



August 4, 2021

VIA E-FILING

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

RE: Lewiston Falls Hydroelectric Project (FERC No. 2302)
Filing of Notice of Intent, Pre-Application Document and TLP Request

Dear Secretary Bose:

Pursuant to Section 15(b)(1) of the Federal Power Act, 16 U.S.C. § 808(b)(1), Brookfield White Pine Hydro LLC (BWPH) is electronically filing with the Commission the Notice of Intent to File a License Application (NOI), which includes a request for the use of the FERC's Traditional Licensing Process (TLP), and the Pre-Application Document (PAD) for the relicensing of the Project.

BWPH is the licensee for the Lewiston Falls Hydroelectric Project (Project) (FERC No. 2302), located on the Androscoggin River in the cities of Auburn and Lewiston in Androscoggin County, Maine. The Project's existing license was issued on September 29, 1986 and expires on August 31, 2026.

In accordance with the Commission's regulations at 18 CFR Sections 5.5(c) and 5.6(a)(1), BWPH is providing a copy of the NOI and PAD via email to appropriate federal and state agencies, Indian tribes, local governments, non-governmental agencies (NGO), and members of the public likely to be interested in the proceeding, as set forth on the attached distribution list. We have also published notice of this filing in the Lewiston Sun Journal, a newspaper in general circulation of the Project.

BWPH understands that the Commission will public notice the filing of the NOI and PAD, and will then issue a Notice of Commencement (NOC) no later than 60 days of the filing date. If the Commission's NOC approves the use of the TLP, BWPH will hold a Joint Agency Meeting and site visit of the Project between 30 to 60 days of the issuance of the Commission's NOC. Interested parties are to provide their comments on the PAD and any study requests in writing to BWPH no later than 60 days after the joint meeting. Copies of the comments may also be filed with the FERC.

BWPH is concurrently submitting a request to use the Commission's Traditional Licensing Process (TLP). BWPH believes use of the TLP will provide the most efficient and effective relicensing approach for the Project for the following reasons:

- The likelihood of timely license issuance is high because the Licensee has committed to timely execution of the TLP process in accordance with an agreed upon relicensing process schedule and plan (as outlined in the PAD).
- The resource issues anticipated at the Project are not expected to be complex, as the Project footprint is small, the Project is normally operated as run-of-river, and the Licensee is not planning to propose any changes to Project or its operation.
- The amount of resource information available for the Project is significant. The Project was redeveloped in the 1980s and a major amendment of license (capacity amendment), to remove the canal system and decommission several generating stations, was approved by the Commission in 2017. Combined, these licensing and amendment efforts produced significant amounts of Project resource information. Thus, the need for additional and/or new resource information is limited.
- There are numerous hydropower Projects in Maine currently undergoing FERC relicensing. Most of these relicensing efforts are utilizing the Integrated Licensing Process (ILP), which places a heavy demand on state and federal agency, municipal, and NGO staff resources and other participants. The Lewiston Falls Project is likely to be one of the less complicated Projects undergoing relicensing in Maine in the next few years. Thus, it is a good candidate for the TLP which, if approved by the Commission, should reduce the effort required of the agencies, municipalities, other stakeholders, and the FERC, to effectively participate in the process while still ensuring opportunity for involvement, collaboration, and timely issuance of a new license.

BWPH inquired with the parties expected to participate in the relicensing process, to the extent practicable, to discuss using the TLP for the Project. A list of these parties is provided in the PAD (Appendix B). To date, there have been no objections to the proposed use of the TLP. Parties have 30 days from the PAD filing (i.e., August 4, 2021) to file comments with the Commission regarding BWPH's request to use the TLP (by September 3, 2021).

In accordance with the Commission's regulations, 18 CFR §5.5(e), BWPH requests that the Commission authorize BWPH to conduct consultation with the Maine Historic Preservation Office, pursuant to Section 106 of the National Historic Preservation Act (NHPA), 16 U.S.C. §470(f), and the NHPA implementing regulations at 36 CFR Part 800.2(c)(4).

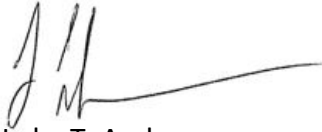
Brookfield

Renewable

BWPH also requests that the FERC designate BWPH as its nonfederal representative for the Project for the purpose of informal consultation, pursuant to Section 7 of the Federal Endangered Species Act (ESA) and the implementing regulations at 50 CFR Part 402.

If you require additional information, please contact me by phone at (207) 577-4536 or by email at Luke.Anderson@brookfieldrenewable.com.

Sincerely,



Luke T. Anderson
Manager, Relicensing
Brookfield Renewable

Attachments: Distribution List, Notice of Intent and Pre-Application Document for the
Lewiston Falls Hydroelectric Project

cc: Distribution List

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Lewiston Falls Project (FERC No. 2302)

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Lewiston Falls Project (FERC No. 2302)

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Licensee

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(4) Statement of Intent to File

BWPH hereby unequivocally declares its intent to apply for a new license for the Lewiston Falls Project, FERC Project Number 2302. BWPH requests that the Commission conduct the relicensing using the Traditional Licensing Process (TLP).

(5) Principal Project Works Licensed

The Lewiston Falls Project consists of (a) a dam which is comprised of several distinct sections: four stone masonry sections (Dams No. 1, 2, 3, and 4), a concrete dam section (Dam No. 5), and the Island Spillway (a section of concrete installed to replace an eroded rock ledge on a small island between Dams #3 and #4); (b) a 200-acre impoundment; (c) a powerhouse near the east end of Dam #4 containing two turbine/generators; (d) two gatehouse buildings: the Main Gatehouse (that houses the gates at the Canal System entrance), and the Little Gatehouse building (that no longer contains gates but now houses the blowers for the inflatable dams)¹ and also serves to impound the reservoir; (e) 12.5-kV generator leads; (f) a 12.5/34.5-kV, 30 MVA transformer; (g) a short 34.5-kV service-drop; and (h) appurtenant facilities.

(6) Project Location

State or Territory:	Maine
County:	Androscoggin County
Township or nearby town:	The cities of Lewiston and Auburn
Waterway:	Androscoggin River

(7) Plant Installed Capacity

The installed capacity of the Project is 28.44 MW.

(8) Names and Mailing Addresses

(i) Every county in which any part of the Project is located, and in which any Federal facility that is used or to be used by the Project is located:

The Project is located in Androscoggin County, Maine:

Androscoggin County Government
2 Turner Street
Auburn, ME 04210

The Project does not occupy or utilize federal lands or facilities.

¹ The Little Gatehouse building is also referred to as the “Blower Building” or the “Island Gatehouse.”

- (ii) *Every city, town, or similar political subdivision: (A) in which any part of the Project is located and any Federal facility that is used by the Project is located; or (B) that has a population of 5,000 or more and is located within 15 miles of the Project dam:*

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Town of Lisbon
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Town of Poland
1231 Maine Street
Poland, ME 04274

Town of New Gloucester
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New Gloucester, ME 04260

Town of Turner
11 Turner Center Road
Turner, ME 04282

Town of Gray
Henry Pennell Municipal Complex
24 Main Street
Gray, ME 04039

- (iii) *Every irrigation district, drainage district, or similar special purpose political subdivision: (A) in which any part of the Project is located and any Federal facility that is used by the Project is located; or (B) that owns, operates, maintains, or uses any Project facility or any Federal facility that is used by the Project:*

There is no irrigation district, drainage district, or similar special purpose political subdivision in which any part of the Project is located or that owns, operates, maintains, or uses any Project facility. The Project uses no Federal facilities and occupies no Federal lands.

- (iv) *Every other political subdivision in the general area of the Project that there is reason to believe would likely be interested in, or affected by, the Project:*

There is no other political subdivision in the general area of the Project that there is reason to believe would be likely to be interested in, or affected by, this notification.

(v) *Affected Indian Tribes:*

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Passamaquoddy Native American Nation
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In addition to the above-listed entities, a number of federal and state resource agencies and stakeholders have expressed an interest in participating in BWPH's relicensing of the Project. In accordance with Section 5.5(c) of the Commission's regulations, these agencies and stakeholders have been included on the distribution list for this Notification of Intent, as set forth in Appendix A of the accompanying Pre-Application Document.

SUBSCRIPTION

This Notice of Intent to File a License Application for the Lewiston Falls Hydroelectric Project, FERC No. 2302, is executed in the State of New York, County of Warren, by Thomas Uncher, Vice President, Brookfield White Pine Hydro LLC, 399 Big Bay Road, Queensbury, NY 12804 who, being duly sworn, deposes and says that the contents of this Notice of Intent are true to the best of his knowledge or belief and that he is authorized to execute this document on behalf of Brookfield White Pine Hydro LLC. The undersigned has signed this Notice of Intent this ____ day of August 2021.

Brookfield White Pine Hydro LLC

By TH Uncher

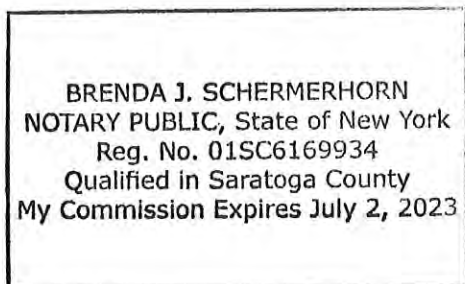
Thomas Uncher
Vice President

VERIFICATION

Subscribed and sworn to before me, a Notary Public of the State of New York this 3rd day of August 2021.

Brenda Schermerhorn
(Notary Public)

(My Commission Expires July 2, 2023)/seal



PRE-APPLICATION DOCUMENT

LEWISTON FALLS PROJECT
FERC No. 2302



Brookfield White Pine Hydro LLC
Lewiston, Maine

August 2021

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TABLE OF CONTENTS

DEFINITIONS OF TERMS, ACRONYMS, AND ABBREVIATIONS	X
1.0 INTRODUCTION	1-1
1.1 Agents for Brookfield White Pine Hydro, LLC.....	1-4
1.2 PAD Content.....	1-4
1.3 References	1-6
2.0 PLANS, SCHEDULE, AND PROTOCOLS	2-1
2.1 Process Plan and Schedule through Filing of License Application	2-1
2.2 Joint Agency Meeting and Site Visit	2-3
2.3 Proposed Communication Protocols.....	2-3
2.4 Parties to the Relicensing.....	2-3
2.5 General Communications.....	2-4
2.6 Electronic Communications.....	2-4
2.7 Meetings	2-4
2.8 Documents and Distribution.....	2-5
2.9 Restricted Documents.....	2-6
2.10 Study Requests	2-7
2.11 References	2-9
3.0 PROJECT LOCATION, FACILITIES, AND OPERATIONS	3-1
3.1 Project Location.....	3-1
3.1.1 Project Boundary	3-1
3.2 Existing Project Facilities	3-3
3.2.1 Dam	3-5
3.2.2 Project Impoundment	3-6
3.2.3 Powerhouse.....	3-6
3.2.4 Gatehouse and Canals.....	3-7
3.2.5 Tailrace	3-8
3.2.6 Transmission Facilities	3-8
3.2.7 Proposed Project Facilities	3-8
3.3 Existing Operations	3-9
3.4 Proposed Project Operations	3-9
3.5 Other Project Information.....	3-10
3.5.1 Current License Requirements	3-10
3.5.2 Compliance History of the Project.....	3-14
3.5.3 Safety Procedures	3-14

3.5.4	Summary of Project Generation	3-15
3.6	References	3-17
4.0	GENERAL DESCRIPTION OF THE RIVER BASIN	4-1
4.1	Overview	4-1
4.2	Major Water Uses	4-7
4.3	Basin Dams	4-9
4.4	Tributary Streams.....	4-11
4.5	Climate.....	4-12
4.6	References	4-13
5.0	DESCRIPTION OF EXISTING ENVIRONMENT AND RESOURCE IMPACTS.....	5-1
5.1	Geology and Soils.....	5-1
5.1.1	Overview.....	5-1
5.1.2	Topography.....	5-1
5.1.3	Bedrock Geology	5-4
5.1.4	Surficial Geology.....	5-6
5.1.5	Soils	5-8
5.1.6	References.....	5-11
5.2	Water Resources	5-13
5.2.1	Water Quantity.....	5-13
5.2.1.1	Drainage Area	5-15
5.2.1.2	Streamflow, Gage Data, and Flow Statistics.....	5-15
5.2.1.3	Reservoir Characteristics and Downstream Hydraulic Gradient.....	5-17
5.2.1.4	Existing and Proposed Uses of Water	5-17
5.2.1.5	Existing Water Rights	5-18
5.2.2	Water Quality.....	5-18
5.2.2.1	Water Quality on the Androscoggin River.....	5-18
5.2.2.2	Federal Clean Water Act.....	5-18
5.2.2.3	State Water Quality Standards.....	5-19
5.2.2.4	Existing Water Quality Data	5-23
5.2.2.5	Wastewater Discharges	5-30
5.2.2.6	Androscoggin River Water Quality Modeling	5-33
5.2.3	References.....	5-36
5.3	Fish and Aquatic Resources	5-39
5.3.1	Overview.....	5-39
5.3.2	Fish Resources and Habitats	5-43
5.3.3	Inland Fish Species Temporal and Life History Information.....	5-51
5.3.4	Diadromous Fish Species	5-56

5.3.5	Fish Passage on the Androscoggin River	5-65
5.3.6	Benthic Macroinvertebrates Resources and Habitats	5-65
5.3.6.1	Dragonflies and Damselflies	5-68
5.3.6.2	Freshwater Mussels	5-69
5.3.7	References.....	5-74
5.4	Terrestrial Wildlife and Botanical Resources.....	5-79
5.4.1	Botanical Resources.....	5-79
5.4.1.1	Invasive Plant Species	5-81
5.4.2	Terrestrial Wildlife	5-82
5.4.2.1	Mammals	5-82
5.4.2.2	Amphibians and Reptiles	5-84
5.4.2.3	Birds	5-88
5.4.3	References.....	5-92
5.5	Wetland, Riparian and Littoral Habitat.....	5-94
5.5.1	Wetlands.....	5-94
5.5.2	Riparian and Littoral Habitat.....	5-106
5.5.3	References.....	5-108
5.6	Rare, Threatened, and Endangered Species.....	5-109
5.6.1	Federally Threatened and Endangered Species	5-109
5.6.2	Birds of Conservation Concern.....	5-110
5.6.3	State Threatened and Endangered Species.....	5-111
5.6.4	Mussels	5-112
5.6.5	References.....	5-113
5.7	Recreation and Land Use	5-115
5.7.1	Overview	5-115
5.7.2	Regional Recreation Opportunities	5-116
5.7.3	Existing Project Area Recreation Facilities and Use	5-117
5.7.3.1	Non-Project Recreation Sites and Facilities	5-117
5.7.3.2	FERC-Approved Project Recreation Sites and Facilities	5-118
5.7.3.3	Recreation Use of Project Recreation Sites	5-128
5.7.3.4	Recreation Use of Non-Project Recreation Sites and Facilities	5-128
5.7.4	Project Vicinity Recreation Needs Identified in Management Plans.....	5-129
5.7.4.1	Statewide Management Plans.....	5-129
5.7.4.2	Regional Management Plans.....	5-130
5.7.4.3	City Management Plans.....	5-131
5.7.5	Land Use and Management within the Project Vicinity	5-134
5.7.6	Land Use and Management of Project Lands.....	5-135

5.7.7	References.....	5-136
5.8	Aesthetic Resources	5-140
5.8.1	Overview	5-140
5.8.2	Visual Character of Project Lands and Water.....	5-141
5.8.3	Scenic Attractions.....	5-141
5.8.4	References.....	5-142
5.9	Cultural Resources.....	5-143
5.9.1	Precontact Period History and Euroamerican Period History	5-143
5.9.2	Identified Precontact and Euroamerican Archaeological Sites... ..	5-145
5.9.3	Historic Structures Overview.....	5-146
5.9.4	Identification of Architectural Resources in the Vicinity of the Project	5-148
5.9.5	Prior Cultural Resource Investigations in the Vicinity of the Project	5-151
5.9.6	References.....	5-152
5.10	Tribal Resources	5-155
5.10.1	Tribal Lands and Interests	5-155
5.10.2	References.....	5-156
5.11	Socioeconomic Resources.....	5-157
5.11.1	Overview	5-157
5.11.2	General Land Use Patterns.....	5-157
5.11.3	Population Patterns.....	5-159
5.11.4	Households / Family Distribution and Income.....	5-161
5.11.5	Project Vicinity Employment Sources	5-162
5.11.6	References.....	5-166
6.0	POTENTIAL EFFECTS, ISSUES, STUDIES, AND MEASURES	6-1
6.1	Known or Potential Project Effects	6-1
6.1.1	Anticipated Project Effects.....	6-1
6.2	Preliminary Issues, Studies, and Measures by Resource.....	6-1
6.2.1	Geology and Soils	6-3
6.2.1.1	Potential Issues and Project Effects.....	6-3
6.2.1.2	Proposed Studies.....	6-4
6.2.1.3	Continued or Proposed PM&E Measures.....	6-4
6.2.2	Water Resources.....	6-4
6.2.2.1	Potential Issues and Project Effects.....	6-4
6.2.2.2	Proposed Studies.....	6-5
6.2.2.3	Continued or Proposed PM&E Measures.....	6-5
6.2.3	Fish and Aquatic Resources.....	6-5
6.2.3.1	Potential Issues and Project Effects.....	6-5

6.2.3.2	Proposed Studies.....	6-6
6.2.3.3	Continued or Proposed PM&E Measures.....	6-6
6.2.4	Terrestrial Wildlife and Botanical Resources.....	6-6
6.2.4.1	Potential Issues and Project Effects.....	6-6
6.2.4.2	Proposed Studies.....	6-7
6.2.4.3	Continued or Proposed PM&E Measures.....	6-7
6.2.5	Wetland, Riparian, and Littoral Habitat.....	6-7
6.2.5.1	Potential Issues and Project Effects.....	6-7
6.2.5.2	Proposed Studies.....	6-7
6.2.5.3	Continued or Proposed PM&E Measures.....	6-7
6.2.6	Rare, Threatened, Endangered and Special Status Species.....	6-7
6.2.6.1	Potential Issues and Project Effects.....	6-7
6.2.6.2	Proposed Studies.....	6-8
6.2.6.3	Continued or Proposed PM&E Measures.....	6-8
6.2.7	Recreation and Land Use.....	6-8
6.2.7.1	Potential Issues and Project Effects.....	6-8
6.2.7.2	Proposed Studies.....	6-9
6.2.7.3	Continued or Proposed PM&E Measures.....	6-9
6.2.8	Aesthetic Resources.....	6-9
6.2.8.1	Potential Issues and Project Effect.....	6-9
6.2.8.2	Proposed Studies.....	6-9
6.2.8.3	Continued or Proposed PM&E Measures.....	6-10
6.2.9	Cultural Resource issues.....	6-10
6.2.9.1	Potential Issues and Project Effects.....	6-10
6.2.9.2	Proposed Studies.....	6-11
6.2.9.3	Continued or Proposed PM&E Measures.....	6-11
6.2.9.4	Tribal Resources.....	6-11
6.2.10	Socioeconomic Resources.....	6-12
6.2.10.1	Potential Issues and Project Effects.....	6-12
6.2.10.2	Proposed Studies.....	6-12
6.2.10.3	Continued or Proposed PM&E Measures.....	6-12
7.0	RELEVANT COMPREHENSIVE MANAGEMENT PLANS.....	7-1
7.1	Potentially Relevant Qualifying Federal and State or Tribal Comprehensive Waterway Plans.....	7-1
7.2	Potentially Relevant Resource Management Plans.....	7-3

LIST OF TABLES

Table 2-1 Lewiston Falls Project Proposed Process, Plan and Schedule Traditional Licensing Process (TLP) 2-2

Table 3-1 Lewiston Falls Project Dam Sections Statistics 3-6

Table 3-2 Monty Station Turbine Unit Statistics 3-7

Table 3-3 Summary of Project-specific FERC License Articles 3-10

Table 3-4 License Orders and Amendments 3-13

Table 3-5 Annual and Monthly Gross Generation (MWh) for the Project (2010-2020) 3-16

Table 4-1 Land Cover within the Androscoggin River Watershed and Project Area 4-4

Table 4-2 NPDES Permit Holders 4-7

Table 4-3 Hydroelectric Dams on the Mainstem Androscoggin River 4-11

Table 5-1 Soil Types within Project Boundary and 500-foot buffer 5-10

Table 5-2 Streamflow (cfs) Statistics at Lewiston Falls Project, January 1987 – December 2020 5-16

Table 5-3 MDEP Water Quality Standards for Class C Waterbodies 5-21

Table 5-4 Integrated Water Quality Report Category Definitions 5-22

Table 5-5 Average DO Downstream of the Lewiston Falls Project (mg/L) 5-25

Table 5-6 Volunteer River Monitoring Program Results 5-29

Table 5-7 NPDES Facility Discharge Locations Downstream of Monty Station 5-33

Table 5-8 Freshwater and Diadromous Species Inhabiting the Androscoggin River and Associated Watershed 5-40

Table 5-9 Qualitative Habitat Evaluation Index (QHEI) Results for River Miles 25.2 and 22.5 of the Androscoggin River displaying the QHEI Score, and the Matrix of Attributes and Resulting Ratio of Modified: Good Attributes 5-46

Table 5-10 Fish Species Assemblage Percent Composition Results for Riverine Stations Downstream of Lewiston Falls but Upstream of Lisbon Falls Collected in 2003 5-48

Table 5-11 Fish Species Assemblage Percent Composition Results for Impounded Stations Upstream of Lewiston Falls but Downstream of Gulf Island Pond Collected in 2003 5-48

Table 5-12 Fish Species (Abundance and Percent Composition) for the 2003 Sampling Transect Nearest the Lewiston Falls Project Downstream Boundary (RM 22.6) and within the Upstream Project Boundary 5-49

Table 5-13 Diadromous Fish Counts at the Brunswick Fishway, 2000-2020 5-50

Table 5-14 Fish Counts at the Worumbo Fishway 5-50

Table 5-15 Eel Counts at the Worumbo Eel Passage Facility, 2012-2020 5-51

Table 5-16	Upstream Habitat Available for River Herring in the Androscoggin River Drainage (Downstream of Lewiston Falls), Annual (2000-2019) River Herring Counts (Primarily Alewife), and Stocking Effort (Number and Average Fish/Hectare) by MDMR.....	5-59
Table 5-17	Common groups of benthic macroinvertebrates identified in Maine by MDIFW.....	5-66
Table 5-18	Analysis of Androscoggin River Macroinvertebrate Data for Sampling Sites Upstream (S-55) and Downstream (S-56) of Lewiston Falls Project by MDEP during 1984 and 1998.....	5-68
Table 5-19	Odontate Species of Special Concern Found in the Project Area Counties (Androscoggin, Cumberland, Sagadahoc) based on the Maine Damselfly and Dragonfly Survey (1996-2005, 2006-2016).....	5-69
Table 5-20	Freshwater Mussels Known to Occur in the Lower Androscoggin River Based on Surveys Conducted in (1992 and 1997).....	5-71
Table 5-21	Plants Found in the Laurentian-Acadian Pine-Hemlock-Hardwood and Appalachian (Hemlock)-Northern Hardwood Forest in Maine (Anderson et. al. 2013).....	5-81
Table 5-22	Species of Mammals the May be Present Near the Lewiston Project Area (Sources: Anderson and Ferree 2015, USFWS 2021, Brookfield 2020).....	5-83
Table 5-23	Reptile and amphibian species documented to occur in the three counties (Androscoggin, Cumberland, Sagadahoc) in which Lewiston Falls resides.....	5-86
Table 5-24	Species of Birds that May be Present Near the Lewiston Project Vicinity.....	5-88
Table 5-25	Wetland Habitat Available Within the Lewiston Project Boundary (USFWS 2016a).....	5-96
Table 5-26	Plants found in Maine in the PFO1C Wetland Type (USFWS 2016b).....	5-98
Table 5-27	Birds of Conservation Concern that could potentially enter the Lewiston Project Boundary (IPaC 2021).....	5-111
Table 5-28	Threatened (T), Endangered (EN), Special concern (SC) and Extirpated (Exp.) Species that Could Potentially at the Project (MDIFW 2015a, Anderson et. al. 2013).....	5-112
Table 5-29	Comprehensive Planning Archaeological Study.....	5-145
Table 5-30	Historic Resources Located Inside the Project Boundary.....	5-149
Table 5-31	Place of Residence and Density, 2010.....	5-158
Table 5-32	Population Change from 2000 to 2019.....	5-159
Table 5-33	Population Projections from 2014 to 2034.....	5-160
Table 5-34	Income and Poverty, 2019.....	5-161
Table 5-35	Labor Force and Unemployment, 2019.....	5-162

Table 5-36 Industry and Occupation for Civilian Population 16 years and over, 2019 5-164

Table 5-37 Top 10 Private Employers in Androscoggin County by Average Monthly Employment (2nd Quarter 2020) 5-165

LIST OF FIGURES

Figure 1-1 Lewiston Falls Hydroelectric Project Location 1-3

Figure 3-1 Lewiston Falls Hydroelectric Project Boundary 3-2

Figure 3-2 Lewiston Falls Hydroelectric Project Facilities 3-4

Figure 4-1 Androscoggin River Watershed 4-2

Figure 4-2 Androscoggin Watershed Land Cover 4-5

Figure 4-3 Project Area Land Cover 4-6

Figure 4-4 Location of Nearby Hydroelectric Projects on the Androscoggin River 4-10

Figure 5-1 Androscoggin River Watershed Topography 5-3

Figure 5-2 Bedrock Geology with Project Vicinity 5-5

Figure 5-3 Surficial Geology within Project Vicinity 5-7

Figure 5-4 Soil Types within 500 Feet of Project Boundary 5-9

Figure 5-5 Hydroelectric Projects on the Androscoggin River 5-14

Figure 5-6 Historic Water Quality Monitoring Locations 5-24

Figure 5-7 MDEP 2011 Water Quality Sampling Results - July 5-28

Figure 5-8 NPDES Facilities on the Lower Androscoggin River 5-32

Figure 5-9 MDEP Water Quality Modeling Results Comparing Critical Dissolved Oxygen Conditions with and without POTW Loads 5-35

Figure 5-10 Qualitative Habitat Evaluation Index (QHEI) stations closest to the Lewiston Falls Project 5-45

Figure 5-11 Habitat Classification Within the Vicinity of the Lewiston Project 5-80

Figure 5-12 Wetland Habitat within the Lewiston Project Boundary and Surrounding Region 5-95

Figure 5-13 Riparian Habitat Available within the Lewiston Project Boundary and Adjacent Area 5-107

Figure 5-14 Project Recreation Facilities 5-121

Figure 5-15 West Pitch Park 5-122

Figure 5-16 Lewiston Falls Project Impoundment Boat Launch 5-123

Figure 5-17 Durham Boat Launch 5-124

Figure 5-18 Historic Resources Inside the Project Boundary 5-150

LIST OF PHOTOS

Photo 5-1	West Pitch Park Overlook Site.....	5-125
Photo 5-2	West Pitch Park Overlook Site.....	5-125
Photo 5-3	Lewiston Falls Project Impoundment Boat Ramp Site	5-126
Photo 5-4	Lewiston Falls Project Impoundment Boat Ramp Site	5-126
Photo 5-5	Durham Boat Launch Site	5-127
Photo 5-6	Durham Boat Launch Site	5-127

LIST OF APPENDICES

Appendix A	Distribution List
Appendix B	Consultation Documentation
Appendix C	Project License, License Amendments, and Water Quality Certificates
Appendix D	Exhibit G Drawings
Appendix E	Flow Duration Curves
Appendix F	Maine Northern Hardwood and Conifer Forests T/E Species List

DEFINITIONS OF TERMS, ACRONYMS, AND ABBREVIATIONS

§	Section
A	
AFRP	Anadromous Fish Restoration Program
ARWC	Androscoggin River Watershed Council
ASMFC	Atlantic States Marine Fisheries Commission
ASRP	Atlantic Salmon Recovery Program
ATRC	Androscoggin Transportation Resource Center
AVCOG	Androscoggin Valley Council of Governments
B	
BA	Biological Assessment
BCC	Birds of Conservation Concern
BiOp	Biological Opinion
BO	Biological Opinion
B.P.	Before present
Brookfield	Brookfield White Pine Hydro LLC
BRW POTW	Brunswick Wastewater Treatment Facility
BWPH	Brookfield White Pine Hydro LLC
C	
CABB	Center for Applied Bioassessment & Biocriteria
CARMA	Cultural & Architectural Resource Management Archive
CEII	Critical Energy Infrastructure Information
C.F.R.	Code of Federal Regulations
cfs	Cubic feet per second
cm	centimeter
CFR	Code of Federal Regulations
CMP	Central Maine Power Company
Commission	Federal Energy Regulatory Commission
CSO	Combined Sewer Overflows
CWA	Clean Water Act
D	
DDT	dichloro-diphenyl-trichloroethane
DLA	Draft License Application
DMP	Dioxin Monitoring Program
DO	Dissolved Oxygen
DPS	Distinct Population Segment
DSSMP	Dam Safety Surveillance and Monitoring Program

DSSMR Dam Safety Surveillance and Monitoring Report

E

EFH Essential Fish Habitat
El. Elevation
EA Environmental Assessment
EIS Environmental Impact Statement
ENSR ENSR Corporation
EPA United States Environmental Protection Agency
ESA Endangered Species Act

F

FERC Federal Energy Regulatory Commission
FTAL Fish Tissue Action Level
FLA Final License Application
Form 80 Licensed Hydropower Recreation Report Form
ft. foot / feet

G

GOM or GoM Gulf of Maine
GPS Global Positioning System

H

HAPC Habitats of Particular Concern
HUD U.S. Department of Housing and Urban Development

I

ILP Integrated Licensing Process
IpaC Information for Planning and Consultation
ISPP Interim Species Protection Plan

K

KVA kilovolt-ampere

L

LAWPCA Lewiston-Auburn Water Pollution Control Authority
Licensee Brookfield White Pine Hydro, LLC
LIS POTW Lisbon Wastewater Treatment Facility

M

MARAP Maine Amphibian and Reptile Atlas Project
MBPL Maine Bureau of Parks and Lands
MCDC Maine Center for Disease Control

MDACF	Maine Department of Agriculture, Conservation and Forestry
MDDS	Maine Damselfly and Dragonfly Survey
MDEH	Maine Prevention Division of Environmental Health
MDEP	Maine Department of Environmental Protection
MDIFW	Maine Department of Inland Fisheries and Wildlife
MDMR	Maine Department of Marine Resources
ME	Maine
MESA	Maine Endangered Species Act
mg/L	Milligrams per liter
MHPC	Maine Historic Preservation Commission
mi ²	Square miles
MOT	Maine Office of Tourism
MRSA	Maine Revised Statute Annotated
msl	Mean sea level
MSZA	Mandatory Shoreland Zoning Act
MVA	Megavolt-ampere
MW	megawatt
MWh	Megawatt hours
µS/cm	microsiemens/centimeter

N

National Register	National Register of Historic Places
NEFMC	New England Fishery Management Council
NEPA	National Environmental Policy Act
NGVD29	National Geodetic Vertical Datum of 1929 (U.S. Feet)
NH	New Hampshire
NID	National Inventory of Dams
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRHP	National Register of Historic Places
NRCS	Natural Resources Conservation Service
NRI	Nationwide Rivers Inventory
NRPA	Natural Resources Protection Act
NWI	National Wetlands Inventory
NWSRS	National Wild and Scenic Rivers System

O

OPM	State of Maine Office of Policy and Management
-----	--

P

PAD	Pre-Application Document
PCB	Polychlorinated Biphenyls
Lewiston Falls Project	Lewiston Falls Hydroelectric Project (FERC No. 2302)
POTW	Publicly Owned Treatment Works
ppm	Parts per million
ppt	Parts per trillion
Project	Lewiston Falls Hydroelectric Project (FERC No. 2302)

Q

QHEI	Quality Habitat Evaluation Index
------	----------------------------------

R

RCYBP	Radiocarbon Years Before Present
RM	River Mile

S

SC	Special Concern
SCORP	Maine Statewide Comprehensive Outdoor Recreation
SHRU	Salmon Habitat Recovery Unit
SP	Study Plan
SPP	Species Protection Plan
SWAP	State Wildlife Action Plan
SWAT	Surface Water Ambient Toxics

T

TE	Threatened and Endangered
TMDL	Total Maximum Daily Load
TLP	Traditional Licensing Process

U

UM	University of Montana
U.S.	United States
USACE	United States Army Corps of Engineers
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

V

VRMP	Volunteer River Monitoring Program
------	------------------------------------

W

WAP

WASP

WMROSP

Wildlife Action Plan

Water Quality Analysis Simulation Program

Western Maine Regional Open Space Policy

1.0 INTRODUCTION

Brookfield White Pine Hydro, LLC (BWPH or Licensee) is filing with the Federal Energy Regulatory Commission (FERC or Commission) its notification of intent (NOI) to relicense and the required Pre-Application Document (PAD) for the 28 MW Lewiston Falls Project (FERC No. 2302) (Project). The Project is located on the Androscoggin River at river mile (RM) 30.8 in Androscoggin County, Maine in the cities of Lewiston and Auburn (Figure 1-1). The original license was issued on September 29, 1986 and expires on August 31, 2026.

BWPH is providing this PAD as required by Title 18 § 5.6 and §16.8 of the U.S. Code of Federal Regulations (CFR). This PAD accompanies BWPH's Notice of Intent (NOI) to seek a new license for the Project. BWPH is simultaneously distributing this PAD to Federal and state resource agencies, local governments, Native American tribes, members of the public, and others interested in the relicensing proceeding. Appendix A provides the distribution list for the NOI and PAD. As specified in 18 CFR § 5.6 (c) and (d) the PAD provides FERC and the entities listed above with summaries of existing, relevant, and reasonably available information related to the Project that is in the Licensee's possession or was obtained through due diligence.

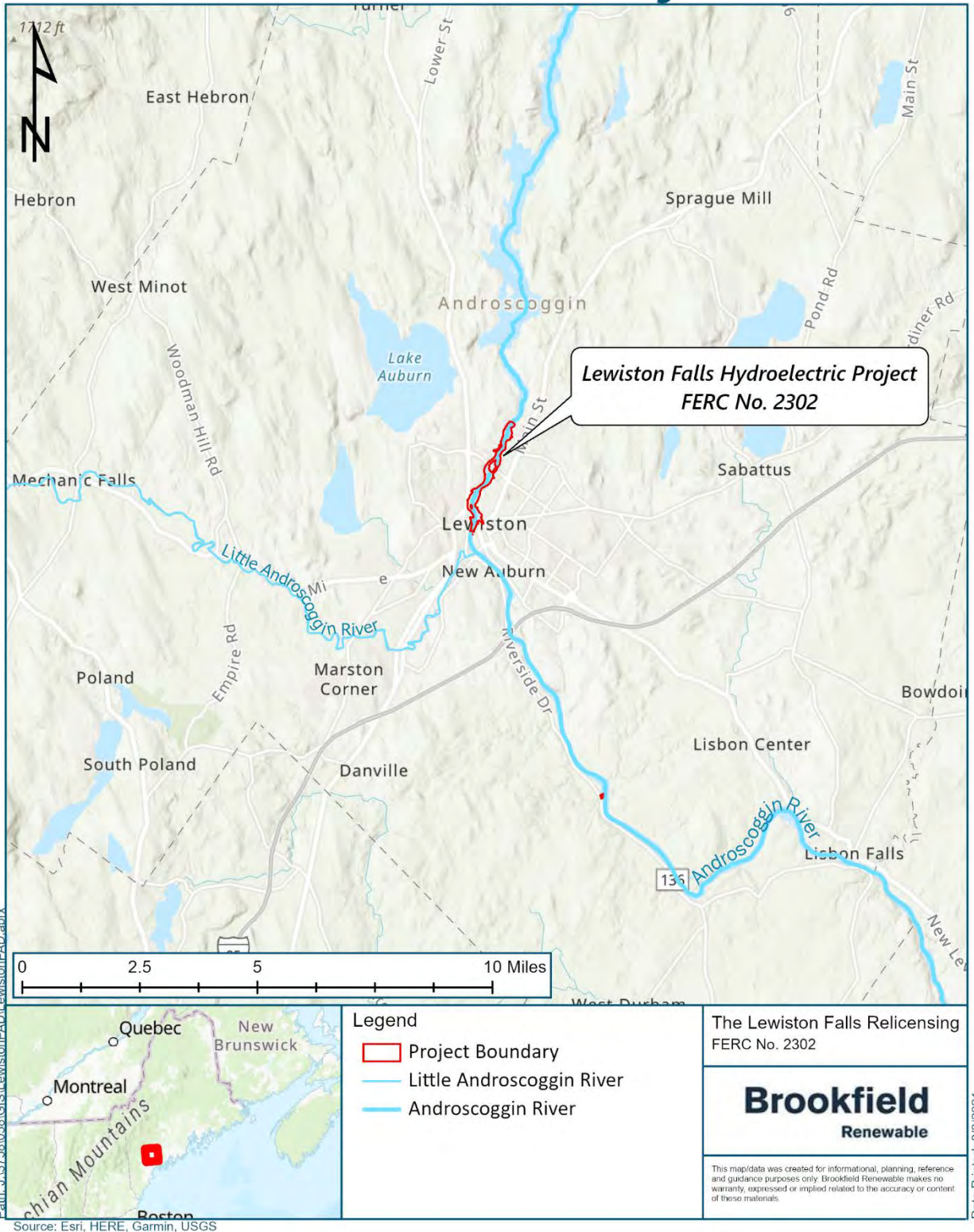
BWPH exercised due diligence in preparing this PAD by contacting appropriate federal and state governmental agencies, municipal representatives, non-governmental organizations (NGOs) and others potentially having relevant information; by conducting searches of publicly available databases and its own records; and by distributing a comprehensive PAD Questionnaire designed specifically to identify existing, relevant, and reasonably available information related to the Project. BWPH also conducted limited preliminary stakeholder outreach calls, as practicable, to familiarize interested parties with the Project and to briefly discuss the BWPH's relicensing plans and proposed use of the Traditional Licensing Process (TLP). Appendix B provides a summary of preliminary outreach contacts made by BWPH in preparing this PAD.

The information presented in this PAD provides parties interested in this relicensing the information necessary to review existing information about Project resources; identify issues and related information needs; develop study requests and study plans; and to prepare documents analyzing BWPH's Application for New License (License Application)

that will be filed with FERC on or before August 30, 2024. The PAD is also a precursor to the environmental analysis section of the License Application and eventually to FERC's Scoping Documents and Environmental Impact Statement (EIS) or Environmental Assessment (EA) under the National Environmental Policy Act (NEPA).

Figure 1-1 Lewiston Falls Hydroelectric Project Location

Project Location



1.1 Agents for Brookfield White Pine Hydro, LLC

The following persons are authorized to act as agent for the applicant pursuant to 18 CFR § 5.6(d)(2)(i):

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1.2 PAD Content

- This PAD follows the content and form requirements of 18 CFR § 5.6 (c) and (d), with minor changes in form for enhanced readability and is organized as follows: Table of Contents; List of Tables; List of Figures; List of Appendices; List of Photos; and Definitions of Terms, Acronyms, and Abbreviations.
- Section 1.0 – Introduction and Background Information.
- Section 2.0 – Process Plan and Schedule, Communications Protocol, and TLP Flow Chart, per 18 CFR § 5.6(d)(1).
- Section 3.0 – Project Location, Facilities, and Operation, per 18 CFR § 5.6(d)(2).
- Section 4.0 – General Description of the Little Androscoggin River basin, per 18 CFR § 5.6(d)(3)(xiii).
- Section 5.0 – Description of the Existing Environment by Resource Area, per 18 CFR § 5.6(d)(3)(ii)-(xii).
- Section 6.0 – Description of Impacts, Issues, Study and Information Needs, Resource Measures, and Existing Plans, per 18 CFR § 5.6(d)(3) and (4).

- Appendices:
 - Appendix A – Distribution List
 - Appendix B – Consultation Documentation – PAD Questionnaire; A summary of the contacts made by BWPH and consultation undertaken in preparing this PAD
 - Appendix C – Project License, License Amendments, and Water Quality Certificates
 - Appendix D – Exhibit G Drawings
 - Appendix E – Flow Duration Curves
 - Appendix F – Maine Northern Hardwood and Conifer Forests T/E Species List

1.3 References

Federal Energy Regulatory Commission (FERC). 1986. Order Issuing License (Major) Lewiston Falls Project No. 2302. 36 FERC § 32,353. Issued September 29, 1986.

2.0 PLANS, SCHEDULE, AND PROTOCOLS

In its Notice of Intent (NOI), BWPH requests FERC’s approval to use the Traditional Licensing Process (TLP) for the Lewiston Falls Project. The TLP has three major stages (18 CFR 4.38). In general, the first stage involves coordination between the applicant, resource agencies, affected Indian tribes, and the public and includes the sharing of project information, notification of interested parties, and study planning and implementation using the PAD. The second stage involves study implementation and additional data gathering as well as development of a Draft License Application (DLA) and review of the draft License Application by resource agencies and optionally, FERC. The third stage commences with the filing the Final License Application (FLA), whereby FERC initiates its own review and public comment process, ultimately issuing a license for the Project. Table 2-1 depicts the regulatory milestones of the TLP.

As described in the following sections, BWPH plans to enhance the standard TLP to ensure additional opportunity for participation by stakeholders throughout the relicensing process. BWHP will do this by establishing additional process steps which allow for additional stakeholder involvement which are outlined in the Process Plan and Schedule provided in the next section.

2.1 Process Plan and Schedule through Filing of License Application

The Process Plan and Schedule outlines actions by FERC, BWPH, and other participants in the relicensing process through filing of the FLA. Table 2-1 provides the proposed Process Plan and Schedule for the Lewiston Falls Project based on the TLP and the License Application filing deadline of (August 30, 2024).¹ Process steps that are not shaded are those required under FERC’s regulations for the TLP. Process steps shaded in blue are the steps BWHP is proposing to add to enhance stakeholder involvement in the TLP, including stakeholder/workgroup meetings, stakeholder review of the draft study plan(s) and reports, and revision of the study plan(s) and reports as needed.

¹ The final License Application must be filed no later than two years before license expiration (August 30, 2026), but could be filed earlier.

**Table 2-1 Lewiston Falls Project Proposed Process, Plan and Schedule
 Traditional Licensing Process (TLP)**

TLP Schedule	Duration Days	Estimated Date
File NOI/PAD and Request TLP		8/4/2021
FERC Issues Authorization to Use TLP	60	10/4/2021
STAGE 1		
TLP Approved		10/4/2021
Joint Agency Meeting (JAM)	30-60	11/15/2021
TLP Stakeholder/Workgroup Meetings (if needed)		11/15/2021 - 1/14/2022
Comments on PAD/Study request	60 (from JAM)	1/14/2022
Draft Study Plan for Stakeholder Review and Comment		2/14/2022
TLP Stakeholder Meetings to review Draft Study Plan and Comments (as needed)		2/14/2022 - 4/18/2022
Finalize Study Plan		4/29/2022
STAGE 2		
Conduct Studies ("reasonable and necessary")		4/29/2022 - 3/2/2023
Share Draft Study Report(s)	30	3/2/2023
TLP Stakeholder Meetings ie. Study Reports/Comments on Study Reports		3/2/2023 - 3/30/2023
Revise Study Plan (if needed)		5/1/2023
Conduct 2nd Year Studies (if needed)		5/1/2023 - 1/29/2024
Issue Draft License Application (DLA)	No later than 150 days prior to FLA filing	2/20/2024
Comments on DLA	90	5/20/2024
Joint Meeting ("substantive disagreements")	60	7/22/2024
STAGE 3		
File Final License Application		8/30/2024
License Expiration		8/31/2026

Note: Blue shading indicates relicensing process steps that BWPH plans to undertake for the Lewiston Falls Project but which are not specifically required by FERC's TLP regulations.

2.2 Joint Agency Meeting and Site Visit

As set forth in FERC's TLP regulations and subsequent to FERC's approval of the TLP, BWPH will schedule a joint agency and public meeting (Joint Meeting or JAM), including an opportunity for a site visit, with all pertinent resource agencies, NGO's, Indian tribes, and members of the public.² BWPH will provide stakeholders with written notice of the time and place of the Joint Meeting and a written agenda at least 15 days in advance of the meeting. Pursuant to 18 CFR §16.8(b)(3), the Joint Meeting will be held no earlier than 30 days and no later than 60 days from the date of Commission approval of use of the TLP.

In addition, as outlined in the schedule provided in Table 2-1, BWPH has planned enhancements to the TLP including stakeholder and workgroup meetings, preparation of a study plan, opportunity for stakeholders to review and comment on the study plan, sharing of draft study reports, and review and opportunity to comment on the study reports.

2.3 Proposed Communication Protocols

Effective communication is essential for a timely and effective relicensing. BWPH anticipates that the primary means of communication will be meetings, documents, email, and telephone.

2.4 Parties to the Relicensing

Under FERC proceedings, participating individuals typically are identified as one of two groups: a) Interested Parties, which is the broad group of individuals and entities that may have an interest in a proceeding, including Native American tribes, agencies, groups and individuals that may wish to participate in the licensing process, and b) Relicensing Participants, which is a subset of Interested Parties and consists of individuals and entities that are actively participating in a proceeding, such as by participating on committees, also commonly referred to as "stakeholders". Relicensing Participants (Stakeholders) may

² Traditionally, the Joint Meeting is conducted in-person with an opportunity for a site visit. However, in response to the Coronavirus pandemic, FERC has asked Licensees to hold these meetings virtually, with no need for site visit. This may change by Fall of 2021.

receive additional communications relative to the specific activity or function. Any Interested Party may elect to be a Relicensing Participant by request to BWPH.

2.5 General Communications

Communications will include written correspondence, emails, and relevant meeting notes and consultations. BWPH's main goal is to keep the lines of communication open during the relicensing process for Interested Parties, Relicensing Participants and the public.

Telephone

BWPH anticipates that telephone calls among Interested Parties and Licensing Participants will be treated informally, with no specific documentation unless specifically agreed upon in the discussion or as part of formal agency consultation proceedings.

2.6 Electronic Communications

BWPH anticipates that distribution of relevant documents including submittal of comments, correspondence, and study requests from agencies will be conducted primarily electronically (either by via email or by electronic filing of documents with FERC). In addition, some formal agency consultation and correspondence may, as a matter of convenience and expediency, occur electronically or via email. BWPH will maintain documentation of all correspondence as part of formal agency consultation proceedings.

The Commission makes information available to the public via the internet through eLibrary, a records information system that contains documents submitted to and issued by FERC. Documents filed with FERC as part of the Project's licensing process are available for viewing and printing via eLibrary, accessed through the Commission's homepage or directly at [FERC Online | Federal Energy Regulatory Commission](#) (Docket P-2302). Interested Parties and Relicensing Participants can also subscribe to the docket for the Project under eSubscription and be sent notices of issuances and filings by email. Instructions for subscribing to the electronic FERC docket for the Lewiston Falls Project are provided on FERC's website at [FERC Online | Federal Energy Regulatory Commission](#).

2.7 Meetings

BWPH will work with all Interested Parties to develop meeting schedules that include practical locations and times to accommodate the majority of participants.

BWPH will endeavor to notify stakeholders with reasonable advanced notice of any informal meetings, and will provide the required notice for any formal meetings required as part of the TLP. At that time, BWPH will provide a meeting agenda. BWPH will also distribute any documents or other information that will be the subject of meeting discussions.

2.8 Documents and Distribution

BWPH will maintain copies of all mailing lists, announcements, notices, communications, and other documents related to the relicensing of the Project. As specified below, BWPH will update the public files, via FERC's eLibrary, as needed, to ensure the public has the latest information related to the relicensing process available to them and that all public documents are available. Anyone may also obtain documents by contacting:

Luke Anderson
Manager, Licensing
Brookfield White Pine Hydro, LLC
150 Main Street
Lewiston, ME 04240
Phone: (207) 755-5613
Email: Luke.Anderson@brookfieldrenewable.com

Wendy Bley
Kleinschmidt Associates
141 Main Street
Pittsfield, ME 04967
Phone: (804) 883-5869
Email: Wendy.Bley@Kleinschmidtgroup.com

As with some other communications described above, documents submitted to and issued by FERC for the Project are available through eLibrary under Docket P-2302 ([FERC Online | Federal Energy Regulatory Commission](#)). In addition, all materials filed with or issued by the FERC will be available for review and copying at the FERC offices in Washington, DC:

Federal Energy Regulatory Commission
Public Reference Room, Room 2-A
Attn: Secretary
888 First Street, N.E.
Washington, D.C. 20426

Distribution of primary licensing documents, submittal of comments, and correspondence will be largely conducted electronically, by electronic filing of documents with FERC.

2.9 Restricted Documents

Certain Project-related documents are restricted from public viewing in accordance with FERC regulations. Critical Energy/Electric Infrastructure Information (CEII) (18 CFR 388.113) related to the design and safety of dams and appurtenant facilities, and that is necessary to protect national security and public safety are restricted. Anyone seeking CEII information from FERC must file a CEII request. FERC's website at [Critical Energy/Electric Infrastructure Information \(CEII\) | Federal Energy Regulatory Commission \(ferc.gov\)](#) contains additional details related to CEII.

Information related to protecting sensitive archaeological or other culturally important information is considered Privileged and is also restricted under Section 106 of the National Historic Preservation Act (NHPA) as amended and its implementing regulations (36 CFR 800). In addition, information related to threatened and endangered species is also considered Privileged and is protected under Section 7 of the Endangered Species Act (ESA).

2.10 Study Requests

In accordance with FERC's regulations, Relicensing Participants may identify resource studies for consideration and should consider the following criteria in making any study request:

- Describe the goals and objectives of each study proposal and the information to be obtained.
- If applicable, explain the relevant resource management goals of the agencies or Indian tribes with jurisdiction over the resource to be studied.
- If the requestor is a not resource agency, explain any relevant public interest considerations in regard to the proposed study.
- Describe existing information concerning the subject of the study proposal, and the need for additional information.
- Explain any nexus between Project operations and effects (direct, indirect, and/or cumulative) on the resource to be studied, and how the study results would inform the development of license requirements.
- Explain how any proposed study methodology (including any preferred data collection and analysis techniques, or objectively quantified information, and a schedule including appropriate filed season(s) and the duration) is consistent with generally accepted practice in the scientific community or, as appropriate, considers relevant tribal values and knowledge.
- Describe considerations of level of effort and cost, as applicable, and why any proposed alternative studies would not be sufficient to meet the stated information needs.

The requestor should also describe any available cost-share funds or in-kind services that the sponsor of the request may contribute towards the study effort.

Email or mail completed study requests in MS Word or PDF format to:

Luke Anderson
Manager, Licensing
Brookfield White Pine Hydro, LLC
150 Main Street
Lewiston, ME 04240
Phone: (207) 755-5613
Email: Luke.Anderson@brookfieldrenewable.com

Wendy Bley
Kleinschmidt Associates
141 Main Street
Pittsfield, ME 04967
Phone: (804) 883-5869
Email: Wendy.Bley@Kleinschmidtgroup.com

2.11 References

FERC Online. December 29, 2020. [FERC Online | Federal Energy Regulatory Commission](#). Accessed May 14, 2021.

Hydropower Reform Coalition. 2017. Traditional Licensing Process. [Traditional Process Flow Chart FERC License - Bing images](#). Accessed May 14, 2021.

3.0 PROJECT LOCATION, FACILITIES, AND OPERATIONS

3.1 Project Location

The Lewiston Falls Project is located on the Androscoggin River in Androscoggin County, Maine. The Project dam spans the river between the cities of Lewiston and Auburn. Originally the Project included a dam, a canal system, and several generating facilities throughout the canal system. The Project was redeveloped in 1990 when a new powerhouse, Monty Station, was added to the mainstem of the river, near the canal entrance. Monty Station became the primary generating facility, and there was a corresponding reduction in the operation of the smaller generating stations located within the Canal System. In 2017 the Canal System was removed from the FERC-licensed Project and the canal generating facilities were decommissioned. The Project's authorized licensed generating capacity was reduced from 35.6 MW to 28.44 MW as a result of the removal of the Canal System (FERC Order issued November 9, 2017).

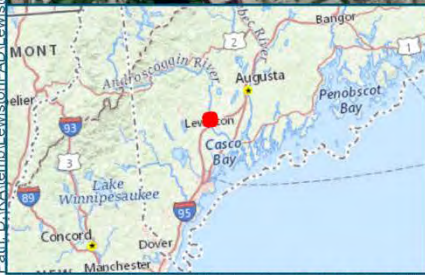
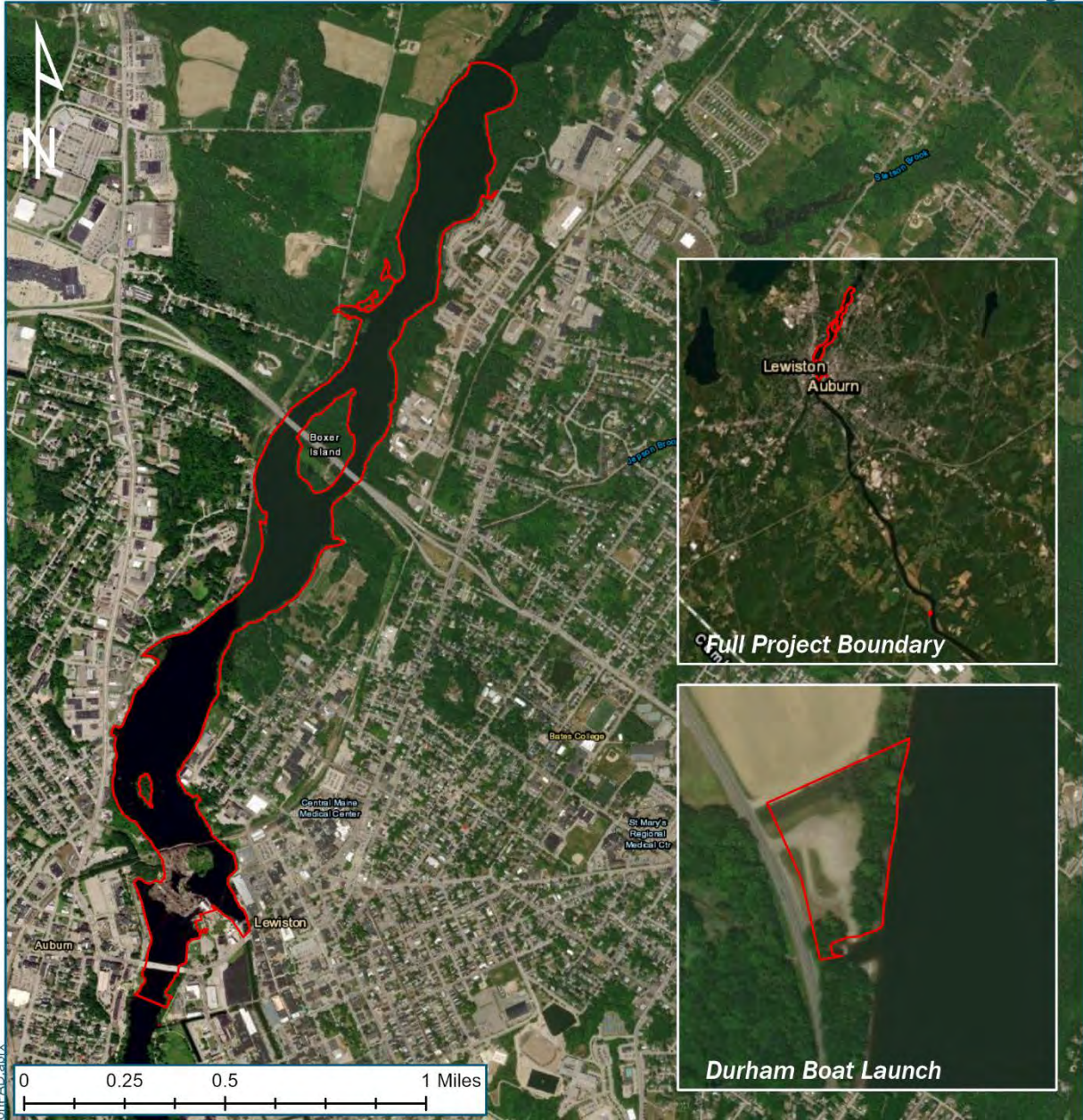
In 2020, approximately 5 miles of free-flowing river, downstream of the powerhouse and adjacent to the decommissioned Canal System, was removed from the Project boundary as it was no longer necessary for Project purposes (FERC Order issued October 14, 2020). As described in the following sections, no other changes were made to the Project boundary, and the Project boundary was maintained around all FERC-approved Project recreation sites, including the Durham Boat Launch, located approximately 7 miles downstream of the Project.

3.1.1 Project Boundary

The current Project boundary extends approximately 0.28 miles downstream of Monty Station and 2.5 miles upstream of the dam. The Project boundary encompasses the Project dam, powerhouse, impoundment, two gatehouse buildings, and the tailwater area. The Project boundary also includes three FERC-approved Project recreation sites, the Lewiston Falls impoundment boat launch (Higgins Boat Launch) and the Durham Boat Launch located approximately 7 miles downstream of the Project (Figure 3-1).

Figure 3-1 Lewiston Falls Hydroelectric Project Boundary

Project Boundary



Legend
 Project Boundary

The Lewiston Falls Relicensing
 FERC No. 2302

Brookfield
 Renewable

This map/data was created for informational, planning, reference and guidance purposes only. Brookfield Renewable makes no warranty, expressed or implied related to the accuracy or content of these materials.

Path: D:\KAT\temp\LewistonPAD\LewistonPAD.aprx

Date Printed: 7/21/2021

Source: Maxar, Earthstar Geographics, Esri, HERE, Garmin

3.2 Existing Project Facilities

The Lewiston Falls Project consists of (a) a dam which is comprised of several distinct sections: four stone masonry sections (Dams No. 1, 2, 3, and 4), a concrete dam section (Dam No. 5), and the Island Spillway (a section of concrete installed to replace an eroded rock ledge on a small island between Dams #3 and #4 ; (b) a 200-acre impoundment; (c) a powerhouse near the east end of Dam #4 containing two turbine/generators; (d) two gatehouse buildings: the Main Gatehouse (that houses the gates at the Canal System entrance), and the Little Gatehouse building (that no longer contains gates but now houses the blowers for the inflatable dams)³ and also serves to impound the reservoir; (e) 12.5-kV generator leads; (f) a 12.5/34.5-kV, 30 MVA transformer; (g) a short 34.5-kV service-drop; and (h) appurtenant facilities (Figure 3-2). The Lewiston Falls Project originally included a Canal System that served to deliver water to small generating facilities located in several mills. On November 9, 2017, FERC approved an order amending the license to remove the Canal System and the Canal System generating facilities from the Project.

³ The Little Gatehouse building is also referred to as the "Blower Building" or the "Island Gatehouse."

Figure 3-2 Lewiston Falls Hydroelectric Project Facilities

Project Facilities



Note: Little Gatehouse Building also known as 'Blower House Building.'

3.2.1 Dam

The Lewiston Falls Project dam (also known as Great Stone Dam) is comprised of five sections with an elevation of 168.17 feet mean sea level (msl). Four stone-masonry dams, referred to as Dam #1, Dam #2, Dam #3, and Dam #4, were constructed between 1862 to 1865. The four dams are integrated into ledge outcroppings and islands to form a continuous barrier across the river, with a maximum height of 23 feet (Figure 3-2). Additionally, the dam includes a concrete section known as Dam #5 and a modified island segment known as Island Spillway (Figure 3-2). Dam #5 has a maximum height of 4 feet with a fixed crest elevation of 166.83. This crest is fitted with steel pins that support 1.34 foot-high flashboards. Island Spillway is a section of concrete installed to replace an eroded ledge on a small island between Dams #3 and #4. Island Spillway was constructed in 1920. Dam #5 was erected in 1956.

Dam #1 extends 154 feet from the Auburn shore to a ledge outcrop in the river. Continuing beyond the outcrop, Dam #2 stretches nearly 279 feet to a large island in the middle of the river. Dam #3 runs some 161 feet from the southern end of this island to the small island that contains Island Spillway and Dam #5. Dam #4 extends nearly 162 feet to the northerly side of the Little Gatehouse on the Lewiston shore of the river (Table 3-1).

From 2011 to 2013, rubber dams were installed and a new concrete crest was constructed as a base for the rubber dams on top of the existing stone-masonry dams. A single rubber dam is installed on each of Dam #1, Dam #2 and Dam #3. Two bladder sections are installed on Dam #4. When the rubber dam sections are deflated, the crest of each spillway section is at an elevation of 163.77 feet. The crest of the rubber dams on Dams No. 1 and No. 2, when fully inflated, are at elevation 169.07 feet. The crests of the rubber dams for Dam #3 and Dam #4 are at elevation 168.6 feet. The rubber dams maintain the existing normal pond elevation of 168.17 feet. The rubber dams are designed to deflate when the headwater reaches approximately 20 percent overtopping of the rubber dam at approximately elevation 169.95 feet.

