

## Response to the Durham Public Works' January 26<sup>th</sup> 2022 FAQ Document

1. **What purpose does the Mill Pond Dam serve today?**
  - a. The Mill Pond Dam is a historical centerpiece as the site of origin for Durham. The Ambursen Dam is on the NH Historical Register and is eligible for the National Register. There has been a dam and Mill Pond for hundreds of years. It has served the residents of Durham by providing free recreation, wildlife habitat and as a retention pond to help remove excess nutrients which originate from agricultural practices and paved services with increasing development.
  - b. The Durham Public Works' FAQ fails to mention that NH Fish & Game rates the majority of the Mill Pond dam impoundment as the **Highest Ranked Wildlife Habitat in NH**.
  - c. The FAQ also fails to mention that the NH DES Watershed Report Card for numerous years, including 2020, gives the Mill Pond Area and separately the Hamel Brook, their very best grade for Potential Drinking Water Supply: "They meet the water quality standards/thresholds by a relatively large margin."
  
2. **Why is the removal of the Mill Pond Dam a priority project to Federal and State scientific and regulatory agencies such as the New Hampshire Department of Environmental Services (NHDES) and the National Oceanic and Atmospheric Administration (NOAA)?**
  - a. The issue is that the Oyster River and College Brook system is an impaired waterway from upstream inputs, including Moore Fields, paved surfaces, and previously, coal piles and direct drains from UNH science labs into College Brook. The FAQ fails to mention the reason for the water quality impairment, which can be found in the 2014 study they commissioned: "reductions in phosphorus inputs to College Brook will be critical in the long term to reducing phosphorus concentrations in Mill Pond." There has been no effort to address the sources of inputs that cause impairment, especially water flow from the UNH Dam that greatly reduces turnover in the Mill Pond during dry periods.
  - b. The FAQ fails to mention that the dam is currently classified by the NH Dam Bureau as Low Hazard Dam (no possible loss of life, low economic loss to structures or property) or that it could be reclassified as a Non-Menace Dam (the least hazardous rating for a dam).
  - c. The FAQ neglects to mention while they "may apply for grant funding to assist with the costs," they have yet to ever secure any grant funding. The Town's most recent request in 2021 was denied, as well as the \$330,000 grant that they asserted was available for the 2020 study. The FAQ also fails to mention that grant funding is available for Dam restoration. Specifically, LCHIP grants up to \$500,000 are currently available for dam restoration. In addition, US News reported the following on November 16, 2021: "Reclamation will get an additional \$100 million for repairs at certain old dams. An additional \$118 million will fund repairs at dams through the Natural Resources Conservation Service."
  
3. **How long has the Town and Town Council been working on this? What has been the process, including points of public feedback.**

