

Tabb Lakes Dredging Project
Lake #1 North End
Dredged: Sept 2021
Tree Work: July 2022
(21 Oct 2022)

The information below is a synopsis of the process undertaken by the Tabb Lakes Board of Directors (BOD) and Stormwater Committee member in completing the dredging of the north end of Lake 1. All costs are round.

During the June 2019 board meeting, board members agreed to obtain estimates to dredge two sections of our lakes. The first estimate was the north end of Lake 1 by the outflow pipes and emergency spillway. The second area was Lake 2, which is a much larger and more difficult project. Two vendors provided estimates based on a scope of work provided by the HOA and meetings on site. Vendors were Lake Services Inc. and Acelutions Inc.

The first initial cost estimates obtained in 2019/2020 are listed below. Note that the Lake 1 costs were revised later due to complications with access to the area.

- Lake Services Inc: Lake 1: \$111,000 Lake 2: \$612,000 (Lake Services Inc. estimate based on cost per cu yds of spoils plus mobilization/de-mobilization costs. Estimated ~1000 cu yds for lake 1 site and ~13,000 cu yds for Lake 2)
- Acelutions Inc: Lake 1: \$85,000 Lake 2: \$710,000 (based on same cu yds of spoils)

After reviewing these initial costs, the board concentrated on dredging the north end of Lake 1 due to the buildup of debris at the area around the outflow of the lakes. Our previous bathymetric studies (2000, 2004, and 2015) and continued visual observations showed that buildup in that area would eventually interfere with the proper drainage of stormwater out of both Lakes 1 and 2.

Due to complications with access to the end of Lake 1, a revised estimate was obtained from both vendors in 2020/2021. The original estimates assumed vehicle access from a private road off Rt. 17. That road crossed private property that is not within the HOA. Unfortunately, the owner had recently stopped allowing York County Public Works teams to access our lake area through his property. This complicated the dredging process as dredging equipment had to now enter the lake at the Bridgewood Dr. end of Lake 1. In addition, the spoils would have to be moved by barge down the entire length of Lake 1 to be removed at the Bridgewood Dr/south end. To provide some scope to the effort, we estimated the spoils to be around 1,000 cu yds. That is equivalent to ~84 dump truck loads. Our earlier dredging project in Lake 1 back in July, 2018 was about half that amount.

We met with both vendors to review the limitations in access and how to approach this problem. The vendors provided the following revised estimates based on access from the south end of Lake 1.

- Lake Services Inc: \$129,000
- Acelutions Inc: \$125,000

Each vendor had a different approach. Lake Services Inc would use a mechanical dredging process. All dredging equipment would enter and be removed from the south end of lake 1 at the Bridgewood Dr. location. Spoils would have to be transported by barge down the entire length of Lake 1 and offloaded by backhoe into dump trucks by Bridgewood Dr. Acelutions Inc. recommended using a hydraulic dredging process. They were able to coordinate the use of private property (property of Dick Ashe) near the outflow dredging area to de-water the spoils and remove them at a later date. This method meant that the spoils would not have to be transported by barge and removed at the Bridgewood end. Equipment would still have to be launched/retrieved from that end but with significantly less damage to the surrounding area. Upon review of the two proposals, the HOA Board members decided to continue discussions with Acelutions Inc.

From March to July 2021, HOA Board members communicated with Acelutions Inc owner, Dan Hobby, regarding his proposed process. Some Board members met with Dan Hobby on location to further understand the process. Dan Hobby then provided a full briefing to the Board members during the May monthly HOA board meeting to answer any final questions. Shortly after, the Board members approved using Acelutions Inc. as the vendor to conduct the dredging of the north end of Lake 1. The final contract was submitted and was signed by the HOA President on 19 August 2021.

