REVIEW OF APPLICATION FOR RECERTIFICATION BY THE LOW IMPACT HYDROPOWER INSTITUTE OF THE INDIAN ORCHARD HYDROELECTRIC FACILITY, LIHI #112

Prepared by Patricia McIlvaine
November 27, 2019

I. INTRODUCTION

This report summarizes the review findings of the application submitted by Central Rivers Power MA, LLC, (Central Rivers or Applicant) to the Low Impact Hydropower Institute (LIHI) for recertification of the Indian Orchard Hydroelectric Project FERC P-10678 (Indian Orchard or Project). North America Energy Alliance, LLC owned the Project when first certified by LIHI after which it was sold to Essential Power Massachusetts, LLC (Essential Power). On April 13, 2017, Essential Power transferred the direct ownership of its hydroelectric power facilities, including the Indian Orchard Project, to Nautilus Hydro, LLC, and the company name was subsequently changed names to Central Rivers Power MA, LLC on June 20, 2018. Central Rivers Power MA, LLC is a subsidiary of Hull Street Energy.

The Project was initially certified by LIHI as Low Impact, LIHI Certificate No. 112, for a five-year term, effective July 19, 2013 and expiring July 19, 2018. Three expiration extensions were issued with the last expiration date being November 30, 2019. This recertification review was conducted in compliance with LIHI's Handbook, 2nd Edition, Revision 2.03: December 20, 2018.

The Project's original certification had one condition:

> The Indian Orchard project owner, Essential Power LLC, will convene an annual workshop on Chicopee River Hydropower Operations designed to promote better understanding of regulated flows and impoundment fluctuations on the river, and to identify operational flow enhancements that can benefit the dual goals of clean, renewable energy and environmental protection. This workshop will be a forum for sharing annual operational data from all the projects on the river. The first such workshop will happen no later than June 2014, scheduled at a time when all the Chicopee hydropower owners and the applicable resource agencies can attend (i.e., USFWS, MDFW and MDEP). A summary report describing the outcomes for this workshop will be provided to LIHI and workshop participants. If the workshop is deemed a success, it will be repeated annually. If it is less than successful, Essential Power may petition LIHI to discontinue it. LIHI staff will be available to assist with this workshop, if desired by the river stakeholders.

The same condition had been applied to the Red Bridge (LIHI #96) and Collins (LIHI #88) projects to encourage better communications between the project owners. An initial meeting between the parties occurred in 2012 which resulted in a sharing of information between the then

project owners. The first annual workshop was held in 2014 and plans were made for a 2015 meeting. However, ownership of the Collins Project changed in the meantime and it was agreed that past operational issues between the previous owners of the Projects had been resolved under new ownership of all Projects. The condition was closed on July 6, 2018 following a teleconference between LIHI staff and the current owner of the Indian Orchard Project (also owner of Putts Bridge, Red Bridge and Dwight Projects) and the current owner of the Collins Project. All parties concurred that prior issues had been resolved and the conditions on the Collins, Indian Orchard, and Putts Bridge projects were no longer warranted.

II. RECERTIFICATION PROCESS AND MATERIAL CHANGE REVIEW

Under the LIHI 2nd Edition Handbook, 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, if the only issue is that there is some missing information, a Stage II review may not be required. These standards also state that "material changes" mean non-compliance and/or new or renewed issues of concern that are relevant to LIHI's criteria. If the answer to either question (2) or (3) is "Yes," a more thorough review of the application using the LIHI criteria in effect at the time of the recertification application, and development of a complete Stage II Report, is required. As a result, all Projects currently applying for renewal must go through a full review unless their most recent certification was completed using the 2018 Handbook.

A review of the initial application, dated July 29, 2019, resulted in a Stage I or Intake Report, dated August 26, 2019. This Stage I assessment indicated there were no "material changes" at the Project. The installation of a new minimum flow gate in 2014 and 2015 repairs to a leak on the downstream face of the dam are not considered material changes as they did not affect the operation or impacts associated with the Project. The response to the Stage I Report was provided in the form of supplemental information from the Applicant, rather than an updated application. The initial application was complete enough to be posted since only a limited amount of data was missing.

