

Professional Park Drive Area Stormwater Inventory and Flood Study

Starting in February 2024, WK Dickson, community infrastructure consultants, will be onsite in Beaufort conducting fieldwork. WK Dickson, the Town of Beaufort's consultant, has begun work on a project to identify flood mitigation strategies in the Professional Park Drive area including Meeting Street.

Fieldwork will take place in the following areas during the month of February: Courtyard East, Troon Way Apartments, South Hall at Olde Beaufort Village, Palmetto Plantation, Pirates Landing, Palmetto Place and Beaufort Manor developments and along Pearl Drive.

The Town of Beaufort applied for and was awarded a Local Assistance for Stormwater Infrastructure Investments (LASII) grant in the amount of \$394,815 in 2023 for the purposes of identifying a strategy to eliminate or greatly mitigate the flooding at Meeting Street while also reducing the amount of human intervention that must be employed to mitigate the flooding.

The goal of the study will be to determine the cause(s), potential options, and associated costs to remedy the flooding conditions that occur primarily along Meeting Street.

Learn more about the project via a Storymap at <https://storymaps.arcgis.com/stories/2e54dc7a6c62448396adad2c3e9a6824>

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History

Frequent street flooding from minor storm events has been and continues to be experienced in an area north of Professional Park Drive, specifically at Meeting Street in the South Hall neighborhood. The street flooding has increased substantially over time. The mostly developed basin has a total drainage area of approximately 181 acres, and includes the Pearl Drive area, Courtyard East, Troon Way Apartments, South Hall at Olde Beaufort Village, Palmetto Plantation, Pirates Landing, Palmetto Place and Beaufort Manor developments. The stormwater from this area drains by a series of swales, detention ponds and ditches to both Wading Creek and Gable Creek, tributaries to the Newport River. The stormwater drainage systems that serve most of the single-family residential developments are outfall ditches except for Palmetto Plantation. It is served by a detention pond which pumps detained stormwater to an outfall via Gable Creek. The topography for this area is very flat with an average elevation of 10 feet Mean Sea Level, making it very difficult to adequately drain stormwater over approximately 7,000

feet to the discharge in Wading Creek, a tributary of the Newport River.

Due to the flatness in grade in the South Hall Subdivision, stormwater from Meeting Street and a portion of Professional Park Drive flows down Meeting Street to several turnouts in the concrete roll curb and gutter. These turnouts drain to swales and then ditches. There is very little grade differential between the ditch bottoms and Wading Creek. When the ditches exceed their capacity from a given storm event, stormwater backs up into Meeting Street as it is the next lowest feature.

South Hall at Olde Beaufort Village was developed in phases beginning about 2000. Palmetto Plantation (originally Phase V of Olde Beaufort Village) began development prior to 2006. In 2006, due to stormwater problems that arose due to the development and associated detention basin, stormwater infrastructure improvements were made as part of a settlement between the Town and the developer to correct the flooding problem. Per the agreement, the improvements were to “limit the depth of rainwater in the street during a ‘ten-year event’ to a maximum of 6 inches in the lowest point of the street” and allow for the removal of “all standing water” within one hour of the end of rainfall. Key to the improvements was the incorporation of an existing pond into the stormwater drainage “system.” The pond, which was essentially a borrow pit remnant, was set up to receive run off exiting one of the turnout drains via a new “control structure.” The improvements also included outfitting the pond with an in-pond submersible pump that was controlled by a float system. This pumping system was to maintain the level of the pond at a pre-rain elevation and slowly return the pond surface to this elevation after a rain.

Episodes of flooding continued despite the construction of the improvements. In 2020 it was conjectured that this continued flooding could be attributable to poorly maintained outfall ditches. As such, the Town cleared the outfall ditches to include the removing blockages, vegetation trimming, and removal of sediment from culverts.

Thereafter, Town staff observed the effect of the maintenance on the intensity and duration of flooding in Meeting Street after significant rainfalls. The Town repeated the “maintain and observe” sequence again in 2021. Town staff ultimately concluded from the observations that the flooding severity remained unchanged, but the duration of the subsequent flooding events did seem to be less than that which would have otherwise been expected.

During the periods of observation, Town staff documented the fact that water levels in the Palmetto Plantation detention facility were not being managed by the developer in accordance with the conditions of the design resulting from the 2006 settlement. The design called for the water level to rise to 9.0 feet MSL to provide the required storage for a 10-year storm event. The stored water was to then be pumped water out within a 48-hour period to the outfall ditch. The pump controls were set to end the pumping when a water surface elevation of 5.5 feet MSL was achieved.

The pumping system had been non-operational prior to the Town's ditch maintenance efforts and continued to be so afterwards. Accordingly, the developer stationed a portable trash pump at the site; however, this pump was operated only after rainfall events that caused the pond water surface to rise to elevations of 9 feet MSL or greater. More importantly, the water surface level of the pond was never maintained at a "starting" elevation of 5.5 feet MSL. Instead, staff on multiple occasions observed the water surface level to range between 7.5 and 8 Feet MSL. Despite many appeals to the developer, proper pond operation never occurred during the time frame that the Town maintained the downstream outfall ditches; therefore, Town staff was never able to observe how properly maintained, downstream outfalls acting in concert with proper pond storage management affect flooding.

It is worth noting that Town staff understand that the operation of the pond was taken over by the homeowners' association (HOA) at some point after the Town's 2021 maintenance work. The HOA subsequently undertook the repair of the in-pond pumping system. Thereafter, the HOA appeared to be trying to operate the pond per the requirements of the 2006 settlement. Unfortunately, the system suffered another outage shortly after the initial repairs. It was once again repaired and the management of the pond water level via the float controlled pumping system restarted. Town staff has not been routinely observing the pond since the restart of the pumping system; however, staff is aware that periodic flooding along Meeting Street continues.

Given the foregoing history, the Town of Beaufort applied for and was awarded a Local Assistance for Stormwater Infrastructure Investments (LASII) grant in the amount of \$394,815 for the purposes of identifying a strategy to eliminate or greatly mitigate the flooding at Meeting Street while also reducing the amount of human intervention that must be employed to in order to eliminate/greatly mitigate the flooding.