

**New York City Department of Environmental Protection
Bureau of Water Supply**

**Stream Management Program
Request for Approval for Water Quality-Driven Stream Projects:
West Branch of the Neversink River at Clothes Pool
(Neversink Basin) and Bull Run Bank Stabilization (East Branch of
the Delaware River, Pepacton Basin)**

November 2018

*Prepared in accordance with Section 4.6 of the NYSDOH
2017 Filtration Avoidance Determination*



Prepared by: DEP, Bureau of Water Supply

Introduction

Stream restoration projects are a core component of the New York City Department of Environmental Protection (DEP) Stream Management Program (SMP); they have a primary purpose of improving water quality, especially by reducing erosion into fine sediments that contribute to turbidity, which is a growing concern in the watersheds that contribute to the Neversink, Rondout, and Pepacton Reservoirs.

The 2017 Filtration Avoidance Determination (FAD) requires the SMP to design and complete construction of at least 24 Stream Projects that have a principal benefit of water quality protection or improvement by December 31, 2027; at least eight of these 24 projects shall be in the Ashokan watershed. By November 30 of each year, DEP is required to propose new Stream Projects for approval by NYSDOH pursuant to the FAD.

To date, four projects have been approved towards fulfillment of the 24 required Stream Projects having a principal benefit of water quality protection or improvement (Table 1).

Table 1. Stream Projects approved to date towards the 2017 FAD requirement.

Project Name	Reservoir Basin	Year Approved	Status
Batavia Kill at Kastanis	Schoharie	2018	Complete
Bush Kill at Watson Hollow	Ashokan	2018	Complete
Batavia Kill at Red Falls Phase 1	Schoharie	2018	Design
Batavia Kill at Red Falls Phase 2	Schoharie	2018	Design

Through this report, DEP formally requests NYSDOH approval for two additional projects to be counted towards the 2017 FAD requirement: the West Branch of the Neversink River at Clothes Pool in the Neversink Basin and the Bull Run Bank Stabilization in the Pepacton Basin.

Project Description: West Branch of the Neversink River at Clothes Pool

The West Branch of the Neversink River begins in the Town of Shandaken on Panther and Slide Mountains and flows through the towns of Denning and Neversink before reaching the Neversink Reservoir. Passing in and out of State-owned land, the stream runs parallel to Ulster County Route 47, known locally as Frost Valley Road. A stream feature inventory (SFI) of the Neversink River's mainstem and main branches (East and West) conducted by the Rondout Neversink Stream Program (RNSP) in 2012 identified the hillslope failure at the Clothes Pool site as a significant contributor of fine sediment loading to the Neversink Reservoir.

Additionally, the Upper Neversink River Stream Management Plan, completed in 2013, recommended additional monitoring to confirm the rate of erosion and treatment. Bank Erosion Monitoring Studies conducted in 2014 ranked 46 bank erosion sites on the Neversink River's mainstem and tributaries in terms of total area contributing fine sediment; the Clothes Pool site ranked at the top of that list. The clay-rich glacial till in the hillslope has been observed on numerous occasions, especially during freeze/thaw cycles, to create a significant contrast in turbidity from up-to-downstream of the site, even in the absence of rainfall events. Hydraulic erosion at the toe of the hillslope has undermined its stability, maintaining an over-steepened condition that prevents the establishment of a stable angle of repose and natural revegetation,



Figure 2. Primary hillslope failure at the West Branch of the Neversink River at Clothes Pool.



Figure 3. Example of freeze/thaw inducing turbid discharge from the hillslope.



Figure 4. View looking downstream through the Clothes Pool project reach.



Figure 5. Proposed conceptual design for the Clothes Pool Project (currently under DEP review).