This Stage II assessment included review of the application package, communication with the Applicant's representative, supplemental information, public records in FERC's eLibrary since LIHI certification in 2013, and the annual compliance statements received by LIHI during the past term of Certification.

III. PROJECT'S GEOGRAPHIC LOCATION

The project is located between the Town of Ludlow and City of Springfield in Hampden County, Massachusetts, on the Chicopee River (River Mile (RM) 7.8) about eight miles upstream of the confluence of the Chicopee and Connecticut rivers. The Project dam crosses the municipal line

between Ludlow and Springfield. The powerhouse is located in Springfield. The impoundment extends in a northeasterly direction, bordering Ludlow and Springfield.

The Chicopee River watershed is the largest tributary basin of the Connecticut River. The Chicopee basin is dominated by Quabbin Reservoir, a manmade reservoir that serves as one of the major water supplies for metropolitan Boston. The Massachusetts Water Resources Agency that owns and operates Quabbin Reservoir, diverts nearly all of the water from the upper Swift River watershed and for eight months of year, nearly all of the water from the uppermost portion of the Ware River watershed. The Chicopee has a relatively high gradient, dropping 260 feet in 18 miles.

There are six hydropower projects in the Chicopee River between the Connecticut River and the Chicopee's origin near Palmer, MA, where the Swift, Ware, and Quaboag rivers join (see Figure 1). Two of the projects, Dwight (FERC P-10675; RM 1.2) and the Chicopee Falls (FERC P-6522; RM 3.0) are downstream of Indian Orchard. Putts Bridge (FERC P-10677; RM 9.2), Collins (FERC P-6544; RM 12.6), and Red Bridge (FERC P-10676; RM 15.2), are upstream. Collins is owned and operated by Ampersand Energy. Chicopee Falls is owned by Chicopee Municipal Light District. Dwight, Putts Bridge, and Red Bridge are all owned and operated by Central Rivers. The Collins (LIHI #88), Red Bridge (LIHI #96) and Putts Bridge (LHI #102) projects have all recently been recertified by LIHI as Low Impact in 2017, 2018 and 2019, respectively.

The upstream watershed area at the Indian Orchard dam is 687 square miles. There are no significant tributaries that enter the Chicopee between the Connecticut River and Red Bridge.

Figure 1 – Projects on the Chicopee River

IV. PROJECT AND IMMEDIATE SITE CHARACTERISTICS

The Indian Orchard Hydroelectric Project was constructed at an existing masonry, cut-stone dam that has been in place since before 1885. The powerhouse is at the end of a 1,300-ft-long diversion

canal that bypasses approximately 1,600 feet of the main Chicopee River channel below the dam (see Figure 2).

Figure 2 – Key Features of the Indian Orchard Project

The major project works include the dam with a crest elevation of 159.4 feet (NGVD), topped with 1.6-foot flashboards, an impoundment, a canal headgate house, a power canal approximately 1,300 feet long by 76 feet wide at the gatehouse, narrowing to 52 feet wide at the penstock intake, an intake structure for two operating underground penstocks (and two closed in 1970), a powerhouse with two operating generating units having capacities of 1.5 MW and 2.2 MW, a tailrace channel (El. 125.25 feet msl, NGVD) and appurtenant facilities. Annual average generation (2002-2018) is 6,859 MWh. The dam crosses the Chicopee River in a roughly north-to-south direction. More details on the Project features can be found on the LIHI website or the original certification report.

At normal pond elevation, the Indian Orchard Project impoundment extends approximately 4,200 feet upstream of the dam, almost to the tailwater of the Putts Bridge Project. At normal pond level, with flashboards up, the maximum surface area is approximately 74 acres. The application noted a minor discrepancy in the FERC record of the maximum impoundment elevation (0.308 feet difference)[1], and that a survey of the dam would be conducted to confirm its elevation. It appears that the survey was never completed. As this may affect compliance with required headpond limits, this matter is further discussed under ***Ecological Flows Regime***. While the maximum useable storage of the reservoir is 70 acre-feet, the used storage capacity is just 35 acre-feet (top 0.5 ft of reservoir). While the allowed daily drawdown is 0.5 foot during the spring and 1.0 foot for the balance of the year (except during energy audits and system emergencies when this limit may be exceeded), the current operating practice is to limit year-round drawdown to six inches.

