

**REVIEW OF APPLICATION  
FOR LOW IMPACT HYDROPOWER CERTIFICATION OF  
THE PENACOOK UPPER FALLS PROJECT  
(FERC NO. 6689)**

**Introduction**

This report reviews the application dated 9/25/2009 submitted by Briar Hydro Associates (Briar or the Applicant) to the Low Impact Hydropower Institute (LIHI) for Low Impact Hydropower Certification for its Penacook Upper Falls (PUF) Project (the Facility or project). The review was completed as explained below, per the LIHI Certification Program rules and criteria (8/31/2004 ed.) *Please see pages 6 through 10 for a Summary of this report.*

This 2,800-kw (installed capacity) project, with an average annual generation of 1.5 GWh, is located on the lower Contoocook River in Merrimack County in southeastern New Hampshire. The Federal Energy Regulatory Commission (FERC) issued a license for its construction and operation in 1984. It began operations in 1986.

**Project Description & Operation (See Appendix 3 of this Application)**

The project is located on the lower Contoocook River in Merrimack County in the southeastern New Hampshire Village of Penacook. The Contoocook River enters the Merrimack River upstream of the fifth mainstream dam. The Village of Penacook is made up of a small part of the Town of Boscaawen and the northern end of the City of Concord. The project is located on the extreme northern end of Concord, with a section of the tailrace crossing into Boscaawen (lat. 43°16'50"N, long. 71°36'00"W).

The facility is a 21-foot high, 187-foot long structure with a spillway built on the remains of an existing dam. It consists of a timber stoplog dam, one generating unit (2,800 kW), and appurtenant facilities. The dam is at an elevation of 306 feet MSL and it creates a pool with a surface area of approximately 11.4 acres. The facility also includes:

- 16 gates in the spillway, 6 operable timbergates, 9.5 feet wide and 15.5 feet high;
- 8 fixed timber stopgate logs, and two operable (ice) gates, 12 feet wide and 3.5 feet high;
- a gross reservoir volume of 70 acre feet and a net storage capacity of 0.23 billion gallons;
- a powerhouse at the east side of the dam with one generating unit having an installed capacity of 2,800 kW;
- a 35.0 foot long, 4.16 kV generator lead;
- a 4.16/34.5 kV 3.6 MVA three-phase transformer;
- a 50-foot long 34.5 kV overhead transmission line; and
- a tailrace, 47 feet wide and 350 feet long.

A concrete powerhouse, 81 feet long and 44 feet wide, is located on the east river bank. The powerhouse contains one horizontal shaft tube turbine with a capacity of 2,800 kW. The

riverbanks upstream and downstream of the powerhouse are contained by concrete retaining walls to bedrock. A 47-foot wide (average) tailrace exists at the draft tube exit of the powerhouse and extends approximately 350 downstream to provide downstream fish passage. A 15-foot long forebay with a 58-foot (average) width begins and the powerhouse and extends upstream. From the southwest corner of the powerhouse, a concrete gated spillway extends 187 feet across the river. The project is operated as a run-of-river facility.

Penacook Hydro Associates (PHA) began construction of the project in 1984 and completed construction in 1986, when the project first generated power. PHA operated the facility until 1993 when FERC authorized the transfer of the project license to Briar. PHA is a general partner of Essex Hydro Associates (Essex); Essex is also a general partner of Briar. The license was transferred in 1993 from PHA to Briar (the project operator) to simplify administration of the project (see Appendix 1-2 of this Application)

The FERC license Article 26 requires the Facility to be operated as a run-of-river facility with a continuous minimum flow of 338 cubic feet per second (cfs) or the inflow to the reservoir, whichever is less.

### **Regulatory History**

The Federal Energy Regulatory Commission (FERC) issued a 40-year license for the project to Penacook Hydro Associates (PHA) on December 4, 1984, authorizing the construction, operation and maintenance of the project.

On September 25, 1986, FERC issued an Order Amending License Article 24 to reflect an agreement between Public Service of New Hampshire (PSNH) and the state and federal fishery agencies regarding the construction of fish passage facilities at mainstem dams on the Merrimack River. The PUF Facility is located on the lower Contoocook River, which is a tributary stream proposed for anadromous fish restoration and that enters the Merrimack River Upstream of the fifth mainstream dam.

On January 4, 1993, FERC approved a license transfer from PHA to Briar to simplify administration of the project.

### **Public Comments**

No public comments were received on this application.

### **Agency Letters**

As part of the review process, Resource Agency officials were contacted to confirm that (1) the Resource Agency Recommendations<sup>1</sup> identified by the Applicant are still valid; and (2) the Applicant is in Compliance with the Recommendations.

The following Resource Agencies<sup>2</sup> (“state, federal or tribal agency whose mission includes protecting fish and wildlife, water quality and/or administering reservations held in public trust”) were contacted as part of the LIHI review process for this project:

- New Hampshire Department of Environmental Services (NHDES)
- New Hampshire Fish and Game Department (NHFGD)
- New Hampshire Department of Cultural Resources (NHDCR)
- New Hampshire Department of Resources & Economic Development (NHDRED)
- US Fish & Wildlife Service (USFWS)

The Resource Agencies offered Compliance<sup>3</sup> information, summarized on pages 6 through 10, below. The table also summarizes my independent conclusions as to whether the LIHI criteria have been met, based on the application, further input from the Applicant, Resource Agencies and others, and subject to the limitations of the LIHI certification program. Copies of emails and other information key to this evaluation have been provided to LIHI in digital format and are incorporated into this report by reference.

