System	0
12	Bioretention Cell	0
13	Wet Pond	0
14	Stormwater Wetland	0
15	Permeable Pavement	1
16	Sand Filter	0
17	Rainwater Harvesting (RWH)	0
18	Green Roof	0
19	Level Spreader-Filter Strip (LS-FS)	0
20	Disconnected Impervious Surface (DIS)	0
21	Treatment Swale	0
22	Dry Pond	0
23	StormFilter	0
24	Silva Cell	0
25	Bayfilter	0
26	Filterra	0

FORMS LOADED

DESIGNER CERTIFICATION		
27 Name and Title	Howard Resnik, PE	
28 Organization:	CSD Engineering	
29 Street address	PO BOX 4041	
30 City, State, Zip:	Wilmington, NC 28406	
31 Phone number(s)	910-791-4441	
32 Email	howard@csd-engineering.com	

Certification Statement:

I certify, under penalty of law that this Supplement-EZ form and all supporting information were prepared under my direction or supervision; that the information provided in the form is, to the best of my knowledge and belief, true, accurate, and complete; and that the engineering plans, specifications, operation and maintenance agreements and other supporting information are consistent with the information provided here.

Designer	
WY CAR	11111
III PIESO	
5.00000	
SEAL 7	Signature of Designer
025483	
= 5 NGINEER IN	
ARD C RES	= 1-0/-
Minimi	5/28/20
Seal	Date

DRAINAGE AREAS

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

FORMS LOADED

RAI	NAGE AREA INFORMATION	Entire Site	1
4	Type of SCM		Pervious Pave
5	Total BUA in project (sq ft)	15910 sf	114 sf
	New BUA on subdivided lots (subject to		
6	permitting) (sq ft)		114 sf
	New BUA outside of subdivided lots (subject to		A CONTRACTOR
7	permitting) (sf)		sf
8	Offsite - total area (sq ft)		
9	Offsite BUA (sq ft)		
10	Breakdown of new BUA outside subdivided lots:		
	- Parking (sq ft)	1241 sf	sf
	- Sidewalk (sq ft)	1451 sf	sf
	- Roof (sq ft)	7241 sf	sf
	- Roadway (sq ft)		sf
	- Future (sq ft)		Sf
	- Other, please specify in the comment box		
	below (sq ft)		
	New infiltrating permeable pavement on		
11	subdivided fots (sq ft)		1028 sf
	New infiltrating permeable pavement outside of		
12	subdivided lots (sq ft)		
•	Exisitng BUA that will remain (not subject to		
13	permitting) (sq ft)	5977 sf	327
14	Existing BUA that is already permitted (sq ft)		
15	Existing BUA that will be removed (sq ft)		
16	Percent BUA		8%
17	Design storm (inches)		1.5 in
18	Design volume of SCM (cu ft)		173 cf
19	Calculation method for design volume		Simple

ADDITIONAL INFORMATION

Please use this space to provide any additional information about the drainage area(s):