Project Description: Bull Run Bank Stabilization

Bull Run is a tributary to the East Branch of the Delaware River in the Town of Middletown; it flows south from Margaretville Mountain through the Village of Margaretville to the East Branch of the Delaware River and eventually the Pepacton Reservoir. In 2014, the USDA Natural Resources Conservation Service through the Emergency Watershed Protection Program funded construction of a streambank and bed stabilization project at this site following Tropical Storms Irene and Lee. Based on visual inspection and photo-documentation in February 2016, DEP identified the active hillslope failure at the Bull Run site as a likely contributor of fine sediment loading to the East Branch of the Delaware River and Pepacton Reservoir.

DEP and Delaware County Soil and Water Conservation District (DCSWCD) observed clay-rich glacial till in the hillslope at a site visit conducted in April 2016. Late winter freeze/thaw cycles of saturated sediment induced sliding of till down the face of the hillslope into the stream and created a significant contrast in turbidity from up-to-downstream of the site. The over-steepened condition of the hillslope prevents the establishment of a stable angle of repose and natural revegetation. The hillslope is unlikely to restabilize within reasonable management time frames without significant intervention. DEP anticipates that construction of the Bull Run Stabilization project may begin in 2019 based on current status of project designs.

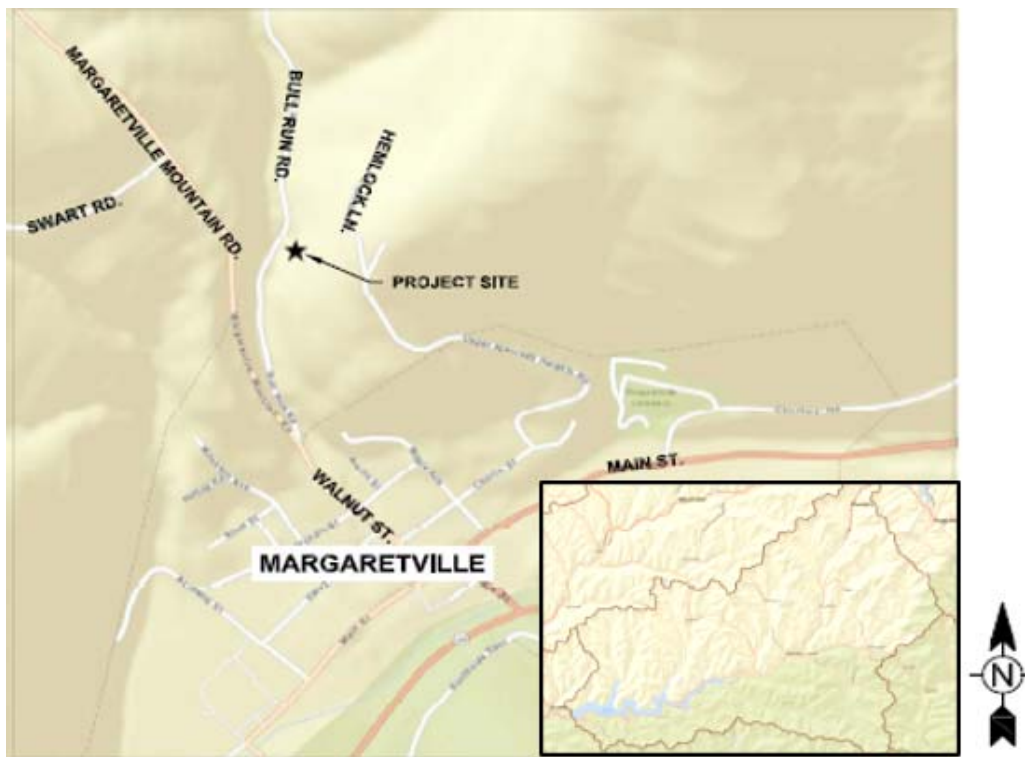


Figure 6. Location of the proposed Bull Run Bank Stabilization Project.



Figure 7. Example of hillslope failure at the Bull Run site.



Figure 8. Example of freeze/thaw inducing turbid discharge from the hillslope into the stream.



Figure 9. Example of turbid discharge flowing downstream from the site.



Figure 10. View from top of hillslope taken during April 2016 site visit by DEP and DCSWCD.