REVIEW OF APPLICATION FOR RE-CERTIFICATION BY THE LOW IMPACT HYDROPOWER INSTITUTE OF THE LAWRENCE HYDROELECTRIC FACILITY, LIHI #121

Prepared by Patricia McIlvaine
June 23, 2021

I. INTRODUCTION

This report summarizes the review findings of the application prepared by Central Rivers Power (CRP)[1], on behalf of Essex Company LLC, one of their subsidiaries, to the Low Impact Hydropower Institute (LIHI) for re-certification of the Lawrence Hydroelectric Project (Lawrence Project) LIHI #121. The Lawrence Project holds a Major license from the Federal Energy Regulatory Commission (FERC) P-2800. The 16.8 MW Lawrence Project operates as run-of-river and is located on the Merrimack River in the city of Lawrence, Massachusetts.

The Lawrence Project was first certified by LIHI in 2015, effective March 13, 2015 for a five-year term, which was to expire on March 13, 2020, but was extended several times, most recently until July 31, 2021. At that time, the Project was owned by Lawrence Hydroelectric Associates, a subsidiary of ENEL Green Power North America, Inc. On January 29, 2020, Central Rivers Power acquired the Project from ENEL.

The Project's original 2015 certification had two conditions:

a) Applicant will obtain a final letter from Massachusetts Department of Fish and Wildlife (MDF&W) (or other agency recommended by MDF&W) that confirms the facility and facility operations have no negative impact on the existence of Bald Eagle in the area, by August 1, 2015.
b) Applicant will work with MDF&W to improve effectiveness of eel passage at the site by July 15, 2016. This includes keeping elvers off [the] dam by eliminating or rerouting leakage. Applicant will obtain letter from MDF&W by July 15, 2016 that confirms passage measures are adequate.

Both conditions have been satisfied. The recertification application included an email dated July 19, 2016, from Misty-Anne Marold of the MDF&W, informing the owner that the Lawrence facility and its operations have no negative impacts on the existence of bald eagle in the area. Also included is an email dated July 7, 2016, from Caleb Slater of the MDF&W informing the owner that the eelway, and improvements to it, does in fact meet the LIHI certification condition to improve juvenile eel passage at the facility. Additional improvements for eel passage being planned by CRP are discussed later under ***Criterion C - Upstream Fish Passage*** in Section VII.

[1] CRP is a subsidiary of Hull Street Energy

II. RECERTIFICATION PROCESS AND MATERIAL CHANGE REVIEW

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 Lawrence Project.

A review of the initial application, dated May 15, 2020, resulted in a Stage I or Intake Report, dated June 22, 2020. The Stage I report noted there have been some modifications made to the fish passage facilities, however all appear to be positive changes. Likewise, the switch from agency to Project staff doing the fish counts constitute an "operational material change", although it is assumed that the regular interface with fisheries agency personnel allowed for this transition to be acceptable to the agencies. As a result of additional data being needed, a revised application was submitted to LIHI on December 15, 2020. Applicant responses to my inquiries were received in several emails, with the final data received June 8, 2021.

This Stage II assessment included review of the application package, public records in FERC's eLibrary since the last LIHI certification in 2015, and annual compliance statements received by LIHI during the past term of Certification. Also, follow-up communication with the Applicant, and two stakeholders was conducted for this review, all contained in Appendix A.

III. PROJECT'S GEOGRAPHIC LOCATION

The Lawrence Project is located at river mile (RM) 29 on the Merrimack River in the City of Lawrence, Massachusetts. The Merrimack River begins at the confluence of the Winnipesaukee and Pemigewasset rivers in Franklin, New Hampshire, then flows generally south through New Hampshire and then northeast in Massachusetts towards the town of Newburyport, where it empties into the Atlantic Ocean. The Merrimack River is approximately 117 miles long and has a drainage area of approximately 5,015 square miles. The river and its tributaries have many hydroelectric projects, reflecting the significant amount of industrial activity that originally took place in the towns along the river. The Lawrence Project is the first facility on the Merrimack River upstream of the Atlantic Ocean, located 29 miles from the confluence in Newburyport, and about 11 miles downstream of the 21 MW Lowell Hydroelectric Facility, (FERC No. 2790) owned by Boott Hydropower LLC, another subsidiary of Central Rivers. The Lowell Project was certified by LIHI as Certificate #142 in 2018. CRP owns all the hydropower facilities on the Merrimack and Pemigewasset rivers, which allows CRP to fully coordinate operations on the river.

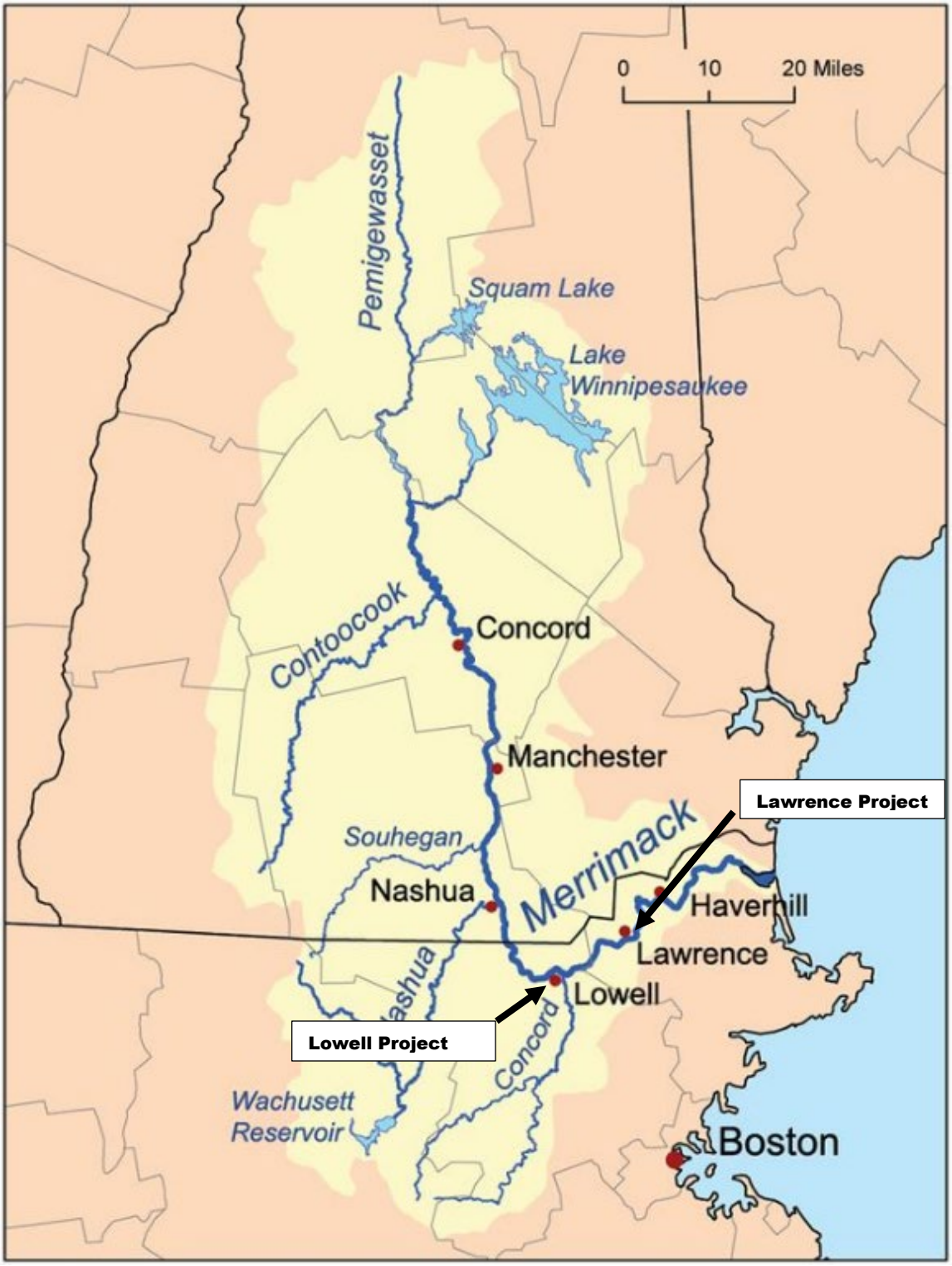


Figure 1 – Approximate Location of the Lawrence Project and the Upstream Lowell Hydropower Project

IV. PROJECT AND IMMEDIATE SITE CHARACTERISTICS

The Lawrence Project consists of: (1) the Essex Dam, a 33-foot-high, 900-foot-long dam of rubble masonry construction with a five-foot-high pneumatic crest gate system; (2) a 9-mile-long reservoir having a surface area of 655 acres at normal high water elevation of 44.2 feet mean sea level (msl) and a maximum storage capacity of approximately 6,000 acre-feet; (3) the South Canal approximately 35 feet wide and 10 feet deep, originating at the south abutment of the Essex Dam and generally paralleling the riverbed, for about 2,750 feet, discharging back to the Merrimack River; (4) the North Canal, approximately 95 feet wide and 15 feet deep, originating at the north abutment of the dam and paralleling the river for about 5,300 feet discharging to the Spicket River, which then immediately discharges back into the Merrimack River; (5) fish passage facilities including a fish elevator installed at the powerhouse, a downstream fish bypass and an eel ladder; (6) a powerhouse containing two 8.4-MW hydroelectric generating units and a tailrace channel extending into the Merrimack River; and (7) appurtenant facilities.

The area within the Project boundary is 680 acres. The drainage area at the dam is approximately 346 square miles. The application noted an average annual generation of 64.6 GWh. All river flow primarily passes through the Lawrence Project's two primary units, and all excess flow is passed over the spillway crest of the Essex Dam (a.k.a. Great Stone Dam). Key features are shown on Figures 2 through 7.

Figure 2 – Key Features of the Lawrence Project

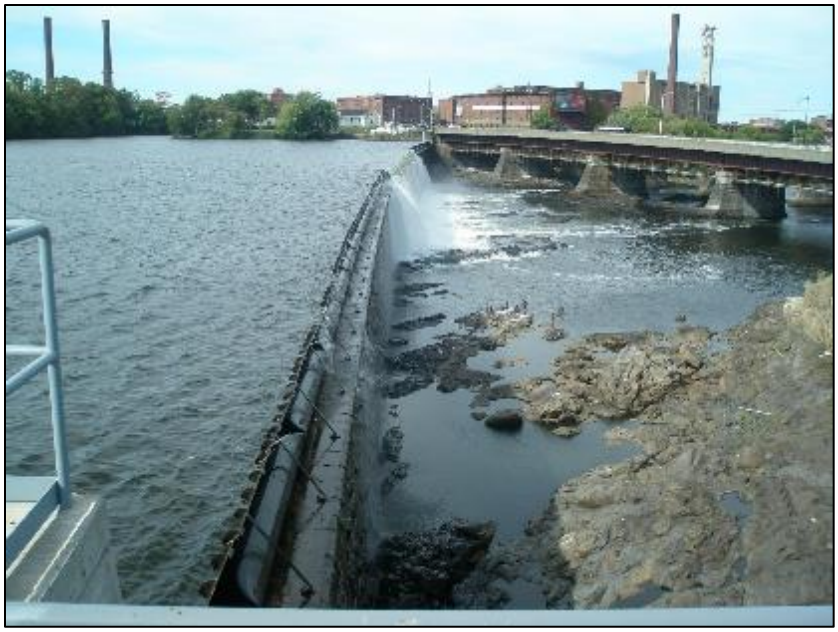


Figure 3 – Impoundment, Dam with Pneumatic Crest Gate System, and Downstream Reach

Figure 4 – Powerhouse and Tailrace

Figure 5 - Tailrace and Exit Channel of the Downstream Fish Passage Facility

Figure 6 - Eel Collection Tank of the Upstream Eel Passage

Figure 7 - Upstream Eel Ladder

Based on review of the FERC eLibrary, apparently stemming from allegations of non-compliance with license conditions regarding the North and South Canals, it appears that CRP has decided to file for removal of these canals from the Project. This issue is discussed in detail under the *Ecological Flow Regime* and *Historical and Cultural Resource Protection* criteria. This LIHI review assumes that the canals remain a part of the Project license since as of June 22, 2021, the canals have not been removed from the Project boundary.

V. ZONES OF EFFECT AND STANDARDS SELECTED

Three Zones of Effect (ZOE) were appropriately designated by the Applicant. They are illustrated on Figure 6.

- ZOE #1 – Impoundment (white) RM 38 to RM 29
- ZOE #2 – Tailrace/Downstream Reach (red) RM 29 to RM 0
- ZOE #3 – North Canal (yellow) RM 29 to RM 28
- ZOE #4 – South Canal (green) RM 29 to RM 28.4

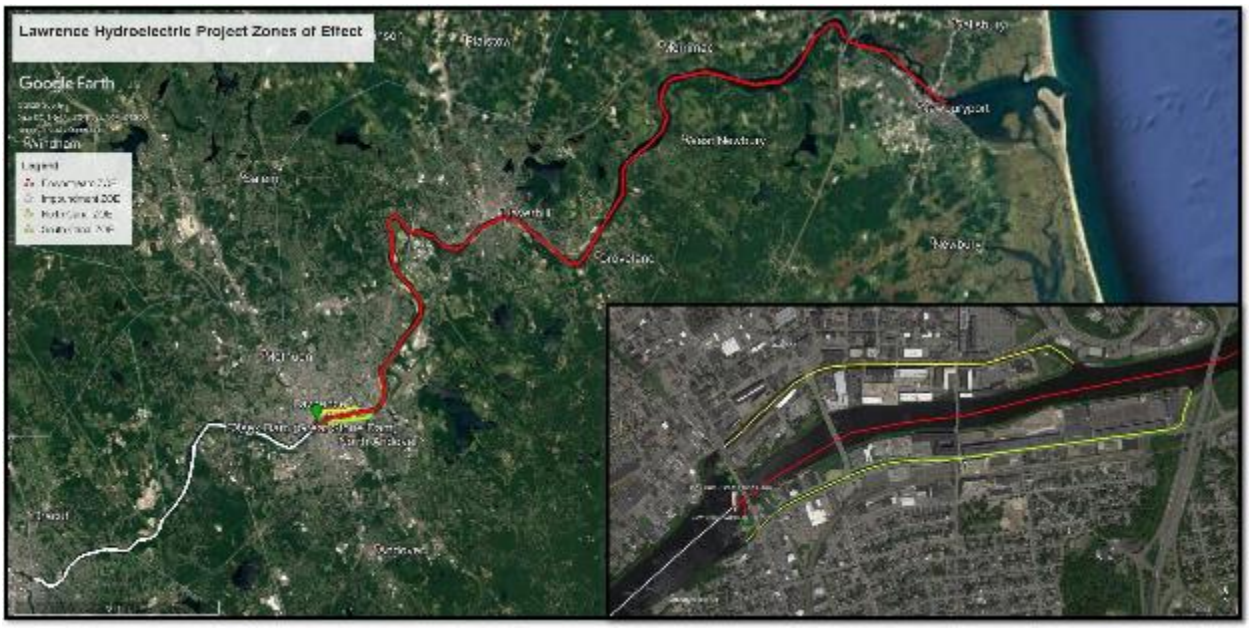


Figure 8 – Project Zones of Effect

The Applicant appropriately selected the Standards for each ZOE are shown on the tables below. However, my review, as discussed below, does not indicate that the PLUS standard for Upstream Passage was satisfied. Details of compliance with the criteria are presented in Section IX.

