

# Chilson/Eagle Lake Water System: History

# Gooseneck Pond Dam

## Town of Ticonderoga

DWSRF IUP Update: Pre-Application for Financing of Public Water Supply Improvements  
New York State Drinking Water Revolving Fund: Project # 17163

### Violations & NYS DOH Enforcement Actions - Gooseneck Pond System

Gooseneck Pond Unfiltered Water System: The pond and the vast majority of its watershed are part of a tract of NYS DEC-owned land designated as "Forever Wild." The water system received a "filtration avoidance" designation in 1991 that delayed the need to filter the water prior to distribution.



The manmade structures at Gooseneck Pond are limited to a laid-up stone and concrete dam, two earthen dikes, and the water intake channel and structure. The dam and dikes raise the water surface elevation of the pond to improve system pressure and provide increased storage volume. A DEC inspection of the dam and dike was performed in July 2010. The dam was determined to be in very poor condition with crumbling concrete, excessive vegetation, seepage through the dam that has created a flowing stream behind the dam, and no evidence of water

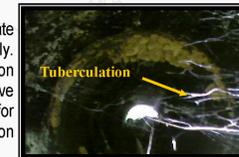


flowing over the spillway at normal water levels. Without water flowing over the spillway at normal water levels most debris will tend to be drawn to the drinking water intake because it is the outlet with the highest rate of outflow. The inspection report recommended that the dam be evaluated by an engineer to determine appropriate corrective measures. As the structures and large sections of the drinking water pipeline are on NYS DEC property, all maintenance and repair activities of those structures requires DEC approval.



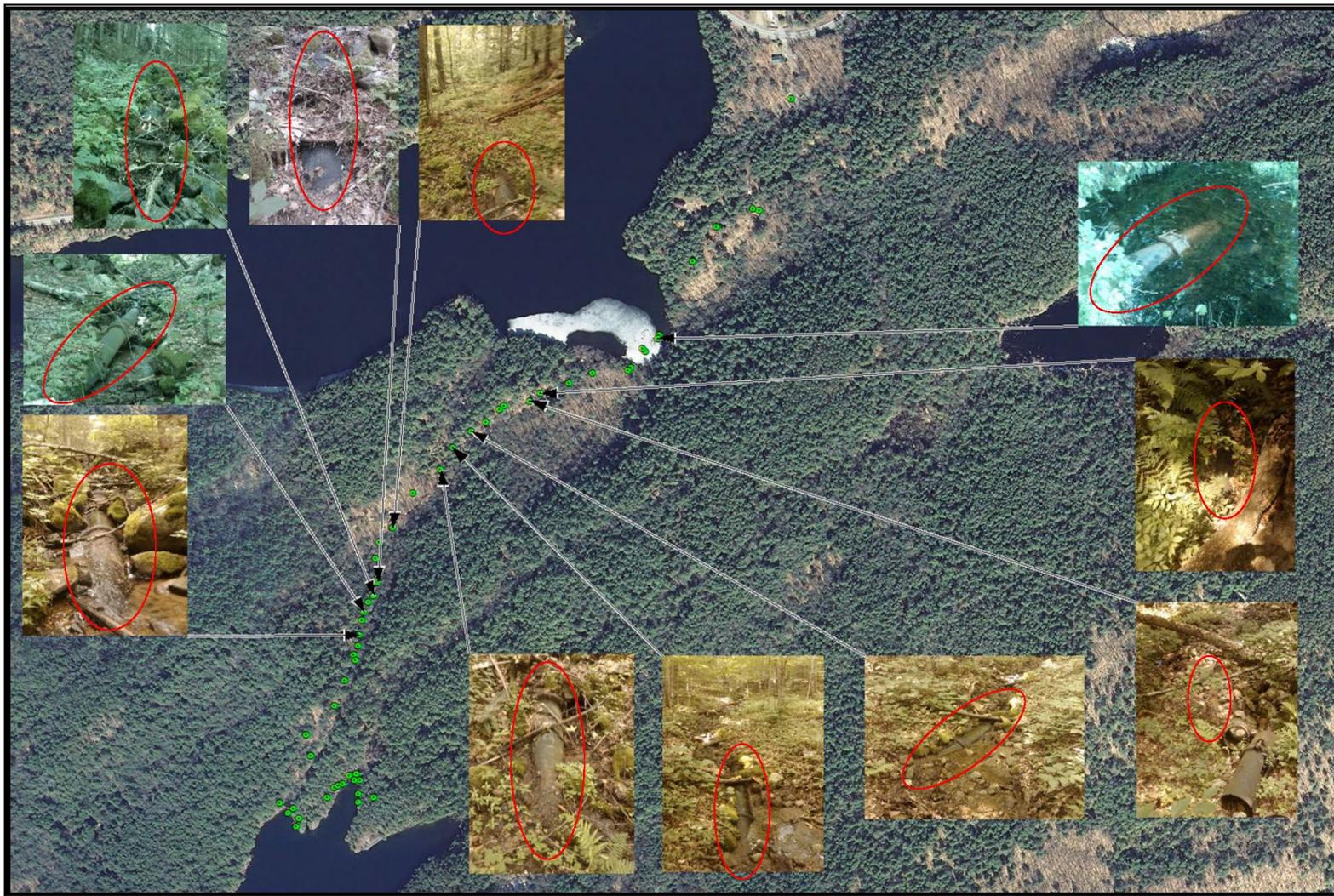
According to the Recommended Standards for Water Works, 2007 Edition, "water mains should be covered with sufficient earth or other insulation to prevent freezing," and for underwater crossings "a minimum cover of five feet should be provided over the pipe." Ticonderoga's water and sewer committee has established a 6' standard bury depth for all water mains and force mains. Contrary to existing standards, large sections of the pipeline between Gooseneck Pond and Eagle Lake and downstream from the Chilson Reservoir are exposed. Many of the exposed sections lay in open water. These exposed sections of pipe are susceptible to freezing, being struck by falling trees and rolling rocks, and frost heave, increasing the potential for breaks. This increased risk of waterline breaks creates an increased risk of contamination, especially for those pipes that are resting in creek beds and swamps.