Table 3-1 Lewiston Falls Project Dam Sections Statistics

Dam Section	Length (feet)	Crest Elevation (feet msl)	Inflatable Bladder Elevation (feet msl)
1	154	163.77	169.07
2	279	163.77	169.07
3	161	163.77	168.6
4	162	163.77	168.6
5	57	166.83	1.34 flash boards
Island Spillway			N/A

3.2.2 Project Impoundment

The Lewiston Falls impoundment extends upstream approximately 2.5 miles and covers an area of approximately 200 acres. The gross storage volume of the impoundment is approximately 1,600 acre-feet at the full pond elevation of 168.17 feet msl. The Project is licensed to operate with up to four feet of impoundment fluctuation. As a result, the useable storage of the small impoundment is minimal, and the Project is normally operated as run-of-river, with impoundment fluctuations of one foot or less.

3.2.3 Powerhouse

The Charles E. Monty Station (Monty Station) was constructed in the late 1980s and became operational in 1990. It is located at the east end of the falls on the Lewiston side of the river at the site of a former municipal pumping facility. The powerhouse is a reinforced concrete structure, constructed in a deep ledge excavation. An erection bay is located on the east side of the powerhouse for maintenance activities.

Two vertical Kaplan turbine/generators are located in the powerhouse. Each turbine is rated at 18,000 horsepower (hp) under a 54-foot gross head, and is capable of passing up to 3,300 cubic feet per second (cfs) (Table 3-2). Each of the turbines is directly coupled to a 15,800 kilovolt-ampere (kVA) synchronous generator, with a power factor of 0.90.

The powerhouse contains a mechanical gallery for auxiliary plant equipment, an electrical gallery for station service and control equipment, and an access gallery for cable routing and personnel entrance. An overhead powerhouse crane services both units. The electrical gallery contains 12.5 kV switchgear that connects each generator to a common step-up

transformer located at the end of Mill Street. The substation transmits the Projects output to the local utility system through an existing non-Project transmission line which crosses the site. A 3-phase, 480-volt service from the switchgear supplies a motor control center in the electrical gallery. The motor control center distributes power throughout the powerhouse.

Table 3-2 Monty Station Turbine Unit Statistics

Monty Station Units	Turbine Design/Type	Hydraulic Capacity	Rotation Speed (RPM)
Unit 1	Kaplan/vertical	3,300 cfs	150.0
Unit 2	Kaplan/vertical	3,300 cfs	150.0

3.2.4 Gatehouse and Canals

The Project includes two gatehouse buildings, the Main Gatehouse is located about 550 feet to the southeast of Monty Station and serves as the intake and flow regulating structure for the Lewiston Canal System. The Main Gatehouse substructure is a granite block building measuring 111' 8" long and 26'4" wide and 20' high. A wood frame superstructure contains the gate operating equipment and office area. Flow into the Lewiston Canal System is regulated by seven hydraulically operated steep slide gates housed in a 9' wide, 12' tall opening. The total maximum hydraulic capacity of the gates is approximately 3,500 cfs.

Although the Lewiston Canal System is no longer part of the FERC-licensed project, the Main Gatehouse is still operational and is used to provide a 50 cfs minimum flow in the Lewiston Canal System at all times, except during periods of maintenance, or in the event of operating emergencies (MDEP 2017 and BWPH 2017). In addition, the Licensee provides periodic canal "refreshment flows" of 300 cfs (including the minimum flow), in accordance with a Stagnation Prevention Plan (MDEP 2017 and BWPH 2017). Any flows provided through the Lewiston Canal System are a portion of the total 1,430 cfs minimum flow required for the Lewiston Falls Project.

The Little Gatehouse building is located at the south abutment of Dam #4 on the Lewiston side of the river. This gatehouse building has a stone-masonry foundation, brick superstructure, and wood frame roof. The building measures approximately "23'-9" long,"17'-7" wide, and 20 feet high. The Little Gatehouse building no longer functions as a gatehouse. All of the gate slots formerly utilized at the Little Gatehouse have been filled with concrete, and the structure is retained for its historical significance. At the time of the installation of the rubber dams, the Little Gatehouse was modified to house the blower equipment for the inflatable dams. The floor of the gatehouse was leveled by pouring a new 8" floor slab over the existing floor. Areas of the slab at an elevation different from the existing floor grade were removed or filled as necessary. Today, the Little Gatehouse building is also referred to as the "Blower House Building" or "Island Gatehouse".

3.2.5 Tailrace

The Monty Station tailrace is a deep channel excavated into rock ledge. The tailrace channel is approximately 400 ft long and 75 feet wide. Substrate in the tailrace is solid bedrock.

There are no upstream or downstream fish passage facilities at the Lewiston Falls Project. BWPH monitors the falls following spill events to ensure that Atlantic salmon and/or other fish species do not become stranded following spill events. Monitoring is carried out in conformance with an existing Atlantic salmon stranding plan (FERC 2013).

3.2.6 Transmission Facilities

Each of the Project generators is connected to a common step-up transformer through a 12.5 kV circuit breaker. The breakers are located in the powerhouse while the step-up transformer and related high voltage equipment is located in a substation at the end of Mill Street. The step-up transformer, rated 30,000 kVA, 34.5/12.5 kV, services both generating units. Two 500 MCM aluminum, 15 kV cables per phase connect the generators to the outdoor step-up transformer. The cables from the high side of the transformer run under the driveway to a pole mounted switch which is the demarcation point with the utility.

3.2.7 Proposed Project Facilities

No changes to the Project facilities or structures are being proposed.

3.3 Existing Operations

Generation at the Lewiston Falls Project is coordinated with Brookfield's Gulf Island-Deer Rips Project located approximately five miles upstream of the Project. The Project impoundment has no appreciable useable storage capacity. Therefore, the Project is normally operated as run of river with impoundment fluctuations of one foot or less, on a daily basis. However, the Project is licensed to operate with up to four feet of impoundment fluctuation (between 168.17 feet mean sea level (msl) and 164.17 feet msl) to allow for adjustments between inflow and minimum flow requirements, or in response to operating emergencies, as may be needed. The rubber dams are designed to maintain the existing normal pond elevation of 168.17 feet and deflate when the headwater reaches approximately 20 percent overtopping of the rubber dam at about elevation 169.95 feet.

The original Water Quality Certification (WQC) was issued by the Maine Department of Environmental Protection (MDEP) June 6, 1986; and required the Project to discharge a continuous minimum flow of 1,000 cubic feet per second (cfs), with 850 cfs discharged through turbines, and 150 cfs discharge from Lower Androscoggin facility, within the Lewiston Canal System. On February 26, 2008, the Maine Department of Environmental Protection requested modification of the existing WQC to require an increase in minimum flow to 1,430 cfs, or inflow, whichever is less. The increased minimum flow was intended to improve downstream habitat for various fish species including brown trout, smallmouth bass, and American shad, and to sustain good water quality in the Project tailrace area (MDEP 2008).

In 1998, the License was amended to remove the Bates No.2 canal generating facility. In 2017, the license was amended to remove the Lewiston Canal System from the Project. Under the amended license the Project is still required to provide at least 50 cfs through the Lewiston Canal System, as part of the required total 1,430 cfs minimum flow (FERC 2017). Additionally, there is a Project license requirement to provide periodic "refreshment flows" of 300 cfs to the Canal System (FERC 2017). The remaining minimum flow required by the WQC is typically discharged from the Monty Station.

3.4 Proposed Project Operations

No changes to the Project operations are being proposed.

3.5 Other Project Information

3.5.1 Current License Requirements

The original 40-year license for the Project was issued by the Commission on September 29, 1986; and expires on August 31, 2026. The existing license contains multiple articles governing how the Project is operated, including articles concerning power production, public safety, instream flows, and recreation, among others. The current license can be found in Appendix C. Articles 1 through 28 of the license are “standard content”, modeled after FERC’s 1975 Form L-4, except Article 15 which was not required for the Project. Project-specific Articles include Articles 201 through 410. Articles 301 through 305 were specific to the construction of Monty Station. Table 3-3 provides a high-level description of each license project-specific article. Several License Amendments and Orders have been issued since the original Order Issuing License (Major) in 1986. These amendments are summarized in Table 3-4. The Project is additionally subject to a Water Quality Certificate (WQC) that was issued by the Maine Department of Environmental Quality (MDEP) on June 6, 1986. The WQC was amended on January 22, 1994, July 23, 2002, April 3, 2008, and on April 19, 2017, all of which are contained in Appendix C. Table 3-3 also contains WQC requirements.

Table 3-3 Summary of Project-specific FERC License Articles

License Article	Description
Article 201	As amended by May 13, 1992, July 21, 1992, August 3, 1998 and November 9, 2017 FERC Orders. Requires annual charges based on the authorized installed capacity of the Project.
Article 202	Requires pursuant to section 10(d) of the Act, a specified reasonable rate of return upon the net investment in the Project shall be used for determining surplus earnings of the Project to determine for the establishment and maintenance of amortization reserves.
Article 203	Requires the Licensee to and keep clear to an adequate width all lands near the project and clear lands and dispose of all unnecessary trees/debris with due diligence.
Article 204	Required within 90 days from the issuance date of the license, file with the Commission, a statement showing the gross amount of power generation for the project in kilowatt-hours for each calendar year commencing July 24, 1958, and ending August 31, 1986.

License Article	Description
Article 401	The licensees, after consultation with the U.S. Army Corps of Engineers, the U.S. Fish and Wildlife Service, and the Maine Department of Environmental Protection, shall prepare and file with the Commission, an erosion, dust, and slope stability plan, and to minimize the quantity of sediment or other potential water pollutants resulting from construction and operation of the project.
Article 402	As amended by June 28, 1990 FERC Order and post-op water quality monitoring plan, and by February 1, 1988 FERC Order approved and amended in part. Requires within 3 months of the issuance date of the license and after consultation with the U.S. Fish and Wildlife Service (FWS), the National Marine Fisheries Service, (NMFS) the Maine Department of Environmental Protection (DEP), the Maine Department of Inland Fisheries and Wildlife (MIFW), and the Maine Department of Marine Resource (DMR), shall develop a water quality monitoring plan to assess the reaeration occurring under existing and proposed operational modes.
Article 403	Requires the Licensee to operate the project in a manner that would maintain water levels in the impoundment between elevations 168.17 feet and 164.17 feet, MSL for the protection of fish and wildlife in the Androscoggin River.
Article 404	Requires the Licensee to discharge from the Project a continuous minimum flow of 1,000 cfs for the protection and enhancement of fish and wildlife resources in the Androscoggin River.
Article 405	The licensees, at least 60 days before the scheduled start of land-clearing, land-disturbing, or spoil producing activities, shall file with the Commission a plan to avoid or minimize disturbances of the visual resources of the project area, that would result from constructing and operating project facilities.
Article 406	The licensees, at least 60 days before the start of land-disturbing or land-clearing activities, shall file with the Commission a management plan (after consultation with the SHPO and MDEP) for ensuring that the construction and development of the Project will result in no adverse effect on the Cowan Mill and no effect on the Lewiston Water Power System.

License Article	Description
Article 407	The licensees, before starting any ground disturbing or land-clearing activities within the project boundaries (during construction, developing project works or facilities at the Project), other than that specifically authorized in this license, shall consult with the Maine State Historic Preservation Officer (SHPO) regarding the need for a cultural resources survey and salvage work. The licensee shall file with the Commission documentation of the nature and extent of consultation, including a cultural resources management plan and a schedule to conduct the necessary investigation, together with a copy of a letter from the SHPO commenting on the plan and schedule, 60 days before starting any such ground-disturbing or land-clearing activities.
Article 408	Within two years of the issuance of the license, the Licensee shall lease to the city of Auburn the project area known as West Pitch to develop a public park.
Article 409	As amended by June 29, 2000 FERC Order amending the recreation plan. Requires public access and a downstream boat ramp.
Article 410	Allows the licensee the authority to grant permission for certain types of use and occupancy of project lands and waters without prior Commission approval. Only allowed to enhance the scenic, recreational, and other environmental values of the project.
Water Quality Certificate Requirements	Description
Impoundment water levels	Water levels in the impoundment shall be maintained between elevation 168.17 feet (flashboard crest) and 164.17 feet (spillway crest).
Minimum Flow	Minimum flow of 1,430 cfs or inflow must be maintained from the Project at all times.
Dissolved Oxygen	Dissolved oxygen concentrations shall be maintained at or above an instantaneous minimum of 5.0 ppm in the Androscoggin River below Lewiston Falls and at or above a 30 day average of 6.5 ppm below Dresser's Rips (located approximately two miles downstream of the Project on the eastern shore of the Androscoggin River in the City of Lewiston).
Dissolved Oxygen	Dissolved oxygen monitoring was met for the required 5 years and was discontinued on the July 23, 2002 WQC amendment.

Table 3-4 License Orders and Amendments

Date Issued	FERC Order or Amendment
September 29, 1986	Order Issuing New License (Major Project - Existing Dam).
June 28, 1990	Order approving and modifying Central ME Power et al post-operational water quality monitoring plan.
February 26, 1991	Order Approving Partial transfer of license, amendment of license, and re-designation of Project works (requesting a separate license instrument for the Upper Androscoggin Station).
April 4, 1991	Order Approving Recreation Development Plan and As-Built Drawings.
May 13, 1992	Order amending the license and revising annual charges (to increase the Project's authorized installed capacity of the new powerhouse from 25 MW to 28.44 MW).
July 21, 1992	Order Approving revised Exhibits A, F, and G, Amending License and Revising Annual Charges (describing the existing developments, excluding the Upper Androscoggin development).
October 24, 1994	Order Approving Change in Recreation Plan and Project Boundary.
August 3, 1998	Order Amending License (to delete Bates No. 2 Station).
December 23, 1998	Order Approving Transfers of License (transfer license for the Lewiston Falls project No. 2302 to FPL Energy Main Hydro LLC).
June 29, 2000	Order Amending the Recreation Plan (to construct a boat launch with parking on the west shoreline of the Project's head pond).
March 28, 2001	Order approving as-built Exhibit R and G drawings.
July 29, 2013	Order Amending Licenses (to change the Licensee's name from FPL Energy Maine Hydro, LLC to Brookfield White Pine Hydro LLC).
December 13, 2013	Order approving Interim Species Protection Plan and Atlantic Salmon Rescue and Handling Plan re Brookfield White Pine Hydro, LLC under P-2302.
May 16, 2014	Order Approving as-built Exhibit A and F and Revising Project Description (to describe and show the recently completed inflatable bladder modifications).

Date Issued	FERC Order or Amendment
November 9, 2017	Order Amending the License and Revising Annual Charges (to remove the Canal System and its four non-operating generating stations).
September 12, 2018	Order Approving Exhibit G Drawings.
October 14, 2020	Order Amending the Project Boundary and Approving Revised Exhibit G Drawings (to shorten the downstream extent of the project boundary by approximately 5 miles).

3.5.2 Compliance History of the Project

A review of the FERC record for the Project found that there were two deviations in the Project’s history that were considered violations of the License by FERC. On May 18, 2017 there was a headpond elevation deviation (Article 403).⁴ And on August 11, 2020 there was a minimum flow violation (Article 404).⁵ Both of these incidents were reported by BWPH, fully investigated by FERC, and measures put in place to prevent reoccurrence in the future.

Otherwise, BWPH has operated the Project in accordance with the terms and conditions of the license. The Project has been subject to the Commission’s standard operational and environmental inspections. Following these inspections, the Licensee has implemented and completed all necessary actions to address any Commission comments and recommendations.

In addition, FERC’s Regional Office conducts an environmental inspection every four to five years. The most recent FERC environmental inspections at the Lewiston falls Project was conducted on September 27, 2017.⁶

3.5.3 Safety Procedures

The Lewiston Falls Project is remotely monitored and operated 24 hours a day, 7 days a week. In addition, plant staff visit the site at least weekly. The NSCC notifies project

⁴ FERC Accession No.: 2017058-3045 (<https://elibrary.ferc.gov/eLibrary/filedownload?fileid=14591451>)

⁵ FERC Accession No.: 20201104-3010 (<https://elibrary.ferc.gov/eLibrary/filedownload?fileid=15654003>)

⁶ FERC conducted an inspection on June 3, 2021, but has not yet published the results of this latest inspection.)

personnel of operational problems via cellular telephones. Plant staff are generally within 30 minutes of the Project during normal work hours and can respond within 3 hours or less on off hours. Lewiston Falls is classified as a low hazard dam. Due to the low hazard classification of this dam, no Potential Failure Mode Analysis has been conducted at this site. The Dam Safety Surveillance and Monitoring Program and Report (DSSMP) defines the appropriate monitoring for the water retaining project works. The DSSMP for the Project was last filed with the FERC on April 14, 2021.

In addition, Section 10(c) of the Federal Power Act (FPA) authorizes FERC to establish regulations requiring licensees to operate and properly maintain their Projects for the protection of life, health, and property. FERC Part 12 regulations include such safety measures as signage and exclusion devices.

A public safety plan for the Project, which depicts the public safety devices installed at the Project and their location was submitted to FERC on May 19, 1992. Since the original plan, a revised public safety plan was submitted to FERC on October 31, 2017. FERC acknowledged review of the plan on January 11, 2018, and noted the public safety plan met the intent of the dam safety program. The Licensee, per the Public Safety Plan, provides multiple warning signs, cameras, and a siren to alert the public and employees in case of any station forced and/or trip event that would cause an increase in spillage over the dam. In addition, the Licensee maintains fences and warning signs throughout the facility to protect the public from the hazards of project structures and operations.

3.5.4 Summary of Project Generation

Table 3-5 provides the annual gross and average monthly gross generated megawatt hours (MWh) at the Project for the past ten years (2012-2020). As observed in the table, annual gross generation ranged from 146,761 to 146,175 MWh between 2013 and 2020 respectively, with an average annual generation of 144,271 MWh during the period examined.

**Table 3-5 Annual and Monthly Gross Generation (MWh)
 for the Project (2010-2020)**

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
2012	-	-	-	-	-	-	-	-	-	11,091	11,234	13,075	35,401
2013	11,970	11,954	14,477	17,604	14,744	15,257	14,663	10,428	10,202	6,630	8,459	10,371	146,761
2014	13,764	10,463	11,000	16,897	19,199	13,699	14,273	12,019	6,204	10,747	11,085	16,013	155,366
2015	13,976	10,694	10,286	16,679	13,967	17,125	10,906	7,473	5,257	9,594	9,774	14,698	140,428
2016	14,183	14,825	18,728	17,788	14,269	7,435	6,381	4,699	4,818	4,822	9,223	10,400	127,570
2017	11,326	11,364	14,728	17,469	19,165	12,494	11,605	7,404	5,854	6,501	9,792	9,198	136,902
2018	14,425	13,436	15,825	14,699	15,718	6,052	7,448	8,837	6,491	9,338	14,825	14,524	141,617
2019	15,179	15,710	17,534	17,502	19,387	12,508	9,210	5,607	4,875	12,353	13,282	13,664	156,812
2020	14,219	12,412	17,132	18,200	18,680	7,650	13,486	5,990	3,337	9,801	9,409	15,859	146,175
Average	13,630	12,607	14,964	17,105	16,891	11,527	10,997	7,807	5,880	8,987	10,787	13,089	144,271

Current Net Investment

The current (2020) net investment for the Project is approximately \$48,527,693.

Dependable Capacity

The dependable capacity of the Project is 26.96 MW.

3.6 References

Brookfield. 2014. Request to approve Revised Exhibit A (Project Description) and Exhibit R (Drawings of Project Works). Issued to FERC March 21, 2014.

Brookfield. 2017. Application for Non-Capacity Amendment of License. Issued February 24, 2017.

Brookfield. 2019. Species Protection Plan for Atlantic Salmon, Atlantic Sturgeon and Shortnose Sturgeon at the Brunswick and Lewiston Falls Projects on the Androscoggin River, Maine. Submitted to FERC December 31, 2019.

Brookfield. 2020. Application for a Non-Capacity Amendment of License – Revised Exhibit G. Issued April 20, 2020.

Federal Energy Regulatory Commission (FERC). 2013. Order Approving Interim Species Protection Plan and Atlantic Salmon Rescue and Handling Plan.. Issued December 13, 2013.

FERC. 2017. Order amending license and revising annual charges. Issued November 9, 2017.

FERC. 2020. Order Amending Project Boundary and Approving Revised Exhibit G Drawings. Issued October 14, 2020.

Maine Department of Environmental Protection (MDEP). April 2017. LEWISTON FALLS PROJECT, MINOR AMENDMENT, LEWISTON and AUBURN, DEP APPLICATION #L-9206-35-U-B. July 27, 2017.

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4.0 GENERAL DESCRIPTION OF THE RIVER BASIN

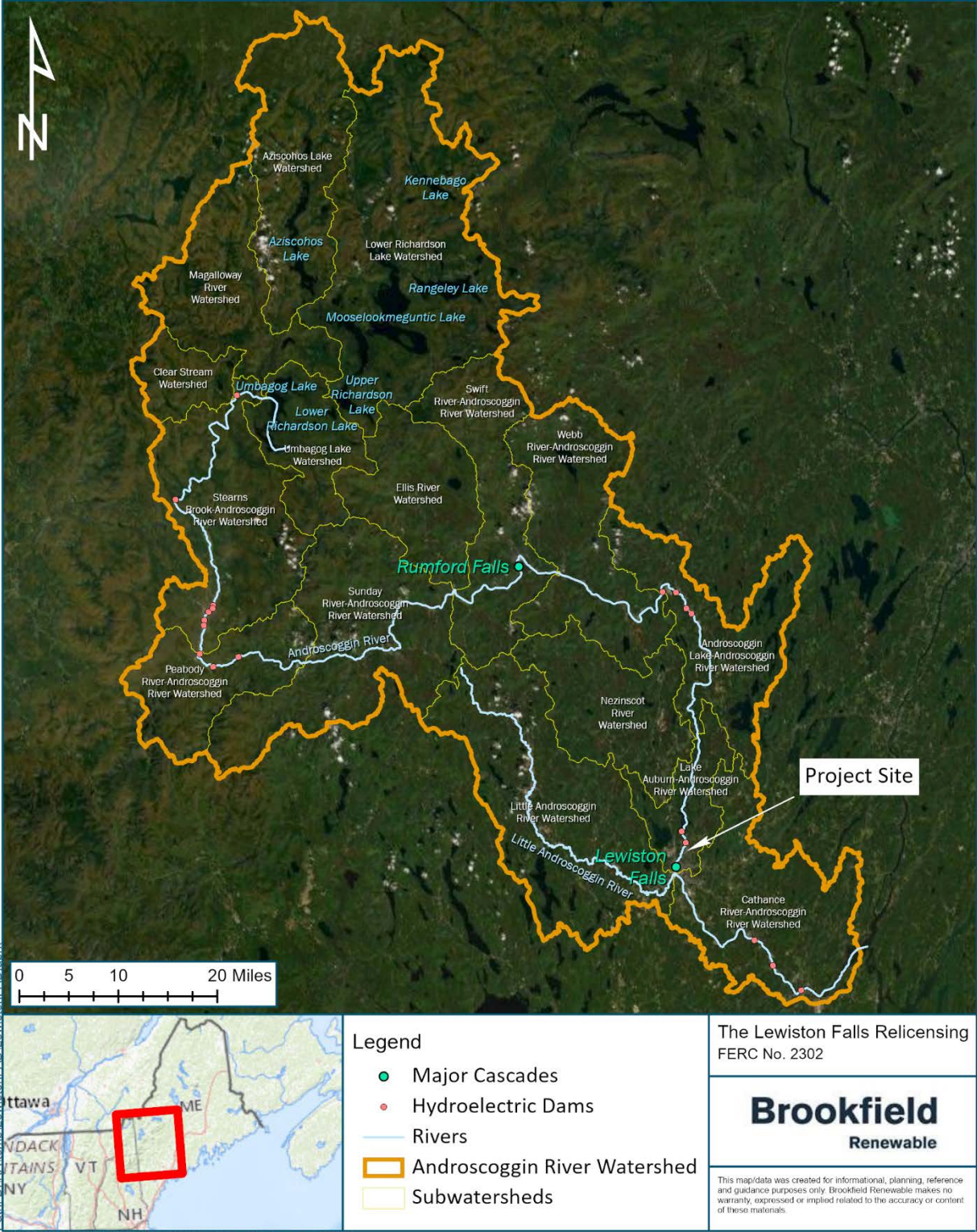
4.1 Overview

The Lewiston Falls Project (Project) is located on the Androscoggin River in the downtown areas of Lewiston and Auburn, Maine. The Androscoggin River runs 178 miles from Umbagog Lake in Errol, New Hampshire, through western Maine to join with the Kennebec River at Merrymeeting Bay, approximately 20 miles inland of the Gulf of Maine (Figure 4-1). The Project is located approximately 23 miles upstream of the head of tide. The Androscoggin River is Maine's third largest river, with a drainage area of approximately 3,530 square miles (ENSR 2007). The river has a steep gradient, dropping over 1,500 vertical feet from headwater to the tidal zone, with an average decent of 7.7 feet per mile (MDMR and MDIFW 2017).

The upper river basin includes a series of storage reservoirs known as the Upper Androscoggin River Storage System. This system includes Mooselookmeguntic, Upper and Lower Richardson, Aziscohos, and Umbagog Lakes. (USGS 1986). Major cascades along the Androscoggin River include Lewiston Falls and Rumford Falls. These cascades formed natural barriers for various diadromous fishes (MDMR and MDIFW 2017).

Figure 4-1 Androscoggin River Watershed

Androscoggin River Watershed



Major Land Uses

The Androscoggin River flows from its headwaters in the White Mountain in New Hampshire and the Blue Mountains in Western Maine. Forested lands are the predominant land use throughout the watershed (Figure 4-1; Table 4-1). Urban and developed areas are more common within the lower watershed, downstream of the Androscoggin and Webb river confluence (Appalachian Mountain Club 2003). Major cities within the watershed includes Berlin, New Hampshire, Rumford, Jay, Auburn and Lewiston, and Brunswick (Appalachian Mountain Club 2003). The Project area is located in Lewiston and Auburn and is dominated by developed lands (Figure 4-2; Table 4-1).

Historically, the Androscoggin River and valley were used for hunting, fishing and agriculture by Native American tribes including the Abenaki nation (NOAA 2020). During the 18th century European settlers used the River to explore and colonies were established along the riverbank (MDMR and MDIFW 2017). By the 1800s a number of dams were developed to support industrial complexes which included lumber mills, pulp and paper mills, tanneries, textile factories, and hydropower companies (NOAA 2020).

The forests surrounding the Androscoggin river were dominated by fir and spruce trees which were preferred softwoods for wood pulp used to produce paper. The river was used to transport timber downstream and to provide mechanical power to the gristmills and sawmills that supported the paper industry. Throughout the 1800s and 1900s industrial waste from the pulp mills was discharged to the river throughout the Androscoggin River basin. By the 1940s public outcry led to the creation of the Maine Sanitary Water Board which conducted a survey of polluted rivers, confirming that 96 percent of pollution was directly related to pulp and paper mills (MDMR and MDIFW 2017). In 1942, the Androscoggin River Technical Committee was established and ordered a weekly limit to combined waste discharge from the mills. Improvements to pollution control were introduced throughout the 1960s, including the introduction of the Water Quality Act in 1965 and The Clean Water Act in 1972 (MDMR and MDIFW 2017). Since the 1970s, water quality in the Androscoggin River has improved considerably (MDMR and MDIFW 2017).

Table 4-1 Land Cover within the Androscoggin River Watershed and Project Area

Land Cover Type	Square Miles of Watershed	Percent of Watershed	Square Miles of Project Area	Percent of Project Area
Open Water	151.7	4.3	0.34	32.5
Developed, Open Space	80.5	2.3	0.08	8.0
Developed, Low Intensity	44.3	1.3	0.07	6.8
Developed, Medium Intensity	16.6	0.5	0.10	10.0
Developed, High Intensity	5.2	0.1	0.15	13.9
Barren Land	12.9	0.4	0.00	0.0
Deciduous Forest	974.0	27.6	0.04	3.9
Evergreen Forest	777.8	22.0	0.03	2.9
Mixed Forest	1,035.7	29.4	0.10	9.2
Shrub/Scrub	119.6	3.4	0.03	2.4
Grassland/Herbaceous	19.6	0.6	0.01	1.4
Pasture/Hay	83.2	2.4	0.05	4.5
Cultivated Crops	28.6	0.8	0.03	2.7
Woody Wetlands	158.2	4.5	0.01	0.6
Emergent Herbaceous Wetlands	20.0	0.6	0.01	1.2
Total Area	3,527.7	100	1.04	100

Source: Data from Figure 4-2 and Figure 4-3, USGS 2016.

Figure 4-2 Androscoggin Watershed Land Cover

Androscoggin Watershed Land Cover

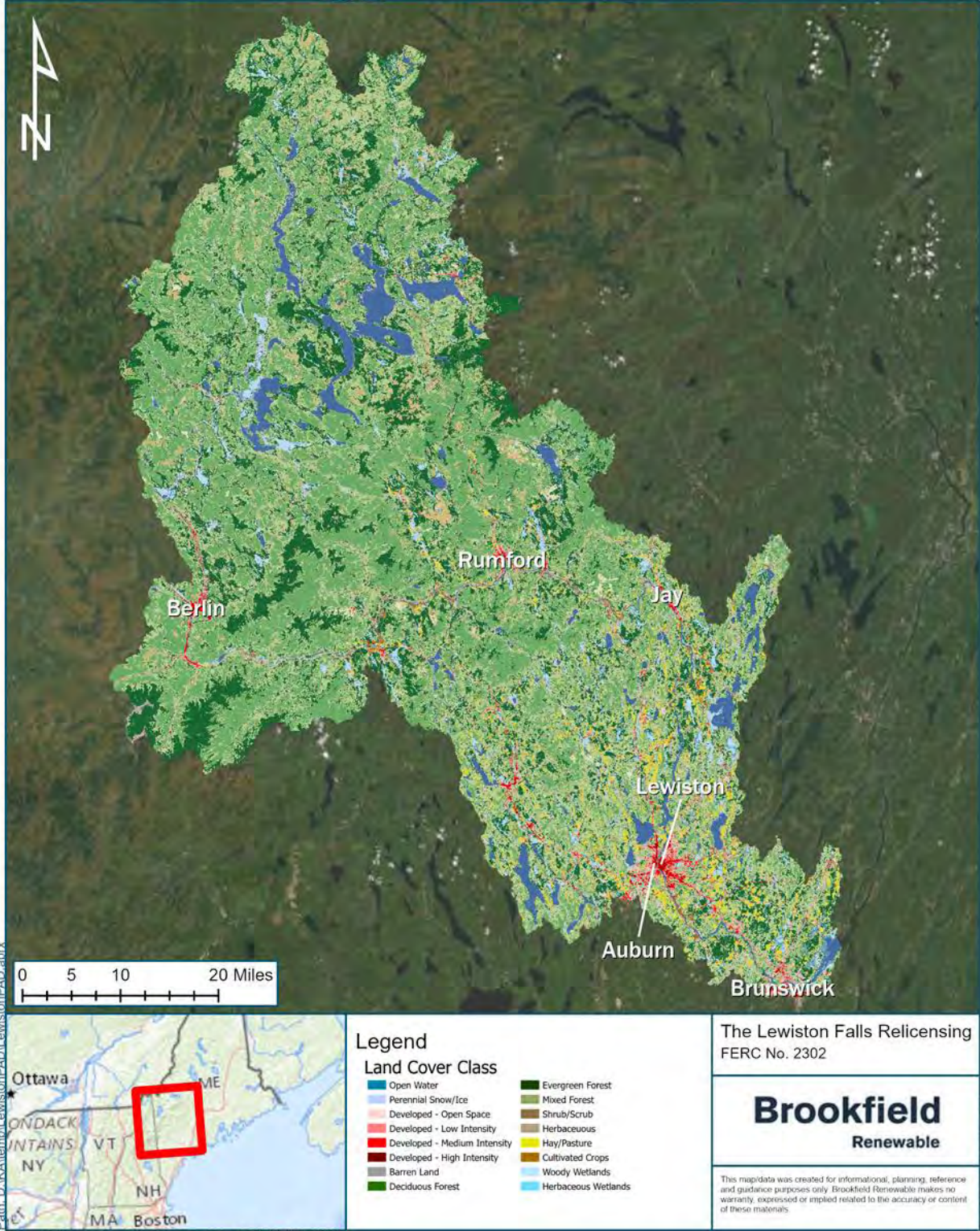
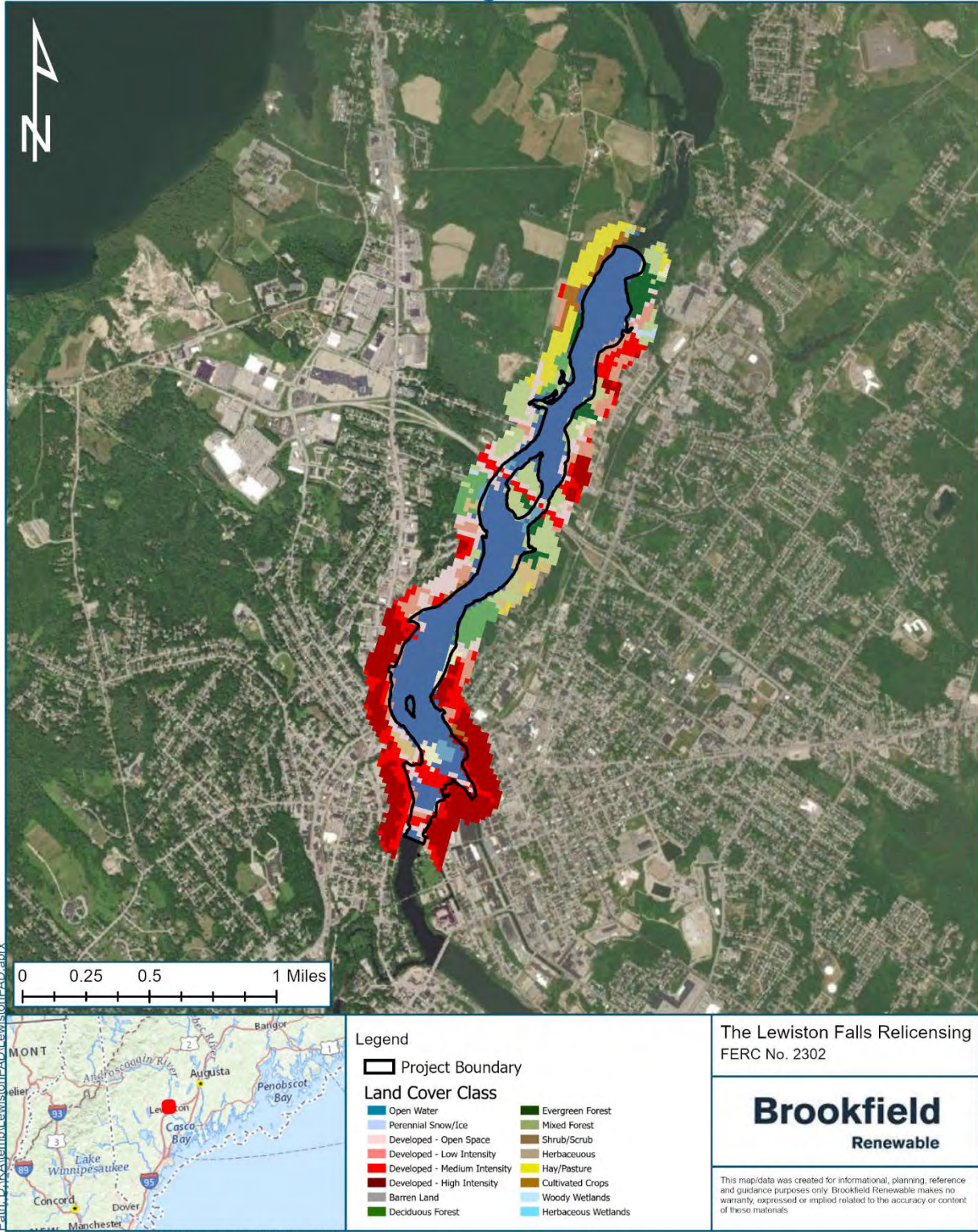


Figure 4-3 Project Area Land Cover

Project Area Land Cover



4.2 Major Water Uses

Four facilities in New Hampshire and 31 facilities in Maine hold National Pollutant Discharge Elimination System (NPDES) permits to discharge waters into the Androscoggin River (Table 4-2). Most permits are for discharges from point wastewater treatment plants or combined sewer outflows (CSO). CSO are discharges of untreated wastewater and stormwater runoff that occurs during a storm event (MDEP 2020). In 2019, approximately 52 million gallons of CSO were discharged into the Androscoggin River (MDEP 2020). NPDES permits for CSOs are predominantly held by municipalities or sewer districts (EPA 2021a, EPA 2021b).

Nine NPDES permits are related to hydroelectric facilities, including Monty Station, which fall under cooling water discharges (Table 4-2). Seven permits were granted to pulp and paper manufacturing facilities, allowing for discharge of “treated process waste waters, treated spills of sanitary waste waters, treated landfill leachate, treated stormwater runoff, filter backwash and general housekeeping waste waters associated with a kraft pulp and papermaking facility (EPA 2020a)” (Table 4-2).

Table 4-2 NPDES Permit Holders

Permittee	Facility Description	Town/State
Androscoggin Valley Regional Refuse Disposal District (AVRRDD)	Publicly owned treatment works	Berlin, NH
City of Berlin, NH	Combined Sewer overflow	Berlin, NH
Public Service Company of New Hampshire J. Brodie Smith Hydroelectric Generating Station	Cooling water discharge	Berlin, NH
Fraser Papers N.H. LLC	Pulp and paper manufacturing facility	Gorham, NH
Auburn Sewage District	Combined Sewer Overflows	Auburn, ME
Pioneer Plastics Corporation	Non-process and cooling waters	Auburn, ME
Sunday River Skiway Corporation	Commercial Overboard Discharge (wastewater treatment)	Bethel, ME
Town of Bethel	Publicly owned treatment works	Bethel, ME
Bay Bridge Estates, LLC Mobile Home Park	Mobile Home Park Overboard Discharge	Brunswick, ME
Brookfield White Pine Hydro. LLC – Brunswick Hydroelectric Project	Cooling water discharge	Brunswick, ME
Brunswick and Topsham Water District	Drinking Water Plant	Brunswick, ME

Permittee	Facility Description	Town/State
Brunswick Sewer District	Publicly owned treatment works	Brunswick, ME
Town of Brunswick	Non-hazardous waste landfill	Brunswick, ME
Pixelle Androscoggin LLC	Pulp and paper manufacturing facility	Jay, ME
Verso Androscoggin LLC	Pulp and paper manufacturing facility	Jay, ME
Verso Paper Company	Pulp and paper manufacturing facility	Jay, ME
Brookfield White Pine Hydro. LLC – Monty Station Hydroelectric Project	Cooling water discharge	Lewiston, ME
City of Lewiston	Combined Sewer overflow	Lewiston, ME
Lewiston-Auburn Water Pollution Control Authority	Publicly Owned treatment works	Lewiston, ME
Blue Ridge Fiberboard, Inc.	Non-contact Cooling water	Lisbon, ME
Boralex Livermore Falls LP	Electrical Generating Station	Livermore Falls, ME
ReEnergy Livermore Falls, LLC	Electrical Generating Station	Livermore Falls, ME
Town of Livermore Falls	Publicly owned treatment works	Livermore Falls, ME
Verso Paper Company – Otis Hydro facility	Cooling water discharge	Livermore Falls, ME
Mechanic Falls Sanitary District	Publicly owned treatment works	Mechanic Falls, ME
Rumford-Mexico Sewage District	Publicly owned treatment works	Mexico, ME
Town of Oxford	Publicly owned treatment works	Oxford, ME
Paris Utility District	Publicly owned treatment works	Paris, ME
Catalyst Paper Operations Inc.	Pulp and paper manufacturing facility	Rumford, ME
ND Paper Inc. – Rumford Division	Pulp and paper manufacturing facility	Rumford, ME
ReEnergy Rumford, LLC	Cooling water discharge	Rumford, ME
Rumford Falls Hydro. LLC- Rumford Falls Hydro. Project	Cooling water discharge	Rumford, ME
Rumford Paper Company	Pulp and paper manufacturing facility	Rumford, ME
Rumford-Mexico Sewage District – Rumford Point Facility	Publicly owned treatment works	Rumford, ME
Topsham Hydro. Partners, LP – Pejepscot Hydro. Project	Cooling Water Discharge	Topsham, ME

Source: EPA, 2021a; EPA, 202b

4.3 Basin Dams

Hydropower dams were originally constructed in the Androscoggin River watershed to support industrial complexes including textile and paper mills. The first dam was constructed at Lewiston Falls in 1770 to power a gristmill (MDMR and MDIFW 2017). Currently, 22 dams exist along the mainstem of the Androscoggin River. These dams provide hydroelectric generation as well as other services such as water supply, recreation, and flood control (USACE 2021). Additionally, six dams provide headwater storage above Errol Dam (Figure 5-5). The Lewiston Falls Hydroelectric Project is the fourth dam on the Androscoggin River and was constructed near the natural waterfall spanning the river between Auburn and Lewiston, ME in 1865 (USACE 2021). Dams downstream of the Lewiston Project include: the Worumbo, Pejepscot, and Brunswick Projects (Figure 4-4). Upstream of the Lewiston Project lies Gulf Island-Deer Rips, Otis, Riley-Jay-Livermore, Rumford Falls, and other projects in New Hampshire (see Figure 5-5).

Figure 4-4 Location of Nearby Hydroelectric Projects on the Androscoggin River
Nearby Hydroelectric Projects on the Androscoggin River

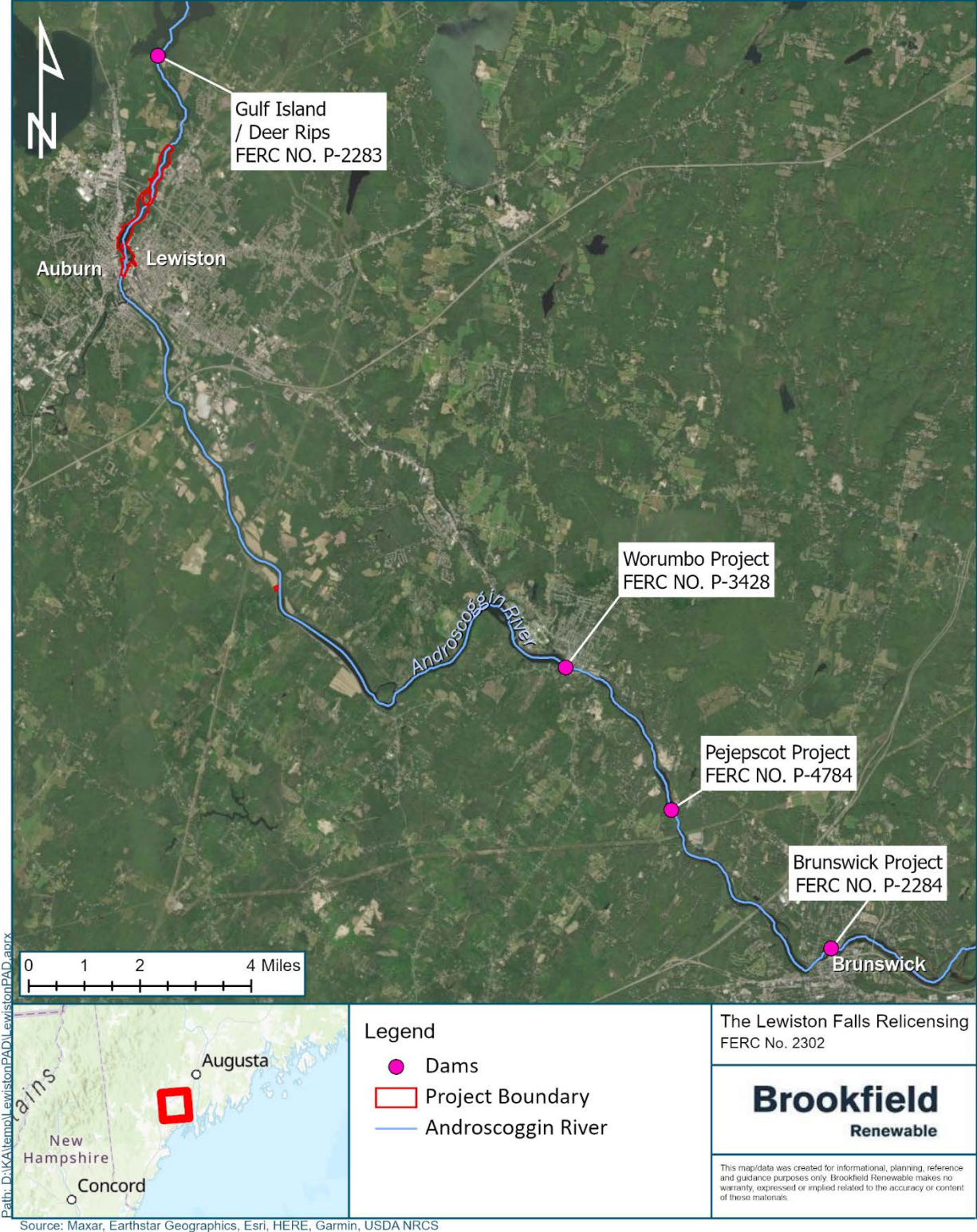


Table 4-3 Hydroelectric Dams on the Mainstem Androscoggin River

Dam Name	Owner/Operator	FERC No.
BRUNSWICK	BROOKFIED WHITE PINE HYDRO LLC	2284
PEJEPSCOT	TOPSHAM HYDRO PARTNERS	4784
WORUMBO	EAGLE CREEK RENEWABLE ENERGY	3428
LEWISTON FALLS	BROOKFIED WHITE PINE HYDRO LLC	2302
DEER RIPS	BROOKFIED RENEWABLE ENERGY GROUP	2283
GULF ISLAND	BROOKFIED RENEWABLE ENERGY GROUP	2283
LIVERMORE FALLS	EAGLE CREEK RENEWABLE ENERGY	2375
OTIS	EAGLE CREEK RENEWABLE ENERGY	8277
JAY	EAGLE CREEK RENEWABLE ENERGY	2375
RILEY	EAGLE CREEK RENEWABLE ENERGY	2375
RUMFORD FALLS MIDDLE DAM	RUMFORD FALLS HYDRO LLC	2333
RUMFORD FALLS UPPER DAM	RUMFORD FALLS HYDRO LLC	2333
GORHAM	GREAT LAKES HYDRO AMERICA, LLC	2311
SHELBURNE	GREAT LAKES HYDRO AMERICA, LLC	2300
CROSS POWER	GREAT LAKES HYDRO AMERICA, LLC	2326
SAWMILL	GREAT LAKES HYDRO AMERICA, LLC	2422
J. BRODIE SMITH	CENTRAL RIVERS POWER NEW HAMPSHIRE	2287
RIVERSIDE	GREAT LAKES HYDRO AMERICA, LLC	2423
ERROL	BROOKFIED WHITE PINE HYDRO LLC AND ERROL HYDROELECTRIC CO LLC	3133
CASCADE	GREAT LAKES HYDRO AMERICA, LLC	2327
GORHAM	GREAT LAKES HYDRO AMERICA, LLC	2288
PONTOOK	PONTOOK OPERATING LIMITED PARTNERSHIP	2861

4.4 Tributary Streams

Major tributaries to the Androscoggin River include Ellis, Swift, Webb, Nezinscot and Little Androscoggin, Sabattus Rivers (ENSR 2007). Figure 4-1 depicts the sub-watersheds within the Androscoggin River Watershed. The confluence of the Little Androscoggin River is located approximately 0.7 mile downstream of Monty Station and approximately 0.4 mile downstream of the Project boundary. The Project lies within the Stetson Brook-Androscoggin River sub-watershed (Hydrologic Unit No. 010400020803). Within the immediate Project area, a few of small tributaries flow into the impoundment, upstream

of the dam, including Jepson Brook, approximately 1.0 mile upstream of the dam, and Stetson Brook, approximately 2.5 miles upstream of the dam (WBD 2020).

4.5 Climate

The Androscoggin watershed lies within the Laurentian Mixed eco-region, which is a transitional zone between boreal forest and the broadleaf deciduous forest zones (Bailey 1995). The region is characterized as a temperate climate with warm humid summers, and cold winters (Appalachian Mountain Club 2003). Precipitation and air temperatures can vary across the watershed. The higher elevation of the Upper Androscoggin River watershed tends to create a cooler climate compared to the lower watershed. Air temperatures in Berlin, NH average 64.7 degrees Fahrenheit (°F) in the summer and 18.7°F in winter. Annual precipitation in Berlin, NH averages 41.5 inches (NOAA 2021). Lewiston, ME tends to be warmer, with average summer temperature of 67.6°F, and winter temperatures averaging 21.3°F (NOAA 2021). Lewiston, ME averages 45.1 inches of precipitation annually (NOAA 2021).

4.6 References

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5.0 DESCRIPTION OF EXISTING ENVIRONMENT AND RESOURCE IMPACTS

5.1 Geology and Soils

5.1.1 Overview

The geological features throughout Maine were created during the Pleistocene Epoch, or the "Ice Age." Glaciers moving across the state eroded the mountains and valleys, depositing sand, gravel and rock and forming the hundreds of lakes and ponds across the state (MDACF 2021). The rugged Appalachian Mountains, which extend from New Hampshire into Maine, were formed nearly 500 million years ago (MDIFW 2015). South and east of these mountains, including the Project area, are rolling hills and small mountains with broad river valleys, which characterize the Central Maine Embayment ecoregion (Griffith 2009). The Central Maine Embayment, in which the Project is located, consists of a complex mix of bedrock including metamorphosed pelite, sandstone, and limestone/dolostone, some granitic intrusions along with metasedimentary and metavolcanic rocks. In low elevation areas, glaciomarine sediments such as silt, sand, clay and gravel were deposited where glacial melt streams entered the sea (Griffith 2009).

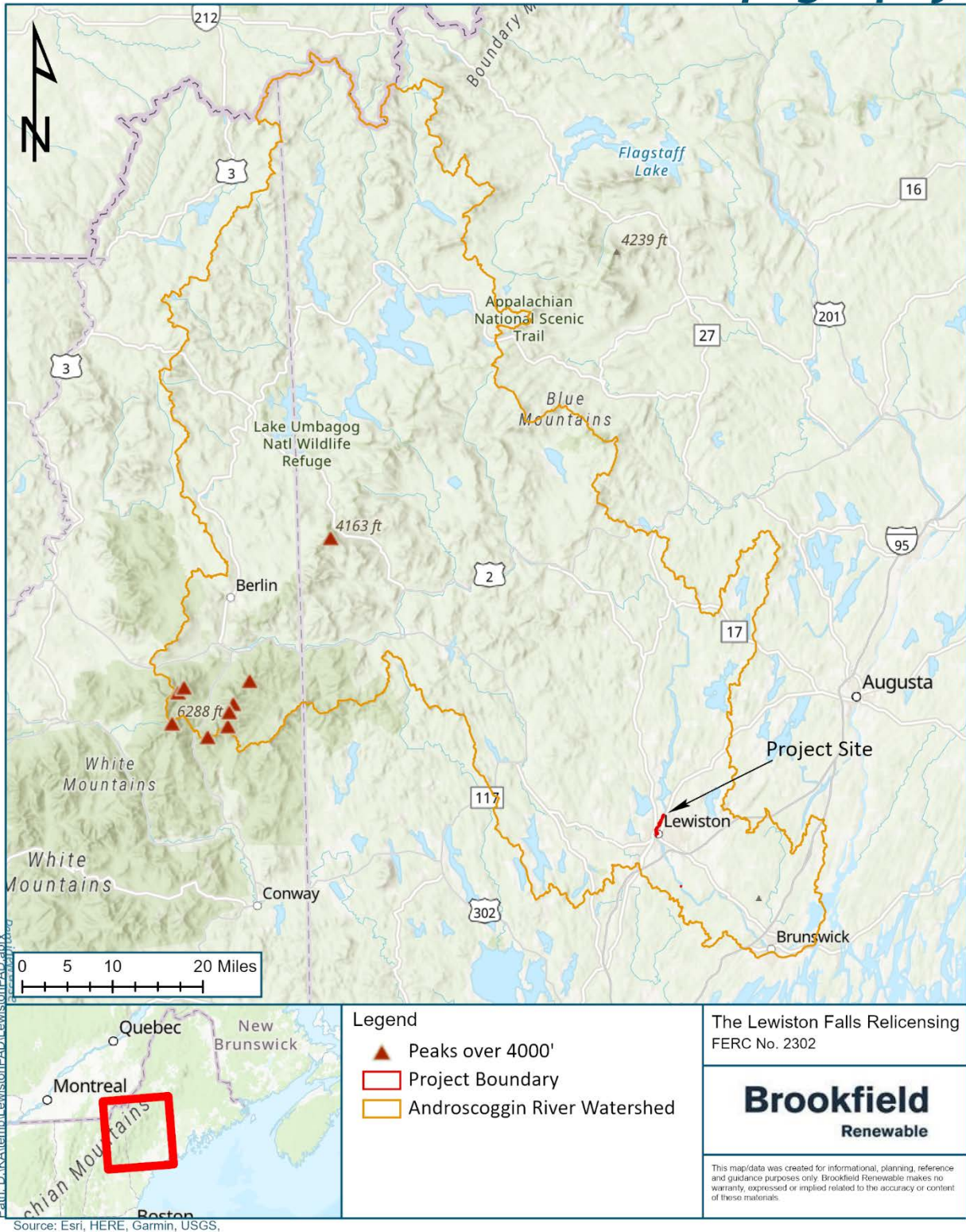
5.1.2 Topography

The upper Androscoggin River watershed contains rugged mountainous terrain. The highest peaks within the Androscoggin watershed are primarily located within or bordering the upper watershed. The highest peaks can be found within the White Mountain range, in New Hampshire, bordering the upper Androscoggin watershed, including Mount Washington, Mount Adams, and Mount Jefferson (Appalachian Mountain Club 2003). The tallest peaks within the watershed include Mount Madison, Middle Carter, Old Speck, and Mount Moriah, all of which are over 4,000 feet (Appalachian Mountain Club 2003) (Figure 5-1).

The Androscoggin River has a steep gradient, dropping over 1,500 vertical feet from headwater to the tidal zone, with an average decent of 7.7 feet per mile (MDMR and MDIFW 2017). USGS gage no. 01053500 on the Androscoggin River in Errol, NH is at elevation 1,227.3 feet NAVD29 (USGS 2021a). The river elevation drops to 109.2 feet NGVD29 at USGS gage no. 01059000 near Auburn, ME, approximately 2 miles downstream of the Project (USGS 2021b). The lower watershed, near the Project area, consists of rolling hills and a wide river valley. Much of the lower river valley is used for agriculture (Main Rivers 2021). The topography of the Project area ranges from level to moderately steep hills. The highest slope in the area is approximately 360 feet above mean sea level (msl) (FERC 1998).

Figure 5-1 Androscoggin River Watershed Topography

Topography



5.1.3 Bedrock Geology

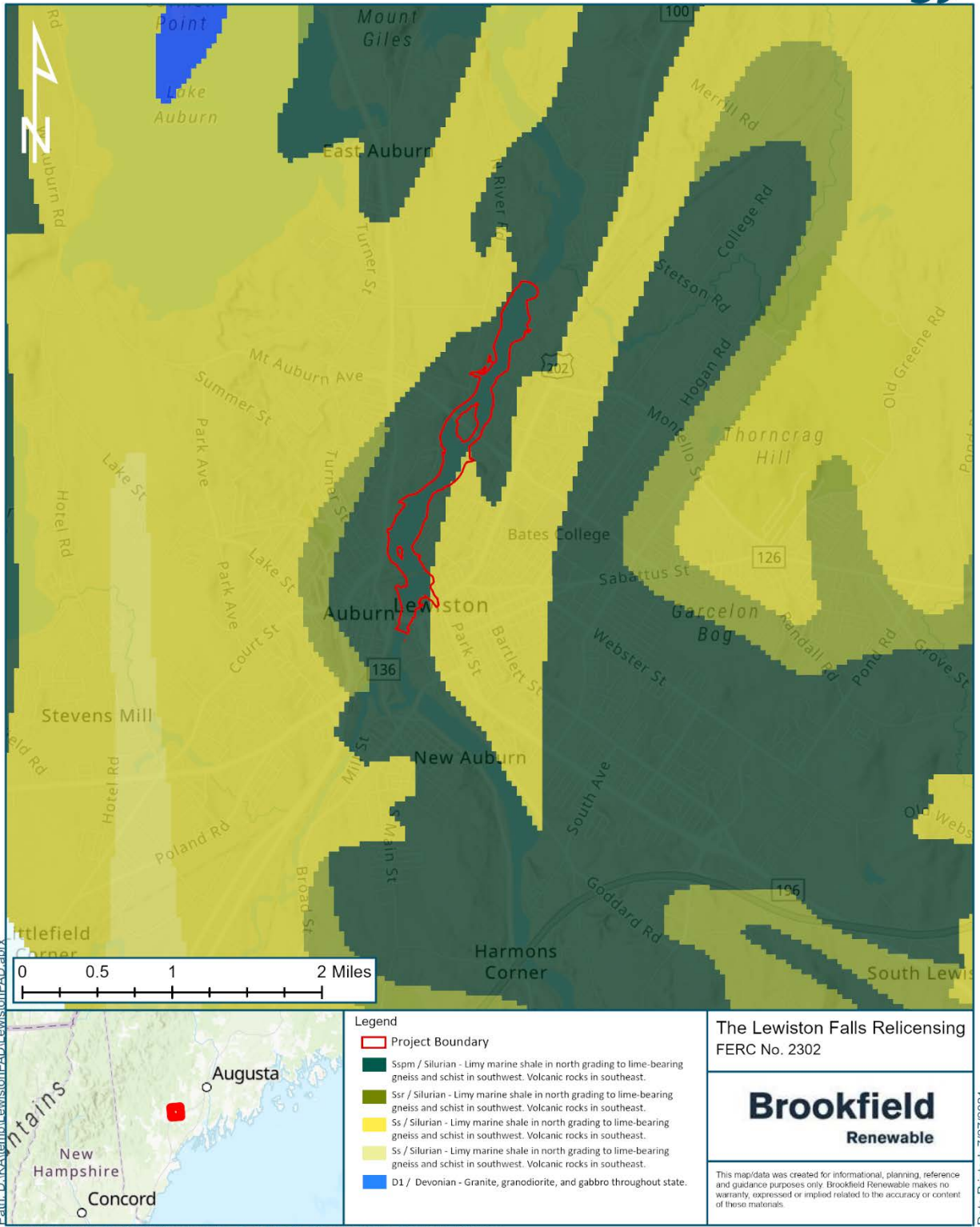
Bedrock near the Project is composed primarily of stratified sedimentary, volcanic and metamorphic rocks as well as intrusive igneous rocks. Specifically, the bedrock in the vicinity of the Project includes gneiss, schist, granite, granodiorite and gabbro (Figure 5-2) (MDACF, 2018).

The Androscoggin river, within the vicinity of the Project, lies within the Sangerville Formation (Ss), one of the oldest formations in the area (Hessey, 1983). The Sangerville Formation is divided into five lithic subdivisions: 1) the Taylor Pond Member (Sstp); 2) the Patch Mountain Member (Sspm); 3) the Thorncrag Hill Member (Sst); 4) sulfidic, very rusty weathering schist (Ssr), and 5) thin marble and calc-silicate lenses (Ssl).

Figure 5-2 illustrates the distribution of bedrock formations. A strip of Sst extends along the western bank of the Androscoggin river, upstream of the Project to approximately two miles downstream of the dam, indicated in yellow Ss in Figure 5-2. Sst includes biotite(sillimanite) garnet gneiss with thin beds of calc-silicate gneiss (Hassey, 1983). The Project itself is primarily surrounded by Sspm, which is part of the Patch Mountain Member, containing thin beds of calc-silicate granofels, quartz-plagioclase-biotite granofels, and marble. The Sspm bedrock follows the river approximately three miles downstream of the Project Dam, where the bedrock transitions to Ssr. Ssr consists of rusty-weathering sulfidic muscovite-biotite-sillimanite schist and garnet-rich biotite schist (Hassey, 1983).

