



**REVIEW OF APPLICATION FOR LIHI CERTIFICATION  
OF THE  
NARROWS ROAD PRESSURE REDUCTION VALVE STATION  
HYDROELECTRIC PROJECT**

**FERC Project No. CD18-3 (Conduit Exemption)  
City of Fitchburg Water Division  
Westminster, MA**



**August 30, 2021  
Maryalice Fischer, Certification Program Director**

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## **FINAL REVIEW OF APPLICATION FOR LIHI CERTIFICATION OF THE NARROWS ROAD HYDROELECTRIC PROJECT**

This report provides final review findings and recommendations related to the certification application submitted to the Low Impact Hydropower Institute (LIHI) by Weston and Sampson Engineers, Inc. on behalf of the City of Fitchburg Massachusetts (Applicant) for certification of the Narrows Road Pressure Reduction Valve Station Hydroelectric Project (Project). The complete certification application package was received on June 25, 2021 and is subject to review under the current 2<sup>nd</sup> edition LIHI Handbook (Revision 2.04, April 1, 2020).

### **I. INTRODUCTION**

The Narrows Road Pressure Reduction Valve (PRV) Station is a 10-kW conduit facility located in the Town of Westminster, MA on Narrows Road between the Falulah Regional Water Treatment Facility and the City of Fitchburg water distribution system. The water supply system is located within the Whitman River watershed, a sub-watershed to the Nashua River (Figure 1).

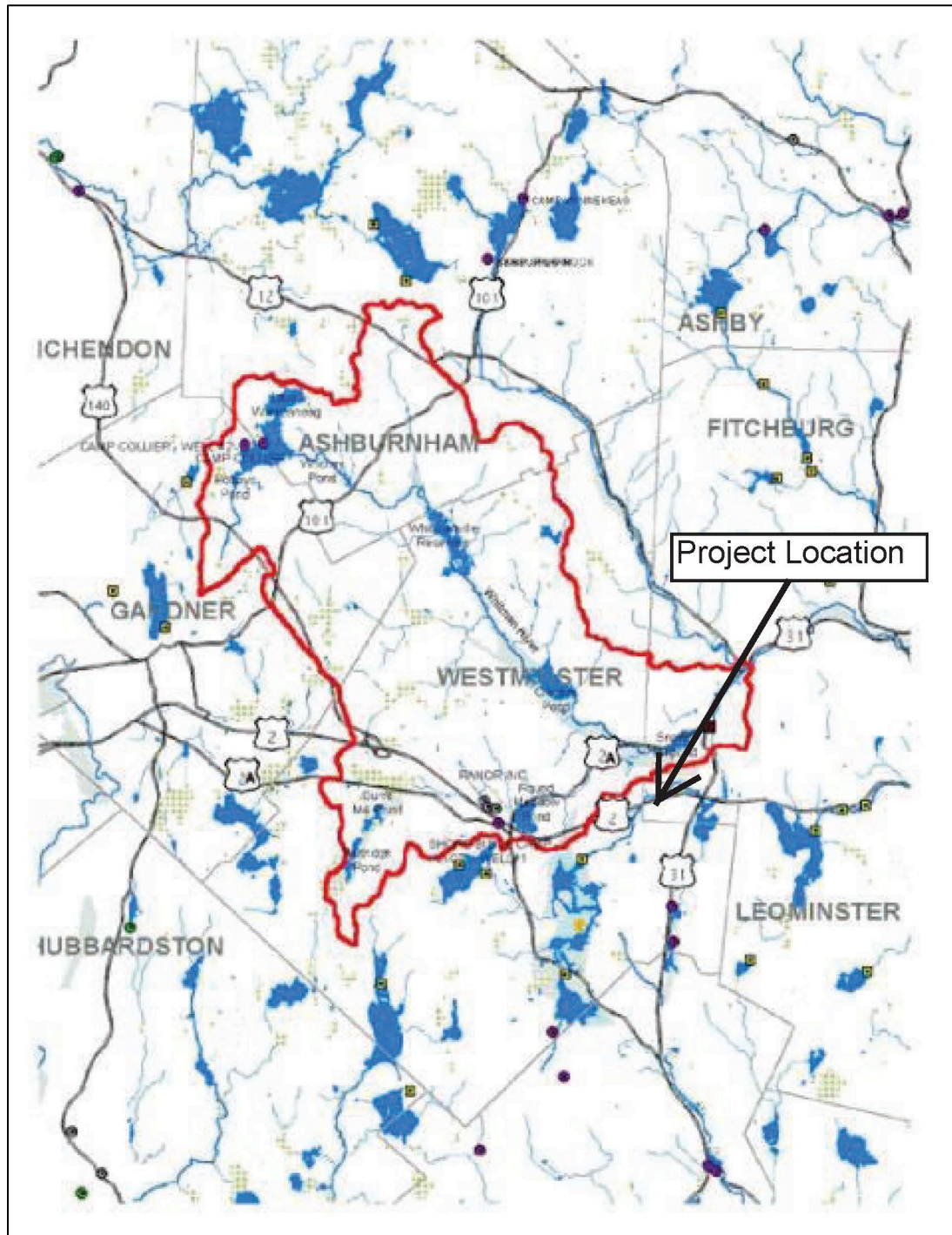
### **II. PROJECT LOCATION, AND SITE CHARACTERISTICS**