- a. In 1984 the town voted to develop plan for maintenance of the Mill Pond. A number of studies have been funded but nothing has been done other than a minor repair of the gates of the dam. The town has spent \$523,000 on studies but only \$3,000 on repairs.
  - b. The FAQ neglects to mention that they knew the answer to what is causing the impairment in the Mill Pond in 2014, after spending \$125,000 on studies: “TP (total Phosphorus) concentrations in College Brook were three to four times higher than those observed upstream. Although flows are lower in College Brook than the Oyster River, reductions in phosphorus inputs to College Brook will be critical in the long term to reducing phosphorus concentrations in Mill Pond.” Source: “2014 - Durham Ponds Assessment and Plan Prepared by VHB.
  - c. Why did we spend another \$400,000 on additional studies, instead of acting on the results of the \$125,000 we had already spent on studies? **Many residents are concerned that the latest VHB study was prepared to justify removal of the dam, the decision seeming to have been made before funding the study. Nearly \$400,000 was spent to justify the decision already made.**
4. **Why was VHB Engineers hired?**
- a. The FAQ does not mention that the ‘competitive’ process it refers to was based on this Request for Qualifications solicited by the Town of Durham in the Spring of 2019: “The Town of Durham, NH is soliciting letters of interest and qualification statements for engineering services for the **Dam Removal Feasibility Study** – Oyster River Dam at Mill Pond, in Durham, NH. Please submit qualification statements and backup information totaling no more than 15 sheets on or before 3:00 PM on Tuesday May 7, 2019. Please contact Durham Department of Public Works at (603) 868-5578 or email Town Engineer April Talon, P.E. at atalon@ci.durham.nh.us, for more information.”
  - b. VHB has worked on other studies focusing on dam removal the focus of the proposed study. If one wants a certain result, then one selects a firm that has that track record in that area.
5. **What is the process the Town would have to undertake to obtain the non-menace waiver that would be required by the NHDES Dam Bureau to move forward with dam stabilization?**
- a. The FAQ omits the fact that the abutters generously made several public offers for a waiver to the Town Council and were not taken up on any of them. The abutters have recently put their property on the market and the possibility of a waiver is now gone.
  - b. Apparently, the dam is already assumed to be non-menace and that needs to be clarified. No effort has been made to do that.
6. **What is the estimated cost of dam stabilization and dam removal/river restoration to Durham taxpayers?**
- a. Why does this cost change each time the Town addresses this question? The Town Council Chair stated the following in a 9/17/2021 Fosters Daily Democrat article: “Marple said some argued the \$1.5 million price to shore up the dam and leaving the pond would be comparable to the \$1.9 million to remove it.” VHB stated the updated costs in their 9/2/2021 – Supplemental Analysis Public Questions and Comments as the following: “Alt 3: Stabilization - Total Present Cost \$1,392,518 Alt 5:

Removal & Channel Restoration - Total Present Cost \$1,462,950". Why the difference? And why does the Town choose to refer to Dam stabilization w/ Dredging - Total Present Cost \$5,321,198", when the Town also continues the narrative that dredging is not possible? Is that intended to mislead voters on the cost?

- b. Why does the Town continue to ignore other potential costs that could impact the cost for removal? Is it possible that these costs will only get some transparency once the dam is removed and it is too late to unwind this solution? One thing we know for sure, there are substantially more unknown costs with dam removal than with dam stabilization. Some of these unknown costs are:
  - i. Lost Tax revenue due to reductions in water-front property values.
  - ii. The potential legal liability for decreased water-front property values.
  - iii. The very real potential of impacts to wells, as only 3 wells of the 30 properties that about the impoundment were actually included in the consultant's analysis.
  - iv. The very real potential that contaminated sediments will require expensive remediation. This cost will be unknown until removal, as no plan exists currently to remediate these sediments. The Ecological Screening Assessment of Sediment Sample Analytical Results on page 60 of VHB's original November 2020 study states: "Of the 18 sediment samples taken from the Mill Pond and Upstream, 11 showed high risk of adverse effects to ecological receptors for PAHs (Polynuclear Aromatic Hydrocarbons). 17 of 18 samples showed high risk of adverse effects to ecological receptors for Metals (arsenic, cadmium, chromium, lead, and mercury)."
  - v. The very real potential that the Town Landing channel will require dredging once the dam is removed. The VHB study states the following on page 54 of their November 2020 report : "In total, dam removal is expected to cause increase the sediment load to the tidal reach beyond NH 108 by more than 155,000 ft<sup>3</sup> in five years and by more than 262,000 ft<sup>3</sup> in 50 years."
- c. There is no mention of LCHIP and other sources of funding for stabilization and the anticipated funding for removal is not guaranteed. Cost of stabilization is likely lower than projected by VHB since their approach would significantly alter the structure.

**7. Will dam removal impact property values on the backwater?**

- a. The FAQ response articulates the uncertainty and potential costly liability to the Town - "According to the NH Department of Environmental Services, this is a difficult question to answer." It is not difficult, it just does not mesh with the Town's narrative. It also does not mesh with a narrative of who will be responsible for these property value reductions. It will be who is always responsible for the cost, the taxpayers of Durham. If you have ever looked at a home on waterfront, you know it will cost more than a home across the street. **If waterfront meant nothing, why does the Town of Durham have a special designation for homes on the water?**

**8. Is the Mill Pond an Impaired Water body? Why?**

- a. The FAQ correctly states that the Mill Pond is on the NHDES's Section 303(d) Clean Water Act priority list of impaired water bodies, but fails to mention why. In fact, nowhere in the FAQ does the Town talk about the elephant in the room, College Brook

(as mentioned above), and the well documented impairment to the Mill Pond caused by College Brook and UNH.