At the time, the below impacts were expected:

1. Dredging equipment (barges and boats) will access Lake 1 via Bridgewood Dr. That will require the use of cranes and/or a large forklift at the beginning and end of the project. Bridgewood Dr. may be closed to traffic during that access time.
2. Equipment will be moved by barge the length of Lake 1. Aerators in the area to be dredged will be moved by the contractor. The fountain in Lake 1 will remain on.
3. The actual hydraulic dredging is estimated to take a week although that could change. Dredging machine will operate for several hours each day as it moves back and forth in the area. It can be noisy near the equipment. The entire project (pre-mobilization to post mobilization) is estimated at 2-3 weeks.
4. Water levels in both lakes may drop during the process. Hydraulic dredging sucks up both spoils and water which is then moved by pipe to be deposited in another location (see attachment). This could have an impact on all lake owners. Based on usage factors and lake capacity, we estimate that the lakes will drop 12 to 24 inches from the process. The lakes will refill only after the next several rainstorms.
5. Acelutions will place steel stakes in the lake along the edge of the following properties; 106 Shallow Lagoon, 105 Shallow Lagoon, 103 Shallow Lagoon, and 302 Tabb Lakes Dr. They will not be on private property. Cables will be attached to trees on the west side HOA property. The stakes will be used to attach cables used to control the movement of the dredging barge. (See attached diagram)
6. Area is to be dredged to a depth of 6 feet (original design). The slope of dredging next to land is a max of 1:3. For every 3 feet out, the depth increases 1 ft.
7. The board is still planning to remove the trees on the HOA property around the outflow pipes and emergency spillway to help limit future amounts of debris going into the lake in that area.

On 23 Aug 2021, Acelutions Inc. began operations. They temporarily closed off Bridge Wood Dr. and offloaded the dredging barge into Lake 1's south end. Once the barge was in the lake and maneuvered to the north end of Lake 1, they began the process of prepping the area with cables to maneuver the barge during the hydraulic dredging process. Concurrently, they prepared the dewatering area by

digging areas to place the two large dewatering bags, installed the hydraulic pump and required hoses, and installed an inground rock filtering system. This helped separate particles in the water as it was circulated through the dewatering bags and pumped out into the stream. In addition, a hydraulic hose was laid out in the lake and connected to barge.

On 31 August 2021, Acelutions began the actual dredging process. Since there had been concerns that the process could draw down the water on our two lakes, Acelutions decided to direct the outflow water that went through the dewatering bags back into Lake 1 at the emergency spillway area. Screens were placed in front of the outflow pipe to further reduce particles going back into the lake. This helped minimize the impact of lake height changes for both lakes.

On 17 Sept 2021, Acelutions completed the dredging process; after roughly 13 days of dredging. Once completed, Lou Lafrenaye (Stormwater Committee Chair) and Sarah Knaub (Tabb Lakes HOA Manager) went out by boat with the company representative to measure the water depth in several areas to ensure the lake was dredged per the contract. The first inspection found some sections that needed additional dredging. The company continued dredging to correct these areas. The second inspection met the depth requirements of the contract. Once confirmed, the company began to remove their equipment. The barge was removed from Lake 1 on 21 Sept 2021. The dewatering bags remained on site for at least 1 month to dewater before the spoils were transferred by dump truck to a landfill.

In an attempt to minimize the leaves, needles, and debris from surrounding trees dropping into the lake outflow area, the HOA Board had already considered removing the trees and shrubs around that area. This is on HOA common property. That same process was completed when the south end of Lake 1 was dredged back in July 2018. It was originally thought that access from Rt 17 to our lakes with mechanical dredging equipment would require us to remove the trees as part of the preparation for the project. Due to the lack of access, and subsequent change to the method used to do the dredging, this part of the project was considered after the dredging was completed. Acelutions was contacted in Feb, 2022 to see if they had any options of accessing the area. By April, Dan Hobby provided a cost estimate to the HOA Board. He was able to obtain permission from the owner of the property adjacent to the HOA property to bring in heavy equipment from Rt. 17 (at a cost) in order to cut and remove the trees and shrubs. The Board approved the plan and the contract was signed on 21 June 2022. The trees were removed the week of 18 July 2022.

Total costs for the Lake1 – North End dredging project was \$125,000. Costs for access and removal of trees around the outflow area was \$16,000.

