

Wilson Pond Dam Gate/Flashboard Operation Guidance
Assigned Operators: Town of Wilton Wastetreatment Department

September 2, 2014

Objective

The objective of the Wilson Pond Dam gate/flashboard operation is to maintain a reservoir of water in the pond for the largest group of pond users to have the best experience possible, while fully accountable to the Town of Wilton's Wastetreatment Plant's Discharge Permit requirements.

Town of Wilton's Wastetreatment Plant Discharge Permit

The current five year, June 2011 to June 2016, Wastetreatment Plant Discharge Permit states;
Special Conditions (page 7 of 17)

A. Effluent Limitations and Monitoring Requirements

Stream Flow – The Town of Wilton shall make every reasonable effort, within its capacity, to operate the Wilson Pond dam such that a minimum stream flow of 7.5 cubic feet per second is maintained in Wilson Stream at all times. The Town shall notify the Department as soon as possible if the minimum stream flow cannot be maintained for any reason.

(Non-Permit language note: The stream flow is measured at the Wilson Stream Gauge Station located at 1321 Main Street, East Wilton.)

Operational Considerations

1. Flashboard installation/removal:

The primary reason for the installation of the flashboards is to raise the level of the Pond. It is estimated that the Pond holds 15,000,000 gallons for each inch of water at the dam's crest level. It is assumed that the Pond holds more or less gallons per inch when the level is above or below the dam's crest. By raising the Pond level eight inches, a calculated stream flow reserve of 120,000,000 gallons is available should the level of the Pond recede to the top of the flashboard and no water flow over the dam. By operating the canal side gate the minimum stream flow requirement of 7.5 cubic feet per second which equals 4,847,000 gallons per day could *theoretically* be met for 24 days without drawing the Pond below the dam's crest level. This is an important consideration for those who use the Pond who are on the influent end which is shallower than other areas. By minimizing the amount of time that the Pond may be drawn down below the dam crest level it has the potential of enhancing their Pond experience.

Installation: Typically the eight inch wide flashboards are installed around the second to fourth week in June after the spring runoff and rains have subsided and only an inch or two of water is flowing over the dam.

Removal: Typically the boards are removed late August to early September. However, if the season has been dry and the Pond is substantially below the crest, the boards may be removed at an earlier time.

2. Canal side gate operation:

The side gate is assumed to be approximately 24 inches square.
(The Department has no record of the gates exact dimensions)

The function of the side gate is to primarily feed Pond water to the stream when no or minimal water is flowing over the flashboards or the dam crest whichever condition is applicable. The gates secondary function is to supplement the flow of water that is flowing over the flashboards or dam crest when the level of the lake is or predicted to be substantially over the flashboards or dam crest.

Typically, the gate is open +/- 15% when it is the primary source of water to the stream. Should this not provide the 7.5 cubic feet per second it is adjusted to meet the requirement. The Department's position is that when the stream flow has reached the 10.0 cubic feet per second mark the gate is opened incrementally to maintain a slight cushion before any violation would need to be reported to the Maine DEP.

When there is substantial water overflowing the flashboards or dam crest the gate is opened various percentages which minimally assist the lowering of the Ponds level.

3. Weather

The most challenging of all action is a response to the prediction of inclement weather. There are those in the general public that are of the opinion that the level of the pond can be changed in a short period of time. The fact is that the only control that is available is the side gate which at 100% open may be able to lower the pond a couple of inches in 24 hours provided that the ground water table is low, there is very little recharging taking place within the watershed and no precipitation has occurred in the 24 hour period. Otherwise the side gate has a minimal impact.

Therefore, if the side gate is opened a number of days in advance reacting to a prediction that does not materialize the Pond would be drawn down unnecessarily.

Historically the Department has been very mindful not to over react to predictions.

4. Level of the Pond

The optimum level of the Pond is to have a stream flow reserve in place with a small amount of flow over either the flashboards or dam crest to keep the dam's wooden structure wet and to also

subsidize the stream tributaries to realize a minimum stream flow of 10.0 cubic feet per second as measured at the Wilson Stream Gauge Station, located at 1321 Main Street, East Wilton.

5. Head gates (2)

Located at the dam are two head gates that direct water to the canal area. A number of years ago they supplied Pond water to a power turbine and “line operated” equipment within the building located at the end of the canal. Research is currently being conducted by the building’s owner to reestablish the power turbine equipment. The canal is also the pathway of Pond water to be discharged through the side gate to Wilson Stream. Therefore, in order to be able to discharge through the side gate a minimum of one head gate must be open.

6. Canal and Canal Dam

The canal and its associated dam are private property, the owner being as currently designated within Wilton Maine’s Tax Map 15, Lot 5 documentation.

It is the opinion of the Wastetreatment Department, currently assigned operators of the dam, the canal and its associated structures were not designed to be used to channel high amounts of water to egress over the canal dam, but to retain within the canal a head pressure for the hydraulically operated equipment that was housed within the building.

Therefore the Department historically has not opened both of the head gates, which it feels, if done would allow a much greater volume of Pond water to impact the canal and its structures which may cause damage to the walls of the canal and also overwhelm the retention capacity of the canal dam itself.

This guidance is intended to be a living document that is to be expanded or adjusted as deemed necessary.

Should anyone have questions, desire clarification or more information please call The Town of Wilton’s Wastetreatment Department, Operations & Maintenance at 645.3682 or wiltonwasw@yahoo.com

Thank you,