

**Great Dam Feasibility Study and Impact Analysis  
Response to Public Comments  
May 23, 2012**

**Introduction**

During a public meeting for the Great Dam Feasibility Study and Impact Analysis (the Study) on September 14, 2011, meeting attendees were encouraged to provide comments and ask questions about various aspects of the Study. To facilitate this discussion and exchange of information, project team members were available at topic-specific stations to record public comments and questions pertaining to the Study. The following table contains responses from Project Partners and the Study’s consultants to the comments and questions received at each station.

**Station 1: Hydrology, Hydraulics, and Flooding**

Public Comment		Project Team Response
1-1	How come below dam isn't looked at on impacts because of flow differences?	The consulting team conducting the Study developed a model which extends a certain distance downstream. The preliminary results of this model show that there is no effect on water surface elevations or velocities downstream. This is an expected result, because this dam is operated as a run of the river* dam with an operable gate, which typically does not affect downstream flows. More information on these findings will be presented in the Study's final report, expected to be issued this summer.
1-2	Will pipes under the Squamscott River be affected?	The Town of Exeter's sewer system has a series of four pipes under the Squamscott River in the vicinity of Clemson Pond. Based on the results of the hydraulic model, impacts to this existing infrastructure are not expected.
1-3	Clemson Pond Affected? There are a lot of contaminants there.	The consultant has been tasked with conducting sampling of sediments to determine if there are contaminants present. Sampling was conducted in November 2011 and included a sampling station near Clemson Pond. These sampling results are consistent with previously-collected data and confirm that certain contaminants are present in sediments in this reach of the Squamscott River. Since the hydraulic modeling results suggests that the potential for scouring downstream of the dam is no greater than that under existing conditions, there should be no increased ecological risks if the dam is removed. The consultant is currently coordinating with the NH Department of Environmental Services (DES) to determine whether any further testing or analysis is necessary. The outcome of this coordination will be presented in the final assessment in the final report.
1-4	What about the Penstock under the library?	The penstock under the library supplies the mills with water that can be used for their cooling system, irrigation and fire suppression. Additional information about the penstock will be provided in the Study's final report.
1-5	How does the mill fit in with their water use?	The Town will perform a legal review of the mill's water withdrawal rights. As stated in item 1-4, the mill uses river water for cooling, irrigation and fire suppression. More information on this topic will be available in the final report.

### Station 1: Hydrology, Hydraulics, and Flooding (continued)

Public Comment		Project Team Response
1-6	What will water flow be upstream? If someone finds that they have 15 feet of mud on what is at present lawn, will the town be prepared to help people restore their property?	Removal of the Great Dam would reduce the width of the upstream channel. Areas formerly in the river channel would naturally re-vegetate over time.
1-7	Will flow on Exeter River and Squamscott change? Ships used to come up to Exeter, will that be possible again?	As a run of the river* dam with an operable gate, the Great Dam only influences the depth of water upstream. The removal of the Great Dam would therefore have no direct influence on the depth of water downstream and would not improve or impact navigation in the tidal portion of the river.
1-8	It helps out a lot when the town is proactive in dropping the water level before a big rain.	This is current Town policy.
1-9	Does the town actually measure the water level every day?	Town staff measure and record water levels every business day. Water level observations are made on the weekends; however, the levels are not recorded.
1-10	I'm curious about what the river is going to look like when the dam is removed. There have been big floods upstream in a mobile home area that cut out chasms around 12 feet deep, which may be typical of what happens when you have a flood cutting through a river flood plain. Could something like that happen between the dam and Gilman Park and beyond if the dam is removed? We could get a lot of water running through this level flood plain.	A series of photographs taken during the November 2009 drawdown of the dam provides some insight into what the river would look like if the dam were to be removed. As part of the Study, the town may pursue additional visual renderings so that the public can better understand the aesthetic impact of the dam removal alternative.
1-11	Will removing the dam help scour out sediment from downstream?	Run of the river* dams typically do not influence downstream velocities or water depths, which would be primary factors in scour. Tidal forces within the Squamscott River will continue to exert a much greater influence on channel scour.
1-12	Will canoeing improve downstream?	As discussed in our response to Comment 1-10, removal of the dam will not change water depths or velocities downstream of the dam, so canoeing conditions would not be expected to change.
1-13	The Exeter Housing Authority has 85 units with 100 elderly and disabled people. We have had two 100-year floods within 20 feet in the last 15 years and the only reason why the building hasn't been touched is because it is 6 feet above the flood line on the maps. What will be the effects both with and without the dam at the time of a 100-year flood coinciding with high tide?	As part of the Study, the consultant has developed a model which extends a certain distance downstream. The preliminary results of this model show that there is no effect on water surface elevations or velocities downstream. This is an expected result, because this dam is operated as a run of the river* dam with an operable gate, which typically does not affect downstream flows. More information on these findings will be presented in the final report.

### Station 1: Hydrology, Hydraulics, and Flooding (continued)

Public Comment		Project Team Response
1-14	If the dam is removed will the area which the water transverses be greater or smaller (not just in terms of water level, but also spreading horizontally)?	Generally speaking, the width of the river will be narrower than under its current impounded (the area influenced by damming of water) condition. The effect of this will vary along the length of the impoundment. The amount of change would be most noticeable near the dam, but would diminish upstream until the change becomes unnoticeable near the NH 108 bridge.
1-15	A property owner close to dam says that one thing that will be gone is the impoundment. What would replace that body of water? Open space? A lot of time of year there's not much river and you can't even see it. Is this what we can expect with the dam removal?	A series of photographs taken during the November 2009 drawdown of the dam provides some insight into what the river would look like if the dam were to be removed. As part of the Study, the town may pursue additional visual renderings so that the public can better understand the aesthetic impact of the dam removal alternative.