The pressure reduction facility has been used since 1961 to reduce the pressure in the public water supply distribution system between the City's regional water treatment plant in Westminster and draws raw water from nearby Meetinghouse Pond, and the rest of the City's water supply distribution system. Historically, the City has obtained its drinking water from numerous surface water reservoirs. One primary series is located in the northern section of the City and consists of the Falulah, Lovell, and Ashby Reservoirs. Another series is located south of the City, including the neighboring town of Westminster, and consists of Wachusett Lake, Bickford Reservoir, Mare Meadow Reservoir, and Meetinghouse Pond. Other reservoirs (Scott Reservoir and Overlook Reservoir) have served localized areas of the City.

The hydro turbine/generator was installed in 2021 and replaced one of the existing pressure reduction valves that was no longer used with a hydro turbine unit to recover the hydraulic energy of water flowing through this facility. The treated water from the regional plant flows via a primary water main into the Narrows Road pressure reduction station, which reduces the pressure from 45 pounds per square inch (PSI) to a suitable 6.5 psi for distribution to the public (Figure 2). The site consists of a small brick instrumentation house, as well as an adjacent partially underground concrete pump vault station which houses the hydro turbine (see cover page photo and Figure 3). The turbine runs continuously and can generate 65 MWh annually.

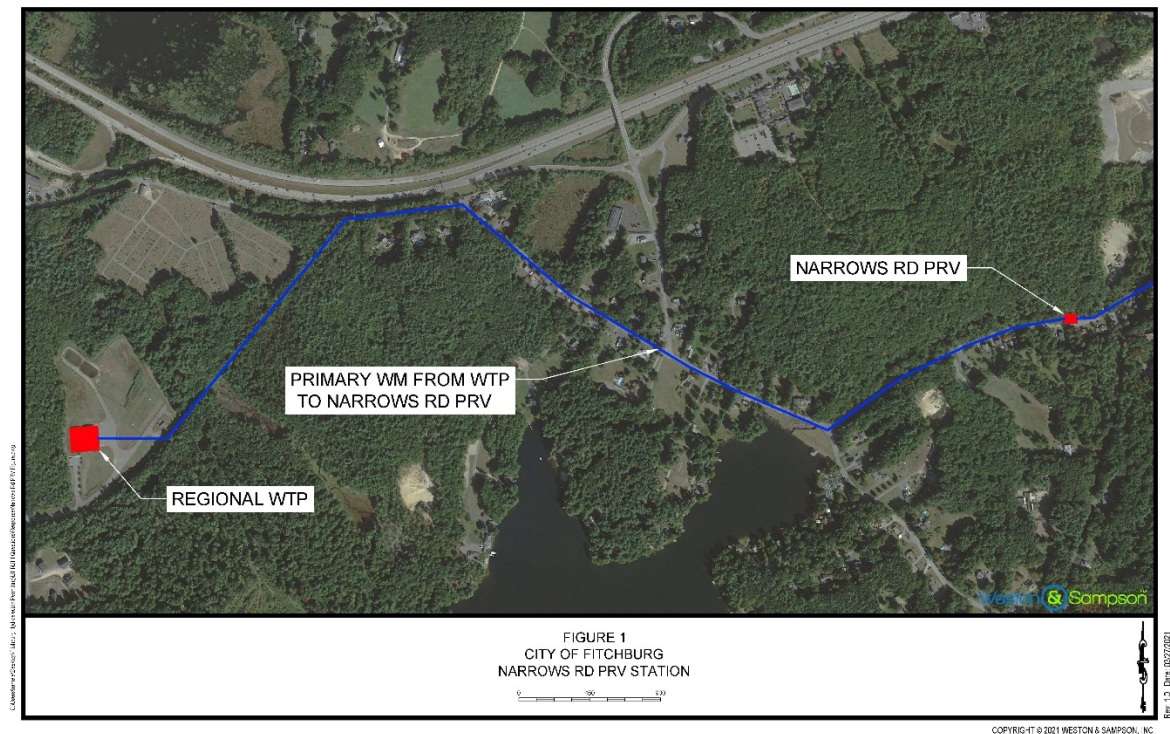
The hydro project was funded in part through grants from the Massachusetts Clean Energy Technology Center and through MassDEP's Clean Energy Results Program, with support from the Department of Energy Resources and the Massachusetts Clean Energy Center. Additional money was used from the City's water enterprise fund and from an additional state grant

provided to water and wastewater facilities for energy efficiencies and renewable power generation. The project also included non-hydro building and equipment upgrades and replacement of some water supply components.