- b. College Brook is one of the most polluted streams in NH and the Oyster River is the recipient of runoff from both agricultural fields and extensive impervious surfaces with more being added with continued development. A steady release of water from the UNH Dam would greatly reduce the buildup of algal blooms and lowering of oxygen levels; that has not been addressed and neither has reducing runoff from fields and surfaces.

**9. Why can't the Town just dredge the Mill Pond?**

- a. Toxic sediments from runoff and previous coal piles and drains from science labs at UNH make disposal an issue. Any channel restoration as proposed with dam removal will face the same issue. There have been two permits issued for dredging the pond but they have been allowed to expire with no action taken. Also, VHB stated, "Dam removal is expected to increase the sediment load to the tidal reach beyond NH 108 by more than 155,000 ft<sup>3</sup> in five years and by more than 262,000 ft<sup>3</sup> in 50 years." That is a significant amount of toxic sludge, laden with heavy metals, downstream into the tidal portion of the Oyster River. This area is already heavily silted in, not to mention the oyster farms just downstream.

**10. If dredging cannot happen, why can't the Town of Durham clean up the water quality in the pond?**

- a. Part of the FAQ response is correct in that this is an issue that needs to be addressed in the "entire Oyster River watershed." They list neighboring towns, such as Lee, Nottingham, Barrington, and Madbury, but fail to mention a key polluter, UNH. Why?
- b. College Brook begins at the UNH Dairy and receives runoff from athletic fields and snow dumping and drainage from the Plaza parking lot, which the Town has done nothing about. The Oyster River receives runoff from multiple sources and nothing has been done to address those. Steady water release from the UNH dam would help water quality in the pond but do nothing to solve the issue of negative inputs.
- c. The full answer to this question is we MUST clean up the entire watershed. And we need to hold polluters accountable. That is a difficult solution, but just because it is difficult does not mean it is not the right solution.
- d. Removing the dam removes only what is holding back the impaired water. We have done nothing to address what caused the impairment. How can this be an environmental and ecological solution when all we addressed was a symptom of the problem (namely the impaired pond), which consistent water flow from the UNH dam would fix?
- e. In reality, it is simply a way to meet the letter of the law to address an impaired waterway and get it off the state's list of impaired waterways. It defies common sense, and certainly is not what the EPA has in mind with the Clean Water Act.

**11. Is the Town of Durham in compliance with its EPA MS4 Stormwater Permit?**

- a. THE FAQ correctly states, "the Town is subject to Appendix F and H of the MS4 permit which are related to requirements for the reduction of bacteria/pathogens, nitrogen,

and chloride from its waters.” And their solution, as stated above is to simply remove the dam, not address the cause of the impairments.

- b. Why didn't the study talk about the implications for the MS4 permit at all? Could it be this was intentionally excluded, given it might be the Town's major motivation for dam removal?
- c. There have been some efforts to address runoff in new construction, but the Oyster River runs brown with each significant rain event so not solving the problem.

**12. Is the EPA going to issue fines to the Town of Durham for not cleaning up the Mill Pond?**

- a. The FAQ answer, “The Town is in compliance with the MS4 Stormwater Permit” is correct at this point in time. It is in the final years of the permit that require the reductions mentioned above, and is in our opinion, the largest incentive for the Town to remove the dam. We believe that the Town is generally a “good environmental steward through its efforts with land conservation and water resources protection.” The exception would be their narrative that removing the dam is good stewardship. Addressing the cause of the impairments is good stewardship.
- b. Any efforts relating to toxic sediments in the pond may change EPA's focus on this issue.