Figure 5-2 Bedrock Geology with Project Vicinity

Bedrock Geology



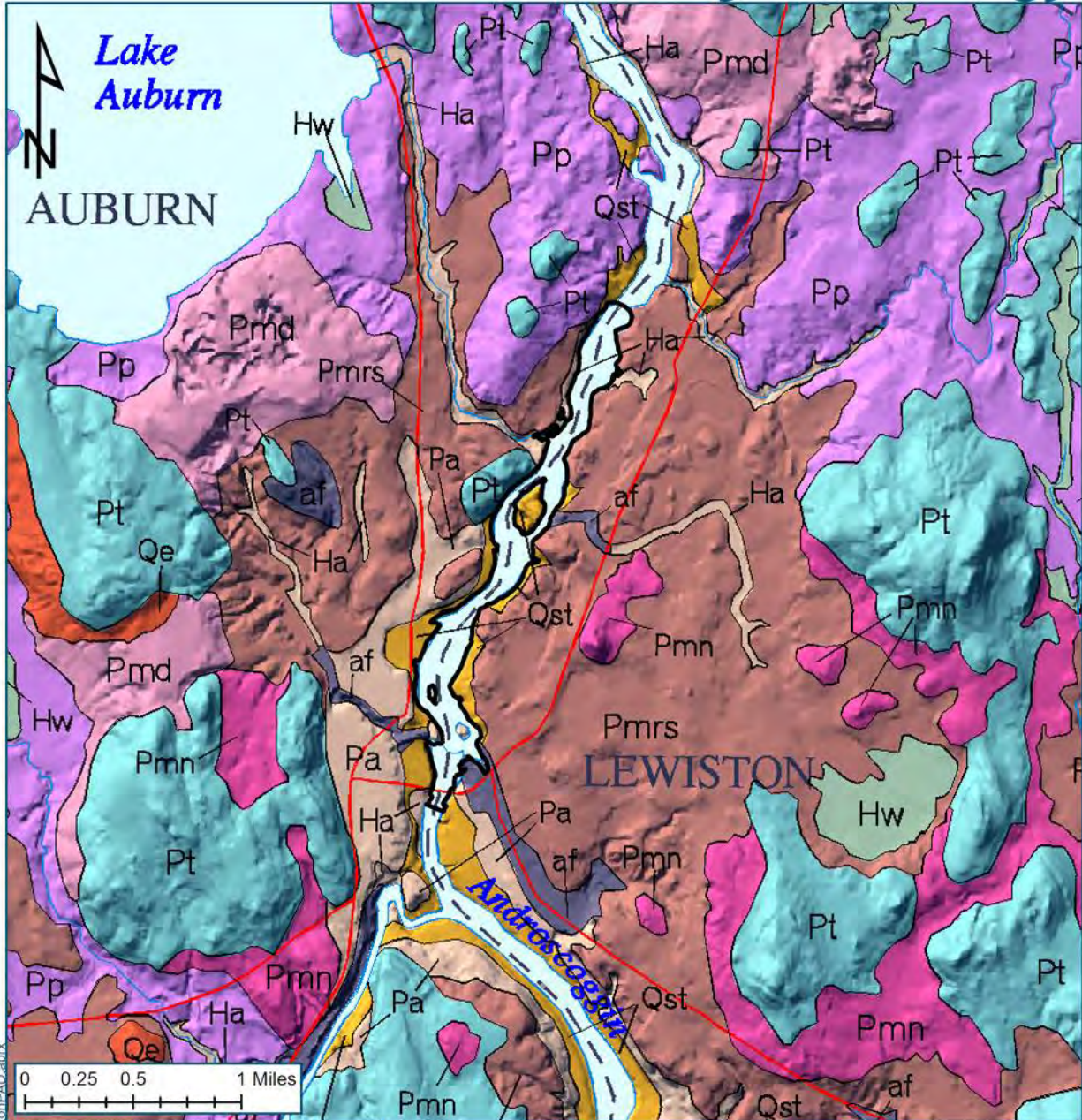
5.1.4 Surficial Geology

Between 1.5 million and 10,000 years ago the continental glaciers that moved across Maine eroded mountains and valleys, transporting rock debris across the landscape (Hildreth 2002). Sediments were washed into the sea or accumulated in lakes, streams and rivers across Maine (Hildreth 2002). The weight of the glacier that moved across New England about 25,000 years ago caused the land to sink hundreds of feet, allowing the sea to flood most of southern Maine once the glacier had receded (Hildreth 2002). Sediment from the melting glacier flowed into the flooded area. Once the sea receded, sand, washed out from the melting glacier, was formed into dunes to the east sides of river valleys such as the Androscoggin and Saco valleys (Hildreth 2002).

The margins of the Androscoggin River are dominated by Stream terrace deposits (Qst), consisting of sand, silt, gravel, and muck, deposited along the terraces cut into the glacial deposits as sea levels receded (Hildreth 2002). Figure 5-3 illustrates the distribution of surficial geological formations within the vicinity of the Project. Along the eastern shore of the project area lies braided stream alluvium (Pa), which consists of sand, silt and gravel deposited by river flows on terraces higher than the stream terrace. To the west of the Androscoggin river are marine regressive sand deposits (Pmrs), which consists of sand, silt and small gravel. These sediments formed marine deltas as the glacier melted, and were redistributed by marine currents and wave action as the sea levels receded (Hildreth 2002).

Figure 5-3 Surficial Geology within Project Vicinity

Surficial Geology



Legend
 [Red Line] Project Boundary

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Source: Maxar, Earthstar Geographics, Esri, Maine Geological Survey

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5.1.5 Soils

Maine soils were formed when the last glacier in Maine melted approximately 12,500 years ago and moved across the state in a northwest to southeasterly direction. Rock fragments and soil material were deposited as till, or as water-sorted sediments in streams, rivers, lake and the ocean. Land, depressed by the glacier, rebounded slowly, creating a complex pattern of soils derived from till, sediments, sands, and gravel (Ferwerda et. al, 1997).

Androscoggin County is composed of mainly loamy and sandy soils, formed mostly from granite, gneiss, metasandstone, and schist. Additionally, some areas of Androscoggin County contain soils more clayey and loamier in nature. These soils are labeled as Skerry-Hermon-Monadnock Colonel; Adams-Croghan-Naumburg; and Scantic-Lamoine-Buxton-Lyman (Ferwerda et. al, 1997). The majority of the soils around the Project area consist of made land, loamy materials (Md, 4.0 percent) (Figure 5-4; Table 5-1). Made lands are considered moderately well drained, with the ability to transmit water at a rate of 0.06 to 20.0 inches per hour (NRCS 2021a). An Abram-Rock outcrop complex (RhC) is located directly upstream of the powerhouse, adjacent to Dams No 1 and 2. (NRCS 2021). Along the western banks of the river, upstream of the Project, lies Adams loamy sand (AaB, AaC, and AaD). These soils are considered to be somewhat excessively drained, with a water transmission rate of 1.42 to 14.17 inches per hour (NRCS 2021b). The eastern bank of the river consists of patches of Buxton silt loam (BuC2), Hartland (HfD2) and Melrose (MaC) fine sandy loams, all of which are well drained to moderately well drained soils (Figure 5-4) (NRCS 2021).

Figure 5-4 Soil Types within 500 Feet of Project Boundary

Project Soils

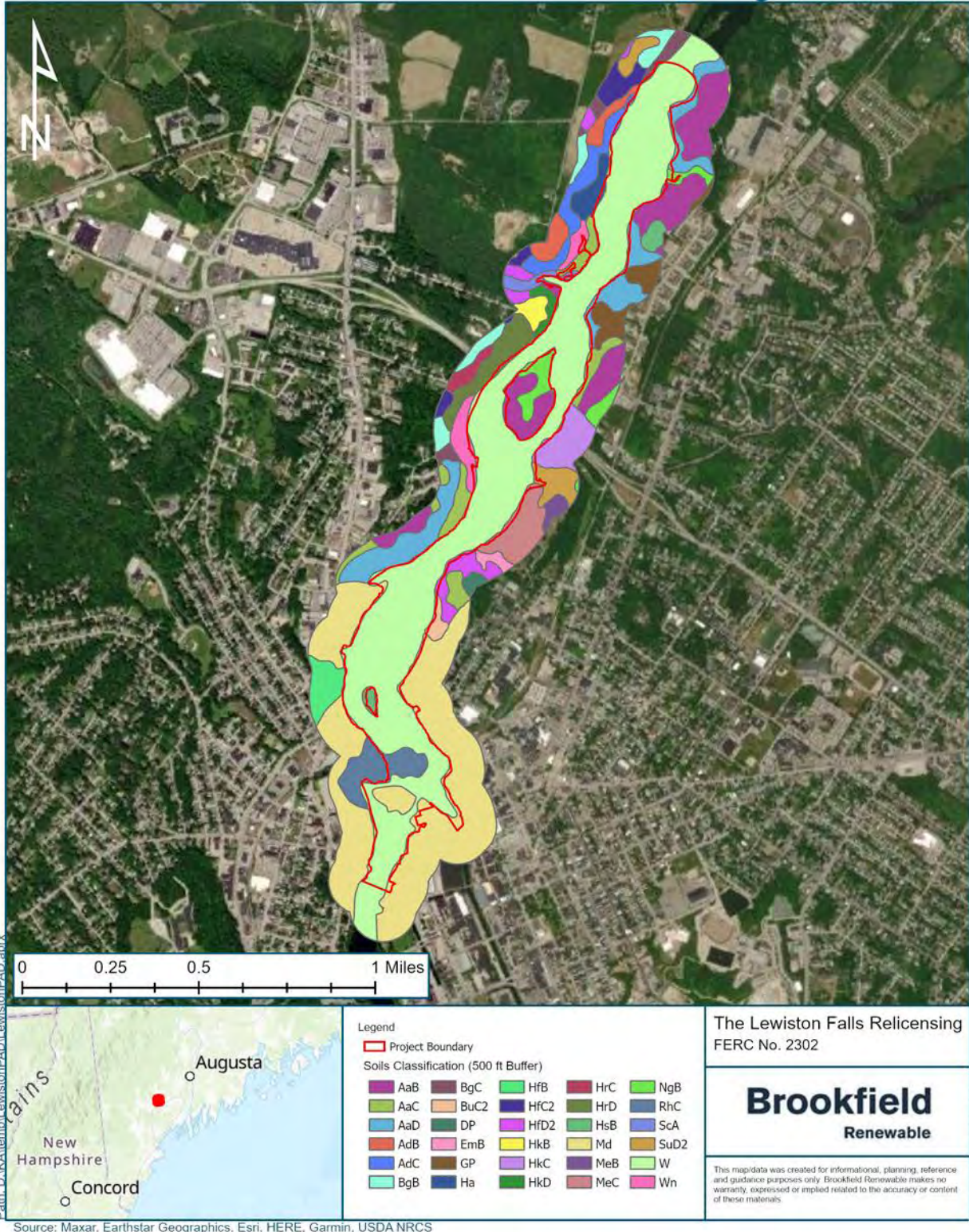


Table 5-1 Soil Types within Project Boundary and 500-foot buffer

Soil Type	Description	Acreage	Percent of Project Area*
AaB	Adams loamy sand, 0 to 8 percent slopes	47.37	7.32
AaC	Adams loamy sand, 8 to 15 percent slopes	18.46	2.85
AaD	Adams loamy sand, 15 to 30 percent slopes	37.61	5.81
AdB	Agawam fine sandy loam, 0 to 8 percent slopes	8.86	1.37
AdC	Agawam fine sandy loam, 8 to 15 percent slopes	12.51	1.93
BgB	Nicholville very fine sandy loam, 0 to 8 percent slopes	10.96	1.69
BgC	Nicholville very fine sandy loam, 8 to 15 percent slopes	6.00	0.93
BuC2	Buxton silt loam, 8 to 15 percent slopes	2.72	0.42
DP	Dumps	1.75	0.27
EmB	Elmwood fine sandy loam, 2 to 8 percent slopes	2.22	0.34
GP	Sand and gravel pits	10.36	1.60
Ha	Hadley silt loam	5.91	0.91
HfB	Hartland very fine sandy loam, 2 to 8 percent slopes	8.10	1.25
HfC2	Hartland very fine sandy loam, 8 to 15 percent slopes, eroded	8.79	1.36
HfD2	Hartland very fine sandy loam, 15 to 25 percent slopes, eroded	11.50	1.78
HkB	Hinckley gravelly sandy loam, 0 to 8 percent slopes	3.80	0.59
HkC	Hinckley gravelly sandy loam, 8 to 15 percent slopes	11.68	1.81
HkD	Hinckley gravelly sandy loam, 15 to 25 percent slopes	2.77	0.43
HrC	Lyman-Tunbridge complex, 8 to 15 percent slopes, rocky	3.52	0.54
HrD	Lyman-Tunbridge complex, 15 to 35 percent slopes, rocky	12.49	1.93
HsB	Lyman-Abram complex, 0 to 8 percent slopes, very rocky	4.36	0.67
Md	Made land, loamy materials	127.35	19.69
MeB	Melrose fine sandy loam, 0 to 8 percent slopes	2.41	0.37
MeC	Melrose fine sandy loam, 8 to 20 percent slopes	13.20	2.04
NgB	Ninigret fine sandy loam, 0 to 8 percent slopes	11.11	1.72
RhC	Abram-Rock outcrop complex, 0 to 15 percent slopes	14.39	2.22
ScA	Scantic silt loam, 0 to 3 percent slopes	3.33	0.51
SuD2	Suffield silt loam, 15 to 30 percent slopes, eroded	10.03	1.55
W	Water	223.88	34.62
Wn	Winooski silt loam	9.32	1.44

*includes 500-foot buffer around Project Boundary

Source: NRCS 2021

5.1.6 References

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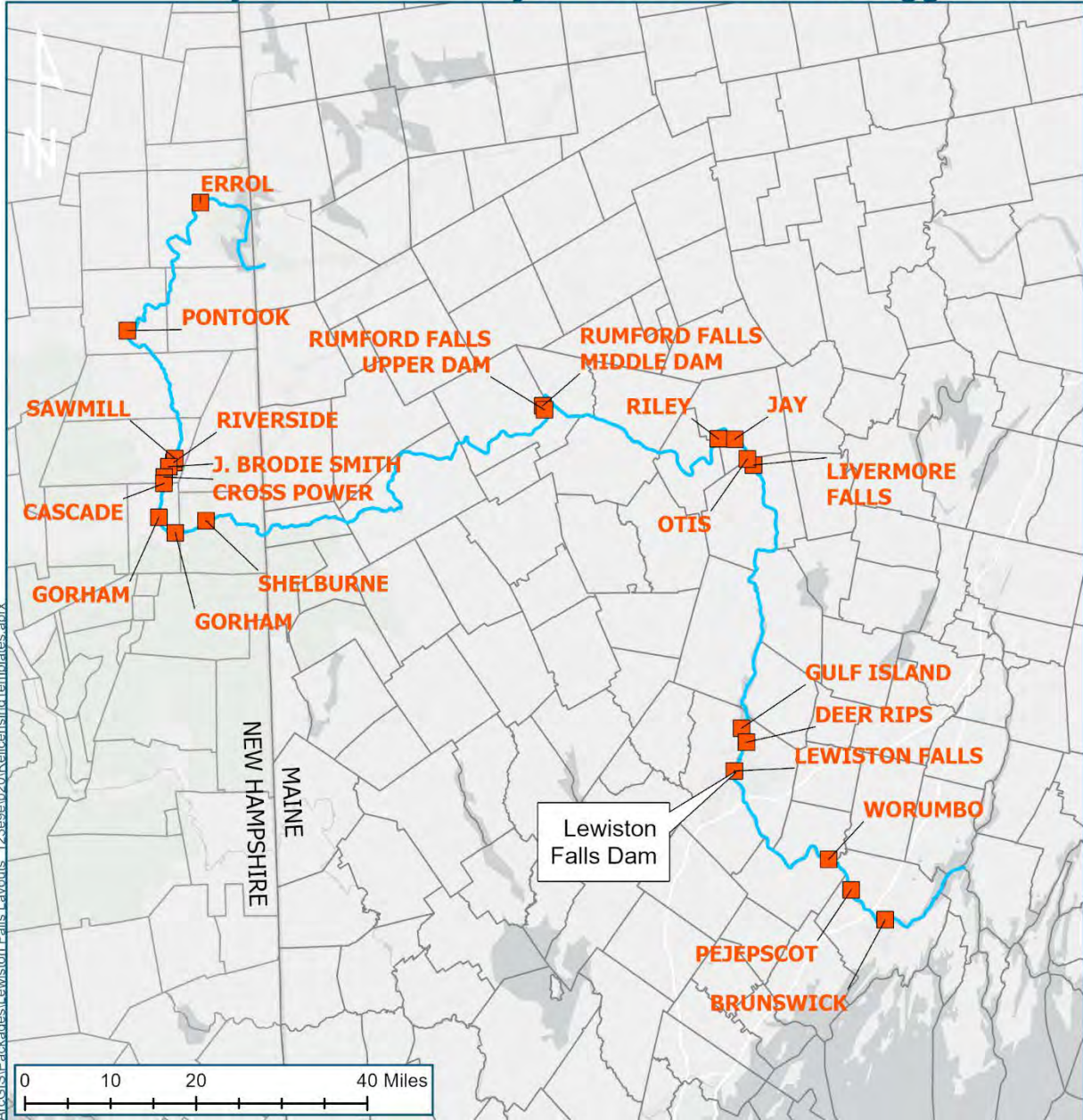
5.2 Water Resources

5.2.1 Water Quantity

The Androscoggin River flows roughly 178 miles from the Magalloway River and Rapid River confluence at Umbagog Lake in northern New Hampshire to Merrymeeting Bay in coastal Maine, dropping more than 1,500 feet along the way (NOAA Fisheries, 2020). Major tributaries include the Swift, Little Androscoggin, Ellis, and Nezinscot Rivers (ENSR, 2007). Flow from the Upper Androscoggin River Storage System, including Mooselookmeguntic Lake (Upper Dam), Richardson Lake (Middle Dam), Azischohos Lake, and Umbagog Lake (Errol Dam) is used to augment Androscoggin River flow during low flow periods and to provide flood control during high flow periods. Outflow from the Storage System is managed in cooperation with downstream hydroelectric power generators to provide a relatively uniform flow regime. The Androscoggin River Basin, depicted in Figure 4-1 is bounded by the Saco, and Presumpscot River Basins to the west and the Kennebec River Basin to the east, and drains approximately 3,530 mi² (NOAA Fisheries, 2020). Hydroelectric projects located on the Androscoggin River are shown in Figure 5-5.

Figure 5-5 Hydroelectric Projects on the Androscoggin River

Hydroelectric Projects on the Androscoggin River



- Legend**
- Hydroelectric Project
 - Androscoggin River
 - Town Boundary

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5.2.1.1 Drainage Area

The Project is located at River Mile 30.8 on the mainstem of the Androscoggin River and has a drainage area of approximately 2,907 square miles (mi²). Inflow to the Project is primarily controlled by the operation of the Gulf Island-Deer Rips Project, located approximately 2.7 miles upstream.

5.2.1.2 Streamflow, Gage Data, and Flow Statistics

The United States Geological Survey (USGS), in cooperation with Brookfield Renewable⁷, operates a streamflow gaging station (No. 01059000 Androscoggin River near Auburn, ME) approximately 2.25 miles downstream of the Project. The gage, in operation since 1928, has a drainage area of 3,263 mi². The gage is located downstream of the confluence of the Little Androscoggin River. The Project is located upstream of the Little Androscoggin River, which accounts for the majority of the difference in drainage areas of the gage and the Project, despite being 2.25 miles away. Daily flow data from the Auburn gage was prorated by the ratio of drainage areas⁸ to produce annual and monthly flow duration curves for the period from January 1987 to December 2020. Flow duration curves are shown in Appendix F. Table 5-2 summarizes the annual and monthly flow data.

The mean annual daily inflow to the Project for the January 1987 to December 2020 period is approximately 5,977 cubic feet per second (cfs). The maximum mean daily streamflow during this period was approximately 88,733 cfs on April 2, 1987 and the minimum mean daily streamflow was approximately 935 cfs on September 13, 2020, when flows in the river were unusually low due to drought conditions. The peak instantaneous streamflow for the period of record at the USGS gage is 135,000 cfs on March 20, 1936. Streamflow is normally at its peak throughout the spring freshet during snowmelt, while short-term inflow depends in part upon upstream storage operations and in part upon inflows to the mainstem of the river from numerous tributaries.

⁷ Brookfield Renewable is the parent company of Brookfield White Pine Hydro LLC.

⁸ The proration factor is 0.89 which was obtained by dividing the drainage area of the Lewiston Falls Project (2,907 mi²) by the drainage area of the gage (3,263 mi²).

**Table 5-2 Streamflow (cfs) Statistics at Lewiston Falls Project,
 January 1987 – December 2020**

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Min	1,417	1,515	1,613	2,432	1,515	1,345	1,140	1,131	935	1,096	1,399	1,363	935
Max	30,736	20,491	35,190	88,733	55,147	52,028	26,281	34,567	40,714	40,892	36,081	43,387	88,733
Median	4,160	4,009	5,742	11,136	7,720	4,356	2,940	2,472	2,290	3,247	4,944	4,691	4,187
Average	4,788	4,361	6,810	14,106	9,177	5,759	4,030	3,228	2,784	4,729	6,041	5,909	5,977

Source: USGS Gage 01059000

5.2.1.3 Reservoir Characteristics and Downstream Hydraulic Gradient

The Lewiston Falls Project impoundment surface area is approximately 200 acres at the normal full pond elevation of 168.17 feet mean sea level (msl). The gross storage volume of the impoundment is approximately 1,600 acre-feet at full pond elevation. However, impoundment fluctuations are limited to four feet. As a result, the useable storage capacity is minimal. There is no readily available information on impoundment depth (BWPH, 2017).

The section of the river where the Project dams are located is a set of falls characterized by steep bedrock outcrop areas, including immediately below the Project dam sections. The river flows approximately 0.7 miles from the Monty Station tailrace to the confluence of the Little Androscoggin River and another 13 miles to the Worumbo Hydroelectric Project impoundment. The Worumbo impoundment has no effect on the Lewiston Falls Project tailrace.

5.2.1.4 Existing and Proposed Uses of Water

Generation at Monty Station is coordinated with the operation of the upstream Gulf Island-Deer Rips Project. The Project impoundment has no appreciable useable storage capacity. Therefore, the Project is normally operated as run of river with impoundment fluctuations of one foot or less, on a daily basis. However, the Project is licensed to operate with up to four feet of impoundment fluctuation (between 168.17 feet mean sea level (msl) and 164.17 feet msl) to allow for adjustments between inflow and minimum flow requirements or to respond to operating emergencies, as may be needed.

The maximum hydraulic capacity of the Project's generating units is 6,600 cfs. The Project discharges a minimum flow of 1,430 cfs or inflow, whichever is less. Of the 1,430 cfs required minimum flow, typically 50 cfs is provided through the Lewiston Canal System and the remaining 1,380 cfs is discharged from Monty Station. Periodically, "refreshment" flows of 300 cfs are provided to the Lewiston Canal System to improve water quality and prevent stagnation (BWPH, 2017). BWPH holds NPDES permit number ME0023621 for discharge up to 700,000 gallons of non-contact cooling water from two outfalls (001 and 002) at the Lewiston Falls Project. BWPH is not proposing any changes to current water uses.

5.2.1.5 Existing Water Rights

BWPH holds all flowage rights necessary to operate the Project. There is no development within the Project boundary other than the Project facilities and FERC-approved Project recreation sites. There are no streams located within the Project boundary or within the vicinity of the Project that are significantly affected by Project operations including allowable minor changes in impoundment levels.

5.2.2 Water Quality

The following sections discuss water quality standards and classifications applicable to waterbodies in the Project vicinity. The results from water quality investigations that pertain to the waterbodies at the Project area also discussed.

5.2.2.1 Water Quality on the Androscoggin River

The Androscoggin River has a long history of industrial and municipal use. Mainstem dams were constructed for mills in the early 1800's, primarily in the lower Androscoggin River. By the late 1800's several textile and lumber mills operated on the river from Lewiston to Brunswick. Also, in the late 1800's, several pulp and paper mills were established along the Androscoggin River in New Hampshire, as well as in Rumford, and Jay, Maine, some of which still operate today. (MDEP, 2021). Since passage of the Clean Water Act (CWA) in the 1970s, water quality in the Androscoggin River has improved, as indicated by several water quality studies conducted on the river, as summarized in the following sections.

5.2.2.2 Federal Clean Water Act

In 1972, the Federal Water Pollution Control Act Amendments established the CWA as the foundation of modern surface water quality protection in the United States. Sections 303 and 305 of the Act guide the national program on water quality. Sections 303(a) through 303(c) discuss the process by which all states are to adopt and periodically review water quality standards. Section 305(b) directs states to periodically prepare a report that assesses the quality of waters in the state. The results of Maine's latest report are discussed in the State Water Quality Standards section below.

5.2.2.3 State Water Quality Standards

Maine statute 38 MRSA §464-470 establishes the State of Maine's surface water classification system. The classifications and details of major river basins are discussed in §467. The mainstem Androscoggin River is classified as a Class C waterbody from its confluence with the Atlantic Ocean at Merrymeeting Bay upstream to its confluence with the Ellis River nearly 85 miles upstream of the Project (Maine, 2020). A Water Quality Certificate under Section 401 of the Clean Water Act was issued by the Maine Department of Environmental Protection (MDEP) for the Project in 1986 and was modified in 2008 and reviewed again in conjunction with the FERC license amendment to remove the Lewiston Canal System in 2017, with a minor WQC Amendment Order in April 2017, see Appendix C.

As mentioned above, the waters on the mainstem of the Androscoggin River in the vicinity of the Project are classified by the State of Maine as Class C waters. Class C waters must meet standards ensuring suitability for the following: drinking after treatment, agriculture, fishing, recreation in and on water, industrial process and cooling water supply, navigation, as habitat for fish and other aquatic life, and hydroelectric power generation, except as prohibited under Title 12, section 403. DO must meet an instantaneous minimum of 5 parts per million (ppm) / milligrams per liter (mg/L) or 60 percent saturation, whichever is greater. The 30-day average DO must meet a minimum of 6.5 mg/L using a temperature of 22 degrees Centigrade. Table 5-3 summarizes standards for Class C waters.

The Androscoggin River in Lewiston-Auburn is listed as impaired under Section 305(b) of the CWA (MDEP, 2016b). Section 305(b) of the CWA requires states to assess the condition of their waters toward meeting designated uses, as well as Total Maximum Daily Loads (TMDLs), and to prepare a report biannually to Congress. Table 5-4 defines the various categories used to describe the status of waterbodies as stated in the biannual "Integrated Water Quality Monitoring and Assessment" reports. Waters that are currently listed under Category 5 represent "impaired waters" for purposes of the CWA impaired 303(d) list. The 303(d) list assesses the attainment criteria of water bodies and determines whether designated uses are threatened, or the waterbody is impaired by bacteria, mercury, or a legacy pollutant such as polychlorinated biphenyls (PCBs), dioxins, dichloro-diphenyl-trichloroethane (DDT), and others (MDEP, 2016a). The CWA requires TMDL, the maximum amount of a pollutant that a waterbody can receive and still safely meet water quality

standards, be calculated for identified pollutants. The Androscoggin River at the Project area is classified as a Category 4-B water for dioxins and Category 5-D for legacy PCBs (MDEP, 2016b).

In general, several sections of the Androscoggin River watershed in the vicinity of the Project are listed as either Category 4 (some impaired use) or Category 5 (uses are attained but one of more uses may be impaired). The mainstem Androscoggin River from the Little Androscoggin River confluence to the Pejepscot Dam is listed under Category 5-D for being impaired due to legacy PCBs found in fish tissue and Category 4-B for dioxin contamination (MDEP, 2016b). The mainstem Androscoggin River from the Pejepscot Dam to the Brunswick Dam is listed as Category 4-B due to dioxins, Category 5-D for legacy PCBs, and Category 4-C for aquatic life impairment due to inadequate fish passage for American shad at Brunswick Dam (MDEP, 2016b). None of these pollutants are associated with operation of the Lewison Falls Project.

Table 5-3 MDEP Water Quality Standards for Class C Waterbodies

Parameter	Class C Standard
DO	The dissolved oxygen content of Class C water may not be less than 5 parts per million or 60% of saturation, whichever is higher, except that in identified salmonid spawning areas where water quality is sufficient to ensure spawning, egg incubation and survival of early life stages, that water quality sufficient for these purposes must be maintained. The 30-day average dissolved oxygen criterion of a Class C water is 6.5 parts per million using a temperature of 22 degrees centigrade or the ambient temperature of the water body, whichever is less.
<i>E. Coli</i> (human and domestic origin)	Between April 15th and October 31st, <i>E. coli</i> may not exceed a geometric mean of 100 CFU per 100 milliliters over a 90-day interval or 236 CFU per 100 milliliters in more than 10% of the samples in any 90-day interval in Class C waters.
Discharges	Discharges to Class C waters may cause some changes to aquatic life, except that the receiving waters must be of sufficient quality to support all species of fish indigenous to the receiving waters and maintain the structure and function of the resident biological community.

Source: Maine, 2021

Table 5-4 Integrated Water Quality Report Category Definitions

Category	Definition
Category 1	Rivers and streams fully attaining all designated uses
Category 2	Rivers and streams attaining some designated uses - insufficient information for other uses
Category 3	Insufficient data and information to determine if designated uses are attained (with presumption that one or more uses may be impaired)
Category 4	Impaired or threatened for one or more designated uses, but does not require development of a TMDL.
Category 4-A	TMDL is completed
Category 4-B	Other pollution control requirements are reasonably expected to result in attainment of standards in the near future
Category 4-C	Impairment is not caused by a pollutant
Category 5	Waters impaired or threatened for one or more designated uses by a pollutant(s) and a TMDL is required
Category 5-A	Impairment caused by pollutants (other than those listed in 5-B through 5-D). A TMDL is required
Category 5-B	Impairment is caused solely by bacteria contamination. A TMDL is required.
Category 5-C	Impairment caused by atmospheric deposition of mercury. A regional TMDL is required
Category 5-D	Impairment caused by a "legacy" pollutant

Source: MDEP, 2016a

5.2.2.4 Existing Water Quality Data

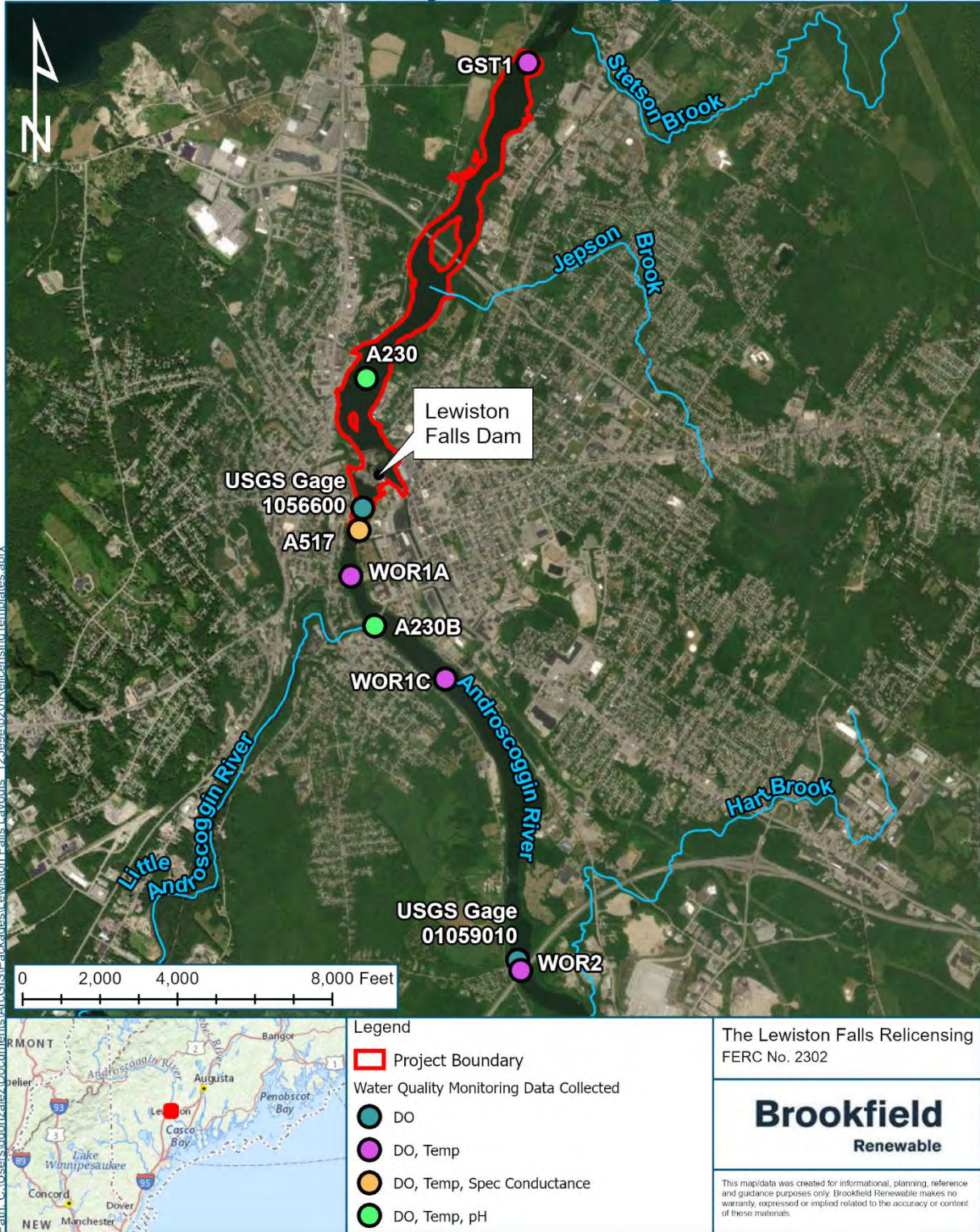
The lower Androscoggin River was monitored by several organizations near the Project as part of the following programs:

- Lewiston Falls Project Article 402 Post-Operational Water Quality Monitoring (1990-1994);
- Center for Applied Bioassessment & Biocriteria (CABB) 2002-2003 study on the Spatial and Relative Abundance Characteristics of the Fish Assemblages in Three Maine Rivers;
- MDEP 2011 Lower Androscoggin River Basin Water Quality Monitoring Study Modeling Report;
- MDEP Volunteer River Monitoring Program (VRMP); and
- MDEP Dioxin Monitoring Program (DMP) and Fish Consumption information.

Based on a review of existing information, the Project area meets the Class C water quality classification qualifications. Figure 5-6 provides a map of the historic water quality monitoring locations. Data from these water quality monitoring programs are summarized below.

Figure 5-6 Historic Water Quality Monitoring Locations

Historic Water Quality Monitoring Locations



5.2.2.4.1 Lewiston Falls Project Post Operational Water Quality Monitoring (1990-1994)

Central Maine Power (CMP), the original Licensee of the Project, collected water quality data from 1990 to 1994 in accordance with Article 402 of the Lewiston Falls Project License. CMP worked in conjunction with USGS to operate two DO gages downstream of the Project, USGS Gage 010159010 Androscoggin River Below Dresser’s Rips Near Lewiston, Maine (approximately 2.7 miles downstream of the Project) and USGS Gage 01056600 Androscoggin River at North Bridge at Lewiston Maine (located approximately 500 feet downstream of the Project).

The USGS has published the data from USGS Gage 010159010, which has a period of record from 1988 to 1995. The data includes mean daily DO and temperature from June through September. Table 5-5 provides a summary of the data recorded at this gage from 1990 to 1995. The table shows that the monthly average never fell below 6.5 mg/L requirement, even during the unusually dry conditions experienced in 1991.

The USGS has not published the data from USGS Gage 01056600. The data from this gage is included in the annual water quality monitoring reports submitted by CMP from 1990 to 1994. The 1994 report indicates that the monthly average never fell below 6.5 mg/L at this monitoring location (CMP, 1994).

The results of the DO monitoring at the two USGS gages indicate no adverse impact by the Project on the DO of the Androscoggin River. A January 23, 1995 Order terminated the water quality monitoring program after the 1994 study season when it was determined that the Project does not adversely impact on DO concentrations in the Androscoggin River.

Table 5-5 Average DO Downstream of the Lewiston Falls Project (mg/L)

Year	June	July	August	September	Season Average
1990	8.46	6.67	7.16	7.19	7.36
1991	7.16	6.54	8.08	8.85	7.63
1992	7.42	7.62	7.45	8.02	7.63
1993	8.18	7.02	8.14	7.83	7.79
1994	7.82	7.23	7.62	8.53	7.80
1995	7.75	7.54	7.49	7.97	7.60

Source: USGS Gage 010159010

5.2.2.4.2 Center for Applied Bioassessment & Biocriteria Report

The Center for Applied Bioassessment & Biocriteria (CABB) published the Spatial and Relative Abundance Characteristics of the Fish Assemblages in Three Maine Rivers based on research conducted in 2002 and 2003. CABB took several samples of DO and temperature as part of a larger fish habitat study in the vicinity of the Project, including:

- GST1 – 2.2 miles upstream of the Project
- WOR1A – 0.4 miles downstream of the Project
- WOR1C – 1.1 miles downstream of the Project
- WOR2 – 2.6 miles downstream of the Project

Measurements were taken once in August and once in September in 2003. Results from the study indicate DO levels in Gulf Island Pond were notably high, in the 10 mg/L range. The river below Gulf Island Dam was found to have decreased to the 7 mg/L range until reaching the Worumbo Project impoundment, where values increased to around 10 mg/L. Concentrations declined to 7 mg/L downstream of Worumbo to Brunswick (CABB, 2006).

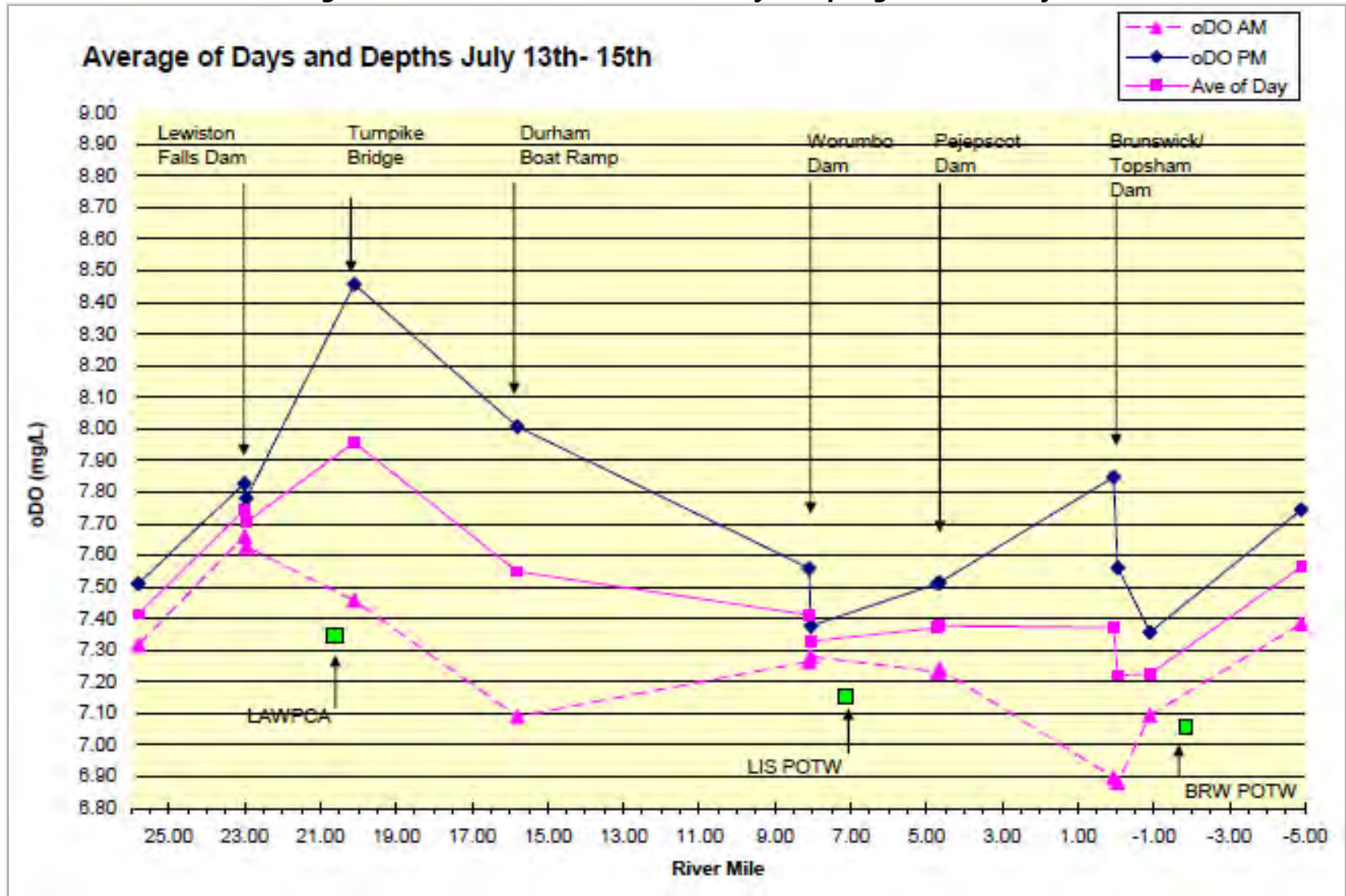
5.2.2.4.3 MDEP 2011 Lower Androscoggin River Basin Water Quality Study

MDEP implemented a water quality sampling program for the lower Androscoggin River to determine if the section of river from Worumbo Dam to Merrymeeting Bay could meet, or be expected to meet, criteria for potential reclassification from Class C to Class B. Sampling occurred at thirteen sampling stations in the lower Androscoggin River from Gulf Island Pond Dam to the Bath-Brunswick town line in Merrymeeting Bay. DO, temperature, and pH readings were taken twice daily at incremental depths (MDEP, 2011). Water sampling locations near the Project included:

- A230 – Lewiston Falls Project Impoundment, 0.4 miles upstream of the Project
- A230B – Downstream of Lewiston Falls to Little Androscoggin River, 0.65 miles downstream of the Project

Measurements were taken at the sample locations during low flow, high temperature conditions in 2010 from July 13 to 16 and August 2 to 5. Mean daily DO was approximately 7.7 mg/L in July and approximately 7.85 mg/L in August (MDEP, 2011). Figure 5-7 shows the DO measured at all sampling locations from July 13 to 15, 2010. Mean daily flow at the Auburn gage averaged 2,840 cfs during the sampling days.

Figure 5-7 MDEP 2011 Water Quality Sampling Results - July



Source: MDEP, 2011

5.2.2.4.4 Volunteer River Monitoring Program

DO, temperature, specific conductance, and E. coli are currently monitored along the Androscoggin River by the Volunteer River Monitoring Program (VRMP), which is run by MDEP. The Androscoggin River has been monitored by VRMP since 1983. The Androscoggin River Watershed Council (ARWC) joined the VRMP in 2012. Monitoring is generally performed once a month from May to September or October at several different locations along the Androscoggin River (MDEP, 2021).

ARWC added a sample location to the VRMP in 2019 at the Festival Plaza in Auburn (A517), located approximately 1,400 feet downstream of the Project. Monitoring is conducted one to three times per month from June to August/September. Table 5-6 includes the results for water quality monitoring that occurred in 2019 at this location.

Table 5-6 Volunteer River Monitoring Program Results

Parameter	Mean	Minimum	Maximum
DO (mg/L)	7.8	7.3	9.3
DO Saturation (%)	93.3	88.0	108.0
Temperature (°C)	24.4	22.4	26.0
Spec. Con. (µS/cm)	97	80	117

Source: MDEP, 2021

5.2.2.4.5 Dioxin Monitoring Program and Fish Consumption Information

The Dioxin Monitoring Program (DMP) was enacted by MDEP in 1988 with the goal "to determine the nature of dioxin contamination in the waters and fisheries of the State" (MDEP, 2006). The dioxin monitoring program was merged with Surface Waters Ambient Toxin (SWAT) monitoring program in 2008.

A 2008 report by the Maine Center for Disease Control (MCDC) examined dioxin-like compounds in fish from samples in 2003 through 2007 (Smith and Frohberg, 2008). Fish sampling locations along the Androscoggin River include locations between Gilead, ME (near the border of NH) downstream to Lisbon, ME. The report found that the levels of dioxins and furans in fish along the Androscoggin River "remain at or above the FTAL (Fish Tissue Action Level) of 0.4 parts per trillion (ppt) at virtually all sampling locations for gamefish and exceeded this FTAL when coplanar PCBs were added." The report added that suckers remain above the cancer FTAL of 1.5 ppt for most locations on the Androscoggin River. The results of the study set up guidelines for fish consumption limits. (MDEH, 2008).

The MCDC and Division of Environmental Health (MDEH) currently advise eating no more than six to 12 fish meals per year of fish from the Androscoggin River due to the possibility of high levels of PCBs, Dioxins or DDT. MDEH states that pregnant and nursing women and children under age eight should not eat freshwater fish from Maine's inland waters, with the exception of brook trout and landlocked salmon where one meal per month is considered safe. All other adults and children over eight can safely eat two freshwater fish meals per month or one brook trout/landlocked salmon per week (Maine CDC, 2021).

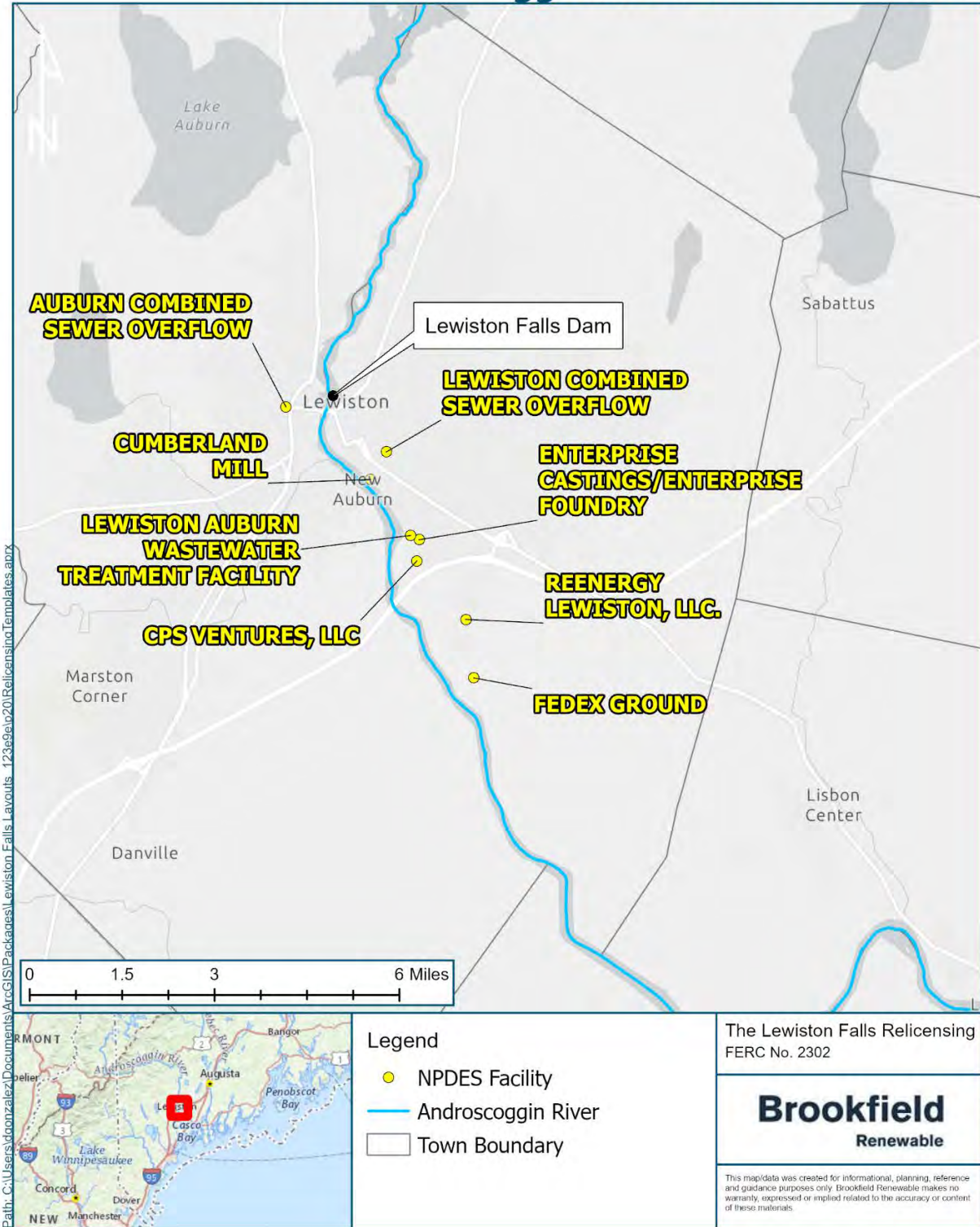
5.2.2.5 Wastewater Discharges

The US Environmental Protection Agency (EPA) is responsible for implementing and overseeing the National Pollutant Discharge Elimination System (NPDES) permit program. The NPDES permit program was created in the 1970's by the Clean Water Act and helps address pollution by regulating point sources that discharge pollutants into receiving waters. Figure 5-8 and Table 5-7 show the effective NPDES facilities in the vicinity of the Project (excluding those for stormwater). As noted above, BWPH holds NPDES permit number ME0023621 for discharge of non-contact cooling water from the Lewiston Falls Project (Monty Station). There are no NPDES facilities discharging directly into the Project

impoundment, however several combined sewer overflows and the Lewiston-Auburn Wastewater Treatment Facility discharge downstream of the Project (approximately 1.9 miles) (EPA, 2021).

Figure 5-8 NPDES Facilities on the Lower Androscoggin River

Lower Androscoggin River NPDES Permits



Source: EPA, 2021

Table 5-7 NPDES Facility Discharge Locations Downstream of Monty Station

NPDES Facility Name	Approx. Distance from Monty Station (miles downstream)
City of Auburn Combined Sewer Overflow	0.4
City of Lewiston Combined Sewer Overflow	1.7
Cumberland Mill	1.9
Enterprise Castings/Enterprise Foundry	2.8
Lewiston Auburn Wastewater Treatment Facility	2.8
CPS Ventures, LLC	3.1
Reenergy Lewiston, LLC	4.5
Fedex Ground	5.6

Source: EPA, 2021

5.2.2.6 Androscoggin River Water Quality Modeling

5.2.2.6.1 1988 CMP Water Quality Study

CMP conducted a water quality study on the Androscoggin River in the vicinity of the Lewiston Falls project in 1988. The water quality study had two purposes; to collect water quality data prior to the construction of the Lewiston Falls Project to compare post-operational conditions to, and to develop a water quality model of DO in the Androscoggin River from Gulf Island Pond to downstream of the Lewiston Falls Project. The model was used to simulate DO conditions in portions of the lower Androscoggin River (CMP, 1990).

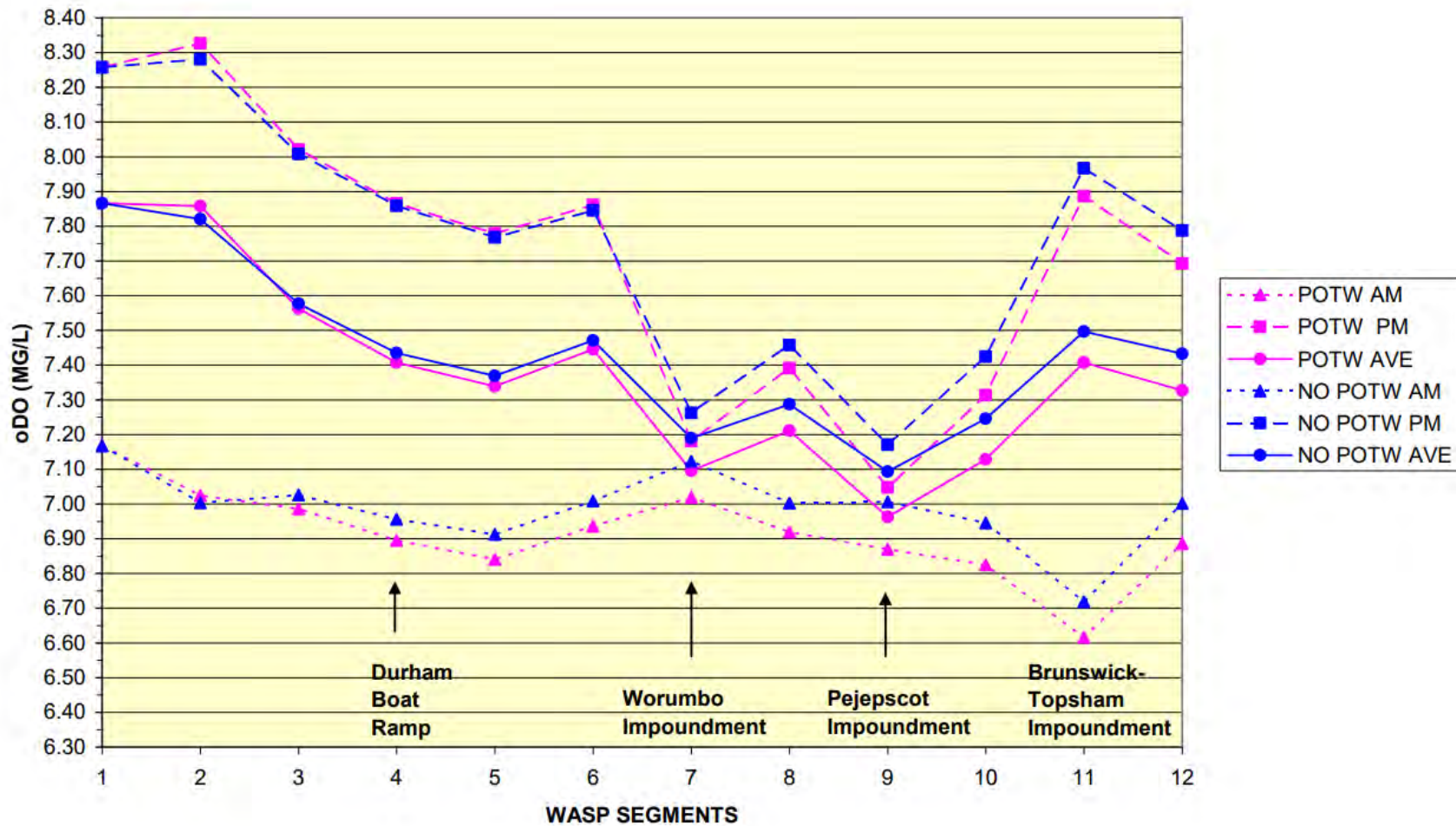
5.2.2.6.2 2011 MDEP Water Quality Study

As part of MDEP’s 2011 water quality study, a WASP (version 7.41) model was developed for the freshwater sections of the river from the confluence of the Little Androscoggin River (which joins the mainstem Androscoggin River approximately 0.7 miles downstream of Monty Station) to the Brunswick Dam. The model simulated effects of nutrients and other pollutants on the Androscoggin River during low flows and maximum licensed discharge from Publicly Owned Treatment Works (POTW) to predict water quality

conditions during a 7Q10 low flow (occurring 7 consecutive days, once every 10 years) event (MDEP, 2011).

Although the modeled area began just downstream of the Lewiston Falls Project, the results indicated that DO concentrations reached a critical low point in the Brunswick impoundment in the morning. Morning DO concentrations ranged from 7.15 mg/L at the Little Androscoggin River to 6.60 mg/L in the Brunswick impoundment at the 7Q10 flow. When the presence of POTW's were removed from the model, DO concentrations ranged from 7.15 mg/L at the Little Androscoggin River to 6.70 mg/L in the Brunswick impoundment (Figure 5-9) (MDEP, 2011).

Figure 5-9 MDEP Water Quality Modeling Results Comparing Critical Dissolved Oxygen Conditions with and without POTW Loads



Source: MDEP, 2011

5.2.3 References

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5.3 Fish and Aquatic Resources

5.3.1 Overview

The Androscoggin River is Maine's third longest river. Starting from the headwaters at Lake Umbagog, New Hampshire, the river runs 178 miles to a confluence with the Kennebec River at Merrymeeting Bay. The combined rivers (Merrymeeting Bay) continue another 20-miles before entering the Gulf of Maine. A drop of 1,500-vertical feet occurs from Lake Umbagog to the tidewater, averaging 7.74-feet per mile (Brown Bear Hydro 2020). The head of tide on the Androscoggin River is the base of Brunswick Falls.

The fish assemblage in the Androscoggin River reflects natural and anthropogenic gradients from its upper reaches in New Hampshire to the tidal waters near Brunswick, Maine (Yoder et al., 2006). Upstream of Rumford Falls (approximately 50 miles upstream of the Project), the river is referred to as the Upper Androscoggin. This section is managed for recreational coldwater salmonid fishing by the States of Maine and New Hampshire within their respective borders. Though wild populations of Brook Trout (*Salvelinus fontinalis*) and Rainbow Trout (*Oncorhynchus mykiss*) contribute to the fishery, it is dependent upon annual stocking of Brook Trout, Rainbow Trout, Brown Trout (*Salmo trutta*), and landlocked Atlantic Salmon (*Salmo salar sebago*) (Brautigam and Pellerin, 2014).

Downstream of Rumford Falls, including the Project area, the fish assemblage consists primarily of a warmer-water community, with a greater prevalence of lentic species. Additionally, American Eel (*Anguilla rostrata*) were documented at many locations downstream of Gulf Island Dam, including areas in the vicinity of the Project (Yoder et al., 2006). Anadromous migrants such as Atlantic Salmon (*Salmo salar*), American Shad (*Alosa sapidissima*), Alewife (*Alosa pseudoharengus*), Blueback Herring (*Alosa aestivalis*), are seasonally present in the river below Lewiston Falls, as a result of fish passage facilities, stocking, and trap and transport programs (Brown et al., 2006). Striped Bass (*Morone saxatilis*), and Sea Lamprey (*Petromyzon marinus*) are also present in the lower-most reaches of the river and upstream of Brunswick.

The historic extent of upstream passage for river herring (Blueback Herring and Alewife) has been reported to be Lewiston Falls, with some American Eel, Atlantic Salmon, and possibly Sea Lamprey having passed as far upstream as Rumford Falls (Brown Bear Hydro

2020). Table 5-8 presents a list of species known to inhabit the mainstem and associated watershed of the Androscoggin River.

Table 5-8 Freshwater and Diadromous Species Inhabiting the Androscoggin River and Associated Watershed

Common Name	Scientific Name	Native/ Introduced	Diadromous/ Resident
Alewife	<i>Alosa pseudoharengus</i>	Native	Diadromous/resident
American Eel	<i>Anquilla rostrata</i>	Native	Diadromous
American Shad	<i>Alosa sapidissima</i>	Native	Diadromous
Atlantic Salmon	<i>Salmo salar</i>	Native	Diadromous/resident
Atlantic Sturgeon	<i>Acipenser oxyrinchus</i>	Native	Diadromous
Atlantic Tomcod	<i>Microgadus tomcod</i>	Native	Diadromous
Blueback Herring	<i>Alosa aestivalis</i>	Native	Diadromous
Rainbow Smelt	<i>Osmerus mordax</i>	Native	Diadromous
Sea Lamprey	<i>Petromyzon marinus</i>	Native	Diadromous
Shortnose Sturgeon	<i>Acipenser brevitostrum</i>	Native	Diadromous
Striped Bass	<i>Morone saxatilis</i>	Native	Diadromous
Black Crappie	<i>Pomoxis nigromaculatus</i>	Introduced	Resident
Blacknose Dace	<i>Rhinichthys atratulus</i>	Native	Resident
Brook Trout	<i>Salvelinus fontinalis</i>	Native	Resident
Brown Bullhead	<i>Ameiurus nebulosus</i>	Native	Resident
Brown Trout	<i>Salmo trutta</i>	Introduced	Resident
Burbot	<i>Lota</i>	Native	Resident
Chain Pickerel	<i>Esox niger</i>	Native	Resident
Common Carp	<i>Cyprinus carpio</i>	Introduced	Resident
Common Shiner	<i>Notropis cornutus</i>	Native	Resident
Creek Chub	<i>Semotilus atromaculatus</i>	Native	Resident
Banded Killifish	<i>Fundulus diaphanus</i>	Native	Resident
Fallfish	<i>Semotilus coporalis</i>	Native	Resident
Golden Shiner	<i>Notemigonus crysoleucas</i>	Native	Resident
Lake Chub	<i>Couesius plubeus</i>	Native	Resident
Lake Trout	<i>Salvelinus namaycush</i>	Native	Resident
Largemouth Bass	<i>Micropterus salmoides</i>	Introduced	Resident
Longnose Dace	<i>Rhinichthys cataractae</i>	Native	Resident
Longnose Sucker	<i>Catostomus catostomus</i>	Native	Resident
Northern Pike	<i>Esox lucius</i>	Introduced	Resident
Pumpkinseed	<i>Lepomis gibbosus</i>	Native	Resident
Rainbow Trout	<i>Oncorhynchus mykiss</i>	Introduced	Resident
Redbreast Sunfish	<i>Lepomis auritus</i>	Native	Resident
Rock Bass	<i>Ambloplites rupestris</i>	Introduced	Resident

Common Name	Scientific Name	Native/ Introduced	Diadromous/ Resident
Slimy Sculpin	<i>Cottus cognatus</i>	Native	Resident
Smallmouth Bass	<i>Micropterus dolomieu</i>	Introduced	Resident
Spottail Shiner	<i>Notropis hudsonius</i>	Introduced	Resident
White Catfish	<i>Ameiurus catus</i>	Introduced	Resident
White Perch	<i>Morone americana</i>	Native	Resident
White Sucker	<i>Catostomus commersonii</i>	Native	Resident
Yellow Perch	<i>Perca flavescens</i>	Native	Resident

Source: MDMR and MDIFW 2017, Yoder et al. 2006.

