REVIEW OF APPLICATION FOR RECERTIFICATION
BY THE
LOW IMPACT HYDROPOWER INSTITUTE

OF THE
JACKSON MILLS HYDROELECTRIC PROJECT
(FERC No. P-7590, exempt)

Prepared By:
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July 21, 2021

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FINAL REVIEW OF APPLICATION FOR LIHI RECERTIFICATION OF THE JACKSON MILLS HYDROELECTRIC PROJECT, LIHI #54

This report provides final review findings and recommendations related to the application submitted to the Low Impact Hydropower Institute (LIHI) by the City of Nashua, NH (Applicant) for recertification of the Jackson Mills Hydroelectric Project (Project). The final recertification application package was filed on May 6, 2021 and is subject to review under the current 2nd edition LIHI Handbook (Revision 2.04, April 1, 2020).

I. INTRODUCTION

The 1.1 MW Jackson Mills Project is located on the Nashua River approximately 1.25 miles upstream of the river's confluence with the Merrimack River in Nashua, New Hampshire. The mainstem Nashua River is 37.5 miles long and begins in Lancaster, Massachusetts at the confluence of the North Nashua River and South Nashua River and flows northeast through Shirley, Ayer, and Pepperell, MA into Nashua, NH. Construction of the Jackson Mills Dam was completed in 1920.

The hydropower facility began operation in 1984 and at that time, the exemptee was Nashua Hydro Associates (NHA), a New Hampshire Limited Partnership that developed the Project on behalf of the property owner, the City of Nashua. The Project was operated by NHA under a 30-year variable rent lease with the City which expired in December 2014, at which time the FERC exemption was transferred from NHA to the City.

II. OVERVIEW OF CERTIFICATION/RECERTIFICATION AND MATERIAL CHANGE REVIEW

The Jackson Mills Project was first certified by LIHI (#54) in July 2010, effective January 2010. The Project was recertified in 2015 for a five-year term, which expired on January 31, 2020 and was extended several times, most recently to August 31, 2021.

The Project's 2015 recertification included two conditions:

- **Condition 1.** The Owner shall complete the water quality sampling at the facility that is being conducted in concert with NHDES. All results from this monitoring program should be forwarded to the LIHI upon its completion no later 120 days after LIHI certification. The owner shall also send LIHI documentation of NHDES' interpretation of the results. If the water quality results continue to indicate, as they did in 2010, that operation and maintenance of the Project is not a contributing cause to any violations of any applicable water standards, this condition is satisfied. If water quality issues are discovered, the Owner shall provide LIHI with a resolution plan reviewed and approved by the USFWS and the NHDES.

Based on LIHI documentation, Condition 1 was satisfied in 2018/2019.

- **Condition 2**. The Owner has been proactively working with the USFWS and NHDFG in meeting their upstream and downstream fish passage concerns. Site visits, meetings and agreements with State agencies have occurred in recent months. The owner shall continue these agency interactions and, no later than 45 days after LIHI certification, send LIHI documentation verifying FERC's approval of actions taken since February of 2016**.**

Based on review of submitted information, comments and inspection reports by stakeholder agencies, this condition is partially satisfied with submittal of documentation and FERC approval of the status as of 2016. Efforts remain on-going to improve passage. The Applicant has stated they continue to work with the Agencies to support fish and eel passage.

Under the current LIHI Handbook (Revision 2.04: April 1, 2020), recertification reviews are a two-phase process starting with a limited review of a completed LIHI application, focused on three questions:

(1) Is there any missing information from the application?
(2) Has there been a material change in the operation of the certified facility since the previous certificate term?
(3) Has there been a change in LIHI criteria since the Certificate was issued?

In accordance with the Recertification Standards, all Projects currently applying for renewal must go through a full review unless their most recent certification was completed using the 2016 version of the Handbook. Thus, this Stage II report was required for the Jackson Mills Project.

This Stage II assessment included review of the application package, public records in FERC's eLibrary since the last LIHI recertification in 2015, and annual compliance statements received by LIHI during the past term of Certification. Given the completeness of documentation contained within the application and supplemental information, along with the ongoing communications by agencies related to the on-going FERC exemption amendment application to replace the Project's turbine, no further outreach to agencies or stakeholders was warranted.

III. PROJECT LOCATION AND SITE CHARACTERISTICS

The Jackson Mills Project is located on the Nashua River approximately 700 feet downstream from the crossing of Route 3 (Main Street) in Nashua, New Hampshire. The area in the vicinity of the Project is urban in character and typical of an old New England manufacturing city. The Nashua public library is located on the south bank of the river. The former powerhouse on the north bank currently houses a restaurant, which contains some of the features of the old operation. The new powerhouse was constructed adjacent to the old powerhouse with the turbine intake located beneath the restaurant.

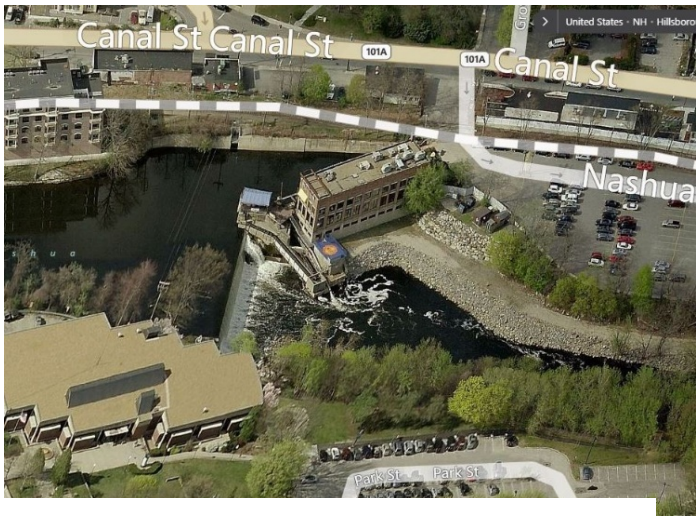

Figure 1: Aerial Image of Jackson Mills Hydroelectric Dam.