When inflows to the Indian Orchard impoundment are greater than around 500 cfs (minimum flow plus minimum generating capacity on the smaller turbine), Indian Orchard is operated in a limited pond-and-release mode, utilizing the useable storage capacity (35 acre-feet) afforded by a 0.5-foot drawdown year-round. The station is operated automatically by float controls.

There are no fish passage facilities at the Project, although the application notes that the Project's minimum flow discharge pipe does permit the passage downstream of riverine fish.

V. ZONES OF EFFECT AND STANDARDS SELECTED

Three Zones of Effect (ZOE) were appropriately designated by the Applicant:

- ZOE #1 – Impoundment (RM 7.8 - 8.7 (Putts Bridge dam)) (Figure 3)
- ZOE #2 – Bypass Reach (RM 7.6 –7.8) (Figure 4)
- ZOE #3 – Tailrace and Regulated Reach (RM 7.6 and downstream) (Figure 4)

[1] Footnote 3 of the recertification application stated: "FWS noted a discrepancy in the impoundment elevation; either it is 160.0' or 160.308.' With the completion of the minimum flow gate discharge project, Essential Power intends to re-survey the dam, determine the exact elevation and file that information with the appropriate agencies." However, the FWS letter from 12/03/2012 included as Appendix A-12 of the original LIHI application noted a 1994 FERC submittal by the then owner (not found on the FERC elibrary in this review) that the correct elevation at the top of the flashboards was 161.308' rather than 161.0' as stated in the FERC exemption as the normal maximum surface elevation.

Figure 3 – Impoundment (ZOE #1)

Figure 4 – Bypass (ZOE #2) and Tailrace/Regulated Reach (ZOE#3)

The Table below shows the selected Standards, all the same, for all three ZOEs. I believe that the following selections better apply:

- **Standard A-1 Not Applicable/De Minimis** should be used for ***Ecological Flow Regime*** in the impoundment, as provided for in the LIHI handbook for all impoundments.
- **Standard C-2, Agency Recommendation** should be used for ***Upstream Fish Passage*** for the Bypass Reach as the license exemption has future requirements for passage.
- **Standard D-2, Agency Recommendation** should be used for ***Downstream Fish Passage*** for the impoundment as the license exemption as future requirements for passage.

Details of compliance with the criteria are presented in Section IX.

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

VI. REGULATORY AND COMPLIANCE STATUS

The Indian Orchard Project is a small, 3.70-MW, non-conduit facility that was exempted from licensing by order of the Federal Energy Regulatory Commission (FERC) on September 11, 1992. The FERC exemption was amended on December 29, 1999 to reflect upgraded nameplate capacity due to unit rewinding, and on November 8, 2001, to revise the Project description to reflect the as-built capacities.

A Water Quality Certification (WQC) was not issued by Massachusetts Department of Environmental Protection (MDEP) for the Indian Orchard Project at the time of the processing of the FERC exemption. Neither the 1999 nor 2001 license exemption identified water quality as concerns with these amendments. Likewise, no water quality concerns were expressed by MDEP during its review of the Project's Minimum Flow and Impoundment Fluctuation Monitoring Plan

(Flow Plan) in 2012[2].

A review of the FERC database from the last recertification to present (August 1, 2013 through November 1, 2019) found no reported compliance issues. My review also confirmed that no material changes in the facility design or operation have occurred since the previous LIHI review.

VII. PUBLIC COMMENT RECEIVED OR SOLICITED BY LIHI

The deadline for submission of comments on the LIHI certification application was November 5, 2019. One comment letter, from the Connecticut River Conservancy (CRC), was received directly by LIHI. A copy of this letter is in Appendix A and their comments are addressed under the specific criteria discussions. The rationale for closing the previous LIHI certification condition is discussed in the **Introduction** section of this report.

I did not contact any stakeholders because the Applicant contacted the key agencies knowledgeable of the Project as part of the application process, and I had no questions requiring clarification. The Applicant's representative requested feedback from the following agencies as part of the application process:

- Caleb Slater, Anadromous Fish Project Leader for Massachusetts Division of Fish and Wildlife (MDFW);
- Robert Kubit of the MDEP; and
- Melissa Grader, Biologist with the USFWS.