**Conclusions & Recommendation.** Based upon my review of Briar Hydro’s application, other materials supplied by the Applicant, my consultation with Resource Agency staff, and the LIHI Certification Program and Criteria (08/31/04 ed.), it is my opinion that

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<sup>1</sup> This means recommendations or conditions for operation, maintenance, construction of structures of the Facility submitted by Resource Agencies including those: (a) issued pursuant to a legal or administrative proceeding or other legally enforceable agreements between a Resource Agency and the dam owner/operator – e.g., FERC License conditions; (b) recent, if there are multiple Recommendations or a settlement agreement to which the Applicant is a party (the terms of which are considered Recommendations); and (c) most environmentally stringent.

Where there are conflicting Resource Agency Recommendations and the conflict is not resolved by applying the most Recent and Environmentally Stringent Recommendations, the conflict shall be resolved by applying the Recommendations based on the health of threatened or endangered biological organisms first, the health of other biological organisms second, Cultural Resources third and Recreation fourth, unless there is a statutory mandate to resolve the conflict otherwise.

<sup>2</sup> The Federal Energy Regulatory Commission (FERC) is not a Resource Agency for LIHI certification purposes.

<sup>3</sup> A Facility is in Compliance with a requirement or Recommendation if it complies at the time the questionnaire is filled out and has not had any material violations or formal notices of violation issued by a state or federal agency within the last year. If the Facility has been in violation of a requirement or Recommendation but the Applicant does not believe the violation is material, the violation must be disclosed and its materiality explained in the application.

the project's design and operation, given its location and physical constraints, does appear to be consistent with LIHI criteria for certification if certain special conditions are met.

**I recommend certification with the following non-Standard Conditions:**

*LIHI certification will be suspended if, no later than December 31, 2010, the Applicant has not filed documentation with LIHI demonstrating that the Penacook Upper Falls Hydroelectric Facility has completed the follow actions:*

1. **Provide information recommended in the 12/31/2009 letter from NHDES to determine the impact of the following on aquatic life:**
  - a. **pond fluctuations, and**
  - b. **minimum flows; and**
2. **Perform water quality monitoring as per the 12/31/2009 letter in consultation with NHDES and also submit results.**

Reason for non-standard condition. The facility earned a Section 401 Water Quality Certificate in 1983. As part of the LIHI certification process, the Applicant requested a letter of compliance from the NHDES. Since there is no existing data to support such a finding, the DES provided water quality monitoring and other data collection recommendations designed to determine if water quality standards (including fish passage) are being met in the Contoocook River at and near the PUF facility. In a letter dated 12/31/2009, NHDES made specific recommendations for water quality monitoring and other data it needs to confirm compliance with current water quality standards.

The Applicant does not anticipate any problem demonstrating that the Facility meets water quality standards.

If the Applicant completes the necessary work regarding flows and water quality, my recommendation would be to offer conditional certification. The Resource Agencies agree that this project presents no real issues, and they are working cooperatively with the Applicant. The Applicant has worked diligently in this regard and has accomplished good progress to date. This work should be easily completed by the end of this year.

My full evaluation using the LIHI questionnaire and criteria is provided beginning on page 10 below, after the Summary Table immediately below. This report includes numerous excerpts from Briar's LIHI application and other supporting materials, as well as documents issued by FERC.

**SUMMARY TABLE**

LIHI CRITERION & CONCLUSIONS	SUMMARY & CURRENT STATUS
<p><b>River Flows</b></p> <p><i>Non-standard conditions for Pass:</i></p> <ul style="list-style-type: none"> <li>• Provide information recommended in the 12/31/2009 letter from NHDES to determine the current impact of the following on aquatic life:                             <ul style="list-style-type: none"> <li>○ pond fluctuations, and</li> <li>○ minimum flows .</li> </ul> </li> </ul>	<p>The most recent information submitted by the Applicant for River Flows is dated 1984. After reviewing the matter for compliance in 2009, NHDES indicated it does not have enough information to confirm the project is meeting water quality standards.</p> <p>NHDES issued a letter dated 12/31/2009 to the Applicant regarding water quality monitoring and other data collection recommendations for LIHI certification purposes. A copy of this letter is included in Exhibit 1 at the end of this report.</p> <p>NHDES:</p> <ul style="list-style-type: none"> <li>• Ted Walsh, Surface Water Monitoring Coordinator, Watershed Management  <a href="mailto:Ted.Walsh@des.nh.gov">Ted.Walsh@des.nh.gov</a> 603.271.2083</li> </ul> <p>USFWS/NE Field Office:</p> <ul style="list-style-type: none"> <li>• John Warner, Energy/Hydropower Coordinator  <a href="mailto:John_Warner@fws.gov">John_Warner@fws.gov</a> 603.223.2541 x15</li> </ul>
<p><b>Water Quality</b></p> <p><i>Non-standard condition for Pass:</i></p> <ul style="list-style-type: none"> <li>• Perform water quality monitoring in consultation with NHDES and also submit results.</li> </ul>	<p>There is not enough data to determine whether the Facility is in Compliance with all of the conditions in its 1983 CWA Section 401 Water Quality Certification. (See River Flows, above). While the Applicant does not anticipate any problem demonstrating through monitoring that the Facility meets water quality standards, the final results will be confirmed by state Resource Agency staff review.</p> <p>NHDES confirmed that the impoundment area and downstream reach of the facility is on the NH List of Impaired Waters (pursuant to Clean Water Act Section 303(d)). Ted Walsh said neither of these is linked to operation of the facility. The cause of the impairment is atmospheric deposition from New Hampshire and Midwest sources: every water body in NH is impaired for mercury for the “fish consumption” designated use.</p> <p>NHDES:</p> <ul style="list-style-type: none"> <li>• Ted Walsh, Surface Water Monitoring Coordinator  <a href="mailto:Ted.Walsh@des.nh.gov">Ted.Walsh@des.nh.gov</a> 603.271.2083</li> </ul>

