



**TOWN OF CARRBORO  
STORMWATER ADVISORY COMMISSION**

**AGENDA**

November 14th, 2019; 6:30 pm  
Town Hall Room 109

<b><u>Time</u></b>	<b><u>Item</u></b>	<b><u>Presenter</u></b>
6:30 pm	Administrative matters <ul style="list-style-type: none"><li>• Adjustments to agenda; approval of Oct. minutes</li><li>• Meet SWAC applicant</li></ul>	Chair
6:45 pm	Water quality regulatory requirements and planned NPDES permit audit	Staff
7:30 pm	Other stormwater program updates	Staff
7:45 pm	Announcements and adjourn	Chair



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## TOWN OF CARRBORO STORMWATER ADVISORY COMMISSION – SUMMARY

Meeting on October 10, 2019, 6:30 pm, Town Hall Room 100

Board Members		Guests	Staff
John Cox (vice-chair) (absent)	Tom Hoban (absent)	Barbara Stenross	Randy Dodd
Robert Dickson	Jeanette O'Connor (chair)		
Randee Haven O'Donnell (Board Liaison) (absent)	Michael Paul		

### **Administrative Matters**

The September 12, 2019 meeting minutes were approved. The SWAC received a brief staff update of stormwater program activities.

### **Lloyd Property CUP Review**

The SWAC provided review comments that:

- Requested the inclusion of green infrastructure (GI) and Low Impact Development (LID) practices.
- Recognized that the applicant is addressing the 50- and 100-year storm events, but also recommended that the applicant consider climate change in selecting the flows for the design storms by using precipitation intensity, frequency, and duration curves for storms based on future climate projections instead of NOAA Atlas 14 curves.
- Requested that the landscaping design better maximize the ecosystem services that can be provided in and adjacent to Stormwater Control Measures.

### **Adjourn**

The meeting was adjourned at 8:05 pm.



# TOWN OF CARRBORO

NORTH CAROLINA

**TRANSMITTAL                      PLANNING DEPARTMENT**

**DELIVERED VIA:**  *HAND*  *MAIL*  *FAX*  *EMAIL*

**To:**                      **Stormwater Advisory Commission**  
**From:**                 **Randy Dodd, Stormwater Utility Manager**  
**Cc:**                     **Heather Holley, Stormwater Specialist**  
**Date:**                 **November 7, 2019**  
**Subject:**             **Carrboro's Water Quality Regulatory Requirements**

## **Background and Summary**

The purpose of this agenda item is to inform the SWAC of the Town's surface water regulatory requirements, and to specifically present plans for an audit of the Town's (EPA) stormwater permit. Addressing permit compliance is anticipated as a major activity in the coming months.

## **Information**

### **Who regulates the Town and how?**

The Town has two stormwater permits, and also is responsible for water quality improvements because of impairments to Bolin Creek and Jordan Lake, and is subject to other federal regulations. Regulatory requirements are summarized in Table 1, with selected water quality requirements expanded on.

**NPDES Permit.** In 1990, under the authority of the federal Clean Water Act and starting with large (population >100k) municipalities (and industries), EPA began regulating stormwater runoff. In 2000, the scope was extended to smaller municipalities, and EPA delegated the authority to the State to issue these municipalities (including Carrboro) a National Pollution Discharge Elimination System (NPDES) permit, through the NC Department of Environmental Quality (NCDEQ) <sup>1</sup>. The initial Carrboro permit was issued effective July 1, 2005, and required the Town to develop and implement a comprehensive stormwater management program that includes six minimum measures:

- (1) Public education and outreach on stormwater impacts
- (2) Public involvement/participation
- (3) Illicit discharge detection and elimination
- (4) Construction site stormwater runoff control (delegated to Orange County)
- (5) Post-construction stormwater management for new development and redevelopment, and
- (6) Pollution prevention/good housekeeping for municipal operations.