The MDEP and MDFW responded. Melissa Grader of USFWS emailed that her schedule would not permit her time to fully respond. Copies of the state letters are included in Appendix A.

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-2, Agency Recommendation** for all three ZOEs, although as suggested on Table B-2 of the 2018 LIHI Handbook, **Standard A-1, Not Applicable/De Minimis** Effect can be used for ZOE #1, the impoundment, even though there are headpond limits at the Project.

[2] In 2012, Essential Power Massachusetts, LLC, the owner of Indian Orchard at the time, sought approval of its Minimum Flow and Impoundment Fluctuation Monitoring Plan which was required many years before but was never finalized. The Plan was filed for review by the MDEP, United States Fish and Wildlife Service (USFWS) and Massachusetts Division of Fish and Wildlife (MDFW) requesting comments on or concurrence with the Plan. The MDFW and MDEP provided concurrence on the Plan on June 12, 2012 via email. No other comments were received. The Plan was approved by FERC on August 3, 2012.

There have been no changes in requirements or in the mode of operation of the Facility (limited pond-and-release) since it was certified by LIHI in 2013, although a new minimum flow gate was installed in 2013-2014, discussed later in this section. The current FERC exemption requires a continuous minimum flow release of 247 cubic feet per second (cfs), or inflow if less, at the Project dam into the bypass reach. The exemption also limits pond drawdowns to six inches below the top of the flashboards from April to June and one foot for the remainder of the year. The current operating practice is to limit year-round drawdown to six inches.

The initial Ecological Flows Standards for the facility were developed during the late 1980s and early 1990s FERC exemption process. Hydrologic studies were performed by consultants to the then owner to determine the historic, unregulated median August flow for the Chicopee River. Letters dated July 14, 1989 and July 31, 1992[3] from USFWS noted concurrence that the calculated 247 cfs flow using 27 years of data would be an appropriate minimum flow unless water quality studies show additional flows would be needed.

Studies requested by USFWS and performed in 1999, confirmed that the 25 cfs minimum flow at the Putts Bridge Project, located about 1.4 miles upstream, would not affect the ability of the Indian Orchard Project to release its required 247 cfs flow requirements. USFWS also requested water quality studies to be conducted in the Putts Bridge bypass over a sixty-day period (between July 7 and September 6, 2000). Results showed that dissolved oxygen (DO) concentrations and water temperatures in the Putts Bridge bypass reach exceeded MDEP Class B water quality standards. While no sampling was done in the Indian Orchard impoundment, the upstream end of the impoundment begins approximately 0.5 miles downstream of the Putts Bridge dam. The most downstream sampling location from these studies was where the Putts Bridge tailrace meets the Chicopee River, approximately 0.2 miles from the Putts Bridge dam, or 0.3 miles from the Indian Orchard impoundment. It appears that these studies satisfied the agencies involved in reviewing the study plan and final report, which included USFWS, MDFW and MDEP, as no changes to Indian Orchard flows were requested. While the license exemption allows for adjustment of these flows if requested by the applicable agencies, such a request has never been made. Thus, to date, the agencies continue to accept using summer flows for a year-round prescription.

During a resource agency meeting reviewing the plans to install the new minimum flow gate, the USFWS identified a minor discrepancy in the reported impoundment elevation at the top of the flashboards (161.0 ft versus 161.308 ft). In response, Essential Power, in a January 22, 2013 letter to FERC (See Appendix A for both documents), made a commitment to conduct the dam survey to confirm the elevation and to issue an updated Minimum Flow and Impoundment Fluctuation Plan (Flow Plan), incorporating the new flow release gate. Per communication with the Applicant's consultant, this survey was never completed nor was the Flow Plan modified. Given installation of the new minimum flow gate, the plan should be updated, and the elevation confirmed.

Review of the FERC eLibrary documents confirmed compliance with minimum flow requirements during the past five years, based on annual statements submitted by the Applicant. Since completion of the gate project in 2014, these flows are released through these new gates. None of the agencies contacted by the Applicant reported flow compliance issues.

[3] See LIHI webpage 2013 application documents "DOI Letter 1989" and "DOI Letter 1992".