Fisheries sampling during 2003 indicated at temperature gradient occurring with slightly lower water temperatures in the upper reaches of the Androscoggin River capable of supporting salmonid and non-salmonid coldwater species (Yoder et al. 2006). Resource agency management plans reflect this downstream shift in water temperature. Currently, three plans exist for the Androscoggin River.

Well upstream of the Project, MDIFW's Upper Androscoggin Fishery Management Plan (MDIFW 2014) actively manages for coldwater species from the New Hampshire state line to Rumford Falls, ME. Emphasis is given to the reach from the New Hampshire state line to Bethel, ME as this segment provides the most promising coldwater habitat and Smallmouth Bass become numerically dominant in the slower, flatwater stretches from Bethel, ME to Rumford Falls (MDIFW 2014). Watershed tributaries in the upper Androscoggin River contain self-sustaining populations of native species, while the mainstem consists of a mixture of cold and warm water resident fish species (Yoder et al. 2006). Naturally reproducing populations of Rainbow Trout and, to a lesser extent, Brown Trout are supplemented by stocking of these species as well as Brook Trout and landlocked Atlantic Salmon, to maintain an important recreational trout fishery. In terms of abundance, the upper riverine and impounded segments of the Androscoggin are dominated by Smallmouth Bass, Common Shiner, and Fallfish, with Longnose Dace also abundant in upper river coldwater segments (Yoder et al. 2006).

In the stretch of river extending from Rumford Falls to Lewiston, sampling indicates a transition from cold and warmwater resident species to more lentic warmwater resident community represented by species such as Spottail Shiner, sunfish species, Yellow Perch and black bass species (Yoder et al. 2006).

Below Lewiston Falls, the resident freshwater fishery during the 1980s was primarily a targeted warmwater fishery (i.e., Smallmouth Bass, Chain Pickerel) although an assessment of habitat availability resulted in the initiation of a Brown Trout management plan in 1983 (MDIFW 1986). A creel survey assessment from the 1990's was completed to assess the residential freshwater fishery (Brautigam 1999). The creel results identified Smallmouth Bass as the dominant recreationally targeted species and overall warmwater species represented 99% of the recreational catch in the lower Androscoggin River (Brautigam 1999). Coldwater species represented only 1% of the catch and supplemental electrofishing surveys to document the presence of older age Brown Trout had limited results. Few fish were captured overall and the majority of those were from that year's stocking effort, indicating limited holdover from previous stocking events. These results led to recommendations to cease the stocking of coldwater species in the lower mainstem river (Brautigam 1999). Smallmouth Bass, Black Crappie and Northern Pike, the latter of which are both non-native introductions to the Androscoggin River and are also present in the lower river. These species are becoming a more common component of the lower river sport fishery although they are considered 'invasive' to the river and not managed under the state management plans (James Pellerin, MDIFW, personal communication).

Currently, diadromous fisheries management downstream of Lewiston Falls, falls under the Androscoggin River Watershed Comprehensive Plan for Diadromous Fishes (NOAA 2020). The geographic scope of this plan focuses on the stretch of river between Brunswick and below Lewiston Falls as habitat for seven diadromous species (American Shad, Blueback Herring, Alewife, Atlantic Salmon, American Eel, Sea Lamprey, and Striped Bass) (NOAA 2020). River herring (Alewife and Blueback Herring), American Shad, Atlantic Salmon, and American Eel are present in the reach of the river between Brunswick and Lewiston Falls, as a result of fish passage facilities at downstream dams.

Fish passage is provided at the three lowermost hydroelectric project dams on the mainstem Androscoggin (Brunswick, Pejepscot, and Worumbo) for American Shad, Blueback Herring, Alewife, Atlantic Salmon, and Sea Lamprey. Currently only Worumbo has an upstream passage provision for juvenile American Eel. The number of eels that have been counted at Worumbo in recent year are provided in Table 5-14. Future upstream eel passage measures have been proposed for Pejepscot as part of the ongoing FERC relicensing of that Project (Brookfield 2020).

5.3.2 Fish Resources and Habitats

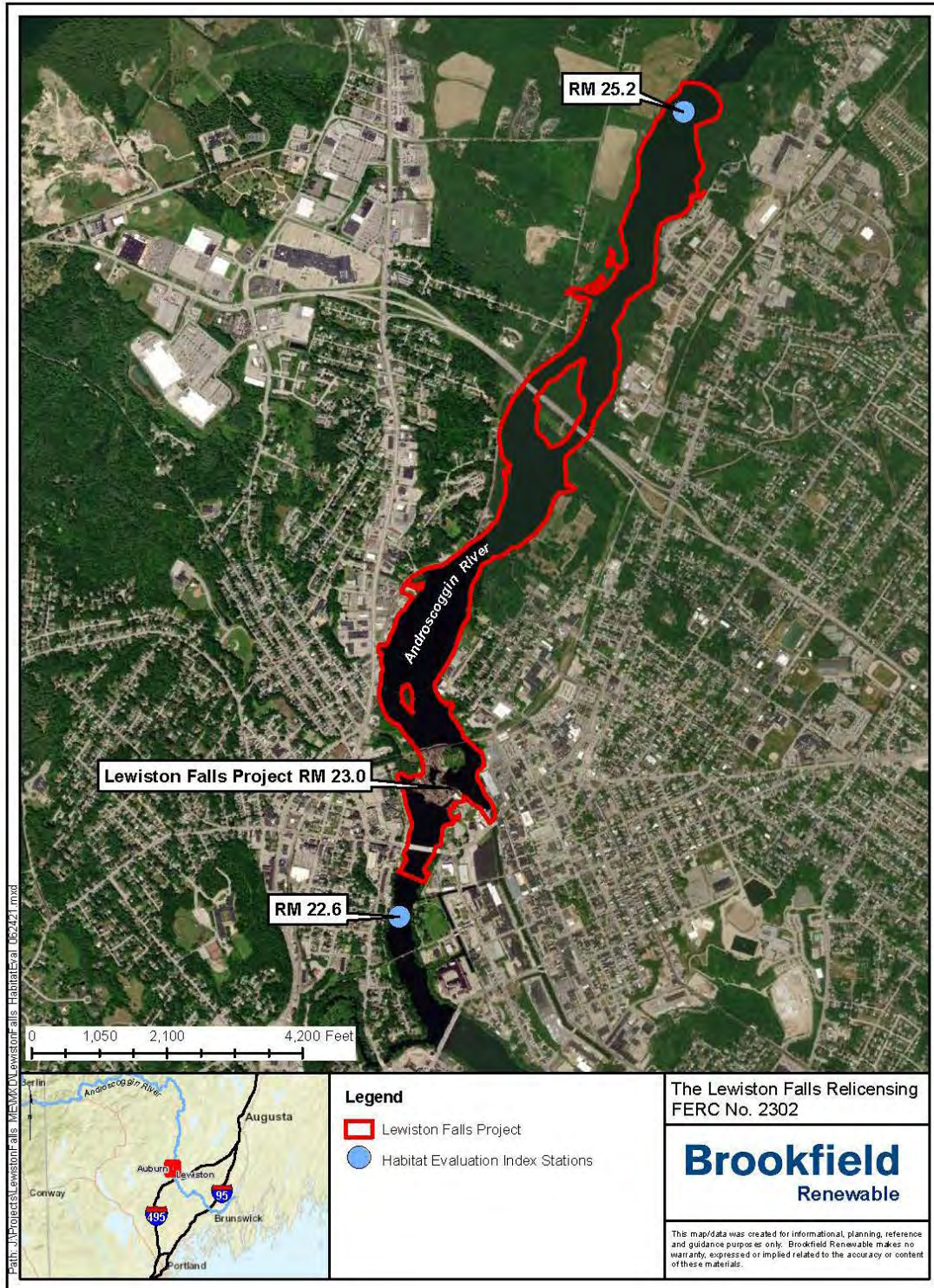
The Lewiston Falls Project includes a 200 acre impoundment extending approximately 2.5 miles upstream of the Project dam. Downstream the Project boundary extends approximately 0.28 miles downstream of the Project powerhouse (Monty Station). The lower Androscoggin River primarily provides habitat for many warmwater resident and diadromous species while coldwater species can be found in tributaries, lakes and ponds within the watershed.

An evaluation of aquatic habitat in the form of a Qualitative Habitat Evaluation Index (QHEI) was completed during the fish assemblage and abundance assessment in 2003 (Yoder et al. 2006). The QHEI is a physical habitat index developed as a rapid assessment evaluation providing empirical and qualitative assessments of lotic macrohabitat characteristics developed by Rankin (1989, 1995). Yoder et al. (2006) modified the assessment metrics to reflect habitat more appropriately in large, non-wadeable rivers being sampled in Maine. The QHEI assessed the presence/absence of 'good' and 'modified' habitat attributes (current, channel morphology, substrate types and condition) important to fish assemblages. A ratio of good attributes, those positively associated with high quality fish assemblages, and modified attributes, those indicative of degraded habitat generally negatively associated with high quality fish assemblages, were used to provide information of habitat limitations and related biological impairment (Rankin 1995). The most relevant habitat assessments by Yoder et al. (2006) included a station at the uppermost part of the Project impoundment (river mile [RM] 25.2) and a location approximately 0.4-miles downstream of the Project boundary (RM 22.6; Figure 5-9). The QHEI results for these two sites are presented in Figure 5-10.

The habitat at the upstream end of the impoundment where the riverine section below Deer Rips Dam runs into the Lewiston Falls impoundment was evaluated. The reach was characterized as high gradient riverine and impounded riverine, and had a QHEI score of 83.0 (out of 100). This score ranged within those observed in high gradient riverine sections of the Androscoggin River (generally in the 80-90 range) and well above the typical score for other impounded reaches (40-50's). All 'good' attributes were observed at this location and the fact that this reach was impounded was the basis for the only 'modified' habitat feature. The habitat reach downstream of the project (RM 22.6) was classified as a high gradient riverine reach with a QHEI score of 76.5. This ranks slightly lower than what was expected for this habitat type in the Androscoggin River (QHEI scores

of 80-90's). Aspects of the QHEI negatively impacting this reach included the lack of fast current/eddies and silt free substrates along with the assessment of fair-poor development (i.e., no to low presence of riffle habitat) along that reach (Yoder et al., 2006).

Figure 5-10 Qualitative Habitat Evaluation Index (QHEI) stations closest to the Lewiston Falls Project



Source: Yoder et al. 2006

Table 5-9 Qualitative Habitat Evaluation Index (QHEI) Results for River Miles 25.2 and 22.6 of the Androscoggin River displaying the QHEI Score, and the Matrix of Attributes and Resulting Ratio of Modified: Good Attributes

Good Attributes		
Location (RM 25.2-Upstream, RM 22.6-Downstream)	RM 25.2	RM 22.6
No Channelization/Recovered	yes	yes
Boulder, Cobble, Gravel Substrates	yes	yes
Silt Free Substrates	yes	no
Good/Excellent Development	yes	yes
Five or More Substrate Types	yes	yes
Extensive-Moderate Cover	yes	yes
Fast Current/Eddies	yes	no
Low/Normal Overall Embeddedness	yes	yes
Maximum Depth > 1 Meter	yes	yes
Low/Normal Riffle/Run Embeddedness	yes	yes
Total Number of Good Habitat Attributes	10	8

Modified Attributes		
Location (RM 25.2-Upstream, RM 22.6-Downstream)	RM 25.2	RM 22.6
Impounded	Yes	no
Channelized or No Recovery	no	no
Silt/Muck Substrates	no	no
Sparse or No Cover	no	no
Maximum Depth < 70 Centimeters	no	no
Recovering Channel	no	no
High/Moderate Silt Cover	no	no
Fair/Poor Development	no	yes
Only 1-2 Cover Types	no	no
Slow or No Flow	no	no
High-Moderate Overall Embeddedness	no	no
High-Modified Riffle/Run	no	no
No Riffle/Run	no	no
Total Number of Modified Habitat Attributes	1	1

Location (RM 25.2-Upstream, RM 22.6-Downstream)	RM 25.2	RM 22.6
QHEI Score	83.0	76.5
Ratio of Modified: Good Attributes	0.1	0.13

Source: Yoder et al. 2006

Fisheries sampling completed in 2003 in/near the Project boundary indicates the presence of resident warmwater and diadromous species upstream and downstream of Lewiston Falls (Yoder et al. 2006). A compilation of catch at riverine reach sampling stations downstream of Lewiston Falls but upstream of Lisbon Falls are presented in Table 5-10 and represents the suite of resident species likely to be present within the downstream Project boundary. Similarly, a compilation of impounded stations in Gulf Island Pond provide a representative suite of species likely to be present in the impounded reach above the Lewiston Falls Project dam (Table 5-11).

Further refinement of the catch recorded for single stations at the nearest upstream (RM 25.2) and downstream (RM 22.6) sampling locations represented six resident and one diadromous species and are presented in Table 5-12. In both locations warmwater Centrachids and Cyprinids dominated the catch with Smallmouth Bass being the most abundant species. Eight resident fish species (landlocked Atlantic Salmon, Brook Trout, landlocked Rainbow Smelt, Lake Trout, Rainbow Trout, Brown Trout, Smallmouth and Largemouth Bass) are identified by MDIFW as being of particular interest and actively managed as recreational sportfish (MDMR and MDIFW 2017). Of these species, only Smallmouth Bass were captured in the vicinity of the Project.

Diadromous species were represented by American Eel both upstream and downstream of the Project.

As discussed above, access to waters downstream of the Project boundary by diadromous species are available by fish passage at the three dams downstream of Lewiston Falls. Annual returns of diadromous fish recorded at Brunswick Dam are provided in Table 5-13. Diadromous fish passed at the Worumbo fish lift are provided in Table 5-14. The number of American eel counted at Worumbo are provided in Table 5-15.

Table 5-10 Fish Species Assemblage Percent Composition Results for Riverine Stations Downstream of Lewiston Falls but Upstream of Lisbon Falls Collected in 2003

Location	Common Name	Scientific Name	Percent Composition
Riverine (Lewiston Falls to Lisbon Falls)	Rainbow Trout	<i>Oncorhynchus mykiss</i>	0.3
	White Sucker	<i>Catostomus commersoni</i>	15.6
	Spottail Shiner	<i>Notropis hudsonius</i>	2.1
	Fallfish	<i>Semotilus corporalis</i>	2.4
	American Eel	<i>Anguilla rostrata</i>	4.2
	Pumpkinseed	<i>Lepomis gibbosus</i>	4.2
	Redbreast Sunfish	<i>Lepomis auratus</i>	16.2
	Smallmouth Bass	<i>Micropterus dolomieu</i>	51.3
	Largemouth Bass	<i>Micropterus salmoides</i>	0.3
	Yellow Perch	<i>Perca flavescens</i>	3.5

Source: Yoder et al. 2006

Table 5-11 Fish Species Assemblage Percent Composition Results for Impounded Stations Upstream of Lewiston Falls but Downstream of Gulf Island Pond Collected in 2003

Location	Common Name	Scientific Name	Percent Composition
Impounded (Lewiston Falls upstream through Gulf Island Pond)	White Sucker	<i>Catostomus commersoni</i>	2.7
	Golden Shiner	<i>Notemigonus crysoleucas</i>	1.0
	Spottail Shiner	<i>Notropis hudsonius</i>	25.3
	Fallfish	<i>Semotilus corporalis</i>	0.1
	White Perch	<i>Morone americana</i>	11.3
	Pumpkinseed	<i>Lepomis gibbosus</i>	8.1
	Redbreast Sunfish	<i>Lepomis auritus</i>	0.7
	Black Crappie	<i>Pomoxis nigromaculatus</i>	0.1
	Smallmouth Bass	<i>Micropterus dolomieu</i>	5.8
	Largemouth Bass	<i>Micropterus salmoides</i>	4.0
	Chain Pickerel	<i>Esox niger</i>	1.5
Yellow Perch	<i>Perca flavescens</i>	39.5	

Source: Yoder et al. 2006

Table 5-12 Fish Species (Abundance and Percent Composition) for the 2003 Sampling Transect Nearest the Lewiston Falls Project Downstream Boundary (RM 22.6) and within the Upstream Project Boundary

River Mile	Common Name	Scientific Name	Number Caught	Percent Composition
22.6	American Eel	<i>Anguilla rostrata</i>	2	2.8
	Smallmouth Bass	<i>Micropterus dolomieu</i>	45	62.5
	Pumpkinseed	<i>Lepomis gibbosus</i>	4	5.6
	Redbreast Sunfish	<i>Lepomis auritus</i>	21	29.2
	Total		72	

River Mile	Common Name	Scientific Name	Number Caught	Percent Composition
25.2	White Sucker	<i>Catostomus commersoni</i>	46	17.6
	Spottail Shiner	<i>Notropis hudsonius</i>	12	4.6
	Fallfish	<i>Semotilus coporalis</i>	13	5.0
	American Eel	<i>Anguilla rostrata</i>	8	3.1
	Smallmouth Bass	<i>Micropterus dolomieu</i>	98	37.2
	Pumpkinseed	<i>Lepomis gibbosus</i>	20	7.7
	Redbreast Sunfish	<i>Lepomis auritus</i>	47	18.0
	Yellow Perch	<i>Perca flavescens</i>	18	6.9
	Total		261	

Source: Yoder et al. 2006

Table 5-13 Diadromous Fish Counts at the Brunswick Fishway, 2000-2020

Year	Atlantic Salmon	American Shad	River Herring	Striped Bass	Sea Lamprey	American Eel*
2000	4	88	9,551	95	0	3
2001	5	26	18,196	0	0	5
2002	2	11	104,520	8	3	2
2003	3	7	53,732	4	6	0
2004	12	12	113,686	1	8	2
2005	10	0	25,896	18	0	0
2006	6	3	34,239	75	0	9
2007	21	6	60,662	2	10	4
2008	18	1	92,359	3	19	2
2009	24	0	44,725	0	15	0
2010	9	22	39,689	0	28	0
2011	44	0	54,886	1	19	2
2012	0	11	170,191	3	125	108
2013	2	16	69,104	103	26	100
2014	4	0	55,678	1	45	201
2015	2	53	71,887	1	129	1
2016	7	1,123	121,010	46	132	-
2017	0	1	49,923	2	21	3
2018	0	32	179,040	9	13	1
2019	1	63	81,025	25	48	1
2020	5	23	67	-	-	-

Source: Brookfield 2021

Note: The late opening of the Brunswick fishway in 2020 due to pandemic related concerns (June 1) resulted in reduced passage of diadromous species and a temporary cessation of river herring stocking that year (Brookfield 2021). Summaries of life history and presence within Project influenced waters are provided for these species in section 5.3.4.

Table 5-14 Fish Counts at the Worumbo Fishway

Year	Atlantic Salmon	River Herring	American Shad	Brook Trout	Smallmouth Bass	White Sucker	Other
2000	5	2	-	235	8	16	0
2001	4	7,876	-	3	246	13	23
2002	30*	21,344	-	0	208	26	23
2003	1*	26,315	-	0	156	30	25
2004	1	42,725	7	7	296	56	23
2005	0	2,038	0	0	126	6	12
2006	2	9,826	0	3	100	1	9
2007	7	19,078	0	5	157	7	9

Year	Atlantic Salmon	River Herring	American Shad	Brook Trout	Smallmouth Bass	White Sucker	Other
2008	2	46,746	0	4	112	17	15
2009	1	14,961	0	1	87	5	9
2010	5	11,952	0	2	114	0	30
2011	3	136	0	3	93	0	181
2012	1	58,654	0	8	400	9	85
2013	1*	28,714	0	6	219	11	18
2014	2*	37,113	0	5	327	3	12
2015	0	59,200	18	24	400	50	25
2016	0	12,807	45	15	418	12	30
2017	0	11,200	0	18	607	6	14
2018	0	73,073	1	2	636	30	8
2019	0	10,326	9	39	759	2	39
2020	1	24	0	34	424	0	48

*Reported as landlocked salmon
 Source: Brown Bear Hydro 2020

Table 5-15 Eel Counts at the Worumbo Eel Passage Facility, 2012-2020.

Year	Eels Counted
2012	17
2013	131
2014	541
2015	404
2016	70
2017	82
2018	25
2019	117
2020	15

Source: Brown Bear Hydro, 2020

5.3.3 Inland Fish Species Temporal and Life History Information

The resident fish assemblage within the Project boundary is represented primarily by native and introduced warmwater species. Impounded reaches upstream and riverine reaches downstream of Lewiston Falls are dominated by the families Centrarchidae and Cyprinidae (Table 5-11, Table 5-12) with substantial contributions coming from single representative species from families Esocidae, Percidae, Moronidae, and Anguillidae. Some of these fish species (e.g. Smallmouth Bass, Yellow Perch) are actively managed as sport fish by the state of Maine (MDIFW 2001; MDIFW 2002) while others are important

forage species (Golden Shiner, Fallfish, Spottail Shiner). White Catfish and Common Carp, both part of the fish assemblage downstream of Brunswick Dam, are not passed upstream of that project to prevent the continued expansion of these invasive species into other portions of the Androscoggin River (James Pellerin, MDIFW, personal communication). A summarization of temporal and life history information is presented below. American Eel, which spend the majority of their life within freshwater lakes and rivers, are a diadromous species with temporal and life history information summarized in Section 6.4 below.

Centrarchidae

Centrarchids present within Project influenced waters can be further split into the genres *Micropterus* (black basses), *Lepomis* (sunfishes), and *Pomoxis* (Black Crappie). The black basses, including Largemouth and Smallmouth Bass, were introduced into Maine waters during the 19th century and are popular sport fish in Maine. Black bass are commonly encountered in sizes between 12-16 inches although fish up to 20 inches can be found (MDIFW 2021a; 2021b). Redbreast and Pumpkinseed Sunfish represent the family *Lepomis* and are both native to Maine waters. These species attain sizes of between 7 and 10 inches but are typically encountered at smaller sizes (MDIFW 2021c; 2021d). Black Crappie, introduced to Maine waters, are typically between 6 and 11 inches but can attain sizes in excess of 14 inches (MDIFW 2021e). Centrarchids are found in habitats with protective cover for feeding and nesting, generally in the littoral zone (along the shoreline to about 6-20 feet) in backwaters and other off-channel habitats. Smallmouth Bass prefer clearer, cooler water than Largemouth Bass, and can be found in either still or moving water. Centrarchids are ambush predators that use vegetated water or water with other solid structure (e.g., rocks, stumps) for cover to prey on smaller fish and invertebrates. Smallmouth Bass may move from littoral areas in late fall to winter aggregations associated with cover in deep water (Langhurst and Schoenike 1990). Largemouth Bass are generally considered to be inactive during the winter (Cooke et al. 2003).

Spawning occurs from spring, when water temperatures are near 60°F, into summer and early fall. Males construct nests in shallow water by sweeping a depression into sand or gravel, usually around brush, rocks, or logs. Target species of the centrarchid family build nests in water about one to six feet in depth. Many centrarchid species build nest in colonies with the sunfish species typically creating the highest density among the target species listed. Males guard the eggs and young until the young disperse from the nest. Generally, young centrarchids remain in shallow, protected habitats such as coves and

flooded tributary mouths following cessation of parental care. High water flows which can result in a rapid drop in water temperature and excessive siltation and excessive lowering of the water level during spawning are the two most common habitat-related reasons for reproductive failure (Becker 1983).

Minnnows (Cyprinidae)

Three species from the family Cyprinidae were captured in the impounded reach upstream and riverine reach downstream of Lewiston Falls (Table 5-11, Table 5-12). Fallfish and Golden Shiner are both native to Maine waters while Spottail Shiners are listed as 'introduced'. Fallfish are the largest representative species (typically 4 to 12 inches) while Golden Shiner (3-5 inches) and then Spottail Shiner (2-3 inches) are typically smaller. Although all three Cyprinids species inhabit lakes and large rivers, there are habitat preferences that distinguish them from each other. Fallfish prefer clear water lakes and rivers with gravel bottoms whereas Golden Shiner and Spottail Shiner are associated more with slower currents and modest to high concentrations of aquatic vegetation. These preferences are evident at Lewiston Falls. Fallfish were the most commonly identified Cyprinid in the riverine reaches whereas Spottail Shiner represented more than 25% of the fish assemblage in the impounded reach upstream of Lewiston Falls (Table 5-12). Golden Shiner tend to inhabit shallower waters (up to 12 feet in depth) and were only identified in the impounded reach. Golden Shiner and Fallfish are classified as generalist feeders (Halliwell et al. 1999) eating a variety of zooplankton, aquatic invertebrates and even algae (Golden Shiner) and fish (Fallfish). Although classified as a water column feeder (Halliwell et al. 1999), Spottail Shiner generally feed on the same food items as Golden Shiner and Fallfish. Spawning periods for the target cyprinids range from spring through mid-summer with Fallfish initiating spawning the earliest (late April-May) followed by Golden Shiner and Spottail Shiner (May–August). Fallfish spawn over piles of stones or gravel bottoms in flowing water which then are covered by mounds of additional stones (Scott and Crossman 1973). Golden Shiner broadcast spawn over beds of vegetation while Spottail Shiner are reported to aggregate for spawning at tributary mouths where they broadcast spawn over gravel bottoms (Becker 1983).

Perciade

Yellow Perch were the only representative of this family identified in the waters near to Lewiston Falls. Yellow Perch are a relatively small bodied fish native to Maine that typically

attains sizes of 6-12 inches although they can grow to 15 inches or larger (MDIFW 2021f). Yellow Perch commonly occur in lakes and rivers, occupying a variety of habitats and depths. Typically, Yellow Perch are associated with slow moving or static water bodies with abundant submerged aquatic vegetation and are active during daylight hours (Scott and Crossman, 1973). This habitat preference is evident in the waters around Lewiston Falls where they represented almost 40% of the fish assemblage in upstream impounded waters and only 3.5% in riverine reaches (Table 5-11, Table 5-12). The diet of Yellow Perch includes a variety of invertebrates and fish dependent on season, availability, and size (Becker 1983). Yellow Perch are generally active throughout the year and are a commonly targeted fish during ice fishing.

Spawning for Yellow Perch occurs at night during early spring after ice out. Yellow Perch typically begin spawning when temperatures reach 44°F (Langdon et al. 2006). Yellow Perch prefer slow moving or static water and spawn in the shallows at night in lakes and rivers by laying strings of eggs on vegetation or other bottom substrates (Becker 1983).

Esocidae

Chain pickerel are a native species present in the impounded reaches upstream of Lewiston Falls. This species is native to Maine and can attain sizes of up to 39 inches (Scott and Crossman 1973) although lengths of 14 to 19 inches are typically encountered in Maine (MDIFW 2021g). Recent range expansion of the introduced Northern Pike into the lower Androscoggin River indicates that this species is becoming a more prevalent component of the fish assemblage as well. Pike are capable of exceeding 30 pounds in Maine waters although more commonly captured between 3.5 to 7.5 pounds at 24 to 30 inches (MDIFW 2021h).

Chain Pickerel and Northern Pike are generally solitary ambush predators, utilizing shallow, vegetated waters as cover. Juveniles feed on smaller fish and macroinvertebrates, expanding to larger fish and invertebrates, amphibians, small mammals and birds with size (Scott and Crossman 1973). Spawning occurs in shallow, vegetated, areas during the April or May after ice out when water temperatures range from 47-52°F. No nests are built and eggs are distributed in a string over flooded vegetation (Scott and Crossman 1973). No parental care is provided and eggs typically hatch in 10-14 days with young beginning feeding less than 2 weeks later (Becker 1983). Newly hatched larvae grow quickly,

attaining 4-5 inches during their first year and often attain ages of 4 to 5 years in Maine waters (MDIFW 2021h).

Catostomidae

White Sucker was the only member of the family Catostomidae present in project impacted waters. The species can attain ages in excess of 15 years and lengths up to 25 inches although typical adults range from 12-20 inches (Scott and Crossman 1973). White Suckers accommodate a wide variety of habitats and environmental conditions. They can exist in lakes and large rivers as well as small ponds and streams. The species can be found in high and low gradient habitats and is generally tolerant of degraded environmental conditions including pollutants and siltation (Langdon et al. 2006). Larval White Sucker migrate from spawning sites about 2 weeks after hatching and exist in the upper portions of the water column where they feed on plankton and invertebrates (Langdon et al. 2006). At the length of approximately 1 inch, they relocate to benthic habitats typically feeding on algae and invertebrates (Becker 1983).

Spawning takes place during spring when water temperatures reach 50°C (Scott and Crossman 1973). Adults migrate up tributaries, to higher gradient riverine sections or even along windswept regions of lakes where they utilize rocky, shallow areas with moderate current (Langdon et al. 2006). No nests are prepared and no parental care is provided for the eggs scattered along the bottom of these spawning areas.

Moronidae

White perch were identified in the impounded reaches upstream of Lewiston Falls (Table 5-12). This native species of Maine, often found in brackish water, can live exclusively in freshwater systems, and is a common component of ponds and rivers near the coast (Scott and Crossman 1973). Fish in main typically range from 6 to 12 inches in Maine (MDIFW 2021i). Spawning occurs from mid-May to June in Maine with adults congregating in shallow water over various substrates. No nests are constructed and eggs are demersal, hatching in 4-5 days (Scott and Crossman 1973). No specific habitats were associated with White Perch although preference for warmer summer temperatures and diel migrations from shallow to deeper water during the day were noted (Scott and Crossman 1973). Young feed primarily on zooplankton and macroinvertebrates with

larger prey and fish becoming a more prominent portion of their diet with increasing size (Scott and Crossman 1973).

5.3.4 Diadromous Fish Species

As noted previously, fish passage facilities at the lower three hydroelectric project dams on the Androscoggin mainstem provide several anadromous fish species with access to Project waters downstream of the Project dam and powerhouse including river herring, American Shad, Atlantic Salmon and others such as Sea Lamprey, and possibly Striped Bass. Catadromous American eel also have access to Project waters and have been documented both upstream and downstream of the Project dam (Yoder, 2006).

American Eel

The American Eel is a catadromous species with the juvenile stage existing in the freshwater environment for a period of years prior to downstream migration as an adult.

Spawning for American Eel occurs from February through April in the Sargasso Sea. After hatching, leptocephalic larval eels likely drift with marine currents and use directional swimming as they transform into glass eels and enter freshwater systems in the Gulf of Maine a year or more after hatching (Shephard 2015). Migration activity varies both spatially and temporally. Those eels migrating furthest upstream into freshwater are almost always female, residing for decades (as many as three) before attempting a spawning migration (Shephard 2015). Those inhabiting freshwater prefer lakes, rivers, and ponds with mud or silt bottoms and can be found at a variety of depths. Eels are primarily predators, feeding on a variety of invertebrates and fish and typically are more active during night hours. Activity is restricted to the warmer months and winter is spent buried in the mud or silt. Although the only upstream passage structure for juvenile American Eel is located at Worumbo Project, small individuals have been able to climb and pass other Projects. In this way, American Eel has maintained a presence in greater reaches of historic habitat than many other diadromous species. Eels were collected during sampling by Yoder et al. (2006) upstream and downstream of the Lewiston Falls in 2003 confirming continued passage of downstream facilities and a presence in impounded and riverine waters.

Reaching maturity, American Eels in Maine begin migration to the Atlantic Ocean during late summer into the fall (late August through early November). Spawning occurs between

February and April in the Sargasso Sea. Size ranges for eels in Maine are from the 2-4 inch eelers migrating upstream to the 2-3.5 foot silver-phase adults migrating to the Gulf of Maine (MDIFW 2021j).

While the upstream extent to which American Eels were historically present within the Androscoggin River is not clear, they are capable of ascending Lewiston Falls and have been captured during sampling upstream of the Project (Yoder et al. 2006).

American Shad

Adult American Shad exist primarily in marine waters and return to coastal rivers in New England between mid-May and mid-July. Spawning takes place at night or on overcast days in river channels over fine and coarse substrates when water temperatures typically range from 12-21°C (ASMFC 2010). American Shad prefer to spawn in relatively shallow (ideally less than 4 meters) run habitat with velocities of ranging from 0.3 to 0.9 meters/second (ASMFC 2007; ASMFC 2010). Adults migrating to Maine waters are iteroparous and can live up to 10 years, spawning multiple times (ASMFC 2007). Adults return to marine environments soon after spawning. Eggs hatch within 2 to 17 days and larvae drift in the current until maturing into juveniles (ASMFC 2007). Juvenile habitat needs are similar to those of juvenile river herring with fish utilizing slow portions of large rivers prior to migrating out to marine waters during the late summer/fall (ASMFC 2010).

American shad are currently afforded access to the lower Androscoggin River below Lewiston Falls as a result of fishways operated at the Brunswick, Pejepscot, and Worumbo Projects. Through 2009, the American Shad population in the lower Androscoggin River was supplemented through hatchery rearing and stocking. Current passage at the Brunswick Project (2010-2020) show annual returns of American Shad ranging from 0 individuals to over 1,000 (2016). With the exception of 2016, returns during this period range from 0-50 fish, indicating American Shad are not currently a large component of the diadromous fish community in the reach immediately below Lewiston Falls. The Androscoggin River population is self-sustained through reproduction occurring downstream of Brunswick Dam.

River Herring (Alewife and Blueback Herring)

River Herring are a collective term for Alewife and Blueback Herring. Both species spawn in freshwater, migrate to the Gulf of Maine during their first fall and remain in marine

waters for several years. River herring enter the Androscoggin River from May through early June dependent on environmental conditions (ASMFC 2009). While similar in appearance, habitat preferences differ between the two species. Alewife spawn over diverse habitat but prefer slower flowing waters while Blueback Herring prefer to spawn in flowing waters with sand or gravel substrates (ASMFC 2009). Spawning occurs over a wide range of temperatures (7-22°C) with peak spawning occurring between 13-15°C (ASMFC 2009). Where overlap in range occurs, Alewife typically spawn 2-4 weeks prior to the onset of Blueback Herring (ASMFC 2009). Adults are iteroparous and return to marine waters soon after spawning. Juveniles of both species remain in freshwater ponds, lakes, or slower flowing sections of streams and rivers until mid-summer/fall at which point they migrate downstream toward marine waters (ASMFC 2009).

River herring are currently afforded access to the lower Androscoggin River below Lewiston Falls as a result of fishways operated at the Brunswick, Pejepscot and Worumbo Projects. Annual returns to the Androscoggin River, based on counts at the Brunswick Project fishway 2010-2019, show returns of river herring ranging from almost 40,000 to slightly more than 179,000 (Table 5-16). While river herring includes both Alewife and Blueback Herring, almost all herring ascending the Brunswick Fishway are Alewife (MDMR 2020).

No anadromous species are currently trucked and stocked upstream of Lewiston Falls (Michael Brown MDMR, by email May 25, 2021). A trap and truck program captures Alewife and stocks them into available habitat in lakes and ponds in the lower portion of the Androscoggin watershed, below Lewiston Falls (NOAA 2020). The target adult stocking upstream based on the calculated available habitat (1,886 ha) is 27,358. Table 5-16 presents the number of adult Alewife ascending the Brunswick fish ladder and the number trapped and stocked into available habitat in the lower Androscoggin watershed.

Table 5-16 Upstream Habitat Available for River Herring in the Androscoggin River Drainage (Downstream of Lewiston Falls), Annual (2000-2019) River Herring Counts (Primarily Alewife), and Stocking Effort (Number and Average Fish/Hectare) by MDMR

Year	Habitat* (hectares)	Run Size	Total Number Stocked (Androscoggin and Kennebec)	Average Fish/Hectare
2000	1,318	9,551	20,414	15.5
2001	1,846	18,196	23,459	12.7
2002	1,846	104,520	23,290	12.6
2003	1,846	53,732	20,392	11.0
2004	1,846	113,686	20,668	11.2
2005	1,886	25,896	16,867	8.9
2006	1,886	34,239	23,214	12.3
2007	1,886	60,662	23,369	12.4
2008	1,886	92,359	24,684	13.1
2009	1,886	44,725	22,057	11.7
2010	1,886	39,689	11,800	6.3
2011	1,886	54,886	20,907	11.1
2012	1,886	170,190	20,758	11.0
2013	1,886	69,104	21,442	11.4
2014	1,886	55,687	19,402	10.3
2015	1,886	71,887	22,983	12.2
2016	1,886	114,874	22,612	12.0
2017	1,886	49,923	21,360	11.3
2018	1,886	179,040	20,849	11.1
2019	1,886	81,025	20,714	11.0
* Habitat does not include the Brunswick headpond				

Source: MDMR 2020

Atlantic Salmon

Atlantic Salmon are native to the North Atlantic Ocean; in the western Atlantic, they range from Iceland, southern Greenland, and Ungava Bay, Quebec to the Connecticut River (Danie et al., 1984). They are an anadromous, iteroparous species with the potential for repeat spawning. After two years at sea, they average approximately 28-30 inches in length and 8-12 pounds and can reach 30 pounds (DSF, 2015). Spawning adults return

home to their natal rivers and streams, from the spring through fall with peak upstream migration from May through mid- July in Maine (NMFS, 2017). They spawn in the late fall.

Atlantic Salmon build nests (redds) in gravel/cobble areas of moving water. The eggs hatch in March/April after overwintering in the interstitial spaces within the substrate. After fry emerge from the redd, they disperse, developing into a juvenile salmonid (parr) as they feed and grow. They will typically remain in the parr life stage for 1-3 years, growing in freshwater before undergoing a physiological transformation that prepares them for life in saltwater, after which they develop into smolts and emigrate to the ocean during the springtime (NMFS, 2017). They will reach Newfoundland and Labrador by mid-summer and spend their first winter at sea to the south of Greenland (DSF, 2015). Most fish will return to Maine to spawn after their second winter at sea. Post-spawn individuals may emigrate in the Fall or will overwinter in the river as “kelts” and will emigrate the following spring.

On June 19, 2009, the NMFS and USFWS published a final rule determining that naturally spawned and conservation hatchery populations of anadromous Atlantic salmon whose freshwater range occurs in the watersheds from the Androscoggin River northward along the Maine coast to the Dennys River, including those that were already listed in November 2000, constitute a DPS and hence a “species” for listing as endangered under the ESA (NMFS 2009a). This range includes the Androscoggin River.

The GOM DPS of Atlantic salmon is divided into three salmon habitat recovery units (SHRUs) within the range of the GOM DPS and includes the following: the Downeast Coastal SHRU, the Penobscot Bay SHRU, and the Merrymeeting Bay SHRU. The three SHRUs were created to ensure that Atlantic salmon were widely distributed across the DPS such that recovery of the GOM DPS of Atlantic salmon is not limited to one river or one geographic location, because widely distributed species are less likely to become threatened or endangered by limited genetic variability and tend to be more stable over space and time (NMFS 2009a).

The Merrymeeting Bay SHRU contains historically accessible spawning and rearing habitat for Atlantic salmon. The Merrymeeting Bay SHRU incorporates two large basins: the Androscoggin and Kennebec. A variety of issues and conditions, including dams, affect Atlantic salmon recovery in the Androscoggin River, including also agriculture, forestry, industry, changing land use, hatcheries and stocking, roads and road crossings, mining,

dredging, aquaculture, and introductions of non-native species such as smallmouth bass (NMFS 2009a).

Critical habitat for Atlantic Salmon in the Androscoggin River extends to below the Lewiston Falls project and only as far as the Little Androscoggin River and is defined in the 2018 Atlantic Salmon Recovery Plan as:

'specific areas within the geographical area occupied by the species supporting those physical and biological features that are essential for the conservation of the species and that may require special management considerations or protection.'

Further refinement of this defines freshwater Critical Habitat requirements by spawning, rearing, and migration standards specific to the biological needs of this species. According to the final ruling (50 CFR Part 226, June 19, 2009), Critical Habitat does not extend upstream of the Little Androscoggin River which is downstream of the Project boundary.

Because Critical Habitat does not extend above the Little Androscoggin River, there is no Critical Habitat within the Lewiston Falls Project boundary and the current Atlantic Salmon Recovery Plan (USFWS 2018) does not include restoration of Atlantic Salmon above Lewiston Falls. However, with the understanding that Atlantic salmon could have access to Project waters and make their way to the base of Lewiston Falls, in 2013, the Licensee prepared an Interim Species Protection Plan (ISPP) for the Lewiston Falls Project to address potential stranding of Atlantic salmon below the Project dam. In 2019, the licensee filed a final Species Protection Plan (including an updated Atlantic Salmon Rescue and Handling Plan), for the Lewiston Falls Project in which the Licensee proposed to continue the measures to prevent stranding of Atlantic Salmon below Lewiston Falls in the event of an occurrence resulting from spill at the Project (Brookfield 2019). Under the Plan, operations staff are trained on how to survey the reach below and take appropriate action in the event a stranded salmon is observed (Brookfield 2019).

Per the Terms and Conditions provided within the July 2013 Biological Opinion (BO) issued by NMFS, Brookfield conducted an instream flow demonstration assessment to evaluate the effects of peaking operations at Lewiston Falls on riverine habitat downstream of the Project (Normandeau 2016). In October 2014, four cross-river transects (0.2, 0.3, 0.5, and 0.75 miles downstream of Lewiston Falls) were visited under both minimum flow conditions (2,421 cfs) and during a period of Project generation

(7,812 cfs). Total wetted width, water depths, and velocities were collected during both conditions. Sites were revisited in October 2015 to include an Onset HOB0 level logger at each transect to measure the change in water depth over a 2-hour period after generation was terminated. Based on depth and velocity data collected in 2014 it was determined that an adequate passage channel exists and that the wetted habitat is not substantially impacted under either operating scenario. Changes in water depth during 2015 after ceasing generation indicated a consistent rate of decline (-0.02 inches per minute) across all four transects over the 2-hour period. Given the adequate passage channel and wetted with along with the consistent rate of decline recorded in 2015 it was determined that peaking operations do not produce a significant impact on downstream wetted habitat (Normandeau 2016).

Essential fish habitat (EFH) is identified for species managed in Fishery Management Plans under the Magnuson-Stevens Fishery Conservation and Management Act and is defined as the habitat necessary for managed fish to complete their life cycle such that the fishery can be harvested sustainably. Habitats of particular concern (HAPC) are EFHs that are judged to be particularly important to the long-term productivity of populations of one or more managed species, or to be particularly vulnerable to degradation (NEFMC, 1998). EFH for Atlantic salmon is described as all waters currently or historically accessible to Atlantic salmon within the streams, rivers, lakes, ponds, wetlands and other water bodies of Maine, New Hampshire, Vermont, Rhode Island and Connecticut and is defined for each Atlantic salmon life stage (NEFMC, 1998) as follows:

Eggs: Bottom habitats with a gravel or cobble riffle (redd) above or below a pool of rivers. Generally, the following conditions exist in the egg pits (redds): water temperatures below 10°C, and clean, well-oxygenated fresh water. Atlantic salmon eggs are most frequently observed between October and April.

Larvae: Bottom habitats with a gravel or cobble riffle (redd) above or below a pool of rivers. Generally, the following conditions exist where Atlantic salmon larvae, or alevins/fry, are found: water temperatures below 10°C, and clean, well-oxygenated fresh water. Atlantic salmon alevins/fry are most frequently observed between March and June.

Juveniles: Bottom habitats of shallow gravel / cobble riffles interspersed with deeper riffles and pools in rivers and estuaries. Generally, the following conditions exist where Atlantic salmon parr are found: clean, well-oxygenated fresh water, water temperatures below

25°C, water depths between 10 cm and 61 cm, and water velocities between 30 and 92 cm per second. As they grow, parr transform into smolts. Atlantic salmon smolts require access downstream to make their way to the ocean. Upon entering the sea, "postsmolts" become pelagic and range from Long Island Sound north to the Labrador Sea.

Adults: For adult Atlantic salmon returning to spawn, habitats with resting and holding pools in rivers and estuaries. Returning Atlantic salmon require access to their natal streams and access to the spawning grounds. Generally, the following conditions exist where returning Atlantic salmon adults are found migrating to the spawning grounds: water temperatures below 22.8°C, and dissolved oxygen above 5 ppm. Oceanic adult Atlantic salmon are primarily pelagic and range from the waters of the continental shelf off southern New England north throughout the Gulf of Maine.

Spawning Adults: Bottom habitats with a gravel or cobble riffle (redd) above or below a pool of rivers. Generally, the following conditions exist where spawning Atlantic salmon adults are found: water temperatures below 10°C, water depths between 30 cm and 61 cm, water velocities around 61 cm per second, and clean, well-oxygenated fresh water. Spawning Atlantic salmon adults are most frequently observed during October and November. Atlantic salmon EFH includes all aquatic habitats in the watersheds of the identified rivers, including all tributaries, to the extent that they are currently or were historically accessible for salmon migration. Atlantic salmon EFH excludes areas upstream of longstanding naturally impassable barriers (i.e., natural waterfalls in existence for at least several hundred years).

Atlantic salmon EFH for eggs and larvae, juvenile and adults is designated for the Androscoggin River but not for the Little Androscoggin River (NMFS, 2016). There are no HAPCs within the Project boundary.

Of the diadromous fish native to the Androscoggin River, only Atlantic Salmon and American Eel were historically known to occur above Lewiston Falls. Rumford Falls is listed as the historic upstream migration extent for Atlantic Salmon within the Project boundary. However, currently designated critical habitat for Atlantic salmon extends upstream on the Androscoggin River mainstem only as far as the confluence of the Androscoggin River and the Little Androscoggin River, which is located approximately 0.7 miles downstream of the Project (NMFS, 2009).

Sea Lamprey

Sea Lamprey migrate upstream during the spring to spawn. Unlike river herring, American Shad and Atlantic Salmon, Sea Lamprey are semelparous and die relatively soon after spawning. Migratory adults build redds of cobble and gravel in shallow fast riffle/run habitat (CRASC 2018). Eggs hatch and larvae drift downstream to habitat consisting of fine sediment and slow current. Juveniles (ammocoetes) exist as filter feeders for several years prior to becoming predaceous/parasitic and migrating downstream to marine waters (CRASC 2018).

Sea Lamprey counts at the Brunswick fish ladder have increased since 2000 (Table 5-13). Since 2012, counts have ranged from 19-240. Sea Lamprey counts during the fish passage season are not recorded at the other two downstream projects although the spring migration period for this species overlaps with the operational schedule of fish ladders/lifts for other spring migrants, providing potential access to the reach below Lewiston Falls.

Striped Bass

The distribution of the Atlantic coast migratory stocks of Striped Bass range from the Gulf of Maine to the Roanoke River and other tributaries of Albemarle Sound in North Carolina (NEFSC 2019). The anadromous populations of the Atlantic coast are primarily the product of four distinct spawning stocks: an Albemarle Sound/Roanoke River stock, a Chesapeake Bay stock, a Delaware River stock, and a Hudson River stock. The Atlantic coast fisheries, however, rely primarily on production from the spawning populations in the Chesapeake Bay and in the Hudson and Delaware rivers. Adult striped bass along the Atlantic coast undertake two types of migrations: an upriver spawning migration from late winter to early spring and coastal migrations that are not known to be associated with spawning activity. The coastal migrations are generally northward in summer and southward in winter.

Starting in 2016, Striped Bass, using the Brunswick fishway, have been passed into the Brunswick Project headpond, however none have been observed at the Worumbo Project (Brown Bear Hydro 2020). While the species is not counted at Pejepscot, both the Pejepscot and Worumbo lifts are designed for anadromous species. Striped Bass may

eventually ascend as far as Lewiston Falls on the Androscoggin River (Michael Brown MDMR, by email May 25, 2021).

5.3.5 Fish Passage on the Androscoggin River

In 1982, Central Maine Power Company (CMP) reconstructed the hydroelectric facility in Brunswick (FERC No. 2284), the first dam on the main stem Androscoggin River. During reconstruction, CMP built a vertical slot fishway with a trapping and sorting facility and a downstream passage facility capable of passing anadromous and resident fish species. At that time, MDMR began an Anadromous Fish Restoration Program (AFRP) in the lower Androscoggin River watershed. The primary focus of the restoration plan has been to restore alosine species (American Shad, Alewife, and Blueback Herring) to the lower main stem and tributaries below Lewiston Falls, while increasing the restoration potential for other native species such as Atlantic Salmon and American Eel (MDMR, 2010). In 1987, the Pejepscot Hydroelectric Project (FERC No. 4784) the second main stem dam on the Androscoggin River) provided upstream and downstream passage. In 1988, upstream and downstream passage was installed at the Worumbo Hydroelectric Project (FERC No. 3428) (the third main stem dam on the river). These fishway installations provided an opportunity for anadromous species to migrate upstream as far as Lewiston Falls.

Historically, Lewiston Falls, the natural falls at the site of the Lewiston Falls Project dam, was a natural barrier to upstream movement for Alewife, Blueback Herring, Striped Bass, American Shad, and likely Sea Lamprey (MDMR and MDIFW 2017). With no plans for the restoration of Atlantic Salmon to the river above the Project in the foreseeable future, no fish passage facilities are currently provided or necessary for anadromous species at the Lewiston Falls Project. American eel are capable of ascending Lewiston Falls and have been identified in the mainstem above Lewiston Falls (Yoder et al. 20006) despite the fact that there are no eel passage facilities at the Deer Rips or Gulf Island dams.

5.3.6 Benthic Macroinvertebrates Resources and Habitats

Benthic macroinvertebrates can be defined as insects, mollusks, arthropods, snails and other non-vertebrate organisms that reside primarily on or in the substrate of a waterbody. Benthic macroinvertebrates are commonly used as indicators of ecosystem health and pollution as each group of macroinvertebrates exhibits differing tolerance to degraded water quality and pollution levels. In Maine, MDIFW has documented seventeen

common taxa groups as part of a statewide biomonitoring effort (Table 5-17; MDIFW 2021). The most recent sampling effort near Lewiston Falls by MDEP in the mainstem Androscoggin River occurred in 1984 and 1998. More recent sampling occurred approximately 18 miles downstream in the tailrace of Pejepscot Project (FERC No. 4784), in the mainstem of the Androscoggin River, but Result from samples at these sites represent the best available information for benthic macroinvertebrates above and below the Lewiston Falls Project.

Table 5-17 Common groups of benthic macroinvertebrates identified in Maine by MDIFW

Common Name	Order
Flatworms	Tubellaria
Aquatic Earth Worms	Oligochaeta
Leeches	Hirudinea
Snails	Gastropoda
Clams & Mussels	Bivalvia
Mites	Acariformes
Aquatic Sow Bugs	Isopoda
Scuds	Amphipoda
Crayfish & Shrimps	Decapoda
Mayfly Larvae	Ephemeroptera
Dragonfly & Damselfly Larvae	Odonata
Stonefly Larvae	Plectoptera
True Bugs	Hemiptera
Dobsonfly & Alderfly Larvae	Megaloptera
Water Beetles	Coleoptera
Caddisfly Larvae	Trichoptera
True Fly Larvae	Diptera

*Source: MDEP (2021a)

Both Sites 55 and 56 near the Lewiston Falls Project exhibited substrate dominated by rubble/cobble, and the sampling occurred late July through early August (although the sampling occurred in different years). Site 954 below the Pejepscot Project was characterized by slightly larger substrate with more boulders present. All sampling efforts discussed took place during mid to late summer, a period generally characterized by the

lowest flow and higher water temperatures. Water depth at the station upstream of Lewiston Falls was 100 cm and 185 cm at the time of deployment of the macroinvertebrate samplers in 1984 and 1998, respectfully. The closest downstream station (56) had a depth of 200 cm at deployment in the only year sampled (1984). Water velocity at the upstream station was determined to be 17.26 cm/s and 25 cm/s during deployment in 1984 and 1998, respectfully. Water velocity at Station 56 downstream of Lewiston Falls was 32.51 cm/s during deployment in 1984. Station 954, downstream of the Pejepscot Tailrace, had a recorded water depth of 97 cm at both deployment and retrieval. Water velocities at the Pejepscot Tailrace station were 37.9 cm/s at deployment and 45.4 cm/s at retrieval, slightly faster than those observed at Stations upstream above and below Lewiston Falls Project.

Most groups of benthic macroinvertebrates have limited distribution information available for the state of Maine and the available information here originates from the Maine Department of Environmental Protection's Biological Monitoring program (MDEP 2021b). This program is primarily focused on the Water Classification Program used to keep track of the health of the state's waterbodies and wetlands. For the Lewiston Falls Project area, the most recent sampling available from the mainstem of the Androscoggin River was conducted in 1984 and 1998 for the headpond, and in 1984 downstream of the dam. The downstream sampling site, MDEP Station 56, is approximately 2 river miles downstream of the Project. The upstream sampling site, MDEP Station 55, is approximately 2 river miles upstream from the Project. A 2018 tailwater benthic macroinvertebrate study was completed in association with the Pejepscot Project relicensing (Normandeau 2018). This site, approximately 18 miles downstream of Lewiston Falls, is identified by MDEP as Station 954 and represents a more recent assessment of the mainstem macroinvertebrate community.

Macroinvertebrate data from Station 56 downstream of Lewiston Falls yielded greater diversity and species richness than the upstream Station 55 (Table 5-18). Total mean abundance was highest in samples from the upstream site in 1998, while Ephemeroptera mean abundance, an indicator of higher quality habitat based on the general intolerance to pollution displayed by this family, was highest downstream. Generic richness, defined as "the number of different genera found in all replicates from one sampling site" was slightly higher at the downstream site (31) compared to the upstream sampling site (23 in 1984 and 25 in 1998). Additionally, EPT tolerance was higher at the downstream sampling site. Results from the 2018 sampling below the Pejepscot Project (Station 954)

indicated greater diversity than the 1984 and 1998 samples collected upstream. Ephemeroptera mean abundance (98.67), richness and diversity indexes were highest at station 954 below Pejeps Scot as well, indicative of higher quality habitat downstream, over time, or both.

Table 5-18 Analysis of Androscoggin River Macroinvertebrate Data for Sampling Sites Upstream (S-55) and Downstream (S-56) of Lewiston Falls Project by MDEP during 1984 and 1998

Variable	Upstream (S-55) 1984	Upstream (S-55) 1998	Downstream(S-56) 1984	Pejeps Scot Tailrace (S-954)
Dominant Substrate	Rubble/Gravel	Rubble/Gravel	Rubble/Cobble + Gravel	Boulder + Rubble/Cobble
Total Mean Abundance	259.34	587.67	334.00	569
Generic Richness	23	25	31	42
Ephemeroptera Mean Abundance	19.33	1.33	96.00	98.67
Shannon-Wiener Generic Diversity	2.050	2.49	3.71	3.53
EPT Generic Richness	10.00	11.00	20.00	21
Top Five Dominant Taxa	<i>Cheumatopsyche</i> <i>Stenacron</i> <i>Rheotanytarsus</i> <i>Hydropsyche</i> <i>Ablabesmia</i>	<i>Cheumatopsyche</i> Planariidae <i>Amnicola</i> <i>Neueclipsis</i> Polycentropodidae	<i>Macrostemum</i> <i>Cheumatopsyche</i> <i>Rheotanytarsus</i> <i>Polypedilum</i> <i>Chironomus</i> * <i>Ablabesmyia</i> *	<i>Hydropsyche</i> <i>Simulium</i> <i>Maccaffertium</i> <i>Thienemanniella</i> <i>Baetis</i>

*Tied for 5th most dominant. Source: MDEP (2021b); Pers Comm. Jeanne DiFranco (MDEP) 5/7/2021

5.3.6.1 Dragonflies and Damselflies

Damselflies (suborder Zygoptera) and Dragonflies (suborder Anisoptera) are aquatic insects in the order Odonata that exhibit both terrestrial and aquatic lifestages. Members of both suborders lay their eggs in or near water. After eggs hatch, there are several larval stages leading to the eventual metamorphosis into the adult form of the insect. Using an

Outdoor Heritage Fund grant, MDIFW conducted the Maine Damselfly and Dragonfly Survey (MDDS) from 1999 to 2005. Additional volunteer effort was incorporated from surveys conducted from 2006 to 2016. From these data, county level distribution was mapped for all damselfly and dragonfly species known to occupy the state. There are 158 Odontate species documented to occur in Maine. Of those, 94 species have been found in Androscoggin County, 106 species have been found in Cumberland County, and 68 species have been found in Sagadahoc County. The three counties have 63 species in common. 10 of those species are listed as Species of Special Concern by the state of Maine (MDDS 2016). Table 5-19 shows those 10 species and the counties in which they have been documented.

Table 5-19 Odontate Species of Special Concern Found in the Project Area Counties (Androscoggin, Cumberland, Sagadahoc) based on the Maine Damselfly and Dragonfly Survey (1996-2005, 2006-2016)

Common Name	Scientific Name	Odontate Type	County
New England bluet	<i>Enallagma laterale</i>	Damselfly	Androscoggin/Cumberland
Scarlet bluet	<i>Enallagma pictum</i>	Damselfly	Androscoggin/Cumberland
Swamp darner	<i>Epiaeschna heros</i>	Dragonfly	Cumberland
Lilypad clubtail	<i>Arigomphus furcifer</i>	Dragonfly	Cumberland
Cobra clubtail	<i>Gomphus vastus</i>	Dragonfly	Cumberland
Southernpygmy clubtail	<i>Lanthus vernalis</i>	Dragonfly	Cumberland
Extra -striped snaketail	<i>Ophiogomphus anomalus</i>	Dragonfly	Androscoggin/Cumberland/Sagadahoc
Pygmy snaketail	<i>Ophiogomphus howei</i>	Dragonfly	Androscoggin/Cumberland
Common sanddragon	<i>Progomphus obscurus</i>	Dragonfly	Cumberland
Arrowhead spiketail	<i>Cordulegaster obliqua</i>	Dragonfly	Cumberland

*Source: MDDS (2016)

5.3.6.2 Freshwater Mussels

Freshwater mussels inhabit the lower Androscoggin River and, within the food web, are contributors to nutrient cycling. Freshwater mussels often depend on the presence of specific fish species that are used as hosts for the larval stage (glochidia) of the mussels.

Larvae are dispersed into the water column where they then attach to the gills of a host fish (Neddeau et al. 2000).

Statewide surveys summarized by Neddeau et al. (2000) describe the distribution of the various species of freshwater mussels found in Maine. Eight native species were documented in the lower Androscoggin River during the surveys included in Neddeau et al. (2000), which took place between 1992 and 1997. The eight species are: eastern pearlshell, triangle floater, creeper, eastern floater, alewife floater, eastern elliptio, eastern lampmussel, and tidewater mucket. Of those species documented in the Lower Androscoggin, two have a special conservation status in the state of Maine. The tidewater mucket is listed as threatened in Maine and the creeper is a Species of Special Concern. Table 5-20 contains habitat preference and host species information for the freshwater mussels identified in the lower Androscoggin River. While the Lewiston Falls Project is within the range of these mussel species as established by Neddeau et al. (2000), none of these mussels have been found in Project waters (Swartz 2016).

**Table 5-20 Freshwater Mussels Known to Occur in the Lower Androscoggin River
 Based on Surveys Conducted in (1992 and 1997)**

Common Name	Scientific Name	Host Species	County	Substrate	Habitat Preference	Status
Eastern pearlshell	<i>Margaritifera</i>	Atlantic Salmon, Landlocked Salmon, Brook Trout, Brown Trout	Androscoggin	Firm sand, gravel, cobble	Cold, fast flowing mountain streams, small rivers	Not listed
Triangle floater	<i>Alasmidonta undulata</i>	Common Shiner, Blacknose Dace, Longnose Dace, Pumpkinseed, Fallfish, Largemouth Bass, Slimy Sculpin, White Sucker	Androscoggin, Sagadahoc	Sand, gravel	Streams, rivers, lakes, ponds. Tolerant of standing water	Not listed

Common Name	Scientific Name	Host Species	County	Substrate	Habitat Preference	Status
Creeper	<i>Strophitus undulatus</i>	Largemouth Bass, Creek Chub, Fathead Minnow, Bluegill, Longnose Dace, Fallfish, Golden Shiner, Common Shiner, Yellow Perch, Slimy Sculpin, Atlantic Salmon, two-lined salamander	Androscoggin, Sagadahoc	Sand, fine gravel	Streams and rivers. Can be found in impounded sections of rivers	Special Concern
Tidewater mucket	<i>Leptodea ochracea</i>	Unknown	Sagadahoc	Silt, sand, gravel, cobble, and occasionally clay	Coastal lakes, ponds, and slow-moving portions of rivers, including impoundments	Threatened

Common Name	Scientific Name	Host Species	County	Substrate	Habitat Preference	Status
Eastern floater	<i>Pyganodon cataracta</i>	White Sucker, Pumpkinseed, Threespine Stickeback, Carp, Bluegill	All Counties in Maine	sand, mud, deep silt, soft substrates	Slow-moving riverine habitat, small streams, ponds, lakes	Not listed
Alewife floater	<i>Anodonta implicata</i>	Alewife, American Shad, Blueback Herring	Androscoggin, Sagadahoc	Sand, silt, gravel	Streams, rivers, lakes	Not listed
Eastern elliptio	<i>Elliptio complanata</i>	Yellow Perch, Banded Killifish, Largemouth Bass	All Counties in Maine	Clay, mud, sand, gravel, cobble	Small streams, larger rivers, freshwater tidal areas, ponds, lakes	Not listed
Eastern lampmussel	<i>Lampsilis radiata</i>	Yellow Perch, Largemouth Bass, Smallmouth Bass, Black Crappie, Pumpkinseed	Androscoggin, Sagadahoc	Sand, gravel	Small streams, large rivers, ponds, lakes	Not listed

Source: Nedeau et al. 2000.

