The State of New Hampshire
Department of Environmental Services

Thomas S. Burack, Commissioner

July 23, 2015

RE: Information on needed repairs to Mendums Pond Dam

To Whom It May Concern:

The New Hampshire Department of Environmental Services' Dam Bureau (NHDES) is planning to repair Mendums Pond Dam, and will be drawing down the level of Mendums Pond for the repair starting in September 2015. The 175-year old dam is experiencing seepage of water through the dam. Some of the seepage was recently found to be carrying soil particles originating from the interior of the dam embankment. This can lead to serious problems developing within the dam, and it needs to be addressed as soon as possible. The dam is classified as a High Hazard Dam because its failure would flood houses in Nottingham and Lee and overtop roadways downstream, including U.S. Route 4.

The NHDES Dam Bureau has scheduled public meetings to discuss the repair project:

August 3, 2015
Barrington Middle School Cafeteria
51 Haley Drive
6:45 P.M. (Note the public meeting will be held concurrently but not part of the Board Selectmen's meeting)

August 10, 2015
Nottingham Town Hall
139 Stage Road
7:00 P.M. (Note the public meeting will be held as part of the Board of Selectman's meeting)

To provide you with some information about the repair project, we have enclosed a Frequently Asked Questions document for your review. In addition, NHDES will be posting updates regarding the repair project to the NHDES website – www.nh.des.gov. Search the A to Z list for the Mendums Pond Repair Project. Also, parties interested in receiving email updates can request to be included in the email list by sending their email information and name to Brian Desfosses, with the NHDES Dam Bureau, at bdesfosses@des.nh.gov, with the subject heading "Mendums Pond".

Sincerely,

James W. Gallagher, Jr., P.E.
Chief, Dam Bureau

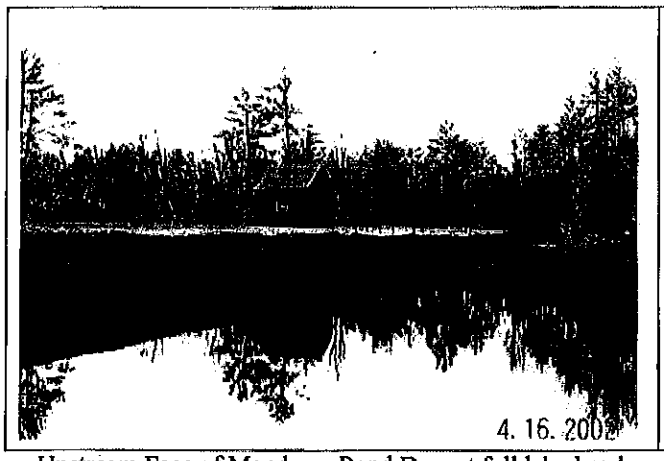
Enclosure: *NHDES Bulletin: Mendums Pond Dam Repair Project Frequently Ask Questions*

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

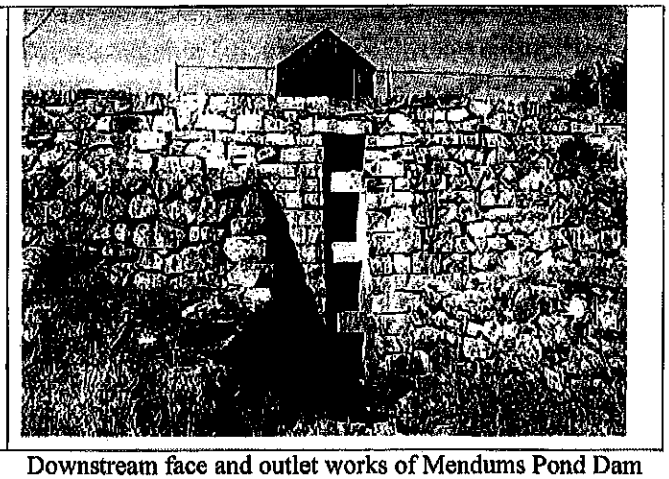
ENVIRONMENTAL BULLETIN

PO Box 95, Concord, NH 03302-0095 des.nh.gov (603) 271-3503

Mendums Pond Dam Repair Project
Barrington and Nottingham
Frequently Asked Questions (FAQs)



Upstream Face of Mendums Pond Dam at full lake level



Downstream face and outlet works of Mendums Pond Dam

The New Hampshire Department of Environmental Services' Dam Bureau (DES) is planning to repair Mendums Pond Dam, and will be drawing down the level of Mendums Pond (i.e., temporarily lowering its water level) for the repair starting in September 2015. Mendums Pond Dam is located in Nottingham, New Hampshire, but most of the pond is located in Barrington. The dam is approximately 31 feet high and averages about 36 feet wide and 440 feet long. The dam is an earthen embankment placed between upstream and downstream dry stone masonry walls. The dam was originally constructed in 1840 and acquired by the State in 1955. It is one of the highest laid stone and earthen gravity dams in New Hampshire. The dam is classified as a High Hazard Dam because its failure would flood houses in Nottingham and Lee and overtop roadways downstream, including U.S. Route 4.