**Figure 1. Whitman River Watershed**





**Figure 2. Project Location within Water System**



**Figure 3. Turbine and Pumps**

### III. REGULATORY AND COMPLIANCE STATUS

The Project was granted a Qualifying Conduit exemption No. CD18-3 from the Federal Energy Regulatory Commission (FERC) on January 23, 2018. As with all conduit exemptions granted under the Federal Power Act Section 30(a), there are no FERC requirements for the Project, although the determination notes that the Project is subject to other applicable federal, state, and local laws and regulations.

A review of the FERC eLibrary shows only 4 documents – the City’s 2017 application for exemption, FERC’s preliminary determination, FERC’s final determination, and a letter from US Department of Interior that stated the agency had reviewed the preliminary determination and had no comments. The most informative document is the City’s application for exemption.<sup>1</sup>

### IV. PUBLIC COMMENTS RECEIVED BY LIHI

The application was publicly noticed on June 28, 2021. No public comments were received by LIHI during the 60-day comment period which ended on August 27, 2021. Given the limited nature of the Project, no outreach to resource agencies was conducted.

### V. LIHI CRITERIA REVIEW AND RECOMMENDATIONS

The Applicant selected a single Zone of Effect (ZOE) defined as the area within and immediately surrounding the valve station, which encompasses 12 acres. The Applicant selected the standards shown in the table below. The reviewer agrees with the selected standards.

**Table 1. LIHI Standards Selected for Zone of Effect No. 1**

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

#### A: Ecological Flow Regimes

<sup>1</sup> <https://elibrary.ferc.gov/eLibrary/filedownload?fileid=14768548>

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

**Assessment of Criterion:** The Applicant selected and has demonstrated compliance with Standard A-1, Not Applicable/De Minimis Effect, to pass the Ecological Flow Regimes criterion. This standard requires:

**STANDARD A-1. Not Applicable/De Minimis Effect:** The facility operates in a true run-of-river operational mode and there are no bypassed reaches or water diversions associated with the facility; or the facility is located within an existing water conduit that does not discharge into natural waterways.