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5.4 Terrestrial Wildlife and Botanical Resources

The Lewiston Project is located between the downtown areas of Lewiston and Auburn, Maine on the Androscoggin River. The Project Boundary generally follows the normal full pool elevation of the impoundment and extends downstream of the Project dam encompasses the Androscoggin River to a point approximately 0.28 miles downstream of Monty Station. The landscape outside of the Project Boundary and in vicinity is developed and surrounded by residences and urban area. Surrounding Lewiston and Auburn, the majority of the regional landscape is forested with areas of residencies, agriculture, lake and riverine habitats.

5.4.1 Botanical Resources

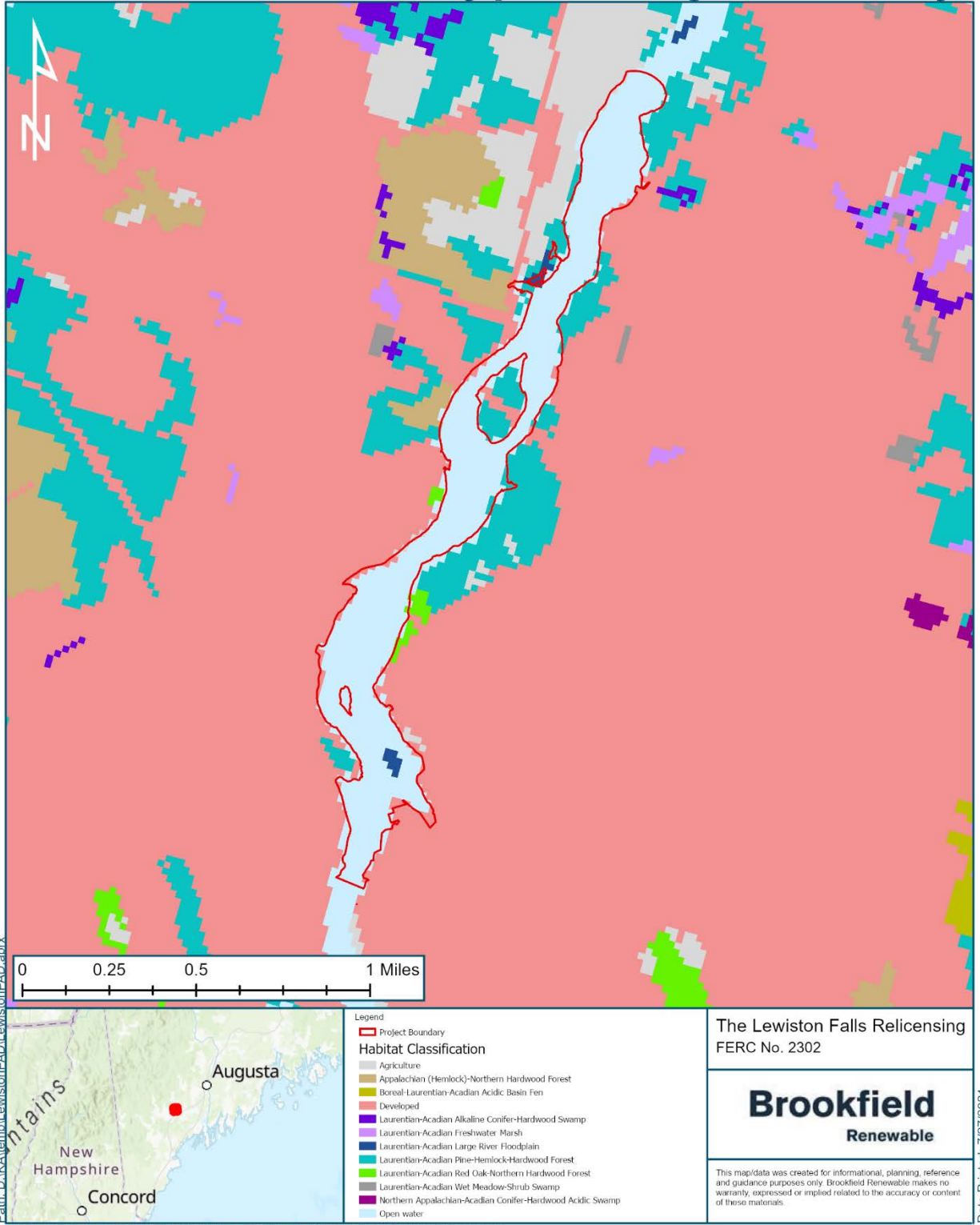
The Project is located in the Warm Continental Division in a Laurentian Mixed Forest Province, as described by the United States Forest Service (USFS). This ecoregion lies between the boreal forest and broadleaf deciduous forest zone and is considered transitional (Bailey, 1995a). These forests can contain pure stands of coniferous or deciduous trees, or a mixed stand with few coniferous or deciduous trees.

Within the Ecoregion, the Project lies within the Central Main Coastal and Interior section, which is also described as a transitional zone. Starting from the west moving east, the forest transitions from mixed hardwoods typical of southern New England, including Appalachian oak, and pine, to the northern coastal spruce fir, and spruce fir northern hardwood communities to the west. Moving from the south to the north, the coastal community transitions from montane spruce-fir to northern hardwood communities (Baily 1995b).

Based on reviewing the Northeast Terrestrial Habitat Map (Figure 5-11) the most dominate habitat type outside Lewiston and Auburn, besides developed landscapes, is the Laurentian-Acadian Pine-Hemlock-Hardwood Forest (Ferree and Anderson 2015). Other habitat types in the area include the Laurentian-Acadian Alkaline Conifer-Hardwood Swamp, Laurentian-Acadian Red Oak-Northern Hardwood Forest, Appalachian (Hemlock)-Northern Hardwood Forest, Laurentian-Acadian Large River Floodplain with some areas of Laurentian-Acadian Freshwater Marsh. West of the Project the dominate habitat type shifts to Appalachian (Hemlock)-Northern Hardwood Forest and Northeastern Coastal and Interior Pine-Oak Forest (Ferree and Anderson 2015).

Figure 5-11 Habitat Classification Within the Vicinity of the Lewiston Project

Dominate Habitat Types - Project Vicinity



Laurentian-Acadian Pine-Hemlock-Hardwood Forest is found in the glaciated northeast and is a coniferous or mixed forest. The canopy is dominated by white pine, hemlock and red oak. Other tree species common in Laurentian-Acadian Pine-Hemlock-Hardwood Forest includes hardwoods like sugar maple, beech and birch. These forests are often early and mid-successional, usually reflecting a history of agriculture. These forests occur in low-nutrient and loamy-to-sandy soils on a wide range of landforms at elevations below 2,000 feet (Anderson et. al. 2013). Common Plants that may be found in this area are listed in Table 5-21.

Table 5-21 Plants Found in the Laurentian-Acadian Pine-Hemlock-Hardwood and Appalachian (Hemlock)-Northern Hardwood Forest in Maine (Anderson et. al. 2013)

Common Names	Scientific Names
Barren Strawberry	<i>Waldsteinia fragarioides</i>
Mountain Laurel	<i>Kalmia latifolia</i>
Giant Pinedrops	<i>Pterospora andromedea</i>
Green Adder's-mouth	<i>Malaxis unifolia</i>
Loesel's Twayblade	<i>Liparis loeselii</i>
Sand Violet	<i>Viola adunca</i>
Scarlet Oak	<i>Quercus coccinea</i>
Slender Mountain-ricegrass	<i>Piptatherum pungens</i>
Spotted Wintergreen	<i>Chimaphila maculata</i>
Spreading-pod Rockcress	<i>Boechera grahamii</i>
Broad Beech Fern	<i>Thelypteris hexagonoptera</i>
Four-leaved Milkweed	<i>Asclepias quadrifolia</i>
Perfoliate Bellwort	<i>Uvularia perfoliata</i>
Round-leaved Tick trefoil	<i>Desmodium rotundifolium</i>
Spicebush	<i>Lindera benzoin</i>
Squawroot	<i>Conopholis americana</i>
Pinedrops	<i>Pterospora andromedea</i>

5.4.1.1 Invasive Plant Species

According to the Maine Department of Agricultural, Conservation and Forestry (MDACF), there are 103 plants species that are considered invasive in Maine. Out of these 103 species, 67 species have known populations in Maine, 33 species are widespread, and

34 species are in localized areas (MDACF 2019). There are currently no known invasive species within the Project Boundary or area. The closest invasive plant species known are approximately 1.5 miles away at the Auburn Middle School in Auburn, ME. Two Purple Loosestrife (*Lythrum salicaria*) and five Asiatic Bittersweet (*Celastrus orbiculatus*) were identified in 2013 (iMapInvasives, 2021).

5.4.2 Terrestrial Wildlife

The Project is located in the Warm Continental Division ecoregion, however, is it in close proximity to the Warm Continental Mountains and Hot Continental Division Ecoregions. This results in a large diversity of wildlife that many be found in the Project region (MDIFW 2015). Additionally, Maine is close to the Subarctic Division in Canada, which enables species such as the Canada Lynx to thrive in the mixed coniferous forests of Maine (MDIFW 2015).

Fauna associated with the Laurentian-Acadian Pine-Hemlock-Hardwood Forest includes the deer mouse, red squirrel, southern red-backed vole, northern redbelly snake. Birds found in this area include black-and-white warbler, blackburnian warbler, black throated, blue warbler, eastern wood-pewee, hermit thrush, northern saw-whet owl, northern waterthrush, ovenbird, pine warbler, ruffed grouse, scarlet tanager, veery, wood thrush, yellow-bellied sapsucker (Anderson et. al. 2013).

While Maine has a large diversity of species that are present within the state, due to the Project being located in a developed area and largely encompassing the river from embankment to embankment only, most species found within the Project Boundary will likely be generalist species. This includes species like house sparrows, grackles, blue jays, skunks, gray squirrels and raccoons (Charry et. al. 2000).

5.4.2.1 Mammals

There are 61 non-marine mammal species in the state of Maine including a diverse mixture of boreal and temperate species (MDIFW 2015). Due to the developed nature of the Project vicinity boundary and that the project boundary largely encompassing the river from embankment to embankment only, it is unlikely that any large species of mammals would be present within the Project boundary or directly adjacent to it for an extended period of time. A complete list of mammals that may be found within the Project vicinity are listed in Table 5-22.

Table 5-22 Species of Mammals the May be Present Near the Lewiston Project Area (Sources: Anderson and Ferree 2015, USFWS 2021, Brookfield 2020)

Common Names	Scientific Names
American Marten	<i>Martes americana</i>
American Mink	<i>Neovison vison</i>
Big Brown Bat	<i>Eptesicus fuscus</i>
Black Bear	<i>Ursus americanus</i>
Bobcat	<i>Lynx rufus</i>
Common Muskrat	<i>Ondatra zibethicus</i>
Coyote	<i>Canis latrans</i>
Deer Mouse	<i>Peromyscus maniculatus</i>
Eastern Cottontail	<i>Sylvilagus floridanus</i>
Eastern Red Bat	<i>Lasiurus borealis</i>
Fisher	<i>Martes pennant</i>
Gray Fox	<i>Urocyon cinereoargenteus</i>
Gray Squirrel	<i>Sciurus carolinensis</i>
Hoary Bat	<i>Lasiurus cinereus</i>
Little Brown Bat	<i>Myotis lucifugus</i>
Meadow Vole	<i>Microtus pennsylvanicus</i>
Moose	<i>Alces alces</i>
North American Beaver	<i>Castor canadensis</i>
North American Porcupine	<i>Erethizon dorsatum</i>
North American River Otter	<i>Lontra canadensis</i>
Northern Flying Squirrel	<i>Glaucomys sabrinus</i>
Northern Long-Eared Myotis	<i>Myotis septentrionalis</i>
Northern Raccoon	<i>Procyon lotor</i>
Red Fox	<i>Vulpes vulpes</i>
Red Squirrel	<i>Sciurus vulgaris</i>
Short-tailed Shrew	<i>Blarina brevicauda</i>
Silver Haired-bat	<i>Lasionycteris noctivagans</i>
Small-footed Myotis	<i>Myotis leibii</i>
Smoky shrew	<i>Sorex fumeus</i>
Snowshoe Hare	<i>Lepus americanus</i>
Southern Flying Squirrel	<i>Glaucomys volans</i>

Common Names	Scientific Names
Southern Red-backed Vole	<i>Myodes gapperi</i>
Star-nosed Mole	<i>Condylura cristata</i>
Striped Skunk	<i>Mephitis mephitis</i>
Tri-Colored Bat	<i>Perimyotis subflavus</i>
Virginia Opossum	<i>Didelphis virginiana</i>
White-footed Deermouse	<i>Peromyscus leucopus</i>
White-tailed Deer	<i>Odocoileus virginianus</i>
Woodchuck	<i>Marmota monax</i>
Woodland vole	<i>Microtus pinetorum</i>

Important landscapes that provide food and cover for White-Tailed Deer include forest lands, wetlands, reverting farmlands, and active farmlands. During the Winter months, deer converge in deer wintering areas. These areas contain mature conifers of tree stands with interspersed or adjacent hardwoods with habitat connectivity (MDIFW 2021). White-tailed Deer wintering habitat within the Project vicinity is located outside the city of Lewiston and Auburn. The closest wintering habitat is approximately 3-miles south of the Lewiston Dam (State of Maine 2021). While there is deer wintering habitat surrounding the Project vicinity, it is unlikely deer would frequently pass through the Project Boundary due to the developed landscape.

Moose (*Alces alces*) and Black Bears (*Ursus americanus*) may be present within the Project vicinity however, due to the developed nature of the Project area, it is highly unlikely they would be residents. Encounters are possible if a moose is traveling through the Lewiston area. For instance, in 2019, a Moose was seen in the streets of Lewiston, ME (WGME 2019). Black Bears may enter developed areas too, to scavenge bird feeders and honey from beehives, if their desired food is unavailable (Colby Environmental Policy Group 2014).

5.4.2.2 Amphibians and Reptiles

In Maine, there are 36 species of herpetofauna, including 18 amphibians and 18 reptiles. Out of these species, the Timber Rattlesnake (*Crotalus horridus*) is considered extirpated and two species, the Mudpuppy (*Necturus maculosus*) and the Red-eared Slider (*Trachemys scripta elegans*), are introduced (MDIFW 2015). From 1986 through 1990, MDIFW in cooperation with Maine Audubon and the University of Maine conducted the Maine Amphibian and Reptile Atlas Project (MARAP; Hunter et al. (1992)). This is the

primary source of information available regarding the regional distribution of herptofauna. Evaluation of available distribution information indicates the range of approximately seventeen species of amphibian and thirteen reptiles overlaps with the Project area Table 5-23. The life history characteristics and habitat requirements for several of these species indicates potential use of aquatic habitat available within the Project boundary. Frogs/toads, salamanders, and turtles have an obligate dependence on aquatic habitat for at least a portion of their life cycle while snakes may also use riparian areas for various purposes such as feeding and shelter.

Table 5-23 Reptile and amphibian species documented to occur in the three counties (Androscoggin, Cumberland, Sagadahoc) in which Lewiston Falls resides

Type	Common Name	Scientific Name	Aquatic Habitat Use	Riparian Habitat Use	Status
Salamander	Eastern red-backed salamander	<i>Plethodon cinereus</i>	Breeding, Larvae	Juvenile, Adult	Not Listed
	Yellow spotted salamander	<i>Ambystoma maculatum</i>	Breeding, Larvae	Juvenile, Adult	Not Listed
	Northern dusky salamander	<i>Desmognathus fuscus</i>	Breeding, Larvae, Juvenile, Adult	Juvenile, Adult	Not Listed
	Northern two-lined salamander	<i>Eurycea bislineata</i>	Breeding, Larvae, Juvenile, Adult	Juvenile, Adult	Not Listed
	Norther spring salamander	<i>Gyrinophilus porphyriticus</i>	Breeding, Larvae, Juvenile, Adult	Juvenile, Adult	Special Concern
	Four-toed salamander	<i>Hemidactylium scutatum</i>	Breeding, Larvae	Juvenile, Adult	Not Listed
	Eastern newt (aka red-spotted newt)	<i>Notophthalmus viridescens</i>	Breeding, Larvae, Adult	Juvenile	Not Listed
	Blue-spotted salamander	<i>Ambystoma laterale</i>	Breeding, Larvae	Juvenile, Adult	Special Concern
Frogs and Toads	American toad	<i>Anaxyrus americanus</i>	Breeding, Larvae	Juvenile, Adult	Not Listed
	American bullfrog	<i>Lithobates catesbeianus</i>	All life stages	Adult	Not Listed
	Gray tree-frog	<i>Hyla versicolor</i>	Breeding, Larvae	Juvenile, Adult	Not Listed
	Green frog	<i>Rana clamitans melanota</i>	All life stages	Adult (wintering)	Not Listed

Type	Common Name	Scientific Name	Aquatic Habitat Use	Riparian Habitat Use	Status
	Mink frog	<i>Lithobates eptentrionalis</i>	All life stages	Juvenile, Adult	Special Concern
	Northern leopard frog	<i>Lithobates pipiens</i>	All life stages	Juvenile, Adult	Special Concern
	Pickerel frog	<i>Lithobates palustris</i>	Breeding, Larvae, Adult (Wintering)	Juvenile, Adult	Not Listed
	Spring peeper	<i>Pseudacris crucifer</i>	Breeding, Larvae	Juvenile, Adult	Not Listed
	Wood frog	<i>Lithobates sylvaticus</i>	Breeding, Larvae	Juvenile, Adult	Not Listed
Snakes	Eastern milk snake	<i>Lampropeltis triangulum</i>	None	All life stages	Not Listed
	Northern brown snake	<i>Storeria d. dekayi</i>	None	All life stages	Special Concern
	Northern water snake	<i>Nerodia sipedon</i>	Adult (Feeding)	Juvenile, Adult	Not Listed
	Garter snake	<i>Thamnophis sirtalis</i>	None	Juvenile, Adult	Not Listed
	Eastern ribbon snake	<i>Thamnophis sauritus</i>	None	Juvenile, Adult	Special Concern
	Redbelly snake	<i>Storeria occipitomaculata</i>	None	Juvenile, Adult	Not Listed
	Ring-neck snake	<i>Diadophis punctatus</i>	None	Juvenile, Adult	Not Listed
	Smooth green snake	<i>Opheodrys vernalis</i>	None	Juvenile, Adult	Not Listed
Turtles	Eastern painted turtle	<i>Opheodrys vernalis</i>	Juvenile, Adult	Breeding, Nesting, Juvenile, Adult	Not Listed
	Snapping turtle	<i>Chelydra serpentina</i>	Juvenile, Adult	Breeding, Nesting	Not Listed
	Spotted turtle	<i>Clemmys guttata</i>	Juvenile/Adult	Breeding, Nesting	Special Concern

Type	Common Name	Scientific Name	Aquatic Habitat Use	Riparian Habitat Use	Status
	Musk turtle	<i>Sternotherus odoratus</i>	Juvenile/Adult	Juvenile, Adult	Not Listed
	Wood turtle	<i>Glyptemys insculpta</i>	Juvenile/Adult	Juvenile, Adult	Not Listed

*Source: Hunter et al. (1992); Pers Comm. Michele Warner (MDIFW) 4/27/2021

5.4.2.3 Birds

In the state of Maine, 423 bird species have been documented. Of these documented species, Maine’s diverse habitats support nesting for 225 species, and nearly 200 birds visit Maine during their migrations. Maine is also located within the Atlantic Flyway and offers 29 migratory inland species their northern limits and 28 migratory species their southern limits (MDIFW 2015). A complete list of bird species that may be found within the Project vicinity are listed in Table 5-24.

Table 5-24 Species of Birds that May be Present Near the Lewiston Project Vicinity

Common Names	Scientific Names
Alder flycatcher	<i>Empidonax alnorum</i>
American Bittern	<i>Botaurus lentiginosus</i>
American Black Duck	<i>Anas rubripes</i>
American Coot	<i>Fulica americana</i>
American Crow	<i>Corvus brachyrhynchos</i>
American Oystercatcher	<i>Haematopus palliatus</i>
American Robin	<i>Turdus migratorius</i>
Bald Eagle	<i>Haliaeetus leucocephalus</i>
Barn Swallow	<i>Hirundo rustica</i>
Barred Owl	<i>Strix varia</i>
Bay-breasted Warbler	<i>Setophaga castanea</i>
Black Capped Chickadee	<i>Poecile atricapillus</i>
Black Tern	<i>Chlidonias niger</i>
Black-and-white Warbler	<i>Mniotilta varia</i>
Black-Billed Cuckoo	<i>Coccyzus erythrophthalmus</i>
Blackburnian Warbler	<i>Dendroica fusca</i>
Black-Crowned Night-Heron	<i>Nycticorax</i>

Common Names	Scientific Names
Blackthroated Blue Warbler	<i>Dendroica caerulescens</i>
Blue jay	<i>Cyanocitta cristata</i>
Blue-gray Gnatcatcher	<i>Poliophtila caerulea</i>
Bobolink	<i>Dolichonyx oryzivorus</i>
Brown Creeper	<i>Certhia americana</i>
Brown Thrasher	<i>Toxostoma rufum</i>
Canada Warbler	<i>Cardellina candensis</i>
Cape May Warbler	<i>Setophaga tigrina</i>
Cedar Waxwing	<i>Bombycilla cedrorum</i>
Cerulean Warbler	<i>Dendroica cerulea</i>
Chimney Swift	<i>Chaetura pelagica</i>
Common Egret	<i>Ardea alba</i>
Common Eider	<i>Somateria mollissima</i>
Common Grackle	<i>Quiscalus quiscula</i>
Common Loon	<i>Gavia immer</i>
Common Raven	<i>Corvus corax</i>
Common Tern	<i>Sternula hirundo</i>
Double-crested Cormorant	<i>Phalacrocorax auritas</i>
Eastern Bluebird	<i>Sialia sialis</i>
Eastern Meadowlark	<i>Sturnella magna</i>
Eastern Phoebe	<i>Sayornis phoebe</i>
Eastern Towhee	<i>Pipilo erythrophthalmus</i>
Eastern Whip-poor-will	<i>Caprimulgus vociferus</i>
Eastern Wood-Pewee	<i>Contopus virens</i>
European Starling	<i>Sturnus vulgaris</i>
Evening Grosbeak	<i>Coccothraustes vespertinus</i>
Grasshopper Sparrow	<i>Ammodramus savannarum</i>
Gray Catbird	<i>Dumetella carolinensis</i>
Gray Jay	<i>Perisoreus canadensis</i>
Great Blue Heron	<i>Ardea herodias</i>
Great Cormorant	<i>Phalacrocorax carbo</i>
Green Heron	<i>Butorides virescens</i>
Harlequin Duck	<i>Histrionicus</i>
Hermit Thrush	<i>Catharus guttatus</i>
Horned Lark	<i>Eremophila alpestris</i>
House Wren	<i>Troglodytes aedon</i>
Hudsonian Godwit	<i>Limosa haemastica</i>

Common Names	Scientific Names
Least Bittern	<i>Ixobrychus exilis</i>
Least Flycatcher	<i>Empidonax minimus</i>
Least Tern	<i>Sternula antillarum</i>
Lesser Yellowlegs	<i>Tringa flavipes</i>
Mallard	<i>Anas platyrhynchos</i>
Mourning Dove	<i>Zenaida macroura</i>
Northern Cardinal	<i>Cardinalis</i>
Northern Goshawk	<i>Accipiter gentilis</i>
Northern Harrier	<i>Circus cyaneus</i>
Northern Mockingbird	<i>Mimus polyglottos</i>
Northern Rough-Winged Swallow	<i>Stelgidopteryx serripens</i>
Northern Saw-whet owl	<i>Aegolius acadicus</i>
Northern Waterthrush	<i>Parkesia noveboracensis</i>
Olive-Sided Flycatcher	<i>Contopus cooperi</i>
Orchard Oriole	<i>Icterus spurius</i>
Osprey	<i>Pandion haliaetus</i>
Ovenbird	<i>Seiurus aurocapillus</i>
Peregrine Falcon	<i>Falco peregrinus</i>
Pied-billed Grebe	<i>Podilymbus podiceps</i>
Pileated Woodpecker	<i>Hylatomus pileatus</i>
Pine Warbler	<i>Dendroica pinus</i>
Prairie Warbler	<i>Setophaga discolor</i>
Purple Sandpiper	<i>Calidris maritima</i>
Red-breasted Nuthatch	<i>Sitta canadensis</i>
Red-tailed Hawk	<i>Buteo jamaicensis</i>
Ring-billed Gull	<i>Larus delawarensis</i>
Ruffed Grouse	<i>Bonasa umbellus</i>
Saltmarsh Sparrow	<i>Ammodramus caudacutus</i>
Savanah Sparrow	<i>Passerculus sandwichensis</i>
Scarlet Tanager	<i>Piranga olivacea</i>
Sedge Wren	<i>Cistothorus platensis</i>
Short-eared Owl	<i>Asio flammeus</i>
Snowy Egret	<i>Egretta thula</i>
Song Sparrow	<i>Larus delawarensis</i>
Tree Swallow	<i>Tachycineta bicolor</i>
Tufted Titmouse	<i>Baeolophus bicolor</i>
Turkey Vulture	<i>Cathartes aura</i>

Common Names	Scientific Names
Upland Sandpiper	<i>Bartramia longicauda</i>
Veery	<i>Catharus fuscescens</i>
Warbling	<i>Vireo gilvus</i>
Whimbrel	<i>Numenius phaeopus</i>
White-breasted Nuthatch	<i>Sitta carolinensis</i>
White-Throated Sparrow	<i>Zonotrichia albicollis</i>
Willow Flycatcher	<i>Empidonax traillii</i>
Wilson's Warbler	<i>Wilsonia pusilla</i>
Winter Wren	<i>Troglodytes hiemalis</i>
Wood Duck	<i>Aix sponsa</i>
Wood Thrush	<i>Hylocichla mustelina</i>
Yellow Rail	<i>Coturnicops noveboracensis</i>
Yellow Warbler	<i>Setophaga petechia</i>
Yellow-bellied Sapsucker	<i>Sphyrapicus varius</i>
Yellow-Billed Cuckoo	<i>Coccyzus americanus</i>
Yellow-throated	<i>Vireo flavifrons</i>

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5.5 Wetland, Riparian and Littoral Habitat

The Lewiston Falls Project is located in the Coastal Maine Coastal Interior sub-ecoregion where perennially streams, small lakes, and ponds are important water sources. Stream gradients are low and have deranged dendritic drainage. Extreme flows are often associated with hurricane or rain-on-snow events. Minimum monthly flows often occur in August, September, and October (Bailey 1995a).

5.5.1 Wetlands

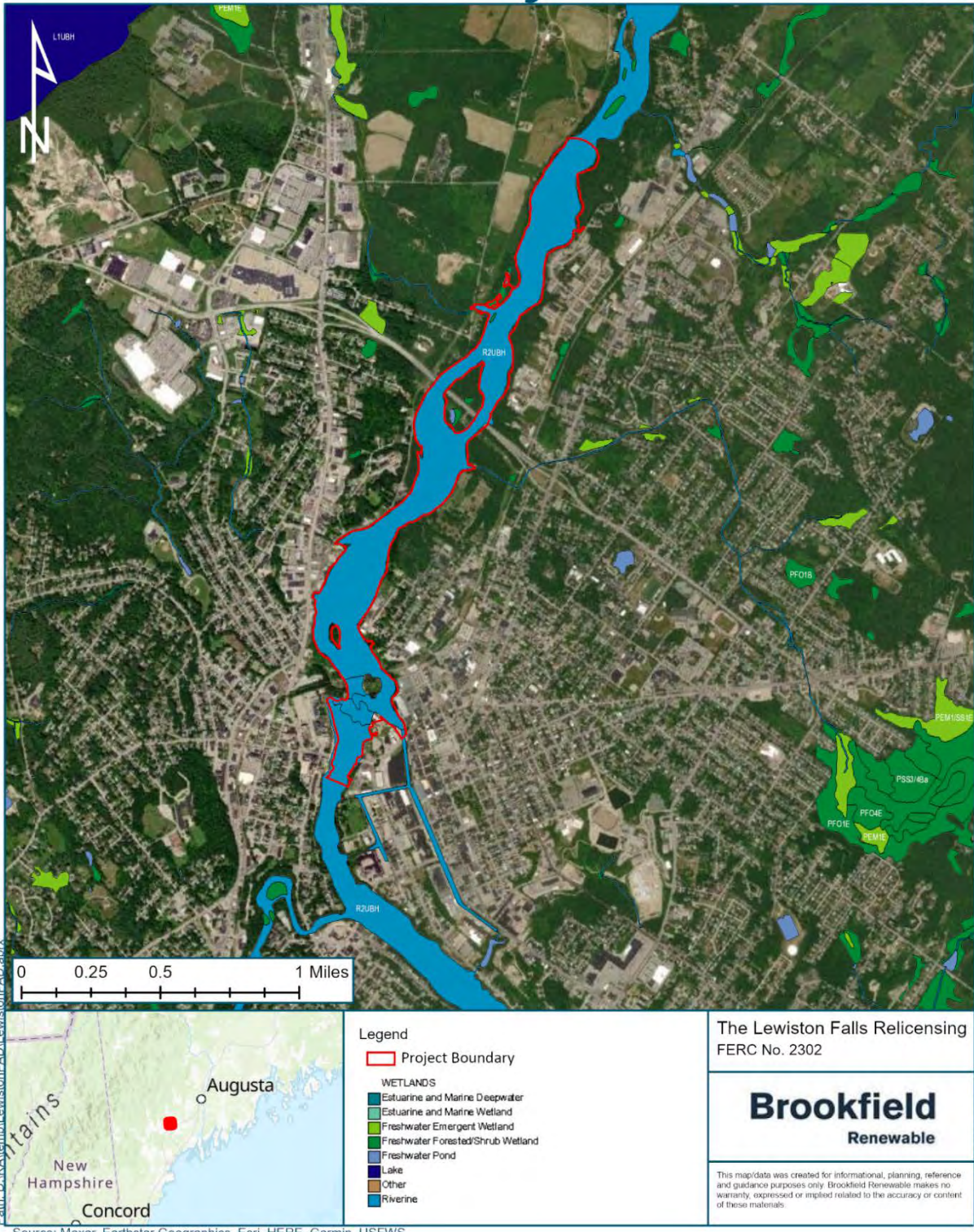
Wetlands are defined by the USFWS as “lands transitional between terrestrial and aquatic systems when the water table is usually at or near the surface or the land is covered by shallow water.” For lands to be classified as a wetland, one of the following conditions must be true (Cowardin et al. 1979):

- at least periodically, the land supports predominately hydrophytes;
- the land predominately has undrained hydric soil, or
- the substrate is nonsoil and is saturated with water or covered by shallow water at some time during the growing season of each year.

According to the USFWS National Wetlands Inventory (NWI), there are 219.93 acres wetlands within the Project boundary (Figure 5-12 and Table 5-25) (USFWS 2016a). Riverine habitat accounts for approximately 218.85 acres within the Project boundary and other wetland types account for the other 1.08 acres.

Figure 5-12 Wetland Habitat within the Lewiston Project Boundary and Surrounding Region

Project Area Wetlands



**Table 5-25 Wetland Habitat Available Within the
 Lewiston Project Boundary (USFWS 2016a)**

Classification Code	Habitat Type	Acreage
R2UBH	Riverine	211.44
R2RS1A	Riverine	4.61
R2RS1C	Riverine	2.60
R2UBHx	Riverine	0.20
PUBH	Freshwater Pond	0.22
PFO1E	Freshwater Forested/Shrub Wetland	0.64
PFO1C	Freshwater Forested/Shrub Wetland	0.19
PSS1E	Freshwater Forested/Shrub Wetland	0.04

The majority of riverine habitat⁹ in the Project boundary is classified as R2UBH (211.44 acres), this classification is interpreted to Riverine (R), Lower Perennial (2), Unconsolidated Bottom (UB), Permanently Flooded (H). R2UBHx (0.20 acres) refers to the same habitat type, however the “x” indicates this area was excavated by humans. This R2UBH habitat is characterized by a low gradient with no tidal influence and a well-developed floodplain. The substrate is mostly sand or mud, and fauna is composed of species that reach their maximum abundance in still water. Water covers the substrate throughout the year, every year.

In addition to R2UBH riverine habitat, R2RS1A and R2RS1C riverine habitat are found along the Project Dams. This R2RS1A or R2RS1C classification is interpreted to Riverine (R), Lower Perennial (2), Rocky Shore (RS), Bedrock (1), Temporary Flooded (A) or Seasonally Flooded (C). This habitat is characterized by high energy, rocky shore environments with at least 75% bedrock cover that is temporarily or seasonally flooded. There is 7.21 acres of this habitat type within the Project boundary (USFWS 2016a). Additionally, there are 0.22 acres of Freshwater Pond (PUBH) found upstream of the Lewiston Dam near Boxer Island.

Since the Project boundary follows the shoreline, there is limited wetland habitat within the Project boundary that is not considered Riverine. Additionally, there is a limited amount of wetland habitat directly adjacent to the Project boundary due to the residential

⁹ Riverine habitat includes all wetlands and deepwater habitat contained within a channel, with the exception of wetlands with more than 0.5 parts per thousand (ppt) of ocean derived salts or wetlands dominated by trees, shrub, persistent emergents, emergent mosses, or lichens.

and urban landscape (Table 5-25). However, there are 0.86 acres of Freshwater Forested/Shrub Wetland Habitat within the Project boundary upstream of the dam near Boxer Island. The NWI describes the Freshwater Forested/Shrub Wetland as a woody wetland, forested swamp or shrub bog. All wetlands within the Project boundary are a part of the Palustrine System which includes all nontidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses or lichens and all wetlands that occur in tidal areas with less than 0.5 ppt salinity from the ocean. All the wetlands in the area are either seasonally flooded or saturated (USFWS 2016a).

The most abundant wetland available within the Project boundary is the PFO1E, which translates to Palustrine (P), Forested (FO), Broad-leaved Deciduous (1) and Seasonally Flooded/Saturated (E) (USFWS 2016). This wetland is forested and is characterized by woody vegetation that is 6 meters tall or taller and is seasonally flooded or saturated. Typically, PFO1E wetlands found in Maine are comprised of Silver maple (*Acer saccharinum*), Water Hickory (*Carya aquatica*), Green Ash (*Fraxinus pennsylvanica*), Deciduous holly (*Ilex decidua*), Cinnamon Fern (*Osmunda cinnamomea*), Royal Fern (*Osmunda regalis*), Laurel Oak (*Quercus laurifolia*), Overcup Oak (*Quercus lyrata*), Willow Oak (*Quercus phellos*) and Fringed Yellow-eyed-grass (*Xyris fimbriata*) (USFWS 2016b).

PSS1E wetlands are also found along the impoundment shoreline above Boxer Island where a small tributary meets the Androscoggin River. This wetland type is similar to PFO1E except the vegetation type is dominated by scrub-shrub instead of being forested. This habitat type is dominated by woody vegetation less than 6 meters tall, which includes true shrub species, saplings, and trees or shrubs stunted in size due to environmental conditions (USFWS 2016b). In Maine, this wetland type is commonly located along streams and shorelines with a longer hydroperiod such as seasonally flooded depressions and areas transitioning to a forested cover type (Tiner 1994). Common species found in Maine in this wetland types include Buttonbush (*Cephalanthus occidentalis*), Broad-leaved Meadowsweet (*Spiraea latifolia*), Steeplebush (*Spiraea tomentosa*), Speckled Alder (*Alnus incana*), Sweet Gale (*Myrica gale*), Mountain Holly (*Ilex mucronate*), Northern Arrowhead (*Sagittaria cuneata*), Maleberry (*Lyonia ligustrina*), Red Osier Dogwood (*Cornus sericea*), Silky Dogwood (*Cornus obliqua*), Highbush Blueberry (*Vaccinium corymbosum*), Willows (*Salix spp.*), and Common Winterberry (*Ilex verticillate*) (MDEP 2019).

PFO1C wetlands are also found within the Project boundary. This wetland type is extremely similar to the PFO1E classification with the exception that it is seasonally flooded instead of seasonally saturated (USFWS 2016b). A large variety of plants can be found in this wetland type in Maine and are listed in Table 5-26.

Table 5-26 Plants found in Maine in the PFO1C Wetland Type (USFWS 2016b)

Common Name	Scientific Name
Alabama supplejack	Berchemia scandens
Amazon sprangletop	Leptochloa panicoides
American basswood	Tilia americana
American cranberrybush	Viburnum opulus var. americanum
American elder	Sambucus canadensis
American elm	Ulmus americana
American hornbeam	Carpinus caroliniana
American sycamore	Platanus occidentalis
American wisteria	Wisteria frutescens
Angular-fruit milkvine	Matelea gonocarpus
Appalachian quillwort	Isoetes engelmannii
Arrow-arum	Peltandra virginica
Arrow-leaf tearthumb	Polygonum sagittatum
Arrow-wood	Viburnum dentatum
Asiatic dayflower	Commelina communis
Autumn blue grass	Poa autumnalis
Autumn willow	Salix serissima
Balsam poplar	Populus balsamifera
Balsam willow	Salix pyrifolia
Bitter-nut hickory	Carya cordiformis
Black ash	Fraxinus nigra
Black cherry	Prunus serotina
Black chokeberry	Aronia melanocarpa
Black willow	Salix nigra
Blackgum	Nyssa sylvatica
Blackhaw	Viburnum prunifolium
Blisterwort	Ranunculus recurvatus
Bluejoint	Calamagrostis canadensis

Common Name	Scientific Name
Blunt-leaf orchid	Platanthera obtusata
Bog jacob's-ladder	Polemonium vanbruntiae
Bog smartweed	Polygonum setaceum
Bog-laurel	Kalmia polifolia
Boxelder	Acer negundo
Bracken fern	Pteridium aquilinum
Brookside alder	Alnus serrulata
Browinsh beakrush	Rhynchospora capitellata
Brownish sedge	Carex brunnescens
Buckthorn bumelia	Sideroxylon lycioides
Bur oak	Quercus macrocarpa
Bushy seedbox	Ludwigia alternifolia
Canadian service-berry	Amelanchier canadensis
Capitate beakrush	Rhynchospora cephalantha
Cardinal-flower	Lobelia cardinalis
Carolina ash	Fraxinus caroliniana
Carolina doll's-daisy	Boltonia caroliniana
Carolina mosquito fern	Azolla caroliniana
Carolina rose	Rosa carolina
Carolina-laurel	Kalmia carolina
Catberry	Nemopanthus mucronatus
Catchweed bedstraw	Galium aparine
Cat-tail sedge	Carex typhina
Cherokee sedge	Carex cherokeensis
Cherry-bark oak	Quercus pagoda
Chestnut oak	Quercus prinus
Choke cherry	Prunus virginiana
Cinnamon fern	Osmunda cinnamomea
Climbing dayflower	Commelina diffusa
Climbing-dogbane	Trachelospermum difforme
Clustered beakrush	Rhynchospora glomerata
Coastal rose-gentian	Sabatia calycina
Coastal-plain willow	Salix caroliniana
Common buttonbush	Cephalanthus occidentalis
Common greenbrier	Smilax rotundifolia

Common Name	Scientific Name
Common persimmon	Diospyros virginiana
Common yellow-eyed-grass	Xyris difformis
Crested sedge	Carex cristatella
Crow-poison	Zigadenus densus
Cupseed	Calyocarpum lyonii
Curly dock	Rumex crispus
Cut-leaf water-horehound	Lycopus americanus
Cut-leaf water-milfoil	Myriophyllum pinnatum
Dark-green bulrush	Scirpus georgianus
Deciduous holly	Ilex decidua
Diamond-leaf willow	Salix planifolia
Door-yard dock	Rumex longifolius
Downy carrion-flower	Smilax pulverulenta
Downy service-berry	Amelanchier arborea
Early azalea	Rhododendron prinophyllum
Eastern cottonwood	Populus deltoides
Eastern yellow star-grass	Hypoxis hirsuta
European alder	Alnus glutinosa
European aspen	Populus tremula
European red elder	Sambucus racemosa
False daisy	Eclipta prostrata
Fascicled beakrush	Rhynchospora fascicularis
Fascicled beakrush	Rhynchospora fascicularis var. distans
Fiddle dock	Rumex pulcher
Field horsetail	Equisetum arvense
Forest muhly	Muhlenbergia sylvatica
Fowl blue grass	Poa palustris
Fox sedge	Carex vulpinoidea
Frank's sedge	Carex frankii
Fringed sedge	Carex crinita
Garden yellow-rocket	Barbarea vulgaris
Giant cane	Arundinaria gigantea
Giant sunflower	Helianthus giganteus
Globe beakrush	Rhynchospora globularis
Golden ragwort	Senecio aureus

Common Name	Scientific Name
Grassy pondweed	Potamogeton gramineus
Gray birch	Betula populifolia
Gray dogwood	Cornus racemosa
Great blue lobelia	Lobelia siphilitica
Greater bladder sedge	Carex intumescens
Greater water dock	Rumex orbiculatus
Greater water dock	Rumex orbiculatus var. borealis
Greater yellow lady's-slipper	Cypripedium pubescens
Green ash	Fraxinus pennsylvanica
Green hawthorn	Crataegus viridis
Green woodland orchid	Platanthera clavellata
Greendragon	Arisaema dracontium
Greenish-white sedge	Carex albolutescens
Heart-leaf peppervine	Ampelopsis cordata
Hirsute sedge	Carex complanata
Hobblebush	Viburnum lantanoides
Hooded skullcap	Scutellaria galericulata
Hop sedge	Carex lupulina
Hornemann's willowherb	Epilobium hornemannii
Hyssop skullcap	Scutellaria integrifolia
Interrupted fern	Osmunda claytoniana
Jack-in-the-pulpit	Arisaema triphyllum
Joint paspalum	Paspalum distichum
Jumpseed	Polygonum virginianum
Lady's-thumb	Polygonum persicaria
Lakebank sedge	Carex lacustris
Lakecress	Armoracia lacustris
Lamance iris	Iris brevicaulis
Lance-leaf loosestrife	Lysimachia lanceolata
Larger marsh-st. john's-wort	Triadenum walteri
Larger straw sedge	Carex normalis
Laurel oak	Quercus laurifolia
Least moonwort	Botrychium simplex
Lesser marsh-st. john's-wort	Triadenum tubulosum
Lesser purple fringed orchid	Platanthera psychodes

Common Name	Scientific Name
Lizard's-tail	Saururus cernuus
Loblolly pine	Pinus taeda
Long-leaf lobelia	Lobelia elongata
Louisiana cup grass	Eriochloa punctata
Lowland beardtongue	Penstemon alluviorum
Mad dog skullcap	Scutellaria lateriflora
Many-head rush	Juncus polycephalus
Marsh blue violet	Viola cucullata
May hawthorn	Crataegus aestivalis
Meadow willow	Salix petiolaris
Missouri dewberry	Rubus missouricus
Mountain-laurel	Kalmia latifolia
Muscadine grape	Vitis rotundifolia
Muskingum sedge	Carex muskingumensis
Nanny-berry	Viburnum lentago
Narrow-leaf meadowsweet	Spiraea alba
Necklace sedge	Carex projecta
Needle spike-rush	Eleocharis acicularis
Nerveless woodland sedge	Carex leptonevia
Northern adder's-tongue	Ophioglossum pusillum
Northern arrow-wood	Viburnum dentatum var. lucidum
Northern green orchid	Platanthera hyperborea
Northern spicebush	Lindera benzoin
Northern white-cedar	Thuja occidentalis
Olney's bulrush	Scirpus americanus
Overcup oak	Quercus lyrata
Pale avens	Geum virginianum
Pale dock	Rumex altissimus
Pale touch-me-not	Impatiens pallida
Parsley hawthorn	Crataegus marshallii
Pecan	Carya illinoensis
Pennsylvania bittercress	Cardamine pensylvanica
Peppervine	Ampelopsis arborea
Piedmont meadow-rue	Thalictrum macrostylum
Pignut hickory	Carya glabra

Common Name	Scientific Name
Pinkweed	<i>Polygonum pensylvanicum</i>
Planertree	<i>Planera aquatica</i>
Poison-ivy	<i>Toxicodendron radicans</i>
Possumhaw viburnum	<i>Viburnum nudum</i>
Pumpkin ash	<i>Fraxinus profunda</i>
Purple avens	<i>Geum rivale</i>
Purple false foxglove	<i>Agalinis purpurea</i>
Purple-leaf willowherb	<i>Epilobium coloratum</i>
Pussy willow	<i>Salix discolor</i>
Quaking aspen	<i>Populus tremuloides</i>
Ram's-head lady's-slipper	<i>Cypripedium arietinum</i>
Raven-foot sedge	<i>Carex crus-corvi</i>
Reclining bulrush	<i>Scirpus flaccidifolius</i>
Red bay	<i>Persea borbonia</i>
Red maple	<i>Acer rubrum</i>
Red-osier dogwood	<i>Cornus sericea ssp. sericea</i>
Retorse sedge	<i>Carex retrorsa</i>
Rice cut grass	<i>Leersia oryzoides</i>
Rock elm	<i>Ulmus thomasii</i>
Rough-leaf dogwood	<i>Cornus drummondii</i>
Royal fern	<i>Osmunda regalis</i>
Rusty flat sedge	<i>Cyperus odoratus</i>
Rydberg poison-ivy	<i>Toxicodendron rydbergii</i>
Salt marsh camphor-weed	<i>Pluchea camphorata</i>
Saltmarsh camphorweed	<i>Pluchea odorata var. odorata</i>
Sensitive fern	<i>Onoclea sensibilis</i>
Shag-bark hickory	<i>Carya ovata</i>
Sharp-scale sedge	<i>Carex oxylepis</i>
Sheep-laurel	<i>Kalmia angustifolia</i>
Shell-bark hickory	<i>Carya laciniosa</i>
Shining willow	<i>Salix lucida</i>
Showy lady's-slipper	<i>Cypripedium reginae</i>
Shumard's oak	<i>Quercus shumardii</i>
Silky dogwood	<i>Cornus amomum</i>
Silver maple	<i>Acer saccharinum</i>

Common Name	Scientific Name
Silver plume grass	<i>Saccharum alopecuroides</i>
Skunk currant	<i>Ribes glandulosum</i>
Slender false dragonhead	<i>Physostegia intermedia</i>
Slender sedge	<i>Carex tenera</i>
Slender st. john's-wort	<i>Hypericum mutilum</i>
Slender-leaf false dragonhead	<i>Physostegia leptophylla</i>
Slim-pod rush	<i>Juncus diffusissimus</i>
Slippery elm	<i>Ulmus rubra</i>
Small yellow lady's-slipper	<i>Cypripedium parviflorum</i>
Small-flower baby-blue-eyes	<i>Nemophila aphylla</i>
Small-flower false foxglove	<i>Agalinis paupercula</i>
Small-spike false nettle	<i>Boehmeria cylindrica</i>
Smooth black sedge	<i>Carex nigra</i>
Smooth carrion-flower	<i>Smilax herbacea</i>
Smooth-sheath sedge	<i>Carex laevivaginata</i>
Southern adder's-tongue	<i>Ophioglossum vulgatum</i>
Southern arrow-wood	<i>Viburnum dentatum</i> var. <i>dentatum</i>
Southern red oak	<i>Quercus falcata</i>
Speckled alder	<i>Alnus incana</i> ssp. <i>rugosa</i>
Spinulose wood fern	<i>Dryopteris carthusiana</i>
Spotted touch-me-not	<i>Impatiens capensis</i>
Squashberry	<i>Viburnum edule</i>
Steeplebush	<i>Spiraea tomentosa</i>
Sticky false asphodel	<i>Tofieldia glutinosa</i>
Stiff dogwood	<i>Cornus foemina</i>
Stinking camphorweed	<i>Pluchea foetida</i>
Stout rush	<i>Juncus nodatus</i>
Straw sedge	<i>Carex straminea</i>
Subcordate water-plantain	<i>Alisma subcordatum</i>
Sugar maple	<i>Acer saccharum</i>
Swamp azalea	<i>Rhododendron viscosum</i>
Swamp chestnut oak	<i>Quercus michauxii</i>
Swamp cottonwood	<i>Populus heterophylla</i>
Swamp cyrilla	<i>Cyrilla racemiflora</i>

Common Name	Scientific Name
Swamp dock	<i>Rumex verticillatus</i>
Swamp lousewort	<i>Pedicularis lanceolata</i>
Swamp milkweed	<i>Asclepias incarnata</i>
Swamp rose	<i>Rosa palustris</i>
Swamp shadbush	<i>Amelanchier X intermedia</i>
Swamp smartweed	<i>Polygonum hydropiperoides</i>
Swamp tupelo	<i>Nyssa biflora</i>
Swamp white oak	<i>Quercus bicolor</i>
Swampcandles	<i>Lysimachia terrestris</i>
Swamp-loosestrife	<i>Decodon verticillatus</i>
Sweet-bay	<i>Magnolia virginiana</i>
Sweet-gum	<i>Liquidambar styraciflua</i>
Tall meadow-rue	<i>Thalictrum pubescens</i>
Tall tickseed	<i>Coreopsis tripteris</i>
Taper-leaf water-horehound	<i>Lycopus rubellus</i>
Three-square bulrush	<i>Scirpus pungens</i>
Three-way sedge	<i>Dulichium arundinaceum</i>
Trailing loosestrife	<i>Lysimachia radicans</i>
Triangular-valve dock	<i>Rumex salicifolius</i> var. <i>mexicanus</i>
Troublesome sedge	<i>Carex molesta</i>
Tuliptree	<i>Liriodendron tulipifera</i>
Umbrella magnolia	<i>Magnolia tripetala</i>
Variable panic grass	<i>Dichanthelium commutatum</i>
Virginia bluebells	<i>Mertensia virginica</i>
Virginia dayflower	<i>Commelina virginica</i>
Virginia water-horehound	<i>Lycopus virginicus</i>
Virginia wild rye	<i>Elymus virginicus</i>
Viviparous knotweed	<i>Polygonum viviparum</i>
Water oak	<i>Quercus nigra</i>
Water pimpernel	<i>Samolus valerandi</i> ssp. <i>parviflorus</i>
Water tupelo	<i>Nyssa aquatica</i>
Water-pepper	<i>Polygonum hydropiper</i>
Water-plantain spearwort	<i>Ranunculus ambigens</i>
Waterpod	<i>Hydrolea quadrivalvis</i>
Weak stellate sedge	<i>Carex seorsa</i>

Common Name	Scientific Name
Western dock	Rumex aquaticus var. fenestratus
Western thimble-berry	Rubus parviflorus
White arrow-arum	Peltandra sagittifolia
White ash	Fraxinus americana
White avens	Geum canadense
White turtlehead	Chelone glabra
White-edge sedge	Carex debilis
Whorled marsh-pennywort	Hydrocotyle verticillata
Wild sweetwilliam	Phlox maculata
Willow oak	Quercus phellos
Winged elm	Ulmus alata
Woolly panic grass	Dichanthelium scabriusculum
Yellow iris	Iris pseudacorus
Yellow marsh-marigold	Caltha palustris

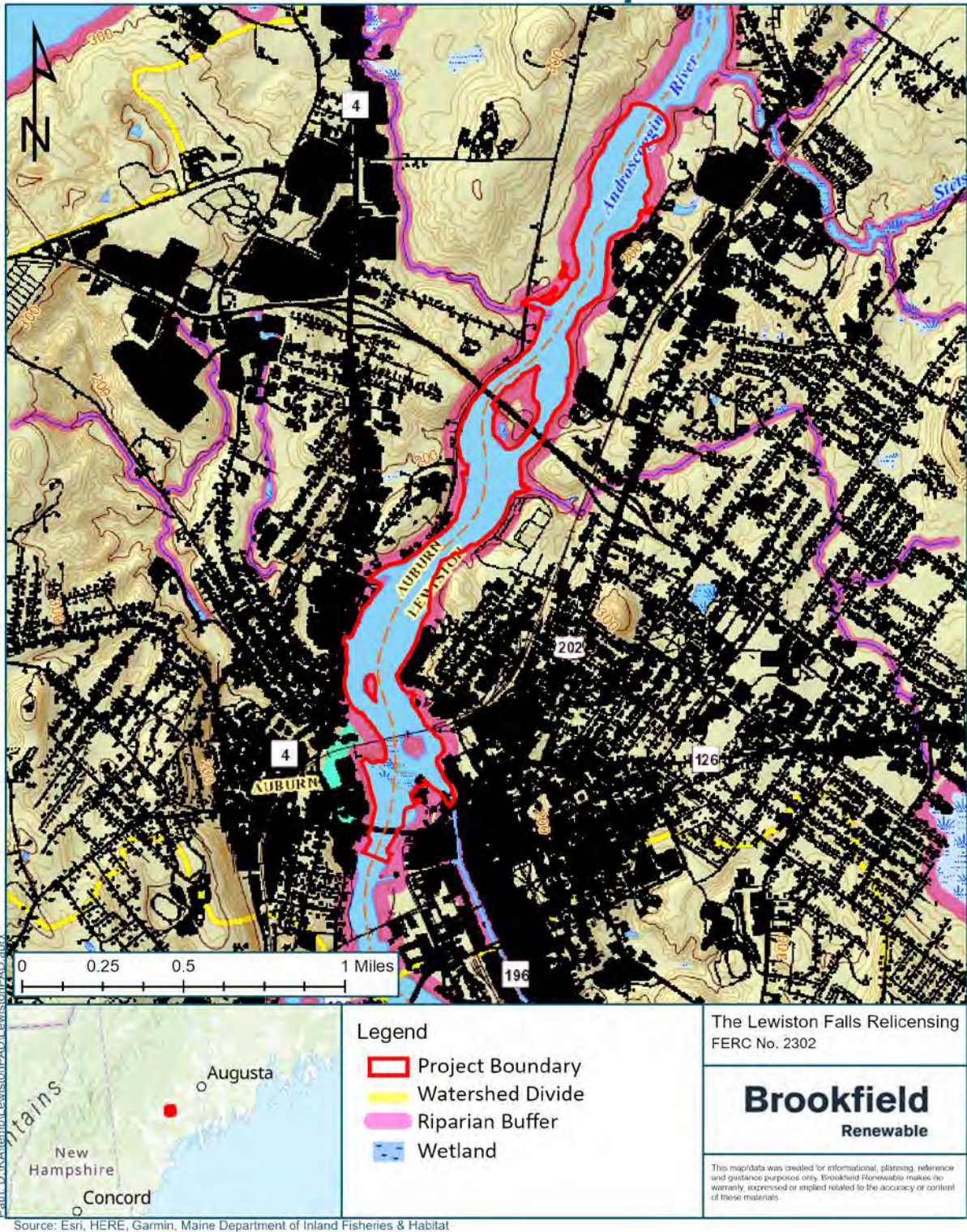
5.5.2 Riparian and Littoral Habitat

Riparian habitats are defined by the USFWS as “plant communities contiguous to and affected by surface and subsurface hydrologic features of perennial and interment lotic and lentic waters” (USFWS 2020). These areas are usually transitional between wetlands and uplands. They are characterized by distinctly different vegetive species than adjacent areas or species similar to adjacent areas but exhibiting more vigorous or robust growth forms, or both characteristics together (USFWS 2020). Lands in the Project boundary are mostly developed with some forested areas along the river. There is approximately 6.88 acres of riparian habitat within the Project boundary (Figure 5-13).

The extent of the littoral habitat associated with a given water body is dependent on basin morphology and accumulated sediments. There is approximately 5.7 miles of shoreline associated with the Lewiston Falls Project. Upstream of the dam, the margins of the Lewiston Falls impoundment are dominated by sand, silt, gravel, and muck (Hildreth 2002). These substrates provide habitat for vegetation along the impoundment margins and within the littoral zone. In the tailrace area, the river margins are lined with artificial fill. Most of the lands within the Project boundary and directly adjacent to the Project boundary are residential and urban, and therefore there is limited available riparian habitat available (Figure 5-13).

Figure 5-13 Riparian Habitat Available within the Lewiston Project Boundary and Adjacent Area

Available Riparian Habitat



5.5.3 References

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5.6 Rare, Threatened, and Endangered Species

The Endangered Species Act (ESA) was implemented in 1973 to protect imperiled species from extinction as a consequence of human impacts and to recover species to a point where the laws protection is no longer needed. Under this Act, critical habitat can be designated to protect areas occupied by the imperiled species that are essential to their conservation. The USFWS and the National Marine Fisheries Service (NMFS) are delegated authority that oversees the provisions of this Act. Additionally, fish and wildlife species can be protected under Maine's Endangered Species Act (MESA) which was established in 1975. Under MESA, species can also be identified as "Special Concern" (SC) if that species does not meet the criteria of endangered or threatened but are still vulnerable and could become threatened (MDIFW 2009). The MESA also includes designation and protection of Essential Habitat. These are habitats that historically or currently provide biological or physical features that are essential to conservation of endangered or threatened species in Maine and may require special management considerations (MDIFW 2009). In 1988, the Natural Resources Protection Act (NRPA) was implemented to "prevent any unreasonable impact to, degradation of or destruction of the resources and to encourage their protection or enhancement" (MDEP 2014).

5.6.1 Federally Threatened and Endangered Species

Based on an Information for Planning and Consultation (IPaC) review conducted on April 1, 2021, there is one listed mammal species and one listed fish species that may be present or affected by the Project (USFWS 2021). The Northern Long-eared Bat (*Myotis septentrionalis*) is threatened and was identified as potentially occurring within the Project boundary, however no critical habitat was identified. Atlantic Salmon (*Salmo salar*) are federally endangered and are identified as potentially occurring within the Project waters, however no critical habitat is within the Project boundary.

Northern Long-Eared Bat

The Northern Long-eared Bat (NLEB) is listed as a federally threatened species and endangered at the state level. This species was listed as threatened in 2015 with a final rule published in January 2016. The USFWS determined that the designation of critical habitat for the NLEB was not prudent and therefore no critical habitat is established for this species (USFWS 2020).

NLEB's primarily feed on invertebrates in the understory of forested areas and glean motionless insects from vegetation. During the winter they hibernate in caves and mines. During the summer NLEB's roost underneath bark, in cavity's or in crevices of trees and snags. Male and unproductive females may roost in cooler areas like caves (USFWS 2020).

While the Project falls within range of the NLEB, it is not probable that NLEB overwintering occurs within the Project due to the lack of suitable habitat. Feeding may occur over the impoundment and summer roosting may occur within the riparian areas.

Atlantic Salmon

Atlantic Salmon are an anadromous fish species that spends its adult life in marine environments and returns to freshwater rivers to spawn. Atlantic salmon were initially listed in November of 2000 in eight coastal watersheds by the NMFS and the USFWS. In 2009, this listing expanded to include the Androscoggin, Kennebec, and Penobscot rivers, which were excluded from the original listing. Additionally, the NMFS determined the Atlantic salmon inhabiting the Gulf of Maine (GoM) watersheds from the Androscoggin River eastward to the Dennys River are a distinct population segment (DPS) and should be listed as a distinct species (NOAA and USFWS 2020).

There is no critical habitat for Atlantic Salmon upstream of the Project, and the boundary of the critical habitat defined by NMFS is located below Lewiston Falls (32 RKM upstream of Merrymeeting Bay). Areas above the Lewiston Falls was not considered essential for the conservation of Atlantic Salmon and did not qualify for a critical habitat designation (Endangered and Threatened Species 2009). Since 2013, the Licensee has been implementing an Atlantic Salmon Stranding Plan which monitors for stranded Atlantic Salmon below the dam after spill events. No Atlantic Salmon have been observed stranded. In 2015, an instream flow assessment was conducted downstream of the dam which determined that Project operations do not have a significant impact on wetted habitat downstream and there was adequate channel for passage for migrating Atlantic Salmon (Normandeau 2016).

5.6.2 Birds of Conservation Concern

Based on an the IPaC review conducted on April 1, 2021, there were 8 species of birds listed under Birds of Conservation concern that could potentially occur at the Lewiston

Falls Project (Table 5-27). Canada Warbler (*Cardellina canadensis*), Lesser Yellowlegs (*Tringa flavipes*), Olive-sided Flycatcher (*Contopus cooperi*), and Wood Thrush (*Hylocichla mustelina*) are also listed in the MESA and are species of Special Concern (SC) (MDIFW 2015a).

Table 5-27 Birds of Conservation Concern that could potentially enter the Lewiston Project Boundary (IPaC 2021)

Common Names	Scientific Names
Bald Eagle	<i>Haliaeetus leucocephalus</i>
Bobolink	<i>Dolichonyx oryzivorus</i>
Canada Warbler	<i>Cardellina canadensis</i>
Cape May Warbler	<i>Setophaga tigrina</i>
Lesser Yellowlegs	<i>Tringa flavipes</i>
Olive-sided Flycatcher	<i>Contopus cooperi</i>
Praries Warbler	<i>Dendroica discolor</i>
Wood Thrush	<i>Hylocichla mustelina</i>

5.6.3 State Threatened and Endangered Species

There are currently 26 inland fish and wildlife species listed as endangered and 35 listed as threatened under MESA (MDIFW 2015b). However, there are no known populations of state threatened or endangered species found within the Project area (MDIFW 2019a). Based on the dominate habitat types near the Project area, Laurentian-Acadian Pine-Hemlock-Hardwood Forest and Appalachian (Hemlock)-Northern Hardwood Forest), Table 5-28 lists the at-risk species that could potentially occur in the vicinity of the Project. For a complete list of threatened and endangered species that can potentially occur in Maine’s Northern Hardwood and Conifer forests see Appendix G.