Standards for the Impoundment (ZOE #1)

Criterion		Alternative Standards				
		1	2	3	4	Plus
A.	Ecological Flow Regimes	X				
B.	Water Quality		X			
C.	Upstream Fish Passage	X				
D.	Downstream Fish Passage		X			
E.	Watershed and Shoreline Protection	X				
F.	Threatened and Endangered Species Protection		X			
G.	Cultural and Historic Resource Protection		X			
H.	Recreational Resources		X			

Standards for the Downstream Reach (ZOE #2)

Criterion		Alternative Standards				
		1	2	3	4	Plus
A.	Ecological Flow Regimes		X			
B.	Water Quality		X			
C.	Upstream Fish Passage		X			~~X~~
D.	Downstream Fish Passage	X				

E.	Watershed and Shoreline Protection	X				
F.	Threatened and Endangered Species Protection		X			
G.	Cultural and Historic Resource Protection	X				
H.	Recreational Resources		X			

Standards are identical for the North Canal (ZOE #3) and South Canal (ZOE #4)

Criterion		Alternative Standards				
		1	**2**	**3**	**4**	**Plus**
A.	Ecological Flow Regimes	X				
B.	Water Quality	X				
C.	Upstream Fish Passage	X				
D.	Downstream Fish Passage	X				
E.	Watershed and Shoreline Protection	X				
F.	Threatened and Endangered Species Protection		X			
G.	Cultural and Historic Resource Protection		X			
H.	Recreational Resources		X			

VI. REGULATORY AND COMPLIANCE STATUS

Lawrence Hydroelectric Associates (LHA) and Essex Company jointly received a 50-year license (FERC #2800) to develop the Lawrence Hydroelectric Facility on December 1, 1978, expiring on November 30, 2028. LHA was responsible for construction and operation of the Project, and the Essex Company owned the water rights and easements for the proposed Project. The Project was built at the site of the existing "Great Stone Dam," a historic structure built in the late 1800s using the Merrimack River to support an industrial base in Lawrence, MA. The Project received a Water Quality Certification (WQC) from the Massachusetts Department of Environmental Protection (MDEP) on July 5, 1978, which provided a minimum flow release (951 cfs) adequate to maintain the status of the Class "B" water quality designation. The Project was developed in 1981 and acquired in 1986 by ENEL Green Power North America[2]. As the first dam on the Merrimack River above its confluence with the Atlantic Ocean, fish passage effectiveness at this facility is a priority to resource agencies, and resulted in installation of an upstream fish lift, downstream fish bypass facilities, inflatable flashboards, upstream eel passage facilities, and operational protocols that often vary from year to year.

The Facility has received the following license amendments. The WQC has not been amended.

- August 14, 1980 – An Order that permitted the Licensee to grant permission for certain uses of project lands and waters and to convey certain interest in Project lands without prior Commission approval, if the proposed use and occupancy is consistent with the purposes of protecting and enhancing the scenic, recreational, and other environmental values of the

[2] Central Rivers Power purchased the Project (and Essex Company LLC) on January 29, 2020.

Project.

- June 19, 2007 – Approval of replacement of existing wooden flashboards on the crest of the dam with an inflatable flashboard system.
- March 7, 2016 – An Order approving transfer of ownership rights of an approximately 0.1-acre parcel of land to a local business owner via quitclaim deed while retaining rights to access and maintain the adjacent Lawrence Project.

Review of the FERC eLibrary indicates ongoing issues associated with the condition of the North and South Canals including an application by CRP filed August 31, 2020 to remove the canals from the Project boundary. These are discussed under the applicable criteria.

No deviations of FERC license conditions were found during the review of the FERC eLibrary from January 1, 2015 through June 23, 2021.

VII. PUBLIC COMMENT RECEIVED OR SOLICITED BY LIHI

The deadline for submission of comments on the LIHI application was February 16, 2021. Two comment letters were received directly by LIHI and are posted on the website. These stakeholders are Lawrence Community Works (LCW), a partnership working to restore the North and South canals in Lawrence, and Pacific Mills Acquisition, LLC, (PMA), a property owner located along the North Canal. Both commenting organizations raised concerns about the deterioration of the canal system which is listed on the National Register of Historic Places. Both organizations have been involved in legal disputes with CRP and the prior owner, initiated in 2017 and which are summarized under *Criterion A, Ecological Flow Regimes*. CRP did not provide a formal response to these comment letters. Comments and responses to my inquiries are addressed under *Criterion G, Cultural and Historical Resource Protection*. I also submitted an inquiry to the commenters (see Appendix A) although neither responded. I made no other stakeholder inquiries.

VIII. 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 Passage

The Applicant selected **Standard A-1 Not Applicable/De Minimis Effect** for the impoundment and both canal ZOEs and **A-2 – Agency Recommendation** for the downstream reach. There have been no changes in requirements of the facility since it was last re-certified by LIHI, and it continues to operate in a run-of-river (ROR) mode.

Article 32 of the FERC license requires a continuous minimum flow of 951 cubic feet per second (cfs) unless and until the reservoir water surface elevation is drawn below the crest of the dam;

thereupon the minimum release must equal inflow[3]. However, as the Lawrence Project operates as ROR through use of an automatic pond level control system, it exceeds this requirement. The application notes that during the mid-1980s there were discussions among the Licensee, FERC and the resource agencies regarding modification of, or a "waiver" from Article 32 to allow run-of-river operations, which the USF&WS supported by letter dated Jun 2, 1987 (included in the application). In 1998 FERC initiated an investigation of the Project's compliance with Article 32, in response to which the then owner demonstrated that the Project meets the requirements of Article 32 by operating in a run-of-river mode. FERC concluded that "the project was operated in a manner consistent with the minimum flow requirements of Article 32." Interestingly, FERC's only documentation of this investigation's finding appears in an internal FERC memorandum, thus Article 32 remains in the license. In response to ordering paragraph (E) of the 2007 license amendment approving installation of the spillway crest gate system, the then owner submitted a Crest Gate Operations Plan on October 10, 2008, which is still followed.

Flow into the canals is controlled by gates at their entrances. There are no stated flow requirements in the license nor WQC for the canals, although the license text states that flow into the canals will be maintained at "historical levels". In the past, up until July 2012 when FERC terminated the licenses by implied surrender, there were two small hydropower facilities owned and operated by Merrimac Paper Company (i.e. the Aquamac Project (FERC No. 2927) and the Merrimac Project (FERC No. 2928) using flow in the South Canal.[4] In a July 27, 2017 court filing Essex Company LLC reported they are "*actively managing these canal water levels in response to ongoing requests from neighboring property owners. There are often disagreements, however, between the property owners and other stakeholders regarding optimal water levels, which present significant challenges to Essex. Many of these property owners object to higher water levels because they claim this contributes to basement flooding, while others complain about low water levels exposing litter.[5]"* Essex contended that such management is a function of local or property law and unrelated to any term or condition of Essex's FERC license. In response to my inquiry about current releases to the canals, CRP stated "*Water is released to the South Canal only to the extent necessary to manage the canal water level. Since these projects were shut down, essentially all river flow is passed through the Lawrence Project's turbines, fish passage facilities and/or over the spillway*."

The following discussion is included under this Criterion although it is equally pertinent to the assessment of *Criterion G, Historical and Cultural Resource Protection.*

LCW and PMA both raised concerns to LIHI that CRP is not maintaining the "historical water levels" in the two canals, exposing the canal walls and wooden structures to freeze/thaw cycles resulting in canal structure deterioration. LCW also stated that numerous requests to meet with Project personnel have been ignored. PMA also noted they intend to operate a hydropower project called "Unit Hydro" located on the North Canal, once the 33 mill water right leases held by Essex Company LLC expire. LCW also noted that once these leases expire, there will likely be other plans for those water rights in the canals. These leases appear to have been issued in 1978 for a

[3] The minimum flow requirement is the 7Q10 flow at the Project as required under the WQC to ensure attainment of water quality standards downstream of the Project due to downstream municipal wastewater discharges.
[4] See diagram showing location of these plants in CRP's inquiry responses in Appendix A.
[5] ESSEX COMPANY, LLC'S ANSWER, MOTION TO DISMISS, AND MOTION FOR SUMMARY DISPOSITION, filed July 27, 2017.

55-year term, to expire in 2028 with the possibility of extension of another 25 years.[6]

I contacted the two commenting stakeholders and CRP regarding data they may have which would help quantify what the "historical canal water levels" were, as all FERC documents I reviewed did not have such detail. Neither commenter responded to my inquiry.

The LIHI application noted that this same concern was identified starting in 2017, with the following key activities noted below. Copies of the following documents are linked to the LIHI application:

- On June 7, 2017, the City of Lawrence and other stakeholders filed a complaint against Essex Company LLC, alleging multiple violations of its FERC license, including violations of its minimum flow requirements.
- On May 16, 2019 FERC's Division of Hydropower Administration & Compliance (DHAC) conducted a site visit to, in part, evaluate the complaint.
- On August 8, 2019, FERC DHAC issued a Response to Complaint finding no violation of the license as alleged in the complaint.
- On August 8, 2019, FERC issued a letter outlining follow-up items required by the Licensee pursuant to FERC's May 16, 2019 inspection.
- On September 9, 2019 Complainants filed a Request for Rehearing.
- On March 19, 2020 FERC issued an Order Denying Rehearing which dismissed all aspects of the complainants' Request for Rehearing.
- On August 31, 2020 Essex Company LLC filed with FERC an Application for a Non-capacity Project Amendment to remove the two canals from the Project boundary stating the canals are not needed for the operation of the Lawrence Project.
- On September 22, 2020 FERC issued a letter stating that "because these structures are on the National Register of Historic Places, the removal of them from the project boundary is considered an adverse impact, because these structures would no longer be under federal jurisdiction."
- On November 12, 2020, in a letter to FERC, the Massachusetts State Historic Preservation Officer (SHPO) agreed with FERC's assessment made on September 22, 2020 that removal of the canals from the Project would constitute an "adverse effect" without legally enforceable provisions for preservation. The letter noted the SHPO's concern of the preservation of the canals and recommended FERC initiate consultation to develop a formal Memorandum of Agreement (MOA) establishing appropriate protection for the canals and a preservation fund to pay for necessary repairs.

My review of FERC records also identified the following documents associated with this issue. Copies of these are included in Appendix B.

- On November 6 and 8, 2019, Essex Company LLC, then owned by Enel Power, submitted letters to FERC documenting their plans for completing the action items identified by FERC on their May 2019 site visit.
- On December 4, 2019, FERC issued a letter to Essex Company LLC to prepare an

[6] Dates based on an Appeals Court decision decided on March 12, 2012 on a filing made by Pacific Mills Acquisition LLC vs Essex Company over the validity of the transfer of the 33 mill rights acquired by Essex Company in 1978.

inventory of canal penetrations for both canals as the canals had been used for power generation in the past. They also reminded Essex Company LLC of the need to conduct a condition assessment of the South Canal wasteway and penstock.

- On December 11, 2019, Essex Company LLC submitted the South Canal condition assessment.
- On August 14, 2020, US Fish and Wildlife Service (USF&WS) submitted comments to FERC on the draft of the above noted Application for a Non-capacity Project Amendment in which they recommended that a decision to remove the canals should be delayed as the Project will be initiating re-licensing in about 3 years. Studies performed at that time could quantify how removal of the canals from the Project may affect fish passage, flows, or future operations.
- On April 28, 2021, a filing was made by several stakeholders (LCW, PMA, the City of Lawrence, Conservation Law Foundation, Inc., Groundwork Lawrence, Inc., and GES Realty LLC) to FERC, regarding concern over removal of the canals from the Project boundary.
- On May 17, 2021, CRP provided a proposal to FERC to address canal preservation noted by the SHPO in their November 12, 2020 letter, which would include development of a Historic Properties Management Plan under the proposed MOA.
- On June 22, 2021, FERC issued a letter to CRP indicating that the MOA should be developed and submitted within 6 months (by December 22, 2021) and that when approved by the SHPO and filed with FERC, FERC would publicly announce the amendment application to remove the canals from the Project boundary.

In the June 7, 2017 filing made by the Complainants, among a number of other issues, they referenced non-compliance with license Article 32 (minimum flows required from the entirety of Project, not the canals) in their argument about current canal levels being less than historical water levels. In response to their May 2019 site visit, and in a letter dated August 8, 2019, FERC required an update to the Project's Public Safety Plan, a trash removal plan for the canals, repairs to two walkways on the North Canal. and improved signage and advertising for tours at the Carriage House. FERC did not find a significant concern with the structural condition of the canal walls, nor were deviations from Article 32 identified. Based on follow-up data from CRP, the repairs were all made by October 7, 2020 and on November 6 and 8, 2019, Essex Company LLC provided the Public Safety Plan and Trash Removal Plan.

Review of FERC's March 19, 2020 Order, which dismissed a rehearing request by the Complainants, indicates that FERC's focus was on the safety aspects of the canal wall condition, which they determined had very limited areas needing repair and required certain safety-related improvements, such as additional railings. However, in response to the concern about low canal water levels, FERC reconfirmed that Article 32 only specifies a minimum flow for the Project as a whole and does not establish minimum or maximum water levels within the canals. FERC also stated "*While the license order does say '[t]he project will be operated in a manner that duplicates the historical operation of the dam and canals,' this is a general statement in the license. The Commission did not set specific water level elevations or other restrictions for the two canals in the project license*." Thus, FERC dismissed the argument of license non-compliance. In their earlier August 8, 2019 Order, FERC did note that "*In the past, the north canal was needed to convey water for power generation at the North Canal Waterworks Project No. 5906 until that*

license was surrendered by order dated September 19, 1995. The south canal was needed to convey water for power generation at the Merrimac Project No. 2928 until that license was terminated by order dated July 26, 2012." This suggests that there may have been rationale for less water release to the canals, but it does not state that this happened. As previously noted, in a July 27, 2017 court filing, Essex Company LLC's position was that management of the water levels has been a balancing act as they try to respond to competing requests from property owners along the canals, so it appears that these levels may vary based on such requests. My review of available FERC records did not indicate that their investigation actually included a comparison of past and current canal water levels, although FERC dismissed accusations that their investigation of the issue was insufficient.

Based on review of this information, I believe that the Project continues to satisfy this criterion, as there are no mandatory quantitative requirements for flows to the canals stipulated as license articles or in the WQC, and there have been no deviations from the flow requirements that do exist for the Project as a whole. Clearly, CRP, the stakeholders who commented to LIHI and past/current complainants, have conflicting positions on whether the canal water levels have been maintained at historical levels and whether or not there is a requirement to do so. There are also differing positions on whether the canal walls' integrity is being compromised and if so, whether or not deterioration is caused by lower canal water levels or lack of individual property owner maintenance. As these two issues, along with several others were decided by legal decisions, LIHI cannot question the decisions reached in those proceedings.

Thus, while I believe there is a need to include a certification condition under the *Historic and Cultural Resource Protection* criterion associated with this overall issue, I believe that it applies only to that criterion and not to *Ecological Flows Regimes*. Thus, I believe the Project continues to satisfy this criterion.

This Project Passes Criterion A – Ecological Flow Regimes

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 Passage

The Applicant selected **Standard B-1 Not Applicable/De Minimis Effect** for both canal ZOEs and **B-2 – Agency Recommendation** for the impoundment and downstream reach.

