

## **TABB LAKES RETENTION LAKES AND STORMWATER SYSTEM (April 2015)**

The Tabb Lakes Homes Association stormwater system consist of two retention lakes and roughly 5100 ft of underground cement pipes and some open cement swales. The retention lakes are designed to capture sediment, organic matter, pollutants, and excess nutrients (such as nitrogen and phosphorus) and hold it from going down stream into the bay IAW EPA and state regulations.

Our retention lakes receive stormwater from an estimated 200 acre drainage basin that includes most of the TL-HOA property and property outside of the TL-HOA boundaries. Rainwater from most of the TL-HOA property, portions of the property along RT 17, roughly half of the property used by the junk yards off of Rt. 17, and portions of Coventry Blvd all drain into our two retention lakes. There are two areas in Tabb Lakes that do not. Tabb Lakes property/roads on Conway Ct and a small portion of Richard Run and Gardenville Dr near Conway Court all drain south under Coventry Blvd and into the Coventry HOA's Harvest Lake. The back side of the property at the end of Tabb Lakes Drive near Rt. 134 (left side) drains into a ditch that empties below the outflow of Lake 1.

### **LAKE INFORMATION:**

Lake 1 is located on the north end of Tabb Lakes and is 5.79 acres in size. Lake 2 is located on the south end parallel to Leslie Lane and is 5.00 acres in size. The designed height of both lakes water level is 27 ft above mean sea level. Water level is controlled by the height of the outflow pipes at the end of Lake 1 which allows water to flow out of the lakes above 27 ft MSL. Water flows from Lake 2 into Lake 1 via two oval pipes under Bridgewood Drive which connects both lakes. Water flows out of Lake 1 and away from Tabb Lakes property via two 24" outflow pipes and an emergency spillway at the northern end of Lake 1. Water travels under Rt 171 (Victory Blvd), then eventually under RT 134 and into the Poquoson River below the Harwoods Mill Reservoir spillway.

The design bottom depth of the lakes was 21ft. The south end of Lake 2 was never excavated to that depth as was found in the studies.

#### Lake Information based on Sediment Load Analysis Report (Dec, 2000):

Design level of water surface: 27 feet above mean sea level

Design level of lake bottom: 21 feet above mean sea level

Lake 1: Size: 5.79 acres, Volume: 34.3 acre-feet, Amount of water: 11,176,689 gals.

Lake 2: Size: 5.0 acres, Volume: 16.8 acre- feet, Amount of water: 5,474,297 gals.

Amount of stormwater required to raise the water level of both lakes (rough estimate):

- 1 inch: > 292,992 gals.
- 24 inches ( to the top of the outflow pipes): > 7,031,800 gals

## **LAKE STUDY INFORMATION:**

Three formal studies of our lakes and the drainage system were completed between 2000 and 2004. The first two were commissioned by TL-HOA. The third report was commissioned by York County's Environmental and Development Services (EDS) as part of the Capitol Improvement Plan (CIP) analysis for improving the drainage system in our community.

- Sediment Load Analysis Report dated December, 2000

This study was done in response to significant neighborhood flooding that resulted from Hurricane Floyd in Sept, 1999. Lake depth and sediment buildup for both lakes were analyzed. The report included an estimate of the cost of dredging the built-up sediment in Lake 2 and to bring the south end of Lake 2 to its original designed depth of 21 ft. above mean sea level. The study was followed by a separate letter (Drainage Cost Estimates dated Dec 2000) that provided some dredging cost estimates. That letter provided a cost range but also indicated that dewatering and disposal costs estimates needed further study. Survey maps showing lake depth levels and sediment buildup were provided as part of the report.

- Bathymetric Survey and Plan Report dated May, 2004

This study was conducted to reanalyze the sediment buildup in comparison to the 2000 study and provide more detail on the composition of the material. The study was confined to Lake 1, since it was the lake with the shallowest depth, and a small section of Lake 2. A separate analysis of the subsurface material was completed by Earthworks Consulting Engineers (Report of Subsurface Exploration dated March 2004). Bathymetric survey maps were provided as part of the report.

- Preliminary Engineering Report for the Tabb Lakes Drainage Project dated July, 2002

This study, paid for by York County, did not analyze the depth or sediment buildup of our two lakes. It evaluated our drainage system at that time and provides recommendations for improvements to mitigate flooding that occurred during Hurricane Floyd and other storms. It also included a separate diagram of the downstream analysis of Kings Bottom Creek. Most of the recommendations in this report have been completed at this time.