Table 5-28 Threatened (T), Endangered (EN), Special concern (SC) and Extirpated (Exp.) Species that Could Potentially at the Project (MDIFW 2015a, Anderson et. al. 2013)

Common Names	Scientific Names	State Status
Mammals		
Northern Long-eared Bat	<i>Myotis septentrionalis</i>	EN
Small-footed Myotis	<i>Myotis leibii</i>	T
New England Cottontail	<i>Sylvilagus transitionalis</i>	EN
Herptiles		
Timber Rattlesnake	<i>Crotalus horridus</i>	Exp.
Wood Turtle	<i>Glyptemys insculpta</i>	SC
Birds		
Canada Warbler	<i>Cardellina canadensis</i>	SC
Olive-sided Flycatcher	<i>Contopus cooperi</i>	SC
Eastern Whip-poor-will	<i>Caprimulgus vociferus</i>	SC
Plants		
American Chestnut	<i>Castanea dentata</i>	SC
Variable Sedge	<i>Carex polymorpha</i>	EN
American Ginseng	<i>Panax quinquefolius</i>	EN
Insects		
Early Hairstreak	<i>Erora laeta</i>	SC
Spicebush Swallowtail	<i>Papilio troilus</i>	SC
Red-Winged Sallow	<i>Xystopeplus rufago</i>	SC

5.6.4 Mussels

As discussed in Section 5.3.6, there are freshwater mussel species that are expected to occur within the vicinity of the Project. Two of these, the Tidewater Mucket (Threatened) and Creeper (Special Concern) were documented by Nadeau et al. (2000) in the lower Androscoggin River (Table 5-20). However, neither of these mussels have been found within Project boundary waters (Swartz 2016).

5.6.5 References

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5.7 Recreation and Land Use

5.7.1 Overview

Recreation and non-recreational land use in the Project vicinity are characteristic of the urban, riverine location. The river and riverfront in the Project vicinity is used for a variety of recreational activities. The Project impoundment and waters downstream of the dam are primarily used for boating and fishing. The shoreline on both the Auburn and Lewiston sides of the Androscoggin River near the Project are used for exercise and sightseeing along a system of riverfront trails linking the two cities. The Project provides three boat launches and a scenic overlook, discussed in section 6.7.3. Several non-Project recreation sites provide additional access to Project lands and waters. Regional recreational opportunities in the surrounding area include hiking, cross-country skiing, snowshoeing, snowmobiling, and mountain biking, fishing, boating, hunting, picnicking, and wildlife viewing. Regional and non-Project recreational opportunities are discussed in section 6.7.2. Project recreational opportunities are discussed in section 6.7.3.

The major land uses of the river basin are discussed in Section 5.2. The Project is located on the Androscoggin River within the cities of Lewiston and Auburn in Androscoggin County, Maine. Non-recreational land use in the immediate Project area is a mix of commercial and residential development, with a few small parcels of agricultural lands adjacent to the upper extent of the Project impoundment. There are no federal lands occupied by the Project. Land use and management in the Project vicinity and of Project lands are discussed in section 6.7.5 and section 6.7.6, respectively.

No Project lands are included in, or under study for inclusion in, the National Trails System or the National Wilderness Preservation System (UM, 2016). The Project site is not located within or adjacent to any river segment that is designated as a part of, or under study for inclusion in, the National Wild and Scenic River System (NWSRS) (NWSRS, 2016) or included in the Nationwide Rivers Inventory (NRI) (NPS, 2017). The downstream tidewater section of the Androscoggin River from Merrymeeting Bay to Brunswick, located roughly 20 miles downstream of the Project, is listed in the NRI for outstanding fish, wildlife, botanical, hydrologic, recreational, and historic values. The river segment from Hastings Island to south of Rumford Center (roughly 30 miles upstream of the Project) is also listed in the NRI as a sparsely developed high order river with an historic Atlantic Salmon fishery (NPS, 2017).

5.7.2 Regional Recreation Opportunities

The Project lies within the Maine Lakes and Mountains tourism region (MOT, 2021). The region is known for its numerous lakes, rivers, and mountains that provide an array of land and water-based outdoor recreation opportunities. Some notable recreation opportunities in the Project region are discussed below.

Thorncrag Nature Sanctuary, located in Lewiston approximately 3 miles east of the Project, provides 450 acres of wildlife preserve. It is the highest elevation point in the city and has been protected for decades. Recreation at the sanctuary includes birdwatching, picnicking, hiking, walking, snowshoeing, cross-country skiing, sledding, skating, and nature photography (Stanton Bird Club, no date).

Range Pond State Park, located 7 miles southwest of the Project, provides a swimming beach, picnic areas, and a public boat launch. There is a small fee for admission to the park, which is open year round (MDACF, 2013b).

Lake Auburn, located approximately four miles north of the Project, provides an array of recreation opportunities. On the eastern shore, Grove Park (Auburn Municipal Beach) provides picnic tables, gazebos, playground equipment, and grills and is open dawn to dusk free of charge (Auburn, no date). Just south of Grove Park, Lake Auburn Public Boat Ramp provides trailered boat access, a floating courtesy dock, and parking for approximately 40 vehicles with trailers. The Auburn Lake Nature Trail network provides hiking and wildlife viewing opportunities around the lake.

The Androscoggin Riverlands State Park, located approximately 14 miles north of the Project, encompasses 2,675 acres and offers trails for hiking, cross-country skiing, snowshoeing, snowmobiling, and mountain biking, as well as opportunities for fishing, motorized and non-motorized boating, hunting, picnicking, and wildlife watching. The park contains 12 miles of river frontage and is part of the larger Androscoggin Greenway and the Androscoggin River Trail (MDACF, 2013a). The Androscoggin River Trail connects public river access points along the river from Lake Umbagog in Northern New Hampshire to the easterly end of Merrymeeting Bay in Maine. The Androscoggin Greenway section of the trail provides access sites in the Project vicinity, discussed below.

5.7.3 Existing Project Area Recreation Facilities and Use

5.7.3.1 Non-Project Recreation Sites and Facilities

As discussed elsewhere, the Project is located within the urban centers of Lewiston and Auburn. Between the two cities, there are over 30 municipal parks providing playgrounds, picnic areas, softball fields, hand-carry and trailered boat launches, basketball courts, swimming pools and beaches, birding and wildlife watching opportunities, disc golf, skate parks, multi-use trails, and ATV and snowmobiling trails. Several of these municipal facilities provide physical or visual access to the Project.

Downstream of the Project tailrace on the eastern side of the river, the City of Lewiston's Veterans Memorial Park (formerly Heritage Park) provides veterans memorials, benches, walking paths, and views of the Project facilities (dams, powerhouse, and tailwater), and Great Falls.

Adjacent to the Project downstream on the western shore of the Androscoggin River, the Auburn Riverwalk extends downstream from the Project past the City of Auburn's Festival Plaza to Bonney Park (located approximately ½ mile downstream of the Project). The trail continues across the river to the eastern shore via a railroad trestle to Simard-Payne Memorial Park in Lewiston.

The City of Auburn's Festival Plaza provides an outdoor gathering place for performances and events with views of and shoreline access to the Androscoggin River at the southwestern extent of the Project boundary.

The City of Auburn's Bonney Park provides playground equipment, benches, and scenic views of the Androscoggin River.

The City of Lewiston's Simard-Payne Memorial Park, located just under ½ mile downstream of the Project on the western shoreline, provides playing fields, walking paths, benches, and lighting¹⁰.

¹⁰ Simard-Payne Memorial Park and Festival Plaza are both listed by ARWC as providing boat access to the Androscoggin River Trail in the Project vicinity; however, onsite signage at Festival Plaza prohibits watercraft access at the site.

The Lincoln Street Boat Launch (also called Lewiston Carry-in Boat Launch), owned and operated by the City of Lewiston, is located roughly two miles downstream of the Project on the eastern shore of the Androscoggin River in the City of Lewiston. The site provides a paved parking area, a concrete launch ramp suitable for hand-carry boats, a picnic area, and benches. The access is part of the Androscoggin River Trail (ARWC, 2012). Dressers Rips, a Class II rapid, is located just downstream from the launch (ARWC, 2012).

Upstream of the dam, the 14-acre David Rancourt River Preserve (also called the Androscoggin River Preserve) adjacent to the Project boundary at the upstream extent provides a walking path along the cliffs and down to the river, a scenic overlook, and hand-carry boat access to the Project impoundment. Owned and maintained by the Androscoggin Land Trust, the site is a component of the Androscoggin Greenway (ARWC, 2012).

The Androscoggin Riverside Trail, also known as the Riverside Greenway, is a 1.5 mile stretch of the Androscoggin Greenway-Riverlands section of the Androscoggin River Trail. The paved multi-use trail begins just south of the David Rancourt River Preserve and extends south along the impoundment to Sunnyside Park.

Sunnyside Park, owned and operated by the City of Lewiston, is a large, wooded park adjacent to the Project impoundment. The park provides basketball courts, playground equipment, and benches (ALT, 2014). There is no boating access from this park though the park offers views of the river.

West Pitch Park, located adjacent to the dam on the western shore, provides walking trails, benches, and views of Great Falls. A portion of West Pitch Park, the scenic overlook, is a Project recreation facility discussed below.

5.7.3.2 FERC-Approved Project Recreation Sites and Facilities

There are currently three FERC-approved Project recreation sites at the Lewiston Falls Project: a scenic overlook located in West Pitch Park, Lewiston Falls Impoundment Boat Launch (also known as the Higgins Boat Launch), and Durham Boat Launch.

Articles 408 and 409 of the existing Project license contained requirements pertaining to recreation. Article 408 required that the Licensee construct recreational facilities at the area known as West Pitch and lease the site to the City of Auburn. West Pitch Park includes

a FERC-approved scenic overlook of Great Falls and a trail system that serves as a terminus or starting point for the Androscoggin Riverwalk. Article 409 required that the Licensee develop and file with FERC a plan for the development of public access, including a boat ramp, downstream of the Project dam (FERC, 1986).

The Lewiston Falls Project Recreation Plan was filed in 1990 and approved by FERC on April 4, 1991. The plan laid out the details for the construction completed at West Pitch Park, provisions for a future hand-carry boat access to the Project impoundment as part of the Gulf Island/Deer Rips Project, the restoration of Heritage Park to its original condition after completion of Project construction, plans for the purchase of property and construction of a trailered boat launch downstream from the Project in the Town of Durham (Durham Boat Launch), and provisions for a future hand-carry boat launch downstream from the Project on Lincoln Street in Lewiston (Lincoln Street Boat Launch) (CMP, 1990).

FERC's 1991 Order Approving Recreation Development Plan and As-Built Drawings subsequently ordered that the Licensee file an updated plan every three years to document consultation and progress relative to construction of the Deer Rips and Lincoln Street launches (FERC, 1991). The first of these updates was filed on April 1, 1994 and approved by FERC on October 24, 1994. Per the update, the Lincoln Street and Durham Boat Launches had been constructed and construction of the Gulf Island/Deer Rips Boat Launch was delayed pending further consultation. In addition, the Exhibit G drawings were revised to include the Durham Boat Launch within the Project boundary (FERC, 1994). An updated Lewiston Falls Project Public Access Plan was filed on September 16, 1999¹¹ and approved by FERC on June 29, 2000. Per the updated plan, a new boat launching facility (Lewiston Falls Project Impoundment Boat Launch (or Higgins Boat Launch)) was to be constructed on the west shoreline of the Project impoundment, adjacent to the former commercial Higgins Marina. FERC approved the plan and ordered that the new launch facility was to replace that proposed for the Gulf Island/Deer Rips Project as well as the constructed Lincoln Street Boat Launch, which was determined to be otherwise unsuitable for motorized watercraft. The FERC approval required the Lewiston Falls Project Impoundment Boat Launch to be included in the Project boundary (FERC, 2000).

¹¹ The initial filing was supplemented on January 28, 2000.

Per the FERC-approved Project recreation plans and amendments, the Licensee is responsible for the following Project recreation sites and facilities, depicted in Figure 5-14 through Figure 5-17:

- **West Pitch Park Overlook:** As previously discussed, the Licensee funded the construction of recreational amenities at West Pitch Park, including a viewing platform overlooking Great Falls and the Project dams from the Auburn side of the river, as shown in Photo 5-1 and Photo 5-2. The West Pitch Park Overlook site is owned by the Licensee and has been leased to and is maintained by the City of Auburn. Per the 50-year lease, annual payments from the City of Auburn to the Licensee are to be equal to that year's property taxes on the parcel, essentially negating the cost of the lease. The West Pitch Park Overlook is within the Project boundary and is secured with fencing for public safety. The site also includes a portion of the Riverwalk Trail, which is not a Project recreation facility contained within the Project boundary.
- **Lewiston Falls Project Impoundment Boat Launch:** The Lewiston Falls Project Impoundment Boat Launch (sometimes referred to as the Higgins Boat Launch or Auburn Boat Launch) is located on the Project impoundment just under a half mile upstream of the Project on the western shore of the Androscoggin River on North River Road in Auburn. The concrete boat launch and courtesy dock provide hand-carry and trailered boat access to the Project impoundment, shown in Photo 5-3 and Photo 5-4. The site provides parking for 11 vehicles with trailers. The Licensee was responsible for construction of the facility; upon completion the facility was transferred to the City of Auburn in fee and a public access easement transferred to the State through MDIFW. The Licensee retains responsibility for minor maintenance (single occurrences of \$500 or more) and for providing and maintaining all FERC-required signage. The City of Auburn is responsible for routine maintenance and operation. The site is located within the Project boundary. The access is considered to be part of the non-Project Androscoggin River Trail (ARWC, 2012).
- **Durham Boat Launch:** The Durham Boat Launch is located outside of Durham, ME downstream of the Project on the western shore of the Androscoggin River and includes a concrete ramp with an asphalt approach and gravel parking lot with capacity for 16 vehicles with trailers, displayed in Photo 5-5 and Photo 5-6. The site provides access for trailered and hand-carry boats and is within a designated Project boundary.

Figure 5-14 Project Recreation Facilities

Project Recreation Facilities

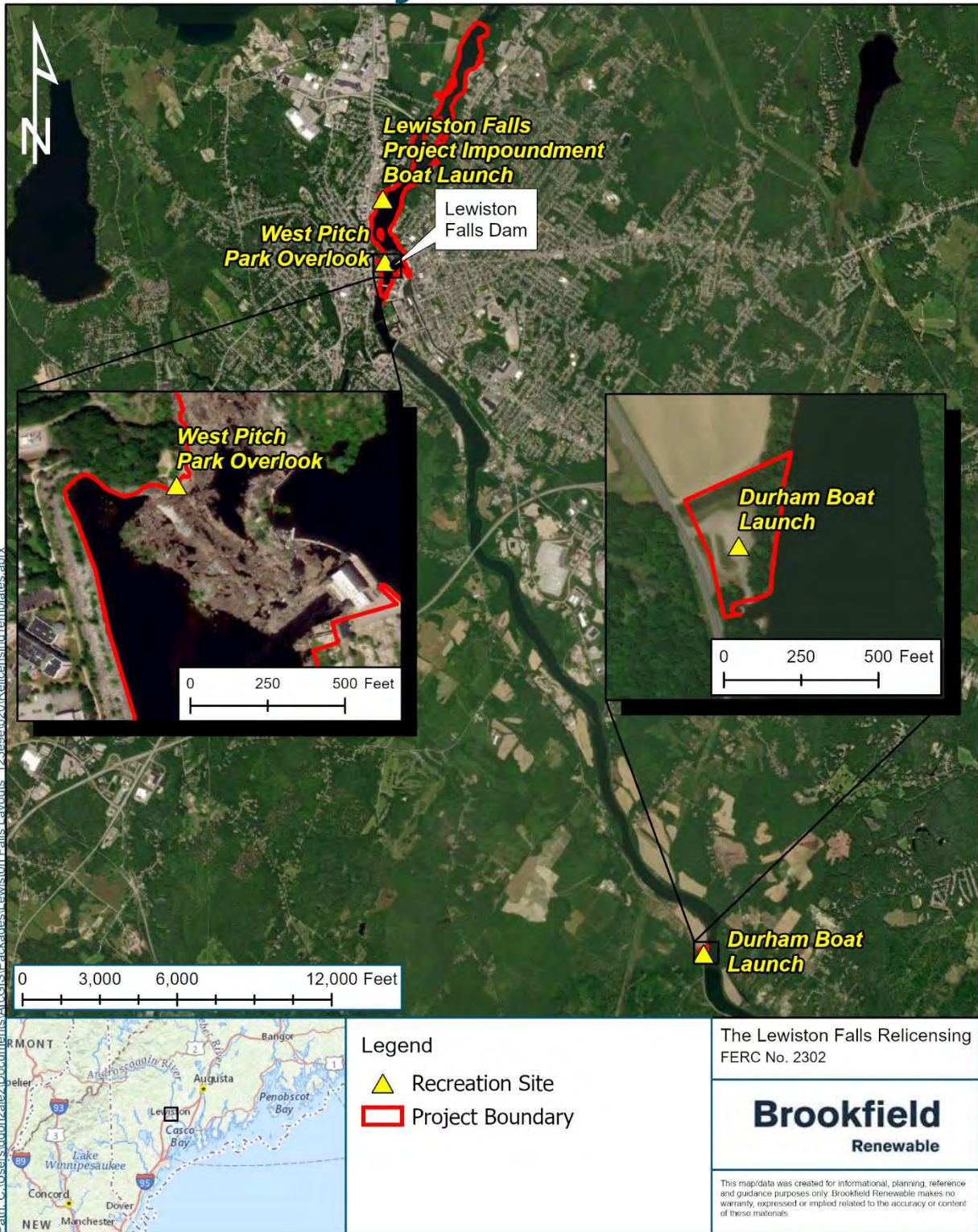


Figure 5-15 West Pitch Park

West Pitch Park



- Legend**
- ▲ Recreation Site
 - Project Boundary

The Lewiston Falls Relicensing
 FERC No. 2302

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Date Printed: 5/17/2021

Figure 5-16 Lewiston Falls Project Impoundment Boat Launch

Lewiston Falls Project Impoundment Boat Launch



Date Printed: 6/2/2021

Figure 5-17 Durham Boat Launch

Durham Boat Launch



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Photo 5-1 West Pitch Park Overlook Site



Photo 5-2 West Pitch Park Overlook Site



Photo 5-3 Lewiston Falls Project Impoundment Boat Ramp Site



(FERC, 2017)

Photo 5-4 Lewiston Falls Project Impoundment Boat Ramp Site



Photo 5-5 Durham Boat Launch Site



Photo 5-6 Durham Boat Launch Site

5.7.3.3 Recreation Use of Project Recreation Sites

Historically, FERC licensees, including White Pine Hydro, were required to report recreational facilities and estimated usage to FERC every six years on a Licensed Hydropower Recreation Report Form 80 (Form 80).¹² According to the Form 80 filed in December 2015, seven percent of the Project shoreline is available for public use (BWPH, 2015).

FERC uses recreation days as a metric for reporting recreational use at hydroelectric projects. A recreation day is defined as each visit by a person to a development for recreational purposes during any portion of a 24-hour period. The 2015 Form 80 indicates there were a total of approximately 6,800 recreation days at Project recreation facilities in 2014, with a peak weekend average of 110 recreation days (BWPH, 2015). Nighttime recreational use was not sampled as part of on-site spot counts as none of the public access sites provide overnight facilities.

The Form 80 also estimates Project recreation facility use relative to capacity during the preceding year. The 2015 Form 80 indicated that the Project boat launches were used at approximately 20 percent of capacity on average, non-peak summer weekends in 2014, and the West Pitch Park overlook was used at 10 percent of capacity.

5.7.3.4 Recreation Use of Non-Project Recreation Sites and Facilities

Quantitative data on the level of recreation use at non-Project recreation sites and facilities is not readily available. According to the Androscoggin Land Trust, the river in the vicinity of the Project is utilized by recreationists and tourists with an interest in the cities' histories. To support and encourage this use, Lewiston and Auburn have developed a Museum in the Streets© L-A River History Trail, a self-guided historical walking tour with 30 historical markers throughout the two cities. The trail connects multiple existing recreation facilities in the Project area along the Riverwalk (Lewiston, no date). The Androscoggin Land Trust has likewise developed L/A Riverwalk Tour (Travelstorys App), a free self-guided smartphone tour of the historic riverfront area. The tour guides people along the paths lining the river in both Auburn and Lewiston and visits sections of the historic downtown mill. It is also available in a paddling version (ALT, 2018). Several annual events in the downtown Lewiston and Auburn areas focus on the river, encouraging use

¹² FERC eliminated the requirement for Licensees to complete Form 80's in 2018.

of the area's parks, paths, and boat launches. The Androscoggin Land Trust has run a Learn to Fish program in the Project area since 2001; the program offers fishing lessons and hands-on experience to area youth (ALT, 2018).

According to the City of Auburn, the Riverwalk is a popular destination during weekday lunch break periods and is used for festivals and special events which can draw even more visitors to the Project area (Auburn, 2016).

5.7.4 Project Vicinity Recreation Needs Identified in Management Plans

Two statewide plans serve as management plans for recreational needs in the Project vicinity: the Maine Statewide Comprehensive Outdoor Recreation Plan (SCORP) and the Strategic Plan for Providing Public Access to Maine Waters for Boating and Fishing. The Androscoggin Valley Council of Governments (AVCOG) is a resource sharing organization for all the municipalities in Androscoggin, Franklin, and Oxford counties. AVCOG's Western Maine Regional Open Space Policy and lower Androscoggin River Recreation Study and Management Plan both contain goals pertaining to the Project vicinity. The Androscoggin Transportation Resource Center (ATRC) is the Metropolitan Planning Organization responsible for planning the transportation system for the Greater Lewiston-Auburn Area (including Lewiston, Auburn, Lisbon, and Sabattus). The ATRC's various transportation plans, including the 2019 Bicycle and Pedestrian Plan, also include goals pertaining to the Project vicinity. In addition, the Cities of Lewiston and Auburn have multiple management plans for the lands within their jurisdiction, and the Cities have partnered with the Androscoggin Land Trust to develop the 2013 Androscoggin River Greenway Plan. A discussion of recreation needs and goals identified in each of these plans follows.

5.7.4.1 Statewide Management Plans

2020-2024 Maine State Comprehensive Outdoor Recreation Plan

The Maine Bureau of Parks and Lands (MBPL) reviews statewide recreational needs at five-year intervals. The most recent review is reported in the 2020-2024 SCORP. The SCORP identifies the demand for and supply of outdoor recreation areas and discusses outdoor recreation issues of statewide importance. Part I of the plan details planning context and process. Part II discusses outdoor recreation trends and resources. Part III explores five key themes: support active, engaged communities; address workforce attraction and

retention through outdoor recreation; sustain and grow tourism; promote ecological and environmental resilience; invest in maintenance and stewardship. The SCORP does not identify any strategies specific to the Project or in the vicinity of the Project (MBPL, 2020).

Boating Facilities Strategic Plan and Fishing

The Maine Department of Agriculture, Conservation and Forestry (MDACF), in cooperation with the Maine Department of Inland Fisheries and Wildlife (MDIFW), produced the Strategic Plan for Providing Public Access to Maine Waters for Boating and Fishing in 1995, since updated in 2000. This Strategic Plan focuses on public access for recreational boating and sport fishing and guides the two agencies in directing their water access programs. The plan does not identify the Androscoggin River in the Project vicinity as needing additional guaranteed public access or additional access (MDACF, 1995).

5.7.4.2 Regional Management Plans

Western Maine Regional Open Space Policy

The Western Maine Regional Open Space Policy (WMROSP) was published by the AVCOG in 2009. The WMROSP seeks to develop policies to guide land use and direct conservation opportunities. Policies of the WMROSP that may bear relevance to the Project include: (1) encourage landowners to keep land open to the public; 2) obtain access to surface waters; 3) encourage municipalities to request developers to allow a portion of their land, existing trails, trail heads, and surface water access sites to remain open to the public; and 4) conserve energy and encourage the growth of alternative energy sources including wind and hydroelectric (AVCOG, 2009).

Lower Androscoggin River Recreation Study and Management Plan

The Lower Androscoggin River Recreation Study and Management Plan was published by the AVCOG in 1983. The Plan identifies the six miles of river corridor passing through the urban area of Auburn and Lewiston as providing for good urbanized recreational potential, with passive recreation being best suited to the physical characteristics of the area. Passive recreation activities identified included sightseeing and picnicking. Goals arising from the study included maintaining and enhancing wildlife and fisheries resources, improving water quality, maintaining existing and future recreational values, creating public awareness of the study area's multi-use values, providing public

recreational opportunities while protecting private lands from abuse, and encouraging community planning (AVCOG, 1983).

ATRC Bicycle and Pedestrian Plan

The ATRC has developed a Long Range Transportation Plan establishing policies and projects to achieve the region's vision of what the transportation system will look like in 2040. Referenced in this plan is the ATRC's Bicycle and Pedestrian Plan, updated in 2019, which provides the communities of Lewiston, Auburn, Lisbon and Sabbathus with engineering and policy recommendations to improve conditions for bicycle and pedestrian use in the Lewiston Auburn Area. The 2019 update identifies connectivity between bicycle and pedestrian facilities as a top priority. The plan therefore recommends that member communities identify gaps and facilities and make the closure of those gaps a top priority. In addition to making these smaller connections, the plan recommends facilitating bicycle and pedestrian travel between communities as well as regionally, citing the East Coast Greenway's goal of providing an off-road facility for non-motorized travel connecting the major urban centers of the eastern seaboard from Key West, Florida to Calais, Maine. As part of the 2019 update, ATRC published a 2040 Vision for the region's bicycling and walking network. The 2040 Vision includes several potential future trail segments along both banks of the Androscoggin River in the Project area (ATRC, 2019).

5.7.4.3 City Management Plans

Maine adopted the Comprehensive Planning and Land Use Act in 1988. The Act requires towns in Maine to have a comprehensive plan consistent with the state Growth Management Act to prepare for the future. Relevant city plans are discussed below.

City of Lewiston Comprehensive Plan: 2017 Update

The City of Lewistown 2017 Comprehensive Plan, Legacy Lewiston, was developed to update the City's plans and policies for future development and conservation. The updated 2017 plan is devoted to addressing the challenges of competing in today's world-wide knowledge and information economy and once again establishing the role of regional leadership as the state's second largest city. Legacy Lewiston aims to implement historic vision and combat any negative perceptions of this previous mill town. The plan does not specifically address recreation activities at the Lewiston Falls Project; however, the Great Falls Balloon Festival occurs along the Androscoggin Riverfront, offering views

of the Project to the attendees of Lewiston's most popular event (Lewiston, 2017). Goals of the 2017 Legacy Lewiston Update that may bear relevance to the Project include:

- Increase the number of new parks and recreation facilities to serve future residents;
- Make Lewiston more walkable, bikeable, and hikeable, especially along the Androscoggin River by working with local organizations and the Androscoggin Land Trust; and
- Expand recreational opportunities along the river by partnering with local organizations such as Healthy Androscoggin and developing facilities and access points such as trails, parks, boat launches, and picnic areas (Lewiston, 2017).

City of Lewiston Riverfront Island Master Plan

The City of Lewiston has developed a Riverfront Island Master Plan in recent years to guide future development. The plan lays out goals that aim to orient the City towards the Androscoggin River, including designing and improving parks, such as the Simard Payne Park and the Riverfront Island, and connecting popular roads to these green spaces in both Lewiston and Auburn. Four main goals are established in the plan: tap the power of the Androscoggin River, attract a mix of uses, make the district more walkable, and insist on quality both publicly and privately. Specific projects identified in the plan include creating a continuous riverwalk extending from Veterans Memorial Park along Island Point and developing scenic overlooks with views of Great Falls (Lewiston, 2012).

City of Auburn Comprehensive Plan: 2010 Update

The City of Auburn 2010 Comprehensive Plan was developed to expand on policies outlined in the original Comprehensive Plan and to create new policies to address emerging issues for the City. The 2010 Update serves as a decision-making tool for the City when addressing issues concerning natural resources, public facilities and infrastructure, historic preservation, economic and community development, housing, recreation, and open space. The plan does not contain strategies specific to the Project or in the vicinity of the Project. The goals of the 2010 Update that may bear relevance to the Project include:

- Increase recreation and boat access to the Androscoggin River and Little Androscoggin River;
- Improve current recreational river access through trail and park maintenance;

- Increase the amount of open space in the City by collaborating with local conservation organizations including the Androscoggin Land Trust; and,
- Maintain and enhance city trails by supporting the efforts of local conservation and outdoor recreation organizations (Auburn, 2010).

The City of Auburn began the process of updating the Comprehensive Plan in 2020.

City of Auburn Strategic Plan

The 2019 City of Auburn Strategic Plan is a management tool for the implementation of the City of Auburn Comprehensive Plan. While the Comprehensive Plan is a long-term plan updated every 10 years, the Strategic Plan provides a multi-year road map for implementing the strategies identified in the Comprehensive Plan over a five-year timeframe. Annual updates to the Strategic Plan track the City's implementation progress. The 2019 plan lays out several strategic recommendations, each backed by supporting implementation steps. Recommendations that may be relevant to the Project include:

- Work to protect and fully enjoy Auburn's natural resources;
- Develop a downtown management district focusing on Great Falls Plaza, downtown & the Androscoggin River;
- Study and plan to increase the pedestrian environment, to include connectivity; and
- Invest in arts, history, culture, recreation, and entertainment (Auburn, 2019).

New Auburn Master Plan

The New Auburn Master Plan was published in 2009 for the purpose of creating a long term, comprehensive approach to the growth and prosperity of the village of New Auburn. The Plan pertains to the New Auburn area, which is bounded by the Androscoggin River to the east, the Little Androscoggin River to the north and west, and the Maine Turnpike (I95) to the south. Although New Auburn is located approximately one mile south of the Project below the confluence of the Little Androscoggin River, the plan does not pertain directly to the Project area. Goals and strategies in the plan include supporting organizations such as the Androscoggin Land Trust and LA Trails in their efforts to develop and maintain riverfront recreational facilities, as well connecting trails and sidewalks between New Auburn and Auburn (New Auburn Master Plan Committee, 2009).

Androscoggin River Greenway Plan

The Androscoggin Land Trust commissioned the Androscoggin River Greenway Plan, published in 2013 and adopted by the City Councils of Lewiston and Auburn. The plan builds on a previously developed vision for a greenway in Lewiston and Auburn and aims to provide a network of trails and access sites connecting the Androscoggin River corridor with surrounding neighborhoods, businesses, and recreation facilities. Objectives of the plan include maintaining existing pedestrian and bicycle trail segments, developing and improving the greenway by creating loop trails connecting with the river, extending the Riverwalk, improving and expanding boat access, and creating and improving portage routes. Several existing and proposed trail segments and access sites adjacent to the Project boundary are identified in the Plan, including a walking path and portage route connection from West Pitch Park to Center Street in Auburn, a continuation of this walking path upstream past the Veterans Memorial Bridge to Bradman Street, a shared-use trail along the riverfront from Sunnyside Park connecting to Rancourt Preserve in Lewiston, a hand-carry boat access at Sunnyside Park, and a trail and bridges crossing Boxer Island to connect the Lewiston and Auburn riverfronts under the Veterans Memorial Bridge (Wright-Pierce, 2013).

5.7.5 Land Use and Management within the Project Vicinity

Land use in the Androscoggin River watershed is discussed in section 4.1. As previously noted, the Project vicinity is predominantly developed. Land use in the Project vicinity generally consists of high and medium intensity commercial, light industrial, and residential development adjacent to the southern portion of the Project boundary, and developed open space, low intensity residential development, mixed forest, and agricultural lands adjacent to the northern portion of the Project boundary. Land surrounding the Project boundary is primarily privately owned, with a significant amount of Lewiston and Auburn city-owned land along both shorelines used for public recreation.

Management of lands outside of the Project boundary fall under the jurisdiction of the municipality in which they are located. The State of Maine's Mandatory Shoreland Zoning Act (MSZA) requires that lands within 250 feet of ponds and non-forested freshwater wetlands; rivers; coastal wetlands and tidal waters; and all land areas within 75 feet of certain streams, be subject to local ordinances that regulate land use activities. MDEP is required to set, and update as needed, minimum guidelines for these municipal zoning

and land use controls. The Cities of Auburn and Lewiston have adopted Zoning Ordinances with shoreline buffer zones meeting MDEP minimum requirements, including setbacks for new construction and vegetation removal (MDEP, 2019).

5.7.6 Land Use and Management of Project Lands

The Licensee possess the necessary title, right or interest to operate the Project on the lands within the Project boundary. These lands are managed in accordance with federal, state, and local regulations. In general, Project operations and maintenance, along with recreation, are the primary activities that occur on Project lands.

5.7.7 References

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5.8 Aesthetic Resources

5.8.1 Overview

The cities of Lewiston and Auburn, although separated by the Androscoggin River, are closely linked by geography, history, and economics. The character of the cities' downtown areas is influenced by the natural environment, dominated by the Androscoggin River, the river's Great Falls, and the growing network of open spaces and urban parks highlighting these resources, as well as the area's history as a great industrial center. Historic mill buildings flank the river on either side, and the historic canal system creates a Riverfront Island area housing many of these historic buildings. The two cities have been working to utilize these natural and historic resources to fuel economic growth with a focus on tourism and outdoor recreation (Lewiston, 2012). Section 5.7.4 includes a discussion of several citywide and regional management plans with goals to utilize the natural resources in the Project area, including the aesthetic resources of Great Falls and the Androscoggin River both upstream and downstream of the Project dam.

Substantial commercial and residential development dominate the land use surrounding the Project area, with some agricultural use adjacent to the upper impoundment and urban parks interspersed along the shoreline adjacent to the Project. Development is generally concentrated along the lower portion of the impoundment and Project dam, with more forested lands and open space characterizing the upper portion of the impoundment. The major land uses of the river basin are discussed in section 4.2, and section 5.7 examines land use and recreation in the Project vicinity.

Several roads and bridges run in close proximity to the Project, providing views of the impoundment, Project facilities, and downstream extent of the Project boundary. Downstream of the Project, the Riverwalk pedestrian bridge spans the Androscoggin River, providing views upstream of the Project, although the view is somewhat obstructed by the Court Street (Route 202) bridge, which spans the river just upstream. The Court Street bridge provides sidewalks on both sides, allowing for unobstructed views of the Project dam and tailrace upstream and the free-flowing Androscoggin River downstream. North River Road in Auburn follows the western side of the Project boundary upstream from the Project dam, providing occasional views of the Project impoundment. Further upstream, Memorial Bridge provides views of the impoundment, although there are no sidewalks on either side of the bridge. The views upstream and down are of a wide, calm

river with heavily forested banks. As discussed in section 5.7, the river and riverfront in the Project vicinity are used extensively for recreation, and several public facilities provide access to and views of Project lands and waters, including boat launches, trails, small parks, and scenic overlooks.

5.8.2 Visual Character of Project Lands and Water

As previously discussed, land use near the Project dam and the immediate downstream extent is relatively developed, while lands upstream along the Project impoundment are generally forested. The Project impoundment is wide and calm and contains several small islands. A railroad trestle spans the river just above the Project dam. The dam, spillway, facilities, and powerhouse are described in Section 3.0 and depicted in Figure 3-2. As discussed, the Project dam (also known as the Great Stone Dam) is comprised of five sections integrated into ledge outcroppings and islands to form a continuous barrier across the river. Immediately downstream of the Project dam, a series of ledges forms a river-wide waterfall known as Great Falls. These falls are the dominant aesthetic feature of the Project, and the Cities of Lewiston and Auburn have developed extensive urban parks and recreational trails along the river downstream of the falls.

5.8.3 Scenic Attractions

The urban parks, access areas, overlooks, and scenic trails owned and operated by the Cities of Lewiston and Auburn are discussed in section 5.7. Several of these facilities provide views of Project lands and waters. Also discussed in Section 5.7, the river in the Project vicinity is utilized by recreationists and tourists with an interest in the cities' histories, and historic walking and paddling tours have been developed to support this use including the Museum in the Streets L-A River History Trail and the L/A Riverwalk Tour (Travelstories App). Section 5.9 discusses historic and architectural resources in the Project vicinity, including the Lewiston Textile Mills and Waterpower System Historic District.

The Project is within the Maine Lakes and Mountains tourism region. Scenic attractions in the region range from historic covered bridges dating from the mid-1800s to early 1900s to scenic byways that offer wildlife watching, outdoor recreation, and views through State parks, falls, lakes, and forests; however, there are no State or Federal Scenic Byways in the immediate Project vicinity (Explore Maine, 2019).

5.8.4 References

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5.9 Cultural Resources

The Androscoggin River, on which the Project is located, has a long history of Precontact period human activity, as well as Euroamerican history.

5.9.1 Precontact Period History and Euroamerican Period History

The archaeological record of Maine dates back more than 11,000 years. Evidence of human activity on the Androscoggin River extends at least 9,000 years into the past. Archaeologists have divided this record into three major periods known as the Paleoindian, Archaic, and Ceramic cultural periods and these have been further subdivided into various study units (Table 5-29) (Spiess 1990). Archaeological sites from these periods have been discovered within the Androscoggin River watershed.

Paleoindian Period (ca. 11,500-9,500 years ago). The earliest inhabitants in the region, and throughout North America, are referred to as Paleoindian people. Paleoindian people are believed to be the first people to migrate into North America and, in their pursuit of large game, rapidly colonized the continent (Martin 1973). The hallmark of Paleoindian people is the fluted spear point, which presumably was used to hunt large game species (Spiess, Wilson, and Bradley 1998). In Maine, the Paleoindian period dates from approximately 11,500 to 9,500 years ago when much of the landscape was still vegetated in tundra and/or woodlands. Several well-known Paleoindian sites are associated with the Androscoggin drainage, which was a major corridor for Maine's earliest inhabitants. These include fluted-point Paleoindian sites, such as the Vail and Adkins sites (Gramly 1982, 1988), the Michaud site (Spiess and Wilson 1987); the Janet Cormier site (Will and Moore 2002); the Varney Farm Late Paleoindian Site (Petersen et al. 2000), and the Nicholas site (Wilson et al. 1995).

The end of the Paleoindian period and subsequent transition into the Early Archaic period, is poorly understood. Archaeological evidence indicates that during the later Paleoindian period, fluted spear points were replaced by smaller, unfluted points and other point styles also emerge in the region (Will and Moore 2002). These cultural changes coincide with the transformation of the environment from more open, woodlands to closed forests. By the Early Archaic period, the archaeological record contains dramatically different material than that recovered from sites dating to the preceding Paleoindian period.

Archaic Period (ca. 9,500-3,000 years ago). The Archaic period represents the longest cultural period in the region, spanning around 6,500 years. Although Early and Middle Archaic people probably continued a nomadic hunter and gatherer lifestyle, their subsistence and settlement patterns were different from those of the Paleoindian people. This is suggested by the location of most Early and Middle Archaic sites along present-day water bodies, and the presence of food remains of aquatic species. The archaeological record also shows a shift from the use of high quality lithic raw material for making tools to lower quality but locally available lithic raw material. During this time, we also see the emergence of a new suite of lithic tools classified as the Gulf of Maine Archaic Tradition (Robinson et al. 1992, Clark and Will 2006). By the Middle Archaic period, the first cemetery sites occur. These cemetery sites reveal mortuary practices that included the sprinkling of graves with red ocher, and the offering of grave goods (Willoughby 1898, Moorehead 1922, Robinson 1992).

The close of the Late Archaic period is characterized by another archaeological tradition known as the Susquehanna Tradition (Sanger 1979, Bourque 1995). This tradition is widespread in Maine and New England. The people of the Susquehanna Tradition appear to have been more focused on a terrestrial economy than a marine economy. They largely abandoned the use of red ocher in their graves, and often cremated their corpses rather than burying them intact. Diagnostic tool forms include large, broad-bladed chipped stone spear points (Borstel 1982).

Ceramic Period (ca. 3,000-450 years ago). The introduction of pottery manufacture and use in Maine defines the onset of what Maine archaeologists call the Ceramic period (Sanger 1979). In other parts of the Northeast, this cultural period is referred to as the Woodland period. Ceramics first appear in the archaeological record of Maine around 3,000 years ago and they persist until contact with Europeans when clay pots were replaced in favor of iron and copper kettles that were traded for beaver pelts and other animal furs. Ceramic period sites are abundant in Maine, along both the coast and in the Maine interior (Sanger 1979). The Ceramic period ends with European contact around 450 years ago. At this time, most of the artifacts attributable to Precontact period inhabitants of Maine disappear from the archaeological record.

Contact Period – Euroamerican Period (ca. AD 1500 – AD 1700). One, or several indigenous groups occupied the Androscoggin River basin some time into the late 18th century when most remnant groups amalgamated with other groups on the St. Francis River in Quebec:

and on the Penobscot River in Maine (Snow 1980 in Cowie and Petersen 1988). Data published in AD 1625 document the existence of aboriginal villages at Lisbon Falls, approximately 14 miles downstream from the Project area (Snow 1980). European settlement was established in Lewiston by AD 1770.

Table 5-29 Comprehensive Planning Archaeological Study

Time Period	Study Unit
11,500 - 10,000 RCYBP	Fluted Point Paleoindian Tradition
10,200 - 9,500 RCYBP	Late Paleoindian Tradition
10,000- 6,000 RCYBP	Early and Middle Archaic Traditions
6,000 - 4,200 RCYBP	Late Archaic: Laurentian Tradition
6,000 - 4,000 RCYBP	Late Archaic: Small-stemmed Point
4,500 - 3,700 RCYBP	Late Archaic: Moorehead Phase
3,900 - 3,000 RCYBP	Late Archaic: Susquehanna Tradition
3,000 RCYBP – AD 1500	Ceramic Period
AD 1500 – AD 1675	Early Contact
AD 1675 – AD 1760	Late Contact
AD 1760 – AD 1940	Integration with Euro-American Life

Note: RCYBC equals radiocarbon years before present; AD equals calendar years. All dates are estimates. Sources: Spiess (1990:104) and Spiess (pers. comm. 1999).

5.9.2 Identified Precontact and Euroamerican Archaeological Sites

Precontact period sites. Archaeological survey work in the Androscoggin River drainage has resulted from other hydropower relicensing requirements, transmission line development and development of downtown Lewiston. The Gulf Island/Deer Rips Hydro Project (FERC 2283) Phase I and II archaeological surveys identified 29 Precontact period sites along the lower Androscoggin, immediately north of the Lewiston Falls Project, dating from the Early Archaic to the Contact period (Cowie and Petersen 1987, 1988; Cowie 1990). At the Cape site (36.27) and Wood Island site (36.37), Early Archaic deposits were discovered in deeply stratified alluvium that returned radiocarbon dates around 8,000 years B.P (Mack and Clark 2016). Moving north on the Androscoggin River, several small, upland sites have been identified in Livermore Falls east of the river, and all along the river to Rumford. The Town of Rumford site (49.20) excavated as part of the Rumford Falls Project (FERC No. 2333) contains at least three stratified components dating from the last 6,000 years (Hamilton et al. 1990). From the lower Androscoggin region south to Casco Bay, coastal surveys have identified numerous Ceramic period shell midden sites (Hamilton 1991; Hamilton et al. 1985).

Six archaeological sites were discovered and/or investigated on the western side of the Androscoggin River, immediately north of the Deer Rips dam and the northern extent of the Lewiston Falls Project. These sites included the Irish site (24.32), Wilson I site (24.33), Clear Quartz site (24.34), Dill site (24.35), Wilson II site (24.36), and Sheep Island site (24.37). The majority of these sites contain a low density of artifacts that were not temporally diagnostic, however the Irish site dated to both the Late Archaic and Ceramic Period and the Wilson I site is a stratified Ceramic Period site that dates from early Middle to Late Ceramic or Contact period.

Three Precontact period archaeological sites have been identified within the Lewiston Falls Project vicinity. Sites 24.51 and 24.52 were identified in August and September of 2010 by TRC archaeologist working for Central Maine Power Company (CMP) on the Lewiston Loop Project (electric transmission) to upgrade capacity, distribution, and efficiency of the electrical system in downtown Lewiston (Clark and Mack 2011). Site 24.51 is a stratified Ceramic period sites that dates from the Middle Ceramic period to the Late Ceramic or Contact period and is potentially eligible for listing on the National Register of Historic Places (NRHP). It is located approximately 2,800 feet south of the Deer Rips dam on the west side of the river. Site 24.52 is located approximately 700 feet south of Site 24.51 and was determined not eligible for listing on the NRHP. The site could only be dated to the general Precontact period.

Site 24.09 is located on the approximately 2,900 feet south of Site 24.52 on the west side of the Androscoggin River at the confluence of an unnamed stream that flows from the east side of Lake Auburn south into the river. Very little is known about the site, it is can only be associated with the general Precontact period.

Euroamerican period sites. No Euroamerican sites are documented within the Project vicinity.

5.9.3 Historic Structures Overview

Founded in the late-eighteenth century, Lewiston grew into one of Maine's premier textile mill towns during the nineteenth and twentieth centuries. Lewiston was settled in 1770 following a land grant by the Pejepscot Proprietors, a Boston-based land company. The first family included that of Paul Hildreth, who built a log house and ferry below the falls

near the location of the Continental Mill. By the first census in 1790, Lewiston counted 532 people and the town was incorporated in 1795 (Hodgkin 2021).

The potential to develop the waterpower at Lewiston Falls of the Androscoggin River was embraced early in the town's history. An early timber dam was built in 1808-09 along with a canal to channel water to a nearby mill built by Michael Little. Little's mill burned in 1814 but was soon replaced as new grist and sawmills were built to harness the power of the falls. The first bridge over the river was built in 1823, connecting the mills with the area's widely dispersed farming families (Hodgkin 2021).

Interest in more intensive industrial development of Lewiston as a center of New England's textile industry emerged in 1836 when local entrepreneurs led by the Little family organized a company to build larger dams, canals, and mills. Known as the Lewiston Water Power Company, the concern lacked the capital needed to achieve its goals but did attract the attention of wealthy Boston investors such as Benjamin E. Bates, who built Bates Mill in 1850. With construction of the Maine Central Railroad in 1849 connecting the town with points south, Lewiston was poised for rapid industrial growth (Hodgkin 2021; Willis 2012).

Beginning with Bates Mill, Lewiston's textile mills prospered from the 1850s through the Civil War era as they produced fabric with cotton grown by enslaved African Americans in the South. The town's population jumped by 99 percent during the 1840s to 3,584 people, and then by 107 percent in 1860 to 7,424 people. Much of this population growth was due to a large influx of French speaking people from Canada and northern Maine, who had a significant influence on the city's cultural character. During the 1850s, the growing industrial city soon saw the construction of hotels, commercial streets, millworker housing, and residential neighborhoods. The city attracted the establishment of Maine State Seminary in 1855, which later became Bates College in 1864. Lewiston's mills maintained a high level of productivity and success through the end of the nineteenth century (Willis 2012).

Lewiston's textile industry began to decline in the early decades of the twentieth century as it faced competition from southern mills with access to cheaper labor and proximity to cotton farms. Innovations and adjustments to new textile demands in the market kept Lewiston's mills running through the Depression and World War II but rising labor tensions and ownership changes plagued the industry from the 1950s through the end of

the century. The City of Lewiston took ownership interest in the Bates Mill in 1992 and continued textile production until it ceased in 2000. Since that time, the City has focused on redeveloping its historic mill buildings and associated housing and infrastructure for modern uses (Willis 2012). In 2015, the Lewiston Textile Mills and Waterpower System Historic District was listed on the NRHP.

5.9.4 Identification of Architectural Resources in the Vicinity of the Project

Background research in the Maine Historic Preservation Commission's (MHPC) online Cultural & Architectural Resource Management Archive (CARMA) and in the NRHP online map viewer shows the Lewiston Falls Project boundary partially overlaps the northern end of the Lewiston Textile Mills and Waterpower System Historic District (Figure 5-18). The Lewiston Mills and Waterpower System Historic District (Historic District) is an intact collection of buildings and structures associated with the history of the textile industry in Lewiston. The City's textile industry started in 1850 when Benjamin E. Bates led a Boston-based business conglomerate to develop the energy potential in the 40 feet high Great Falls, located at the district's northern boundary.

Bounded on the west by the Androscoggin River, the approximate 204.59-acre Historic District encompasses eight extant mill complexes and associated buildings clustered along a series of canals on the east side of the river. Mill complexes in the Historic District include the Bates Mill, Lewiston Mills, Lewiston Machine Shop, Continental Mill, Hill Mill, Androscoggin Mill, Cumberland Mill, and the Lewiston Bleachery. The Historic District contains 111 contributing resources and 26 non-contributing resources. The contributing resources represent all elements necessary to support Lewiston's textile industry, including dams that harnessed waterpower for the mills and the canals that diverted water to turn turbines in the mill basements. The Historic District also contains infrastructure such as bridges, roads, and railroads to move materials and workers in and out of Lewiston. Additional resources include former worker housing, stores, and social and/or religious clubs (Willis 2012).

Until recently, many of the power generating facilities associated with the historic mills located along the canals were part of the FERC licensed Project. In 2017, the FERC license for the Lewiston Falls Project was amended to remove the Lewiston Canal System and associated generating facilities from the FERC licensed Project. As part of that

amendment, the canal generating facilities were decommissioned in accordance with a FERC-approved decommissioning plan.

Today, the Lewiston Falls Project boundary contains the following eight historic resources that contribute to the Historic District's significance (Table 5-30). Seven of these contributing elements are part of the FERC-licensed Project. The eighth, the Maine Central Railroad Bridge is a non-Project facility that spans the Androscoggin River within the Project boundary.

Table 5-30 Historic Resources Located Inside the Project Boundary

Name	Location	Construction	NRHP Status
Dam No. 1	Spans Androscoggin River	c. 1864-1865, alteration c. 1950	Contributing
Dam No. 2	Spans Androscoggin River	c. 1864-1865, alteration c. 1950	Contributing
Dam No. 3	Spans Androscoggin River	c. 1864-1865, alteration c. 1950	Contributing
Dam No. 4	Spans Androscoggin River	c. 1864-1865, alteration c. 1950	Contributing
Dam No. 5	Spans Androscoggin River	1956	Contributing
Island Spillway	Spans Androscoggin River	1926	Contributing
Main Gatehouse	At head of Upper Canal, 148 Main St.	1851, 1902, 1957, 1987	Contributing
Maine Central North Railroad Bridge	Spans Androscoggin River	1905/1924	Contributing

Figure 5-18 Historic Resources Inside the Project Boundary



5.9.5 Prior Cultural Resource Investigations in the Vicinity of the Project

Two previously completed cultural resource studies overlap portions of the Project area. In 2011, TRC completed a Phase I Precontact period archaeological survey of CMP's Lewiston Loop Project (Clark and Mack 2011). The Lewiston Loop Project included a new 115/34/12 kV substation on Middle Street in Lewiston and approximately 5.5 miles of transmission line corridor that varied in width from 50 feet to 750 feet (Clark and Mack 2011). Portions of this transmission line corridor run parallel to and overlap the Lewiston Falls Hydro Project. Phase I Precontact archaeological fieldwork on the Lewiston Loop Project was completed between August 24 and September 10, 2010. Precontact cultural materials were recovered in four locations, resulting in the identification of two archaeological spot finds and two previously unrecorded archaeological sites—Site 24.51 and Site 24.52 (Clark and Mack 2011:9). Both archaeological sites and both find spots are located adjacent to or within the Lewiston Falls Hydro Project.

A second Phase I archeological survey was completed by the Maine State Museum in 1995 as part of a preservation plan for the Lewiston Downtown Development District, an area of approximately 350 acres at the core of downtown Lewiston (Cox 1995). The Phase I archaeological survey area extended along the east bank of the Androscoggin River from the Longley Bridge in the north to Gully Brook on the south, approximately 5,250 feet along the river and within the Lewiston Falls Hydro Project. Much of this area has been heavily impacted by Euroamerican settlement and industrial and residential development including buildings, roads, railroad embankments, parking lots and canal construction. Initial walkover survey of the area determined that a field extending from the railroad trestle opposite Beech Street north to the Cross Street canal was the only section of open and undeveloped ground. However, this open area previously contained railroad warehouses, bunkers, a turntable, and a meat packing plant (Cox 1995:2). Preliminary excavations in this area revealed more than 6 feet of fill and late historic alluvium and therefore any landform that was occupied during the Precontact period would certainly also be beneath the current water table. The same is probably also true for any Contact period and Early Euroamerican remains (Cox 1995:4).

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5.10 Tribal Resources

5.10.1 Tribal Lands and Interests

To the Licensee's knowledge, there are no Tribal lands within the Project boundary. There are no federal reservations within the Project boundary or in the vicinity of the Project. The Licensee has included representatives from the Aroostook Band of Micmacs, the Penobscot Indian Nation, the Passamaquoddy Tribe of Indian Township, the Passamaquoddy Tribe of Pleasant Point, and the Houlton Band of Maliseet as part of the distribution list for this PAD. The Licensee will be sending this PAD to these federally recognized tribes of the state.

5.10.2 References

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5.11 Socioeconomic Resources

5.11.1 Overview

The Lewiston Falls Project straddles the Androscoggin River between the cities of Lewiston and Auburn in Androscoggin County, Maine. The area was once known as an industrial center, as evidenced by the historic mill buildings lining both sides of the river, before an economic downturn beginning in the 1950's led to the closure of many mills. Both Lewiston and Auburn, as well as several groups representing local residents, have been working for the past few decades toward revitalizing their urban riverfronts and have identified recreation, tourism, office space, and arts and entertainment uses as areas of opportunity for promoting economic growth. Section 5.7.4 discusses several of the planning efforts focused on future urban renewal and economic development in the area. The following sections summarize the area's existing socioeconomic condition.

The Project has long been associated with the cities of Lewiston and Auburn. Today, the Project and BWPH continue to bring economic benefits to these communities. In addition to paying property taxes to both cities, BWPH's parent company (Brookfield Renewable) maintains offices in Lewiston. Brookfield Renewable also provides annual support and engages in various causes throughout the Androscoggin region and Maine.

5.11.2 General Land Use Patterns

Population and housing statistics from the United States 2010 Census of Population and Housing are provided in Table 5-31. As shown, Androscoggin County had a population of 107,702 in 2010. Despite being the fourth smallest county in the state land-wise, it had the fifth largest population. Its population density was the second highest in the state with 230 people per square mile. The county had the fourth most housing units (49,090 units) in the state and third highest housing density with 105 units per square mile. Approximately 58 percent of the residences and 57 percent of the population in Androscoggin County were in urban areas of the county.

Table 5-31 Place of Residence and Density, 2010

	Androscoggin County	City of Auburn	City of Lewiston	State of Maine
Population	107,702	23,055	36,592	1,328,361
Percent Urban Population	57%	78%	92%	39%
Percent Rural Population	43%	22%	8%	61%
Total Housing units	49,090	11,016	16,731	721,830
Percent Urban Residences	58%	79%	93%	35%
Percent Rural Residences	42%	21%	7%	65%
Land Area (Square Miles)	468	59	34	30,843
Persons per square mile	230	389	1,072	43
Housing units per square mile	104.9	185.7	489.9	23.4

Source: [Census, 2012](#); [Census, 2010a](#); [Census, 2010b](#)

The cities of Auburn and Lewiston made up approximately 55 percent of the county's population in 2010. Auburn is the county seat of Androscoggin County. The city had a population of 23,055 in the 2010 Census and ranked fifth in the state for population. The population density of Auburn was 389 people per square mile. The city also ranked fifth in the number of housing units in the state, 11,016 units, and had a housing density of 186 units per square mile. Almost 80 percent of the residences and 79 percent of the population were in urban areas of the city.

Lewiston had a population of 36,592 in the 2010 Census, ranking second in the state for population, following Portland's population of 66,194. The population density of Lewiston was 1,072 people per square mile. The city ranked second in the state for number of housing units (16,731 units) and had a housing density of 490 units per square mile. Almost all the residences and population in Lewiston were in urban areas (93 percent and 92 percent, respectively).

5.11.3 Population Patterns

The United States Census Bureau’s annual estimates of the resident population for Androscoggin County, Auburn, and Lewiston from 2010 to 2019 are shown in Table 5-32. As shown, the populations of Androscoggin County, Auburn, and Lewiston all experienced less growth than did the state as a whole. The cities of Auburn and Lewiston had little population growth since 2000, while Androscoggin County grew by approximately 4.3 percent.

Table 5-32 Population Change from 2000 to 2019

Area	Census		Population Estimate								
	2000 ¹	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Androscoggin County	103,793	107,702	107,439	107,486	107,223	107,358	107,124	107,296	107,399	107,914	108,277
Change		3.8%	-0.2%	0.0%	-0.2%	0.1%	-0.2%	0.2%	0.1%	0.5%	0.3%
Cumulative from 2000		3.8%	3.5%	3.6%	3.3%	3.4%	3.2%	3.4%	3.5%	4.0%	4.3%
City of Auburn	23,203	23,055	22,980	22,961	22,927	22,941	22,949	23,108	23,118	23,339	23,414
Change		-0.6%	-0.3%	-0.1%	-0.1%	0.1%	0.0%	0.7%	0.0%	1.0%	0.3%
Cumulative from 2000		-0.6%	-1.0%	-1.0%	-1.2%	-1.1%	-1.1%	-0.4%	-0.4%	0.6%	0.9%
City of Lewiston	35,690	36,592	36,479	36,438	36,233	36,236	36,104	36,026	35,976	36,133	36,225
Change		2.5%	-0.3%	-0.1%	-0.6%	0.0%	-0.4%	-0.2%	-0.1%	0.4%	0.3%
Cumulative from 2000		2.5%	2.2%	2.1%	1.5%	1.5%	1.2%	0.9%	0.8%	1.2%	1.5%
Maine	1,274,923	1,328,361	1,328,284	1,327,729	1,328,009	1,330,513	1,328,262	1,331,317	1,334,612	1,339,057	1,344,212
Change		4.2%	0.0%	0.0%	0.0%	0.2%	-0.2%	0.2%	0.2%	0.3%	0.4%
Cumulative from 2000		4.2%	4.2%	4.1%	4.2%	4.4%	4.2%	4.4%	4.7%	5.0%	5.4%

Source: [Census, 2021](#)

¹Source: [Census, 2000](#)

In 2016, the State of Maine Office of Policy and Management (OPM) produced growth projections from 2014 to 2034 for the State of Maine, presented in Table 5-33. In general, OPM predicts that the populations near the Project will remain the same or decrease by 2034. The population in Androscoggin County is expected to remain essentially the same and Auburn and Lewiston populations are expected to decrease by 2034 ([OPM, 2016](#)).

Table 5-33 Population Projections from 2014 to 2034

Area	Observed Population	Projected Population				Percent change from previous period				Total Percent Change
		2014	2019	2024	2029	2034	2014-2019	2019-2024	2024-2029		2029-2034	2014-2034
Androscoggin County	107,408	108,061	108,304	108,118	107,433	0.6%	0.2%	-0.2%	-0.6%	0.0%
City of Auburn	22,902	22,930	22,874	22,727	22,475	0.1%	-0.2%	-0.6%	-1.1%	-1.9%
City of Lewiston	36,300	36,276	36,111	35,802	35,330	-0.1%	-0.5%	-0.9%	-1.3%	-2.7%
State of Maine	1,330,256	1,332,944	1,330,903	1,322,023	1,305,910	0.2%	-0.2%	-0.7%	-1.2%	-1.8%

Source: [OPM, 2016](#)

Androscoggin County experienced a 3.8 percent growth rate from 2000 to 2010, followed by a 0.5 percent increase from 2010 to 2019. Per OPM’s projections, the County’s population is projected to grow slightly and then decline between 2024 and 2034, resulting in approximately zero net growth from 2014 to 2034. Auburn experienced a 0.6 percent decrease in population from 2000 to 2010, followed by an increase of 1.6 from 2010 to 2019. Per OPM, the city’s population is expected to decrease by 1.9 percent from 2014 to 2034. Lewiston’s population increased by 2.5 percent from 2000 to 2010 and decreased 1.0 percent from 2010 to 2019. The population of Lewiston is expected to decrease by 2.7 percent from 2014 to 2034 ([OPM, 2016](#)).

5.11.4 Households / Family Distribution and Income

Household statistics for 2019, including income and poverty levels, are presented in Table 5-34. As shown, average household sizes do not vary greatly in the Project area. The average household size in Androscoggin County, Lewiston, and the State of Maine is approximately 2.3 persons per household. Auburn had a slightly smaller household size of 2.2 persons per household in 2019 ([Census, 2019a](#)).