Submitted by Lou Lafrenaye
October 2022

Additional Notes: The Bathymetric and Sediment Studies done in 2000, 2004, and 2015 along with other information on the dredging project can be found on the Tabb Lakes website document section under Resources/Document Library/Lake Information Library. Our HOA website link is: WWW.TABBLAKES.ORG

Attachments:

- The 2015 bathymetric study showing the water depth in the area
- Area to be dredged
- Acelutions Inc. concept for their hydraulic process.
- Photos taken before, during and after the process to help homeowners understand what occurred.

TABB LAKES - Lake 1 area to be dredged.



TABB LAKES - Lake 1 sediment depth analysis, 2015 study

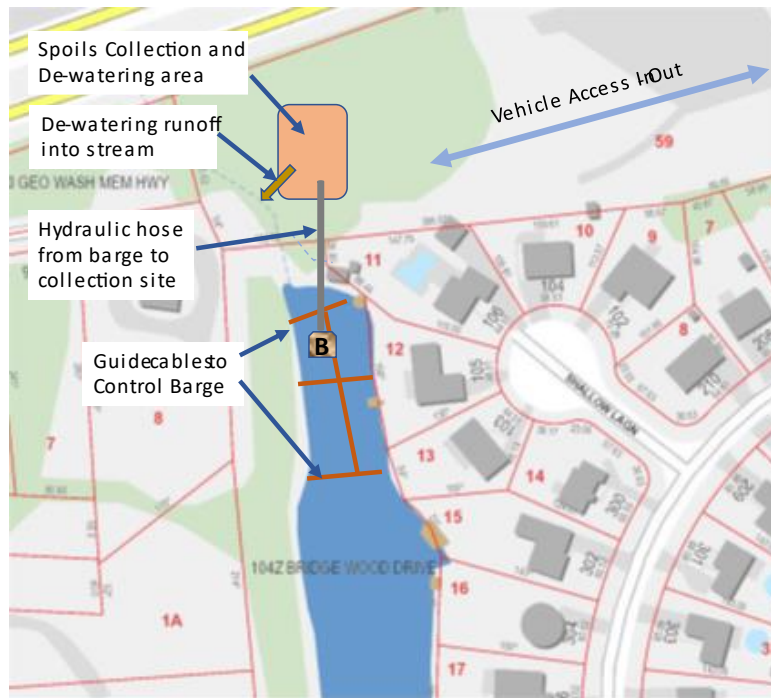




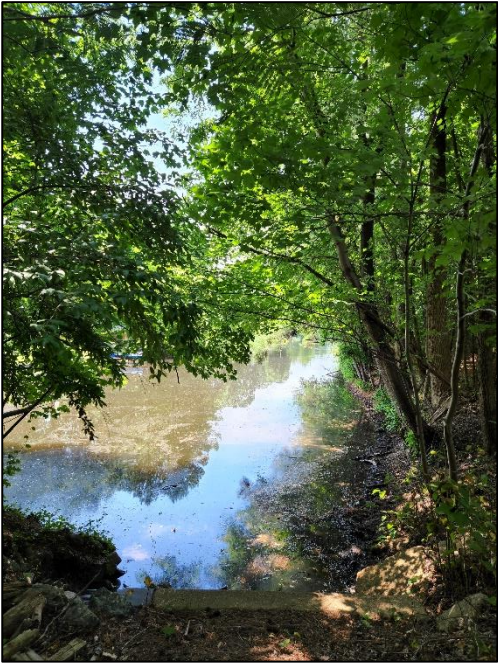
Acelution Inc. Hydraulic Dredging Concepts



- Spoils removed from Rt. 134. (~84 dump truck loads) after dewatering.
- Use of one barge on lake and de-watering site on Dick Ash property.
- Hydraulic barge launched from Bridge Wood Dr.
- Spoils collected in bags. Takes one month to de-water.
- Wire cables spread across lake to control movement of barge (at least two points but could be more). Cables attached to trees on HOA property and steel post set in lake along private property.
- Dredging pump uses ~1,500 gal per min.



Outflow area before dredging (different seasons)





Dredging Project Photos (Aug-Sept 2021)









Completed Project (as of July 2022)



Completed Project (as of October 2022)