The Project received a WQC on July 5, 1978, which required a minimum flow release (951 cfs) adequate to maintain the status of the Class "B" water quality designation. Class B waters are designated as habitat for fish, other aquatic life, and wildlife, including for their reproduction, migration, growth and other critical functions, and for primary and secondary contact recreation. This requirement was incorporated into the FERC license as Article 32 previously identified. The LIHI application included the following discussion:

"*Provisional continuous water quality data [was] collected from the lower Merrimack*

> *River in Lawrence, MA for the periods of January 1, 2018 through November 6, 2018 and from June 19, 2019 through October 7, 2019… Water temperature exceeded the 28.3°C standard for a warm water fishery in 0.39 percent of the samples with an average sample temperature of 18.2°C. pH values were outside the range of 6.5 to 8.3 in 3.5 percent of samples collected. Dissolved oxygen exceeded the 5.0 mg/L standard for a warm water fishery in 2 percent of samples collected and exceeded the 6.0 mg/L standard for a cold water fishery in 12.8 percent of samples collected... The City of Lawrence has been heavily developed for industrial uses since the late 1800's and as a result faces many environmental challenges. Based on the EPA's website on Environmental Challenges for the Merrimack River reducing high levels of bacteria in the river is a top priority and are primarily due to illicit sewage discharges into storm drain systems, combined sewer overflows, and urban stormwater. Other challenges include nutrient challenges (phosphorus), stormwater challenges, and litter. The impoundment and downstream ZOE areas are listed as impaired in the MA DEP's 2014 Integrated List of Waters and its 2016 Integrated List of Waters for Escherichia coli (E. coli), mercury, PCB in fish tissue, and total phosphorous."*

Waters of the North and South Canal ZOEs are not listed on the Massachusetts 303(d) impaired waters list, and there are no water quality related requirements for these ZOEs in the FERC license or WQC.

The application included an email from MDEP dated July 15, 2020, which states that the existence or operation of the Lawrence Project does not cause or contribute to these listed impairments.

No comments were received regrading water quality impacts. Based on this information, I believe the Project continues to satisfy this criterion.

This Project Passes Criterion B – Water Quality

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 Passage

The Applicant selected **C-1 - Not Applicable/De Minimis Effect** for the impoundment and both canals and **C-2 – Agency Recommendation** for the downstream reach. They also selected the **PLUS** standard for the downstream reach as they are involved in an adaptive management approach to upstream passage.

Merrimack River fish species in the vicinity of the Lawrence Project include a mix of warm water, cold water, and diadromous species including American eel, Atlantic salmon, American shad and river herring. Although the data provided in the LIHI application did not identify the possible presence of the federally-endangered shortnose sturgeon, data available on the New Hampshire Department of Fish and Game (NHDF&G) website states that these fish are found in the lower

Merrimack River and may occur as far upstream as the Essex Dam (RM 29), i.e. the Lawrence Project.[7] A 2010 report, ***Biological Assessment of the Shortnose Sturgeon*** by the Shortnose Sturgeon Status Review Team for the National Marine Fisheries Service (NMFS) reported for the Merrimack River:

> *In three years of telemetry and gillnetting, no shortnose sturgeon was detected upstream of river km 35 (21.7 RM)), even though habitat suitable for spawning (at least) appeared abundant in this reach. Although the reason Merrimack River shortnose sturgeon remain downstream of river km 35 is unknown, shortnose sturgeon have rarely been observed to occupy reaches upstream of spawning areas, suggesting the life history of the Merrimack River shortnose sturgeon is an adaptation to complete their life cycle in the lower portion of the river.*

Anadromous species are managed by the Technical Committee for the Restoration of Anadromous Fish to the Merrimack River (Technical Committee) which is comprised of the Massachusetts Division of Marine Fisheries (MDMF), MDF&W, NHDF&G, USF&WS, National Marine Fisheries Service (NMFS) and US Forest Service. USF&WS appears to submit comments on behalf of the entire Committee. The Technical Committee continues to play an active role in fish passage activities at the Project despite the fact that the salmon restoration program for the Merrimack River was terminated in 2013.

The Essex Dam is the first barrier to diadromous species of the Merrimack River. Articles 15, 16, 30, 31 and 33 of the FERC license relate to fish and fish passage facilities. Articles 15 and 16 (standard conditions for all Major licenses) provide for the installation of additional fish passage facilities should they become necessary, based on agency recommendation. Article 30 requires functional design drawings of the fish lift and other passage facilities to be constructed at the Project. Article 31 requires the Licensee to conduct operational studies and to file a final report to the Commission on the effectiveness of the current fish passage facilities. Article 33 provides for monitoring of the fish passage facilities to determine the presence of threatened or endangered species, and development of a plan implementing any measures necessary to protect and conserve such species.

Fish passage operations are reportedly adaptively managed under a Comprehensive Fish Passage Plan (CFPP) jointly developed by the Licensee and the Technical Committee to address Articles 31 and 33 that was approved by FERC. The CFPP describes the framework for monitoring fish passage operations and success, identifying system maintenance and improvement needs, and the performance of studies. More recently, a Fishway Operations and Management Plan (FOMP) last revised in October 2019, was developed to complement the CFPP. This document is reviewed by the Technical Committee but not submitted to FERC. The FOMP, which is considered "living document", includes: 1) operation of the south permanent eelway and the north interim eelway, 2) outlines provisions for fish and eel passage reporting including weekly distribution of collected data to the Technical Committee, and 3) provides for meetings with the Technical Committee each spring and fall, where recently completed fish passage/eel passage activities are reviewed and the expectations and scope of evaluations for the next passage season are developed.

[7] https://www.wildlife.state.nh.us/fishing/profiles/shortnose-sturgeon.html

The September 1999 version of the CFPP included a Section B-3 which stated that assessments/activities associated with the possible passage of Atlantic or shortnose sturgeon would be "indefinitely deferred" until future information indicates it is needed. It appears that section was intended to address the Article 33 requirement for a plan for handling endangered or threatened species if found at the fish lift. On January 30, 2000, the USF&WS issued comments on that version, which challenged certain aspects of the CFPP, but did not challenge Section B-3. Section B-3 in the September 2013 CFPP still reads the same. As the Technical Committee has reviewed and accepted these documents, it is likely that the rare potential for such species to arrive at the lift has made this approach acceptable.

The September 1999 version of the CFPP also included a summary of past downstream passage effectiveness studies discussed under *Criterion D, Downstream Fish Passage and Protection*.

Later versions of the CFPP, including the 2000 and 2001 updates, were approved by FERC on July 20, 2000 and June 29, 2001, respectively. Based on data provided to LIHI for the original certification review, the CFPP was also updated in September 2013, although the current LIHI application did not address this update, so it is unknown if FERC approved it, nor is there a record in the elibrary that the update was submitted to FERC. However, NMFS and USF&WS perform annual inspections of all fish and eel passage facilities at the Project and issue annual recommendations for facility or procedural modifications based on the last inspection. No inspection was completed in 2020 due to COVID-19. Results of these inspections are discussed below.

Anadromous Species

The LIHI application notes that upstream migrating fish can only use the river and cannot enter either canal because the gates are typically closed or only slightly open to maintain canal water levels.

The upstream anadromous fish passage facility began operation in 1983 and consists of a fish lift with a trap and counting facility. Most fish are released directly to the impoundment. In addition, several thousand fish, mostly river herring, are typically hand-dipped from the lift hopper by fishery staff from both states and transported via stocking truck for release in upstream areas within the Merrimack River basin, or to other coastal drainages in New Hampshire. Facility personnel operate the fish passage facility, and gradually over the past several years are assuming greater responsibility for fish counts in each lift cycle, using visual estimation at the count window and video computer software. Fish counting had previously been done by MDMF. The lift is typically operated from late April through mid-July and from mid-September through October, with the final schedule based on agency consultation.

Figure 9 - Upstream Passage Hopper

Figure 10 - Upstream Passage Exit Tunnel

Review of past FERC fish passage records showed that during the 1990's, there were many issues with the fish lift identified by the agencies. However, in a letter dated March 12, 2001, USF&WS noted that the improvements being made to the lift have "dramatically improved upstream passage efficiency. Further assessment is not needed at this time." They did note that this position may change in the future, although according to CRP, no such requests for effectiveness studies have been made up to now. A 2021 report entitled Merrimack River Watershed Comprehensive Plan, developed in conjunction with the federal and state fishery agencies, does suggest that improvements to the upstream passage at the site would enhance restoration of anadromous species to the watershed. This Plan will become a focus in the upcoming FERC re-licensing expected to start in 2023[8].

Since last certified by LIHI in 2015, a number of fish lift modifications have been identified during the annual inspections some such as repairs to the entrance gate transducer, while others were done to improve the effectiveness of the lift, such as improvements to the camera system for more accurate counts and installation of finer mesh on the crowder screen to reduce impingement. Review of FERC records showed that the schedule provided for making the improvements was not consistently met, and that as late as February 2019, modifications noted from 2017 had still not been completed (see the February 26, 2019 FERC letter in Appendix B). The Table in Appendix C updates the data in Table 5 of the LIHI application, based on follow-up information provided by CRP via email on June 8, 2021. It lists the various recommendations for passage facility and procedural modifications since 2015 and the current item status. It appears all modifications for anadromous species have been made.

River herring, American shad and Atlantic salmon passed from 1991-2019 are noted on Table 4 of the application. The data shows significant variation between years, although it cannot be determined if the differences are based on natural variability or lift effectiveness issues.

American Eel

Plans for an upstream eel passage system began in 2009 and construction was completed in 2012 adjacent to the powerhouse at the toe of the Essex Dam. It began operating in 2013. This "south"

[8] https://elibrary.ferc.gov/eLibrary/filedownload?fileid=15814209

eel passage system consists of an eel ladder and a collection box. There is also a "north" interim eelway, constructed in 2019 when 79,113 eels were collected, transported by hand and released upstream. The interim ladder was not utilized in 2020 due to personnel safety concerns. Follow-up information from CRP indicates that plans are ongoing to replace this interim ladder with a permanent custom designed eel elevator in time for the fall 2021 eel migration season. The eel passage systems typically operate from May 1 through September 30 each year.

In a letter to USF&WS from the prior owner dated December 21, 2018,[9] the Project passed a record high 267,353 American eels in 2018. Follow-up information from CRP indicated that 81,179 and 93,058 eels were passed upstream in 2019 and 2020, respectively.

I made an inquiry to CRP regarding past or upcoming effectiveness studies on the upstream eel passage, and whether or not agencies have determined the passage to be safe and effective. Their response stated there have been no recent agency requests for effectiveness testing for either anadromous fish or American eel passage facilities, but that studies would likely be required for the upcoming re-licensing at the Project commencing in 2023. This was also reflected in the 2021 Merrimack River Watershed Comprehensive Plan. Similar to upstream passage for anadromous species, the Technical Committee is focusing on modifications, as needed, to passage features rather than studies. As noted in Appendix C, an agreement has not yet been reached regarding a more robust design for the "north" eel ladder, despite the fact that this issue was initially identified in the 2018 annual inspection.

I believe the Project conditionally passes this criterion with the recommended eel passage condition, noted in Section IX. However, I do not believe that the Project meets the "adaptive management program" requirements under the PLUS standard, which is: "*an adaptive management program to regularly evaluate the performance of new technology. The adaptive management program should include monitoring of the overall fish passage effectiveness and correction of deficiencies in effectiveness."* The adjustments being made to the upstream passage facilities, which are not a new technology, have mostly been made in response to agency-identified facility repairs needed or some minor adjustments to improve efficiency, like installing a finer mesh to prevent impingement. These changes have not been the result of effectiveness monitoring conducted by CRP that result in passage improvements.

This Project Conditionally Passes Criterion C – Upstream Fish Passage

D. DOWNSTREAM FISH PASSAGE AND PROTECTION

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 are able to successfully complete their life cycles and maintain healthy populations in the areas affected by the Facility.

Assessment of Criterion Passage

The Applicant selected Standard D-1, **Not Applicable/De Minimis Effect** for the

[9] https://elibrary.ferc.gov/eLibrary/filedownload?fileid=15132353

tailrace/downstream reach and both canals and **C-2 – Agency Recommendation** for the impoundment. There are no migratory barriers once fish enter the tailrace/downstream reach. Since the Aquamac and Merrimac projects (P-2927 and P-2928, respectively) located on the canals ceased operation in 2012, there are no longer significant flows released to the canals. Thus, CRP reports that there is little opportunity for diadromous fish to enter either canal. The Project's CFPP includes a provision for seasonally closing off the South Canal during outmigration periods for Atlantic salmon smolts and juvenile clupeids via the "South Canal Closure Plan" when these two hydropower facilities operated. However, this Plan is no longer implemented. All of the FERC Articles identified above under Upstream Fish Passage also apply to downstream passage.

Downstream migrating fish are transported from the forebay into the tailrace by way of a concrete bypass chute. The passage facility is typically operated from April 1 through July 15, and from September 1 through November 15. The trashracks have 6-inch clear spacing between the bars, based on follow-up data from CRP. The downstream passage facility was designed in consultation with the Technical Committee, was approved by FERC in 1992, completed in 1993, and has been operating since. The downstream passage facility is managed in accordance with the CFPP and FOMP and is part of the NMFS and USF&WS's annual inspections. The 2015-2019 inspections have identified a number of maintenance issues or improvements needed.[10] The table in Appendix C denotes the status of these items.

Figure 11 – Downstream Passage Chute

The CFPP provides a brief summary of past studies and agency comments on them. The CFPP includes a 2001 letter from the USF&WS in which they disagreed with the Licensee's characterization of the downstream passage facility as being highly effective. They recommended the CFPP be amended to include initiation of further consultation with agencies, performance of additional studies and evaluation of potential modifications to improve passage success, which CRP agreed to conduct. However, based on follow-up data provided in June 2021 by CRP, the Technical Committee has determined it to be more appropriate to focus on modifications to the downstream passage rather than to conduct more studies, especially since the salmon restoration program was terminated in 2013. A follow-up email from CRP indicates they have reached out to the agencies regarding their position on passage effectiveness but have not received any correspondence from the agencies indicating whether or not the downstream passage is safely and effectively passing diadromous species.

The 2021 Merrimack River Watershed Comprehensive Plan identifies several items that should be investigated to ensure effective downstream passage for fish and eel is occurring, which will likely

[10] No inspection was completed in 2020 due to the COVID-19 pandemic.

be required during re-licensing. Until then however, there is no documentation that states that the agencies are concerned with its effectiveness at this time.

Based on my review, I believe that the Lawrence Project continues to satisfy this criterion.

The Project Passes Criterion D – Downstream Fish Passage and Protection

E. SHORELINE AND WATERSHED PROTECTION

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

Assessment of Criterion Passage

The Applicant has selected **Standard E-1, Not Applicable/De Minimis Effect** to pass the Shoreline and Watershed Protection criterion for all Project ZOEs.

There has been no change in the shoreline and watershed protection requirements for the Project since it was last certified by LIHI. No conservation buffer zone, watershed enhancement fund, or Shoreland Management Plan is required by the FERC license. License Article 43 allows the Licensee authority to grant permission for certain uses of Project lands and waters and to convey certain interests in Project lands, without prior Commission approval. This article allows the Licensee to exercise this authority only if the proposed use and occupancy is consistent with the purposes of protecting and enhancing the scenic, recreational, and other environmental values of the Project.

CRP does not own any property along the impoundment outside of the immediate vicinity of the Project works and North and South Canals, which are entirely urban lands of little ecological value. The Project boundary around the impoundment is defined as the contour elevation at the normal impoundment water level at the top of the crest gate. The Massachusetts Shoreline Protection Act specifically excludes man-made canals, such as the canals in Lawrence, from its provisions. Land cover units in the vicinity of the Project are almost exclusively "Developed" and of either medium or high intensity according to the 2016 National Land Cover Database, details of which are included in the LIHI application.