LIHI CRITERION & PRELIMINARY CONCLUSIONS	SUMMARY & CURRENT STATUS
<p><b>Fish Passage &amp; Protection</b></p> <p><i>Facility Passes</i></p>	<p>NHFGD and USFWS confirmed the Applicant has 6 years (after 15,000 adult American shad pass through the fish facilities at Garvins Falls dam) to install upstream fish passage at the facility, and that downstream passage is currently in place.</p> <ul style="list-style-type: none"> <li>○ UFWS stated that upstream passage is not required at this time due to the lack of passage at the Lower Penacook Project just downstream.</li> <li>○ USFWS indicated a downstream fish passage is being operated downstream at the Upper Penacook Project for Atlantic salmon smolt each spring, but that neither American shad or river herring have been stocked above the project in recent years                         <ul style="list-style-type: none"> <li>▪ Management plans for shad and herring are being discussed by the agency right now, and stocking could occur. If it did, passage for outmigrant juveniles would be needed.</li> </ul> </li> <li>○ NHFGD suggested that the downstream passage in place is not optimal.</li> </ul> <p>As part of its review of water quality and flow compliance, NHDES has requested that the applicant work with the NHFGC to determine the compliance status of downstream fish passage. Agency consultation confirmed compliance.</p> <p>NHFG:</p> <ul style="list-style-type: none"> <li>• Carol Henderson                  Carol.Henderson@des.nh.gov 603.271.3511</li> </ul> <p>NHDES:</p> <ul style="list-style-type: none"> <li>• Ted Walsh, Surface Water Monitoring Coordinator, Watershed Management                  Ted.Walsh@des.nh.gov 603.271.2083</li> </ul> <p>USFWS/NE Field Office:</p> <ul style="list-style-type: none"> <li>• Doug Smithwood                  Doug_Smithwood@fws.gov 603.595.1371</li> <li>• John Warner, Energy/Hydropower Coordinator                  John_Warner@fws.gov 603.223.2541 x15</li> </ul>

<b>LIHI Criterion &amp; Preliminary Conclusions</b>	<b>Summary &amp; Current Status</b>
<p><b>Watershed Protection</b></p> <p><i>Facility Passes</i></p>	<p>The Applicant has maximized the limited recreation opportunities in the area. It has funded the Boscawen Riverfront Park (constructed and located upstream on the eastern river bank) and granted easement for a proposed river front walk.</p> <p>While the Applicant has not established a fund per se, it has provided value without which the development of available recreational opportunities would not go forward.</p> <p>NHDES:</p> <ul style="list-style-type: none"> <li>• Ted Walsh, Surface Water Monitoring Coordinator, Watershed Management <a href="mailto:Ted.Walsh@des.nh.gov">Ted.Walsh@des.nh.gov</a> 603.271.2083</li> </ul> <p>City of Concord, NH</p> <ul style="list-style-type: none"> <li>• Matthew Walsh, Asst. for Special Projects <a href="mailto:mwalsh@onconcord.com">mwalsh@onconcord.com</a> 603.225.8570</li> </ul> <p>Town of Boscawen, NH</p> <ul style="list-style-type: none"> <li>• Alan Hardy, Code Enforcement Officer 603.648.2538</li> </ul>
<p><b>Threatened &amp; Endangered Species</b></p> <p><i>Facility Passes</i></p>	<p>Consultation with NHDRED and NHFGD confirmed the Facility or Facility operations do not currently negatively impact threatened and endangered species.</p> <p>NHDRED:</p> <ul style="list-style-type: none"> <li>• Sara Cairns, Natural Heritage Bureau <a href="mailto:sarac@state.nh.us">sarac@state.nh.us</a> 603.271.2214</li> </ul> <p>NHDFG:</p> <ul style="list-style-type: none"> <li>• Kim Tuttle, Wildlife Biologist <a href="mailto:Kim.Tuttle@des.nh.gov">Kim.Tuttle@des.nh.gov</a> 603.271.6544</li> </ul>