Using data from September 21, 2019 to October 20, 2019 from the downstream USGS Indian Orchard gage, CRC commented that the data shows river flows less than 247 cfs, suggesting that the discharge from Indian Orchard Project was less than its minimum flow requirement. While the gage data does demonstrate periods of low river flows, what is not recognized is that the FERC exemption for the Project requires passing of 247 cfs ***or inflow***, ***whichever is less.*** Operations data provided by the Applicant to LIHI confirmed that river flows during the late September to late October 2019 time period were low enough that Indian Orchard did not generate any electricity from September 20 to October 17, and that all inflows passed via the spillway, in accordance with the FERC exemption.

Therefore, I believe the Project continues to conditionally satisfy this criterion with the recommended condition to address revision to the Flow Plan. I believe that revision of the Flow Plan (and confirmation of elevation) is warranted.

This Project Conditionally 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-2, Agency Recommendation** to pass this criterion. A Water Quality Certification was not issued and there was no specific agency recommendation related to water quality in the FERC exemption. However, as minimum flows are required and help ensure good water quality, I feel B-2 is appropriate.

The Project ZOE's are all included in state water quality river segment 36-24. Based on review of the Massachusetts 2016 Integrated List of Waters and a letter dated August 30, 2019, from Mr. Robert Kubit of MDEP, it appears that the impoundment is considered impaired for pathogens, but wet weather combined sewer overflows are the likely cause of this impairment, not the Project. Mr. Kubit also states that based on state data collected for this river segment, but not specifically at the Indian Orchard Project, water quality standards are being met. Therefore, he believes the Project likely does not cause or contribute to any water quality violations. This letter can be found in Appendix A.

Based on this information, I believe the Project has demonstrated compliance with and 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, sustainable fish and wildlife resources in areas affected by the facility.

Assessment of Criterion Passage

The Applicant has appropriately selected **Standard C-1, Not Applicable/De Minimis Effect** for all ZOEs as there are two downstream dams within nine miles, Dwight and Chicopee Falls, that have no upstream facilities for anadromous or catadromous species. However, as there are potential fish passage requirements in the license exemption, I believe that **Standard C-2**, **Agency Recommendation** is more appropriate, for the Bypass Reach (ZOE #2) even though the agencies have not yet required passage installation.

As noted in the application, review of "A Comprehensive Watershed Assessment, 2003", and the "Chicopee River Basin, Five-Year Watershed Action Plan, 2005-2010" showed no listing of migratory species. The application denoted the presence of bluegill, black crappie, chain pickerel, golden shiner, largemouth bass, pumpkinseed, rock bass, redbreast sunfish, tessellated darter, white perch, white sucker and yellow perch in the Chicopee River in general, based on the Applicant's consultation with Dr. Caleb Slater of MDFW.

Currently there are no active migratory fish management efforts within the Chicopee River watershed. A letter dated September 4, 2019 from Dr. Slater confirms there are no current requirements for upstream passage (See Appendix A). No response was received from USFWS, but it would be unlikely that the USFWS would require passage and the MDFW did not.

The 1992 FERC exemption, Article 2, contains a requirement that the Exemptee construct, operate, maintain and monitor upstream and downstream fish passage facilities when prescribed by the USFWS or MDFW. These requirements are noted as mandatory terms and conditions under Section 30(c) of the Federal Power Act and Section 408 of the Energy Security Act. As written, these requirements clearly apply to both anadromous and riverine fish, but remain "silent" with regard to catadromous species. The Owner is committed to fulfill these obligations if and when required by the fisheries agencies.

I believe the Project continues to satisfy this criterion with a recommended condition addressing potential need for passage installation should it be mandated within the next five years. This condition also applies to the other currently LIHI Certified projects on the Chicopee River.

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. All migratory species are able to successfully complete their life cycles and to maintain healthy, sustainable fish and wildlife resources in the areas affected by the Facility.

Assessment of Criterion Passage

The Applicant has selected **Standard D-1, Not Applicable/De Minimis Effect** for all ZOEs. However, I believe **Standard D-2, Agency Recommendation** is more appropriate for the impoundment given the license exemption requirement for passage measures upon agency request. Although upstream migration by anadromous species is blocked, there may be limited numbers of American eel in the Project area based on past agency communications about eel in the Chicopee River in general. However, the MDFW stated in their September 4, 2019 letter, that downstream passage was not required at this time. The application noted that while not designed as such, riverine fish can pass downstream via the minimum flow gate.

