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Introduction

As part of the implementation of the Clean Water Act, enacted by the US Congress in 1972, the Town of Pittsboro is required by the State of North Carolina Department of Environmental and Natural Resources (DENR) and the US Environmental Protection Agency (EPA) to administer a stormwater management program that facilitates compliance with the regulatory requirements related to stormwater discharges from Municipal Separate Storm Sewer Systems (MS4s). In 2009, North Carolina adopted the Jordan Lake Nutrient Management Strategy in response to EPA requirements to address concerns about water quality in Jordan Lake related to an excess of nitrogen and phosphorus. The Town adopted “The Stormwater Management Ordinance for New Development and Redevelopment in the Jordan Lake Watershed” on November 12, 2013, which limits the allowable peak storm flows and discharges of sediment, nitrogen and phosphorus from new development and redevelopment sites in the Town’s jurisdiction. The purpose of this manual is to provide guidelines for permit applicants to follow in order to comply with the ordinance.

In summary, the ordinance requires that runoff volumes estimated to be generated from a newly developed or redeveloped site in the one-year, 24-hour storm be controlled such that set peak flow rates, sediment loads, and nutrient loads are not exceeded. The post-development peak flow discharge rate must not exceed the pre-development peak flow rate for the site. The Total Suspended Solids (TSS) in the runoff from the developed project site must be reduced by 85% before being discharged offsite. For new development projects, annual loads of nitrogen and phosphorus projected to be discharged from the site must not exceed 3.8 and 1.43 pounds per acre, respectively. Redevelopment projects which result in an increase in built-upon area must either meet the same standards for discharges of nitrogen and phosphorus, or must achieve an 8% nitrogen reduction and 5% phosphorus reduction relative to the existing site. The ordinance also includes provisions to assure long-term performance of the stormwater control measures.

The *Design Manual* referenced in the ordinance is the North Carolina Stormwater Best Management Practices Manual, published by the North Carolina Department of Environment and Natural Resources (DENR), available at the following website, and hereinafter referenced as the NC Stormwater BMP Manual:

<http://portal.ncdenr.org/web/lr/bmp-manual>

Overview of Permitting Process

In order to comply with the Town’s Stormwater Management Ordinance for New Development and Redevelopment in the Jordan Lake Watershed, a *Stormwater Discharge Permit* must be obtained from the Town of Pittsboro Stormwater Administrator before

commencing construction. The applicant also has the option of requesting a concept plan and consultation meeting with the Stormwater Administrator prior to the site engineering design to discuss options and requirements for appropriate stormwater management for the site. Upon project completion and prior to the Town's issuance of a Certificate of Occupancy, the applicant is required to certify that the project has been constructed in accordance with the approved stormwater management plans and designs and submit "as-built" to the Town. The Stormwater Administrator will then conduct a final inspection. After the completed project has been approved by the Stormwater Administrator, any performance securities which may have been required by the Town to assure installation of the stormwater control measures can then be released.

Appendix A includes a flowchart which provides a detailed overview of the permitting process for stormwater management measures associated with new development or redevelopment.

Concept Plan Meeting/Consultation

Prior to preliminary engineering design, the site designer may request a concept plan consultation with the Stormwater Administrator. In preparation, the designer must develop a written and/or graphic concept plan for the project with consideration of the following guidelines and issues related to stormwater management:

1. Use appropriate site design approaches, as described in Chapter 4 of the NC Stormwater BMP Manual, to develop the site layout, including:
 - The natural resources inventory as described in the ordinance.
 - Fitting the development to the terrain and minimizing land disturbance.
 - Reducing impervious surface area through various techniques.
 - Preserving and utilizing the natural drainage system wherever possible.
2. Develop a preliminary layout for a stormwater management system for the site, with the goal of mimicking to the extent practicable the pre-development hydrologic conditions.
3. Calculate preliminary estimates for appropriate sizing of drainage elements with regard to water quality, channel protection, overbank flooding protection and extreme flood protection based on the concept plan site layout.
4. Perform screening and preliminary selection of appropriate structural stormwater controls and identification of potential locations.

In order to best facilitate useful discussion and comments from Town staff in regard to the proposed project, it is recommended that the stormwater concept plan should include the following elements. However, these are not requirements, and a concept plan meeting can be conducted before preliminary layouts for proposed project elements have been completed.