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<sup>1</sup> <https://deq.nc.gov/about/divisions/energy-mineral-and-land-resources/stormwater/stormwater-program/npdes-ms4-permitting>

**Table 1: Summary of Surface Water Regulations Applicable to the Town**

Regulation/ Initiative	Description	Town Response
NPDES Permits	Includes public participation and outreach; illicit discharge; good housekeeping and pollution prevention for Town owned property/infrastructure; and post construction stormwater control. Post construction program is implemented through LUO, which includes stormwater management requirements for water quality and peak flow for many years.	Town has delegated erosion control implementation to Orange County; state regulations apply. The Town has a separate permit (“Vehicle Maintenance Area”) for the Public Works facility.
Jordan Lake Rules	Rules adopted in 2009 established requirements for existing and new development, buffers, and nutrient management. Implementation of the Rules has been legislatively delayed. It is anticipated that the Rules will be reviewed within about a year as a major study is completed.	Town has implemented buffer provisions (for new development) that provide some geomorphic protection. Buffers serve as proxies for non-regulated flood prone areas for smaller tributary streams. Nutrient management requirements were established in Town Code. Staff experience has been that requirements for nitrogen and phosphorus removal for new development does not offer protection beyond other LUO provisions; they do trigger offset payments.
Bolin Creek Watershed Restoration	Since 2006, with Chapel Hill as partner, Town has worked to improve stream geomorphology and water quality. Relevant activities are also covered in regulatory programs-main added emphasis is on retrofits and restoration.	Town has pursued grants that have included several stream repair and stormwater retrofit projects.
National Flood Insurance Program	Insures that new structures are not located in regulated flood zones; provides relief for affected property	Town joined program in 1976 and established floodplain regulations soon after. Ongoing work with Army Corps of Engineers and NC Floodplain Mapping Program to extend reach by mapping floodplains and establishing regulatory flood zones further upstream than minimums required.
Section 401/404 of Federal Clean Water Act	Protects jurisdictional streams from damage via grading, piping, etc.	This is implemented by Army Corps and NCDWR. Town coordinates to obtain copies of permits and determine applicable requirements.

As part of the town wide NPDES permit, the Town is required to follow a Stormwater Management Plan<sup>2</sup> that describes how the Town intends to fulfill the permit requirements. The permit was renewed in 2011, and again in 2017. The Public Works facility has a separate NPDES stormwater permit that applies only to that site. NCDEQ announced in early 2019 that all “Phase II” communities (<100k people) will undergo new audit reviews. Carrboro is scheduled for an audit in 2020.

The most important aspects of the planned audit to pass on to the SWAC are:

- 1) Per the State staff, of the 20 permittees that have been audited to date, 19 have received a Notice of Violation or Notice of Deficiency. The State and EPA are clearing expanding their oversight of permits.
- 2) More information about the audits is available at: <https://deq.nc.gov/about/divisions/energy-mineral-and-land-resources/stormwater/stormwater-program/npdes-ms4-permitting>. The “MS4 Permit Compliance Audit Report Template” link is for the (50 page) audit template that will be completed as part of the audit.
- 3) These audits are not coming (yet) with civil penalties/enforcement actions, but they do require a concerted effort to quickly identify and remedy the problems identified.
- 4) Given the experience to date, it is reasonable to predict that Carrboro will receive either a Notice of Deficiency or Notice of Violation.
- 5) It is also reasonable to predict that a non-trivial amount of staff time will be required to bring Carrboro’s stormwater program into compliance with the permit.

**Jordan Lake Rules.** As a waterbody that has been identified as “impaired”, there has been a several decade’s long process by the State and stakeholders, with oversight by the USEPA, to develop a strategy to restore water quality in Jordan Lake. A set of regulations were adopted in 2009 (the “Jordan Lake Rules”) with a variety of subsections applying to different regulated parties. As a regulated entity in the upper New Hope watershed, Carrboro has been subject to the upper New Hope percent reduction goals for nitrogen (8%) and phosphorus (5%) for existing development in Carrboro. Rule provisions related to nutrient (fertilizer) management and buffers have been fully implemented<sup>3</sup>, however, provisions relating to stormwater management from both new and existing development have been placed on hold until 2019 pending further study, most recently by S.L. 2016-94. Staff have estimated that it will cost the Town a minimum of about \$4M to meet the required reductions under the existing development part of the Rules as developed in 2009, and have been identifying potential retrofit projects for the past seven years as part of State reporting requirements. Plans will need to be updated after the regulatory review planned for later in 2020 is completed.

**Bolin Creek Watershed Restoration.** Carrboro staff worked with Chapel Hill and other local, state and federal agency staff in 2006 to create the Bolin Creek Watershed Restoration Team (BCWRT) to proactively respond to the listing of Bolin Creek on of state and federal impaired waterbodies. At the time, the Bolin Creek watershed was selected as one of only 7 watersheds in the state to receive focused state and federal assistance in preparing grant applications and leveraging other resources to remove Bolin Creek from the impaired waters list. The selection was based on Bolin Creek’s impairment listing and the existence of restoration planning efforts for the larger Morgan and Little Creek Watersheds, along with the local capacity for progressive environmental initiatives. The BCWRT’s long term goal is to improve the health of Bolin Creek and its tributaries and remove it from the impaired waters list. This is an ambitious goal that will require a robust commitment.