**Discussion:** The Project is located entirely within a drinking water supply system and does not discharge into a natural waterway, so it has no flow-related effects. The water flows from the Falulah Water Treatment Facility, passes through the facility, and then continues to flow into the City of Fitchburg water supply distribution system. Based on the information provided, the Project satisfies Criterion A.

## **B: Water Quality**

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

**Assessment of Criterion:** The Applicant selected and has demonstrated compliance with Standard B-1, Not Applicable/De Minimis Effect to pass the Water Quality criterion. This standard requires:

**STANDARD B-1. Not Applicable/De Minimis Effect:** The facility does not alter the physical, chemical, or biotic water characteristics necessary to support fish and wildlife resources or human water uses (e.g., water supply or recreation).

**Discussion:** The Project is a conduit facility and does not alter water quality in any natural river. The Project is part of a high-quality drinking water supply system that must meet state safe drinking water standards. Based on the information provided, the Project satisfies Criterion B.

## **C: Upstream Fish Passage**

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

**Assessment of Criterion:** The Applicant selected and has demonstrated compliance with Standard C-1, Not Applicable/De Minimis Effect to pass the Upstream Fish Passage criterion.

This standard requires:

**STANDARD C-1. Not Applicable/De Minimis Effect:** The facility does not create a barrier to upstream passage, or there are no migratory fish in the vicinity of the facility. If migratory fish were present historically, the facility did not contribute to the extirpation of such species.

**Discussion:** The Project is a closed system unconnected to a natural river and there is no possibility that fish could enter the water supply system in an attempt to move upstream through the Project. The Applicant consulted with the Massachusetts Division of Fisheries and Wildlife which reported there are no anticipated impacts on migratory fish species that pertain to the Project. Based on a review of available information, the Project satisfies Criterion C.

#### **D: Downstream Fish Passage**

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

**Assessment of Criterion:** The Applicant selected and has demonstrated compliance with Standard D-1, Not Applicable/De Minimis Effect to pass the Downstream Fish Passage and Protection criterion for the Project. This standard requires:

**STANDARD D-1. Not Applicable/De Minimis Effect:** The facility does not create a barrier to downstream passage, or there are no migratory fish in the vicinity of the facility. If migratory fish were present historically, the facility did not contribute to the extirpation of such species; the facility does not contribute adversely to the sustainability of riverine fish populations or to their access to habitat necessary for the completion of their life cycles.

**Discussion:** The water treatment facility receives water from numerous reservoirs in the vicinity of Fitchburg. The Applicant reviewed online resources and determined that a large variety of fish can be found in the reservoirs including rainbow trout, largemouth bass, smallmouth bass, chain pickerel, and yellow perch. The water treatment facility intake at the treatment plant upstream of the Project is equipped with intake filters and control mechanisms appropriate to remove natural and manmade debris prior to water treatment. Based on a review of available information, the Project satisfies Criterion D.

#### **E: Shoreline and Watershed Protection**

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



**Assessment of Criterion:** The Applicant selected and has demonstrated compliance with Standard E-1, Not Applicable/De Minimis Effect to pass the Shoreline and Watershed Protection criterion for the Project. This standard requires:

**STANDARD E-1. Not Applicable/De Minimis Effect:** There are no lands associated with the facility under the direct or indirect ownership or control of the facility owner that been identified as having significant ecological value for protecting water quality, aesthetics, or low-impact recreation, and the facility is not subject to any Shoreline Management Plan (SMP) or similar protection plan.

**Discussion:** The valve station is located at the roadside edge within a 12-acre parcel owned by the City of Fitchburg and operated by the City's Water Division. The Applicant reported there are no conservation easements or other land restrictions associated with the property. However, as a closed system located entirely inside the valve station, there is no associated shoreline or watershed that could be affected by the hydro Project. Based on a review of available information, the Project satisfies Criterion E.

## **F: Threatened and Endangered Species**

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

**Assessment of Criterion Passage:** The Applicant selected and has demonstrated compliance with Standard F-1, Not Applicable/De Minimis Effect to pass the Shoreline and Watershed Protection criterion for the Project. This standard requires:

**STANDARD F-1. Not Applicable/De Minimis Effect:** There are no listed species documented to be present in the facility area, and the facility was not responsible for the extirpation of listed species that historically were present.