As previously discussed, several complaints were filed with FERC about the condition of the canals, which also identified build-up of trash in them. The Complainants argued the lowered water levels are exposing trash not normally observed. Review of these documents indicated that this is not the proven cause for these concerns. To help address the issue, FERC required CRP to create a Trash Removal Plan which was submitted to FERC on November 8, 2019, with trash clean-ups conducted twice annually, typically as soon as safely possible after spring run-off, and before ice-over each fall.

Based on my review of all available information, I believe the Project continues to satisfy this criterion.

The Project Passes Criterion E – Shoreline and Watershed Protection

F. THREATENED AND ENDANGERED SPECIES PROTECTION

Goal: The Facility does not negatively impact federal or state-listed species.

Assessment of Criterion Passage

Standard F-2, Finding of No Negative Effects was selected for all ZOEs. As previously noted, the 2015 LIHI certification had a condition that required a letter from MDF&W confirming that the facility and operations have no negative impact on the existence of bald eagle in the area. An email dated July 19, 2016, from Misty-Anne Marold of the MDF&W was received confirming no impact.

The application included a USF&WS IPaC report for all of Essex County generated on December 19, 2019. It identified one endangered species, the roseate tern (Sterna Dougallii dougallii) and four threatened species, Northern long-eared bat (Myotis septentrionalis), piping plover (Charadrius melodus), red knot (Calidris canutus rufa), and small whorled pogonia (Isotria medeoloides). Critical habitat has only been designated for the piping plover, but it is outside of the Lawrence Project location. It is unlikely that any of these species occur onsite due to lack of habitat given the highly developed nature of the Project and immediately surrounding lands.

As discussed under *Criterion C, Upstream Fish Passage*, there is some data indicating that the federally-endangered shortnose sturgeon exists in the lower section of the Merrimack River, and may exist further upstream of where past surveys have located them. To date, they have been recorded at RM 21.7 which is about 7.3 miles downstream of the Project. However, those same data suggests that their range upstream may be increasing, although none have yet been reported at the Lawrence fish lift. Applicability of license Article 33 which addresses protected fish species was also discussed under that criterion.

Regarding state-protected species, a formal Massachusetts Endangered Species Act request was not made, but the application does contain a table of species that have been recorded on the Massachusetts Natural Heritage and Endangered Species Program website as occurring in Lawrence, MA. Of those species listed, only the Plymouth gentian, a state Species of Special Concern and the peregrine falcon, a state-threatened species have been recorded in the past ten years. The developed nature of the site does not likely contain habitat for Plymouth gentian, which is sandy and peaty shorelines of coastal ponds. Peregrine falcons are known to frequently nest on manmade structures such as buildings and bridges. The state's website indicates records for nesting pairs on buildings in Lawrence. The falcon often uses the nests of rock dove (pigeon), which are also a common food source for the falcon. The bridges and adjacent mill buildings at the Lawrence Project environs can provide suitable nesting opportunities. However, none of these structures are controlled by CRP.

Based on this review, I believe that the Project continues to satisfy this criterion.

The Project Passes Criterion F – Threatened and Endangered Species Protection

G. CULTURAL AND HISTORIC RESOURCE PROTECTION

Goal: The Facility does not inappropriately 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 Passage

The Applicant has selected **Standard G-2, Approved Plan** to pass this criterion for the impoundment and the two canals and **Standard G-1 - Not Applicable/De Minimis Effect** for the Tailrace/downstream Reach. The application stated there are no cultural or historic resources in the downstream ZOE, based on a review of the National Register of Historic Places' list of properties.

The Essex Dam (a.k.a. "Great Stone Dam"), the North Canal and the associated gatehouse at the interface of the impoundment and canal are included in the North Canal Historic District listed in the National Register of Historic Places. The Project's South Canal and associated gatehouse are eligible for listing in the National Register. License Article 29 requires that the Licensee cooperate with the SHPO to avoid any adverse impact to these features and also requires consultation with the SHPO for onsite construction activities to ensure undiscovered archaeological artifacts are properly recovered and impacts are mitigated. In the Application, CRP reported that SHPO review is conducted for all projects associated with these facilities, and that the findings for past projects were always "no adverse effect" determinations. They specifically denoted the installation of the Obermeyer crest gate system on the spillway crest of the historic Essex Dam received such review. Follow-up data from CRP noted that the SHPO was also contacted regarding the planned installation of the "north" eel lift; but a formal response has not yet been received. However, no consultation was performed for repairs to the canals or the North Canal Gatehouse. Because these repairs were already completed, preservation of the canal features were more important to the SHPO, and because CRP has filed to remove the canals from the Project boundary, I believe this lack of consultation is not significant to LIHI certification.

A summary discussion of legal challenges and FERC filings made pursuant to these canals is included under *Criterion A, Ecological Flow Regimes*, as the water level in the canals appear to be a controversial issue, alleged to be causing deterioration of the integrity of the canals. Copies of the filings are either linked in the application or contained in Appendix B. As noted under that discussion above, LIHI will not question such legal decisions. However, I do believe that there are additional issues related to protection of historical resources that are not addressed under *Ecological Flow Regimes*.

In order to preserve the historical significance of the canals, the SHPO's November 12, 2020 response to CRP's application to remove the canals from the Project boundary required:

> *"(1) The development of a Preservation Plan for the North and South Canals and canal walls to ensure the long-term care and maintenance of these significant historical resources and (2) The establishment of a Preservation Fund by the Licensee to fund necessary repairs to the canal walls."*

In their letter on May 17, 2021, CRP proposed to address canal preservation noted by the SHPO via consultation with specified stakeholders and the development of a Memorandum of Agreement (MOA) that specifies mitigation activities agreed upon by the parties. CRP appears to agree to implement a plan that will monitor the status of the canals but is silent on development of a funding plan and responsibility for implementing repairs that may be needed. In their June 22, 2021 letter, FERC indicated that the MOA should be developed and submitted within 6 months (by December 22, 2021) and that when approved by the SHPO and filed with FERC, FERC would publicly announce the amendment application to remove the canals from the Project boundary.

In summary, the 1978 FERC license states that FERC found "no impact" would occur to the historic canals assuming the Project maintained "historical water levels", although what these levels are is not described. In 2019, FERC stated this was just a "general statement" and not a specific license requirement. Based on my review of all information available, including follow-up information from the Applicant and stakeholders who submitted comments, I believe that the Project will continue to satisfy this criterion. I believe the integrity of the canals could be protected through compliance with a SHPO-approved MOA, even though they may be removed from the Project. However, I have recommended a condition addressing this protection to confirm continuing criterion satisfaction.

The Project Conditionally Passes Criterion G – Cultural and Historic Resource Protection

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 has selected with **Standard H-2, Agency Recommendation** for all Project ZOEs.

The application provided the following summary of recreational aspects of the Project:

> *"The Licensee's Recreation Plan was approved with the 1978 License Order and then amended by Commission Orders on August 1, 1995, and on August 9, 1995 removing the requirements for the picnic area, the moving of the South Canal Gatehouse, and the portable fence. and added substituted tours of the Carriage House in lieu of the powerhouse, along with painted markings on the paved walkway and directional signage to the North Canal carriage house. Recreational facilities owned and operated by the Licensee include the restored gatekeeper's Carriage House on the North Canal that includes a visitor center with a concrete parking area, new video displays, lighting, seating display panels and other interactive exhibits. The facility is used to illustrate the history of the region, the operation of the hydroelectric facilities, and the operation of the fish passage facilities. Until September 11, 2001, tours were given of the powerhouse area and the fish passage facilities, but these tours have been terminated for security reasons. Other recreational facilities not owned and operated by the Licensee but within the impoundment and downstream ZOE's include a boat launch with a large parking area upstream of the project owned and maintained by the State of Massachusetts and a fishing area and boat*

ramp downstream of the project that is owned and maintained by the City of Lawrence."

A FERC Environmental Inspection Report was last issued in 2017, which only noted a missing Part 8 public safety sign as a non-compliance/follow-up issue for recreational resources. The Applicant reported the sign was installed in late June 2020.

On May 16, 2019 FERC's Division of Hydropower Administration & Compliance (DHAC) conducted a site visit to, in part, evaluate the complaint discussed previously. The Complainants stated that the Licensee needs to improve recreation at the Carriage House and enhance recreation at the Project in general, due to increasing recreational demand in the Project area. That inspection did result in FERC's issuance of a letter dated August 8, 2019, requiring the Licensee to provide an update to the Project's Public Safety Plan, a trash removal plan for the canals, certain repairs to the canals and improved signage and advertisement for tours at the Carriage House. FERC found that the other recreational feature improvements identified by the Complainants were not required by the current license but could possibly be considered during future re-licensing studies. In their LIHI application, CRP stated that on "*March 19, 2020 FERC issued an Order Denying Rehearing which dismissed all aspects of the complainants' Request for Rehearing*." It was unclear to me whether or not they believe this dismissed the FERC requirements for implementation of the improvements contained in the then owner's letters to FERC dated November 6 and 8, 2019.

Follow-up communication with CRP confirmed that the recreational facility improvements were implemented (see Appendix A). Plans for flyer and poster distribution were put on temporary hold due to the ongoing COVID-19 pandemic. On May 6 2021, Essex Company notified the FERC that the Carriage House would remain closed during 2021 due to the pandemic.

Based on my review of all available data, I believe the Project continues to satisfy this criterion.

The Project Passes Criterion H – Recreational Resources

IX. GENERAL CONCLUSIONS AND REVIEWER RECOMMENDATION

Based on my review, I believe that the Lawrence Project continues to conditionally meet the requirements of a Low Impact facility and recommend it be re-certified for a five-year period with the following conditions.

Condition 1 – To ensure compliance with the *Upstream Fish Passage* criterion, the facility Owner shall provide LIHI an update on the status of the "north" eel lift installation in the annual compliance statements until completed and approved by resource agencies.

Condition 2 – To ensure compliance with the *Historical and Cultural Resources Protection* criterion the facility Owner shall:

a) Provide LIHI a copy of the final documentation received from the SHPO on their review of potential cultural impacts associated with the "north" eel lift installation within 60 days of receipt.
b) Report semi-annually to LIHI, until the issues are resolved, on the status of the MOA development, SHPO approval and implementation, and the removal of the North and South

Canals from the Project boundary. A copy of the final MOA, which FERC has mandated to be finalized by December 22, 2021, shall be provided in the applicable LIHI quarterly update. This Condition assumes that removal of the canals from the Project is approved by FERC. It is LIHI's interpretation that to satisfy the SHPO's requirements for canal preservation, the facility Owner must develop a Preservation Fund to cover costs associated with canal repairs that may be necessary. This Preservation Fund shall be incorporated into the planned MOA, or documentation of agreement with the SHPO that a fund is no longer required shall be provided to LIHI.

c) Provide LIHI an update on the compliance activities with the approved MOA and HPMP in annual compliance statements through the term of this certification.

LIHI reserves the right to modify, suspend, or revoke the certification depending on the resolution of these issues.

Condition 3 - Since the Project will begin relicensing during the new LIHI Certification term, the facility Owner shall provide to LIHI as part of the annual compliance report, a status report of the FERC licensing progress listing significant agency interactions that have occurred in the past year that are relevant to any LIHI criteria and highlighting major topics of agreement or disagreement. LIHI reserves the right to request additional details if highlighted topics are relevant to the LIHI criteria and their associated goals. LIHI also reserves the right to modify the Certificate conditions again if needed.

Appendix A

Follow-up Communications with Stakeholders and the Applicant

From: PBMwork@maine.rr.com
To: "Pacificmills@aol.com" <Pacificmills@aol.com>, "jharden@lawrencecommunityworks.org" <jharden@lawrencecommunityworks.org>
Cc:
Bcc:
Priority: Normal
Date: Thursday March 4 2021 12:25:55PM
Questions about your LIHI comment letters

Hi Alida and John

I am the reviewer assigned by the Low Impact Hydropower Institute to review the application submitted by Central River Power for the possible LIHI re-certification of the Lawrence Project. I can see that the issue of maintaining the water level in the two canals in alignment with "historical uses" is an important consideration. Do either of you have any information that shows what these "historical levels" are? I have been through all of the FERC eLibrary documents I can locate on this issue but none actually reference what the levels are. Any data, or links to such data, that you can share with me would be appreciated. I have asked the same question of Central River Powers.

Also, John, can you tell me what the expiration date is of the Pacific Mills 33 deeded Mill Power leases you reference in your letter?

Thanks for your help.

Pat McIlvaine

From: PBMwork@maine.rr.com
To: "Pacificmills@aol.com" <Pacificmills@aol.com>
Cc:
Bcc:
Priority: Normal
Date: Saturday March 6 2021 1:19:03PM
Additional Question on your LIHI comment Letter

Hi Alida

I was wondering if you can tell me more about your Unit Hydro hydropower facility you mentioned in your comment letter. I tried to check FERC's eLibrary of records to learn more about this unit but could not find any project under that name or under Pacific Mills on the list of FERC licenses or exemptions. Can you provide me the license/exemption number for this Project? If it is not licensed, can you provide me any information about its location on the North Canal, hydraulic capacity and its generating capacity. Can you tell me when the leases will expire that will allow you to begin operation of Unit Hydro?

Thanks

Pat McIlvaine

Follow-up Questions on the Lawrence Project – March 8, 2021 Update

General

- Please describe or provide a map or schematic showing the location of the Merrimac and Aquamac hydropower projects located on the South Canal, which you reported no longer had active FERC licenses as of 2012.

  The former Aquamac and Merrimac Projects are described in FERC's Environmental Assessment (EA) developed during the relicensing of the projects, issued on December 21, 2000. The Aquamac Project consisted of one vertical turbine/generator unit and the Merrimac Project consisted of three vertical turbine/generator units. The intake structures for all four generating units were located on the South Canal, each consisting of a 6.5-foot high x 6.0-foot wide manually-operated headgate structure and trashracks. Each unit had a dedicated penstock, tailrace, and appurtenant facilities. The maximum combined hydraulic capacity of the Aquamac and Merrimac Projects was 970 cfs. The following map of the facilities is from FERC's EA for the Aquamac / Merrimac relicensing.