\* A run of the river dam is built across a river or stream for the purposes of impounding water where the impoundment at normal flow levels is completely within the banks and all flow passes directly over the entire dam structure within the banks, excluding abutments, to a natural channel downstream.

### Station 2: Water Supply

Public Comment		Project Team Response
2-1	How deep is the pump station?	The river intake is located in a deep section of the Exeter River across from the Gilman Park boat launch. The normal depth of the water at that location is approximately 13.75 feet. According to Town records the intake for the river pump station is approximately 7 feet below the normal water level. During the river drawdown in November 2009 the water level dropped 3.75 feet at the river pump station and the water supply was still able to pump water from the river. Also, please see the Water Supply Alternatives Study – Final Report for additional information: <a href="http://www.town.exeter.nh.us/river%20study/RIVER%20STUDY%202010.PDF">http://www.town.exeter.nh.us/river%20study/RIVER%20STUDY%202010.PDF</a>
2-2	What water rights does Philips-Exeter Academy have?	Gillis v. Chase, 67 N.H. 162 (1891) – A NH landowner, whose property abuts a stream or a river, shall have the “right to divert the water for use to a reasonable extent...because each riparian proprietor having the right to a just and reasonable use of the water as it passes through and along his land...And as the reasonableness of the use is, to a considerable extent, a question of decree, and largely dependent on the circumstances of each case...”.
2-3	How accessible is the water immediately adjacent to the river?	The Study will evaluate impacts of dam removal or modification on recreational river access such as boating, fishing, the local camp grounds, etc. Sites that have been specifically identified as high use areas are included as sensitive sites and will be directly looked at for impacts.

## Station 2: Water Supply (continued)

Public Comment		Project Team Response
2-4	What are the alternatives for water supply?	The Water Supply Alternatives Study performed in 2009 presented an integrated management approach for the Town. The concept of having many water supply sources would create flexibility for high supply demands, system maintenance down time, source contamination and drought conditions. With the reactivation of the Stadium and Gilman Park wells and construction of a new groundwater treatment facility, approved by Town vote in 2012, the Town will move a step closer to having this integrated system in place. Therefore, the Town will not be as reliant on the river to meet a majority of their water demand as has been the case since the early 70's. Also, please see the Water Supply Alternatives Study – Final Report for additional information: <a href="http://www.town.exeter.nh.us/river%20study/RIVER%20STUDY%202010.PDF">http://www.town.exeter.nh.us/river%20study/RIVER%20STUDY%202010.PDF</a>
2-5	How would removal affect wells?	The Study consultant has been tasked with conducting an analysis that will consider impacts to public and private wells in the vicinity of the dam. More information on this topic will be presented in the final report.
2-6	How will the water quality change if the dam is removed?	The consultant conducting the Study has been tasked with conducting an analysis that will review the likely effects on water quality in the river. Generally speaking, water quality would be expected to improve with the removal of the dam. More information will be presented in the final report.
2-7	Are there any drawings of the river before the dam was put in?	The Study team includes a historian and archaeologist to research the history of the dam and surrounding area. They have determined that it is likely that a dam existed in this location as early as 1640. We have not been able to locate any accurate depictions of the river prior to construction of a dam at this site.
2-8	How do shifts in technology better enable hydropower? If hydropower is not feasible today, will feasibility change as technology improves?	Hydropower is not currently financially feasible. Please see the Hydroelectric Review Assessment Final Report for additional information: <a href="http://town.exeter.nh.us/river%20study/Exeter%20Hydroelectric%20Report%20Review%2003-31-11%20Final.pdf">http://town.exeter.nh.us/river%20study/Exeter%20Hydroelectric%20Report%20Review%2003-31-11%20Final.pdf</a>

### Station 3. Dam Safety

	Public Comment	Project Team Response
3-1	<p>What is the hazard classification of the Great Dam? Is that based on the structural integrity of the dam or something else?</p>	<p>DES assigns hazard classifications to dams based upon the criteria contained within its administrative rules. The condition of the dam has no bearing on that assignment. At present, DES maintains a classification of “Low” for the Great Dam. This classification has been consistent since at least 1977. The definition of a low hazard dam is reproduced below:</p> <p>Env-Wr 101.07 “Class A structure” means a dam that has a low hazard potential because it is in a location and of a size that failure or miss-operation of the dam would result in any of the following:</p> <ul style="list-style-type: none"> <li>(a) No probable loss of life;</li> <li>(b) Low economic loss to structures or property;</li> <li>(c) Structural damage to a town or city road or private road accessing property other than the dam owner’s which could render the road impassable or otherwise interrupt public safety services;</li> <li>(d) The release of liquid industrial, agricultural, or commercial wastes, septage, or contaminated sediment if the storage capacity is less than 2 acre-feet and is located more than 250 feet from a water body or water course; or</li> <li>(e) Reversible environmental losses to environmentally-sensitive sites.</li> </ul> <p>In the case of the Great Dam, DES believes that a failure of the dam, its penstock or either of its abutments could lead to damages consistent with Env-Wr 101.07(b) and (c) to adjacent or downstream structures including buildings along the left abutment, the library at the downstream right abutment and the String Bridge just downstream.</p> <p>Further any dam that is 6 feet or greater in height AND impounds 50 acre-feet or more of storage must be classified, at a minimum, as a low hazard. Therefore, regardless of the assessment discussed above, the Great Dam would qualify as a low hazard because it is 15 feet in height and impounds a maximum storage of approximately 300 acre-feet.</p>