- Existing and proposed topography (minimum of two-foot contours recommended).
- Locations of perennial and intermittent streams.
- Delineations of FEMA special flood hazard areas and, if applicable, floodway or non-encroachment area limits.
- Locations, boundaries, and buffers of other natural feature protection and conservation areas such as wetlands, lakes, ponds, floodplains, and riparian buffers. Note any other existing or proposed setbacks.
- Delineation of on-site and off-site drainage areas including number of acres.
- Relationships of flow paths and drainage patterns to adjacent properties.
- Mapping of predominant soils from Chatham County Soil Survey.
- Characterization of existing predominant vegetation.
- Proposed limits and size (acreage) of disturbance.
- Locations of existing and proposed roads, buildings, parking areas and all other impervious surfaces.
- Existing and proposed utilities (e.g., water, sewer, gas, electric) and easements to the extent this has been determined.
- Preliminary estimates of stormwater sizing criteria requirements.
- Preliminary selection and location, size, and limits of disturbance of proposed structural stormwater controls and/or low-impact design elements.
- Location of existing and proposed stormwater conveyance systems such as grass channels, swales, level spreaders, and storm drains.
- Preliminary location and dimensions of any proposed stream channel modifications or impacts, such as bridge or culvert crossings.

Application for *Stormwater Discharge Permit*

All projects within Pittsboro's Town limits or extra-territorial jurisdiction (ETJ) are required to have a *Stormwater Discharge Permit* unless the project (1) is single-family or duplex residential or recreational and cumulatively disturbs less than one acre OR (2) is commercial, industrial, institutional, multi-family residential or local government and disturbs less than one-half acre. A small area of Pittsboro's ETJ is outside of the Jordan Lake watershed (see map in Appendix B) and development in that area may be exempt from some of the ordinance requirements. Applicants for projects within that area should consult with the Stormwater Administrator regarding project requirements. A copy of the form for Application for *Stormwater Discharge Permit* is included as Appendix C. The checklist provided in Appendix D should also be included with the application. The application review fee (see Fee Schedule below) must be submitted with the initial application submittal. *Stormwater Discharge Permit* applications will follow the same timeline and schedule as the Town's site plan approval process.

Fee Schedule

Type of Fee	Unit Cost
Stormwater Discharge Application Review Fee	\$225/acre of site (\$450 minimum)
Stormwater Discharge Permit Fee	\$225/acre of site
BMP Facility Fee	\$50 per BMP facility for O&M and annual inspection administrative costs

Development of Site Plans and Stormwater Report

The stormwater management permit application shall detail in a brief and concise narrative how post-development stormwater runoff will be controlled and managed and how the proposed project will meet the requirements of the Town of Pittsboro Stormwater Management Ordinance. The stormwater management plan, inclusive of a site plan with supporting documentation and all calculations, must be prepared by a qualified, registered North Carolina professional engineer or landscape architect, hereinafter referred to as the “site designer”. The site designer should only work within his or her areas of competence to be considered as “qualified” and should follow the guidelines and requirements in the NC Stormwater BMP Manual. The applicable NC DENR stormwater management BMP supplement forms must be submitted for each BMP specified for this project. The latest versions of the forms are available from the following website:

<http://portal.ncdenr.org/web/lr/bmp-manual>

Calculations of estimated discharges for nitrogen and phosphorus from the site should be made utilizing the Jordan Falls Stormwater Load Accounting Tool, which can be downloaded from the following DENR website:

<http://portal.ncdenr.org/web/jordanlake/implementation-guidance-archive>

Use of this tool requires the designer to prepare a thorough land use analysis for the drainage basin routed to each of the onsite BMPs, for both pre-project and post-project conditions. Site designers who incorporate green infrastructure and Low Impact Development (LID) practices to meet the Town’s ordinance requirements can opt instead to utilize the Storm EZ spreadsheet tool development by DENR, which can be downloaded from this website:

<http://portal.ncdenr.org/web/lr/low-impact-development>

The primary intent of the Town of Pittsboro Stormwater Management Ordinance is to limit nitrogen exports from a development or redevelopment site to 3.8 pounds per acre per year to the maximum extent practicable. This may be achieved by incorporating innovative structural stormwater control measures, incorporating low impact development principles and practices and by non-structural means, such as limiting impervious surface to the minimum extent practicable. Chapter 4 of the NC Stormwater BMP Manual, *Selecting the Right BMP*, contains design guidelines that must be followed by the applicant. For projects where the applicant has concluded it is not feasible to meet the nutrient discharge limits, the Stormwater Report must include a descriptive narrative and evidence, supporting this position, deemed acceptable by the Stormwater Administrator. If the resulting nitrogen loading from the proposed project requires a partial off-set payment, Section 305, Partial Off-set of Nutrient Control Requirements (of the Town's the Stormwater Management Ordinance) shall be utilized for this purpose. Under this section, a private mitigation bank (if available in the Haw River watershed) is required to be used as a first measure. If not available, the applicant can mitigate using the NC Ecological Enhancement Program (EEP).

Operation and Maintenance Manual and Agreement

A *Declaration of Maintenance Covenant and Grant of Protection Easements for Stormwater Control Facilities* is required for all BMPs. The purpose of this legal agreement is to ensure that each BMP receives adequate maintenance so that it can satisfactorily perform its pollutant removal function. The agreement also designates the responsible party who shall be in charge of maintaining the BMP. An addendum for each type of BMP shall be attached to the Declaration of Maintenance Covenant and Grant of Protection Easements when it is submitted for approval. The standard format Declaration of Maintenance Covenant and Grant of Protection Easements and Addenda shall be furnished by the Town.

The Town's *Declaration* references a "Stormwater Operations Maintenance Manual and Budget", which should include maintenance procedures and plans for each proposed stormwater control facility and must be reviewed and approved by the Stormwater Administrator as part of the *Stormwater Discharge Permit* application. The NC Stormwater BMP Manual includes O&M guidelines for stormwater control facilities (BMPs). Sample O&M plans for each type of BMP are included in an appendix of the NC Stormwater BMP Manual, and can be used as templates.

Notes on Final Plat

The notes herein are related to stormwater management and the Stormwater Ordinance and are not intended to be in conflict with any other requirements for final plats. The following shall appear on all final plats with and shall be recorded with the Chatham County Register of Deeds:

1. The following language shall appear on the final plat regarding BMP maintenance:
"This property contains water quality features that must be maintained according to the Declaration of Maintenance Covenant and Grant of Protection Easements for Stormwater Control Facilities recorded in Deed Book _____ and Page _____."

2. The following language shall appear on the final plat regarding the access easement from the BMP(s) to a public right of way: “The Access Easement shown is for the purpose of granting access to the Town to carry out all provisions of the Town’s Stormwater Ordinance, including but not limited to inspections of the stormwater BMP device(s).”
3. The area of the access easement shall be shown on the final plat.
4. Structural BMP(s) shall be clearly identified with an identification name and number on the final plat.

Access Easement on Final Plat

The access easement shown on the final plat shall encompass the structural BMP(s) and shall be of sufficient width to allow access for heavy equipment to enter the site and work around the perimeter of the structural BMP(s). A minimum width of twenty-five feet in width shall be provided for the access easement to the structural BMP(s). A minimum additional width of twenty-five feet around the outside perimeter of the structural BMP(s), measured from the top of the bank or the toe of the slope, shall be provided as a part of the access easement unless otherwise approved by the Town.

Purpose of Security

The Town may require the submittal of a performance security to ensure that the construction of the site BMP(s) are in accordance with the design drawings approved by the Stormwater Administrator. A maintenance security may be required to ensure that, in accordance with the Operation and Maintenance Agreement, the owner takes the required actions to inspect, maintain, repair, and if necessary reconstruct the BMP(s) so that adequate performance is achieved.

Security Submittals and Amounts

The installation and maintenance securities may be in the form of a surety bond, irrevocable letter of credit, certified check, or other form of surety approved by the Stormwater Administrator. The construction performance security must be submitted before onsite construction begins. The amount of the construction performance security will be 125% of the total estimated construction cost for the complete installation of the BMP(s). The amount of the construction performance security must be approved by the Stormwater Administrator.