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<sup>2</sup> <https://edocs.deq.nc.gov/StormWater/DocView.aspx?dbid=0&id=718147&page=4&cr=1>

<sup>3</sup> The Town’s buffer provisions exceed minimum state requirements most notably by requiring wider buffers for jurisdictional streams and also including buffers for smaller ephemeral streams.

To date, the following successes have been achieved:

- In 2003, a watershed assessment of the Little Creek watersheds in which Bolin Creek is located was completed
- In 2004, a management study of the Morgan and Little Creek watersheds was completed.
- In 2006, the NC Division of Water Quality and EPA pledged staff assistance.
- In 2007, the Team received a Clean Water Management Trust Fund grant that was used to conduct a detailed geomorphic analysis to identify areas of erosion, instability, and other high risk locations.
- In 2008 and 2009 the Team received two federal "319" grants to pursue restoration projects, planning, and monitoring, one led by Chapel Hill and the other led by Carrboro. Both grant efforts were successfully completed, including on the ground restoration projects in both towns and a planning/engineering study of a drainage area in downtown Chapel Hill.
- In 2012, a Watershed Restoration Plan and Watershed Situation Assessment for Bolin Creek were completed as part of the grant project efforts.

**Ongoing Creek Monitoring.** Benthic macroinvertebrate (aquatic insect) monitoring is a primary means used by the NC Division of Water Resources to assess creek health and compliance with water quality standards, but state resources are only able to support infrequent (every 5 years at best) and limited benthic monitoring. Recognizing this, the Town has been pursuing much more extensive benthic monitoring for the past 15+ years as a primary means for assessing creek health. This sampling continues to reveal impacts that warrant close attention. Sampling on Bolin Creek has consistently indicated Good-Fair water quality in upper Bolin Creek, especially at the most upstream site (just upstream of Winmore). Areas further downstream have fluctuated between a Good-Fair and a Fair rating. ("Fair" is the threshold which triggers listing on the State's impaired streams list.) Chapel Hill is also using benthic insects as a key indicator; abundant benthic and other data continue to indicate that Bolin Creek becomes more degraded as it flows downstream through Chapel Hill. This long term record of annual or better monitoring on Bolin Creek along with recent sampling of some smaller tributaries has created one of the best benthic macroinvertebrate monitoring small stream datasets in North Carolina. The declining aquatic health moving downstream along Bolin Creek indicates the ongoing stress to the creek. Bolin Creek from below Pathway Drive to its confluence with Little Creek in Chapel Hill has been listed on the State/federal impaired streams (303d) list for many years.<sup>4</sup> Morgan Creek has been sampled upstream of University Lake, however, there is no suitable benthic habitat and therefore no sampling downstream of University Lake in Carrboro's jurisdiction due to the extensive stream channel incision.

## **Recommendations**

Staff recommends that the Stormwater Advisory Commission receive this memo.

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<sup>4</sup> Benthic monitoring reports can be found at <http://www.townofcarrboro.org/pzi/Env/Water/bcmonitor.htm> .

## Appendix

### Links to additional information

Carrboro Stormwater homepage: <http://www.townofcarrboro.org/287/Stormwater>

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

Nutrient Scientific Advisory Board: <http://deq.nc.gov/about/divisions/water-resources/planning/nonpoint-source-management/nutrient-scientific-advisory-board/>

Carrboro Benthic Sampling Studies: <http://www.townofcarrboro.org/702/Benthic-Monitoring>

Carrboro Bolin Creek Website: <http://www.townofcarrboro.org/280/Bolin-Creek-Watershed-Restoration>

NCSU Bolin Creek Website: [http://www.bae.ncsu.edu/programs/extension/wqg/srp/bolin\\_creek.html](http://www.bae.ncsu.edu/programs/extension/wqg/srp/bolin_creek.html)

Chapel Hill Bolin Creek Website: <http://www.townofchapelhill.org/town-hall/departments-services/public-works/stormwater-management/local-watersheds-water-quality/watershed-assessments-recommendations/bolin-creek-watershed-restoration-team>

The Town participated in/presented at a well-attended local symposium on “Caring for our Creeks” in 2012 <http://bolincreek.org/blog/symposium-2/>