**Station 3. Dam Safety (continued)**

	Public Comment	Project Team Response
3-2	<p>What is structurally wrong with the Great Dam that would require its removal?</p>	<p>DES is not aware of any structural deficiencies that threaten the safe operation of the dam under normal conditions. Other than a number of relatively minor issues associated with aging/cracked concrete and other typical repair and maintenance related conditions, the dam appears structurally sound. The most recent safety inspection occurred on November 18, 2011. At that inspection the following observations were made:</p> <ol style="list-style-type: none"> <li>1. <i>The wooden boards that line the upstream side of the penstock inlet have deteriorated and should be replaced.</i></li> <li>2. <i>There is concrete deterioration on the top of the penstock inlet slab as well as on the right end of the upstream right concrete training wall. The seam between the concrete wall and the dry laid stone retaining wall is also irregular and should be patched, as necessary.</i></li> <li>3. <i>The right upstream dry laid stone wall is supporting vegetative growth which should be removed.</i></li> <li>4. <i>The invert and base slab of the low level gate section could not be observed well due to water flow, but this area should be inspected in a dry condition and repaired as appropriate as it appears that the surrounding concrete has worn down to the aggregate and is irregular.</i></li> <li>5. <i>There is spalled concrete on the concrete structure that acts to support the inactive penstock gates. This deterioration should be repaired and sealed as appropriate. There is also deteriorated concrete on the upstream face of the dam approximately 2 feet to the right of the low level gate section.</i></li> <li>6. <i>There is vegetation growing on the right embankment and the area around the right side of the penstock inlet structure which should be removed.</i></li> <li>7. <i>The left concrete abutment and now inactive spillway section to the left of the fish ladder is badly deteriorated and shows signs of leakage. There is iron staining at the left end of the spillway due to subsurface runoff through the left abutment.</i></li> </ol> <p><i>There is a minor amount of floating debris that needs to be removed from the crest of the spillway.</i></p> <p>However, the most significant deficiency associated with the Great Dam is its lack of discharge capacity. Current hydrologic and hydraulic analyses indicate that the dam is incapable of passing the runoff generated by the 50 year rainfall event without overtopping the dam’s abutments. This condition is unsafe and could result in a failure of the dam. Existing low hazard dams are required to have the ability to pass the 50 year event with at least one (1) foot of remaining freeboard. Freeboard is the distance between the expected 50 year flood level and the lowest portion of the dam’s crest that could be overtopped and lead to dam failure. Env-Wr 303.12 provides for other possible remedies for addressing deficient discharge capacity as well. Any remedy proposed to address the deficient discharge capacity will need to be supported by structural and stability assessments.</p> <p>At present, DES has indicated to the Town of Exeter that if it intends to keep the dam active it must upgrade the discharge capacity of the structure to pass the 50 year event with the required freeboard or otherwise provide a solution consistent with Env-Wr 303.12. Dam owners, by right of ownership, also have the option to either remove the dam or otherwise modify it so that it is no longer jurisdictional and subject to NH’s dam safety regulations. DES has not, nor will it, require the removal of the Great Dam on the basis of dam safety concerns.</p>

### Station 3. Dam Safety (continued)

Public Comment		Project Team Response
3-3	How will saturation of the historic floodplain change with dam removal, and how might that impact future flooding events?	Saturation of the historic floodplain would be expected to decrease with the drawdown of the impoundment if the dam is removed. This would decrease the "antecedent moisture conditions" in the watershed, which would tend to decrease the amount of runoff associated with a rainfall event and thereby decrease the risk of flooding in the river. The magnitude of this effect is difficult to measure, but the consultant team will consider the point raised by this question in analyzing the results of our hydrological analysis.
3-4	How is the river going to look if the dam is removed? Will the river become narrower after the dam is removed?	A series of photographs taken during the November 2009 drawdown of the dam provides some insight into what the river would look like if the dam were to be removed. As part of the study, the town may pursue additional visual renderings so that the public can better understand the aesthetic impact of the dam removal alternative. Generally speaking, the width of the river will be narrower than under its current impounded condition. The effect of this will vary. The amount of change would be most noticeable near the dam, but would diminish as one moves upstream until the change became unnoticeable near the NH 108 Bridge crossing. More information on this topic will be presented in the final report.
3-5	How far upstream will the effects of dam removal be noticeable?	While analysis is still on-going, the preliminary results of the hydraulic model developed for the Study indicate that, under normal conditions, water levels will not change upstream of the NH 108 bridge. More information on this topic will be available in the final report.
3-6	How accurate are modeling projections for dam in/out scenarios?	The primary information produced by the hydraulic model is the elevation of the water surface at various points in the river. Generally speaking, these elevations are accurate to within a few inches. The accuracy of a hydraulic model is directly related to the amount of detail included in the model and the reliability of the hydrological information used as input. In this case, the model (also known as a "HEC-RAS" model) has more than 100 cross-sections which is considered extremely detailed for this length of river.
3-7	What would be the cumulative flooding impacts if the Phillip's Dam and/or Pickpocket Dam failed with or without the presence of the Great Dam?	This question is beyond the scope of the Study & beyond the dam removal impact area.
3-8	Has the presence of the fish ladder had an impact on increasing flooding, and if so how much?	The previous hydraulic analysis results indicate the installation of the one-foot high "cap" on the dam crest and the fish passage facility caused the water surface elevation to be approximately 1.4 feet higher, at the dam itself, during the 50-year flood relative to conditions prior to their installation. The results of this analysis also suggest that these modifications had a minimal impact in increasing flood water elevations upstream of the dam. Please see the Exeter River Phase 1 – Final Report for additional information and evaluation of the fish ladder: <a href="http://town.exeter.nh.us/river%20study/River%20Study%20Phase%201%20Final.07.pdf">http://town.exeter.nh.us/river%20study/River%20Study%20Phase%201%20Final.07.pdf</a>