**13. What environmental implications are there to removing head of tide dams such as the Mill Pond Dam?**

- a. The FAQ ignores the destruction of a 400-year-old ecosystem, which thrives in this 24-acre impoundment. Are some species of wildlife and plants on threatened lists? Yes. Will these species be impacted? Yes. Who gets to decide these species are inferior to other species they claim will now thrive?
- b. There is the fallacy that dam removal will enhance fish runs and provide new habitat, but repeated observations of what will remain with dam removal suggests that the area impacted by dam removal will not support any aquatic life. The few inches of water depth will eliminate fish populations, as well as amphibians, turtles, water birds, beavers, and muskrats. The exposed surfaces will be colonized by invasive plant species and there is unlikely to be either funding or effort to manage the close to 24 acres of exposed surfaces. Each system is unique and the evidence from past drawdowns of the Mill Pond suggests that what is claimed by proponents is very unlikely to happen.
- c. The FAQ answer states, “The Town received comments from many environmental groups such as The Nature Conservancy, Piscataqua Region Estuaries Partnership (PREP), the Conservation Law Foundation, Trout Unlimited, Wild Rivers, American Saltwater Guides, Native Fish Coalition and others, all of which supported removal of the Mill Pond dam.” They failed to mention that PREP has received a total of \$525,000 over the past 3 years from the Town of Durham, as part of the settlement agreement with Eversource. Durham, according to the settlement agreement, had control over the allocation of these funds to environmental groups. Could money be an impetuous for support? Certainly, the motivating factor for the fish groups is revenue generated from sport fishing.

**14. How much river would be restored with dam removal with the water supply dam at UNH located upstream?**

- a. The FAQ response is “at least 2.6 river miles of stream habitat would be restored to a free-flowing condition if the head of tide dam were to be removed, including approximately 1.8 river miles on the Oyster River mainstem, 0.4 miles of Hamel Brook and 0.4 miles of College Brook.” This is very misleading. College Brook will not be affected at all as it flows down into the pond. The same is true for the Oyster River from Thompson Lane to the UNH Dam. Only the pond up to Hamel Brook and the short river section to Thompson Lane will be impacted. That means that habitat in the Oyster River to support aquatic life will be severely reduced to the section above Thompson Lane – not a lot of habitat to support fish and other aquatic life.
- b. Even if it is truly 2.6 miles, that pales in comparison to the dam removal cited by the consultants, the Exeter dam removal, where in excess of 20 miles were restored.
- c. **The FAQ focuses on restoring the river. However, what the VHB report describes as restoration is dredging a channel lined with riprap for about 500 ft above the dam site. The accurate term for this is channelization and definitely does not represent restoration to a free flowing river.**

**15. Could the water supply dam at UNH be retrofitted with a fish ladder if Mill Pond Dam is removed?**

- a. The FAQ states that “NH Fish and Game has indicated that the addition of a fish ladder at the UNH reservoir dam is likely to be feasible.” This statement defies the logic of removing a dam with a perfectly good fish ladder in the hopes another one might be built up-stream on the 20+ ft UNH Dam, which makes a functional fish ladder at a realistic price more of a dream than a reality.
- b. Images from a draw down in 2016 suggest that the reservoir is heavily silted in and would need dredging to make it suitable for fish runs. The fish ladder on the Mill Pond Dam was installed in 1975. Why has nothing happened with the UNH Dam in all this time?

**16. What affect would dam removal have on fish passage and populations, specifically Blueback Herring?**

- a. A major talking point for dam removal has been enhancing herring runs. Dam removal would eliminate any habitat for alewives and reduce habitat for Blueback Herring juveniles to only the stretch above Thompson Lane. Adults only spawn above Thompson Lane now, but juveniles currently have the impoundment, which will be gone with dam removal. American Eels will also be limited to the stretch above Thompson Lane which will further impact their populations. Without a fish ladder, there will be no monitoring of fish runs on the Oyster River making it very difficult to know whether the impact will be positive or negative.
- b. Herring runs on NH rivers have been declining. Climate change, not the Mill Pond Dam, is likely one of the contributing causes. Herring and other bait fish have simply migrated north into Maine in search of cooler waters for feeding and breeding. Comparing Oyster River herring runs to Exeter River is misleading given the Exeter restoration restored 10 times the amount of habitat and there is not another Dam 1.8 miles upstream.
- c. The FAQ ignores the fact that the ‘restored’ river will run dry during substantial portions of the summer months when there is no flow over the UNH dam. Whatever herring exist

today in the Mill Pond are much better served by addressing the cause of the impairment to the impoundment than removing the impoundment.