The Nashua River has a total drainage area of 529 square miles, with 88 square miles in New Hampshire, and 411 square miles in Massachusetts. The net drainage area at the dam is 410 square miles, as 119 square miles are intercepted upstream to supply water to the Massachusetts cities of Boston and Worcester.

The land uses along the north side of the river to the east of the former powerhouse are predominantly industrial and to the west they are commercial. On the south side of the river the land usage to the east of the library is predominantly urban residential with commercial uses lying to the west. Along both banks above and below the dam the vegetation consists of planted ornamentals and vegetation typical of disturbed ground.

Construction of the Jackson Mills Dam was completed in 1920. The dam is designed as a gravity-type stone masonry spillway, with a concrete cap and a concrete extension and concrete-faced stone gravity-type abutments. The height of the dam is 33 feet and the length is 180 feet and includes an eight-foot-high pneumatic crest gate and concrete-faced stone gravity-type abutments. The top eight feet of the dam are a pneumatic crest gate. Upstream and downstream fish passage is provided at the Project by a Denil-style fishway and a stainless steel bypass pipe (Figure 2).

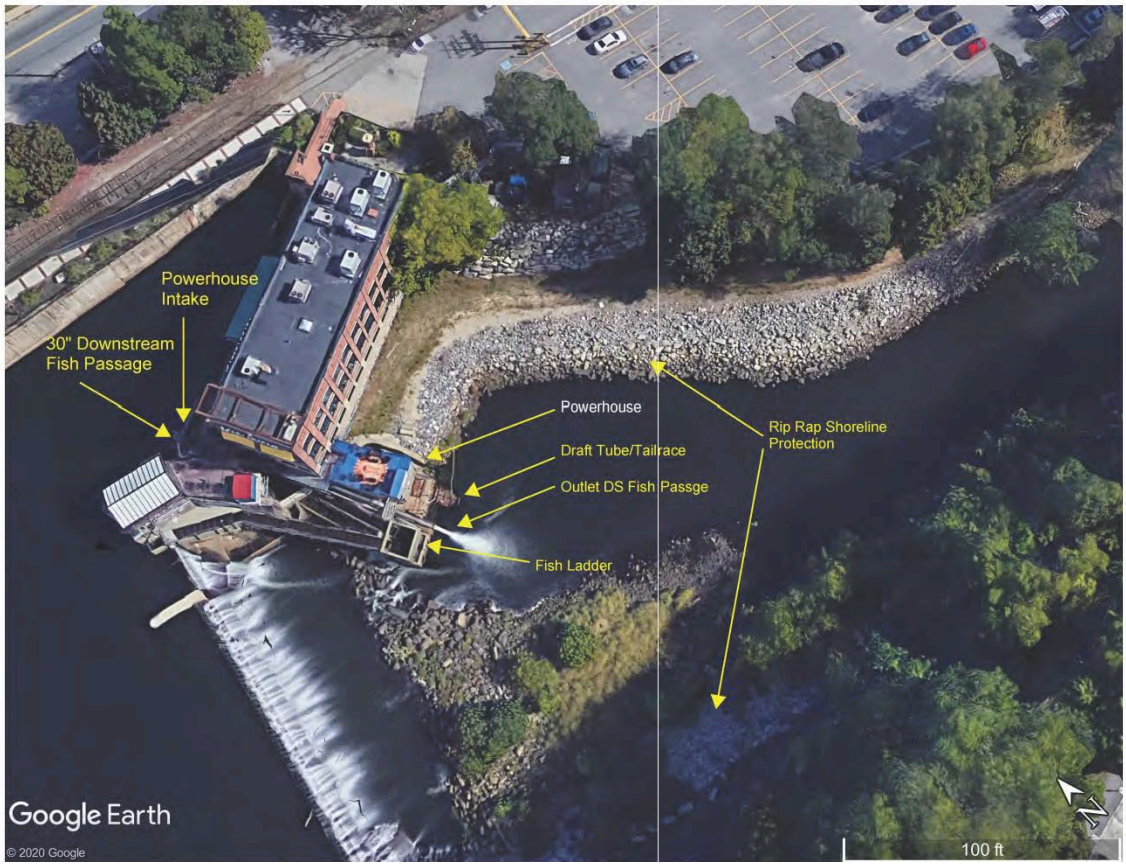

Figure 2: Jackson Mills Hydroelectric Project Key Features

The 40-acre impoundment created by the dam has a normal maximum water surface of 116.6-feet NGVD and a reservoir volume of 450 acre-feet. The Project operates in a run-of-river mode. The powerhouse is located at the north dam abutment and houses a single 1-MW semi-Kaplan turbine generator.

One additional hydroelectric facility operates on the Nashua River upstream of the Project in the New Hampshire section. The Mines Falls Project (P-3442) is located about 3.7 miles upstream and is also owned by the City of Nashua. Farther upstream in Massachusetts are the Pepperill Project (P-12721), and the Ice House Project (P-12769, LIHI #44), Figure 3.