### Station 3. Dam Safety (continued)

Public Comment		Project Team Response
3-9	How do you deliberately remove a dam? What is the actual physical process of dam removal? Is it quick or does it happen over a period of time?	Removal of the dam would begin with a controlled lowering of the river over the dam during the deconstruction process in order to minimize environmental impact associated with excavation in flowing water (i.e., turbidity). For dams like the Great Dam, removal typically involves the use of heavy construction equipment to break apart the concrete material that forms the dam. This material would then be removed from the river and disposed of at an appropriate location. The riverbed would then be restored to a natural substrate. The amount of time required for such a demolition project can vary greatly, but typically ranges from several weeks to several months.
3-10	The town should be doing more to manage its water and has only just stepped up in the last three years to meet the needs of Exeter.	The town has made significant investments in water management during recent town meetings.
3-11	Rumors in town that not all is being/ was done to increase dam capacity to allow flood waters to pass over the dam and the flood gate is far too small.	The sluice gate is an inadequate means of flood control for major flooding events. Please see the Exeter River Phase 1 – Final Report for additional information: <a href="http://town.exeter.nh.us/river%20study/River%20Study%20Phase%201%20Final.07.pdf">http://town.exeter.nh.us/river%20study/River%20Study%20Phase%201%20Final.07.pdf</a>
3-12	Request to see the initial letter of deficiency	The Letter of Deficiency can be found on the town’s website under the River Study Committee’s page ( <a href="http://www.town.exeter.nh.us">www.town.exeter.nh.us</a> ). The most recent safety inspection occurred on November 18, 2011 and the observations noted as a result can be found under Comment Code 3-2. Another Letter of Deficiency will be submitted to the Town of Exeter in the near future as a result of this inspection. The most significant deficiency associated with the Great Dam is its lack of discharge capacity. Current hydrologic and hydraulic analyses indicate that the dam is incapable of passing the runoff generated by the 50 year rainfall event without overtopping the dam’s abutments. This condition is extremely unsafe and could easily result in a failure of the dam. Existing low hazard dams are required to have the ability to pass the 50 year event with at least one (1) foot of remaining freeboard. Freeboard is the distance between the expected 50 year flood level and the lowest portion of the dam’s crest that could be overtopped and lead to dam failure. Env-Wr 303.12 provides for other possible remedies for addressing deficient discharge capacity as well. Any remedy proposed to address the deficient discharge capacity will need to be supported by structural and stability assessments. (The Letter of Deficiency was amended in 2004; a copy of the amendment can also be found on the town’s web site under the River Study Committee Page: <a href="http://www.town.exeter.nh.us">www.town.exeter.nh.us</a> .)
3-13	Several comments from participants about the changing aesthetic value. One local resident and one resident of Newmarket were distraught over the state of the Winnicut River dam removal in Greenland.	Public presentations of New Hampshire dam removal projects (including the Winnicut) will be prepared and presented in the fall of 2012. Also, please visit the NH DES Dam Removal & River Restoration Program web site: <a href="http://des.nh.gov/organization/divisions/water/dam/damremoval/index.htm">http://des.nh.gov/organization/divisions/water/dam/damremoval/index.htm</a>



### Station 3. Dam Safety (continued)

Public Comment		Project Team Response
3-14	Several land owners and business owners requested that opinions and experiences of other NH towns that have gone through the dam removal process be made available in some format.	Public presentations of New Hampshire dam removal projects (including the Winnicut) will be prepared and presented in the fall of 2012. Also, please visit the NH DES Dam Removal & River Restoration Program web site: <a href="http://des.nh.gov/organization/divisions/water/dam/damremoval/index.htm">http://des.nh.gov/organization/divisions/water/dam/damremoval/index.htm</a>
3-15	Concern about long-term impacts on current wetland resources. If the dam is removed, individual questioned whether or not the land adjacent to the river would be in wetland jurisdiction, or not; and whether it could be built upon.	The Study will evaluate impacts to wetlands should the dam be removed. If the dam removal alternative is selected and the dam is removed, it is likely some areas along the river may transition to upland. Existing state and local regulations would apply to these lands accordingly. Tim Drew, NH DES, can provide more information about state regulations regarding shoreland areas and wetlands: <a href="mailto:timothy.drew@des.nh.gov">timothy.drew@des.nh.gov</a> .