<b>LIHI Criterion &amp; Conclusions</b>	<b>Summary &amp; Current Status</b>
<p><b>Cultural Resources Protection</b></p> <p><i>Facility Passes</i></p>	<p>The NHDCR indicated it needs more information to determine if the facility negatively affects known architectural, historical, archaeological or other cultural resources.</p> <p>The Applicant indicated it would file a project review form with NHDCR and get compliance confirmation. To date, I have not received information from the Applicant about this effort.</p> <p>NHDCR:</p> <ul style="list-style-type: none"> <li>• Linda Ray Wilson, SHPO 603.271.3558</li> </ul>
<p><b>Recreation</b></p> <p><i>Facility Passes</i></p>	<p>The Applicant has been instrumental in the completed development of the riverfront park adjacent to the Penacook Upper Falls project, and a proposed river walk in and near the facility’s property. Pursuant to Article 25, the Applicant conveyed property rights to the City that gives it the ability to move forward with the proposed river walk. Simultaneously with this conveyance, the City renewed a Payment in Lieu of Taxes Agreement for the Facility for 5 years.</p> <p>The project configuration does not lend itself to active recreation, like boating or bathing. There is no access to the water, but there is a scenic overlook and other passive recreational opportunities, like enjoyment of natural resources and the sounds of the river.</p> <p>Consultation with NHDES confirmed the information above.</p> <p>NHDES:</p> <ul style="list-style-type: none"> <li>• Ted Walsh, Surface Water Monitoring Coordinator, Watershed Management <a href="mailto:Ted.Walsh@des.nh.gov">Ted.Walsh@des.nh.gov</a> 603.271.2083</li> </ul> <p>City of Concord, NH</p> <ul style="list-style-type: none"> <li>• Matthew R. Walsh, Asst. for Special projects <a href="mailto:mwalsh@onconcord.com">mwalsh@onconcord.com</a> 603.225.8570</li> </ul>
<p><b>Facilities Recommended for Removal</b></p> <p><i>Facility Passes</i></p>	<p>There is no Resource Agency Recommendation for removal of the dam associate with the Facility.</p> <p>NHDES:</p> <ul style="list-style-type: none"> <li>• Ted Walsh, Surface Water Monitoring Coordinator, Watershed Management <a href="mailto:Ted.Walsh@des.nh.gov">Ted.Walsh@des.nh.gov</a> 603.271.2083</li> </ul>

	<p>USFWS/NE Field Office:</p> <ul style="list-style-type: none"><li>• John Warner, Energy/Hydropower Coordinator <a href="mailto:John_Warner@fws.gov">John_Warner@fws.gov</a> 603.223.2541 x15</li></ul>
<p><b><u>The Facility is Conditionally Low Impact</u></b></p>	

**ANALYSIS of the  
Low Impact Certification Criteria**

Goals, Standards (A through H), Applicant's Responses, and Additional Information

**A. River Flows** (See Appendix 4 of this Application)

**Goal:** *The Facility (dam and powerhouse) should provide river flows that are healthy for fish, wildlife, and water quality, including seasonal flow fluctuations where appropriate.*

**Standard:** *For instream flows, a certified Facility must comply with recent Resource Agency Recommendations for flows. If there were no qualifying Resource Agency Recommendations, the Applicant can meet one of two alternative standards: (1) meet the flow levels required using the Aquatic Base Flow methodology or the "good" habitat flow level under the Montana-Tennant methodology; or (2) present a letter from a Resource Agency prepared for the application confirming the flows at the Facility are adequately protective of fish, wildlife, and water quality.*

**Criteria:**

- 1) **Is the Facility in Compliance with Resource Agency Recommendations issued after December 31, 1986 regarding flow conditions for fish and wildlife protection, mitigation and enhancement (including in-stream flows, ramping and peaking rate conditions, and seasonal and episodic instream flow variations) for both the reach below the tailrace and all bypassed reaches?**

✓ **NOT APPLICABLE**

*If YES, go to B.*

*If NOT APPLICABLE, go to A2.*

*If NO, Facility fails*

- 2) **If there is no flow recommended by any Resource Agency for the Facility, or if the Recommendation was issued prior to January 1, 1987, is the Facility in Compliance with a flow release schedule, both below the tailrace and in all bypassed reaches, that at a minimum meets Aquatic Base Flow standards or "good" habitat flow standards calculated using the Montana-Tennant method?**

✓ **YES**

The current flow standard was issued on December 4, 1984 based on the recommendation of the United States Department of the Interior regarding the appropriate flow to adequately protect fish and wildlife resources downstream of the Facility. The facility is required to discharge a continuous minimum flow below the tailrace (there are no bypassed reaches) of 338 cfs or the inflow to the reservoir, whichever is less (FERC license Article 26). The facility is

operated as a run-of-river facility and releases the instantaneous inflow of the river. Since the Contoocook River is actually a combination of three tributaries, the Applicant has been demonstrating compliance through three USGS stream gauges, one for each of the tributaries that discharge into the Contoocook River (flows essentially are regulated by upstream developments).

The most recent information submitted by the Applicant for River Flows is dated 1984. After reviewing the matter for compliance in 2009, NHDES indicated it does not have enough information to confirm the project is meeting water quality standards.

NHDES issued a letter dated December 31, 2009 to the Applicant regarding water quality monitoring and other data collection recommendations for LIHI certification purposes. A copy of this letter is included in Exhibit 1 at the end of this report. The Applicant has plans to implement the recommendations immediately, with the effort to be completed by the end of the year.

NHDES also confirmed that the impoundment area and downstream reach of the facility is on the NH List of Impaired Waters pursuant to Clean Water Act Section 303(d). Neither of these is linked to operation of the facility: the cause of the impairment is atmospheric deposition from New Hampshire and Midwest sources – every water body in NH is impaired for mercury for the “fish consumption” designated use.