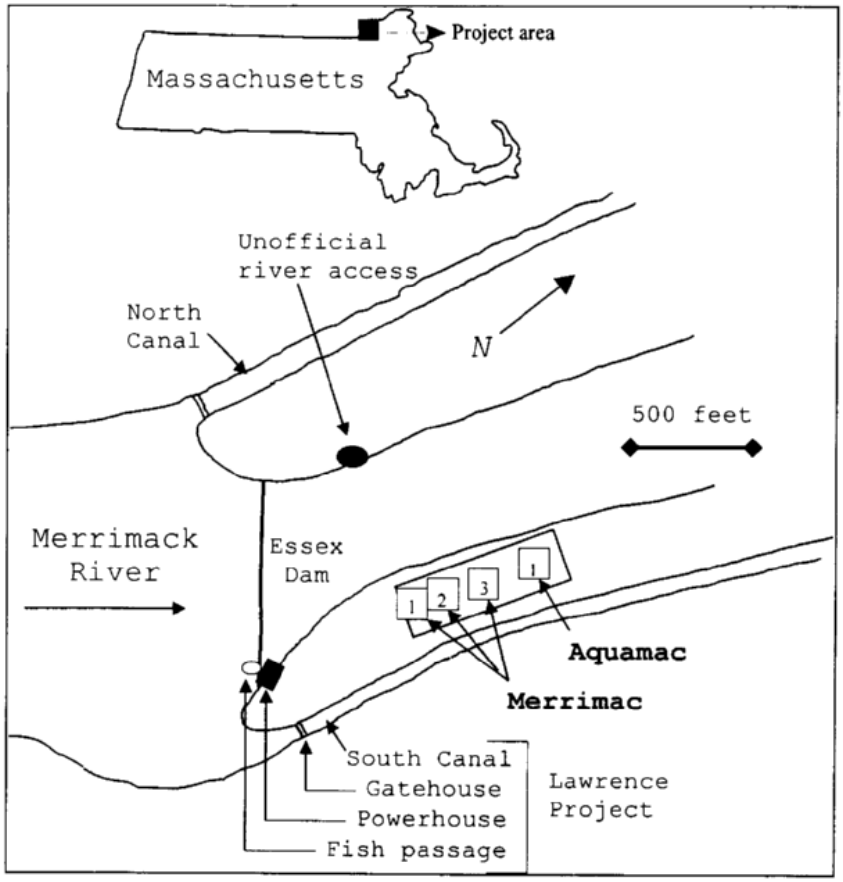


Figure 1. Location of the Aquamac (FERC No. 2927-004) and Merrimac (FERC No. 2928-004) Hydroelectric Projects, Massachusetts (Source: modified from Kleinschmidt Associates, 1997a,b).

Flows and Historical Resource Impact Issues at the canal

- If a copy of the environmental assessment and/or licensing application developed for the 1978 FERC license is available please provide a copy. Neither could be located on FERCs eLibrary.

  We do not have a copy of the 1978 Environmental Assessment. Typical of that era, the EA likely would have been a simple form type document, without significant or deep analysis of issues or alternatives.

- Please forward a copy of the referenced "Privileged" internal FERC memorandum described in eLibrary as "Submits memo dtd 980824 re non-compliance matter of Article 32 to be ambiguos [sic] re Lawrence Proj-2800". As a privileged document, I could not open the document despite the FERC link provided in the Application. Please note that LIHI will handle this document as "confidential" and will not post it on the LIHI website.

  The memorandum referred to is a Privileged FERC staff document, which would require the filing of a Freedom of Information Act (FOIA) request in order to obtain a copy. The present run-of-river operation of the Project renders Article 32 moot, including FERC's apparent determination that the article language is "ambiguous." Under current operations the Project always meets or exceeds the minimum flow requirement of 951 cfs or inflow whichever is less, i.e., the Project always passes all inflow.

- Please describe how CRP determines how much water should be released to each canal. Also, please discuss if/how the 2012 surrender of the licenses for the Aquamac Project (FERC No. 2927) and Merrimac Project (No. 2928) located on the South Canal has changed the flows released to this canal, as noted on page 17 of your Application.

  Water is released to the canals only to the extent needed for canal water level management. Flows are no longer required to be provided to the Aquamac and Merrimac Projects since those facilities were shut down and the licenses terminated. As stated above, water is released to the South Canal only to the extent necessary to manage the canal water level. Since these projects were shut down, essentially all river flow is passed through the Lawrence Project's turbines, fish passage facilities and/or over the spillway.

- Please identify if a decision has been reached by CRP regarding its application to remove the canals from the Project, and if so, what was decided.

  As stated in our revised application submitted on May 18, 2020, Essex Company, LLC has decided to remove both the North Canal and the South Canal from the FERC license, because neither canal serves any "project purpose" under the license. Accordingly, on August 31, 2020 Essex submitted an application for non-capacity amendment of the license to FERC to remove the canals from the license. The application is pending before the FERC.

- Please identify your schedule for submitting the "the inventory of canal penetrations for both the North and South Canals, noting the condition of these penetrations" and please confirm that these structures have been incorporated into the Project DSSMR" as requested by FERC letter dated December 4, 2019.

An inventory of the canal penetrations for both the North and South Canals has been completed. Per FERC's letter dated December 4, 2019, regular inspection of the penetrations is being added to the Project's Dam Safety Surveillance and Monitoring Plan (DSSMP).

- Please identify the expiration date for the 33 deeded Mill Powers water rights associated with these canals held by CRP.

  The initial term is 50 years, terminating on 12/1/2028. There is a 25-year extension option which has not yet been exercised.

- Please confirm the status of follow-up actions associated with repairs to canal features arising from the May 16, 2019 FERC site visit. (Documentation has been located showing submission of the Trash Removal Plan and updated Public Safety Plan.) This response should also identify the schedule for implementation of the enhancements regarding the Carriage House. It is unclear from your application if you intend to still complete these actions as they relate to recreational-related action items or if you believe FERC has dismissed these requirements.

  A new walkway and railing have been installed at the "end-of-canal infrastructure" on the North Canal, and the walkway and gate at the Northern Canal Gatehouse have been repaired. Essex Company notified FERC of these repairs by letter dated October 7, 2019, and approved by FERC on October 31, 2019.

  A new sign notifying the public of the availability of public tours has been installed outside the Carriage House facing Broadway, a major public thoroughfare. Essex Company had also made plans to distribute flyers and posters at several public locations, however that has been put on temporary hold due to the ongoing COVID-19 pandemic. On May 6 2021, Essex Company notified the FERC that the Carriage House would remain closed during 2021 due to the pandemic.

- Please provide documentation that recent construction projects at the Project's historic features, such as repairs at the canals and installation of the eel ladder at the north abutment, were reviewed by the MA SHPO and provide a copy of the MASHPO's findings. Documentation of MASHPO review of only the Obermeyer crest gate system and past work at the Gatehouse were included in the Application.

  The MASHPO has been consulted regarding the installation of the eel lift; I do not believe that we have received a formal response yet. No consultation was performed for repairs to the canals or the North Canal Gatehouse.

<u>Upstream Fish Passage</u>

- Please provide a description of what happens to the fish that are captured in the lift, including which are released into the impoundment and which are transferred to other locations.

  The majority of fish collected in the fish lift are released into the Lawrence Project's headpond to continue migration upstream. Typically, each year NH Fish and Game and MA DFW may hand dip several thousand fish (mostly river herring) from the fish lift facility which are then trucked to upriver locations to "seed" the upstream breeding

population. Occasionally, some shad and/or river herring may be dipped from the lift for study purposes, under agreement with the Technical Committee, e.g., for the fish passage studies recently undertaken as part of the relicensing of the Lowell Hydroelectric Project.

- Please elaborate why fish cannot enter the North Canal "as there is no means of access" to it, as noted in the Application. You state an underground wasteway at the exit of the South canal is normally closed preventing fish entry. Does this mean that water in this canal is retained in this canal when the wasteway is closed and only flows through the canal when the wasteway is open?

  The North Canal and South Canal headgates are typically closed or slightly cracked to maintain the canal water levels, but are not open enough to allow fish to enter.

  As stated in the recertification application, the South Canal wasteway is normally closed to retain water within the canal. The wasteway gate is typically opened only when necessary to dewater the canal.

- Please identify when CRP staff took over operation and fish counting at the fish lift. The FOMP dated 11/17/19 contained in the Application identified daily onsite presence of two state fisheries employees, in addition to staff employed by CRP, during the fish passage season.

  While the Project's Comprehensive Fish Passage Plan places the responsibility counting fish lifted on the resource agencies, this duty has gradually shifted over to the Licensee over the past 10 or more years, due to state budget cuts. Initially Project staff would visually estimate the number of fish in each lift bucket to supplement counts conducted by state-hired seasonal staff. In recent years, Essex implemented automatic fish counts using SalmonSoft software applied to video footage at the lift's counting window. Essex's operations staff continue to perform visual estimates as a backup and to supplement the SalmonSoft counts.

- Please confirm that the excessive level of noise and vibration occurring at the fish lift identified in 2017 has been remedied. The Table in the Application states that the concern "will be evaluated". Also, please confirm the status of the action items planned for completion in 2019 to address 2018 items of concern. The table only notes the planned CRP actions.

  Awaiting response.

- Are there any current agency requests and plans to conduct specific effectiveness studies for the upstream passage facilities? Also, please confirm if the upstream fish and eel passage facilities have been determined by the fishery agencies to provide safe and effective passage for the target species. If so, please provide a copy of or link to such agency documentation.

  No studies are being conducted or are planned at this time, however Essex Company expects that such studies will be conducted during the upcoming relicensing of the Project, which will commence in 2023.

- Please confirm if the "north interim" eel ladder identified in the FOMP was constructed in 2019 as described? The body of the LIHI application did not identify this as a feature. If so, if you have a picture of it please forward it to me.

  The "North Interim" eel ladder was constructed and operated in 2019, and according to our records it collected 79,113 eels which were transported by hand and released upstream. The interim ladder was not fished in 2020 due to personnel safety concerns (rough neighborhood), COVID-19, and plans to replace it with the permanent eel elevator, which is currently in development.

- I just reviewed a USF&WS letter dated 11/07/2019 on their 2019 inspection and it brought up a number of new questions.
  - It shows the eel elevator apparently has been installed. Please provide information on when it was installed and first operated.

    The eel lift is a custom design which is being refined at this time. It is planned for installation this summer and operation during the fall 2021 eel migration season.

  - It also suggests that comments issued by them in March 2019 on your FOMP were not incorporated and the Plan was never finalized with them. Does the FOMP dated October 2019 which you attached to the LIHI application include their comments? Was the document formally finalized with USF&WS/NOAA prior to the 2020 passage season?

    The FOMP was revised on May 16, 2019 to address the USFWS's March 16, 2019 comments. Additional revisions were issued in response to agency comments on June 7, 2019 and October 17, 2019.

  - Did NOAA / USF&WS conduct an inspection in 2020? (I did not see any data in FERC eLibrary on a 2020 inspection.)

    NOAA and USFWS did not conduct an inspection in 2020 due to COVID-19 travel restrictions.

- Your application (Table 3) notes that 44 American eel were passed upstream in 2019. Review of a letter to USF&WS from Enel Green Power on the 2018 season dated December 21, 2018, indicated the Lawrence project passed a record-high 267,353 American eel (34,133 at lift, 157,107 at ramp and 76,113 at North ramp). That seems to be an unusual contrast in data between 2018 and 2019. Please explain this difference.

  The 44 eels referenced may have been the number observed int the fish lift. In 2019 a total of 81,179 eels were passed upstream. In 2020 a total of 93,058 eels were passed upstream.

<u>Downstream Passage</u>

- Please clarify the spacing of the trashracks…the Application states 7-inch spacing but the 2018 USF&WS inspection reports 4-inch spacing. Please provide evidence if such spacing has been found acceptable by the agencies.

As-built drawings of the trashracks show that the bar spacing is 6 inches.

- Have the recommendations made by the USF&WS in their various correspondence from 2001 that state that additional downstream effectiveness testing must be conducted for salmon smolt been satisfied? Please provide a copy of these studies and agency comments on them.

  Additional downstream effectiveness testing for salmon smolts was never conducted. The Merrimack River salmon restoration program was terminated in 2013, and stocking of Atlantic salmon fry in the headwaters has not taken place since then. Therefore since that time there no longer have been salmon smolts moving downstream through the Project area.

- Please confirm if the downstream passage facilities have been determined by the fishery agencies to provide safe and effective passage for the target species. If so, please provide a copy of or link to such agency documentation.

  Awaiting response

Appendix B

Key Agency – Licensee Communications

Document Accession #: 20190226-3044 Filed Date: 02/26/2019

FEDERAL ENERGY REGULATORY COMMISSION
Washington, DC 20426

OFFICE OF ENERGY PROJECTS

Project No. 2790-071 —Massachusetts
Lowell Hydroelectric Project
Boott Hydropower, LLC

Project No. 2800-049 —Massachusetts
Lawrence Hydroelectric Project
Essex Company, LLC and Lawrence
Hydroelectric Associates

February 26, 2019

Conrad St. Pierre, P.E.
Director of Hydro North America
Essex Company, LLC
One Tech Drive, Suite 220
Andover, Massachusetts 01810

Subject: 2018 U.S. Fish and Wildlife Service fishway recommendations at the Lowell and Lawrence Projects

Dear Mr. St. Pierre:

This letter is in response to your filing with the Commission on December 21, 2018, that expressed your response to fishway maintenance and recommendations made by the U.S. Fish and Wildlife Service (FWS) for the Lowell Hydroelectric Project, FERC No. 2790 and the Lawrence Hydroelectric Project, FERC No. 2800.

On September 20, 2018, the FWS filed two reports with the Commission containing the results of its May 18, 2018 inspections of the upstream fish passage facilities that were conducted at both the Lowell and Lawrence projects. The FWS' filings contained 10 recommendations for the Lowell project and 12 recommendations for the Lawrence project that should be addressed prior to the 2019 fish passage season (spring 2019). Some of the recommendations relate to concerns with various aspects of the upstream passage facilities that were previously documented in the 2017 inspection conducted by the FWS.

Lowell Project

In your December 21, 2018 filing, you provided an update on your progress in addressing the recommendations. Regarding the 10 recommendations for the Lowell project, you committed to the following repairs or adjustments to the lift system: corrective solutions for the leaking hopper door; addressing downstream bypass exit gate leakage; and affixing flexible flaps or brushes to secure crowder gaps.

Regarding the closed orientation of the Northern Canal Gatehouse/Boat Lock (gate), FWS understands that the gate should be open during the fish passage season and requested that you consult with them regarding its orientation. You explain that the gate is owned and under the control of the National Park Service - Lowell National Historical Park and has not been opened regularly since the adoption of the 2000 Comprehensive Fish Passage Plan. You note that this issue was discussed at your October 30, 2018 meeting with the Technical Committee. You state that the issue warrants additional discussion with the National Park Service and may be best addressed in the current relicensing of the project. We recommend that you continue to address this concern with the resource agencies and the Park Service.

Regarding the Lowell fish ladder, you agreed to keep additional stoplogs on hand to make adjustments to the ladder entrance jet as needed. You commit to replacing and maintaining entrance pool staff gages. Also regarding non-uniform hydraulics observed in the ladder, you state that, at the request of the FWS you provided them the opportunity to inspect the dewatered ladder which revealed that there are various baffles that are in place based on a 1987 recommendation from the FWS. Further regarding ladder hydraulics, you state that you are willing to configure the ladder equipment to look for the best possible passage conditions in 2019. Also at the Lowell fish ladder, you addressed the FWS' concerns of debris on the crowder screen; installation of a catwalk for access to the ladder; and development of an Operations and Maintenance Plan that will describe seasonal and off-season activities, and plans and specifications needed to best maintain and operate the fish passage structures.

Lawrence Project

Your December 21, 2018 filing also provides an update on your progress in addressing 12 FWS fishway recommendations for the Lawrence project. You state that you will install a finer mesh screen on the crowder to reduce gilling of herring. This modification was recommended during the 2017 inspections (to be implemented during the 2018 passage season) and rather than reducing the mesh size, you ineffectively reoriented the screen, which was contradictory to you commitment for addressing gilling of herring in the crowder screen. You commit to installing a finer mesh screen for the

2019 passage season. We expect that you will both, install a finer mesh screen and orient the slots horizontally prior to the 2019 season.

During the 2018 inspection, the eel ladder was not operational, which is contradictory to your Eel Passage Plan that requires the eel ladder to be operated from May 1 through September 30, annually. For the upcoming 2019 season, you commit to having eel ladder replacement parts on site to facilitate repairs in the event of damage to the ladder. You also plan to develop and implement an Operations and Maintenance Plan for the fishways at Lawrence. Included in that plan, will be operational dates and other specifics for the operation of not only the eelway, but all of the fishways at the Lawrence project.