PERMEABLE PAVEMENT

2 [Drainage area number	1
	Design volume of SCM (cu ft)	173 cf
	Area of permeable pavement to be installed (square feet)	1028 sf
	Area of screened roof runoff that is directed to pavement (square feet)	
	Area of additional built-upon area runoff that is directed to pavement (square	year.
	(eet)	114 sf
	Area of incidental, unavoidable runoff from adjacent stable pervious areas	275
	(square feet)	316 sf
	AL MDC FROM 02H .1050	
	s the SCM sized to treat the SW from all surfaces at build-out?	¥66
	s the SCM located away from contaminated soils?	Yes
	What are the side slopes of the SCM (H:V)?	
	Does the SCM have retaining walls, gabion walls or other engineered side	
1_	slopes?	No
	Are the inlets, outlets, and receiving stream protected from erosion (10-year	
	storm)?	¥es
	s there an overflow or bypass for inflow volume in excess of the design volume?	Ma
		No
	What is the method for dewatering the SCM for maintenance?	Other
	If applicable, will the SCM be cleaned out after construction?	Yes
	Does the maintenance access comply with General MDC (8)?	Yes
	Does the drainage easement comply with General MDC (9)?	
	If the SCM is on a single family lot, does (will?) the plat comply with General	
	MDC (10)?	Van
	s there an O&M Agreement that complies with General MDC (11)?	Yes
	s there an O&M Plan that complies with General MDC (12)?	Yes
	Does the SCM follow the device specific MDC?	Yes Yes
	Was the SCM designed by an NC licensed professional?	Yes
AVAI M	ABLE PAVEMENT MDC FROM 02H .1055	
	s this a detention or infiltration permeable pavement system?	Infiltration
	Proposed slope of the subgrade surface (%)	>=2%
	Are terraces or baffles provided?	A40
	SHWT elevation (fmsl)	20.00
	Storage elevation of the design rainfall depth (fmsl)	Yes
	Will toxic pollutants be stored or handled on or near the permeable	2000
	pavement?	No
24 [Does the proposed pavement surface comply with 1055(6)?	Yes
	Will runoff from pervious surfaces be directed away from the pavement?	Yes
	Maximum adjacent area directed to a single point onto the permeable	
26 P	pavement (sq ft)	
.		
	s at least one observation well per terrace been provided at the low point(s)?	
	Have edge restraints been provided?	No
	Will the subgrade be graded when dry?	Yes
- 1	Will the permeable pavement be protected from sediment during	7/25
	construction?	Yes
31 V	Will an in-situ permeability test be conducted after site stabilization?	Yes
	litrating Pavement Systems	V
	Was the soil investigated in the footprint and at the elevation of the	1 5 5 5
	subgrade?	Yes
	Soil infiltration rate (in/hr)	.30 in/hr
	s a detailed hydrogeologic study attached if the separation is between 1 and	
- 1	2 feet?	Yes
	s additional media being added to the soil profile?	Yes
	Proposed slope of the subgrade surface (%)	0%
	rop of the subgrade (bottom of the aggregate) (fmsl)	21
	Dewatering time (hours)	10 hrs
	stention Pavement Systems	
39 [Drawdown time (hours)	1
ggreç	gate	
40 A	Aggregate depth (in)	5 in
44 4	Aggregate porosity (n)	0.4
	Size of aggregate to be used in the subbase	57
42 5	Will the aggregate be washed?	Yes
42 5	IONAL INFORMATION	
42 S		
42 5 43 V DDITI	Please use this snace to provide any additional information about the	
42 5 43 V DDITI	Please use this space to provide any additional information about the	
42 5 43 V DDITI	Please use this space to provide any additional information about the permeable pavement system(s):	
42 S 43 V DDITI		
42 5 43 V DDITI		
42 5 43 V DDITI		
2 5 3 V DDITI		

Permeable Pavement 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:

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

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

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

Orainage Area / Lot Number:

The pavement does not
dewater between storms,
or water is running off.

Vacuum sweep the pavement. If the pavement still does not dewater, consult a professional.

The permeable pavement will be inspected once a quarter and within 24 hours after every storm event greater than 1.5 inches. Records of operation and maintenance will be kept in a known set location and will be available upon request.

Inspection activities shall be performed as follows. Any problems that are found shall be repaired immediately.

BMP element:	Potential problem:	How to remediate the problem:
The perimeter of the permeable pavement	Areas of bare soil and/or erosive gullies have formed.	Regrade the soil if necessary to remove the gully, and then plant a ground cover and water until it is established. Provide lime and a one-time fertilizer application.
	Vegetation is too short or too long.	Maintain vegetation at a height of 3 to 6 inches (remove clippings).
The surface of the permeable pavement	Trash/debris is present.	Remove the trash/debris.
	Weeds are growing on the surface of the permeable pavement.	Do not pull the weeds (may pull out media as well). Spray them with pesticide.
	Sediment is present on the surface.	Vacuum sweep the pavement.
	The structure is deteriorating or damaged.	Consult an appropriate professional. Damaged areas of the pavement shall be removed and repaired.
	The pavement does not dewater between storms.	Vacuum sweep the pavement. If the pavement still does not dewater, consult a professional. Permanently clogged pavement shall be removed and repaired.

Permit Number:	
(to be provid	led 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: Studio 17
BMP drainage area or lot number:
Print name:Matt Scharf
Title:Manager
Address: 1319 Military Cutoff Road, Sutie CC, PMB 172
Phone: 910-538-9901 Signature: 3/19/20
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, Joseph Ja Notary Public for the State of
North Carolina, County of New Hans , do hereby certify that
Mutt Sche personally appeared before me this 14°4
day of March, Z70, and acknowledge the due execution of the
forgoing permeable pavement maintenance requirements. Witness my hand and official
seal,
SEAL
TYLER SCHULZE Notary Public-North Carolina OUNTY OF NEW HANOVER Commission Expires of Marin

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

My commission expires 05/35/2024