**17. Are there pollutants trapped in the pond that would negatively impact the downstream portion of the Oyster River and Great Bay?**

- a. The FAQ answer states these are “not unusual” and “commonly found.” Their answer belies the simple fact that it is not usual and not common to unleash sediments that have accumulated for 400 years.
- b. The FAQ answer belies the findings of their consultants, that 60% of the sediment samples “showed high risk of adverse effects to ecological receptors for PAHs” and 94% of the sediment samples “showed high risk of adverse effects to ecological receptors for Metals (arsenic, cadmium, chromium, lead, and mercury).”
- c. The FAQ answer ignores an independent 2020 study done by a UNH civil engineering major in the Honors Program at the University of New Hampshire. That analysis of Mill Pond samples showed Mercury contaminants “with a peak value of 3,800 parts per billion. Several sediment samples from the Mill Pond cores contained mercury levels not only above the NOAA Lowest Effect Level (LEL), but also above the NOAA 1999 Severe Effect Level (SEL) for mercury in fresh water, which is 2,000 ppb and describes a contamination level that causes pronounced disturbance for most freshwater benthic organisms.” For comparison, this study also analyzed sediment sample before the Sawyer Mills dam was removed in 2020 and found Mercury levels were at most 105 ppb (parts per billion), well below the NOAA 1999 Lowest Effect Level (LEL) of 200 ppb, which describes the lowest tolerable mercury concentration for most benthic organisms in fresh water.” Mercury contaminants in Mill Pond sediments are 38 times higher than those found in Sawyer Mill sediments.
- d. The FAQ also states, “Final engineering design of dam removal would include a plan to stabilize any at-risk sediments identified.” The problem with this is they are not going to know what is truly in these sediments until they remove the dam and remove the sediments to reshape the channel. As mentioned in their response, “Sediments that are removed from the Mill Pond as part of a dam removal and river restoration project will likely be tested again.” That is past the point of return and certainly ignores the cost of what are clearly severely contaminated sediments. The taxpayers will not have the luxury of ignoring that cost.

**18. If the Mill Pond Dam were to be removed, will invasives take over the area including the backwater?**

- a. Given that the Mill Pond impoundment covers almost 24 acres, \$130,000 over 5 years seems like a low estimate to manage invasive plants and there are invasives waiting to colonize exposed habitats. And what happens after this 5-year period that the \$130,000 covers? Our Town Administrator has already indicated as recently as recently as 11/1/2021 in a Town Council meeting that the Town does not have the funds to maintain existing vegetation management. Look at College Brook below the Plaza parking lot. Invasive species did not occur in NH in the precolonial era so restoration to that period is a fallacy.

**19. Was recreation considered as part of the feasibility study?**

- a. The FAQ largely confirms that all recreational activities, such as fishing, kayaking, boating, ice skating will “no longer be viable,” but “birdwatching as a form of recreation would not be negatively affected.”
- b. Minimal attention was given to recreation in the VHB study and some of what was described was associated with the tidal portion of the Oyster River below the dam. The impoundment provides a variety of recreational activities that are free and available throughout the year. No effort to highlight this resource has been made available by Parks and Recreation even though winter sports on the pond have been conspicuous for anyone traversing Mill Pond Road in the winter. Wildlife habitat similar to College Brook below the Plaza is not likely to attract much attention as a recreation destination.
- c. Recreation during all four seasons on Hamel Brook was not addressed in the report. These opportunities will be completely eliminated by dam removal.