### Station 4. Water and Sediment Quality

Public Comment		Project Team Response
4-1	How much sediment will end up in river downstream from the dam? Will the amount of sediment restrict rowing below the existing dam?	The consultant conducting the Study will assess the potential for changes in sediment transport, including erosion and deposition. More information on this topic will be available in the final report.
4-2	Are the [historic] river-side dumping areas being looked at?	The consultants conducting the Study are aware of the Cross Road Landfill (Exeter Transfer Station) and a second historic landfill adjacent to the river at the intersection of the Powder Mill Road and the Amtrak Railroad line. Both sites were considered in developing a sediment sampling program, with sampling stations placed in the river just downstream of each site. Note that the hydraulic modeling results completed to date indicate that both of these sites are far enough upstream of the Great Dam such that they would not be directly affected by the dam removal alternative.
4-3	What is the impact to groundwater levels for areas bordering the river once the dam is removed?	The consultant conducting the Study will analyze possible impacts to groundwater conditions that could result from the dam removal. More information on this topic will be presented in the final report.
4-4	Will there be an additional amount of sediment deposited into the Squamscott River?	The Study's consultant will assesses potential changes in sediment transport, including erosion and deposition. More information will be available in the final report.
4-5	Will historic boat navigation (e.g. Schooners or ships) be re-gained or limited by the dam being removed?	As a run of the river dam with an operable gate, the Great Dam only influences the depth of water upstream. The removal of the Great Dam would therefore have no direct influence on the depth of water downstream and would not improve or impact navigation in the tidal portion of the river.
4-6	Will removal of the dam result in the removal of increased sediments and need for restoration, or sand and gravel stream beds for fish breeding?	The Study includes an analysis of likely changes in sediment transport in the river, which will be provided in the final project technical report. Generally speaking, however, the removal of the dam would represent a return to a more natural sediment transport regime which would improve habitat for fish breeding.

## Station 5. Fish Passage, Natural Resources, and Recreation

Public Comment		Project Team Response
5-1	What kind of effect will there be on the Exeter Elm Campground?	The Study will provide information on how the river could change under the dam removal alternative, including the effect on water levels, aesthetics and recreation. Given its location within the floodplain of the river, the Study will provide information on the potential impacts to the Exeter Elms Campground.
5-2	There was concern over the recreational effects on the campground.	The Exeter River is a valuable recreational resource for the regional community and potential changes are an important issue to be considered when evaluating alternatives. The Study will address existing recreational use of the river and will discuss how this resource may change if the dam is removed.
5-3	If you take away the dam, do you lose deep pools for fish?	The removal of the dam may decrease the availability of deep pools in the impoundment area, but would not entirely remove such deep pools. Generally speaking, the removal of the dam would be expected to have an overall benefit to the fish community within the river. More discussion on this topic will be presented in the final technical report. Please also see our responses to Comment 5-6 below.
5-4	What will be the recreational impact (fishing, swimming, boating) if water level is very low due to dam removal?	The Exeter River is a valuable recreational resource for the regional community and potential changes are an important issue to be considered when evaluating alternatives. The Study will address existing recreational use of the river and will discuss how this resource may change if the dam is removed.
5-5	Will lower water levels cause oxygen levels to decrease too low to support fish?	Removal of the dam would be expected to increase dissolved oxygen (DO) levels in the river. Dissolved oxygen concentrations are primarily related to the temperature of the water and the opportunity for aeration and mixing. Dams typically increase stream temperatures and reduce aeration and mixing leading to lower DO concentrations.
5-6	What is the minimum level of water for fish to survive, especially if there are drought conditions?	The answer to this question depends on the species of fish under consideration. Certain species, such as bass and bluegill sunfish, find impounded conditions favorable and their representation in the community increases relative to a free-flowing river. These fish are less likely to tolerate reduced water depths that would be associated with the dam removal alternative. Many other fishes, including alewives, are river specialists and their continued survival depends on the variation in depths and velocities experienced in an un-impounded river. Note that the consultant study will address the effects of dam removal on fish populations in consultation with the NH Department of Fish and Game, the US Fish and Wildlife Service and the National Marine Fisheries Service. Generally speaking, dam removals produce important benefits to fish habitat, which is why these agencies support dam removal.
5-7	How will dam removal effect upstream and downstream eel passage?	Upstream and downstream passage of eels, river herring, and other fish can be expected to improve with the removal of the dam. The final report will include a detailed assessment of fish passage.

### Station 5. Fish Passage, Natural Resources, and Recreation (continued)

Public Comment		Project Team Response
5-8	Are there significant amounts of freshwater mussels upstream of the dam? Any rarer species of mussels?	The project consultant is working with the NH Fish and Game Department (NH F & G) to determine the presence of freshwater mussels in the affected portion of the river. Additionally, both the NH F&G and the US Fish and Wildlife have been consulted regarding the presence of rare species of mussels. These agencies report that no rare species are present.
5-9	Have any biodiversity studies of the river been performed?	The Great Bay Restoration Compendium has some relevant information: <a href="http://des.nh.gov/organization/divisions/water/wmb/coastal/restoration/compendiums.htm">http://des.nh.gov/organization/divisions/water/wmb/coastal/restoration/compendiums.htm</a> as does this study: <a href="http://www.rpc-nh.org/coastal-conservation.htm">http://www.rpc-nh.org/coastal-conservation.htm</a>
5-10	Are any of the fish that you can catch now in the river safe to eat?	For NH fish consumption guidelines, please see: <a href="http://www.wildlife.state.nh.us/Fishing/fish_consumption.htm">http://www.wildlife.state.nh.us/Fishing/fish_consumption.htm</a>
5-11	Is there a recreational upside to dam removal?	The Exeter River is a valuable recreational resource for the regional community and potential changes are an important issue to be considered when evaluating alternatives. The Study will address existing recreational use of the river and will discuss how this resource may change if the dam is removed.
5-12	Will lower water levels encourage increased beaver activity and damming?	Beaver activity is dependent on several factors including water depths. It is possible that the drawdown associated with the dam removal alternative could allow beaver activity in areas where it is not currently observed. This question will be further discussed in the final report.
5-13	What can be learned from the Greenland example?	Public presentations of New Hampshire dam removal projects (including the Winnicut) will be prepared and presented in the fall of 2012. Also, please visit the NH DES Dam Removal & River Restoration Program web site: <a href="http://des.nh.gov/organization/divisions/water/dam/damremoval/index.htm">http://des.nh.gov/organization/divisions/water/dam/damremoval/index.htm</a>
5-14	What fish species traditionally went up river before the dam?	The presence of the dam has impacted native migratory species such as American shad, river herring, American eel and other native species by fragmenting marine and inland aquatic habitats. Although there is an existing fishway on the dam, the fishway does not work efficiently at all flows and for all fish species. Additionally, the impoundment impacts spawning and rearing habitat and degrades water quality, impacting the river's ability to fully support native species.
5-15	Will removing the dam change sedimentation at Swazey Park (impacting recreational activity)?	Run of the river dams (see definition pg. 3) typically do not influence downstream velocities or water depths, which would be primary factors in determining the sediment transport regime in the tidal portion of the river near Swazey Parkway. Tidal forces within this portion of the river will continue to exert a greater influence on channel morphology than changes in hydraulics and sediment inputs associated with dam removal. Downstream impacts are not expected if the dam is removed.
5-16	It was noted that in front of Swazey Park the river used to be dredged consistently.	An assessment of dredging activities is not part of the Study's scope.
5-17	If the dam is removed, has anyone modeled how the wetlands will evolve over the next 1, 5, 10 years and how DES jurisdiction of river side resources will change as a result of changing wetlands.	The Study includes an assessment of potential impacts to wetlands along the river corridor. A more detailed examination of this question will be presented in the final report.