You also commit to addressing any gaps or spaces in the fishway that allowed herring to get trapped within the fishway; fix the exit gate malfunction; develop an Operations and Maintenance Plan; provide a training day for your staff; ensure that the entrance gate transducer is collecting appropriate data; and correct any exit gate leakage; all issues that were identified in the FWS' inspections.

You plan to develop and submit your proposed Operations and Maintenance Plan for the fishways of both projects, to the resource agencies by February 1, 2019, for review and comment. We expect that submittal has been presented to the resource agencies by this time and that you will consult on any recommendations to that plan with them.

Your December 21, 2018 filing provides a timely and responsive course of action to address issues with the fishways at the Lowell and Lawrence projects. We expect that since you have committed to addressing these issues prior to the 2019 fish passage season, they will be implemented by that time. We appreciate you keeping us apprised of your consultation and responses to the FWS regarding their inspections and improvements to the fishways. While we regard your consultation with the resource agencies adequate concerning these inspections, you should continue to keep the Commission informed of your actions in addressing any issues related to the fishways or fish passage at the projects.

Thank you for your response and updates. If you have any questions concerning this letter please contact me at (202) 502-6289 or robert.ballantine@ferc.gov.

Sincerely,

Robert Ballantine
Aquatic Resources Branch
Division of Hydropower Administration
and Compliance

cc. John Warner
Assistant Supervisor, Federal Activities
U.S Fish and Wildlife Service, New England Field Office
70 Commercial Street, Suite 300
Concord, NH 03301

Randald Bartlett, P.E.
Operations Manager Northeast Region
Essex Company, LLC
Boott Hydropower, LLC
One Tech Drive, Suite 220
Andover, Massachusetts 01810

Document Content(s)

p-2790-071 and P-2800-049.PDF.....1

Essex Company, LLC
A Subsidiary of Enel Green Power North America, Inc.

100 Brickstone Square, Suite 300 – Andover, MA 01810 – USA
T +1 978 681 1900 – F +1 978 681 7727

Via eFiling

November 6, 2019

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, D.C. 20426

Re: Lawrence Hydroelectric Project (FERC No. 2800-048);
Follow-up actions to Commission staff's May 16, 2019 Site Visit.

Dear Secretary Bose:

On August 8, 2019 the Commission issued a letter to Essex Company, LLC ("Essex"), licensee of the Lawrence Hydroelectric Project, summarizing its conclusions following a May 16, 2019 site visit by Commission staff. The site visit was performed in response to a complaint filed June 7, 2017, concerning facilities and operations at the Project. The Commission's letter required Essex to submit follow-up responses to the Secretary and to the New York Regional Office (NYRO). This letter provides Essex's responses to the following two items contained in the Commission's August 8, 2019 letter; Essex is submitting its responses to items (1) and (3) under separate cover to NYRO:

(2) *File information with the Commission's Secretary demonstrating whether the north and south canals are still needed for project purposes and if not, file an application conforming to the requirements of 18 CFR §4.200 with the Commission's Secretary to remove these two structures from the project license for Commission approval;*

Since receiving the Commission's August 8, 2019 letter, Essex has been undertaking a comprehensive review of all aspects of the North and South Canals as they may relate to the Project in its current configuration. In view of the upcoming relicensing of the Project, Essex is also examining the feasibility of adding capacity to the Project via one or both of the canals. This feasibility analysis has not been completed at this time, however we expect it will be completed by February 1, 2020. Essex will file a final response with the Commission by March 1, 2020. If Essex concludes that the canals should be removed from the Project, Essex's filing will include an application to remove both canals from the project license, pursuant to the requirements of 18 CFR §4.200.

(4) *File a proposal with the Commission's Secretary to install signs that better advertise public tours of the Carriage House.*

Essex proposes the following improvements to better inform the public of opportunities for tours of the Carriage House, pursuant to the approved Exhibit R:

I. Better Signage

Essex proposes to install a new sign at the entrance to the driveway of the Carriage House. The prominent location of this sign along a busy public thoroughfare will increase awareness of the availability of public tours.

This new two-post mounted sign will be installed by the main entrance in order to promote tours to the public. The sign will be made of alumalite[1], with painted vinyl post and cap and hardware. The overall dimensions of the new sign would be 61" x 54.5". The sign text will include a phone number for general inquiries for those interested in a tour. This phone will be checked as frequently as possible during regular business hours. Figure 1 provides a visual representation of the proposed signage.

II. Improved Advertising

The Project will distribute a one-page flyer for posting at existing public information bulletin boards located at the Lawrence History Center, the Massachusetts Department of Conservation & Recreation's Lawrence Heritage State Park, and the Lawrence City Hall. The prominent location of this flyer in these public buildings will increase awareness of the availability of public tours among city residents.

The requested one-page flyer will include all necessary information in order to be able to effectively promote tours to local residents. The FERC Project number, access/inclusivity language, typical tour availability and contact information will be clearly stated and displayed on this document. The phone will be checked as frequently as possible during regular business hours. Figure 2 provides a visual representation of the one-page flyer.

Conclusion

In response to the Commission's closing remarks encouraging the licensee to "cooperate with the City of Lawrence and other owners of utility and other bridges that cross the canals within the project boundary on any repairs or removals needed for public safety purposes," Essex notes that on several occasions it has reported or sought Commission approval to convey property rights necessary for those very purposes. These include the following:

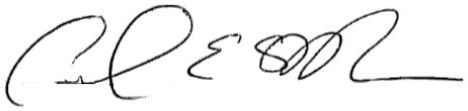
- January 31, 2006 (Accession 20060131-5027): Easement to City of Lawrence for a storm water outfall discharging into Northern Canal.
- February 7, 2007 (Accession 20070207-5065): Easement to City of Lawrence for installation of sidewalks and handicapped ramps; and easement to WM Lofts LLC to facilitate mill building redevelopment, including bridge maintenance and replacement.
- January 31, 2008 (Accession 20080131-5062): Easement to City of Lawrence to, among other things, facilitate maintenance and replacement of the Railroad Bridge.
- February 2, 2009 (Accession 20090202-5189): Temporary License issued to Massachusetts Electric Company for the construction of a temporary transmission line over the North Canal, to facilitate reconstruction of the Amesbury Street (Joseph W. Casey) Bridge by the MA Highway Department.
- January 28, 2010 (Accession 20100128-5100): Easement to Bay State Gas Company to install a gas line across the North Canal, which was necessary to facilitate replacement of the Union Street ("Duck") Bridge by the City of Lawrence and the MA Highway Department.
- June 4, 2010 (Accession 20100604-5086): Easements to the City of Lawrence to allow construction of a permanent bridge crossing over the North Canal as part of an urban renewal project.

Essex remains ready and willing to engage with and cooperate with the City of Lawrence and its private and public partners to support future redevelopment efforts.

[1] Alumalite is a strong, aluminum composite panel with a high-density corrugated polypropylene core that will not swell, corrode, rot, wick water, or delaminate even under prolonged water exposure.

We trust that this letter is fully responsive to the Commission's August 8, 2019 letter. If you have any questions concerning this response please do not hesitate to contact Kevin Webb, Hydro Licensing Manager, at (978) 935-6039 or Kevin.Webb@enel.com.

Sincerely,
Essex Company, LLC

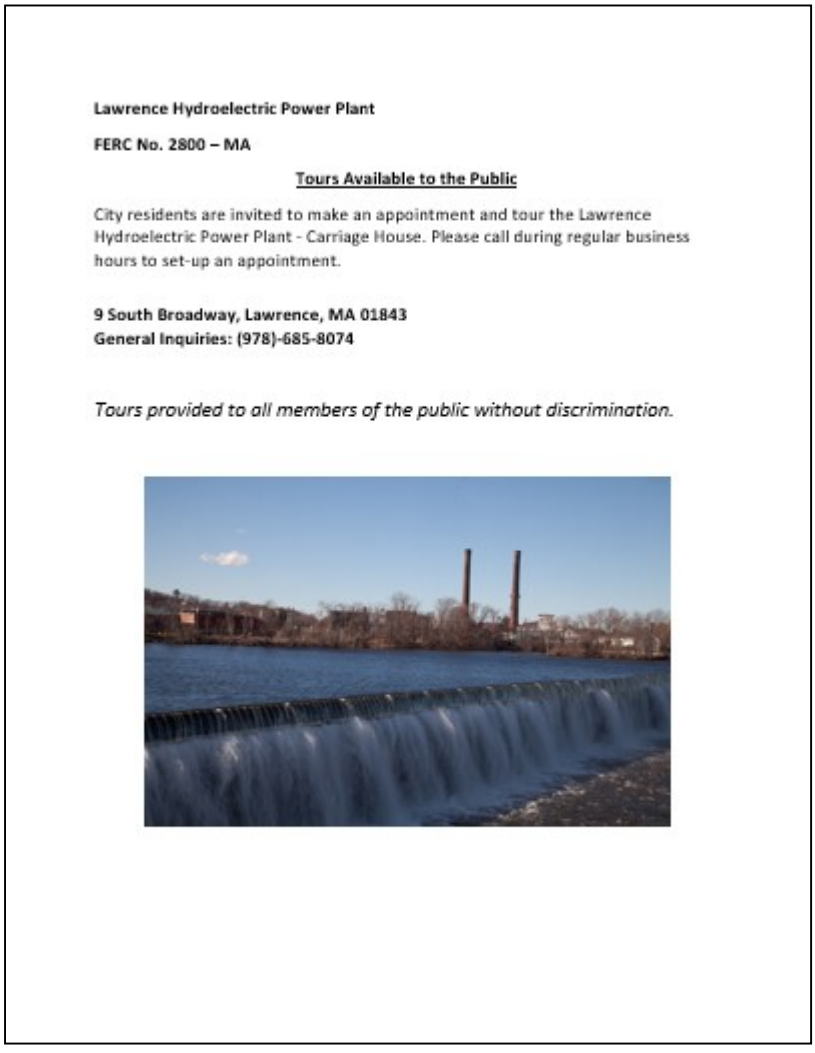


Conrad E. St. Pierre, P.E.
Senior Director of Hydro North America

cc: K. Webb, Essex
E. Anderson, Essex
C. Hardy, Essex

Figure 1. Proposed sign to be posted at the entrance to the driveway of the Carriage House.

Figure 2. Proposed one-page flyer for posting at existing public information bulletin boards.



Document Content(s)

P-2800-048 Lawrence canals resp Sec_FERC 2019-11-06.PDF.....1-4

Green Power

Essex Company, LLC
A Subsidiary of
Enel Green Power North America, Inc.

100 Brickstone Square – Suite 300
Andover – Massachusetts 01810 – USA T +1
978 681 1900 – F +1 978 681 7727

VIA e-Filing

November 8, 2019

Mr. John Spain, P.E.
Regional Engineer
Federal Energy Regulatory Commission
19 West 34th Street, Suite 400
New York, NY 10001

Re: Lawrence Hydroelectric Project (FERC No. 2800-MA);
Follow-up actions to Commission staff's May 16, 2019 Site Visit.

Dear Mr. Spain:

Per letter of the Commission dated August 8th, 2019, Essex Company, LLC (EC) has completed the requested items listed under the 90-day schedule, Item (1) and Item (3), for the project located in Lawrence, MA. EC has responded to Items (2) and (4) in a letter to the Secretary of the Commission under a separate cover.

EC hereby submits an updated Public Safety Plan and a Trash Removal Plan, shown in the attached Appendices A and B respectively.

EC remains ready and willing to engage with and cooperate with the City of Lawrence, local businesses and residents to evaluate improved debris removal methods, and to achieve more effective results.

We trust that this letter is fully responsive to the Commission's August 8, 2019 letter. Please do not hesitate to contact Mr. Salim Ayas, P.E. at 978-284-9279 or at salim.ayas@enel.com if you have any questions concerning this letter submittal.

Sincerely,

Essex Company, LLC

Conrad St. Pierre, P.E.
Sr. Director of Hydro North America
Operations and Maintenance

Attachments
1. Appendix A – Public Safety Plan
2. Appendix B – Trash Removal Plan

cc: Wayne Pincence; Kevin Webb, Salim Ayas, P.E.; Skip Medford; and Patrick Donahue.

Appendix A – Public Safety Plan

GATEHOUSE

NORTH CANAL

2

ESSEX DAM

BROADWAY

B&M RAILROAD

5

BOAT LAUNCH

4

4

MERRIMACK RIVER

(S)
BOAT BARRIER

SPILLWAY

FLASHING LIGHT
WARNING HORN

TAILRACE

15

FISHLIFT

2A

TRASH/LOG BOOM

15

15

15

16

INTAKE

15

FISH BYPASS

GATE

11

15

POWERHOUSE

SOUTH CANAL

GATEHOUSE

MERRIMACK RIVER

5

5

MILL BUILDING

SIGN LEGEND

2 DANGER DO NOT GO BEYOND THIS POINT
DAM AND POWERHOUSE INTAKE AHEAD 4' X 8'

2A DANGER KEEP AWAY DAM AHEAD 36" x 48"

4 BEWARE WATER RISES RAPIDLY DAM UPSTREAM 12" x 18"

4A BEWARE WATER RISES RAPIDLY DAM UPSTREAM 36" x 48"

5 DANGER WHEN HORN BLOWS LEAVE RIVER BED
POWER PLANT STARTING UP 4' X 8'

11 AUTHORIZED VEHICLES ONLY 12" x 18"

15 DANGER NO TRESPASSING (KEEP OUT, ETC...)

16 PART 8 PROJECT SIGN

(S) INSTALLED PRIOR TO MAY 31
REMOVED AFTER OCT 12
(INSTALLED AND REMOVED BY ESSEX COMPANY

DIRECTION SIGN IS FACING

FENCING

HANDRAILING

NOT TO SCALE

Essex Company, LLC

LAWRENCE
HYDROELECTRIC PROJECT
FERC NO. 2800-MA

PUBLIC SAFETY FEATURES

\PUBSAF\LAWRNCE\gs\Nov 1 2019

Appendix B – Trash Removal Plan

Trash Removal Plan

Prepared for the

Lawrence Hydroelectric Project
FERC Project No. 2800-MA

MERRIMACK RIVER
ESSEX COUNTY, MA

Submitted by:

ESSEX COMPANY, LLC
A subsidiary of
Enel Green Power North America, Inc.
100 Brickstone Square – Suite 300
Andover, MA 01810

Date: November 2019

I. INTRODUCTION

The North and South Canals of the Lawrence Project are each located in an urban setting within the City of Lawrence. As is common within any urban environment, trash control and collection are concerns, as trash and other river-borne and wind-blown debris accumulates upstream of the canal gatehouses, contributing to unsightly conditions in prominent locations. This is especially a concern for the Northern Canal which is the center of a designated Historic District, and which is the focus of urban renewal efforts.

II. GOALS

To improve the effectiveness of trash collection in the Lawrence Project's canal system and to improve aesthetics and historic resource and natural resources protection within the canal waterways, as contributing infrastructure elements of the larger community.

Since removal of debris at the upstream side of each Canal gatehouse is the primary measure to restrict debris entry into each Canal, it is the focus of this plan.[1]

III. MEASURES

Using a combination of surface nets, hand tools (rakes, pick poles, etc.), boats, booms and crane (if necessary), surface debris lodged against each canal gatehouse will be collected and removed to dumpsters for proper disposal.

Debris removal efforts will be supervised by experienced project staff. Assistance as needed will be made available from contractors. All typical company safety and environmental protection protocols will be followed during the removal process.