Why is the pond being drawn down?

During inspections of the dam, DES discovered some problems with the dam that, if left unaddressed, could threaten the structural integrity of the dam. Therefore, it is necessary to draw down the pond to enable repairs to be completed and to make sure that the dam at Mendums Pond can operate safely and reliably for years to come.

What's wrong with the dam?
The 175-year old dam is experiencing seepage of water through the dam. Some of the seepage was recently found to be carrying soil particles originating from the interior of the dam embankment. This can lead to serious problems developing within the dam, and it needs to be addressed as soon as possible.

When is DES planning to start the drawdown and what will it entail?
Starting immediately after Labor Day 2015, DES will begin drawing down the pond approximately 20 feet to fully evaluate the condition of the foundation and upstream face of the dam and determine and implement the best method of repair. The pond's surface area will be temporarily reduced in size from approximately 265 acres to 83 acres. The deepest portion of the remaining water will be approximately 30 feet.

Has DES taken other steps to try to avoid this action?
Earlier this year, DES conducted an aggressive grouting program in the concrete outlet of the dam to reduce the seepage leaking from the dam. While seepage was reduced in some locations, it continued in other locations on the downstream side of the dam. To control the seepage, it should be stopped before substantial volumes of water can flow into the dam's interior and carry soil material from it. Other steps that DES has taken include retaining the services of an outside engineering consulting firm to evaluate the conditions of the dam. Based on the results of that evaluation, DES concluded that seepage cutoff walls could not be reliably constructed within the interior of the dam because of the condition of the dam.

What is DES planning to do to repair the dam?
Based on the limited data available to date, DES has developed two concepts involving building an impermeable wall against the upstream face of the dam and constructing a buttressing embankment on the downstream side of the dam. Because DES does not have definitive plans or records showing how the dam was originally constructed 175 years ago, the final design of the repair can only be determined after the pond level is drawn down and DES engineers can directly observe the foundation of the dam and the condition of its upstream face.

How long will it take to draw down the pond? Is there anything I need to do about my boat?
The drawdown of the pond will begin on or about September 9th, and will take place over a 30 to 45-day period, depending on weather conditions after the drawdown begins. Once the drawdown begins, the water level will not be raised again until the repair work requiring the drawdown is completed. Those residents with boats in Mendums Pond should make early plans to remove those boats from the pond before the drawdown begins. It is estimated that the pond level will be lowered 6 inches to a foot per day.

How long is the water level likely to be down?
Since DES cannot be completely sure of the condition of the dam's foundation and upstream face until the pond is drawn down, DES can only estimate at this time that the construction could take between 12 and 24 months. DES will raise the pond level as soon as the repair is successfully completed.

Has this ever happened before?
The last time that DES drew down the pond was in 1978. At that time, the drawdown was necessary to allow repairs to be completed on upper portions of the upstream face of the dam. The repair that DES plans to make this time will be more extensive than the repairs made in 1978. Other repairs to the dam were made before the State acquired the dam in 1955.

What will happen to the aquatic life in the pond?
Some of the pond life (fish and other aquatic organisms) will move downstream as water is gradually released from the dam. Since an estimated 83-acre pond will remain in place during construction, many organisms will be able to continue their life in the pond. The early timing of the drawdown should also allow amphibians and other aquatic life to adapt before they begin hibernating for the winter. DES will continue to consult with the New Hampshire Fish and Game Department to determine what additional steps might need to be taken to protect the various forms of wildlife in the pond.

What happens if the dam begins to have larger problems between now and Labor Day?
The dam is being actively and continuously monitored by DES dam personnel. DES has installed electronic monitoring equipment that allows DES to automatically collect real-time information on the behavior of the dam. In the event that the monitoring suggests that conditions are worsening, the pond will be drawn down immediately and the Emergency Action Plan (EAP) for the dam will be activated to notify property owners on the pond and downstream to protect life and property downstream.

Is there any way to avoid the drawdown and repair?
Unfortunately, there is no way to avoid this needed repair of the Mendums Pond Dam. The only way to repair the dam is to remove the force on the dam, caused by the weight of water in the pond, and allow access to the upstream face of the dam and foundation. That requires the pond to be lowered. While DES realizes that this will be an inconvenience to people who own property around the pond, DES also has a duty to ensure that the dam is safe for all, including those who live downstream. In addition, the repair is needed to make certain that the pond remains in place and can be enjoyed for years to come.

What can downstream property owners expect?
Water released from the dam will be higher than normal downstream during the draw down process (this normally occurs in November but will be deeper and earlier this year). Once the pond is drawn down, the pond's water level will be maintained at that elevation, and any rainfall or streamflow coming into the pond will be allowed to flow downstream naturally.

For more information:
Updated information on the repair project will be posted on the NHDES website – www.nh.des.gov. Search the A to Z list for the Mendums Pond Repair Project. Also, to receive email updates please contact Brian Desfosses, with the NHDES Dam Bureau, at bdesfosses@des.nh.gov, with the subject heading "Mendums Pond".

Issued July 23, 2015