Table 5-34 Income and Poverty, 2019

	Androscoggin County	City of Auburn	City of Lewiston	State of Maine
Total households	45,630	10,442	15,617	559,921
Average household size	2.3	2.2	2.2	2.3
Median household income	\$53,509	\$49,719	\$44,523	\$57,918
Percentage of State	92%	86%	77%	--
Percentage of U.S. (\$62,843)	85%	79%	71%	92%
Per capita income	\$28,956	\$31,362	\$25,390	\$32,637
Percentage of State	89%	96%	78%	--
Percentage of U.S. (\$34,103)	85%	92%	74%	96%
Poverty Status: All People	10.4%	11.3%	18.1%	10.9%

Source: [Census, 2019a](#)

The median household and per capita incomes for all municipalities were lower in 2019 than that of the state (median household income \$57,918; per capita income \$32,637) and the United States (median household income \$62,843; per capita income \$34,103). Androscoggin County’s median household income was \$53,509 and its per capita income was \$28,956. Auburn had a median household income of \$49,719 and a per capita income of \$31,362. Lewiston had a median household income of \$44,523 and a per capita income of \$25,390 ([Census, 2019a](#)).

Maine’s poverty rate (i.e., the percentage of persons in poverty) for all ages was 10.9 percent in 2019. Androscoggin County’s poverty rate is lower than Maine’s at 10.4 percent. Auburn and Lewiston’s poverty rates were 11.3 and 18.1 percent, respectively ([Census, 2019a](#)).

The U.S. Department of Housing and Urban Development (HUD) provides grants to cities and counties to provide decent housing and expand economic opportunities, principally for low and moderate income persons. HUD requires all jurisdictions receiving this

funding to complete regular plans and reports identifying their community’s needs, priorities, goals, and strategies. These plans are divided into three components: the Consolidated Plan, which is a five-year plan; the Annual Action Plan, which identifies specific projects and funding activities for the year; and the Consolidated Annual Performance Evaluation Report, an annual progress report. The City of Lewiston has approved its 2020-2024 Consolidated Plan and 2021 Annual Action Plan. In the plans, the City identified a high priority need for public services including homeless and special needs populations, affordable housing, economic opportunities, and infrastructure and public facilities (Lewiston, 2020b). Similarly, the City of Auburn’s 2020-2024 Consolidated Plan includes goals to provide safe and affordable housing, improve infrastructure and reduce blight, promote economic opportunities, and provide essential services (Auburn, 2020).

5.11.5 Project Vicinity Employment Sources

Table 5-35 depicts the Census Bureau’s 2019 statistics for unemployment rate and labor force for the Project area. As shown, unemployment rates in Androscoggin County and Auburn are lower than the state average of 4.1 percent. Auburn’s unemployment rate is 3.2 percent and Androscoggin County’s rate is 3.9 percent. Lewiston’s rate of 4.6 percent is higher than the state average.

Table 5-35 Labor Force and Unemployment, 2019

	Androscoggin County	City of Auburn	City of Lewiston	State of Maine
Labor Force	56,822	12,557	18,517	701,270
Unemployment	3.9%	3.2%	4.6%	4.1%

Source: [Census, 2019b](#)

Table 5-36 presents industry and occupation statistics for 2019. As shown, management, business, science, and arts are the most common occupations in the Project area, followed by sales and office occupations, and then service occupations. The main industries for all municipalities in the Project area were educational services, health care, and social assistance. The ten largest employers in Androscoggin County are presented in Table 5-37. The top five employers include Central Main Healthcare, TD Bank, St. Mary’s Regional Medical Center, Wal-Mart/Sam’s Club, and Bates College. In addition to Bates College in Lewiston, a number of public and private colleges surround the Project,

including Kaplan University and Lewiston-Auburn College (satellite campus of the University of Southern Maine) in Lewiston and Central Maine Community College in Auburn.

**Table 5-36 Industry and Occupation for Civilian
 Population 16 years and over, 2019**

	Androscoggin County	City of Auburn	City of Lewiston	State of Maine
Occupation				
Management, business, science, & arts	34.6%	39.6%	33.3%	38.1%
Service	18.8%	18.7%	23.3%	17.9%
Sales & office	22.7%	21.6%	24.7%	21.5%
Natural resources, construction, maintenance	9.7%	8.2%	6.1%	10.6%
Production, transportation, material moving	14.2%	11.9%	12.6%	11.9%
Industry				
Agriculture, forestry, fishing and hunting, and mining	1.4%	0.7%	0.5%	2.5%
Construction	5.6%	4.1%	5.0%	7.2%
Manufacturing	10.8%	9.4%	8.4%	8.8%
Wholesale trade	2.3%	3.2%	1.8%	2.0%
Retail trade	13.0%	14.6%	12.0%	13.0%
Transportation and warehousing, and utilities	3.9%	3.9%	3.1%	4.0%
Information	1.8%	1.6%	2.7%	1.7%
Finance and insurance, and real estate and rental and leasing	7.6%	7.4%	8.9%	6.3%
Professional, scientific, and management, and administrative and waste management services	10.0%	12.0%	9.2%	9.1%
Educational services, and health care and social assistance	27.9%	27.9%	31.3%	28.1%
Arts, entertainment, and recreation, and accommodation and food services	7.8%	9.2%	9.6%	8.7%
Other services, except public administration	4.6%	3.7%	4.9%	4.5%
Public administration	3.2%	2.3%	2.3%	4.2%

Source: [Census, 2019b](#)

**Table 5-37 Top 10 Private Employers in Androscoggin County
 by Average Monthly Employment (2nd Quarter 2020)**

Rank	Employer	Number of Employees	Business Description
1	Central Maine Healthcare Corp	2,001 to 2,500	General medical and surgical hospitals
2	TD Bank N A	1,501 to 2,000	Commercial banking
3	St Mary's Regional Medical Ctr	1,001 to 1,500	General medical and surgical hospitals
4	Wal-Mart / Sam's Club	1,001 to 1,500	Warehouse clubs and supercenters
5	Bates College	501 to 1,000	Colleges and universities
6	L.L. Bean, Inc.	501 to 1,000	Electronic shopping and mail-order houses
7	Murphy Homes Inc, John F	501 to 1,000	Residential developmental disability homes
8	Hannaford Bros Co	1 to 500	Supermarkets and other grocery stores
9	Pioneer Plastics Corporation	1 to 500	Laminated plastics plate, sheet, and shaped
10	Tambrands Inc.	1 to 500	Sanitary paper product manufacturing

Source: [Maine DOL, 2021](#)

5.11.6 References

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6.0 POTENTIAL EFFECTS, ISSUES, STUDIES, AND MEASURES

6.1 Known or Potential Project Effects

This section identifies any known or likely effects of licensing the continued operation of the existing Project. For the purposes of this PAD, Project effects are any new changes to the natural and human environment attributable to licensing the continued operation of the Project.

6.1.1 Anticipated Project Effects

FERC issued a new license for the Lewiston Falls Project on September 29, 1986. The Project has operated for nearly 35-years under the current conditions, aside from amendments in 2017 and 2020. The 2017 amendment modified the Project boundary to remove the Canal System (and decommission the canal generating facilities). The 2020 amendment removed lands and waters that were no longer necessary for Project purposes (following removal of the Canal System) and shortened the downstream extent of the Project boundary.

6.2 Preliminary Issues, Studies, and Measures by Resource

Based on the information provided in section 5.0, BWPH believes that sufficient information already exists for the majority of environmental resources at the Projects. As such, and as discussed in section 5.2, BWPH is proposing three studies at this time: 1) a baseline water quality assessment; 2) a Project recreation site inventory, and 3) a Phase I archaeology survey.

Parties to the relicensing have an opportunity to comment on this PAD and request other studies that they deem necessary to fully evaluate the effects of continued Project operations. As noted previously in Section 2.0, study requests must be made in writing to BWPH no later than 60 days following the Joint Agency Meeting (JAM) and can be filed with FERC. Study requests should consider the following:

- Identifying the determination of necessary studies to be performed or information to be provided by the applicant;
- Identifying the basis for its determination;
- Discussing its understanding of the resource issues and its goals and objectives for these resources;
- Explaining why each study methodology recommended by it is more appropriate than any other available methodology alternatives, including those identified by the potential applicant;
- Documenting that the use of each study methodology recommended by it is a generally accepted practice;
- Explaining how the studies and information requested will be useful to the agency, Indian tribe, or member of the public in furthering its resource goals and objectives.

Nexus with project operations and effects is a particularly important criterion that is frequently overlooked. FERC's 2012 *Guide to Understanding and Applying the Integrated Licensing Process Study Criteria* provides additional explanation:

This section of a study request should clearly explain the connection between the project and its potential effect on the applicable resource. A reasonable connection between project construction or operation and potential effects on the resource in question is a threshold requirement that must be demonstrated for the Commission to require that an applicant gather the requested information. Just as important, this section should also explain how the information would be used to develop license requirements (4).

In addition, it is important to note that in FERC licensing, the environmental baseline used for National Environmental Policy Act (NEPA) analysis is "existing conditions". As noted in FERC's Guide, "Commission staff will not require an applicant to reconstruct pre-project conditions." Specific to this Project, that means the current dam and hydropower facility operating under the current water management regime. As such, studies which examine pre-Project conditions or seek to compare current conditions to pre-Project conditions are not warranted.

Study requests should be sent to:

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Continued or Proposed PM&E Measures

The issues identified for each resource area may or may not ultimately warrant specific PM&E measures or may already be addressed through PM&E measures required by the existing Project license or undertaken voluntarily by BWPH. Existing relevant information and additional information obtained through studies will be used to determine if additional PM&E measures are needed.

6.2.1 Geology and Soils

6.2.1.1 Potential Issues and Project Effects

As described in section 5.1, the soils in the Project area are composed of mainly loamy and sandy soils, formed mostly from granite, gneiss, metasandstone, and schist. The dominant soil types in the area include made land, loamy materials (Md, 4.0 percent) (NRCS 2021a).

The Lewiston Falls Project is normally operated as run of river with impoundment fluctuations of one foot or less, on a daily basis. However, the Project is licensed to operate with up to four feet of impoundment fluctuation (between 168.17 feet mean sea level

(msl) and 164.17 feet msl) to allow for adjustments between inflow and minimum flow requirements, or in response to operating emergencies, as may be needed. Because the Project is operated with these limited impoundment fluctuations, it is anticipated that continued Project operations will not adversely affect geological resources or cause significant shoreline erosion.

6.2.1.2 Proposed Studies

BWPH does not propose a study at this time.

6.2.1.3 Continued or Proposed PM&E Measures

The Project will continue to be operated with limited impoundment fluctuations of typically one foot, or less. As a result, the potential for erosion in the Project impoundment or other impacts to geologic and soil resources is minimal. Therefore, no specific PM&E measures are currently in place or proposed relative to geologic or soil resources.

6.2.2 Water Resources

6.2.2.1 Potential Issues and Project Effects

The Androscoggin River in the Project area is classified as Class C (MRS 1989). As described in section 5.2, extensive water quality data collected for the lower Androscoggin River by MDEP and others both upstream and downstream of the Project, strongly suggests that Project water quality meets the current classification standards. In addition, because the Project is operated as essentially run of river, and because the impoundment is small and is operated with limited fluctuations, it is not likely that the operation of the Project causes impoundment stratification or significant warming of impoundment waters that could lead to downstream releases of high temperature or low dissolved oxygen waters. However, there is no recent water quality data specific to the Project impoundment and tailwater. Therefore, the Licensee is proposing to conduct a water quality study of the Project to demonstrate that water quality conditions in the impoundment and Project tailwater area are meeting applicable state water quality standards. The Licensee will consult with the MDEP and other resource agencies to ensure that the methods used for this study follow state protocols and that monitoring locations are representative of Project impoundment and tailwater conditions, in accordance with MDEP protocols.

6.2.2.2 Proposed Studies

As noted in section 5.2, the environmental baseline is existing conditions. BWPH plans on conducting a water quality study to demonstrate continued compliance with applicable state water quality standards.

6.2.2.3 Continued or Proposed PM&E Measures

BWPH proposes to continue to operate the Project with limited impoundment fluctuations and with continuation of the existing minimum flow of 1,430 cfs or inflow, whichever is less, for the purpose of protecting and enhancing aquatic resources.

6.2.3 Fish and Aquatic Resources

6.2.3.1 Potential Issues and Project Effects

Over the past few decades, agencies, hydropower owners, and other stakeholders have undertaken significant and renewed management efforts toward restoration of diadromous fish to the lower Androscoggin River. In support of those efforts, fish passage is provided for migratory fish species at the Brunswick, Pejepscot and Worumbo project dams, downstream of the Project. These facilities provide anadromous fish access to the lower Androscoggin River basin, downstream of the Project. According to the most recent agency management plans for the Androscoggin River, there are currently no plans by MDMR, USFWS or NMFS to restore anadromous species above Lewiston Falls.

There are no fish passage facilities at the Project for anadromous fish species and none are proposed. Historically, river herring and American shad did not ascend the river above Lewiston Falls. The falls may also have been the upstream limit for Sea Lamprey. Atlantic salmon are known to have ascended the falls prior to dam construction, however there is no critical habitat for ESA-listed Atlantic salmon within the Project boundary, and no plans to restore Atlantic Salmon to the Androscoggin River above Lewiston Falls. However, ESA-listed Atlantic salmon may find their way to the Project, and there is the possibility that water spilling over the dam could attract salmon into the area of falls, creating the potential for stranding once spillway flows cease. To ensure that salmon (and other fish) do not become stranded, the Licensee implements a stranding plan for the Lewiston Falls Project. The stranding plan was put in place as a result of FERC's approval of the 2013 ISPP; the terms of which were incorporated into the Project license. The stranding plan

commits the Licensee to monitoring the falls area after all spill events to ensure no fish are stranded and to remove any stranded fish that may be observed. Since the stranding plan was implemented in 2013, BWPH has found no Atlantic salmon stranded at the falls.

Based on previous studies, Catadromous American Eel are known to occur upstream of the Project suggesting that eel are able to ascend the falls.

6.2.3.2 Proposed Studies

Because the resident fishery of the lower Androscoggin has been well studied, and because the Project is operated with a required minimum flow and limited fluctuation of the Project impoundment, continued Project operation will not have a significant effect on the resident fish and aquatic life, and the Licensee is proposing no studies of resident fish. Similarly, because the status of anadromous fish runs in the lower Androscoggin River below the Project are monitored and well understood, and because there are no plans to restore anadromous fish species to the Androscoggin River at this time, the Licensee is proposing no additional study of anadromous fish species at the Project. Catadromous American eel are able to ascend Lewiston Falls and do have access to the river above the Project. Continued operation of the Project with no changes, as proposed, will have no impact on Project fisheries. For these reasons, no further studies of resident or diadromous fish are necessary or proposed.

6.2.3.3 Continued or Proposed PM&E Measures

BWPH proposes to continue providing protection for Atlantic Salmon at the Project by continuing to implement the current stranding plan.

6.2.4 Terrestrial Wildlife and Botanical Resources

6.2.4.1 Potential Issues and Project Effects

The Project is located in a developed urban area and there are no significant habitats for wildlife resources in the Project area. The plant communities that currently exist within or adjacent to the Project boundary have become established under the existing operating regime that has generally existed for over 30 years. BWPH does not propose any changes to the Project, Project boundary, or Project operations, and it is anticipated that continued Project operations will not result in adverse effects on wildlife or botanical resources.

6.2.4.2 Proposed Studies

BWPH does not propose a study at this time.

6.2.4.3 Continued or Proposed PM&E Measures

BWPH proposes to continue to operate the Lewiston Falls Project with the existing limited impoundment fluctuations and the existing minimum flow regime. There are no existing PM&E measures in-place regarding wildlife or botanical resources, and none are proposed.

6.2.5 Wetland, Riparian, and Littoral Habitat

6.2.5.1 Potential Issues and Project Effects

The wetland, riparian, and littoral habitats that currently exist within the Project boundary have become established under the existing operating regime that has generally existed for over 30 years. It is anticipated that continued operation of the Project with the existing limited impoundment fluctuations and existing minimum flow regime will not result in adverse effects on wetland, riparian, or littoral habitats.

6.2.5.2 Proposed Studies

BWPH does not propose a study at this time.

6.2.5.3 Continued or Proposed PM&E Measures

BWPH proposes to continue to operate the Lewiston Falls Project as it does currently with limited impoundment fluctuations and continuation of the existing minimum flow regime. There are no existing PM&E measures in place regarding wetland, riparian, or littoral resources, and none are proposed.

6.2.6 Rare, Threatened, Endangered and Special Status Species

6.2.6.1 Potential Issues and Project Effects

Based on an Information for Planning and Consultation (IPaC) review conducted on April 1, 2021, there is one listed mammal species and one listed fish species that may be present or affected by the Project (USFWS 2021). The Northern Long-eared Bat (*Myotis*

septentrionalis) is threatened and was identified as potentially occurring at the Project, however no critical habitat was identified. Atlantic Salmon (*Salmo salar*) are federally endangered and are identified as potentially occurring within the Project. However there is no designated critical habitat for Atlantic salmon within the Project boundary. Further, to the extent that Atlantic Salmon may have access to Project waters downstream of the Project dams and could be attracted to the falls during times of spill, the Licensee has implemented, and will continue to implement a stranding plan to ensure the protection of Atlantic Salmon and other fish species.

6.2.6.2 Proposed Studies

BWPH does not propose a study at this time.

6.2.6.3 Continued or Proposed PM&E Measures

BWPH proposes to continue to operate the Lewiston Falls Project with the existing limited impoundment fluctuations and the existing minimum flow regime. BWPH proposes to continue providing protection for Atlantic Salmon at the Project by continuing to implement the current stranding plan. No additional PM&E measures for RTE species are in place, and none are proposed.

6.2.7 Recreation and Land Use

6.2.7.1 Potential Issues and Project Effects

There are three FERC-approved Project recreation sites at the Lewiston Falls Project: West Pitch Park Scenic Overlook, Lewiston Falls Impoundment Boat Launch, and Durham Boat Launch. In addition, there are a number of non-Project recreation sites and facilities that provide access to the Project. Form 80 data collected in 2015 indicate that none of the existing Project recreation sites are at or near their capacity. Therefore, continued operation of the Project with the existing Project recreation sites in combination with other non-Project recreation sites and facilities that are provided by others, is expected to meet current and future recreation demand. Additionally, continued operation of the Project with limited impoundment fluctuations and provision of the current minimum flows are not anticipated to adversely affect recreational opportunities at the Project.

6.2.7.2 Proposed Studies

BWPH proposes to inventory existing Project recreation sites to update information on the sites and assess their condition. The inventory will identify the amenities or facilities at each site, their ownership and management, and will include photographs of the sites, an evaluation of the overall condition of each site, and general observations on site use and accessibility. Information collected as part of this assessment will be used to develop an updated Recreation Management Plan for the Project.

6.2.7.3 Continued or Proposed PM&E Measures

BWPH proposes to continue to operate the Lewiston Falls Project as it does currently with limited impoundment fluctuations and the existing minimum flow regime. Continued operation of the Project as proposed is anticipated to have no effect on Project recreation use, sites, facilities or amenities. Updated information the Project recreation sites, facilities and amenities will be used to prepare an updated Recreation Management Plan for the Project.

6.2.8 Aesthetic Resources

6.2.8.1 Potential Issues and Project Effect

As previously discussed, the Project is located in an urban setting with the dam and powerhouse situated between the cities of Lewiston and Auburn. Lands upstream of the dam along the Project impoundment are less developed and are typically a mix of forest and moderate development. Immediately downstream of the Project dam, a series of ledges forms a river-wide set of falls known as Great Falls. The falls are an aesthetic feature of the Project, and the Cities of Lewiston and Auburn have developed several of the urban parks, access areas, overlooks, and scenic trails located in the Project vicinity provide views of Project waters and Project features including the dams, powerhouse and falls area. Continued operation of the Project with limited impoundment fluctuations and with the existing minimum flow regime, will ensure that the current visual quality of the Project is maintained.

6.2.8.2 Proposed Studies

BWPH does not propose a study at this time.

6.2.8.3 Continued or Proposed PM&E Measures

BWPH proposes to continue to operate the Lewiston Falls Project with limited impoundment fluctuations and with the existing minimum flow regime. There are no existing PM&E measures in-place regarding aesthetic resources, and none are proposed.

6.2.9 Cultural Resource issues

6.2.9.1 Potential Issues and Project Effects

As described more fully in section 5.9, there is a long history of hydroelectric development associated with the Lewiston Falls Project. Prior to 2017, the Project included the Lewiston Canal System, which included several historic mills and associated generating plants. In 2017, the Licensee applied to FERC for an amendment of license to remove the Lewiston Canal System, and decommission the associated generating stations. FERC approved the license amendment in an Order dated November 9, 2017.

As part of the amendment process, the historic nature of the Lewiston Canal System, including several features of the current Lewiston Falls Project were considered, and in consultation with MHPC, appropriate measures were put in place to ensure the continued protection of the historic properties associated with the Lewiston Canal System that would no longer be part of the FERC-licensed Lewiston Falls Project.

As described previously in section 5.9.4, there are seven “contributing elements” to the Lewiston Mills and Waterpower System Historic District Lewiston Canal Historic District that are still a part of the FERC-licensed Lewiston Falls Project: the five dam segments, the Main Gatehouse, and the Little Gatehouse.¹³

Currently three Precontact period archaeological sites have been identified within the Lewiston Falls Project vicinity. In addition, archaeological surveys conducted at the upstream Gulf Island/Deer Rips Project identified 29 Precontact period sites along the lower Androscoggin, immediately north of the Lewiston Falls Project.

¹³ An eighth contributing element, the Maine Central North Railroad Bridge, is a non-Project facility that spans the river within the Project boundary.

BWPH proposes to continue to operate the Lewiston Falls Project with limited impoundment fluctuations and with the existing minimum flow regime. No Project construction activities are being proposed as part of this relicensing. Project operations and potential mitigation measures are not expected to extend beyond the current project boundary.

6.2.9.2 Proposed Studies

The Project's historic and architectural features have been fully surveyed as part of earlier historic and architectural assessments of the Lewiston Canal System. The Project facilities that have been identified as contributing elements to the Historic District, including the dam segments and two gatehouse buildings are well documented. As BWPH is proposing no changes in the Project or its operation, and the Project is operated with limited impoundment fluctuations, and given the results of past cultural investigations, BWPH does not anticipate the relicensing will affect historic architectural resources within the Project boundary. However, the shoreline of the Project impoundment has never been fully surveyed for archaeological resources. Therefore, BWPH will plan to conduct Phase I archaeology surveys in consultation with the MHPC.

6.2.9.3 Continued or Proposed PM&E Measures

BWPH proposes to continue to operate the Lewiston Falls Project with minimal impoundment fluctuations and with the existing minimum flow regime. The need for any further PM&E measures will be determined in consultation with the MHPC during the relicensing process, and will be documented in an Historic Properties Management Plan (HPMP) that will be developed by BWPH in consultation with MHPC.

6.2.9.4 Tribal Resources

6.2.9.4.1 Potential Issues and Project Effects

To the Licensee's knowledge, there are no reservation lands within the Project boundary, and no tribal issues have been identified at this time.

6.2.9.4.2 Proposed Studies

BWPH does not propose a study at this time.

6.2.9.4.3 Continued or Proposed PM&E Measures

BWPH proposes to continue to operate the Lewiston Falls Project with limited impoundment fluctuations and with the existing minimum flow regime. There are no existing PM&E measures in-place regarding tribal resources, and none are proposed.

6.2.10 Socioeconomic Resources

6.2.10.1 Potential Issues and Project Effects

There is no redevelopment potential identified for the Project, and BWPH proposes continued operations with no changes. No issues have been identified relative to socioeconomic resources.

6.2.10.2 Proposed Studies

BWPH does not propose a study at this time.

6.2.10.3 Continued or Proposed PM&E Measures

BWPH proposes to continue to operate the Lewiston Falls Project in with limited impoundment fluctuation and the existing minimum flow regime. There are no existing PM&E measures in place regarding socioeconomic resources, and none are proposed.

7.0 RELEVANT COMPREHENSIVE MANAGEMENT PLANS

7.1 Potentially Relevant Qualifying Federal and State or Tribal Comprehensive Waterway Plans

Section 10(a)(2)(A) of the Federal Power Act (FPA), 16 USC § 803(a)(2)(A), requires FERC to consider the extent to which a project is consistent with Federal or state comprehensive plans for improving, developing, or conserving a waterway affected by the project. FERC Order No. 481-A, issued on April 27, 1998, established that FERC will accord comprehensive plan status under FPA Section 10(a)(2)(A) to any Federal or state plan that:

- Is a comprehensive study of one or more of the beneficial uses of a waterway or waterways;
- Specifies the standards, the data, and the methodology used; and
- Is filed with the Secretary of the Commission.

Based on FERCs 2021 revised list of comprehensive plans for Maine the following plans may be relevant to the Project:

Atlantic States Marine Fisheries Commission. 1999. Amendment 1 to the Interstate Fishery Management Plan for shad and river herring. (Report No. 35). April 1999.

Atlantic States Marine Fisheries Commission. 2000. Interstate Fishery Management Plan for American eel (*Anguilla rostrata*). (Report No. 36). April 2000.

Atlantic States Marine Fisheries Commission. 2000. Technical Addendum 1 to Amendment 1 of the Interstate Fishery Management Plan for shad and river herring. February 9, 2000.

Atlantic States Marine Fisheries Commission. 2008. Amendment 2 to the Interstate Fishery Management Plan for American eel. Arlington, Virginia. October 2008.

Atlantic States Marine Fisheries Commission. 2009. Amendment 2 to the Interstate Fishery Management Plan for shad and river herring, Arlington, Virginia. May 2009.

Atlantic States Marine Fisheries Commission. 2010. Amendment 3 to the Interstate Fishery Management Plan for shad and river herring, Arlington, Virginia. February 2010.

- Atlantic States Marine Fisheries Commission. 2013. Amendment 3 to the Interstate Fishery Management Plan for American eel. Arlington, Virginia. August 2013.
- Atlantic States Marine Fisheries Commission. 2014. Amendment 4 to the Interstate Fishery Management Plan for American eel. Arlington, Virginia. October 2014.
- Maine Atlantic Sea-Run Salmon Commission. 1984. Strategic plan for management of Atlantic salmon in the State of Maine. Augusta, Maine. July 1984.
- Maine Bureau of Parks & Lands (BPL). 2019. Maine State Comprehensive Outdoor Recreation Plan 2020-2024. December 2019.
- Maine Department of Agriculture, Conservation, & Forestry. Maine State Comprehensive Outdoor Recreation Plan (SCORP): 2014-2019. Augusta, Maine.
- Maine Department of Conservation. 1982. Maine Rivers Study-final report. Augusta, Maine. May 1982.
- Maine State Planning Office. 1987. Maine Comprehensive Rivers Management Plan Vols 1-3. Augusta, Maine. May 1987.
- Maine State Planning Office. 1992. Maine Comprehensive Rivers Management Plan. Volume 4. Augusta, Maine. December 1992.
- National Marine Fisheries Service. 1998. Final Amendment #11 to the Northeast Multi-species Fishery Management Plan; Amendment #9 to the Atlantic sea scallop Fishery Management Plan; Amendment #1 to the monkfish Fishery Management Plan; Amendment #1 to the Atlantic salmon Fishery Management Plan; and Components of the Proposed Atlantic herring Fishery Management Plan for Essential Fish Habitat. Volume 1. October 7, 1998.
- National Marine Fisheries Service. 2020. Androscoggin River Watershed Comprehensive Plan for Diadromous Fish. Greater Atlantic Region Policy Series 20-01. NOAA Fisheries Greater Atlantic Regional Fisheries Office, Gloucester, MA. 2020.
- National Marine Fisheries Service. 2018. Recovery Plan for the Gulf of Maine Distinct Population Segment of Atlantic Salmon. Hadley, Massachusetts. January 2019.
- National Park Service. 1993. The Nationwide Rivers Inventory. Department of the Interior, Washington, D.C.

U.S. Fish and Wildlife Service. 1989. Atlantic salmon restoration in New England: Final environmental impact statement 1989-2021. Department of the Interior, Newton Corner, Massachusetts. May 1989.

U.S. Fish and Wildlife Service. n.d. Fisheries USA: the recreational fisheries policy of the U.S. Fish and Wildlife Service. Washington, D.C.

U.S. Fish and Wildlife Service. Canadian Wildlife Service. 1986. North American waterfowl management plan. Department of the Interior. Environment Canada. May 1986.

U.S. Fish and Wildlife Service. Maine Department of Inland Fisheries and Wildlife. Maine Atlantic Sea Run Salmon Commission. Maine Department of Marine Resources. 1987. Saco River strategic plan for fisheries management. Department of the Interior, Laconia, New Hampshire. January 1987.

7.2 Potentially Relevant Resource Management Plans

In addition to the qualifying Federal and state comprehensive waterway plans listed in section 7.1 above, some agencies have developed resource management plans to help guide their actions regarding specific resources of jurisdiction. The resource management plans listed below may be relevant to the Project and may be useful in the relicensing proceeding for characterizing desired conditions.

Maine Bureau of Parks and Lands. 2020. Maine State Comprehensive Outdoor Recreation Plan (SCORP).

Maine Department of Inland Fisheries & Wildlife. 2015. Maine's State Wildlife Action Plan. Maine Department of Inland Fisheries & Wildlife, Augusta, ME.

Maine Department of Marine Resources and Maine Department of Inland Fisheries and Wildlife 2017. Draft Fisheries Management Plan for the Lower Androscoggin River, Little Androscoggin River and Sabattus River.

NOAA Fisheries. 2020. Androscoggin River Watershed Comprehensive Plan for Diadromous Fish. Greater Atlantic Region Policy Series 20-01. NOAA Fisheries Greater Atlantic Regional Fisheries Office - <https://www.greateratlantic.fisheries.noaa.gov/policyseries/index.php/GARPS/article/view/20/15>.

APPENDICES

APPENDIX A

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APPENDIX B

CONSULTATION DOCUMENTATION

LEWISTON FALLS HYDROELECTRIC PROJECT (FERC NO. 2302)

PRE-APPLICATION DOCUMENT INFORMATION QUESTIONNAIRE

The Lewiston Falls Hydroelectric Project, licensed as FERC No. 2302, is located on the Androscoggin River in the downtown areas of Lewiston and Auburn, Maine. The Project is owned by and licensed to Brookfield White Pine Hydro LLC (BWPH). BWPH is preparing to initiate relicensing with the Federal Energy Regulatory Commission (FERC or Commission) for the Project. The Project boundary encompasses the Project dam, powerhouse, impoundment, two gatehouses, and the tailwater area. The Project boundary also includes a FERC-approved Project recreation site (Durham Boat Launch) located downstream of the Project (see Project Boundary Figure below).

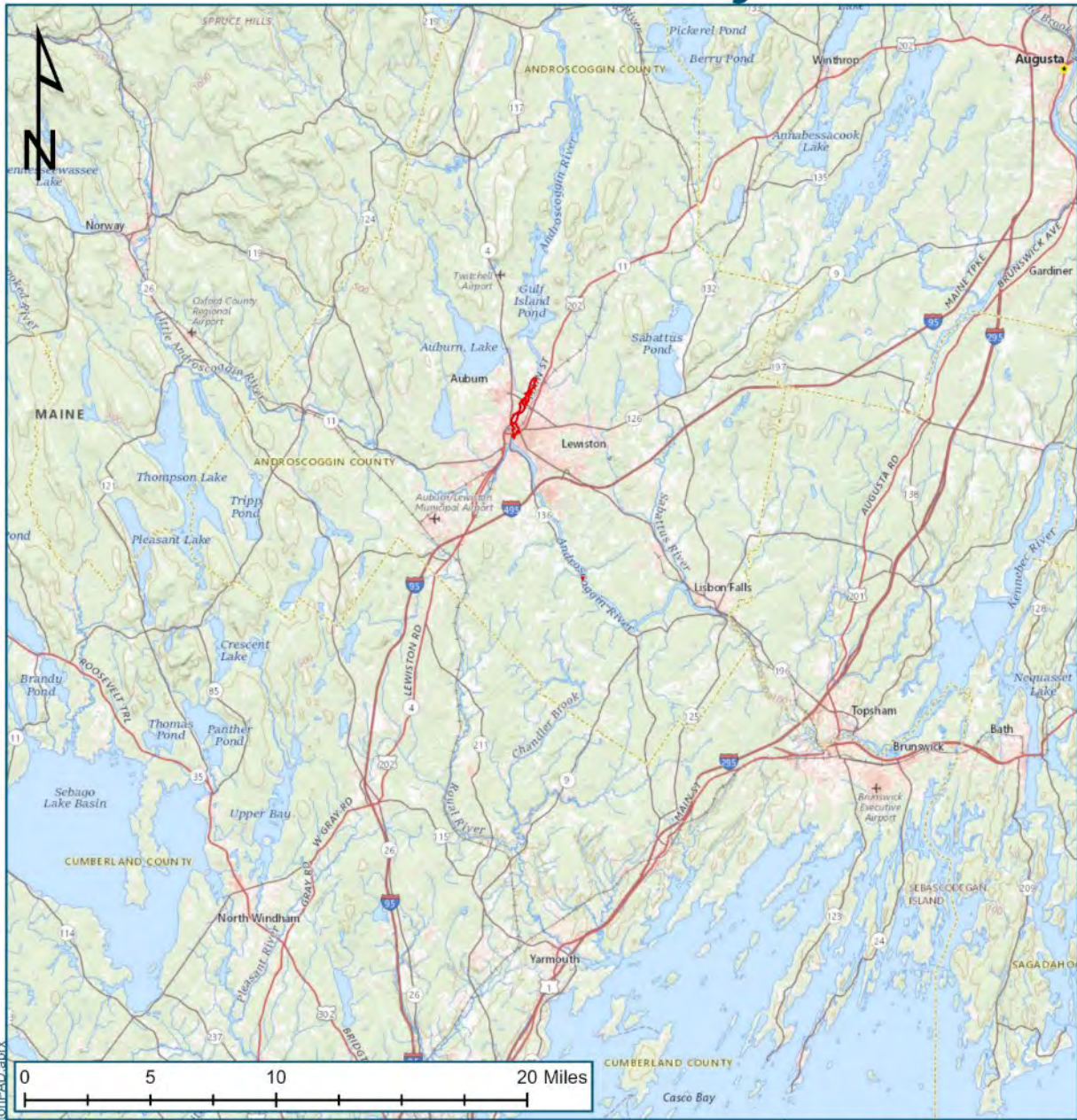
The existing FERC license for the Project expires on August 31, 2026, and BWPH, with assistance from Kleinschmidt Associates, is beginning the relicensing process. BWPH will be using the Traditional Licensing Process (TLP), as described in [18 CFR §16.8](#). Accordingly, BWPH is preparing a Notice of Intent (NOI) to relicense the Project and Pre-Application Document (PAD) to be filed around July 20, 2021. The PAD will provide FERC and other entities with existing, relevant, and reasonably available information pertaining to the Project as well as resources within the Project vicinity.

As part of the relicensing process for the Project, BWPH is initiating early consultation and coordination with agencies and stakeholders. This questionnaire will assist BWPH with the collection of any relevant existing resource information pertinent to the Project and help to identify any data collection needs or potential resource issues early in the relicensing process. Our intent is to include results of this information request questionnaire in the PAD.

We respectfully request that you please return this PAD Questionnaire to Fatima Oswald via email at Fatima.Oswald@Kleinschmidtgroup.com or via mail (please mail to: 141 Main Street, Pittsfield, ME 04967) within 30 days of receipt. This will allow for any follow-up contact that may be needed by BWPH or Kleinschmidt. Your assistance is greatly appreciated.

LEWISTON FALLS HYDROELECTRIC PROJECT (FERC NO. 2302)
PRE-APPLICATION DOCUMENT INFORMATION QUESTIONNAIRE

Project Location



Legend
 Project Boundary

The Lewiston Falls Relicensing
 FERC No. 2302

**Brookfield
 Renewable**

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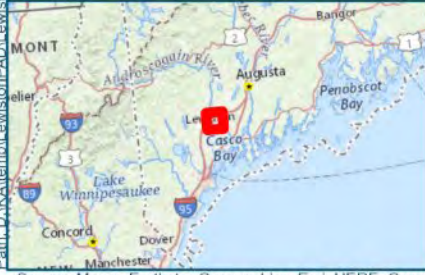
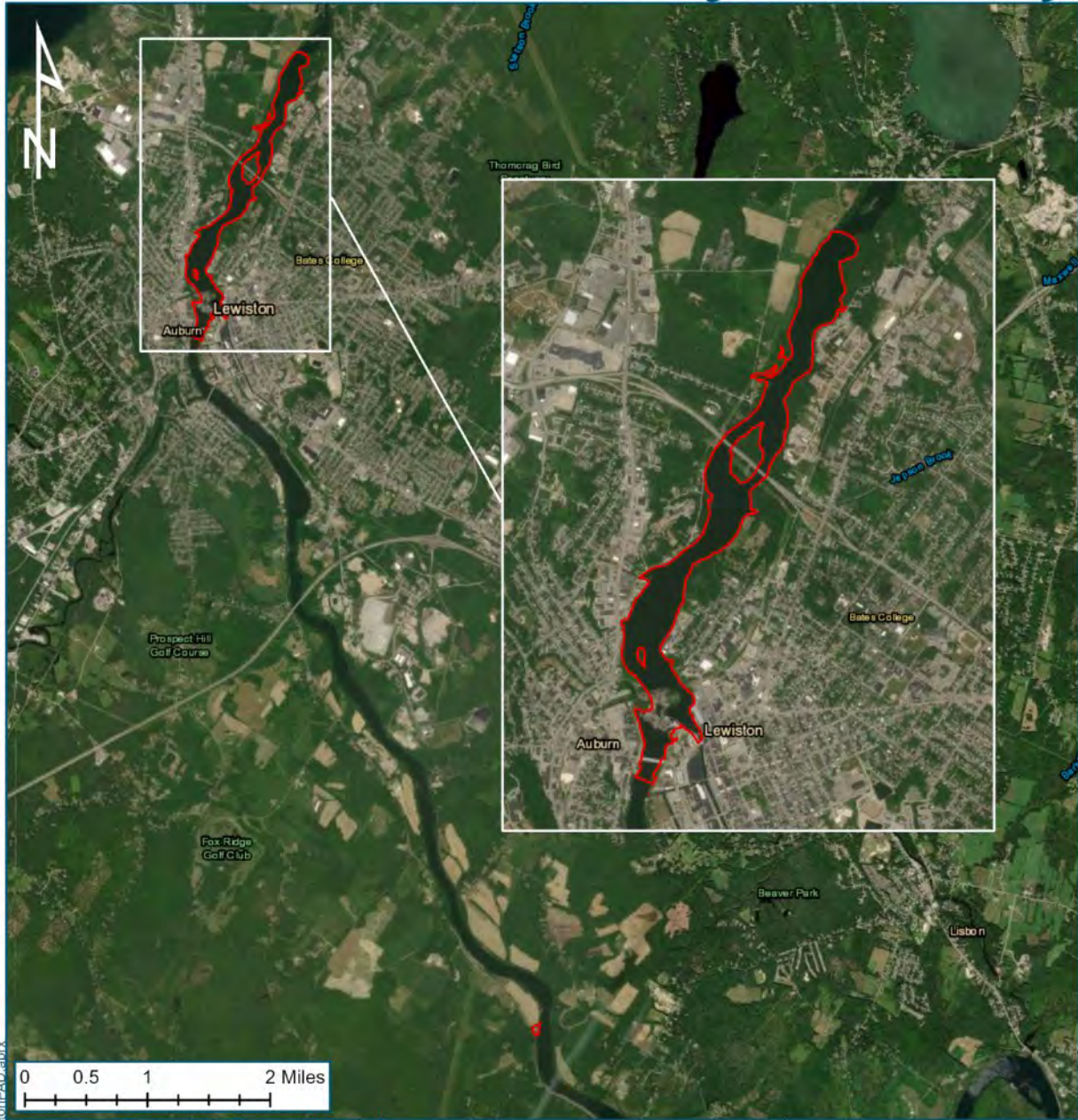
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Date Printed: 5/7/2021

Source: Source: Maxar, Earthstar Geographics, Esri, HERE, Garmin

**LEWISTON FALLS HYDROELECTRIC PROJECT (FERC NO. 2302)
PRE-APPLICATION DOCUMENT INFORMATION QUESTIONNAIRE**

Project Boundary



Legend

Project Boundary

The Lewiston Falls Relicensing
FERC No. 2302

**Brookfield
Renewable**

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Date Printed: 4/20/2021

Source: Maxar, Earthstar Geographics, Esri, HERE, Garmin

LEWISTON FALLS HYDROELECTRIC PROJECT (FERC NO. 2302)
PRE-APPLICATION DOCUMENT INFORMATION QUESTIONNAIRE

1. Contact Information for person completing the questionnaire:

Name & Title: _____
Organization: _____
Address: _____

Phone: _____
Email: _____

2. Do you know of any reasonably available materials or information related to either the Project or the Project's environment?

Yes ***(If yes, please complete 2a thru 2e.)*** No ***(If no, please go to 3.)***

2(a) Please indicate the specific resource area(s) for which you have information:

<input type="checkbox"/> Geology and soils	<input type="checkbox"/> Recreation and land use
<input type="checkbox"/> Water resources	<input type="checkbox"/> Aesthetic resources
<input type="checkbox"/> Fish and aquatic resources	<input type="checkbox"/> Cultural resources
<input type="checkbox"/> Wildlife and botanical resources	<input type="checkbox"/> Socio-economic resources
<input type="checkbox"/> Wetlands, riparian, and littoral habitat	<input type="checkbox"/> Tribal resources
<input type="checkbox"/> Rare, threatened & endangered species	<input type="checkbox"/> Other resource information

2(b) Please briefly describe the information or list available documents:
(Additional information may be provided on a separate page.)

LEWISTON FALLS HYDROELECTRIC PROJECT (FERC NO. 2302)
PRE-APPLICATION DOCUMENT INFORMATION QUESTIONNAIRE

2(c) Where and how can Kleinschmidt obtain this information?

2(d) Please provide the names of other persons in your organization whom you wish to designate for a potential follow-up contact by Kleinschmidt for the resource area(s) checked above. If you know of others who are not part of your organization but who may have relevant information, please provide their name(s) and contact information as well. ***(Additional contacts may be provided on a separate page.)***

Representative Contact Information

Name & Title: _____
Address: _____

Phone: _____
Email: _____

Other Contact Information

Name & Title: _____
Address: _____

Phone: _____
Email: _____

Appendix B Consultation Documentation

The following parties were either sent the PAD Questionnaire (some returned a completed PAD Questionnaire or replied to the PAD Questionnaire email) and/or were contacted by BWPH by phone and if available, participated in a brief outreach call to discuss the PAD.

Contact	Sent PAD Questionnaire	Replied to PAD Questionnaire	PAD Outreach Call
FEDERAL AGENCIES			
Mr. Ryan Hansen Federal Energy Regulatory Commission	X		X
Mr. John Spain Regional Engineer Federal Energy Regulatory Commission	X		
Ms. Julianne Rossett U.S. Fish & Wildlife Service	X	X	
Mr. Corbin D Hilling U.S. Fish & Wildlife Service	X		
Mr. Peter Lamothe ¹ U.S. Fish & Wildlife Service			X
Mr. Kenneth Hogan U.S. Fish & Wildlife Service	X		
Mr. Bryan Sojkowski U.S. Fish & Wildlife Service	X		
Mr. Matt Buhyoff ² Consultation Biologist/Merrymeeting Bay Salmon Recovery Coordinator NOAA-National Marine Fisheries Service	X		X
Ms. Julie Crocker Endangered Fish Recovery Branch Chief NOAA-National Marine Fisheries Service	X		
Mr. Donald Dow Hydro/Fish Passage Engineer NOAA-National Marine Fisheries Service	X		
Mr. Ralph Abele Instream Flow Coordinator U.S. Environmental Protection Agency	X		
Mr. Jay Clement U.S. Army Corps of Engineers	X		
Mr. Kevin Mendik NPS Hydro Program Manager U.S. National Park Service	X		

¹ Peter Lamothe has become the USFWS contact for the Project.

² BWPH attempted outreach via telephone and voicemail however, was unsuccessful in making contact to date.

Contact	Sent PAD Questionnaire	Replied to PAD Questionnaire	PAD Outreach Call
Mr. John T. Eddins Program Analyst Advisory Council on Historic Preservation	X		
Mr. Bryan Rice, Director Bureau of Indian Affairs U.S. Department of the Interior	X		
Mr. Harold Peterson Natural Resources Officer Bureau of Indian Affairs	X		
Mr. Mitchell Leverette State Director U.S. Bureau of Land Management	X		
Mr. Andrew Raddant Regional Environmental Officer U.S. Department of Interior	X		
Mr. Mark Prout Forest Fish Biologist U.S. Forest Service	X		
Mr. Nicholas Stasulis Chief, Maine SW/GW Networks U.S. Geological Survey	X	X	
STATE AGENCIES			
Mr. Jim Vogel Senior Planner Maine Bureau of Parks and Lands	X	X	X
Ms. Kathy Howatt Maine Department of Environmental Protection	X		X
Mr. Chris Sferra Maine Department of Environmental Protection	X		
Mr. Nick Livesay, Director Maine Department of Environmental Protection	X		
Mr. Francis Brautigam, Director Maine Department of Inland Fisheries & Wildlife	X		
Mr. James Pellerin Regional Fisheries Biologist Maine Department of Inland Fisheries & Wildlife	X	X	X
Mr. Scott Lindsay Regional Wildlife Biologist Maine Department of Inland Fisheries & Wildlife	X		
Mr. John Perry Environmental Coordinator Maine Department of Inland Fisheries & Wildlife	X		X

Contact	Sent PAD Questionnaire	Replied to PAD Questionnaire	PAD Outreach Call
Ms. Gail Wipplehauser ³ Marine Resource Scientist Maine Department of Marine Resources	X		X
Casey Clark Maine Department of Marine Resources	X		
Paul Christman Maine Department of Marine Resources	X		
Mr. Kirk Mohney, Director Maine Historic Preservation Commission	X	X	X
Ms. Megan Rideout Review & Compliance/CLG Coordinator Maine Historic Preservation Commission	X		
Dr. Arthur Spiess Review & Compliance/CLG Coordinator Maine Historic Preservation Commission	X		
Kathleen Leyden Director, Maine Coastal Program State of Maine Department of Agriculture, Conservation & Forestry	X		
TRIBES			
Mr. Christopher Sockalexis Penobscot Indian Nation	X		
Chief Kirk Francis Penobscot Indian Nation	X		
Chief Edward Peter Paul Aroostook Band of Micmacs	X		
Chief Clarisa Sabattis Houlton Band of Maliseet Indians	X		
Mr. Isaac St. John Houlton Band of Maliseet Indians	X	X	
Chief Maggie Dana Passamaquoddy Tribe	X		
Chief William J. Nicholas, Sr. Passamaquoddy Tribe - Indian Township	X		
Mr. Donald Soctomah Passamaquoddy Tribe	X		
LOCAL			
Mr. Larry Post Androscoggin County Commissioners	X		
Ms. Shelley Norton Androscoggin Valley Council of Governments	X	X	
Ms. Amy Landry Androscoggin Valley Council of Governments	X		
Mayor Mark A. Cayer City of Lewiston	X		

³ BWPB attempted outreach via telephone and voicemail however, was unsuccessful in making contact to date.

Contact	Sent PAD Questionnaire	Replied to PAD Questionnaire	PAD Outreach Call
Mr. Denis D'Auteuil City of Lewiston	X		
Mr. Dale Doughty City of Lewiston	X		
Mr. Lincoln Jeffers City of Lewiston	X	X	X
Ms. Nicole Welch City of Lewiston	X		
Mr. Eric Cousens City of Auburn	X	X	X
Mr. Phillip L. Crowell, Jr. City of Auburn	X		
Ms. Sabrina Best City of Auburn	X		
Ms. Shanna Cox Lewiston - Auburn Chamber of Commerce	X	X	X
NON-GOVERNMENTAL ORGANIZATIONS			
Mr. Kevin Richard Colburn American Whitewater	X		
Mr. Robert Nasdor American Whitewater	X		
Androscoggin River Committee	X		
Aimee Dorval Androscoggin Land Trust	X		
James Pross Androscoggin Land Trust	X	X	
Ms. Shelley Kruszewski Androscoggin Land Trust	X		
Fergus P. Lea, Jr. Androscoggin River Watershed Council	X	X	
Mr. John R. J. Burrows Atlantic Salmon Federation	X		
Mr. Sean Mahoney Conservation Law Foundation Maine	X		
Mr. Ed Friedman Friends of Merrymeeting Bay	X	X	
Mr. Peter Rubins Grow L-A	X	X	X
Mr. Steve Heinz Trout Unlimited	X		
Mr. Jeff Reardon Trout Unlimited	X		
Mr. Andrew Beahm Maine Audubon Society	X		
Ms. Landis Hudson Maine Rivers	X		

Contact	Sent PAD Questionnaire	Replied to PAD Questionnaire	PAD Outreach Call
Mark Sacowski Appalachian Mountain Club	X		
Audrey Thomson Museum LA	X		
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Matthew J. Nini Eagle Creek Renewable Energy	X		

APPENDIX C

LEWISTON FALLS PROJECT LICENSE, LICENSE AMENDMENTS, AND WATER QUALITY CERTIFICATES

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 G. C. Poulin
 S. A. Verville
 F. A. Wiley
 W. M. Grove
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36 FERC 132-353

UNITED STATES OF AMERICA
 FEDERAL ENERGY REGULATORY COMMISSION

Central Maine Power Company and
 Union Water-Power Company

Project No. 2302-003

Lewiston Falls

ORDER ISSUING NEW LICENSE
 (Major Project - Existing Dam)

* (Issued September 29, 1986)

Central Maine Power Company and Union Water-Power Company have filed a license application under Part I of the Federal Power Act (Act) to construct, operate, and maintain the Lewiston Falls Project, located in Androscoggin County, Maine, on the Androscoggin River, a navigable waterway of the United States.

Notice of the application has been published. The motions to intervene that have been granted and the comments and protests filed by agencies and individuals have been fully considered in determining whether to issue this license, as discussed below.

Back Annual Charges

The applicant proposes to bring under license six existing generating units with an installed capacity of 7,325 kW. These units should have been licensed at the time the initial license for Project No. 2302 was issued. The Androscoggin River, entire length, was determined navigable on July 24, 1958, and an amount equal to the back annual charges will be assessed from that date for these previously unlicensed units.

Summary of Findings

An Environmental Assessment (EA) was issued for this project. Background information, analysis of impacts, support for related license articles, and the basis for a finding of no significant impact on the environment are contained in the EA attached to this order. A water quality certificate was issued for this project on June 6, 1986. Issuance of this license is not a major federal action significantly affecting the quality of the human environment.

The design of this project is consistent with the engineering standards governing dam safety. The project will be safe if constructed, operated, and maintained in accordance with the requirements of this license. Analysis of related issues is provided in the Safety and Design Assessment attached to this order.

The State of Maine's Comprehensive Hydropower Plan (Plan) identifies river stretches to be protected from development and sites where hydropower development would be allowed. On January 31, 1986, the Maine Department of Environmental Protection (DEP) filed a motion to intervene requesting that the staff be guided by the Plan and find the proposed project to be best adapted to the Plan. The applicants responded stating that they have no objection to the DEP's intervention but submit that the DEP's interpretation of Section 10(a) of the Act, 16 U.S.C. §803(a), and the Maine Waterway Development and Conservation Act is incorrect and that the staff need not find the Lewiston Falls Project best adapted to the Plan. The Lewiston Falls Project is located at a site permitted by the Plan for development and thus is consistent with that Plan. Moreover, as found below the project meets the requirements of §10(a) of the Act based on the entire record in this proceeding.

Section 14 of the Act reserves to the United States the right to take over a non-publicly owned project upon expiration of the license, after paying to the licensee the net investment in the project, not to exceed the fair value of the property taken, plus severance damages, if any. No Federal department or agency, State, or municipality recommended takeover or redevelopment of the project by the United States or any other entity. The project is not in conflict with any project authorized or under study by the United States. None of the above governmental units has objected to the relicensing of the project. There is no reason why Federal takeover of the project would better serve the public interest than issuance of this license. Consequently, Federal takeover is not recommended.

The Director, Office of Hydropower Licensing, concludes that the project would not conflict with any planned or authorized development, and would be best adapted to comprehensive development of the waterway for beneficial public uses.

The Director orders:

(A) This license is issued to Central Maine Power Company and Union Water-Power Company (licensees), for a period of 40 years, effective the first day of the month in which this order is issued, to construct, operate, and maintain the Lewiston Falls Project. This license is subject to the terms and conditions of the Act, which is incorporated by reference as part of this license, and subject to the regulations the Commission issues under the provisions of the Act.

NOTE: ALL REFERENCES TO THE "UPPER ANDROSCOGGIN STATION" DELETED; FEB. 26, 1991

*** EXPIRES: AUGUST 31, 2026**

(B) The project consists of:

(1) All lands, to the extent of the licensee's interests in those lands, enclosed by the project boundary shown by Exhibit G:

Exhibit G-	FERC No. 2302-	Showing
1	18	General Map
2	19	Detail Map Reservoir
3	20	Detail Map Dams, Gatehouses and Upper Section of Canal
4	21	Detail Plan Upper, Lower and Cross Canal
5	22	Detail Plan Upper Canal
6	23	Canal Profiles
7	24	General Map Transmission System

* (2) Project works consisting of: (a) a stone-masonry dam comprised of four main sections capped with eight inches of reinforced concrete with a crest elevation of 164.17 feet msl, (the sections are equipped with removable steel pins that support 4-foot-high flashboards) and includes a concrete section with a maximum height of 4 feet with a fixed crest elevation of 168.17 feet msl; (b) a 200 acre reservoir with a storage capacity of 1,600 acre-feet at a full pond elevation of 168.17 feet msl; (c) a new powerhouse near the east end of Dam #4 containing two turbine/generators with a total installed capacity of 25,000 kW; (d) two gatehouse buildings impounding the reservoir; (e) three interconnecting canals; Cross canals #1, #2, and #3, which vary in depth from 10 to 12 feet and in width from 23 to 65 feet and in length from 570 to 4,400 feet; (f) the Upper Canal, 4,400 feet long and 62 feet wide, which directs water to the Bates Weave Shed, located at the head of Cross Canal #1, containing three turbine/generators for an installed capacity of 1880 kW; (g) two penstocks off the Upper Canal, each serving three turbines at the Hill Mill Station located at the head of Cross Canal #2, which contains six turbine/generators for an installed capacity of 1850 kW; (h) three penstocks serving the Upper Androscoggin Station from the end of the Upper Canal, which contains three turbine/generators for an installed capacity of 1695 kW; (i) two penstocks at; (j) the Lower Canal which is 900 feet long and 50 feet wide

* PARAGRAPH B(2) REVISED: AUG. 3, 1998. See Order

and provides water to Continental Mills located on Cross Canal #3, which contains five turbine/generators for an installed capacity of 1200 kW; (k) three stone arch tailrace tunnels; (l) one 10-foot-diameter steel penstock which serves; (m) the Bates No. 2 Station, located on Cross Canal #3, which contains one turbine/generator for an installed capacity of 450 kW; (n) a tailrace; (o) the Lower Androscoggin Station located on Gulley Brook containing one turbine/generator for an installed capacity of 250 kW; (p) the tailrace, part of the powerhouse foundation, which discharges directly into the Androscoggin River; (q) 600-volt generator leads and appurtenant facilities for the existing plants; (r) 12-kV generator leads; (s) a 12/34.5-kV, 30-MVA transformer; (t) a short 34.5-kV service-drop; and (u) appurtenant facilities.

The project works generally described above are more specifically shown and described by those portions of Exhibits A and F recommended for approval in the attached Safety and Design Assessment.

(3) All of the structures, fixtures, equipment or facilities used to operate or maintain the project and located within the project boundary, all portable property that may be employed in connection with the project and located within or outside the project boundary, and all riparian or other rights that are necessary or appropriate in the operation or maintenance of the project.

(C) The Exhibit G described above and those sections of Exhibits A and F recommended for approval in the attached Safety and Design Assessment are approved and made part of the license.

(D) This license is subject to the articles set forth in Form L-4, (October 1975), entitled "Terms and Conditions of License for Unconstructed Major Project Affecting Navigable Waters of the United States," except Article 15. The license is also subject to the following additional articles:

** Article 201. The licensees shall pay the United States the following amounts for the purpose of reimbursing the United States for the costs of administration of Part I of the Act:

(1) For the period from July 24, 1958, through August 31, 1986, an amount equal to the full annual charge that would have applied for the period if the project had been licensed during that period. The authorized installed capacity for this purpose is 9,760 horsepower.

** ARTICLE 201 REVISED: MAY 13, 1992, JULY 21, 1992 and AUG. 3, 1998. See Orders.

- (2) From September 1, 1986, the full annual charge computed in accordance with the Commission's regulations in effect from time to time. The authorized installed capacity for this purpose is 43,100 horsepower.

Article 202. Pursuant to Section 10(d) of the Act, a specified reasonable rate of return upon the net investment in the project shall be used for determining surplus earnings of the project for the establishment and maintenance of amortization reserves. One half of the project surplus earnings, if any, accumulated under the license, in excess of the specified rate of return per annum on the net investment, shall be set aside in a project amortization reserve account at the end of each fiscal year. To the extent that there is a deficiency of project earnings below the specified rate of return per annum for any fiscal year under the license, the amount of that deficiency shall be deducted from the amount of any surplus earnings subsequently accumulated, until absorbed. One-half of the remaining surplus earnings, if any, cumulatively computed, shall be set aside in the project amortization reserve account. The amounts established in the project amortization reserve account shall be maintained until further order of the Commission.

The annual specified reasonable rate of return shall be the sum of the annual weighted costs of long-term debt, preferred stock, and common equity, as defined below. The annual weighted cost for each component of the rate of return shall be calculated based on an average of 13 monthly balances of amounts properly includable in the licensee's long-term debt and proprietary capital accounts as listed in the Commission's Uniform System of Accounts. The cost rates for long-term debt and preferred stock shall be their respective weighted average costs for the year, and the cost of common equity shall be the interest rate on 10-year government bonds (reported as the Treasury Department's 10-year constant maturity series) computed on the monthly average for the year in question plus four percentage points (400 basis points).

Article 203. The licensees shall clear and keep clear to an adequate width all lands along open conduits and shall dispose of all temporary structures, unused timber, brush, refuse, or other material unnecessary for the purposes of the project which result from maintenance, operation, or alteration of the project works. In addition, all trees along the periphery of project reservoirs which may die during operations of the project shall be removed. All clearing of lands and disposal of unnecessary material shall be done with due diligence to the satisfaction of the authorized representative of the Commission and in accordance with appropriate federal, state, and local statutes and regulations.

Article 204. The licensees shall, within 90 days from the issuance date of this license, file with the Commission, in accordance with the provisions of §11.20(a)(4) of the Commission's regulations, a statement showing the gross amount of power generation for the project in kilowatt-hours for each calendar year commencing July 24, 1958, and ending August 31, 1986.

Article 301. The licensees shall commence construction of project works within two years from the issuance date of the license and shall complete construction of the project within four years from the issuance date of the license.

Article 302. The licensees shall file, for approval by the Commission, revised Exhibit F drawings showing the final design of project structures. The revised Exhibit F drawings shall be accompanied by a supporting design report and the licensees shall not commence construction of any project structure until the corresponding revised Exhibit F drawing has been approved.

Article 303. The licensees shall at least 60 days prior to start of construction, submit one copy to the Commission's Regional Director and two copies to the Director, Division of Inspections, of the final contract drawings and specifications for pertinent features of the project, such as water retention structures, powerhouse, and water conveyance structures. The Director, Division of Inspections, may require changes in the plans and specifications to assure a safe and adequate project.

Article 304. The licensees shall review and approve the design of contractor-designed cofferdams and deep excavations prior to the start of construction and shall ensure that construction of cofferdams and deep excavations is consistent with the approved design. At least 30 days prior to start of construction of the cofferdam, the licensees shall submit to the Commission's Regional Director and Director, Division of Inspections, one copy each of the approved cofferdam construction drawings and specifications and the letter(s) of approval.

Article 305. The licensees shall within 90 days of completion of construction file, for approval by the Commission, revised Exhibits A, F, and G to describe and show the project as built.

Article 401. The licensees, after consultation with the U.S. Army Corps of Engineers, the U.S. Fish and Wildlife Service, and the Maine Department of Environmental Protection, shall prepare and file with the Commission, within 6 months from the date of issuance of this license, a plan to control erosion, dust, and slope stability, and to minimize the quantity of sediment or other potential water pollutants resulting from construction and operation of the project.

The plan shall include: provisions for identifying and mapping any erosive soils and potentially unstable slopes; an implementation schedule; monitoring and maintenance programs for project construction and operation; provisions for periodic review of the plan and for making any necessary revisions to the plan. In the event that the licensees do not concur with any agency recommendations, the licensees shall provide a discussion of the reasons for not concurring based on actual site geological, soil, and groundwater conditions. The Commission reserves the right to require changes to the plan. Unless the Commission directs otherwise, the licensees may commence ground disturbing or spoil activities at the project 90 days after filing the above plan.