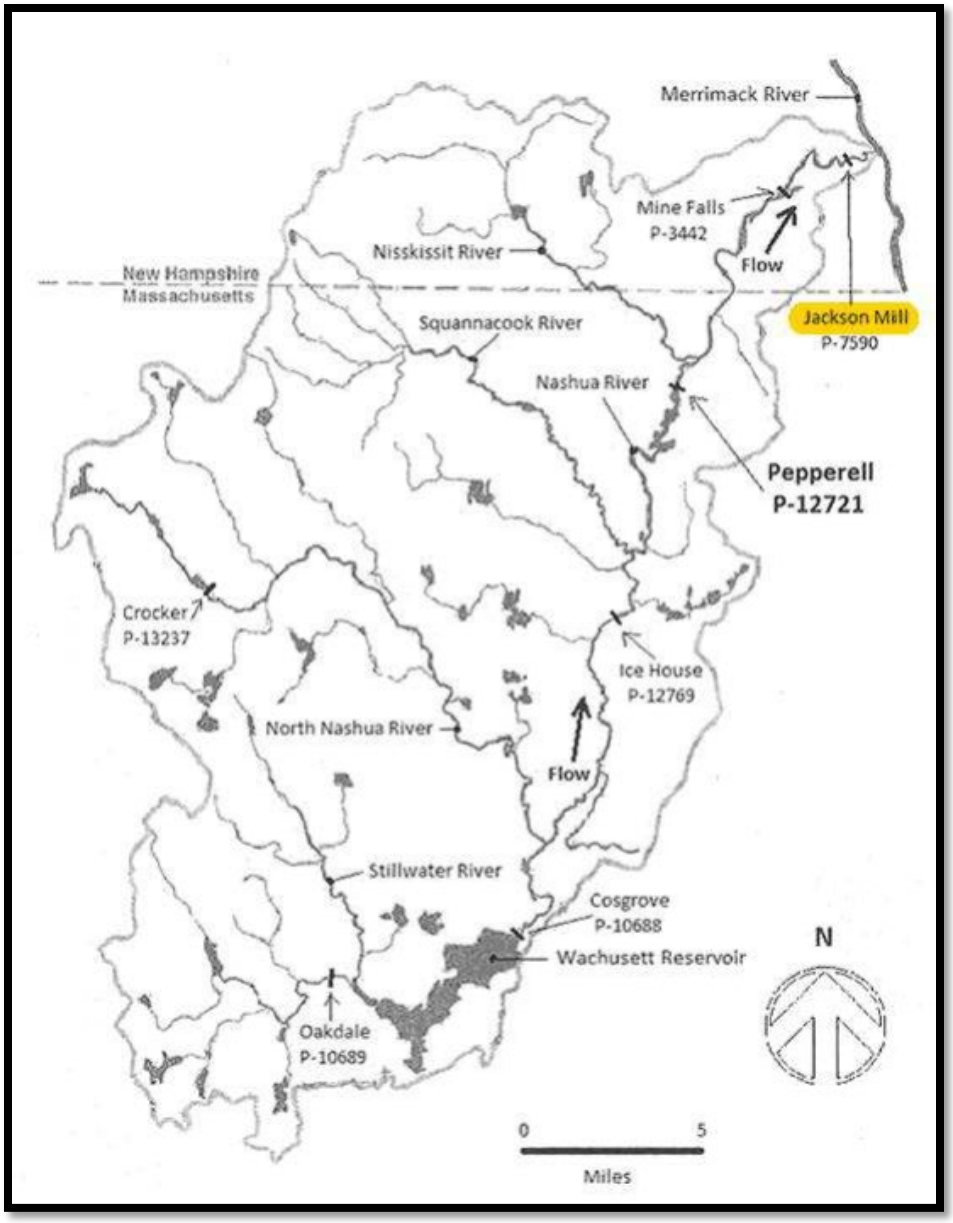

Figure 3: Project Location and Watershed

IV. REGULATORY AND COMPLIANCE STATUS

The Jackson Mills Project was granted an Exemption from FERC Licensing on April 24, 1984[1], under Exemption from Licensing of a Small Hydroelectric Project of 5 Megawatts or Less.

An Amendment application was filed on September 20, 2012 to allow for the installation of the pneumatic crest gate along 140 feet of the spillway. By letter filed December 21, 2012, the New Hampshire Department of Environmental Services (NHDES) stated it would not be amending the existing WQC issued in 1983 as part of the exemption amendment. On January 11, 2013, the FERC issued an Order Amending Exemption[2].

The Project owner filed a FERC exemption Amendment application on June 1, 2021[3] for a non-material Amendment associated with a powerplant upgrade project to replace the turbine. This application is currently under review by FERC and agency stakeholders have provided comments on the draft application.

V. PUBLIC COMMENTS RECEIVED OR SOLICITED BY LIHI

The LIHI application was publicly noticed on May 10, 2021 and notice of the application was forwarded to resource agency and stakeholder representatives listed in the application. The 60-day comment period ended on July 9, 2021. No public comments were received by LIHI during the comment period.

VI. ZONES OF EFFECT

The Applicant delineated the Project into two Zones of Effect (ZoEs) shown in Figures 4 and 5:

- Zone 1 is the impoundment extending upstream from the Dam to the bridge at the mill yard (RM 1.7 – RM 1.25), Figure 4.
- Zone 2 is the tailrace/downstream zone extending from the Dam to the confluence with the Merrimack River (RM 1.25 – RM 0), Figure 5.

Based on information related to the current turbine replacement project (discussed below), there appears to be a short bypassed reach approximately 100 feet long. However, given its de minimis nature, it is included in Zone 2 for purposes of this review (Figure 6).

The Applicant selected the standards shown in the tables below. Where the reviewer disagrees with the selected standards, recommended standards are indicated in **RED** in the matrix tables below.