***If YES, go to B.***  
***If NO, go to A3.***

- 3) If the Facility is unable to meet the flow standards in A.2, has the Applicant demonstrated and obtained a letter from the relevant Resource Agency confirming that demonstration, that the flow conditions at the Facility are appropriately protective of fish, wildlife and water quality?**

***If YES, go to B.***  
***If NO, Facility fails.***

#### THE FACILITY PASSES CONDITIONALLY

- 3. River Flows - The Facility is in Compliance with LIHI River Flows standards if the Applicant, by December 31, 2010, provides information recommended in the 12/31/2009 letter from NHDES to determine the current impact of the following on aquatic life: pond fluctuations, and minimum flows.**

**B. Water Quality** (See Appendix 1-4 and 5 of this Application)

**Goal:** *Water quality in the river is protected.*

**Standard:** *The water quality criterion has two parts. First, a Facility must demonstrate that it is in Compliance with state water quality standards, either through producing a recent (after 1986) Clean Water Act Section 401 certification, or demonstrating Compliance with state water quality standards (typically by presenting a letter prepared for the application from the state confirming the Facility is meeting water quality standards). Second, a Facility must demonstrate that it has not contributed to a state finding that the river has impaired water quality under Clean Water Act Section 303(d) (relating to water quality limited streams).*

**Criteria:**

- 1) **Is the Facility either:**
  - a) **in Compliance with all conditions issued pursuant to a Clean Water Act (CWA) Section 401 water quality certification issued for the Facility after December 31, 1986? OR**
  - b) **in Compliance with quantitative water quality standards established by the state that support designated uses pursuant to the federal Clean Water Act (CWA) in the Facility area and in the downstream reach?**

✓ **YES – Pending**

The facility earned a Section 401 Water Quality Certificate in 1983 (incorporated into the FERC license in 1984).

As part of the LIHI certification process, the Applicant requested a letter of compliance from the New Hampshire Department of Environmental Services (DES). Since there is no existing data to support such a finding, the DES provided water quality monitoring recommendations designed to determine if water quality standards are being met in the Contoocook River at and near the PUF facility. While the Applicant does not anticipate any problem demonstrating through monitoring that the Facility meets water quality standards, the final results will be confirmed by state Resource Agency staff review. That effort is expected to be completed by the end of the year.

**If YES, go to B2.**

**If NO, Facility fails.**

- 2) **Is the Facility area or the downstream reach currently identified by the state as not meeting water quality standards (including narrative and numeric criteria and designated uses) pursuant to Section 303(d) of the Clean Water Act?**

✓ **NO.**

NHDES confirmed that the impoundment area and downstream reach of the facility is on the NH List of Impaired Waters (pursuant to Clean Water Act Section 303(d)). He said neither of these is

linked to operation of the facility. The cause of the impairment is atmospheric deposition from New Hampshire and Midwest sources: every water body in NH is impaired for mercury for the “fish consumption” designated use.

**If YES, go to B3.**

**If NO, go to C.**

**3) If the answer to question B.2 is yes, has there been a determination that the Facility is not a cause of that violation?**

**If YES, go to C.**

**If NO, the Facility fails.**

#### THE FACILITY PASSES CONDITIONALLY

**B. Water Quality. The Facility is in Compliance with LIHI Standards for Water Quality if, by December 31, 2010, the Applicant performs water quality monitoring in consultation with NHDES and also submits results.**

**C. Fish Passage and Protection (See Appendix 6 of this Application)**

**Goal:** *The Facility provides effective fish passage for Riverine, anadromous and catadromous fish, and also protects fish from entrainment.*

**Standard:** *For Riverine, anadromous, and catadromous fish, a Facility must be in Compliance with recent (after 1986) mandatory prescriptions regarding fish passage (such as a Fish and Wildlife Service prescription for a fish ladder) as well as any recent Resource Agency Recommendations regarding fish protection (e.g., a tailrace barrier). If anadromous or catadromous fish historically passed through the Facility area but are no longer present, the Applicant must show that the fish are not extirpated or extinct in the area because of the Facility and that the Facility has made a legally binding commitment to provide any future fish passage recommended by a Resource Agency.*

*When no recent fish passage prescription exists for anadromous or catadromous fish, and the fish are still present in the area, the Facility must demonstrate either that there was a recent decision that fish passage is not necessary for a valid environmental reason, that existing fish passage survival rates at the Facility are greater than 95% over 80% of the run, or provide a letter prepared for the application from the U.S. Fish and Wildlife Service or the National Marine Fisheries Service confirming the existing passage is appropriately protective.*

**Criteria:**

**1) Is the Facility in Compliance with Mandatory Fish Passage Prescriptions<sup>4</sup> for upstream and downstream passage of anadromous and catadromous fish issued by Resource Agencies after December 31, 1986?**

✓ YES

Catadromous Fish. At the time of original licensing, there were no records of catadromous fish in the facility area.

Anadromous Fish. Standard Article 11 requires the Applicant to install fish passage and other wildlife facilities when requested by state and federal resource agencies. Article 24 of the original license requires upstream and downstream fish passage facilities to be file drawings of upstream and downstream fish passage by July 1, 1988 and to build them within 6 months after the commencement of construction of facilities at the Sewalls Falls project (FERC No. P-3040). The original trigger for construction at PUF was and still is the annual passage of 15,000 adult American shad through the fish facilities at the Garvins Falls Dam, or Sewalls Falls Dam if constructed. The 1984 license also required consultation with state and federal fishery agencies regarding Atlantic salmon restoration activities.