I believe the Project continues to satisfy this criterion with a recommended condition addressing potential need for passage installation should it be mandated within the next five years. This condition also applies to the other currently LIHI Certified projects on the Chicopee River.

The Project Conditionally 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 appropriately 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 requirement of the Project since it was certified by LIHI in 2013. No conservation buffer zone, watershed enhancement fund nor a shoreland management plan were required by the FERC exemption.

The updated information provided by the Applicant notes that there are an estimated four acres of mixed forest and two acres of deciduous forest surrounding the impoundment that may be considered "significant ecological value" as these areas are mapped by the MDWF as Priority or Estimated Habitat for bald eagle, a state threatened species. Figures 3 and 4 show the forested areas surrounding the impoundment, while Figure 5 shows the Project boundary. Developed lands and open water are the other cover types within the Project boundary.

While there does appear to be potentially ecologically valuable habitat onsite, the Applicant has stated there are no plans to disturb these forested areas. They have also committed to engage in agency consultation with USFWS and MDFW should such activities become necessary. LIHI would become aware of such a change through notification in the annual compliance reports. Based on this review, I believe the Project continues to satisfy this criterion.

The Project Passes Criterion E – Shoreline and Watershed Protection

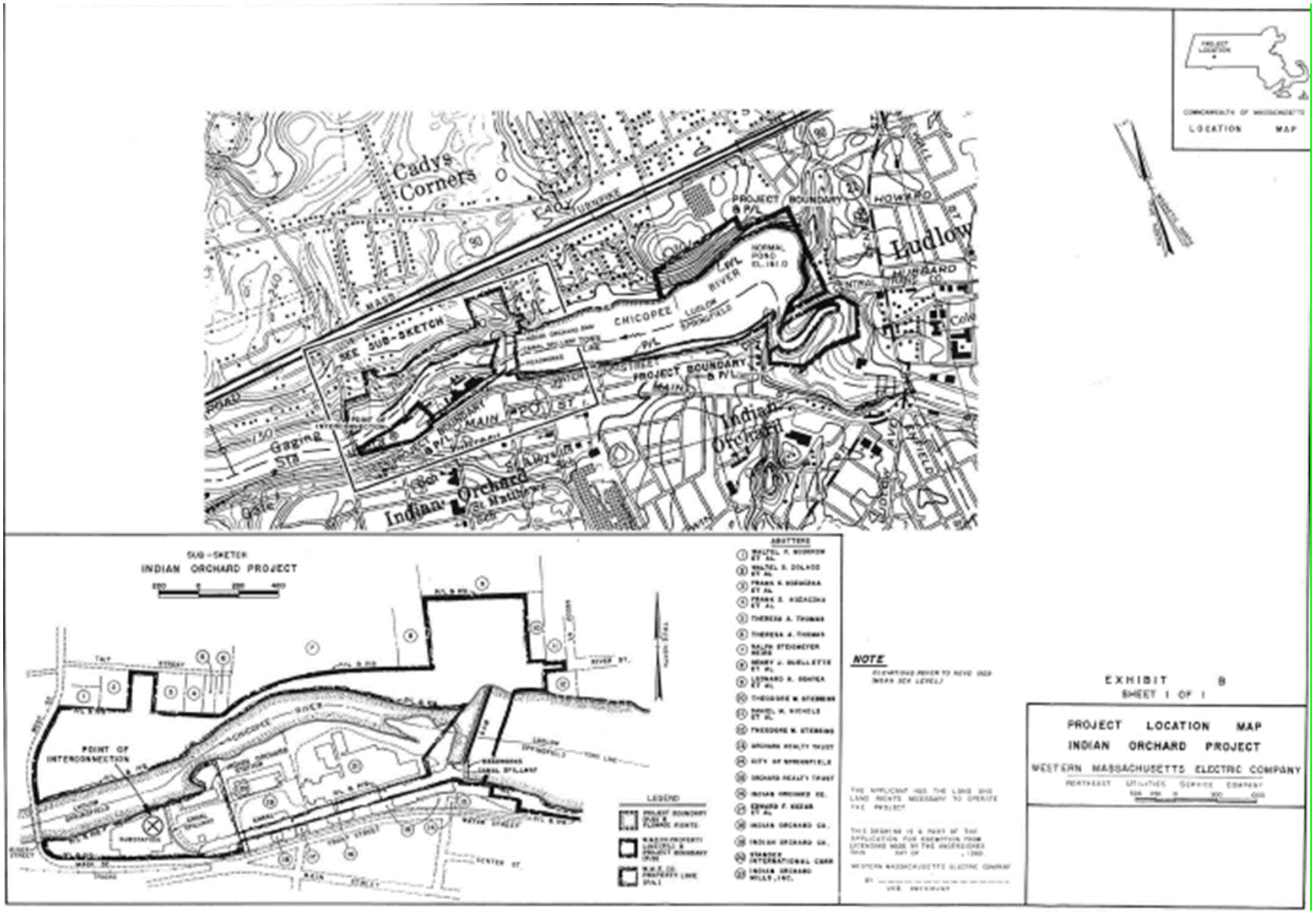

Figure 5 – Indian Orchard Project Boundary Map

F. THREATENED AND ENDANGERED SPECIES PROTECTION

Goal: The Facility does not negatively impact listed species.

Assessment of Criterion Passage

The Applicant selected **Standard F-2, Finding of No Negative Effects** for all three ZOEs.

The application contained USFWS information showing that the only federally-protected species potentially in the Project area is the Northern long-eared bat, because its habitat may exist statewide. Applicant communication with the MDFW, Natural Heritage & Endangered Species Program (Program), did not identify any Estimated or Priority Habitat for this species. However, Priority Habitat and Estimated Habitat was found in the Project area for the bald eagle, a state threatened species. Based on the Program's website data, bald eagles usually live in coastal areas, estuaries, and larger inland waters and great amount of shoreline habitat containing stands of forest for nesting and trees projecting above the forest canopy for perching with an unimpeded view. The waterbody they choose typically has a good supply of moderate- to large-sized fish.