[1] https://elibrary.ferc.gov/eLibrary/filedownload?fileid=12736150
[2] https://elibrary.ferc.gov/eLibrary/filedownload?fileid=13152329
[3] https://elibrary.ferc.gov/eLibrary/filedownload?fileid=15804988

Zone of Effect # 1: Impoundment

CRITERION		ALTERNATIVE STANDARDS				
		1	2	3	4	PLUS
A	Ecological Flow Regimes		✓			
B	Water Quality			✓		
C	Upstream Fish Passage	✓				
D	Downstream Fish Passage		✓			
E	Watershed and Shoreline Protection	✓				
F	Threatened and Endangered Species Protection	~~✓~~	✓			
G	Cultural and Historic Resources Protection	✓				
H	Recreational Resources			✓		

Zone of Effect # 2: Tailrace/Downstream Reach

CRITERION		ALTERNATIVE STANDARDS				
		1	2	3	4	Plus
A	Ecological Flow Regimes		✓			
B	Water Quality			✓		
C	Upstream Fish Passage		✓			
D	Downstream Fish Passage	✓				
E	Watershed and Shoreline Protection	✓				
F	Threatened and Endangered Species Protection	~~✓~~	✓			
G	Cultural and Historic Resources Protection	✓				
H	Recreational Resources			✓		

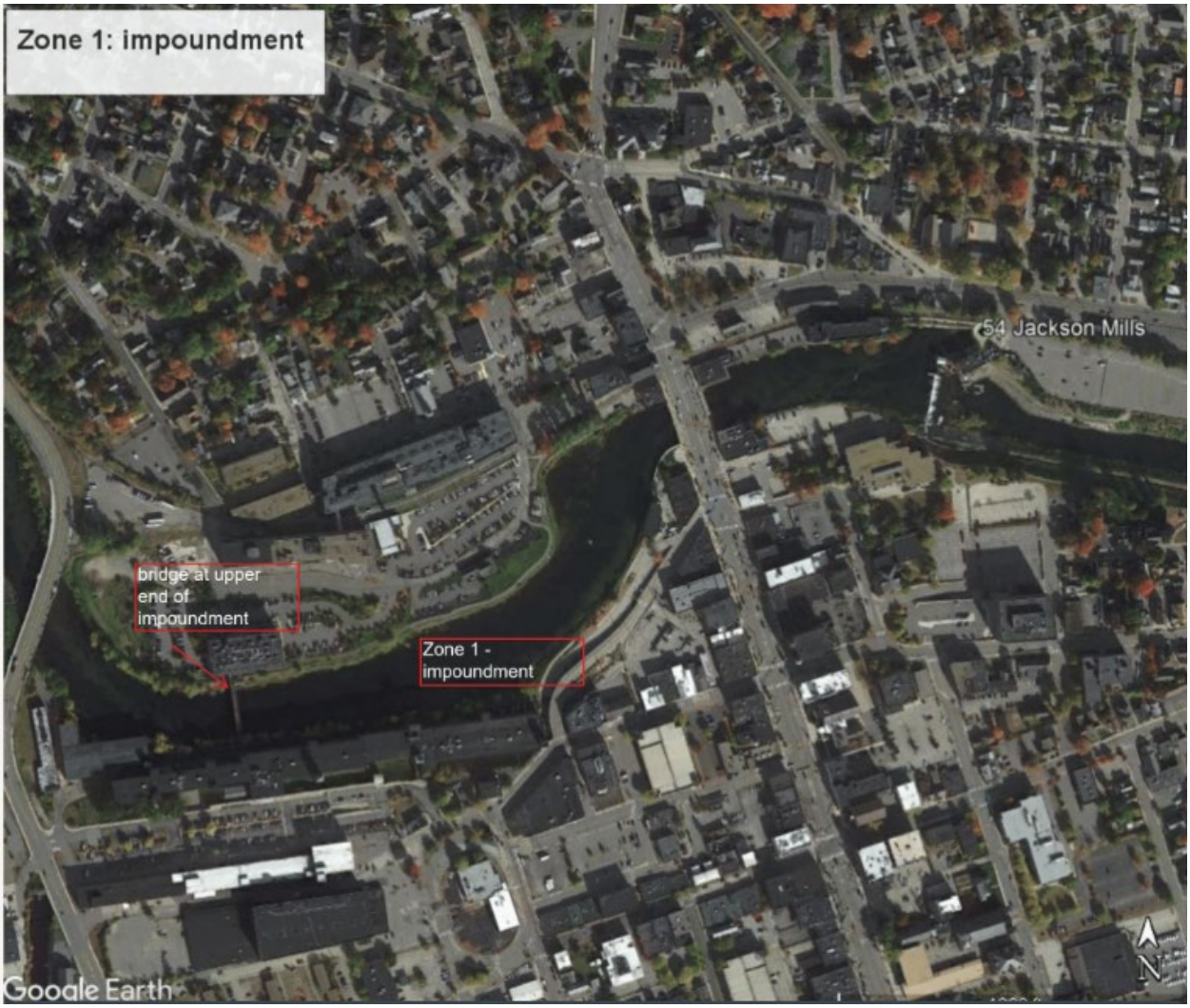

Figure 4. Zone 1 - Impoundment

Figure 5. Zone 2: Bypass/Tailrace and Downstream Reach.