In September 1986, Public Service of New Hampshire (PSNH) and the state and federal fishery agencies entered into an agreement regarding the construction of fish passage facilities at mainstem dams on the Merrimac River to promoted anadromous fish restoration. As a result of the agreement and the fact that resulting efforts that did not proceed as quickly as planned, in July 2004 FERC extended the date for the construction of fish passage facilities at PUF to January 2006.

In a letter between FERC and PSNH dated March 5, 2009, the date for construction of facilities was extended because the trigger numbers had not been reached: during 2008, no American shad or river herring were observed at the Amoskeag dam downstream from the PUF facility. This means that the earliest the PUF Facility will be required to install its facilities is 2015 or 6 years from 2009. The FERC license does contain a provision to require the PUF facility to act sooner if the Facility operation adversely affects fish and wildlife resources (Article 24, 25 and 33).

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<sup>4</sup> This means upstream and downstream fish passage requirements issued by Resource Agencies that must be included in a FERC license or exemption or otherwise must be complied with by the Facility owner/operator, usually pursuant to Section 18 of the Federal Power Act (FPA), or, if applicable, Section 4(e) of the FPA, Section 401 of the Clean Water Act, the Endangered Species Act (ESA), or other relevant state or federal provisions. Recommendations included in the ESA Biological Opinion or Recovery Plan are considered Mandatory Fish Passage Prescriptions. If different Resource Agencies have differing prescriptions, the most environmentally stringent prescription shall apply.

Article 25 requires the Applicant to continue to consult with state and federal agencies regarding the introduction of Atlantic salmon to the Contoocook River and providing safe downstream passage of salmon smolts. The Applicant filed its last report with FERC on March 11, 2003.

Downstream: The Facility operates a flow inducer at the intake that was designed and installed (2006) in consultation with the state and federal fishery agencies. USFWS confirmed that this downstream passage is being operated for Atlantic salmon smolt each spring, but that neither American shad nor river herring have been stocked above the project in recent years. Management plans for shad and herring are being discussed by the agency right now, and stocking could occur. If it did, passage for outmigrant juveniles would be needed.

Upstream: UFWS, stated that upstream passage is not required at this time due to the lack of passage at the Lower Penacook Project just downstream.

The Merrimack River Restoration Project targets the Contoocook for anadromous fish restoration. Two dams downstream of the PUF facility are required to install upstream fish passage a certain number of years after a target number of American shad pass the first dam. The Applicant has agreed to install upstream fish passage after the second of those dams does the same, which gives it 6 years at least (2015) before upstream passage would be required at the PUF facility.

Consultation with NHFGD and USFWS confirmed this information.

**If YES, go to C5.**

**If NOT APPLICABLE, go to C2.**

**If NO, Facility fails.**

- 2) Are there historic records of anadromous and/or catadromous fish movement through the Facility area, but anadromous and/or catadromous fish do not presently move through the Facility area (e.g., because passage is blocked at a downstream dam or the fish run is extinct?)**

**If YES or NOT APPLICABLE, go to C2a.**

**If NO, go to C3.**

- a) If the fish are extinct or extirpated from the Facility area or downstream reach, has the Applicant demonstrated that the extinction or extirpation was not due in whole or in part to the Facility?**

**If YES, go to C2b.**

**If NOT APPLICABLE, go to C2b.**

**If NO, Facility fails.**

- b) If a Resource Agency Recommended adoption of upstream and/or downstream fish passage measures at a specific future date, or when a triggering event occurs (such as**

completion of passage through a downstream obstruction or the completion of a specified process), has the Facility owner/operator made a legally enforceable commitment to provide such passage?

*If YES, go to C5.*

*If NOT APPLICABLE, go to C3.*

*If NO, Facility fails.*

3) If, since December 31, 1986:

- a) Resource Agencies have had the opportunity to issue, and considered issuing, a Mandatory Fish Passage Prescription for upstream and/or downstream passage of anadromous or catadromous fish (including delayed installation as described in C2 above), and
- b) the Resource Agency declined to issue a Mandatory Fish Passage Prescription,
- c) was a reason for the Resource Agencies' declining to issue a Mandatory Fish Passage Prescription one of the following: (1) the technological infeasibility of passage, (2) the absence of habitat upstream of the Facility due at least in part to inundation by the Facility impoundment, or (3) the anadromous or catadromous fish are no longer present in the Facility area and/or downstream reach due in whole or part to the presence of the Facility?

*If NO, go to C5.*

*If NOT APPLICABLE, go to C4.*

*If YES, Facility fails.*

4) If C3 was not applicable:

- a) are upstream and downstream fish passage survival rates for anadromous and catadromous fish at the dam each documented at greater than 95% over 80% of the run using a generally accepted monitoring methodology? OR
- b) If the Facility is unable to meet the fish passage standards in 4a, has the Applicant demonstrated, and obtained a letter from the US Fish and Wildlife Service or National Marine Fisheries Service confirming that demonstration, that the upstream and downstream fish passage measures (if any) at the Facility are appropriately protective of the fishery resource?

*If YES, go to C5.*

*If NO, Facility fails.*

5) Is the Facility in Compliance with Mandatory Fish Passage Prescriptions for upstream and/or downstream passage of Riverine fish?