The application states that the Applicant has no plans to cause any ground disturbance in the Project area and no changes to plant operations. They have also committed to follow MDFW and USFWS review requirements associated with minimizing impacts to protected species should any such activities be planned.

Based on the above information, I believe the Project will have no impact to protected species and continues to satisfy this criterion. Should plans change within the next five years, and ground disturbing activities or removal of large trees are found to be needed, reporting of such activities to LIHI would be required in the annual compliance letter.

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-1, Not Applicable/De Minimis Effect** to pass the Cultural and Historic Protection criterion for the Project for all ZOEs.

Article 12 of the FERC exemption requires the Exemptee to consult with the State Historic Preservation Officer (SHPO) before undertaking any construction activity that would result in any modification of the Project's existing historic facilities. Article 13 requires that the Exemptee consult with the SHPO before undertaking any project-related construction activity in areas not already addressed in the Environmental Assessment filed during the exemption proceedings, thus,

not specifically authorized by the 1992 exemption order and, if necessary, develop and implement a Cultural Resource Management Plan.

The application states that the Project remains in compliance with all requirements included in its Cultural Resource Management Plan. However, updated information provided, and subsequent discussions with the Applicant's consultant, indicated that no such Plan has been required to date for the Project and the application reference was to another project not on the Chicopee River. Thus, the updated information clarifies that the Indian Orchard Project is in compliance with its FERC exemption.

The updated information submitted in October 2019, noted that when the new bottom discharge minimum flow gate was planned, the Massachusetts Historical Commission (i.e. the SHPO) was inappropriately copied on a filing made to FERC describing the gate project. As the gate was being installed in the existing dam, Article 13 was not triggered. Likewise, Article 13 would not apply to the 2015 dam repairs.

There have been no other construction activities in the past five years, and the Applicant has no plans for such work in the foreseeable future. I believe the Project continues to satisfy this criterion.

The Project 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 and demonstrated compliance with **Standard H-2, Agency Recommendation** to pass the Recreational Resources criterion for the Project for all ZOEs.