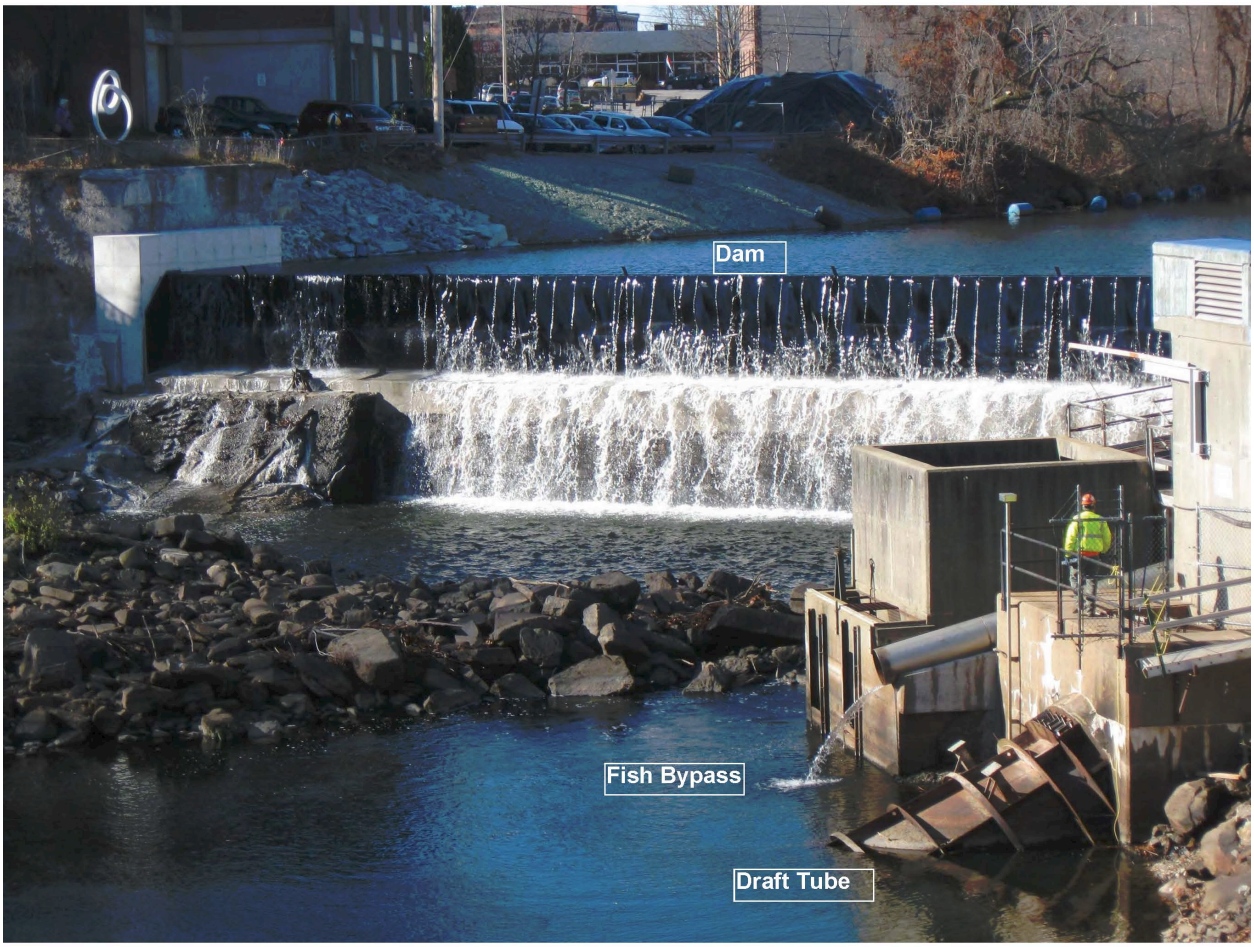

Figure 6. Bypass Reach

VII. DETAILED CRITERIA REVIEW

A: Ecological Flow Regimes

Goal: *The flow regimes in riverine reaches that are affected by the facility support habitat and other conditions suitable for healthy fish and wildlife resources.*

Assessment of Criterion: The Applicant selected Standard A-1- Not Applicable/De-Minimis Effect for Zone 1 – Impoundment and Standard A-2, Agency Recommendations for Zone 2 – Tailrace/Downstream Reach including the bypass reach.

Discussion: There have been no changes in requirements of the Facility since it was last re-certified by LIHI. The Project is operated in a run-of-river mode and there is no impoundment storage. The Project is required to discharge an instantaneous flow of 207 cfs or inflow, whichever is less. This flow level was determined by US Fish and Wildlife Service (USFWS) at

the time of the exemption to approximate the default New England summertime aquatic base flow of 0.5 cfs per square mile of drainage.

Pneumatic crest gates were installed in 2013 and as part of an exemption amendment, at which time the Project was required to submit an operations plan. The plan was submitted on April 3, 2014 and approved by FERC order on May 21, 2014[4]. The plan describes operation during low, normal, and high flows, emergency drawdown, and refill procedures; and requires continued operation of the Project in a run-of-river mode maintaining the water surface elevation of 116.1 feet (based on NGVD datum) at the top of the spillway portion of the dam for flows up through the maximum turbine flow of approximately 800 cfs. The Project passes river flows above 800 cfs over the spillway portion of the dam. The plan states that the overflow spillway portion of the dam includes a 140-foot-long by 8-foot-high pneumatic crest gate system with a crest elevation of 116.1 NGVD. The plan details the use of programmable logic controllers with pulse timer sequences to lower (open) or raise (close) the crest gate based on water level elevations. This plan references specifics for flow conditions, drawdown conditions, and reservoir refill procedures.

The Application for Amendment of Exemption from Licensing submitted June 1, 2021 to replace the turbine provided a water control plan and scope of operation during the turbine replacement, denoting short-term impacts during construction and long-term impacts focused on a "10 cfs increase in maximum turbine flow occurs during a short time in the spring (17% of the time annually) when river flows are in excess of the maximum turbine flow of 750 cfs.

USFWS commented on the amendment application[5] with revised mandatory Terms and Conditions that includes a more detailed plan than the one currently in effect. The plan is due within 6 months, or by December 17, 2021.

The Applicant indicated they are not aware of any deviations from the operation plans or run-of-river operation. The FERC eLibrary reveals one instance of an impoundment deviation that occurred on March 22-23, 2017, caused by a transmission system trip. The event was properly reported, corrected immediately upon discovery, and there were no reported environmental impacts. FERC determined the event did not constitute an exemption violation.

Based on the application, supporting documentation, and FERC eLibrary documents, this review finds that the Project continues to be in compliance with flow requirements due to its run-of-river operation and operation plan, and therefore continues to satisfy the ecological flow regimes criterion. I recommend a condition to notify LIHI upon FERC approval of the exemption amendment and to submit the new flow monitoring plan once approved by USFWS.

[4] https://elibrary.ferc.gov/eLibrary/filelist?document_id=14218506&accessionnumber=20140521-3051
[5] https://elibrary.ferc.gov/eLibrary/filedownload?fileid=15814747

B: Water Quality

Goal: *Water Quality is protected in waterbodies directly affected by the facility, including downstream reaches, bypassed reaches, and impoundments above dams and diversions*.