✓ **NOT APPLICABLE.** None was prescribed.

*If YES or NOT APPLICABLE, go to C6.*

*If NO, Facility fails.*

**6) Is the Facility in Compliance with Resource Agency Recommendations for Riverine, anadromous and catadromous fish entrainment protection, such as tailrace barriers?**

✓ **NOT APPLICABLE.** None was prescribed.

If YES or NOT APPLICABLE, go to D.

If NO, Facility fails.

**THE FACILITY PASSES**

**C. Fish Passage and Protection - The Facility is in Compliance Fish Passage and Protection standards.**

**D. Watershed Protection** (See Appendix 7 of this Application)

*Goal: Sufficient action has been taken to protect, mitigate and enhance environmental conditions in the watershed.*

*Standard: A certified Facility must be in Compliance with Resource Agency Recommendations and FERC license terms regarding watershed protection, mitigation or enhancement. These may cover issues such as shoreline buffer zones, wildlife habitat protection, wetlands protection, erosion control, etc. The Watershed Protection Criterion was substantially revised in 2004. The revised criterion is designed to reward projects with an extra three years of certification that have: a buffer zone extending 200 feet from the high water mark; or, an approved watershed enhancement fund that could achieve within the project's watershed the ecological and recreational equivalent of land protection in D.1 and has the agreement of appropriate stakeholders and state and federal resource agencies. A Facility can pass this criterion, but not receive extra years of certification, if it is in Compliance with both state and federal resource agencies Recommendations in a license approved shoreland management plan regarding protection, mitigation or enhancement of shorelands surrounding the project.*

**Criteria:**

**1) Is there a buffer zone dedicated for conservation purposes (to protect fish and wildlife habitat, water quality, aesthetics and/or low-impact recreation) extending 200 feet from the high water mark in an average water year round 50-100% of the impoundment, and for all of the undeveloped shoreline?**

✓ **NO.**

*If YES, go to E and receive 3 extra years of certification*

*If NO, go to D2.*

**2) Has the Facility owner/operator established an approved watershed enhancement fund that: 1) could achieve within the project's watershed the ecological and recreational**

equivalent of land protection in D1, and 2) has the agreement of appropriate stakeholders and state and federal resource agencies?

✓ NO

*If YES, go to E and receive 3 extra years of certification*

*If NO, go to D3.*

3) Has the Facility owner/operator established through a settlement agreement with appropriate stakeholders and that has the state and federal resource agencies agreement an appropriate shoreland buffer or equivalent watershed land protection plan for conservation purposes (to protect fish and wildlife habitat, water quality, aesthetics and/or low impact recreation)?

✓ NO

*If YES, go to E.*

*If NO, go to D4.*

4) Is the Facility in Compliance with both state and federal resource agencies Recommendations in a license approved shoreland management plan regarding protection, mitigation or enhancement of shorelands surrounding the project?

✓ YES

Given the very small impoundment area and prior dense commercial and industrial development in and around the area, there is little need or opportunity for watershed protection within the project boundaries other than the Boscawen Riverfront Park (constructed and located upstream on the eastern river bank) and the proposed river front walk.

While the Applicant has not established a fund per se, it has funded watershed protection and recreational opportunities in the area by providing easements. Pursuant to Article 25, the Applicant conveyed property rights to the City that gives it the ability to move forward with the proposed river walk. Simultaneously with this conveyance, the City renewed a Payment in Lieu of Taxes Agreement for the Facility for 5 years.

*If YES, go to E.*

*If NO, Facility fails.*

#### THE FACILITY PASSES

**D. Watershed Protection – The Facility is in Compliance with LIHI’s Watershed Protection standards.**

**E. Threatened And Endangered Species Protection** (See Appendix 8 of this Application)

**Goal:** *The Facility does not negatively impact state or federal threatened or endangered species.*

**Standard:** *For threatened and endangered species present in the Facility area, the Facility owner/operator must either demonstrate that the Facility does not negatively affect the species, or demonstrate Compliance with the species recovery plan and any requirements for authority to “take” (damage) the species under federal or state laws.*

**Criteria:**

**1) Are threatened or endangered species listed under state or federal Endangered Species Act (ESA) present in the Facility area and/or downstream reach?**

✓ **NO**

The NHDRED, NHFGD, and USFWS confirmed that there are no threatened or endangered species listed under state or federal ESA present in the Facility area and/or downstream reach.

**If YES, go to E2.**

**If NO, go to F.**

**2) If a recovery plan has been adopted for the threatened or endangered species pursuant to Section 4(f) of the Endangered Species Act (ESA) or similar state provision, is the Facility in Compliance with all Recommendations in the plan relevant to the Facility?**

✓ **YES**

**If YES or NOT APPLICABLE, go to E3.**

**If NO, Facility fails.**

**3) If the Facility has receive authority to incidentally *Take* a listed species through: (i) having a relevant agency complete consultation pursuant to ESA Section 7 resulting in a biological opinion, a habitat recovery plan, and/or (if needed) an incidental Take statement; (ii) obtaining and incidental Take permit pursuant to ESA Section 10; or (iii) for species listed by a state and not by the federal government, obtaining authority pursuant to similar state procedures; is the Facility in Compliance with conditions pursuant to that authority?**

✓ **NOT APPLICABLE**

**If YES, go to E4.**

**If NOT APPLICABLE, go to E5.**

**If NO, Facility fails.**

- 4) If a biological opinion applicable to the Facility for the threatened or endangered species has been issued, can the Applicant demonstrate that:
- a) the biological opinion was accompanied by a FERC license or exemption or a habitat conservation plan? OR
  - b) the biological opinion was issued pursuant to or consistent with a recovery plan for the endangered or threatened species? OR
  - c) there is no recovery plan for the threatened or endangered species under active development by the relevant Resource Agency? OR
  - d) the recovery plan under active development will have no material effect on the Facility's operation?