At the Eagle Lake Chlorination Station, sodium hypochlorite and zinc orthophosphate are injected into the water for disinfection and corrosion control, respectively. Gooseneck water is soft with a low pH and a low score on the Langelier Saturation Index, meaning that it has high potential to cause corrosion. Pairing highly corrosive water with the unlined cast iron pipe that comprises the Gooseneck line is a recipe for corrosion. The zinc orthophosphate helps to protect the line below the chlorination station, but no protection is available between Gooseneck and the station.

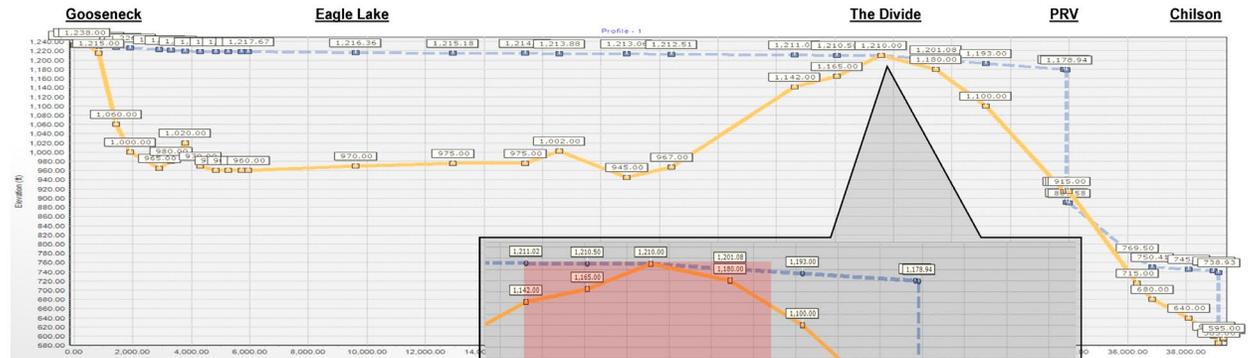


Ticonderoga is under an NYS DOH Administrative Tribunal Stipulation to upgrade or replace the Gooseneck Pond water supply on or before July 1, 2015.

# Gooseneck Pond Transmission Main



# Hydraulic Profile



## Hydraulic Profile: Gooseneck Pond, The Divide, and Chilson

Modeling of the hydraulic conditions of the transmission main from Gooseneck Pond to the Chilson reservoir was used to construct a hydraulic profile for characterization of the mains serviceable capacity. Pressure data collected along the main was used to calibrate the model calculations for headloss conditions in the main.

## Hydraulic Profile: The Divide and Chilson Low Pressure Zones

- Based on the pressure measurements and model calculations for hydraulic grade, the following low pressure zones were discovered:
- (4,500) ft of transmission main, including (16) users have inadequate pressures, in violation with NYS DOH Sub Part 5.
  - (2800) ft of transmission main, including (5) users having inadequate pressures, in violation with NYS DOH Sub Part 5.