IV. FREQUENCY

Debris removal at each canal gatehouse will occur twice annually, typically as soon as safely possible after spring run-off, and before ice-over each fall. This schedule coincides with seasonal installation/removal of the project's boat safety barrier (timing which can facilitate vessel use for debris removal) and is expected to occur about the end of May and mid-October.

[1] Because of its location near a recently-designated City park, Essex Company, LLC has also arranged to remove debris from the North Canal terminus and has installed a trash-deflecting boom to more effectively segregate debris from the waterway for collection.

Weekly checks of debris accumulation at each canal gatehouse will occur by project staff, when ice cover is not present. When necessary, additional removal efforts will be arranged and completed, as described above.

The timing of any trash removal effort may be adjusted based on weather conditions and river flow, safe access and operating conditions, etc.

V. ACCESS

Due to site constraints, access to the South Canal gatehouse (and immediately upstream) is difficult. Its location adjacent to the project powerhouse intake, inside of the project's permanent log boom, and steep canal walls is challenging and potentially dangerous to safely access by boat. Therefore, manual debris removal from the gatehouse itself and nearby shoreline is expected to be the most feasible and effective access for removal.[2]

At the North Canal gatehouse, which collects the majority of river-borne debris aside from the powerhouse, boat access is possible, and access from the recently-repaired gatehouse catwalk is also feasible. Enel will remove vegetation and stabilize existing shoreline access to the North Canal gatehouse forebay, where trash accumulates, by April 15, 2020. These improvements will facilitate vehicle access, dumpster location and personnel access specifically to enable debris removal. This location is on licensee-owned property at the left abutment of the Essex Dam.

[2] Since the powerhouse intake conveys flow continuously, a much smaller amount of debris typically collects at the South Canal gatehouse. More removal effort and attention are warranted at the North Canal gatehouse.

Document Content(s)

P-2800-Lawrence_North Canal_update_20191108 (public) SA.PDF.....1-7

FEDERAL ENERGY REGULATORY COMMISSION
Office of Energy Projects
Division of Dam Safety and Inspections – New York Regional Office
19 West 34th Street, Suite 400
New York, NY 10001
Telephone No. (212) 273-5900 **Fax No. (212) 631-8124**

In reply, refer to:
P-2800-MA Lawrence
NATDAM No. MA00234

December 4, 2019

Mr. Michael McGann
100 Brickstone Square, Suite 300
Andover, MA 01810

RE: Canal Penetrations

Dear Mr. McGann:

By letter dated June 6, 2017, we requested that you inspect and assess the condition of South Canal wasteway and penstock. The masonry section of the wasteway was inspected in 2018 but to date we have not received a condition assessment or penstock inspection report of the South Canal penstock.

Historically, the North and South Canals of the Lawrence project have been used to generate electricity with intakes and canal penetrations on each canal. Please prepare an inventory of canal penetrations for both canals. Please include plans and sections of the penetrations, latest condition assessment, schedule for next inspection, needed maintenance, and expected service life. Indicate whether the penetrations have been sealed or plugged with concrete. The report should include photographic documentation of the penetrations. These inspections should be added to the Dam Safety Surveillance and Monitoring Plan and occur every 5 years.

Please submit the inventory within 60 days of the date of this letter. Should you have any questions, please contact Mr. Noel Aglubat, P.E., at (212) 273-5907 or by e-mail at Noel.Aglubat@ ferc.gov. Your continued cooperation is appreciated.

Sincerely,

John Spain, P.E.
Regional Engineer

Document Content(s)

P-2800-000 Canal Penetrations.PDF.....1-1

United States Department of the Interior

FISH AND WILDLIFE SERVICE

New England Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5087
http://www.fws.gov/newengland

August 12, 2020

Kevin M. Webb
Licensing Manager
Essex Company, LLC
c/o Central Rivers Power, LLC
670 North Commercial St, Suite 204
Manchester, NH 03101

RE: Central Rivers Power, LLC
Lawrence Hydroelectric Project, FERC No. 2800
Merrimack River, Essex County, MA
COMMENTS ON PROPOSED LICENSE AMENDMENT

Dear Mr. Webb:

This is the United States Fish and Wildlife Service's (Service) response to Central Rivers Power, LLC's (CRP) request for comments on its draft Application for a Non-Capacity License Amendment (Amendment) for the Lawrence Hydroelectric Project (Project). The Project is located on the Merrimack River in Essex County, Massachusetts.

BACKGROUND

On June 7, 2017, the Federal Energy Regulatory Commission (Commission) received complaints from the City of Lawrence pertaining to the operations of, and facilities associated with, the Lawrence Hydroelectric Project.[1] On August 8, 2019, the Commission requested CRP (1) file information to demonstrate the canal facilities are needed for project purposes; or (2) file an application to remove the structures from the license.[2] On June 15, 2020, CRP provided the Service a draft Application for a Non-Capacity License Amendment to remove the North Canal and South Canal from the project license for comment. CRP supports the canals' removal from the Project's boundary because "neither the North Canal nor the South Canal serve any Project purpose."

[1] Accession No. 20170607-5160.
[2] Accession No. 20190808-3032.

COMMENTS

The Amendment does not contain information about how the removal of the canals from the project license may affect fish passage, flows, or future operations. Further, our records indicate quantitative studies have not been performed to understand these concerns. The Project's current license expires on November 30, 2028 and relicensing will begin in approximately 3 years. We anticipate during the licensing process, studies pertaining to flow and migratory fish passage will be completed. Study results may indicate (1) the canals provide the most effective means of downstream fish passage; and/or (2) during high flow events, the canals may be used to increase the effectiveness of the existing upstream passage facilities at the dam.[3] Therefore, the Service recommends CRP wait until the licensing proceeding to propose the removal of the North Canal and South Canal from the Project's boundary when the decision is informed by study results.

Thank you for this opportunity to comment. If you have any questions regarding these comments, please contact Julianne Rosset of this office at julianne_rosset@fws.gov.

Sincerely yours,

THOMAS CHAPMAN

Digitally signed by THOMAS CHAPMAN
Date: 2020.08.14 08:21:01 -04'00'

Thomas R. Chapman
Supervisor
New England Field Office

cc: FERC, Secretary (e-filed)
NPS, Kevin Mendik (via email)
MADFW, Caleb Slater (via email)
MADFW, Steven Mattocks (via email)
NMFS, Bjorn Lake (via email)
NMFS, Sean McDermott (via email)
RO/Fisheries, Bryan Sojkowski (via email)
Reading File
ES: JRosset:jd:8-12-20:(603)227-6436

[3] Alosine passage at the Project is reduced during high flow events. By routing flows into the canal(s) and reducing spill, upstream fish passage may be improved. This is a scenario the Service would like to have evaluated during the licensing process.

Document Content(s)

Comments on draft Application_Non Cap Amendment.PDF 1

April 28, 2021

Via eFiling

Kimberly D. Bose
Secretary
Federal Energy Regulatory Commission
888 First Street NE
Washington, DC 20426

Rebecca M. Martin
Environmental Biologist
Office of Energy Projects
Division of Hydropower Administration and Compliance
Federal Energy Regulatory Commission
888 First Street NE
Washington, DC 20426

Re: North and South Canals, Lawrence Hydroelectric Project (FERC No. 2800)

Dear Ms. Bose and Ms. Martin,

On August 31, 2020, Essex Company, LLC (Essex), a subsidiary of Central Rivers Power US, LLC, submitted an Application for Amendment of License for the Lawrence Hydroelectric Project (Project) to the Federal Regulatory Energy Commission (Commission or FERC). The Project is a hydroelectric facility located on the Merrimack River in Lawrence, Massachusetts, and the Project license applies to the Great Stone Dam and related facilities, and to the North and South Canals. In its application, Essex proposes to remove the Canals from the Project license.

As parties with clear and significant stakes in the outcome of Essex's application, the City of Lawrence, Conservation Law Foundation, Inc., Groundwork Lawrence, Inc., Lawrence CommunityWorks, Inc., 60 Island Street, LLC, GES Realty LLC and Pacific Mills Acquisition LLC (Complainants) have serious reservations about the proposed amendment. Complainants urge FERC to safeguard the historical, cultural, recreational and economic value of the canals and protect the rights of holders of current and future mill powers. Complainants further request notice and opportunity to be heard on this matter, in compliance with FERC regulations and precedent.

The City of Lawrence (30 miles north of Boston, MA) was created at the height of the Industrial Revolution as a fully planned city whose dams and canals took advantage of waterpower provided by the nearby Merrimack River. Massive textile mills flourished, and Lawrence became a noted manufacturing city providing jobs to immigrants that flocked to the city. When most textile mills began leaving in the 1940s-50s, it precipitated a disinvestment in the city, leaving behind an impoverished, mostly immigrant, population living in neighborhoods experiencing environmental contamination due to a century of unregulated industrial

development. Today, Lawrence is an Environmental Justice Community—the city has the largest Latino population in New England. Most residents (82%) are people of color, with over 40% being foreign born. Unemployment in Lawrence is over 14.5%[1] (more than twice the state average) and 21.4%[2] of residents live at or below the poverty level.

FERC Must Safeguard Canals' Historical, Cultural, Recreational and Economic Values.

On June 7, 2017, Complainants filed a complaint with the Commission requesting that it enforce certain provisions of the Project license that require Essex to, among other things, avoid any adverse impact on the Canals, to maintain the historic and cultural character of the Canals and to enhance public enjoyment of the Canals. On August 8, 2019, the Commission issued a letter to Essex, requiring it to take a number of actions in connection with the Canals, and to provide information regarding whether the Canals are still needed for Project purposes.

The North and South Canals have significant historical, cultural and recreational value to the City of Lawrence and its residents. As the Massachusetts Historical Commission (MHC) stated in its November 12, 2020 letter to the Commission concerning Essex's application, the Canals "are integral to the project because of their historic associations with the Great Stone Dam and Lawrence's hydro-powered industrial history." Further, as MHC noted, the North Canal is listed in the State and National Registers of Historic Places, and the South Canal is eligible for listing in the National Register of Historic Places. Given their significant value, it is essential that the North and South Canals be permanently preserved and maintained.

Permanent preservation and maintenance of the Canals will best be achieved by keeping them within the Project license, as they have been for the last forty-two years. As the MHC stated in its November 12, 2020 letter, "the FERC licensing of the current Lawrence Hydroelectric project has facilitated federal oversight of the North and South Canals." Since 1978, the Commission, including the Division of Hydropower Administration and Compliance, has overseen the Project areas. Federal oversight is also provided by the United States Fish and Wildlife Service (USFWS), which regulates fish passage and related flows in and around the Project. On August 12, 2020, USFWS sent a letter to Essex, recommending that Essex postpone any amendment until the relicensing proceeding, which will begin in approximately three years, so the decision can be informed by results from studies pertaining to flow and fish passage.

Further, the flow of water through the North and South Canals has economic value to current and future mill power owners. Several Complainants hold "mill powers" (property rights in the flow of water through the Canals), and other Complainants have leased their mill powers to Essex. As a result, there are several mill powers that Essex does not currently hold, and several mill powers that were leased to Essex, and are scheduled to be returned to the lessors in 2028. Removal of the Canals from the Project license at this time would improperly infringe on these property rights. The Canals should remain within the Project license to safeguard the long-term viability of these mill power rights and the potential for future hydroelectric power generation in Lawrence.

[1] See https://lmi.dua.eol.mass.gov/lmi/LaborForceAndUnemployment/TownComparison.
[2] See https://www.census.gov/quickfacts/fact/table/lawrencecitymassachusetts,MA/PST045219.

In its application, Essex suggests that the Canals do not presently serve any project purpose, and questions whether the Canals ever served any purpose. This position overlooks the plain terms of the Project license, which explicitly require Essex to, among other things, duplicate the historic operation of the Canals as water conveyances, and to avoid any adverse impact on the historic project works known as the North and South Canals. Moreover, as discussed above, the MHC has clearly stated that the Canals are "integral to the project."

If, after all applicable procedural requirements discussed below have been satisfied, the Commission decides to approve Essex's proposed removal of the North and South Canals from the Project license, then the Commission should require the establishment of a preservation plan to ensure the long-term care and maintenance of these significant historical, cultural and recreational resources, and a preservation fund to fund necessary repairs to the Canals, including the canal walls and the north canal lower locks.

The importance of a preservation plan and preservation fund for the Canals is clearly articulated by the MHC, which recommended in its November 12, 2020 letter that the Commission initiate consultation in order to develop an agreement with adequate stipulations to avoid, minimize or mitigate the adverse effect of transferring out of federal jurisdiction significant historic properties without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance. More specifically, the MHC recommends: "(1) The development of a Preservation Plan for the North and South Canals and canal walls to insure the long-term care and maintenance of these significant historic resources; and (2) The establishment of a Preservation Fund by [Essex] to fund necessary repairs to the canal walls."

Request for Public Notice and Opportunity to Intervene under the FPA

Under section 6 of the Federal Power Act (FPA), licenses may be altered only by mutual agreement between the licensee and the Commission after thirty days' public notice. 16 U.S.C. § 799. Long-standing Commission precedent and Commission regulations have interpreted Section 6 as only applying to "significant alterations" of a license. *See Eagle Crest Energy Co.,* 168 FERC ¶ 61,186 (2019); *see also* 18 C.F.R. § 4.202(b) (thirty days' public notice required if "it is determined that approval of the application for amendment of license would constitute a significant alteration of license pursuant to section 6"). The Commission has explained that amendments requiring notice include changes to the configuration that are not consistent with the plan of development contemplated when the project was licensed, including amendments that seek to "change project works, or otherwise reshape the project." *See Application for License for Major Unconstructed Projects and Major Modified Projects; Application for License for Transmission Lines Only; and Application for Amendment to License*, Order No. 184, FERC Stats. & Regs. ¶ 30,308 (1981) (cross-referenced at 17 FERC ¶ 61,122).

It is indisputable that Essex's proposed amendment to remove the North and South Canals from the Project license constitutes a "significant alteration." Therefore, Complainants request that the Commission issue—as it is obligated under law to do—a public notice at least 30 days prior to action upon the application, in compliance with all notification requirements, including those under 16 U.S.C. § 799, 18 C.F.R § 4.202(a) and18 C.F.R. § 385.210.

Request for Participation as Consulting Parties under the NHPA

Under Section 106 of the National Historic Preservation Act (NHPA), 54 U.S.C. § 306101 *et seq.*, the Commission is required to consider the effects of federally licensed action on properties listed, or eligible for listing, in the National Register of Historic Places. As the MHC indicated in its letter, the removal of the Canals from federal jurisdiction without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significant is considered an adverse effect. 36 C.F.R. § 800.5(2)(vii).

In conducting its assessment of Essex's application under the NHPA, the Commission is obligated to plan for involving the public in the process (36 C.F.R. § 800.3(3)) and to identify and invite other interested parties to the process (36 C.F.R. § 800.3(f)). The Commission shall invite any local governments entitled to be consulting parties (36 C.F.R. § 800.2(c)(3) and 36 C.F.R. § 800.3(f)(1)). Under these requirements, the City of Lawrence must be invited to participate. The Commission shall consider all written requests of individuals and organizations to participate as consulting parties (36 C.F.R. § 800(f)(3)). Complainants other than the City of Lawrence have a "demonstrated interested in the undertaking" and may therefore "participate as consulting parties due to the nature of their legal or economic relation to the undertaking or affected properties, or their concern with the undertaking's effects on historic properties." (36 C.F.R. § 800.2(c)(5)). Complainants respectfully request that participate as consulting parties in the Commission's assessment of Essex's application under the NHPA.