Recreational facilities proposed by the Applicant during the exemption process were issued as mandatory requirements under Section 30(c) by the US Department of Interior in their letter dated July 31, 1992. The recreational facilities were to include a small boat dock, parking area, a trail along the impoundment and a picnic area at Indian Leap. Due to municipal and local opposition, the picnic area was not constructed at Indian Leap, but was instead relocated to the boat ramp area. The boat ramp, parking area and trail were all transferred to the City of Springfield by one of the previous Project owners in 2006. While the City does still maintain these facilities, FERC makes it clear in a letter dated October 11, 2011 that the Exemptee retains responsibility for ensuring "the facilities are properly maintained and available for public use, regardless of any arrangements you have made with other entities to provide such facilities". There has been no change in the recreational resource requirements of the Project since it was certified by LIHI in 2013.

A 2012 FERC dam safety inspection reported that the boat barrier across the dam had been installed upstream of the boat launch, posing a hazard to boaters. A March 8, 2013 letter from FERC requested the boat barrier be relocated downstream of the boat launch and public safety signage be installed at the launch. In response, the Owner sent a letter to FERC dated April 26, 2013 stating that the boat launch noted in the 2012 inspection was used only by maintenance

personnel, and was not the public boat launch, and that the public safety boat barrier was, in fact, installed in the proper location (see letter in Appendix A).

The application states that the Project continues to allow access to the impoundment and downstream reaches without fees or charges. It also noted that signage, likely required under dam safety rules to help ensure the safety of the public using the river, has been inspected and, where necessary, updated and/or replaced. Public access is not allowed around the Project works and in the bypassed reach due to public safety concerns. No FERC Environmental and Recreational Inspections have been conducted since 2010.

CRC commented that access to this section of the Chicopee River or the ability to portage around the Indian Orchard dam would enhance paddlers' use of the river. In its response to the CRC comment letter, the Applicant stated it does not believe there are Project lands sufficient to safely provide a put-in below the dam, but that they would be willing to work with third parties on the feasibility of installing a cartop access location well downstream of the confluence of the bypassed reach and tailrace of the Project and then helping to facilitate implementation of a put-in at the most feasible location.

Based on my review, I believe the Project continues to satisfy this criterion. A condition is recommended that would possibly allow extra years of certification if additional river access is developed with contribution from the Applicant.

The Project Passes Criterion H – Recreational Resources

IX. GENERAL CONCLUSIONS AND REVIEWER RECOMMENDATION

Based on my review, I believe that this Project conditionally meets the requirements of a Low Impact facility and recommend it be recertified for a five-year period with the conditions noted below.

- Condition 1: The Owner shall revise the Minimum Flow and Impoundment Fluctuation Plan to reflect the minimum flow gate, incorporating appropriate resource agency comments; and confirm the top-of-flashboard elevation. A copy of the plan shall be provided to LIHI within 60 days of FERC submission. LIHI shall also be provided a copy of FERC's final approval of the plan within 60 days of its receipt.

- Condition 2: Should the Owner receive notification during the term of this LIHI Certification from either the USFWS or MDFW that upstream and/or downstream passage for anadromous or catadromous fish is required, based on sound science / technical data that has shown that such passage is required at the Indian Orchard Project, the Owner shall forward a copy of that notification and its response to LIHI within 60 days of receipt of the notification.

- Condition 3: Should ground disturbance or removal of large tress be required during the term of this LIHI Certification that could affect habitat for bald eagles or Northern long-

eared bats, the Owner shall consult with MDFW and USFWS to determine impacts to these species that may occur in the Project area. LIHI shall be provided copies of agency communications (e.g. approvals, denials, mitigation measures, etc.) associated with such activities. This information should be submitted as part of annual compliance submittals to LIHI.

- Condition 4 (optional): The Owner shall seek to collaborate with Connecticut River Conservancy, Chicopee 4Rivers, and abutting landowners (e.g., WMECO that owns the substation land) on potential options for providing a cartop put-in far enough downstream from the confluence of the bypass and tailrace to minimize hazards from sudden release of flows to the bypass in the event the generating unit suddenly trips offline. If a put-in is installed, whether or not on Project land, the Owner can request a PLUS standard at any time prior to six months before the expiration of the Certification term. LIHI will determine whether or not to award a PLUS standard for recreation and extend the Certificate term for three additional years.