Assessment of Criterion: The Applicant selected Standard B-3, Site Specific Monitoring Studies for both ZoEs.

Discussion: The entire Nashua River within New Hampshire is considered Class B waters acceptable for fishing, swimming, and other recreational purposes, and, after adequate treatment, for use as water supplies. However, the entire river is included in the state's 2020 draft impaired listing for aquatic life, fish consumption and swimming. In the Project vicinity (assessment units NHIMP700040402-05 and NHRIV700040402-09), impairments are for mercury, E coli bacteria, and non-native aquatic plants.

The original water quality certificate determined that the "*construction, operation and maintenance of the project would not cause a violation of any applicable water standards*". Based on the 2015 LIHI recertification, consultation with NHDES on water quality was completed in 2010 and an update to the 2010 water quality assessment was requested by NHDES to support LIHI recertification. Monitoring was conducted in 2015 and 2016, and again in 2017 due to extreme drought and low flow conditions that occurred in 2016. In a 2019 letter to LIHI, NHDES stated that the 2015 and 2017 data showed the river in the immediate Project area meets water quality standards for dissolved oxygen *"under the conditions during which the data was collected".* The Applicant's monitoring reports indicated the Project was operating normally during those periods. NHDES cautioned, however: "*Data collected in 2016 indicated that the Nashua River may not be meeting water quality standards under low flow conditions."*

On June 15, 2021, NHDES provided comments on the Application for the Exemption Amendment for the Project[6]. The letter specifically states: "*NHDES notes that additional water quality monitoring was performed by EHA for LIHI recertification in 2015, 2016, and 2017. Attachment A includes NHDES' summary of the data collected in 2015, 2016 and 2017. As indicated in the attached summary, the dissolved oxygen data is inconclusive. Because 1) the data is inconclusive regarding the effects of Project operation on dissolved oxygen, 2) the data is almost five years old, 3) the turbine is being replaced, 4) factors such as climate change may lead to higher water temperatures and lower flows which can further lower dissolved oxygen levels, and 5) because of the long life of FERC Exemption Orders, NHDES will likely be requesting that monitoring be conducted soon after the proposed new turbine is operational and periodically throughout the life of the Project. The purpose of the monitoring would be 1) to determine the effects of Project operation during the life of the Project, both spatially and temporally (in terms of flow, impoundment elevation and power generation) on water temperature and dissolved oxygen (concentration and percent saturation), 2) to compare results to New Hampshire surface water quality standards, and 3) to determine if additional changes in*

[6] https://elibrary.ferc.gov/eLibrary/filelist?document_id=14965027&optimized=false

Project operation are necessary to comply with surface water quality standards. NHDES will provide further details in the near future".

The Applicant has complied with the requirements of the 2015 recertification for water quality monitoring. At this time, the Project has not been identified as causing any water quality violations or impairments and is a run-of-river Project with no impoundment storage and a scientifically-acceptable conservation base flow. Therefore, the Project continues to satisfy the water quality criterion. However, I recommend a condition on the LIHI recertification to address the NHDES recommendations for future monitoring at the frequency recommended by NHDES.

C: Upstream Fish Passage

Goal: *The facility allows for the safe, timely, and effective upstream passage of migratory fish. This criterion is intended to ensure that migratory species can successfully complete their life cycles and maintain healthy populations in areas affected by the facility.*

Assessment of Criterion: The Applicant selected Standard C-1, Not Applicable/De Minimis Effect for Zone 1 (Impoundment) and Standard C-2, Agency Recommendation for Zone 2 (bypass/tailrace/downstream).

Discussion: The USFWS Terms and Conditions associated with the FERC exemption required construction of anadromous fish passage facilities. This upstream passage was installed in 1986 and consists of a Denil-style fish ladder with both spillway and tailrace entrances. The Applicant states the system operates annually with typical upstream passage occurring between May 1 and June 30. Upstream eel passage is provided seasonally from July 1 to September 15 once the Denil ladder is fitted with an eel trap. The fishway is video monitored continuously during the passage season and based on the 2019 USFWS Inspection[7] of upstream passage facilities, this site has been used for experimental testing of various eel passage methods to date.

The Merrimack River Watershed Comprehensive Plan for Diadromous Fishes[8] was completed in 2021 and submitted to FERC on June 17, 2021 along with letters of support from various state agencies. The report states: "*Observational evidence and recent site inspections suggest the current fish ladder needs improvements, although no studies have been conducted to confirm. As Jackson Mills is the first dam on the river, effective fish passage is vital for the success of diadromous fish in the Nashua River Watershed. More data on the passage efficiency at this project is needed to assess whether the existing fishways will meet management goals*". The plan includes goals of 80% passage efficiency at each dam in the watershed (from the first dam in Lawrence MA, LIHI #121 and each upstream dam) and calculated numbers of American shad and blueback herring needed to pass each dam to meet the production potential of upstream habitat for those species. Other species including alewife, sea lamprey and American eel do not

[7] https://elibrary.ferc.gov/eLibrary/filedownload?fileid=15410316
[8] https://elibrary.ferc.gov/eLibrary/filelist?document_id=14965299&optimized=false

have facility-specific production targets. The plan also notes that the Jackson Mills eel trap has had limited success in passing eels.

In response to the 2021 FERC exemption amendment application, comments were provided by USFWS dated June 17, 2021 which stated that modifications to the Terms and Conditions "*are warranted to address potential impacts to fish passage from the proposed activity, unresolved fish passage issues and/or outstanding compliance issues*".

The USFWS letter included a list of unresolved fish passage issues, discussed a required operations and flow monitoring plan, and specified that run-of-river operations be identified as "instantaneous" in the revised Terms and Conditions. With regard to the monitoring plan, as noted above under Ecological Flow Regimes, FERC approved the operations plan required by Article 31 of the 2013 exemption amendment noting that USFWS and other agencies had reviewed and commented on the plan. However, the revised Terms and Conditions seem to require additional detail than provided at that time and a condition is recommended to ensure that the revised plan is submitted and approved.

