Charlottesburg Bascule Gates

The Charlottesburg Reservoir is located at the border of Morris and Passaic Counties and is located between Kinnelon and West Milford Township. It is the terminal or last reservoir in the series of reservoirs used by the City of Newark for water supply. It drains to the Pequannock River.

At one time the Charlottesburg Reservoir dam had operable “bascule” gates that raised the level of water in the reservoir up to 5 feet, and provided about one-half billion gallons of additional storage.

However, about ten years ago during a flood event the gates were lowered quickly, sending a large volume of water downstream. Without any warning, communities below the reservoir were dealing with a sudden increase in the floodwaters. Due to the lack of a warning system, the DEP caused the City of Newark to cease using these gates.

It is our contention that the gates could easily be made operable again to use as a flood control measure with an adequate warning system established. The idea would be to raise the gates in anticipation of a flood event, providing additional storage of floodwaters in the reservoir.

After runoff had returned to more normal rates, the reservoir level could be slowly reduced by opening large valves at the base of the dam. Draining the reservoir in this fashion would prevent the increase of temperature in the river downstream that would occur if the bascule gates were lowered instead. It would be beneficial for aquatic life to see an increase in the cold water flow from the bottom of the reservoir rather than an increase in flows from the surface of the reservoir.

Once the level of the reservoir was reduced to the normal height, the bascule gates would be lowered in waiting for the next storm.

By our calculation, the additional flood storage represents about 77% of the flood flows in Bloomingdale for a single day.

The City of Newark estimates $1-2 million in costs to make these gates operable again. The City is willing to work with downstream communities and the state in making this happen. Other supporters are the Borough of Bloomingdale, the Borough of Riverdale, and the Pequannock River Coalition.

Calculations:

Flood stage gage height at Macopin – 5.5 feet

Flow at flood stage (approximate) – 1,000 cubic feet per second

Gallons per day at flood stage – 1,000 cfs * 7.48 gallons * 60 seconds * 60 minutes * 24 hours = 646,272,000 gallons per day

Storage increase in Charlottesburg Reservoir by use of bascule gates – 500,000,000 gallons (77% of daily flood stage flow)