### Station 5. Fish Passage, Natural Resources, and Recreation (continued)

Public Comment		Project Team Response
5-18	Concern over potential for development to occur in areas that are not developable as they are wetlands.	The Study will evaluate impacts to wetlands should the dam be removed. If the dam removal alternative is selected and the dam is removed, it is likely some areas along the river may transition to upland. Existing state and local regulations would apply to these lands accordingly. Tim Drew, NH DES, can provide more information about state regulations regarding shoreland areas and wetlands: <a href="mailto:timothy.drew@des.nh.gov">timothy.drew@des.nh.gov</a> .
5-19	Will there be changes to the Great Swamp in Kensington? These are important wetlands.	The Study includes an assessment of potential impacts to wetlands along the river corridor. Preliminary results completed to date suggest that the potential for effect to the Great Swamp are negligible. A more detailed examination of this question will be provided in the final report.
5-20	How does the water table and vegetation along the river change as a result of dam removal?	An important focus of the Study is the development of a hydraulic model that will help in gaining an understanding of how water levels within and adjacent to the river would be affected if the dam is removed. Additionally, the Study will address possible effects on groundwater conditions and how these changes might affect vegetation along the river.
5-21	What has happened for other dams that have been removed in NH?	Public presentations about New Hampshire dam removal projects (including the Winnicut) will be prepared and presented in the fall of 2012. Also, please visit the NH DES Dam Removal & River Restoration Program web site: <a href="http://des.nh.gov/organization/divisions/water/dam/damremoval/index.htm">http://des.nh.gov/organization/divisions/water/dam/damremoval/index.htm</a>
5-22	Will something replace the current impoundment area, open space?	Interpretation of the preliminary hydraulic modeling results indicates that the area adjacent to the river will continue to function as an active floodplain, with the river flooding this area during higher flows.
5-23	What is your idea on the dam and fish passage?	The Study includes an analysis of how dam removal will affect fish passage, and will be fully addressed in the project technical report, expected to be issued in the summer of 2012. The Exeter Dam is a partial barrier that inhibits diadromous (migratory between fresh and salt water) fish migrations in the Exeter River and has undermined recovery of native migratory species such as American shad, river herring, American eel and other native species by fragmenting marine and inland aquatic habitats. Although there is an existing fishway on the dam, the fishway does not work efficiently at all flows and for all fish species. Additionally, the impoundment impacts spawning and rearing habitat and degrades water quality, impacting the river's ability to fully support native species.
5-24	How does the dam affect fish breeding?	The Exeter Dam is a partial barrier that inhibits fish migrations in the Exeter River and has undermined recovery of native migratory species such as American shad, river herring, American eel and other native species by fragmenting marine and inland aquatic habitats. The existing fishway does not work efficiently at all flows and for all fish species. Additionally, the impoundment impacts spawning and rearing habitat and degrades water quality, impacting the river's ability to fully support native species.