With regard to fish passage, the USFWS list of operational and structural issues appears to include some aspects that have in fact been resolved (e.g., modified baffles - see 2015 LIHI review report). The list also notes that the Project owner has continued to make improvements. Annual inspections and agency consultation meetings occur during which fish passage issues are discussed and a plan for each year's work developed. Meeting notes are included in the Project's annual compliance statements to LIHI. In the letter to FERC, USFWS included a set of options for the Project owner to consider and incorporate into a Fish Passage Facilities Improvement Plan to be developed in consultation with and approval by the agency and to be submitted to FERC by November 1, 2021. Options include conducting effectiveness testing and making modifications as needed, or replacement of the fish ladder which USFWS states is now past its design life. For eels, the agency recommends conducting surveys to identify a location for a permanent upstream eelway to be designed and installed in consultation with the agency.

Based on the application, supporting documentation, and FERC eLibrary documents, and correspondence from the Applicant, it is clear that while fish passage may not be fully evaluated or optimized yet, concerted efforts to improve passage have been ongoing for many years in consultation with resource agencies. Given the proposed changes due to the turbine replacement and the pending USFWS modified Terms and Conditions, it is my recommendation that the Project continues to satisfy the upstream passage criterion with the condition noted in Section VIII.

D: Downstream Fish Passage

Goal: *The facility allows for the safe, timely, and effective downstream passage of migratory fish. For riverine (resident) fish, the facility minimizes loss of fish from reservoirs and upstream river reaches affected by Facility operations. Migratory species can successfully complete their life cycles and to maintain healthy populations in the areas affected by the Facility.*

Assessment of Criterion: The Applicant selected Standard D-2, Agency Recommendation in Zone 1 (Impoundment) and Standard D-1, Not applicable/De Minimis Effect for Zone 2 (bypass/tailrace/downstream).

Discussion: The Applicant states that the resident species within the Nashua River upstream of the Project (based on 2015 observations) include black crappie, bluegill, brown bullhead, chain pickerel, golden shiner, largemouth bass, pumpkinseed, rock bass, white sucker, and yellow perch.

Downstream fish passage occurs from May 1 through July 31, and from August 15 through November 15, with downstream eel passage supported between August 15 and November 15. The Project provides for downstream fish passage via a surface bypass system with a 36-inch-wide by 24-inch-deep entrance with 8" bar grating with 1-inch clear spaced seasonal overlays installed on top 6 feet of the trashrack. The surface weir entrance flows into a transition chamber to a 24-inch bypass pipe discharging to the tailrace (see Figure 6) . This transition chamber is a 24-foot by 4-foot area with varying water depth (2 feet to 5 feet) depending on head pond levels and the controlling flow. Separately, downstream eel passage includes a ramp trap which uses the downstream fish passage entrance, chamber, and piping. In addition, operational considerations include night-time turbine shut downs for three nights following a significant rain event (defined as 0.5-inches or more during a 24-hour period) from August 15 through November 15.

The Merrimack River comprehensive plan discussed above includes a goal of 95% downstream passage survival. In their June 17, 2021 letter to FERC, USFWS included a set of options for the Project owner to consider and incorporate into the required Fish Passage Facilities Improvement Plan. Recommendations for improving downstream passage include conducting effectiveness testing or replacing the 1-inch trashrack overlays with ¾-inch racks and provisions to reduce approach velocity from 2 feet/second to 1.6 feet/second. Nighttime turbine shutdowns during eel passage season are also recommended, although according to the Applicant that already occurs.

Based on the application, supporting documentation, and FERC eLibrary documents, this review finds that the Project continues to satisfy the downstream fish passage criterion with the condition noted in Section VIII.

E: Shoreline and Watershed Protection

Goal: *The facility has demonstrated that sufficient action has been taken to protect, mitigate or enhance the condition of soils, vegetation and ecosystem functions on shoreline and watershed lands associated with the facility.*

Assessment of Criterion: The Applicant selected Standard E-1, Not Applicable/ De Minimis Effect for both ZoEs.

Discussion: There are no specific agency recommendations and the Project does not have, nor is required to have, a specific shoreline or watershed management plan. The Applicant states the land in the immediate vicinity of the dam is urban, highly developed, and privately owned.

The area around the Project is exempt from the NH Shoreland Water Quality Protection Program as urbanized shorelands[9]. The Applicant stated the City evaluates the area around the Jackson Mill Dam for aquatic invasive species as part of its active management program. To date, invasive species have not been identified within the Project area.

Based on the application, supporting documentation, and FERC eLibrary documents, this review finds that the Project with its run-of-river operation and urbanized setting, has little to no impact on the shoreline and therefore continues to satisfy the shoreland and watershed protection criterion.

F: Threatened and Endangered Species

Goal: *The facility does not negatively impact federal or state listed species.*

Assessment of Criterion Passage: The Applicant selected Standard F-1, Not Applicable/De Minimis Effect. However, this review finds that Standard F-2, Finding of No Negative Effects is more appropriate for both ZoEs.

Discussion: The FWS Information for Planning and Consultation (IPaC) database was accessed to determine federally-listed species that could occur in the Project vicinity. An updated IPaC review was conducted in October 2020. Findings indicated the following species potentially present in the Project vicinity although no critical habitats were identified.

- One federally-listed mammal may inhabit the Project vicinity, the Northern Long-eared Bat (endangered);
- Mapped Wetlands in the National Wetland Inventory were identified in the Project area including freshwater emergent wetlands, freshwater forested/shrub wetlands and riverine.
- Nine migratory bird species protected under the Migratory Birds Treaty Act were identified as potentially in the Project area due to their range throughout the continental states and Alaska, including: bald eagle, black-billed cuckoo, bobolink, Canada warbler, lesser yellowlegs, prairie warbler, rusty blackbird, semipalmated sandpiper, and wood thrush.