Thank you for your attention to these matters. Complainants hereby reserve their right to submit comments and otherwise participate in any process(es) initiated by the Commission in connection with Essex's application to amend the Project license.

Sincerely,

/s/ Raquel D. Ruano
Raquel D. Ruano, Esq.
City Attorney
200 Common Street
3rd Floor, Suite 306
Lawrence, Massachusetts 01840
(978) 620-3030
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Counsel for City of Lawrence

/s/ Phelps Turner
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/s/ Stuart G. O'Brien
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/s/ Armand M. Hyatt
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/s/ Erika Castillo
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Castillo Law Offices
170 Common St., Suite 101
Lawrence, Massachusetts 01840
(978) 291-1320
atty@erikacastillo.com
Counsel for Juan Yepez (60 Island Street, LLC), Chet Sidell (GES Realty LLC), and Michael Perry (Pacific Mills Acquisition LLC)

cc: Kevin Webb, Central Rivers Power, Essex Company, LLC (kwebb@centralriverspower.com)
Brona Simon, State Historic Preservation Officer, Massachusetts Historical Commission (brona.simon@state.ma.us)
Heather Passchier, NPS Rivers & Trails Conservation Assistance / Groundwork Program (heather_passchier@nps.gov)
John Eddins, Program Analyst, Advisory Council on Historic Preservation (jeddins@achp.gov)
Office of United States Senator Edward Markey (claire_teylouni@markey.senate.gov)
Office of United States Senator Elizabeth Warren (allyson_Huntoon@warren.senate.gov)
Office of United States Representative Lori Trahan (emily.Byrne@mail.house.gov)

Central Rivers Power

Essex Company, LLC
Subsidiary of Central Rivers Power US, LLC
670 N. Commercial Street, Suite 204
Manchester, NH 03101

Via eFiling

May 17, 2021

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, D.C. 20426

Re: Lawrence Hydroelectric Project (FERC No. 2800-052)
Response to Additional Information Request

Dear Secretary Bose:

On August 31, 2020, Essex Company, LLC (Essex) filed an Application for Amendment of License for the Lawrence Hydroelectric Project (FERC No. 2800) (Project). The amendment application requested that the North and South Canals be removed from the Project license, as these structures are not needed for Project purposes. By letter dated September 22, 2020, FERC requested that Essex consult with the Massachusetts State Historic Preservation Officer (SHPO) about potential adverse impacts and any mitigation that might be proposed. On November 12, 2020, Essex received the SHPO's comments on the amendment application. In response to the comments received from both FERC and the SHPO, Essex has developed the approach detailed below.

Essex will submit a request to FERC to name it as FERC's designee for carrying out Section 106 consultation. Following this, invitations will be distributed to the City of Lawrence, Lawrence Historical Commission, and Groundwork Lawrence to review the project and participate as consulting parties. Essex will then develop a Memorandum of Agreement (MOA) that specifies mitigation activities that are agreed upon by the parties during the consultation. The primary mitigation activity stipulated in the MOA will be the preparation of a historic property management plan (HPMP) that will identify all historic properties in the Project and specify how they will be managed in conjunction with the operation of the Project. The HPMP will specifically address the removal of the canals from the Project boundary and establish a long-term program to monitor and report on their condition. As part of the HPMP monitoring program, Essex will prepare documentation to record the existing condition of all historic properties within the current Project boundary. The documentation will serve as the baseline condition assessment for the historic property monitoring program established in the HPMP. Essex anticipates initiating this process by the third quarter of 2021.

Please do not hesitate to contact me at (978) 935-6039 or kwebb@centralriverspower.com if you have any questions concerning this matter.

Sincerely,
Essex Company, LLC

Kevin M. Webb
Licensing Manager

cc: M. Stanley, CRP
C. Mooney, CRP
S. Olausen, PAL
B. Simon, SHPO

FEDERAL ENERGY REGULATORY COMMISSION
Washington, D. C. 20426

OFFICE OF ENERGY PROJECTS

Project No. 2800-052—Massachusetts
Lawrence Hydroelectric Project
Essex Company, LLC

June 22, 2021

VIA FERC Service

Mr. Jason Bush
Essex Company, LLC
670 N. Commercial Street
Suite 204
Manchester, NH 03102

Subject: Section 106 Consultation

Dear Mr. Bush:

The Commission received your application to remove the historic North and South Canals from the project boundary of the Lawrence Hydroelectric Project (P-2800), on August 31, 2020. You state that although the North and South Canals are licensed as project features, neither currently serve any project purpose. On September 22, 2020, Commission staff requested that you consult with the Massachusetts State Historic Preservation Officer (Massachusetts SHPO).

On May 17, 2021, you filed a response to our letter stating that you intend to request the Commission designate you as its non-federal representative for the purposes of carrying out Section 106 consultation. Following this, you intend to invite the City of Lawrence, Lawrence Historical Commission, and Groundwork Lawrence to participate as consulting parties. You intend to develop a Memorandum of Agreement (MOA) that specifies mitigation activities that are agreed upon by the parties during the consultation. The primary mitigation activity stipulated in the MOA would be the preparation of a historic property management plan (HPMP) that will identify all historic properties within the Project area and specify how they will be managed in conjunction with the operation of the Project. The HPMP will specifically address the removal of the canals from the Project boundary and establish a long-term program to monitor and report on their condition. As part of the HPMP monitoring program, you intend to prepare documentation to record the existing condition of all historic properties within the current project boundary. The documentation will serve as the baseline condition assessment for

the historic property monitoring program established in the HPMP. In your letter you state that you anticipate initiating this process by the third quarter of 2021. Third quarter of 2021 is fast approaching, so we encourage you to at least send your request for designation as soon as possible, or within 30 days from the date of this letter.

The MOA should be developed no later than 6 months from the date of this letter. When an MOA, that is acceptable to the Massachusetts SHPO, is filed with the Commission, your amendment application will be public noticed and processed. Let us know if you need any additional assistance from us. For any questions or comments you may have concerning this request, please contact me at (202) 502-6012, or at Rebecca.Martin@ferc.gov.

Sincerely,

Rebecca M. Martin
Environmental Review Branch
Division of Hydropower Administration
and Compliance

Appendix C

Status of Recommended Changes for the Fish Passage Facilities

Year	Agency Recommendations	Applicable Fishways	Central Rivers Power's Responses
2015	1) Install a flow meter at the entrance of the fish lift to accurately account record entrance flow rates. 2) Maintain spare parts associated with the eel ladder (i.e. substrate, cover, etc.) on hand so that repairs may be made in a timely manner. 3) Install a sill on the attraction water pipe to reduce the risk of trapping eels in the corner of the dam. 4) Provide proper equipment to clean fish counting window 5) Restore function to fish trap at window.	Fish lift and eel ladder	1) Essex will evaluate and respond to the Tech Committee by the annual winter meeting (2016) on the feasibility, and if feasible, any plans to provide continuous or spot checks of fishway flow in 2016. 2) Spare components are available on site, including FWS- specified substrate panels, water piping and miscellaneous hardware. 3) A temporary sill was placed by FWS in July 2015 and Essex will attempt to install a permanent sill by the 2016 eel passage season. 4) Essex will ensure that proper equipment is available in 2016 to clean the count window at all times during passage season. 5) Essex will ensure that the fish trap features, and function are fully available at start of and throughout the passage season.
2016	1) Prior to the 2017 migratory season correct the excessive level of noise and vibration occurring at the fish lift that may result in elevated stress levels in fish. 2) Clean and maintain the exit of the downstream bypass flume daily to ensure there is no risk to downstream migrating fish.	Fish lift and downstream bypass flume	1) The hopper noise and vibration has been resolved, as noted in the 2017 and 2019 USFWS fishway inspection reports ("Hopper raises smoothly without binding or vibrating" checked "Yes" in both reports) 2) Essex will ensure downstream bypass clear of debris.
2017	1) Bulk heads should be off site prior to the start of the season in order to provide access to the transport truck. 2) Annual cleaning of the AWS chamber and screen should be conducted to ensure upwelling/aeration does not occur during the season. 3) A transducer should be integrated into the entrance gate in order to track the true elevation of the lip of the gate 4) Work with the Merrimack Technical Committee to define the operational range of the eel ladder 5) Add a finer mesh screen on the crowder to	Fish lift and eel ladder	1) Was likely a one-time event and Essex will take fish transport needs into account during future maintenance planning. 2) Essex agrees to close the attraction water system vent and clean any debris from the entire fishway system prior to 2018 season. 3) See 2018 item (7) below. 4) See 2018 item (2) below. 5) Essex added a smaller mesh screen in 2019 to the crowder to avoid fish injury.

Year	Agency Recommendations	Applicable Fishways	Central Rivers Power's Responses
	avoid fish injury.		
2018	1) Install a finer mesh screen on the crowder to avoid and minimize impingement. 2) Work with the agency team to develop a more robust design for the eel ladder that will withstand the forces put on the structure during high flows. 3) Maintain an on-site inventory of critical eel ladder elements (e.g., substrate) to facilitate efficient repair and replacement without significant downtime. 4) Eliminate the existing gap in the fishway entrance gallery and inspect salmon trap. 5) Leave the exit gate of the exit channel open at night so any fish still in the exit channel could exit upstream. 6) Develop an O&M plan for review such that it is ready well before the 2019 migratory season and can be reviewed by the agency team. 7) Take measurements with the entrance gate transducer throughout the full operational period of the fishway in future years. 8) Monitor and eventually seal the exit flume leakage to prevent fish impingement inside the exit flume and/or damage to the fishway.	All fishways	1) Suitable finer-mesh screen was installed on the Lawrence crowder system in 2019. 2) This is continuing discussion with USFWS and other agencies. An agreement still has not been reached regarding the need and feasibility of installing more robust features to withstand excessive (>30,000+ cfs) spillway flows at this location. Our 2014 Eel Passage Plan noted that "Because of its below-dam location, design of the eel ladder incorporated features which enable eel passage even when flow damage occurs, for example if substrate, covers or piping are missing." The eel ramp passed over ~92,000 eels in 2020. Essex is continuing dialogue with the agencies about the need for additional protective measures. 3) A compete on-site inventory of eel ladder replacement parts is stored onsite since 2019. 4) Gaps in diversion screening in the upper fishway were closed prior to 2019 season, and have worked well. 5) The trap gate is kept open nightly. 6) The Lawrence FOMP was provided to agencies in draft form and used in 2019. It is a "living document" which is updated as needed with agency review and consultation. 7) Fishway operational data have been acquired and provided to the agencies since 2019. Water level transducers are regularly calibrated. 8) Repairs were completed prior to 2019 and reduced leakage from upper fishway into the hopper lift shaft

2019	1) Check the transducer to ensure it is operational and accurate prior to the start of the 2020 fish passage season. 2) Finalize the O&M plan prior to the annual post-season meeting with the agencies. 3) Work with the agency team to develop a more robust design for the eel ladder that will withstand the forces put on the structure during high flows. 4) Fix the de-watering gate such that the static crowder can be assessed in a de-watered state and fixed prior to the start of the 2020 migratory season.	Fish lift and eel ladder	1) Water level transducers used in monitoring fish passage operations are regularly calibrated. 2) the FOMP is a "living document" which is updated as needed with agency review and consultation. 3) See 2018 item (2) above. 4) CRP replaced the upper fishway exit (dewatering) gate in 2020, which has allowed dewatered inspection and maintenance to occur.

From: Kevin Webb
To: PBMwork@maine.rr.com
Cc: "mfischer@lowimpacthydro.org"; Curtis Mooney
Subject: RE: Status of final missing data
Date: Tuesday, June 8, 2021 6:35:12 PM

Pat:

Following are our responses to your question about follow-up on fish passage maintenance commitments:

- Please confirm that the excessive level of noise and vibration occurring at the fish lift identified in 2017 has been remedied. The Table in the Application states that the concern "will be evaluated". Also, please confirm the status of the action items planned for completion in 2019 to address 2018 items of concern. The table only notes the planned CRP actions.

Status of each item:

Fish lift noise and vibration identified in 2017 –

a. This has been resolved, as noted in the 2017 and 2019 USFWS fishway inspection reports ("Hopper raises smoothly without binding or vibrating" checked "Yes" in both reports).

From the table in the application:

2018

1. Install a finer mesh screen on the crowder to avoid and minimize impingement.
    a. Additional fine-mesh screening was installed on the crowder doors in 2019 and has worked well to prevent impingement.
2. Work with the agency team to develop a more robust design for the eel ladder that will withstand the forces put on the structure during high flows.
    a. This is continuing discussion with USFWS and other agencies, and we have not reached agreement regarding the need and feasibility of installing more robust features to withstand excessive (>30,000+ cfs) spillway flows at this location. Our 2014 Eel Passage Plan noted that *"Because of its below-dam location, design of the eel ladder incorporated features which enable eel passage even when flow damage occurs, for example if substrate, covers or piping are missing."* The eel ramp passed over ~92,000 eels in 2020. Essex is continuing dialogue with the agencies about the need for additional protective measures.
3. Maintain an on-site inventory of critical eel ladder elements (e.g., substrate) to facilitate efficient repair and replacement without significant downtime.
    a. Eel ladder replacement parts are kept on-site [since 2019], and the inventory is listed in the FOMP
4. Eliminate the existing gap in the fishway entrance gallery and inspect salmon trap.
    a. Gaps in diversion screening in the upper fishway were closed prior to 2019 season, and have worked well to exclude migrating fish in subsequent years, including 2021.

5. Leave the exit gate of the exit channel open at night so any fish still in the exit channel could exit upstream.
    a. The count window trapping gate is kept open nightly. Its operation, camera use for fish counts, etc. are described in the FOMP.
6. Develop an O&M plan for review such that it is ready well before the 2019 migratory season and can be reviewed by the agency team.
    a. The Lawrence FOMP was provided to agencies in draft form and used in 2019. It is a "living document" which is updated as needed with agency review and consultation.
7. Take measurements with the entrance gate transducer throughout the full operational period of the fishway in future years.
    a. Fishway operational data have been acquired and provided to the agencies since 2019. Water level transducers are regularly calibrated.
8. Monitor and eventually seal the exit flume leakage to prevent fish impingement inside the exit flume and/or damage to the fishway.
    a. These repairs were completed prior to 2019 and reduced leakage from upper fishway into the hopper lift shaft.

2019

1. Check the transducer to ensure it is operational and accurate prior to the start of the 2020 fish passage season.
    a. Water level transducers used in monitoring fish passage operations are regularly calibrated.
2. Finalize the O&M plan prior to the annual post-season meeting with the agencies.
    a. As noted above, the FOMP is a "living document" which is updated as needed with agency review and consultation.
3. Work with the agency team to develop a more robust design for the eel ladder that will withstand the forces put on the structure during high flows.
    a. See response above.
4. Fix the de-watering gate such that the static crowder can be assessed in a de-watered state and fixed prior to the start of the 2020 migratory season.
    a. CRP replaced the upper fishway exit (dewatering) gate in 2020, which has allowed dewatered inspection and maintenance to occur.

I think that covers it. Let me know if you have any further questions.

Kevin

From: PBMwork@maine.rr.com <PBMwork@maine.rr.com>
Sent: Tuesday, June 8, 2021 7:51 AM
To: Kevin Webb <kwebb@centralriverspower.com>; 'mfischer@lowimpacthydro.org' <mfischer@lowimpacthydro.org>
Subject: Status of final missing data