**Discussion:** The Applicant provided evidence that the Project does not occur within Estimated Habitat of Rare Wildlife or in Priority Habitat as indicated in the Massachusetts Natural Heritage Atlas (14th Edition). The Applicant also provided a USFWS IPaC report for federally-listed species which listed Northern long-eared bat. All of Massachusetts is considered roosting territory for the species. While there are trees located around the pump station (see cover page photo), the hydro Project is located entirely inside the pump station vault and has no effect on this species. The report also lists several migratory birds that may be present, however the hydro Project does not affect those species either. The Applicant reported that only lawn maintenance occurs directly surrounding the building and no tree cutting occurs.

Based on the information provided and given that the Project is located entirely within the valve station with no potential impacts to bats or birds, the Project satisfies Criterion F.

## **G: Cultural and Historic Resources Protection**

**Goal:** *The Facility does not unnecessarily impact cultural or historic resources that are*

*associated with the facility's lands and waters, including resources important to local indigenous populations, such as Native Americans.*

**Assessment of Criterion:** The Applicant selected and has demonstrated compliance with Standard G-1, Not Applicable/De Minimis Effect to pass the Cultural and Historic Protection criterion for the Project. This standard requires:

**STANDARD G-1. Not Applicable/De Minimis Effect:** There are no cultural or historic resources present on facility lands that can be potentially threatened by construction or operations of the facility, or facility operations have not adversely affected those that are or were historically present.

**Discussion:** According to a Westminster landscape inventory report<sup>2</sup>, the “Narrows”, also known as Wachusett Village, is an industrial area located southeast of Westminster Village. It was first developed in the early 19th century with paper mills. Mill buildings lined Wyman Brook downstream from the Wyman Pond. Most were removed when the businesses moved to Fitchburg and Gardner to be near railroad depots. At about the same time that industry in Wachusett Village ceased, the Wachusett Reservoir was built to supply water to Fitchburg. Now the Narrows includes Wyman Pond, the granite water works building and the dam at Narrows and East Roads (not associated with the Project), extant early houses in the immediate area and some mill remnants off Narrows Road on Wyman Brook.

As of 2006, the Town of Westminster was considering district National Register nomination for Wachusett Village (the Narrows) and for other individual properties. But there is no specific mention of the pressure reduction valve station although it is more than 50 years old and could be considered for nomination. The site is also not listed on the Massachusetts Historical Commission online database.

Based on the information provided and publicly available, the Project does not impact cultural or historic resources and satisfies Criterion G.

## **H: Recreational Resources**

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

**Assessment of Criterion Passage:** The Applicant selected and has demonstrated compliance with Standard H-1, Not Applicable/De Minimis Effect to pass the Recreational Resources criterion for the Project. This standard requires:

**STANDARD H-1. Not Applicable/De Minimis Effect:** The facility does not occupy lands or waters to which the public can be granted safe access and does not otherwise impact

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<sup>2</sup> <https://www.mass.gov/doc/westminster/download>

recreational opportunities in the vicinity of the facility.

**Discussion:** The building that houses the hydro Project is a secure and locked area, with no opportunity for public access. Access to the facility is strictly controlled since it is a critical piece of infrastructure for the City of Fitchburg. The surrounding parcel is not fenced and can be used informally for recreational activities but no formal recreation amenities are provided. The Applicant reported that people occasionally fish in the brook that runs along/through the parcel but there is no dedicated access and it is not a common occurrence. Based on the information provided, the Project satisfies Criterion H.

## **VI. CERTIFICATION RECOMMENDATION**

This review included evaluation of the application and supplemental additional information provided by the Applicant, a review of the FERC eLibrary, and other publicly available information. Based on the evaluation, I recommend that the Project be certified as Very Low Impact (VLI) for a term of ten (10) years since the Project meets the Not Applicable/De Minimis Effect standards in all LIHI Criteria. No conditions are recommended for the Certification.