### Station 5. Fish Passage, Natural Resources, and Recreation (continued)

Public Comment		Project Team Response
5-25	Are they removing all dams in NH?	The decision to remove or keep a dam is up to the dam owner.
5-26	If you take the dam down, how will that affect fish upstream, resident fish, and fish that travel upstream?	The Study includes an analysis of how dam removal will affect fish passage, and will be addressed in the final project report. The Exeter Dam is a partial barrier that inhibits fish migrations in the Exeter River and has undermined recovery of native migratory species such as American shad, river herring, American eel and other native species by fragmenting marine and inland aquatic habitats. The existing fishway does not work efficiently at all flows and for all fish species. Additionally, the impoundment impacts spawning and rearing habitat and degrades water quality, impacting the river's ability to fully support native species.
5-27	Do people care about fish as much as other issues?	The impact of dam removal on fisheries was identified as an area of concern in early public meetings. Ultimately it will be up to the voters to decide which scenario with its associated impacts is the preferred alternative to meeting Dam Safety Bureau standards.
5-28	What is the difference in Greenland since the dam has been gone?	Public presentations of New Hampshire dam removal projects (including the Winnicut) will be prepared and presented in the fall of 2012. Also, please visit the NH DES Dam Removal & River Restoration Program web site: <a href="http://des.nh.gov/organization/divisions/water/dam/damremoval/index.htm">http://des.nh.gov/organization/divisions/water/dam/damremoval/index.htm</a>
5-29	Do we know where all the streams are?	The location of tributary streams is known through the use of previous mapping studies such as the US Geological Service's topographic maps.
5-30	What will water level impact be on local business and historical buildings	Dam removal would be expected to lower water levels during flood events. A comprehensive discussion of the effects of the dam removal alternative on water levels in the river will be presented in final report.
5-31	Will it impact the powder mill?	The Powder Mill is located relatively far upstream and would not be directly affected by the dam removal alternative. This conclusion is supported by the hydraulic model prepared for the Study which shows that the primary impoundment is limited to the reach of the river near the NH 108 bridge crossing.
5-32	When did it change names to the Great Dam, it used to be called the Mill Dam?	It is common to see a dam known by several names including some which are known only locally. The historian working on this study has not found reference to the dam as the "Mill Dam." There is a reference (1828 deed from Exeter Mill and Water Power Company to the Exeter Manufacturing Company) to an earlier dam at the location of the current one which was called the "upper dam", referring to the Upper Falls (as opposed to the lower falls, which were on either side of Kimballs Island). An 1831 survey of the river notes the dam as the "Exeter Upper Falls Dam." The dam is referred to as the "Exeter River Dam" in 2008 (DES to Town of Exeter, NH, Notice of Decision on Determination of Lake Level, August 20, 2008); the document notes that the name "Great Dam" is used locally. Great Dam in general as its name appears to be 20th century only.
5-33	How will dam removal change flow in flood time?	The removal of the dam would be expected to lower water levels during flood events. A comprehensive discussion of the effects of the dam removal alternative on water levels in the river will be presented in the final report.

## Station 6. Historical & Archaeological Resources

Public Comment		Project Team Response
<b>6-1</b>	A participant reported a gunpowder mill on Powder Mill Road, east of the intersection with Route 111.	VHB and the Exeter River Working Group thanks the commenter for their participation in the information gathering process. The project team will take their contribution into consideration when completing the Study.
<b>6-2</b>	A participant also reported “a really old dam at Railroad Bridge and Route 111. At one point, there were four mills in this area (corn, saw, and gunpowder (2) [Hobart Gun Manufacturer]). Ms. Dupre stated that one of the powder mills dated to the Revolutionary Period, the other operating from ca 1812 to 1850. A nail slitting mill also was located here and a woolen mill. Mill area might have been called King’s Fall, or Kingston Mills, after Thomas King who owned mills here in the late 1600s or early 1700s.	VHB and the Exeter River Working Group thanks the commenter for their participation in the information gathering process. The project team will take their contribution into consideration when completing the Study.
<b>6-3</b>	Exeter Selectman, Julie Gilman, recommended conversations with Dan Foster, retired professor from Phillips Exeter Academy, who maintained the original collection prepared by the late Willie White (formerly of PEA). Julie recommended Bell’s History of Exeter for context and historical background. According to Julie the Swazey Park area was noted for shipbuilding but this area was filled when the Parkway was built, perhaps in the late nineteenth century. She suggests that the west side of the river, on the site of the Exeter Housing might be archaeologically sensitive. Development occurred in the 1970s.	VHB and the Exeter River Working Group thanks the commenter for their participation in the information gathering process. The project team will take their contribution into consideration when completing the Study.

## Station 6. Historical & Archaeological Resources (continued)

Public Comment		Project Team Response
6-4	A river abutter will provide us with pictures and an article on the river confluence from two early newspaper articles. He has pictures of people standing and looking at ice jams in the river. Notes the presence of outhouses on the island. He purchased the Island in 1977. It originally was named for Emma Kimball. Will accommodate researchers during a site visit.	VHB and the Exeter River Working Group thanks the commenter for their participation in the information gathering process. The project team will be sure to take their contribution into consideration when completing the Study.
6-5	One gentleman recalled activities and resources along the river, including trout, perch, hornpouts, alewife, lamprey eels, muskrats, and possibly mink. He referred to a boat house on the river, prior to the population growth of the late 1940s. (These resources are the kinds of resources that would have attracted Native Americans to the area prior to European settlement).	VHB and the Exeter River Working Group thanks the commenter for their participation in the information gathering process. The project team will be sure to take their contribution into consideration when completing the Study.
6-6	How will dam removal impact the historical nature of the dam?	The Study will include an assessment of impacts to historic properties including the dam. The historic evaluation will determine if dam removal would represent an "adverse effect" to the dam itself and the surrounding historic districts. This work is being conducted in consultation with the NH Division of Historical Resources and a number of interested "Consulting Parties" from the community. Section 106 of the National Historic Preservation Act requires that a Memorandum of Agreement be executed to address potential impacts and to spell out appropriate mitigation for any such impacts. This consultation is on-going. Further information will be included in the final report.
6-7	How will all the information come together in the end once the study has been completed?	Once the review of historic resources is completed, all relevant documents and reports will be posted on the town web site (with the exception of sensitive archaeological resources; by law, specific information about these resources cannot be made public, therefore, only a summary will be available). Historic resources information will also be included in the final report.
6-8	Before it was a concrete dam, what was the dam made of? One man thought there was another dam before it was the current concrete one.	There is no documentation as to what the earlier dam (or dams) were built of, but based on an understanding of historic dam building techniques, it can be assumed the previous dam was made of stone and/or timbers. Historical research conducted as part of this study indicates that there was a dam at the present location in 1827 (with earlier map evidence dating to 1802) with a dam likely in place as early as the 1640s. A new dam was pledged to be built in late 1828 or early 1829 by the Exeter Manufacturing Company. There is no documentation that this new dam was replaced at any point before 1914 when the current one was built; there is some indication that a previous dam owner considered rebuilding the dam in the 1890s, but no firm evidence of its reconstruction in the 1890s could be found.

