

Lake Linganore Dredging Project

Dredging and Dewatering Fact Sheet *updated June 2021*

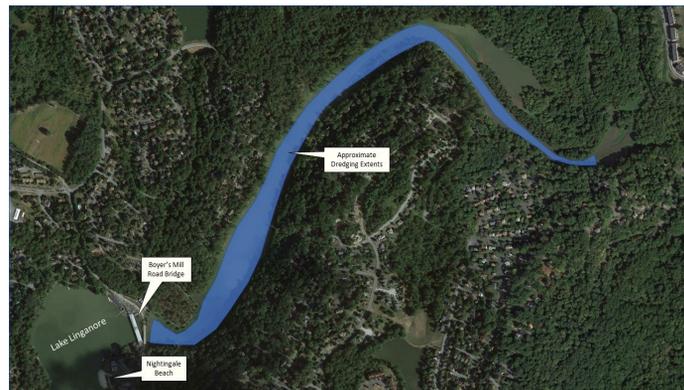
Background

Lake Linganore is a man-made, 209-acre lake in Central Frederick County, Maryland. Since its construction in 1972, Lake Linganore has been losing storage capacity due to sedimentation. Frederick County, the City of Frederick and the Lake Linganore Association (LLA) are funding the Lake Linganore Dredging Project to remove sediment from the portion of the lake east of Boyers Mill Road to improve water storage capacity, flow, and access.

Through a competitive procurement process, Maryland Environmental Service, under contract to Frederick County, retained Mobile Dredging & Video Pipe, Inc. to perform the dredging operations for Lake Linganore.

Dredging began in early summer 2019 and was completed in spring 2021. The project hydraulically removed approximately 150,000

cubic yards of sediment from the lake. The dredged material was pumped to an upland staging area where the material was dewatered to remove excess water, loaded into dump trucks, and transported to Frederick County Reichs Ford Road Sanitary Landfill. At the landfill, the dredged material was stockpiled to be repurposed as landfill cover material.



The sediment that has accumulated in Lake Linganore since its construction consists of particles of sand, silt, and clay materials. Prior to dredging, physical and chemical analytical tests were performed to evaluate the material properties, with results indicating the sediment is clean and poses no concerns for human health by the Maryland Department of the Environment.

The sediment was dredged from Lake Linganore using a hydraulic cutterhead dredge. A cutterhead uses rotating blades to break up and loosen sediment at the bottom of the lake. The sediment was then mixed with water from the lake, creating a slurry composed of sediment and water used to transport the material. This slurry was then pumped through a pipeline from the dredge and through additional booster pumps to move the material greater distances.

The pipeline ran from the dredge location to the staging area on the southwestern shore of the lake.

Dredging



Hydraulic Dredge and Cutterhead

Dewatering

Dewatering of the dredged material was performed using mechanical processes to separate out the different sizes of sediment particles from the transport water. The dewatering process first removed larger materials by passing through shaker screens, which capture large debris, rocks, and other materials. Next, the material passed through hydrocyclones which separated out sand sized particles through their difference in density.

The remaining slurry contained very fine particles of silt and clay suspended in water and required additional steps to separate remaining particles. After passing through a series of thickening tanks to remove excess water, the material was then distributed to belt filter presses where the material was physically pressed to squeeze out liquid, leaving a generally dry solid called filter cake. Water from the process was sent to a clarifying tank where any remaining particles settled out. Clear water from the clarifier was discharged by pipe back to Lake Linganore, where it was closely monitored to ensure discharge levels did not exceed state water quality standards.

The dewatered dredged material was then blended together to form a generally consistent material that was transported to the landfill for stockpiling, and later use as cover material.



Shaker Screens



Belt Filter Presses



Clarifying Tank



Loadout and Staging Area



Clear Water Discharge

For additional information, please refer to the website below or contact:

Stephanie Lindley slindley@menv.com/ 240-278-2184

Maryland Environmental Service

259 Najoles Road; Millersville, Maryland 21108

www.FrederickCountyMD.gov/LinganoreDredge