



October 21 2019

Town of Shirley  
Conservation Commission  
Michael Fleming  
7 Keady Way  
Shirley, MA 01464

RE: Winter Water Level Drawdown 2019-2020

Dear Mr. Fleming

Aquatic Restoration Consulting, LLC (ARC) is working with the Lake Shirley Improvement Corporation (LSIC) to obtain a five year permit for an annual six foot winter water level drawdown and application of aquatic herbicides/algaecides for aquatic plant control. ARC filed a Notice of Intent (NOI) on behalf of the LSIC for drawdown on August 26, 2019 in both the Towns of Lunenburg and Shirley. Unfortunately the package was deemed administratively incomplete due to a missing signature from the Town of Lunenburg as the land under water and dam owner. LSIC has since obtained the required signature but are now delayed in starting the drawdown and will not be able to reach the target depth by December 1 if they do not start as soon as possible. There are years in which the target drawdown depth is not achieved due to the large watershed and inflow during precipitation events.

LSIC has been employing winter water level drawdown for many years; the 1987 Diagnostic/Feasibility Study of Lake Shirley documents six foot drawdowns being performed prior to 1977<sup>1</sup>. Typically, the LSIC starts the drawdown on October 15 of each year. The LSIC is required to limit daily drawdown to three inches per day and stop the drawdown on December 1. Under ideal conditions (no precipitation) it would require 12 days to reach the target three foot drawdown for flood and limited weed control and 24 days to achieve the target six foot depth for weed control. Under these ideal conditions, the LSIC could achieve a three foot depth by November 4<sup>th</sup> and a six foot depth by November 16<sup>th</sup> if the drawdown started October 23. However, the ideal condition is not the norm.

Using precipitation statistics available from the United States Geological Survey (USGS) gage station (01095220) on the Stillwater River near Sterling, between 4.1 and 11.4 inches of precipitation fell between Oct 15 and Nov 30 in the last five years (2014-2018 – average precipitation was 8.6 inches). Based on these data, between one and four days of drawdown are lost due to direct precipitation falling on the lake surface. Runoff from the 9050 acre watershed can potentially contribute another 1.1 – 3.2 million cubic meters of water to the lake during this time based on a 0.3 precipitation runoff fraction. This would equate to a potential loss of another 10 to 29 days of active drawdown, for a total of about 11 – 33 (average 25) potential lost days based on precipitation data from the last five years. With only 45 days available to execute and possibly more than half the days lost due to precipitation, successfully achieving a six foot target is highly unpredictable.

LSIC is requesting approval from the Town of Shirley to proceed with a three foot drawdown for flood control and permitted shoreline protection projects in Lunenburg until such time an Order of Conditions is issued by the Town of Shirley for the six foot drawdown. Not allowing the drawdown to start as soon as possible will prevent residents, whom have acquired permits for shoreline protection & maintenance projects, from proceeding with scheduled work. Additionally, not performing the drawdown puts lakefront homes at risk for basement flooding<sup>1</sup>. LSIC has completed the required coordination with state agencies (Massachusetts Department of Environmental Protection, Division of Fish & Wildlife and Natural Heritage). In addition, the Town of Lunenburg Conservation Commission Public Hearing for the NOI was closed on October 16 and

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<sup>1</sup> Metcalf & Eddy 1987. Diagnostic/Feasibility Study of Lake Shirley Lunenburg, Massachusetts August, 1987



the Order of Conditions was issued on October 21. If approved by the Town of Shirley Conservation Commission, the LSIC will conduct the drawdown in compliance with the Lunenburg Order of Conditions up to three feet until such time the Town of Shirley Conservation Commission issues an Order for all activities under the active NOI.

We understand this is not the typical process and appreciate your thoughtful consideration of this request. Please feel free to contact me, or LSIC representative Joanna Bilotta-Simeone if you have any questions or require additional information,

Sincerely,

A handwritten signature in black ink that reads 'Wendy C. Gendron'.

Wendy C. Gendron, CLM  
Aquatic Ecologist/Owner