### Station 6. Historical & Archaeological Resources (continued)

Public Comment		Project Team Response
6-9	Concern about what's happening with the Winnicut dam removal; doesn't want that to happen here.	Public presentations about New Hampshire dam removal projects (including the Winnicut) will be prepared and presented in the fall of 2012. Also, please visit the NH DES Dam Removal & River Restoration Program web site: <a href="http://des.nh.gov/organization/divisions/water/dam/damremoval/index.htm">http://des.nh.gov/organization/divisions/water/dam/damremoval/index.htm</a>
6-10	One man commented that once the dam is removed, it cannot be put back; he doesn't want the town to regret removing the dam, it is part of the beauty of the town	Comment noted
6-11	Curious about what has happened with other dam removals, regarding river flow, roads, and other factors. Concerned about what will happen.	Public presentations about New Hampshire dam removal projects (including the Winnicut) will be prepared and presented in the fall of 2012. Also, please visit the NH DES Dam Removal & River Restoration Program web site: <a href="http://des.nh.gov/organization/divisions/water/dam/damremoval/index.htm">http://des.nh.gov/organization/divisions/water/dam/damremoval/index.htm</a>
6-12	One participant said: Seems to me that the impoundment behind the dam will be gone; will something replace where that open space is?; a lot of seasons of the year there isn't much of a river below the dam and the vegetation around blocks the views. Is that what is to be expected if the dam is removed?	A series of photographs taken during the November 2009 drawdown of the dam provides some insight into what the river would look like if the dam were to be removed. As part of the study, the consultant may be required to provide additional visual simulations so that the public can better understand the aesthetic impact of the dam removal alternative.
6-13	What is the depth of the water at the dam right now?	The depth of water at the dam depends on the flow, which varies depending on precipitation events. However, the depth of water at the dam currently ranges from about 7 to 9 feet.

### Miscellaneous Public Comments (received in writing on comment forms)

Public Comment		Project Team Response
CF-1	What does the topography of the river bottom in the area of the dam tell us about what the river looked like before the dam was installed (was there a waterfall-like drop)? Will this give us an idea of how it would look after removal?	A series of photographs taken during the November 2009 drawdown of the dam provides some insight into what the river would look like if the dam were to be removed. As part of the study, the consultant may be required to provide additional visual simulations so that the public can better understand the aesthetic impact of the dam removal alternative.
CF-2	If there is a lot of silt behind the dam, do we know how far down the ledge/rock is (below the current average water level)?	Based on visual observations during the dam drawdown in November 2009, as well as a review of geotechnical boring information produced during the reconstruction of the Great Bridge indicates that ledge is present at or near the stream bed surface.



### Miscellaneous Public Comments (continued)

Public Comment		Project Team Response
<b>CF-3</b>	Please keep the dam. The reflections of the buildings and town are a key part of the beauty and heritage of Exeter. The dam needs proper floodgates and responsible people to lower the water if heavy rain or snowmelt run-off is threatening. It is too late to comment and to rebuild a complete new flood control type dam if it removed. Keep the Dam!!!	The Great Dam is a run of the river dam with an operable gate and is not a flood control dam.
<b>CF-4</b>	The Exeter River at reduced water levels as a consequence of dam removal could become a series of beaver impoundments all the way up to the next dam. There were no beaver in NE before the dam was put in originally due to over harvesting. There are beaver along the river already, but they cannot establish flowages with the level at its current state. With the dam removed there will be an increase in the wetland marsh, but probably not a navigable river as we have now. Any increase in fish runs up from the Squamscott will probably be influenced.	Beaver activity is dependent on several factors including water depths. It is possible that the drawdown associated with the dam removal alternative could allow beaver activity in areas where it is not currently observed. This question will be further discussed in the final report.
<b>CF-5</b>	A participant commented that they have some deed copies re the Mills at Kings Falls (between Rte 111 and where river edges Powder Mill Road.	VHB and the Exeter River Working Group thanks the commenter for their participation in the information gathering process. The project team will take their contribution into consideration when completing the Study.
<b>CF-6</b>	Include photos of before and after removal of other dams and upstream vegetation/wildlife changes.	Public presentations about New Hampshire dam removal projects (including the Winnicut) will be prepared and presented in the fall of 2012. Also, please visit the NH DES Dam Removal & River Restoration Program web site: <a href="http://des.nh.gov/organization/divisions/water/dam/damremoval/index.htm">http://des.nh.gov/organization/divisions/water/dam/damremoval/index.htm</a>
<b>CF-7</b>	Will identified or probable archeological sites be preserved, removed or left alone. If water level decreases and exposes sites is there any mitigation.	The Study's consultant team includes a senior archaeologist responsible for evaluating areas of archaeological sensitivity that could be affected by dam removal or modification. This work is being conducted in consultation with the NH Division of Historical Resources and a number of interested "Consulting Parties" from the community. Section 106 of the National Historic Preservation Act requires that a Memorandum of Agreement be executed to address potential impacts and to spell out appropriate mitigation for impacts. Further information will be included in the final report.
<b>CF-8</b>	Be definitive about the impact on water table and wells, septic systems.	Potential impacts to private and public property are a critical consideration in evaluating alternatives for the Great Dam. The final report will provide as much information and as possible on these issues.

End of document