*If YES, go to F.*

*If NO, Facility fails.*

- 5) If E.2 and E.3 are not applicable, has the Applicant demonstrated that the Facility and Facility operations do not negatively affect listed species?

✓ **YES - Pending**

The NHDRED and NHFGD both confirmed that the Facility or Facility operations do not currently negatively impact threatened and endangered species.

*If YES, go to F.*

*If NO, Facility fails*

#### THE FACILITY PASSES

<b>E. Threatened and Endangered Species Protection. The Facility is in Compliance with LIHI's Threatened and Endangered Species Protection standards.</b>
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#### F. Cultural Resources Protection

**Goal:** *The Facility does not inappropriately impact Cultural Resources.*

**Standard:** *Cultural Resources must be protected either through Compliance with FERC license provisions, or, if the project is not FERC regulated, through development of a plan approved by the relevant state, federal, or tribal agency.*

**Criteria:**

- 1) **If FERC-regulated, is the Facility in Compliance with all requirements regarding Cultural Resource protection, mitigation or enhancement included in the FERC license or exemption?**

✓ **YES**

The FERC license (Article 32) requires the Licensee to consult and cooperate with the New Hampshire State Historic Preservation Officer (SHPO) prior to the commencement of any construction (including that of the Facility itself) to determine the need for archaeological or other surveys. In 1982, the SHPO determined that the construction of the Facility would have no effect upon known architectural, historical archaeological or other cultural resources. To the best of the Applicant's knowledge, since 1982, there have been no new cultural resources discovered as a result of project planning or implementation.

The NHDCR indicated the facility does not currently negatively affects known architectural, historical, archaeological or other cultural resources.

***If YES, go to G.***

***If NOT APPLICABLE, go to F2***

***If NO, Facility fails.***

- 2) **If not FERC-regulated, does the Facility owner/operator have in place (and is in Compliance with) a plan for the protection, mitigation or enhancement of impacts to Cultural Resources approved by the relevant state or federal agency or *Native American Tribe*, or a letter from a senior officer of the relevant state or federal agency or Tribe that no plan is needed because Cultural Resources are not negatively affected by the Facility?**

***If YES, go to G.***

***If NO, Facility fails.***

**THE FACILITY PASSES**

**F. Cultural Resources. The Facility is in Compliance with LIHI's Cultural Resources standards.**

**G. Recreation** (see Appendix 9 of this Application)

**Goal:** *The Facility provides free access to the water and accommodates recreational activities on the public's river.*

**Standard:** *A certified Facility must be in Compliance with terms of its FERC license or exemption related to recreational access, accommodation and facilities. If not FERC-regulated, a Facility must be in Compliance with similar requirements as recommended by resource agencies. A certified Facility must also provide the public access to water without fee or charge.*

**Criteria:**

- 1) **If FERC-regulated, is the Facility in Compliance with the recreational access, accommodation (including recreational flow releases) and facilities conditions in its FERC license or exemption?**

✓ **YES**

In conjunction with the City of Concord, the Facility helped to develop a recreational Facility known as the Penacook Downtown River Park. It borders and overlooks the project's impoundment area and has two focal points: (1) a stone structure on site which is used as a theater and stage; and (2) the River itself, with the major emphasis of the park being the benches and grassy areas which allow visitors to enjoy the visual and audio aspects of the river. The park was developed using grants provided by the Facility owners and other donors, and is maintained by the City of Concord. The park is open 12 months a year and is provided free of charge to visitors.

***If YES, go to G3.***

***If NOT APPLICABLE, go to G2.***

***If NO, Facility fails.***

- 2) **If not FERC-regulated, does the Facility provide recreational access, accommodation (including recreational flow releases) and facilities, as Recommended by Resource Agencies or other agencies responsible for recreation?**

***If YES, go to G3.***

***If NO, Facility fails.***

- 3) **Does the Facility allow access to the reservoir and downstream reaches without fees or charges?**

✓ **YES.** See subsection 1), above.

***If YES, go to H.***

***If NO, Facility fails.***

**THE FACILITY PASSES**

**G. Recreation – The Facility is in Compliance with LIHI’s Recreation standards.**

**H. Facilities Recommended for Removal**

**Goal:** To avoid encouraging the retention of facilities which have been considered for removal due to their environmental impacts.

**Standard:** If a Resource Agency has recommended removal of a dam associated with the Facility, certification is not allowed.

**Criterion:**

**1) Is there a Resource Agency Recommendation for removal of the dam associated with the Facility?**

✓ **NO.** Consultation with NHDES and USFWS confirmed this.

**If NO, Facility is low impact.**

**If YES, the Facility fails.**

**THE FACILITY PASSES**

**H. Dam Removal – There is no Resource Agency Recommendation for removal of the dam.**

➤ **FACILITY IS CONDITIONALLY LOW IMPACT**