In support of the 2021 exemption amendment application, consultation was made with New Hampshire Department of Environmental Services. Two vertebrate species, Blanding's turtle (State Listed Endangered) and wood turtle (State Listed Special Concern) were noted as

[9] https://www.des.nh.gov/node/3731

observed within the Nashua River. These species were observed upstream of the Project area based on observations made in 2007 and 2010.

The 2021 Exemption Application states NH Fish & Game were contacted regarding these species and NHF&G reported "*We do not expect impacts to wood turtle and Blanding's turtle as the tailrace will be further excavated within its existing footprint to provide a smoother turbine discharge flow back to the main river channel, so habitat does not appear to be impacted*".

Based on the application, supporting documentation, and FERC eLibrary documents, this review finds that the Project is unlikely to impact listed species and continues to satisfy the threatened and endangered species protection criterion.

G: Cultural and Historic Resources Protection

Goal: *The Facility does not unnecessarily impact cultural or historic resources that are associated with the facility's lands and waters, including resources important to local indigenous populations, such as Native Americans.*

Assessment of Criterion: The Applicant selected Standard G-1, Not Applicable/De-Minimis Effect for both ZoEs.

Discussion: As part of the original FERC license exemption process for the Project, consultation was completed with the State Historic Preservation Officer (SHPO). The New Hampshire Division of Historical Resources (NHDHR) Deputy SHPO issued a letter dated October 5, 2012[10] indicating the Project resource was "*determined not eligible for listing in the National Register of Historic Places*" and through review by the Historical Archaeologist and Review and Compliance Coordinator determined "*there are no known properties of archaeological significance within the area of the undertaking's potential impact and no archaeological studies are recommended*". In accordance with Section 106 of the Historic Preservation Act, the Project was determined to have a finding of "*No Historic Properties Effected*"

The application for amendment of exemption submitted June 1, 2021 indicated the Jackson Mills Dam is not part of any historic district and the dam and powerhouse are not listed on the National Register of Historic Places. The application materials included a review by NHDHR indicating the Project was reviewed under Section 106 and a finding of no effect on Historic Properties was issued.

Based on the application, supporting documentation, and FERC eLibrary documents, this review finds that the Project continues to satisfy the cultural or historic resources criteria.

[10] https://elibrary.ferc.gov/eLibrary/idmws/common/OpenNat.asp?fileID=13092026

H: Recreational Resources

Goal: *The facility accommodates recreation activities on lands and waters controlled by the facility and provides recreational access to its associated lands and waters without fee or charge.*

Assessment of Criterion Passage: The Applicant selected Standard H-3, Assured Accessibility for both ZoEs.

Discussion: The FERC exemption does not require the Project to provide recreational access, accommodations, or facilities. The majority of the perimeter of the impoundment is bordered by mill buildings, shopping malls, commercial facilities, or residential units. The river reach immediately downstream of the facility is bounded by high steep banks topped by industrial and commercial buildings. There has been no change in the regulatory status of the Project for recreation and there have been no agency comments noting deficiencies in recreational conditions.

The Applicant has noted that the area in/around the Jackson Mill Project is part of a riverfront redevelopment project[11] focusing on connectivity, environmental stewardship, access to the river, recreation and greenspace, flood resiliency and economic development. A concept design for the Nashua Riverfront Master Plan Implementation[12] was updated in June 2020 with enhanced pedestrian access around the dam site and along the BAE Systems parking lot.[13]

Based on review of the application, supporting documentation, and publicly available FERC eLibrary documents, this review finds that the Project continues to satisfy the recreational resources criterion. The Applicant stated the area in/around the Project is currently part of a riverfront redevelopment under conceptual planning. I recommend upon implementation of the conceptual plan, that this work be evaluated under the H-Plus standard.

VIII. CERTIFICATION RECOMMENDATION

This review included evaluation of the application and additional information provided, a review of the FERC eLibrary, and of other publicly available information. Based on this evaluation, I recommend that the Jackson Mills Project be recertified for a term of five (5) years with an option to extend the term for another three years if determined eligible for the recreation PLUS standard. The following conditions are also recommended.

- **Condition 1**: Within 60 days of the approval of the exemption amendment for turbine replacement, the facility Owner shall submit: a) a copy of the FERC order and any

[11] Nashua Downtown Riverfront Development Plan Final Report prepared by Halvorson Design dated August 2017. NDRDP_Report_Final_170829 (nashuanh.gov)
[12] Nashua-Downtown-Riverfront-Draft-Concept-Plan (nashuanh.gov)
[13] https://res.cloudinary.com/courbanize-production/v1/images/kgwphitnw4deztvd9jjv

conditions; and b) a copy of the approved Operations and Flow Monitoring Plan required by USFWS.

- **Condition 2**: The facility Owner shall complete the water quality sampling at the facility requested by NHDES as part of the turbine replacement project and shall report to LIHI within 60 days of NHDES approval of the results. If water quality issues are discovered, the Owner shall provide LIHI with a resolution plan and schedule upon review and approval by NHDES.
- **Condition 3**: The facility Owner shall submit to LIHI a copy of the USFWS approved Fish Passage Implementation Plan within 60 days of approval; and thereafter, shall provide status updates on fish passage modifications in annual compliance statements to LIHI. The updates shall contain copies of any pertinent agency correspondence, meeting notes, and approvals, and progress made toward implementing passage improvements. LIHI reserves the right to modify this condition and/or reassess Certification in light of progress toward meeting agency goals and objectives, including passage efficiency targets.
- **Condition 4 (Optional)**: If at any time prior to six months before the expiration of the Certification term the facility Owner implements recreation and access improvements at the facility under the Downtown Nashua Riverfront Development Plan, LIHI will review that information and determine whether or not to award a PLUS standard and extend the Certificate term for three additional years.