



# *City of Boiling Spring Lakes*

9 East Boiling Spring Road  
Southport, NC 28461

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## STAFF REPORT

### **Agenda Date:**

June 2, 2026

### **Title:**

Stormwater Department Status of Work Completed

### **Department:**

Stormwater

### **Background Information:**

The City has created a new stormwater department to implement and mitigate the effects of stormwater flooding in the City limits that has become worse over the last several years due to the increase of building development. The increase in building development impacts the existing roadside drainage ditches/swales, primary drainage ditches and mechanical conveyance systems with additional stormwater from new impervious surfaces. In order to limit flooding due to the increased development, the stormwater department was created to maintain the existing stormwater infrastructure, plan for future impacts from new development, implement strategies to mitigate flooding and provide support to other City Departments with permitting and general master planning. The information below provides a description and photos of work that has been completed since the inception of the department. Currently the team has reshaped and ditched a total of **26,997 lf.** of roadside drainage ditches. Last year ditching totals were **19,969 lf. (2025)** and this year ditching totals to date are **9,208 lf (2026)**.

In addition to ditching and stormwater maintenance, the team has completed upgrading pipe culverts on Pine Needles and Westway in the Highlands section of the city. These areas have been problematic with flooding. The existing pipes were 36" corrugated metal pipe (CMP) on Pine Needles and a 24" plastic pipe (HDPE) on Westway that did not provide enough hydraulic capacity to efficiently handle larger storm events resulting in frequent flooding. The stormwater team removed the existing pipes with a 48" corrugated metal pipe (CMP-round) on Pine Needles and a 57"x 38" arched corrugated metal pipe (CMP-arched) on Westway. The arched pipe was used on Westway to provide additional hydraulic capacity with existing pipe cover requirements. In addition to the pipe repairs, we are coordinating pavement repair with the home building group for those streets. Another upgrade to our existing stormwater system was located at a cross culvert along Windemere. This cross culvert had signs of soil erosion and wash out at the downstream side of the pipe. Our goal was to repair the wash out and provide additional protection downstream from future storm events. The team added a galvanized flared end section (FES) to the existing

pipe. The flared end section will provide efficient water flow management from the pipe. Several key functions of FES are;

- 1.) Prevents erosion by the tapered opening slowing down the water as it exits the pipe.
- 2.) Improves hydraulic efficiency by funneling the water that smooths the transition of water out the pipe allowing for more water to pass.
- 3.) Stabilizes embankments by holding the soil tightly around the mouth of the pipe preventing soil erosion.

Additional slope re-shaping and ditching is proposed along the existing channel. Coordination will be required from adjacent property owners when this task is scheduled.

In addition to the new pipe installation, the stormwater team has started to address areas of concern throughout the city based on the recommendations as outlined in the Stormwater Management Master Plan for the City of Boiling Spring Lakes prepared by Sungate Design Group.

The report outlines concerns related to flooding, stormwater conveyance system replacement/upgrades and primary and secondary ditch maintenance and management.

The report identifies areas of pipe replacement and sizing upgrades as well as ditch clearing and reshaping. The stormwater department is preparing a plan and schedule that will address these issues in order of criticality. We have started some of the work throughout the city that prompted daily road detours, however the projects are minor in nature and can be usually completed within a work day. The start of addressing the stormwater master plan will provide much needed flooding relief to the city.

The attached photos provide a visual of the work that has been describe above.

#### **Financial Impact:**

The financial impact to the City will have cost savings overall when stormwater and flooding have less of an impact to City infrastructure and residential properties.

#### **Recommendation:**

No additional recommendations are being considered since last month's report.

#### **Attachments:**

The following list below provides a description of the ditching work that has been completing in the last month:

Note: The team has reshaped and cleaned approximately 1,406 lf. of drainage ditches to include the following area;

- 1.) 82 lf. Hickory Road
- 2.) 820 lf. Juniper Road
- 3.) 358 lf. Foxcroft Road
- 4.) 100 lf. N. High Point Road
- 5.) 46 lf. W. Boiling Spring Road

**Total Ditching for April/May (05-20-2026) = 1,406 lf.**

**PHOTOS**



Pine Needles Road  
Pipe Replacement-Downstream



Pine Needles Road  
Pipe Replacement-Downstream



Pine Needles Road  
Pipe Replacement-Upstream



Pine Needles Road  
Pipe Replacement-Upstream



Pine Needles Road  
48" CMP Pipe Installation



Pine Needles Road  
48" CMP Pipe Installation



Westway Road  
Pipe Replacement-Downstream



Westway Road  
Pipe Replacement-Downstream



Westway Road  
Pipe Replacement-Upstream



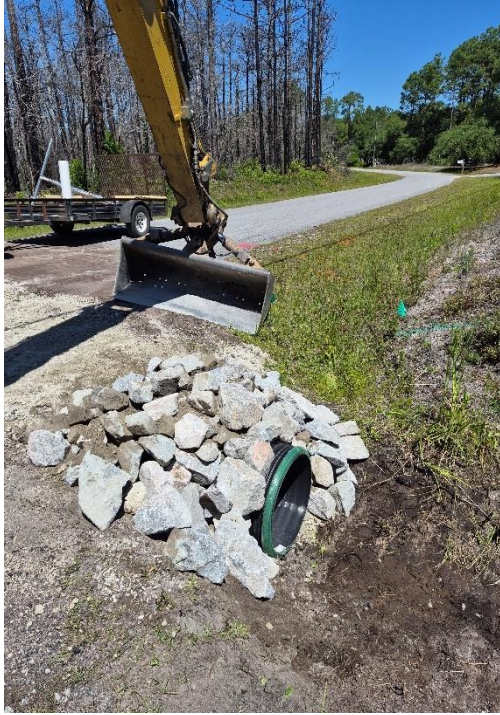
Westway Road  
Pipe Replacement-Upstream



Westway Road  
Arch Pipe Installation



Westway Road  
Arch Pipe Installation



Typical Cross Culvert Repair  
Upstream



Typical Cross Culvert Repair  
Downstream



Stormwater Management Plan  
Pipe Replacement w/FES



Stormwater Management Plan  
Pipe Excavation



Stormwater Management Plan  
Pipe & Road Repair



Stormwater Management Plan  
Upstream Inlet Protection



Stormwater Management Plan  
Pipe/Road Repair



General Primary Ditch  
Maintenance



General Primary Ditch  
Maintenance



General Primary Ditch  
Maintenance



General Roadside Ditching



Windemere Pipe Upgrade Downstream  
New FES and Rip-Rap



Windemere Pipe Upgrade Downstream  
Flared End Section and Rip-Rap Protection



Windemere Cross Culvert  
Rip-Rap Protection Upstream



Windemere Cross Culvert  
Rip-Rap Protection Upstream