**20. Who has access to use the Mill Pond backwater? Does the public?**

- a. The FAQ statement that “The Mill Pond and backwater is not easily accessed by the public” is simply wrong. Huge sections are accessible via public access on the Foss Farm trail system. In addition, the entire length of Mill Pond Road is accessible. It simply has not been maintained by the Town due to neglect. Finally, the Town has public access via the 5-acre lot, known as “The Meadows”. This lot is located right off 108, next to the large 15-acre conservation easement on the (FKA) Mill Pond Theater Property. While there is no public parking, the land and waterfront is indeed open and easily accessible to the public. The Town’s narrative that the impoundment is for the benefit of private residences is not accurate. A majority of the people now enjoying skating on the wonderful ice are not these waterfront property owners.

**21. Is the Mill Pond Dam on the Oyster River a historic dam and what does this mean?**

- a. The FAQ states that “Stabilizing the dam by encasing it in concrete.” This is just one solution proposed by their consultants. Why hasn’t the Town ever put out for bid requests for estimates to repair the dam? How would this impact the Town’s narrative that dam stabilization is more than dam removal if indeed dam removal grants are reality? The fact is the studies we paid for reveal “the physical test properties of the Durham Falls Dam show the compressive strengths to be very high.” The well documented structural impairments are with the gate structure on the left and several of the ribs on the down-stream side of the dam. The Town has created the narrative and illusion that stabilization is only possible with 1 option suggested by 1 consultant.
- b. The Ambursen-style dam is unique and is on the NH Historical Registry and qualifies for the National Registry. VHB suggested the dam would have to be encased to repair it, but buttressing the basal plates as suggested by retired Professor Gress, an expert in concrete, would maintain the structure and be cheaper.

**22. Will the history be preserved with Dam Removal?**

- a. The FAQ answer suggests that we “would restore the Oyster River as a free-flowing river,” ignores the fact that the UNH dam is right upstream, on the west end of the UNH campus.
- b. The FAQ also states that this is “recommended by representatives of the Indigenous community.” Prior to colonial times, Indigenous cultures in NH were substantial with complex permanent communities. Their history has been poorly documented at best, but there are apparently artifacts of their habitation near the dam site and removal would likely destroy that history before it could be documented. To restore the river to precolonial times would require elimination of invasive species and almost all development in the watershed. Better to preserve the dam and artifacts and focus on documenting the rich cultural heritage of those times.
- c. While Durham residents deeply regret the way indigenous people were treated in Durham hundreds of years ago, we feel it is disingenuous to pretend that removing the dam will return the river or the land surrounding the river to its original state. It will not. There is no going back. We can and should, however, begin to address the underlying causes of impairment of this waterway in order to improve water quality in College Brook and the Mill Pond. We believe that this is the most appropriate course to honor the Indigenous people, and indeed honor all people. What greater tribute could we bestow to the original inhabitants and future generations than a clean environment?
- d. There is currently no signage to inform the significance of the dam and pond and it is unlikely that there would be any afterwards given how difficult that site is to access. VHB proposes channel restoration and techniques to stabilize sediments. The images produced show channelization with riprap, which does not suggest a restored natural free-flowing river. During the summer months almost no water flows down the river and over the dam so free flowing is not accurate due to the UNH Dam and upstream development. Also, the only area impacted by dam removal would be the impoundment and up to Thompson Lane. Most of the Oyster River and all of College Brook would not be affected. Therefore, restoration to a natural system is a fallacy.

**23. What will the river look like if the dam is removed?**

- a. The FAQ suggests the ‘restored’ river will “create conditions favorable to aquatic habitat for upstream fish passage once flow is returned to the full channel.” This ‘channel’ will be nothing more than a low flow creek most of the time, lined with rip-rap stone used to protect the shoreline from erosion and scour. It will not be navigable by even a kayak any time, with the possible exception of an hour on either side of high tide. In the summer, when no water comes over the UNH Dam, it will be a trickle from Hamel Brook and the polluted College Brook. While the Town has been quiet on this, what will become of the large tract of land the Town will now own adjacent to Mill Pond Road that used to be the Mill Pond? The most likely outcome will be continued neglect which will result in a habitat similar to College Brook below the Plaza for most of the impoundment and a very artificial channelized section near where the dam was. Hardly a natural system.