The maintenance security must be submitted and approved before a certificate of occupancy can be issued. The amount of the maintenance security shall be based upon a reasonable estimate of the annual cost of inspection, operation and maintenance of the BMP(s) approved under the stormwater management permit in accordance with Section 404(B)(2) of the Stormwater Ordinance.

Release of Construction Performance Security

The Town shall perform an onsite inspection to determine if the BMPs have been constructed in accordance with the approved drawings and the requirements of the Stormwater Ordinance. The construction performance security shall not be released until after the Town's receipt and acceptance of the Certified As-Built Drawings, Certification of Completion, Record of Construction, and the Maintenance Security.

Maintenance Escrow Agreement (if applicable)

For all structural BMPs that are to be or are owned and maintained by an owners' association, the Town requires the establishment of an escrow account for the long term maintenance of the BMP(s) which can be spent solely for sediment removal, structural, biological or vegetative replacement, major repair, or reconstruction of the structural BMPs. For those developments the Homeowner's / Property Owner's Association Covenants, Conditions and Restrictions and Articles of Incorporation shall be reviewed and approved by the Stormwater Administrator prior to recordation of a plat.

Application Review and Approval

After the Stormwater Administrator has acknowledged receipt of a complete *Stormwater Discharge Permit* Application, the submittal will be reviewed within 30 days. The applicant will either receive a notice that the plans are approved or comments noting deficiencies of the application. If comments are received, the applicant has 60 days to respond with a revised application, after which the revised package will be reviewed by the Stormwater Administrator within 15 days.

After the Stormwater Administrator has approved the site plan and supporting documentation, a letter of approval will be issued, listing applicable conditions which must be met before the *Stormwater Discharge Permit* can be issued. These conditions may typically include the following:

- Payment of the *Stormwater Discharge Permit* Fee and BMP Facility Fees (see Fee Schedule above)
- Town of Pittsboro Maintenance Covenant executed
- Signed and notarized copy of Stormwater Operations Maintenance Manual and Budget
- Posting of performance security (if required)
- Copies of other required permits submitted to the Town, such as evidence of a Sediment and Erosion Control Permit from Chatham County, NCDOT Encroachment Agreement, and Riparian Buffer Authorization.

Post-Project Procedures

After completion of project construction, the permit applicant is required to provide to the Stormwater Administrator as-built drawings of structural stormwater control measures (BMPs) and certification by the site designer that the project was constructed in compliance with the approved Stormwater Management Plan (see Appendix F). Additionally, final plats showing designated easements, along with the Declaration of Maintenance Covenant and Grant of Protection Easements, must be recorded with the Chatham County Register of Deeds and copies provided to the Stormwater Administrator within 14 days of recordation. Upon completion of a final inspection and approval, the Stormwater Administrator will then authorize release of the performance security applicable to the BMP installation costs, minus the portion attributable to landscaping, which must be retained for one year after project completion in order to assure appropriate vegetation per the Stormwater Management Plan. No Certificates of Occupancy will be issued until as-built drawings have been submitted and the final inspection has been conducted by the Stormwater Administrator.

The site owner must submit an annual report of BMP inspection and maintenance to the Town's Stormwater Administrator, prepared by one of the following persons performing services only in their area of competence: a qualified registered North Carolina professional engineer, surveyor, landscape architect, soil scientist, aquatic biologist, or person certified by the North Carolina Cooperative Extension Service for stormwater treatment practice maintenance and inspection. A template for annual certification of BMP inspection and maintenance is provided in Appendix G.

BMP inspection, maintenance and repair records are to be maintained and kept for at least five years from the date of creation and made available to the Town of Pittsboro Stormwater Administrator upon request.

APPENDIX A

**Flowchart of Permitting Process for
*Stormwater Discharge Permit***

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APPENDIX B

Map of Stormwater Program Jurisdictional Boundaries

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APPENDIX C

Application Form for *Stormwater Discharge Permit*

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APPENDIX D

Checklist for *Stormwater Discharge Permit* Application Submittals

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APPENDIX E

Town of Pittsboro

**Declaration of Maintenance Covenant and Grant of Protection
Easements for Stormwater Control Facilities**

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APPENDIX F

Application Form for Stormwater BMP As-Built Acceptance

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APPENDIX G

Form for Annual Certification of BMP Inspection and Maintenance

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