* Article 402. The licensees, within 3 months of the issuance date of this license and after consultation with the U.S. Fish and Wildlife Service (FWS), the National Marine Fisheries Service, (NMFS) the Maine Department of Environmental Protection (DEP), the Maine Department of Inland Fisheries and Wildlife (MIFW), and the Maine Department of Marine Resource (DMR), shall develop a water quality monitoring plan to assess the reeration occurring under existing and proposed operational modes. The licensees shall install continuous dissolved oxygen monitoring equipment in the Androscoggin River immediately downstream of the Lewiston Falls Dam and Dresser's Rips. The pre-operational monitoring program shall commence within 6 months of the issuance date of this license and continue until project operation begins. After project operation commences, the licensees shall monitor dissolved oxygen concentrations below the Lewiston Falls Dam and Dresser's Rips and maintain records of monitoring data for a period of 5 years. The licensees shall file an annual data summary, that includes the observed daily minimum, maximum, and average dissolved oxygen concentrations, with the agencies and the Commission. The licensees shall file each annual summary with the agencies and the Commission on the anniversary date of issuance of the license.

Further, if the results contained in any annual report indicate that changes in project structures or operations are necessary to maintain the dissolved oxygen concentrations that are required by the water quality certificate, the licensees shall within 2 months from the date of the annual report submission, file with the Commission for approval, with copies to the agencies consulted, a schedule for implementing the specific changes in project structures or operations that are needed. The Commission reserves the authority to require the modification of project structures or operations and to require the installation of turbine venting equipment to ensure maintenance of water quality needed to sustain fish resources in the project area. Comments from FWS, NMFS, DEP, DIFW, and DMR regarding the schedule and specific changes shall be included in the filing.

* ARTICLE 402 MODIFIED BY ORDER APPR. # MOD. A
POST-OP. WATER QUAL. MON. PLAN. JUNE 28, 1990. See Order.
ALSO MODIFIED BY ORDER APPR. IN PART # AMEND.
IN PART.... FEB. 1, 1988. See Order

Article 403. The licensees shall operate the Lewiston Falls Hydroelectric Project in a manner that would maintain water levels in the Lewiston Falls Impoundment between elevations 168.17 feet, mean sea level (msl) and 164.17 feet, msl, for the protection of fish and wildlife in the Androscoggin River. The licensees, in operating the project in this manner, shall at all times act to minimize fluctuations of the impoundment surface elevation beyond the specified elevations. This mode of operation may be modified only during operating emergencies that are beyond the control of the licensees, or for short periods upon mutual agreement between the licensees, the Maine Departments of Environmental Protection, Marine Resources, and Inland Fisheries and Wildlife, the U.S. Fish and Wildlife Service, and the National Marine Fisheries Service.

Article 404. The licensees shall discharge from the Lewiston Falls Hydroelectric Project, a continuous minimum flow of 1,000 cubic feet per second (cfs) for the protection and enhancement of fish and wildlife resources in the Androscoggin River. Flow releases shall be made according to the following scheme: (1) a flow of 850 cfs, as measured immediately downstream of the proposed powerhouse, shall be continuously released through the turbines; and (2) 150 cfs, as measured immediately below the discharge of the Lower Androscoggin facility. This total flow may be temporarily modified if required by operating emergencies beyond the control of the licensees, and for short periods upon mutual agreement between the licensees and the Maine Department of Environmental Protection.

Article 405. The licensees, at least 60 days before the scheduled start of land-clearing, land-disturbing, or spoil-producing activities, shall file with the Commission a plan to avoid or minimize disturbances of the visual resources of the project area, that would result from constructing and operating project facilities. The Commission may require changes to the plan.

The licensees shall prepare the plan after consultation with appropriate federal, state, and local resource agencies and with all federal agencies having managerial authority over any part of project lands. The licensees shall include with the plan documentation of agency consultation and copies of agency comments and recommendations. If the licensees do not adopt agency recommendations, the filing shall include the licensees' reasons, based on visual and landscape conditions at the site, for not adopting these recommendations.

The filing at a minimum, shall include: (a) the licensees' plans for blending the project works into existing landscape characteristics; (b) the licensees' plan for revegetating, stabilizing, and landscaping new construction areas and areas immediately adjacent to the project site disturbed by previous construction or that presently impact the visual resources of the surrounding area; (c) the licensees' plans for grading, planting grasses, repairing slopes damaged by erosion, and preventing future erosion; (d) an implementation schedule; (e) monitoring and maintenance programs for project construction and operation; and (f) provisions for periodic review and revision.

Article 406. The licensees, at least 60 days before the start of land-disturbing or land-clearing activities, shall file with the Commission a management plan for ensuring that the construction and development of the Lewiston Falls Hydroelectric Project will result in no adverse effect on the Cowan Mill and no effect on the Lewiston Water Power System. The Commission may require changes to the plan. The licensees shall prepare the plan after consultation with the State Historic Preservation Officer (SHPO) and the Maine Department of Environmental Protection, Bureau of Land Quality Control (DEP). The licensees shall include with the plan, documentation of consultation with the SHPO and the DEP and copies of the SHPO's and the DEP's comments and recommendations. If the licensees do not adopt the recommendations of the SHPO or the DEP, the filing shall include the licensees' reasons.

Article 407. The licensees, before starting any ground-disturbing or land-clearing activities within the project boundaries, other than that specifically authorized in this license, shall consult with the Maine State Historic Preservation Officer (SHPO) regarding the need for a cultural resources survey and salvage work. The licensee shall file with the Commission documentation of the nature and extent of consultation, including a cultural resources management plan and a schedule to conduct the necessary investigation, together with a copy of a letter from the SHPO commenting on the plan and schedule, 60 days before starting any such ground-disturbing or land-clearing activities. The licensees shall make funds available in a reasonable amount for the required work. If the licensees discover any previously unidentified archeological or historic sites during the course of constructing or developing project works or other facilities at the project, the licensees shall stop all construction and development activities in the vicinity of the sites and shall consult a qualified cultural resources specialist and the SHPO concerning the eligibility of the sites for listing in the National Register of Historic Places and any measures needed to avoid the sites or

to mitigate effects on the sites. If the licensees and the SHPO cannot agree on the amount of money to be spent for project specific archeological and historical purposes, the Commission reserves the right to require the licensees to conduct the necessary work at the licensees' own expense.

Article 408. Within 2 years from the date of issuance of this license, the licensees shall: (a) lease to the City of Auburn the portion of the project area known as West Pitch for development of a public park; and (b) construct, maintain, and operate, or arrange for the construction, maintenance, and operation of recreational facilities at the West Pitch Park. Within 3 months following completion of recreational facilities at the park, the licensees shall file with the Commission as-built drawings showing the type and location of the constructed facilities. The licensees shall include with the filing a copy of the lease to the City and the name of the entity responsible for maintenance and operation of the facilities.

* Article 409. Within 1 year from the date of issuance of this license, the licensees shall file with the Commission for approval a plan for the development of public access, including a boat ramp, downstream of the project dam. The licensees shall prepare the plan after consultation with the Department of the Interior, the Maine Department of Inland Fisheries and Wildlife, the Maine Bureau of Parks and Recreation, and the cities of Auburn and Lewiston. The licensees shall include with the plan documentation of agency consultation and copies of agency comments and recommendations. If the licensees do not adopt agency recommendations, the filing shall include the licensees' reasons, based on project-specific information. The plan, at a minimum, shall include: (a) provisions for acquisition, if necessary, and development of a public access site within the project boundary; (b) drawings showing the location of the site and type and location of any proposed facilities; (c) a construction schedule; and (d) the entity responsible for construction, operation, and maintenance of any proposed facilities.

Article 410. (a) In accordance with the provisions of this article, the licensees shall have the authority to grant permission for certain types of use and occupancy of project lands and waters and to convey certain interests in project lands and waters for certain other types of use and occupancy, without prior Commission approval. The licensees may exercise the 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. For those purposes, the licensees shall also have continuing responsibility to supervise and control the uses and occupancies for which it grants permission, and to

* ARTICLE 409 MODIFIED BY ORDER AMENDING REC. PLAN. JUNE 29, 2000. SEE ORDER.

monitor the use of, and ensure compliance with the covenants of the instrument of conveyance for, any interests that it has conveyed, under this article. If a permitted use and occupancy violates any condition of this article or any other condition imposed by the licensees for protection and enhancement of the project's scenic, recreational, or other environmental values, or if a covenant of a conveyance made under the authority of this article is violated, the licensees shall take any lawful action necessary to correct the violation. For a permitted use or occupancy, that action includes, if necessary, cancelling the permission to use and occupy the project lands and waters and requiring the removal of any non-complying structures and facilities.

(b) The types of use and occupancy of project lands and waters for which the licensees may grant permission without prior Commission approval are: (1) landscape plantings; (2) non-commercial piers, landings, boat docks, or similar structures and facilities that can accommodate no more than 10 water craft at a time and where said facility is intended to serve single-family type dwellings; and (3) embankments, bulkheads, retaining walls, or similar structures for erosion control to protect the existing shoreline. To the extent feasible and desirable to protect and enhance the project's scenic, recreational, and other environmental values, the licensees shall require multiple use and occupancy of facilities for access to project lands or waters. The licensees shall also ensure, to the satisfaction of the Commission's authorized representative, that the uses and occupancies for which it grants permission are maintained in good repair and comply with applicable state and local health and safety requirements. Before granting permission for construction of bulkheads or retaining walls, the licensees shall: (1) inspect the site of the proposed construction, (2) consider whether the planting of vegetation or the use of riprap would be adequate to control erosion at the site, and (3) determine that the proposed construction is needed and would not change the basic contour of the reservoir shoreline. To implement this paragraph (b), the licensees may, among other things, establish a program for issuing permits for the specified types of use and occupancy of project lands and waters, which may be subject to the payment of a reasonable fee to cover the licensees' costs of administering the permit program. The Commission reserves the right to require the licensees to file a description of its standards, guidelines, and procedures for implementing this paragraph (b) and to require modification of those standards, guidelines, or procedures.

(c) The licensees may convey easements or rights-of-way across, or leases of, project lands for: (1) replacement, expansion, realignment, or maintenance of bridges and roads for which all necessary state and federal approvals have been obtained; (2) storm drains and water mains; (3) sewers that do not discharge into

project waters; (4) minor access roads; (5) telephone, gas, and electric utility distribution lines; (6) non-project overhead electric transmission lines that do not require erection of support structures within the project boundary; (7) submarine, overhead, or underground major telephone distribution cables or major electric distribution lines (69-kV or less); and (8) water intake or pumping facilities that do not extract more than one million gallons per day from a project reservoir. No later than January 31 of each year, the licensees shall file three copies of a report briefly describing for each conveyance made under this paragraph (c) during the prior calendar year, the type of interest conveyed, the location of the lands subject to the conveyance, and the nature of the use for which the interest was conveyed.

(d) The licensees may convey fee title to, easements or rights-of-way across, or leases of project lands for: (1) construction of new bridges or roads for which all necessary state and federal approvals have been obtained; (2) sewer or effluent lines that discharge into project waters, for which all necessary federal and state water quality certificates or permits have been obtained; (3) other pipelines that cross project lands or waters but do not discharge into project waters; (4) non-project overhead electric transmission lines that require erection of support structures within the project boundary, for which all necessary federal and state approvals have been obtained; (5) private or public marinas that can accommodate no more than 10 watercraft at a time and are located at least one-half mile from any other private or public marina; (6) recreational development consistent with an approved Exhibit R or approved report on recreational resources of an Exhibit E; and (7) other uses, if: (i) the amount of land conveyed for a particular use is five acres or less; (ii) all of the land conveyed is located at least 75 feet, measured horizontally, from the edge of the project reservoir at normal maximum surface elevation; and (iii) no more than 50 total acres of project lands for each project development are conveyed under this clause (d)(7) in any calendar year. At least 45 days before conveying any interest in project lands under this paragraph (d), the licensees must submit a letter to the Director, Office of Hydropower Licensing, stating its intent to convey the interest and briefly describing the type of interest and location of the lands to be conveyed (a marked Exhibit G or K map may be used), the nature of the proposed use, the identity of any federal or state agency official consulted, and any federal or state approvals required for the proposed use. Unless the Director, within 45 days from the filing date, requires the licensees to file an application for prior approval, the licensees may convey the intended interest at the end of that period.

(e) The following additional conditions apply to any intended conveyance under paragraphs (c) or (d) of this article:

(1) Before conveying the interest, the licensees shall consult with federal and state fish and wildlife or recreation agencies, as appropriate, and the State Historic Preservation Officer.

(2) Before conveying the interest, the licensees shall determine that the proposed use of the lands to be conveyed is not inconsistent with any approved Exhibit R or approved report on recreational resources of an Exhibit E; or, if the project does not have an approved Exhibit R or approved report on recreational resources, that the lands to be conveyed do not have recreational value.

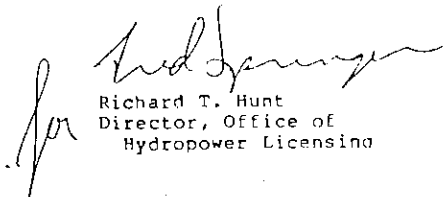
(3) The instrument of conveyance must include covenants running with the land adequate to ensure that: (i) the use of the lands conveyed shall not endanger health, create a nuisance, or otherwise be incompatible with overall project recreational use; and (ii) the grantee shall take all reasonable precautions to ensure that the construction, operation, and maintenance of structures or facilities on the conveyed lands will occur in a manner that will protect the scenic, recreational, and environmental values of the project.

(4) The Commission reserves the right to require the licensee to take reasonable remedial action to correct any violation of the terms and conditions of this article, for the protection and enhancement of the project's scenic, recreational, and other environmental values.

(f) The conveyance of an interest in project lands under this article does not in itself change the project boundaries. The project boundaries may be changed to exclude land conveyed under this article only upon approval of revised Exhibit G or K drawings (project boundary maps) reflecting exclusion of that land. Lands conveyed under this article will be excluded from the project only upon a determination that the lands are not necessary for project purposes, such as operation and maintenance, flowage, recreation, public access, protection of environmental resources, and shoreline control, including shoreline aesthetic values. Absent extraordinary circumstances, proposals to exclude lands conveyed under this article from the project shall be consolidated for consideration when revised Exhibit G or K drawings would be filed for approval for other purposes.

(g) The authority granted to the licensees under this article shall not apply to any part of the public lands and reservations of the United States included within the project boundary.

(E) This order is issued under authority delegated to the Director and is final unless appealed under Rule 1902 to the Commission by any party within 30 days from the issuance date of this order. Filing an appeal does not stay the effective date of this order or any date specified in this order. The licensees' failure to appeal this order shall constitute acceptance of the license.


for
Richard T. Hunt
Director, Office of
Hydropower Licensing

FEDERAL ENERGY REGULATORY COMMISSION

TERMS AND CONDITIONS OF LICENSE FOR
UNCONSTRUCTED MAJOR PROJECT AFFECTING
NAVIGABLE WATERS OF THE UNITED STATES

Article 1. The entire project, as described in this order of the Commission, shall be subject to all of the provisions, terms, and conditions of the license.

Article 2. No substantial change shall be made in the maps, plans, specifications, and statements described and designated as exhibits and approved by the Commission in its order as a part of the license until such change shall have been approved by the Commission: Provided, however, That if the Licensee or the Commission deems it necessary or desirable that said approved exhibits, or any of them, be changed, there shall be submitted to the Commission for approval a revised, or additional exhibit or exhibits covering the proposed changes which, upon approval by the Commission, shall become a part of the license and shall supersede, in whole or in part, such exhibit or exhibits theretofore made a part of the license as may be specified by the Commission.

Article 3. The project works shall be constructed in substantial conformity with the approved exhibits referred to in Article 2 herein or as changed in accordance with the provisions of said article. Except when emergency shall require for the protection of navigation, life, health, or property, there shall not be made without prior approval of the Commission any substantial alteration or addition not in conformity with the approved plans to any dam or other project works under the license or any substantial use of project lands and waters not authorized herein; and any emergency alteration, addition, or use so made shall thereafter be subject to such modification and change as the Commission may direct. Minor changes in project works, or in uses of project lands and waters, or divergence from such approved exhibits may be made if such changes will not result in a decrease in efficiency, in a material increase in cost, in an adverse environmental impact, or in impairment of the general scheme of development; but any of such minor changes made without the prior approval of the Commission, which in its judgment have produced or will produce any of such results, shall be subject to such alteration as the Commission may direct.

Upon the completion of the project, or at such other time as the Commission may direct, the Licensee shall submit to the Commission for approval revised exhibits insofar as necessary to show any divergence from or variations in the project area and project boundary as finally located or in the project works as actually constructed when compared with the area and boundary shown and the works described in the license or in the exhibits approved by the Commission, together with a statement in writing setting forth the reasons which in the opinion of the Licensee necessitated or justified variation in or divergence from the approved exhibits. Such revised exhibits shall, if and when approved by the Commission, be made a part of the license under the provisions of Article 2 hereof.

Article 4. The construction, operation, and maintenance of the project and any work incidental to additions or alterations shall be subject to the inspection and supervision of the Regional Engineer, Federal Energy Regulatory Commission, in the region wherein the project is located, or of such other officer or agent as the Commission may designate, who shall be the authorized representative of the Commission for such purposes. The Licensee shall cooperate fully with said representative and shall furnish him a detailed program of inspection by the Licensee that will provide for an adequate and qualified inspection force for construction of the project and for any subsequent alterations to the project. Construction of the project works or any features or alteration thereof shall not be initiated until the program of inspection for the project works or any such feature thereof has been approved by said representative. The Licensee shall also furnish to said representative such further information as he may require concerning the construction, operation, and maintenance of the project, and of any alteration thereof, and shall notify him of the date upon which work will begin, as far in advance thereof as said representative may reasonably specify, and shall notify him promptly in writing of any suspension of work for a period of more than one week, and of its resumption and completion. The Licensee shall allow said representative and other officers or employees of the United States, showing proper credentials, free and unrestricted access to, through, and across the project lands and project works in the performance of their official duties. The Licensee shall comply with such rules and regulations of general or special applicability as the Commission may prescribe from time to time for the protection of life, health, or property.

Article 5. The Licensee, within five years from the date of issuance of the license, shall acquire title in fee or the right to use in perpetuity all lands, other than lands of the United States, necessary or appropriate for the construction, maintenance, and operation of the project. The Licensee or its successors and assigns shall, during the period of the license,

retain the possession of all project property covered by the license as issued or as later amended, including the project area, the project works, and all franchises, easements, water rights, and rights of occupancy and use; and none of such properties shall be voluntarily sold, leased, transferred, abandoned, or otherwise disposed of without the prior written approval of the Commission, except that the Licensee may lease or otherwise dispose of interests in project lands or property without specific written approval of the Commission pursuant to the then current regulations of the Commission. The provisions of this article are not intended to prevent the abandonment or the retirement from service of structures, equipment, or other project works in connection with replacements thereof when they become obsolete, inadequate, or inefficient for further service due to wear and tear; and mortgage or trust deeds or judicial sales made thereunder, or tax sales, shall not be deemed voluntary transfers within the meaning of this article.

Article 6. In the event the project is taken over by the United States upon the termination of the license as provided in Section 14 of the Federal Power Act, or is transferred to a new licensee or to a non-power licensee under the provisions of Section 15 of said Act, the Licensee, its successors and assigns shall be responsible for, and shall make good any defect of title to, or of right of occupancy and use in, any of such project property that is necessary or appropriate or valuable and serviceable in the maintenance and operation of the project, and shall pay and discharge, or shall assume responsibility for payment and discharge of, all liens or encumbrances upon the project or project property created by the Licensee or created or incurred after the issuance of the license: Provided, That the provisions of this article are not intended to require the Licensee, for the purpose of transferring the project to the United States or to a new licensee, to acquire any different title to, or right of occupancy and use in, any of such project property than was necessary to acquire for its own purposes as the Licensee.

Article 7. The actual legitimate original cost of the project, and of any addition thereto or betterment thereof, shall be determined by the Commission in accordance with the Federal Power Act and the Commission's Rules and Regulations thereunder.

Article 8. The Licensee shall install and thereafter maintain gages and stream-gaging stations for the purpose of determining the state and flow of the stream or streams on which the project is located, the amount of water held in and withdrawn from storage, and the effective head on the turbines; shall provide for the required reading of such gages and for the adequate rating of such stations; and shall install and maintain standard meters adequate for the determination of the amount of electric

energy generated by the project works. The number, character, and location of gages, meters, or other measuring devices, and the method of operation thereof, shall at all times be satisfactory to the Commission or its authorized representative. The Commission reserves the right, after notice and opportunity for hearing, to require such alterations in the number, character and locations of gages, meters, or other measuring devices, and the method of operation thereof, as are necessary to secure adequate determinations. The installation of gages, the rating of said stream or streams, and the determination of the flow thereof, shall be under the supervision of, or in cooperation with, the District Engineer of the United States Geological Survey having charge of stream-gaging operations in the region of the project, and the Licensee shall advance to the United States Geological Survey the amount of funds estimated to be necessary for such supervision, or cooperation for such periods as may be mutually agreed upon. The Licensee shall keep accurate and sufficient records of the foregoing determinations to the satisfaction of the Commission, and shall make return of such records annually at such time and in such form as the Commission may prescribe.

Article 9. The Licensee shall, after notice and opportunity for hearing, install additional capacity or make other changes in the project as directed by the Commission, to the extent that it is economically sound and in the public interest to do so.

Article 10. The Licensee shall, after notice and opportunity for hearing, coordinate the operation of the project, electrically and hydraulically, with such other projects or power systems and in such manner as the Commission may direct in the interest of power and other beneficial public uses of water resources, and on such conditions concerning the equitable sharing of benefits by the Licensee as the Commission may order.

Article 11. Whenever the Licensee is directly benefited by the construction work of another licensee, a permittee, or the United States on a storage reservoir or other headwater improvement, the Licensee shall reimburse the owner of the headwater improvement for such part of the annual charges for interest, maintenance, and depreciation thereof as the Commission shall determine to be equitable, and shall pay to the United States the cost of making such determination as fixed by the Commission. For benefits provided by a storage reservoir or other headwater improvement of the United States, the Licensee shall pay to the Commission the amounts for which it is billed from time to time for such headwater benefits and for the cost of making the determinations pursuant to the then current regulations of the Commission under the Federal Power Act.

Article 12. The United States specifically retains and safeguards the right to use water in such amount, to be determined by the Secretary of the Army, as may be necessary for the purposes of navigation on the navigable waterway affected; and the operations of the Licensee, so far as they affect the use, storage and discharge from storage of waters affected by the license, shall at all times be controlled by such reasonable rules and regulations as the Secretary of the Army may prescribe in the interest of navigation, and as the Commission may prescribe for the protection of life, health, and property, and in the interest of the fullest practicable conservation and utilization of such waters for power purposes and for other beneficial public uses, including recreational purposes, and the Licensee shall release water from the project reservoir at such rate in cubic feet per second, or such volume in acre-feet per specified period of time, as the Secretary of the Army may prescribe in the interest of navigation, or as the Commission may prescribe for the other purposes hereinbefore mentioned.

Article 13. On the application of any person, association, corporation, Federal Agency, State or municipality, the Licensee shall permit such reasonable use of its reservoir or other project properties, including works, lands and water rights, or parts thereof, as may be ordered by the Commission, after notice and opportunity for hearing, in the interests of comprehensive development of the waterway or waterways involved and the conservation and utilization of the water resources of the region for water supply or for the purposes of steam-electric, irrigation, industrial, municipal or similar uses. The Licensee shall receive reasonable compensation for use of its reservoir or other project properties or parts thereof for such purposes, to include at least full reimbursement for any damages or expenses which the joint use causes the Licensee to incur. Any such compensation shall be fixed by the Commission either by approval of an agreement between the Licensee and the party or parties benefiting or after notice and opportunity for hearing. Applications shall contain information in sufficient detail to afford a full understanding of the proposed use, including satisfactory evidence that the applicant possesses necessary water rights pursuant to applicable State law, or a showing of cause why such evidence cannot concurrently be submitted, and a statement as to the relationship of the proposed use to any State or municipal plans or orders which may have been adopted with respect to the use of such waters.

Article 14. In the construction or maintenance of the project works, the Licensee shall place and maintain suitable structures and devices to reduce to a reasonable degree the liability of contact between its transmission lines and telegraph, telephone and other signal wires or power transmission lines constructed prior to its transmission lines and not owned

by the Licensee, and shall also place and maintain suitable structures and devices to reduce to a reasonable degree the liability of any structures and devices to reduce to a reasonable degree the liability of any structures or wires falling or obstructing traffic or endangering life. None of the provisions of this article are intended to relieve the Licensee from any responsibility or requirement which may be imposed by any other lawful authority for avoiding or eliminating inductive interference.

~~**Article 15.** The Licensee shall, for the conservation and development of fish and wildlife resources, construct, maintain, and operate, or arrange for the construction, maintenance, and operation of such reasonable facilities, and comply with such reasonable modifications of the project structures and operation, as may be ordered by the Commission upon its own motion or upon the recommendation of the Secretary of the Interior or the fish and wildlife agency or agencies of any State in which the project or a part thereof is located, after notice and opportunity for hearing.~~

Not Required by License

Article 16. Whenever the United States shall desire, in connection with the project, to construct fish and wildlife facilities or to improve the existing fish and wildlife facilities at its own expense, the Licensee shall permit the United States or its designated agency to use, free of cost, such of the Licensee's lands and interests in lands, reservoirs, waterways and project works as may be reasonably required to complete such facilities or such improvements thereof. In addition, after notice and opportunity for hearing, the Licensee shall modify the project operation as may be reasonably prescribed by the Commission in order to permit the maintenance and operation of the fish and wildlife facilities constructed or improved by the United States under the provisions of this article. This article shall not be interpreted to place any obligation on the United States to construct or improve fish and wildlife facilities or to relieve the Licensee of any obligation under this license.

Article 17. The Licensee shall construct, maintain, and operate, or shall arrange for the construction, maintenance, and operation of such reasonable recreational facilities, including modifications thereto, such as access roads, wharves, launching ramps, beaches, picnic and camping areas, sanitary facilities, and utilities, giving consideration to the needs of the physically handicapped, and shall comply with such reasonable modifications of the project, as may be prescribed hereafter by the Commission during the term of this license upon its own motion or upon the recommendation of the Secretary of the Interior or other interested Federal or State agencies, after notice and opportunity for hearing.

Article 18. So far as is consistent with proper operation of the project, the Licensee shall allow the public free access, to a reasonable extent, to project waters and adjacent project lands owned by the Licensee for the purpose of full public utilization of such lands and waters for navigation and for outdoor recreational purposes, including fishing and hunting: Provided, That the Licensee may reserve from public access such portions of the project waters, adjacent lands, and project facilities as may be necessary for the protection of life, health, and property.

Article 19. In the construction, maintenance, or operation of the project, the Licensee shall be responsible for, and shall take reasonable measures to prevent, soil erosion on lands adjacent to streams or other waters, stream sedimentation, and any form of water or air pollution. The Commission, upon request or upon its own motion, may order the Licensee to take such measures as the Commission finds to be necessary for these purposes, after notice and opportunity for hearing.

Article 20. The Licensee shall consult with the appropriate State and Federal agencies and, within one year of the date of issuance of this license, shall submit for Commission approval a plan for clearing the reservoir area. Further, the Licensee shall clear and keep clear to an adequate width lands along open conduits and shall dispose of all temporary structures, unused timber, brush, refuse, or other material unnecessary for the purposes of the project which results from the clearing of lands or from the maintenance or alteration of the project works. In addition, all trees along the periphery of project reservoirs which may die during operations of the project shall be removed. Upon approval of the clearing plan all clearing of the lands and disposal of the unnecessary material shall be done with due diligence and to the satisfaction of the authorized representative of the Commission and in accordance with appropriate Federal, State, and local statutes and regulations.

Article 21. Material may be dredged or excavated from, or placed as fill in, project lands and/or waters only in the prosecution of work specifically authorized under the license; in the maintenance of the project; or after obtaining Commission approval, as appropriate. Any such material shall be removed and/or deposited in such manner as to reasonably preserve the environmental values of the project and so as not to interfere with traffic on land or water. Dredging and filling in a navigable water of the United States shall also be done to the satisfaction of the District Engineer, Department of the Army, in charge of the locality.

Article 22. Whenever the United States shall desire to construct, complete, or improve navigation facilities in connection with the project, the Licensee shall convey to the United States, free of cost, such of its lands and rights-of-way and such rights of passage through its dams or other structures, and shall permit such control of its pools, as may be required to complete and maintain such navigation facilities.

Article 23. The operation of any navigation facilities which may be constructed as a part of, or in connection with, any dam or diversion structure constituting a part of the project works shall at all times be controlled by such reasonable rules and regulations in the interest of navigation, including control of the level of the pool caused by such dam or diversion structure, as may be made from time to time by the Secretary of the Army.

Article 24. The Licensee shall furnish power free of cost to the United States for the operation and maintenance of navigation facilities in the vicinity of the project at the voltage and frequency required by such facilities and at a point adjacent thereto, whether said facilities are constructed by the Licensee or by the United States.

Article 25. The Licensee shall construct, maintain, and operate at its own expense such lights and other signals for the protection of navigation as may be directed by the Secretary of the Department in which the Coast Guard is operating.

Article 26. If the Licensee shall cause or suffer essential project property to be removed or destroyed or to become unfit for use, without adequate replacement, or shall abandon or discontinue good faith operation of the project or refuse or neglect to comply with the terms of the license and the lawful orders of the Commission mailed to the record address of the Licensee or its agent, the Commission will deem it to be the intent of the Licensee to surrender the license. The Commission, after notice and opportunity for hearing, may require the Licensee to remove any or all structures, equipment and power lines within the project boundary and to take any such other action necessary to restore the project waters, lands, and facilities remaining within the project boundary to a condition satisfactory to the United States agency having jurisdiction over its lands or the Commission's authorized representative, as appropriate, or to provide for the continued operation and maintenance of nonpower facilities and fulfill such other obligations under the license as the Commission may prescribe. In addition, the Commission in its discretion, after notice and opportunity for hearing, may also agree to the surrender of the license when the Commission, for the reasons recited herein,

deems it to be the intent of the Licensee to surrender the license.

Article 27. The right of the Licensee and of its successors and assigns to use or occupy waters over which the United States has jurisdiction, or lands of the United States under the license, for the purpose of maintaining the project works or otherwise, shall absolutely cease at the end of the license period, unless the Licensee has obtained a new license pursuant to the then existing laws and regulations, or an annual license under the terms and conditions of this license.

Article 28. The terms and conditions expressly set forth in the license shall not be construed as impairing any terms and conditions of the Federal Power Act which are not expressly set forth herein.

UNITED STATES OF AMERICA 59 FERC 62, 151
FEDERAL ENERGY REGULATORY COMMISSION

Central Maine Power Company
Union Water Power Company

Project No. 2302-030
Maine

ORDER AMENDING LICENSE AND REVISING ANNUAL CHARGES
(ISSUED MAY 13, 1992)

On February 4, 1991, the licensees, Central Maine Power Company (CMP) and Union Water Power Company (UWPCo), filed a request for an amendment of license for the Lewiston Falls Project, FERC No. 2302.

Background

The license, issued on September 29, 1986, authorizes the use of existing generating facilities at Bates Weave Shed, Hill Mill, Upper Androscoggin, Lower Androscoggin, Continental Mills, and Bates No. 2 with a total existing installed capacity of 7.32 megawatts (MW). The license also authorizes a new powerhouse containing two generating units with a total installed capacity of 25 MW. The project's total authorized installed capacity, including the new development, is 32.32 MW.

Amendment of License

The amendment proposes to increase the project's authorized installed capacity of the new powerhouse from 25 MW to 28.44 MW. The project's total installed capacity would increase from 32.32 MW to 35.76 MW. The proposed increase reflects the actual name plate rating of the two generators which have been installed in the new powerhouse. The total authorized hydraulic capacity of the two turbines, 6,600 cfs, will not be changed by the amendment of license. Additionally, no changes to the required minimum flows, as specified in the license, will occur.

Comments were requested from interested Federal, state, and local agencies including the Maine Department of Environmental Protection, the U.S. Fish and Wildlife Service (USFWS), and the Maine Historic Preservation Commission. No agency objected to the proposed increase in the project installed capacity.

The City of Lewiston (City), by letter dated January 16, 1991, objected to the amendment of license. By letter dated April 15, 1992, the City says it has resolved its differences with CMP and, therefore, it withdraws its objection.

-2-

This order approves the amendment with a total installed capacity of 47,700 hp--effective the date on which the license became effective--which the Commission would use to determine the annual charges for administering Part I of the Act.

The increase in installed capacity doesn't materially affect the Commission's determination that the Upper North Fork Feather River Project, is best adapted to the comprehensive development of the waterway.

The Commission orders:

(A) The license for the Lewiston Falls Project, FERC No. 2302, is amended as provided in this order, effective the first day of the month in which this order is issued.

(B) The project description found in ordering paragraph (B)(2)(c) of the license is amended, in part, to read as follows:

Superseded: Aug. 3, 1998.
See Order

... (c) a new powerhouse near the east end of Dam #4 containing two turbine/generators with a total installed capacity of 28.44 MW and a hydraulic capacity of 6,600 cfs; (d) ...

(C) Article 201 of the license is revised to read as follows:

Article 201. The licensees shall pay the United States the following annual charge effective September 1, 1986, the first day of the month in which the license was issued:

Revised: July 21, 1992 and
Aug. 3, 1998. See Orders

For the purpose of reimbursing the United States for the cost of administration of Part I of the Act, a reasonable amount as determined in accordance with the provisions of the Commission's regulations in effect from time to time. The authorized installed capacity for that purpose is 47,700 horsepower.

(D) This order constitutes final agency action. Requests for rehearing by the Commission may be filed within 30 days of the date of issuance of this order, pursuant to 18 C.F.R. 385.713.

J. Mark Robinson
Director, Division of Project
Compliance and Administration

84 FERC ¶ 62,092

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Central Maine Power Company)

Project No. 2302-044

ORDER AMENDING LICENSE

AUG 3 1998

On September 30, 1998, Central Maine Power Company (CMP), licensee for the Lewiston Falls Project, requested an amendment of license to delete an inoperable powerhouse (Lower Bates No. 2 Station) and related facilities. 1/ The licensee states the Bates No. 2 Generating Station has been inoperable since 1994. The project is located on the Androscoggin River in Androscoggin County, Maine.

BACKGROUND

The Lewiston Project consists of a dam, impoundment, canal system, and 6 generating facilities: Charles E. Monty Station, Bates Weave Shed, Hill Mill, Lower Androscoggin, Continental Mills, and Lower Bates No. 2. The total installed capacity of the project is 36,804 kW. 2/ The Bates No. 2 Station is located on one of the canals (Cross Canal #3) of the project. Since 1994, the Bates No. 2 Station has been shut down due to repair requirements. CMP does not plan to repair the station because it is not cost effective.

THE AMENDMENT

The licensee proposes to delete the Bates No. 2 Station from the license. The Bates No. 2 Station consists of a wooden gatehouse, a 175-foot-long, 10-foot-diameter steel penstock, a powerhouse containing a 450-kW generating unit, and a tailrace. Deleting the Bates No. 2 Station from the license would decrease the installed capacity of the project from 36,804 kW to 36,354 kW.

CONSULTATION AND COMMENTS

Prior to filing the application, CMP consulted with Federal, state, and local government agencies. Table 1 identifies the agencies that commented on the proposal.

980804-0470-3

- 1/ 36 FERC ¶62,353, Order Issuing New License (Major Project-- Existing Dam), issued September 29, 1986.
- 2/ 60 FERC ¶62,033, issued July 21, 1992.

FERC - Docketed
BL
AUG 3 1998

Project No. 2302-044

-2-

Table 1. Comments received on the proposed action

CONSULTED AGENCY	DATE OF LETTER
Maine Department of Conservation (MDC)	July 24, 1996
Maine Department of Defense and Veteran's Services (MDDVS)	July 24, 1996
Maine Executive Department (MED)	July 24, 1996
Maine Department of Environmental Protection (MDEP)	July 25, 1996
Maine Department of Marine Resources (MDMR)	July 25, 1996
U.S. Fish and Wildlife Services (FWS)	August 9, 1996
National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NMFS)	August 19, 1996
Maine Historic Preservation Commission (SHPO)	August 21, 1996
Maine Department of Inland Fisheries and Wildlife (MDIFW)	August 29, 1996
Maine Historic Preservation Commission	September 18, 1996

In general, the FWS, MDMR and MDC state that the station has been shutdown since April 1994; the proposed action will not affect present operation of the project; and no negative impacts on environmental resources are expected. They, therefore, concur with the proposal.

After receiving the application, the Commission issued a public notice. The public comment period extended from November 19, 1996 through December 19, 1996. No comments were received in response to the public notice.

DISCUSSION

When Bates No. 2 Station was operational, water necessary for its operation was diverted from Cross Canal #3. Since the station has been shutdown, the water in the canal bypasses the Station's intake structure, flows over the weir that maintained

Project No. 2302-044

-3-

the Station's head elevation, and continues to flow down through Canal #3 and into the Androscoggin River. The quantity of water discharged into the river at the terminus of Canal #3 is the same with or without the station operating. The station was an integral part of the Bates Fabrics, Inc. mill building.

* See Errata Notice

We completed an Environmental Assessment (EA) for the proposed amendment in June 1998. ^{3/} The EA, which is attached to this order, concludes that approval of the application would not constitute a major federal action significantly affecting the quality of the human environment.

Environmental impacts of deleting the Bates No. 2 Station from the project would be negligible. There is no potential for adverse effects on fish and water quality resources. There is no significant impact on the area's scenic value and recreational use. There would be no affect on historical or cultural resources.

This order approves the amendment of license to delete the Bates No. 2 Station from the license, and to revise the installed capacity of the project from 36,804 kW to 36,354 kW. Approving this amendment of license does not change the Commission's determination that the project is best adapted to comprehensive development of the waterway for beneficial public uses.

The Director orders:

(A) The application to amend the license for the Lewiston Falls Project, FERC No. 2302, filed on September 30, 1996, to delete Bates No. 2 Station is approved.

(B) The description of Bates No. 2 Station is deleted from the exhibit A under the license.

(C) The following revised exhibit G drawings are approved and made part of the license:

Exhibit	FERC Drawing No.	Showing	Superceding
G-1	2302-56	General Map	2302-55
G-4	2302-57	Detail Map, Upper & Lower Cross Canals	2302-48

* This Sentence Added by Errata Notice, 8/14/98

To insure the proper and safe operation of the project, the licensee should seal off the Station's intake structure, and secure the area surrounding the remnants of the Station

^{3/} Environmental Assessment for the Lewiston Falls Project, FERC No. 2302-044. This document is attached to this order.

Project No. 2302-044

-4-

(D) Exhibit F-13, FERC drawing No. 2302-39, which shows Bates No. 2 Station, and the superceded exhibit G drawings are deleted from the license.

(E) The description of the project found in ordering paragraph (B)(2) of the license is revised to read as follows:

(2) Project works consisting of: (a) the Great Stone Dam, which is comprised of five sections with an elevation of 168.17 feet (ft) m.s.l; four stone masonry main sections capped with eight inches of reinforced concrete, and one concrete section known as Island Spillway. The first four sections include 4-foot-high flashboards. The fifth section include a 1.34-foot-high flashboards; (b) a 200-acre reservoir with a storage capacity of 1,600 acre-feet at a full pond elevation of 168.17 ft. m.s.l; (c) a new powerhouse near the east end of Dam #4 containing two turbine/generators with a total installed capacity of 28.44 MW and a hydraulic capacity of 6,600 cfs; (d) two gate house buildings impounding the reservoir; (e) a canal system consisting of two main canals; Upper and Lower Canal, and three interconnecting canals; Cross canals #1, #2, and #3. The canals vary from 10 to 12 ft in depth, from 23 to 65 ft in width, and from 570 to 4,400 in length ft; (f) the Upper Canal, 4,400 ft long and 65 ft wide, which directs water to the Bates Weave Shed located at the head of Cross Canal #1, containing three turbine/generators for an installed capacity of 3,900 kW; (g) two penstocks off the Upper Canal, each serving three turbines at the Hill Mill Station located at the head of Cross Canal #2, which contains six turbine/generators for an installed capacity of 2,160 kW; (h) two penstocks at the Lower Canal, which is 1,300 ft long and 50 ft wide and provides water to Continental Mills located on Cross Canal #3, which contains five turbine/generators for an installed capacity of 1,584 kW; (i) three stone arch tailrace tunnels; (j) the Lower Androscoggin Station located on Gulley Brook containing one turbine/generator for an installed capacity of 270 kW; (k) the tailrace, part of the powerhouse foundation, which discharges directly into the Androscoggin River; (l) 600-volt generator leads and appurtenant facilities for the existing plants; (m) 12.5-kV generator leads; (n) a 12.5/34.5-kV, 30 MVA transformer; (o) a short 34.5-kV service-drop; and (p) appurtenant facilities.

(F) Article 201 of the license is revised, in part, as follows:

Article 201. The licensee shall pay the following annual charges for the purpose of reimbursing the United States for the cost of administration of Part I of the Act:

Project No. 2302-044

-5-

(4) The licensee shall pay a reasonable amount, as determined in accordance with provisions of the Commission's regulations in effect from time to time. The authorized installed capacity for that purpose is 36,354 kW, effective the first of the month in which this order is issued.

(G) Within 90 days of the date of issuance of this order, the licensee shall file three original sets of aperture cards of the approved drawings. All aperture cards should be reproduced on silver or gelatin 35mm microfilm. All microfilm should be mounted on a Type D (3 1/4" x 7 3/8") aperture card.

Prior to microfilming, the FERC Drawing Number (2302-56 through 2302-57) shall be shown in the margin below the title block of the approved drawings. After mounting, the FERC Drawing Number should be typed in the upper right corner of each aperture card. Additionally, the Project Number, FERC exhibit (i.e., G-1), Drawing Title, and date of this order should be typed in the upper left corner of each aperture card. See Figure 1.

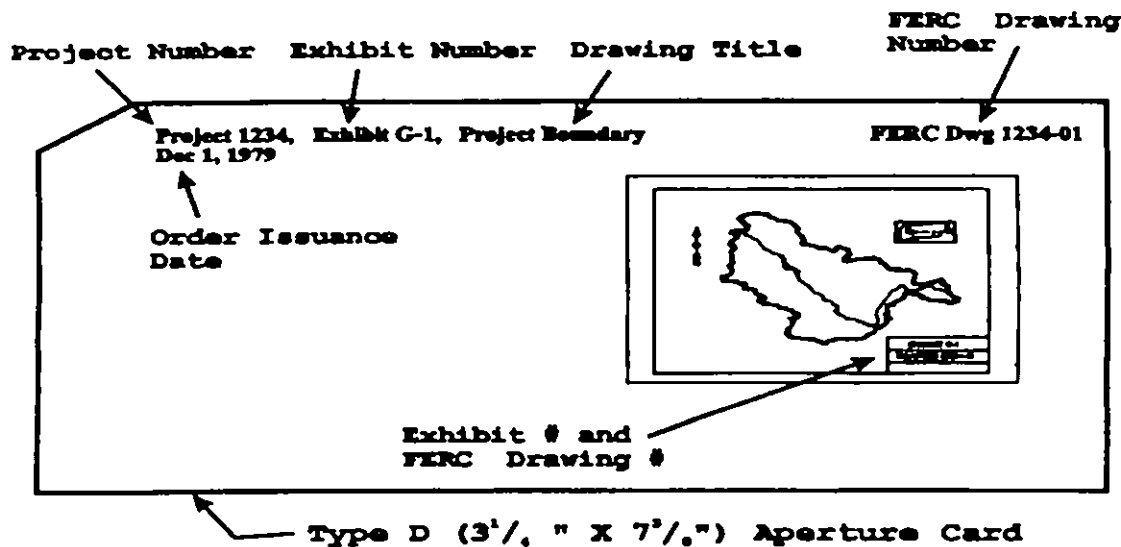


Figure 1. Sample Aperture Card Format

Two original sets of aperture cards should be filed with the Secretary of the Commission. The remaining set of aperture cards should be filed with the Commission's New York Regional Office.

The following ordering paragraph (H) is added: by Errata Notice 8/14/98
 (H) Within 90 days from the issuance date of this order, the licensee shall file with the Commission's New York Regional Office a plan and schedule for the sealing of the Station's intake structure and for securing the area surrounding the remnants of the Station.

Project No. 2302-044

-6-

(I) This order constitutes final agency action. Requests for rehearing by the Commission may be filed within 30 days of the date of issuance of this order, pursuant to 18 C.F.R. § 385.713.



Carol L. Sampson
Director
Office of Hydropower Licensing

ENVIRONMENTAL ASSESSMENT

FEDERAL ENERGY REGULATORY COMMISSION OFFICE OF HYDROPOWER LICENSING DIVISION OF LICENSING AND COMPLIANCE

Project Name: Lewiston Falls Project
(FERC No. 2302-044)

A. APPLICATION

1. Application: Amendment of Project License (Removing the Bates No. 2 Generating Station from the project boundary)
2. Date Filed: September 30, 1996
3. Applicant: Central Maine Power
4. Water body: On the Androscoggin River approximately 4,000 feet upstream from its confluence with the Little Androscoggin River.
5. Cities(s): Lewiston and Auburn, Maine.

B. PURPOSE AND NEED FOR ACTION

On September 30, 1996, Central Maine Power (CMP) filed an application requesting an amendment of the project license for the Lewiston Falls Project to remove the inoperable Bates No. 2 generating station (Station) from the project boundary. One of the penstocks which originally fed the station generating units ruptured about six years ago, leading to complete shutdown. CMP also requests that the Commission adjust the administrative annual capacity fee required by article 201 to reflect the reduced generating capacity.

C. PROPOSED PROJECT AND ALTERNATIVES

1. Description of the Project and Proposed Action

The Lewiston Falls Project is located in the New England seaboard region in the Cities of Auburn and Lewiston, Maine. The project is within the Androscoggin River Basin. Figure 1 shows the location of the Bates No.2 Station within the project canal system.

The reservoir is controlled by two project gatehouses, the Little Gatehouse and the Main Gatehouse. The Main Gatehouse marks the beginning of the project canal system. The canals were constructed between 1850 and 1859 to provide waterpower to the various industrial complexes on the canal system. The canal system comprises two main canals, the Upper and Lower Canals, and three interconnecting canals; Cross Canal #1, #2 and #3. The Bates No. 2 Station (station) is located on Cross Canal #3. Water necessary for the station to operate was diverted from Canal #3. Since the project was shutdown, the water in the canal bypasses the intake structure to the station, flows over the weir that maintained the head elevation for the station and continues to flow down through Canal#3 and into the Androscoggin River. The quantity of water discharged into the river at the terminus of Canal #3 is the same with or without the station operating. The station was an integral part of the Bates Fabrics, Inc. mill building.

CMP proposes to remove the station from the project boundary for administrative and financial reasons. No physical changes to project facilities, construction, or ground disturbing activities are proposed.

2. Action Alternatives

No alternative actions have been identified.

3. No-action Alternative

Under the No-action Alternative, the Commission would deny the application. Denial would mean CMP would retain the inoperable station within the project boundary.

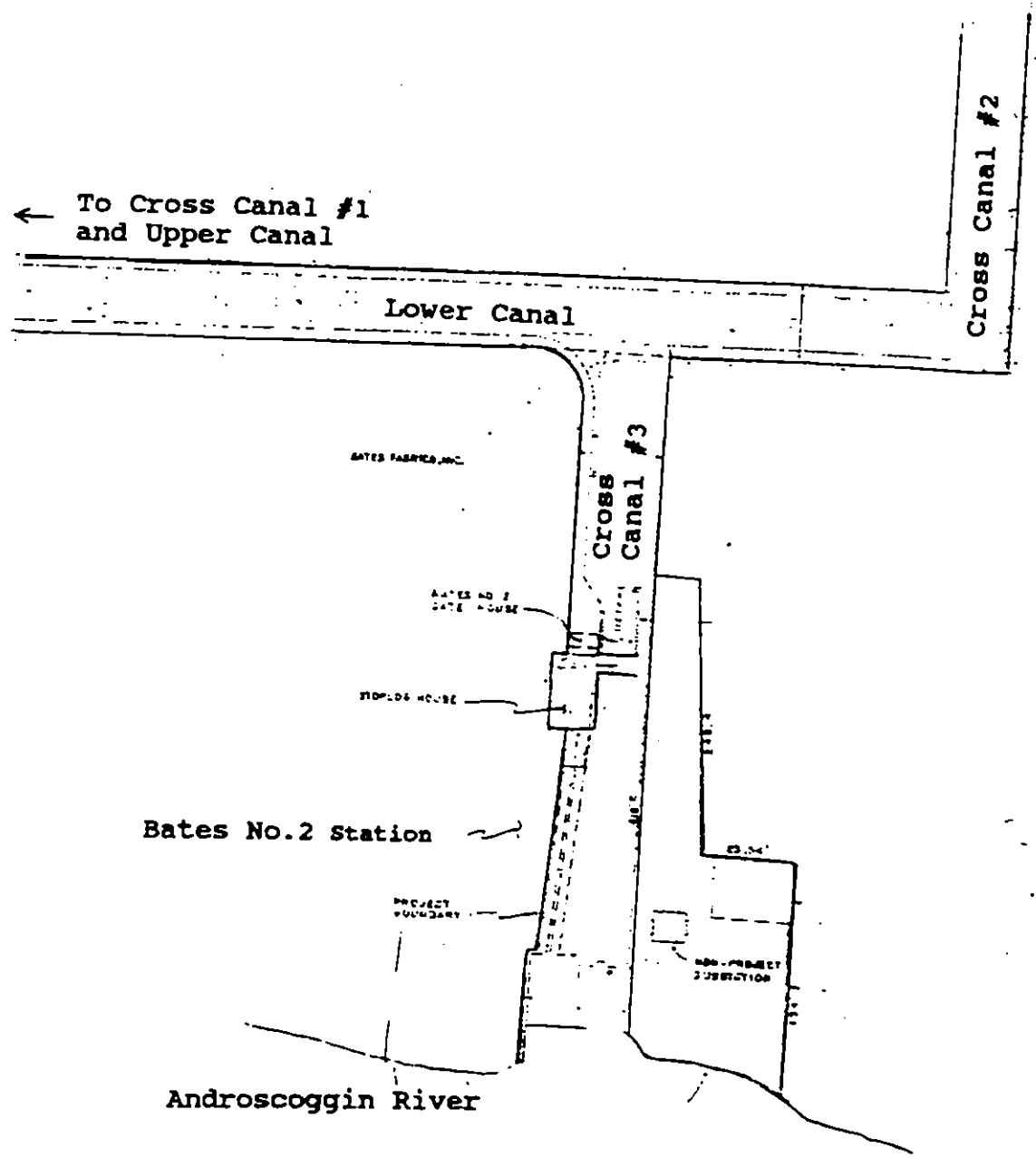


Figure 1. Location of the Bates No. 2 Station within the canal system for the Lewiston Falls Project, FERC Project No. 2232-346.

D. CONSULTATION AND COMMENTS

Prior to filing the application, CMP consulted with Federal, state, and local government agencies. Table 1 identifies the agencies that commented on the proposal.

After receiving the application, the Commission issued a public notice. The public comment period extended from November 19, 1996 through December 19, 1996. No comments were received in response to the public notice.

Table 1. Comments received on the proposed action

CONSULTED AGENCY	DATE OF LETTER
Maine Department of Conservation (MDC)	July 24, 1996
Maine Department of Defense and Veteran's Services (MDDVS)	July 24, 1996
Maine Executive Department (MED)	July 24, 1996
Maine Department of Environmental Protection (MDEP)	July 25, 1996
Maine Department of Marine Resources (MDMR)	July 25, 1996
U.S. Fish and Wildlife Services (FWS)	August 9, 1996
National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NMFS)	August 19, 1996
Maine Historic Preservation Commission (SHPO)	August 21, 1996
Maine Department of Inland Fisheries and Wildlife (MDIFW)	August 29, 1996
Maine Historic Preservation Commission	September 18, 1996

In general, the FWS, MDMR and MDC state that the station has been shutdown since April 1994; the proposed action will not affect present operation of the project; and no negative impacts

on environmental resources are expected. They, therefore, concur with the proposal.

The MDDVS states that it has no comment on the proposal.

The MED State Planning Office indicates that while the proposal is inconsistent with State energy policy, which promotes maximization of energy benefits at existing hydro facilities, it understands the reasoning behind the proposal. Further, because there are no changes in the present operation and no further impacts on environmental resources are expected, it offers no objection to the proposal.

The MDEP approved the proposal as a "minor project modification causing no additional environmental impact." The MDEP reminds CMP that it remains responsible for complying with the terms and conditions of the Maine Waterway Development and Conservation Act Permit and Water Quality Certificate (#L-009206) for the project, as issued by the State on June 6, 1986, and as subsequently modified by MDEP.

The NMFS indicates that due to limited staff resources, it will not be able to adequately evaluate or comment on the proposal. NMFS, therefore, defers review and comment to the FWS and MDMR.

The SHPO states that a National Register of Historic Places (Register) Inventory Nomination Form was completed for the Lewiston Water System District on October 15, 1983. The form described some of the project structures as part of the District. The project generating stations were determined to be eligible for listing in the Register by the National Park Service on December 9, 1983. The SHPO believes that the powerhouses associated with the project are significant features of a larger industrial mill/canal complex in Lewiston that merit nomination to the National Register of Historic Places. The SHPO considers the Bates No. 2 Station to be a contributing property in this historic district.

The MDIFW states that because the Station is located within the highly developed canal system in Lewiston and no changes to the license-required flow regimes are proposed, it appears that there would be minimal effects on fisheries and wildlife resources. They offer no objection to the proposal.

E. AFFECTED ENVIRONMENT

The project is located on the Androscoggin River, about 4,000 feet upstream from its confluence with the Little Androscoggin River. The project reservoir (at full pond) extends 2.5 miles upstream to the Deep Rips Dam and covers an area of 200 surface acres. At full pond, the reservoir has a gross storage volume of 1600-acre feet. At the Deer Rips Project (FERC No. 2283), the Androscoggin River drains an area about 2,900 square miles in size.

The topography of the project area ranges from level to moderately steep hills with the highest slope in the area at 360 feet, m.s.l. Temperatures range from cool to moderately warm summer temperatures averaging 67 degrees Fahrenheit in the summer and 20 degrees in the winter.

1. Water Resources

The Androscoggin River begins near Errol, New Hampshire. As it flows 169 miles to its confluence with Merrymeeting Bay, the river descends 1,245 feet in elevation. The Androscoggin River is a regulated river with flows initially regulated by several storage dams located in Maine and New Hampshire. The river has been used for industrial purposes long before the turn of the century.

The Androscoggin River was one of the 10 most polluted rivers in the United States due to the discharge of industrial wastes located along its banks. The operation of waste treatment facilities and the creation of and compliance with more stringent environmental regulations has resulted in substantial improvement in the river's water quality (FERC, 1986). Water quality in the Lower Androscoggin showed the most significant improvement between 1975 and 1985. The water quality in the Lower Androscoggin River continues to be relatively poor and periodically falls below its class C State classification (FERC, 1996).

2. Fish and Wildlife Resources

Improved water quality over the past decades and the establishment of the Androscoggin River anadromous fish restoration program led to the development of fish populations in the river near the project area. The sport fish community in the project area is comprised of chain pickerel small and largemouth bass, yellow perch, and various sunfish (FERC, 1986). The canal system itself does not support a fishery.

Wildlife habitat in the areas adjacent to the project reservoir is limited because of urban and suburban development. Wildlife that occurs in the limited habitat, that is provided by the reservoir and wooded shoreline, includes raccoon, mink, muskrat, gray squirrel, chipmunk and songbirds (FERC, 1986).

3. Recreation, Aesthetic and Land Use Resources

The project area is surrounded by industrial buildings, bridges, some trees, rock outcroppings, views of the turbulent river, and some park land. Other aesthetically pleasing sights in the project area which contribute to the recreational experiences in the project area are the historic structures such as the canal system and the project features. Overlook locations in the area provide impressive views of the project area.

The project has a Commission-approved recreation plan that CMP implements. Two public use sites are available at the project; West Pitch Recreational Area and Heritage Park. Both are riverside access areas that provide a park setting with scenic views and passive recreational activities.

4. Cultural Resources

The project vicinity is a historically significant area. By letter dated September 18, 1996, the Maine State Historic Preservation Officer (SHPO) states that a National Register of Historic Places (Register) Inventory Nomination Form was completed for the Lewiston Water System District (System) on October 15, 1983. The form described some of the project structures as part of the District. The project generating stations were determined to be eligible for listing in the Register by the National Park Service on December 9, 1983. The System is a complex of interconnected dams, canals, weirs, and associated structures built between 1836 and 1860 to provide water power to textile mills. It is the only such complex in Maine, and is responsible for Lewiston's development as a textile mill town.

F. IMPACTS AND DISCUSSION

1. Proposed Action

Water, Fish and Wildlife Resources

Ceasing operation of the station has no potential to adversely affect water quality or fish resources at the project.

The station is located within a canal system and essentially operates in a run-of-river mode. As licensed, the station generated with water available in the canal system. In its existing inoperable condition, the station is simply bypassed by canal system water, unused for generation. The station, in-and-of-itself does not have any affect on the flows entering or leaving the Lewiston Falls Project (which encompasses the entire canal system).

The station also has no part in fish mitigation or enhancement measures required by the license. As previously discussed, the FWS, NMFS, MDMR, and MDIFW expressed no objection to the proposal and indicates no potential for adverse effects on fish and water quality resources.

Recreation, Aesthetics and Other Land Uses

The station and immediate vicinity are not used for recreational purposes because it is an industrialized area and fenced off from public use due to safety concerns. There are other nearby areas more appropriate for public use.

The West Pitch Recreational Area and Heritage Park sites would not be affected by this proposal. Recreational use and the associated scenic character of the area would not be affected by the proposed action.

Cultural Resources

The SHPO believes that the powerhouses associated with the project are significant features of a larger industrial mill/canal complex in Lewiston that merit nomination to the National Register of Historic Places. The SHPO considers the Bates No. 2 Station to be a contributing property in this historic district.

The SHPO has determined that the proposed license amendment would have no adverse affect on historic properties. This finding is conditioned on the outcome of future consultation between the SHPO and CMP as well as any mitigation that may be needed at such time that CMP may plan to alter the station. In view of these facts, the SHPO requests that CMP conduct further consultation if or when CMP takes any action regarding this property. By letter dated September 30, 1996, CMP agreed to consult with the SHPO prior to any disturbance of the Bates No. 2 station.

We believe that removing the station from the project boundary would have no adverse effect on historic properties at the project. There is no proposed disturbance to the subject station and CMP has proposed to consult with the SHPO before any structural disturbance is undertaken in the future.

Pursuant to Section 106 of the National Historic Preservation Act, we sent a letter, dated August 4, 1997, to the Advisory Counsel on Historic Preservation requesting concurrence with our determination. No response was received from the Advisory Counsel.

2. No-action Alternative

Under the No-action Alternative, denial of CMP's request to remove the station from the project boundary would result in a status quo condition. The station would likely remain uneconomical to operate and would remain inoperable.

G. CONCLUSIONS

The environmental effects of the proposed action are expected to be negligible. We conclude that approving the application would not constitute a major Federal action significantly affecting the quality of the human environment.

H. LITERATURE CITED

Central Maine Power Company and The Union Water-Power Company. 1985. Application for license for the Lewiston Falls Hydroelectric Project, FERC 2302, Maine.

Federal Energy Regulatory Commission. 1986. Final Environmental Assessment, Lewiston Falls Hydroelectric Project. FERC Project No. 2302. July 31, 1986.

Federal Energy Regulatory Commission. 1986. Final Environmental Impact Statement, Lower Androscoggin River Basin Hydroelectric Projects. FERC Project Nos. 2283-005, 11482-000, Maine. July 31, 1986.

I. LIST OF PREPARERS

Federal Energy Regulatory Commission

Brian Romanek, Environmental Protection Specialist

147 FERC ¶ 62,127
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Brookfield White Pine Hydro LLC

Project Nos. 2302-075 and
2530-053

ORDER APPROVING AS-BUILT EXHIBITS A AND F AND REVISING PROJECT
DESCRIPTIONS

(Issued May 16, 2014)

1. On February 6, 2014, and supplemented March 21, 2014, Brookfield White Pine Hydro LLC, licensee for the Lewiston Falls¹ and Hiram² Projects, FERC Nos. 2302 and 2530, respectively, filed revised as-built Exhibits A and F for Commission approval. The Lewiston Falls project is located on the Androscoggin River, in Androscoggin County, Maine. The Hiram Project is located on the Saco River, in Cumberland and Oxford counties, Maine.

Background

2. The Commission, in letters dated December 3, 2010, and April 23, 2012, requested the licensee to file revised as-built exhibits after completion of construction of inflatable bladders at both projects. The licensee filed revised Exhibit A and Exhibit F-1 drawings for both projects to describe and show the recently completed inflatable bladder modifications.

Review

3. We have reviewed the revised Exhibit As and found they include an accurate description of as-built conditions.³ The revised Exhibit As conform to the Commission's

¹ *Central Maine Power Company and Union Water-Power Company*, 36 FERC ¶ 62,353 (1986).

² *Central Maine Power Company*, 21 FERC ¶ 62,483 (1982).

³ The page numbering for the Exhibit A filed on March 21, 2014, for the Lewiston Falls Project appears to have several pages missing. However, Commission staff confirmed with the licensee via a telephone conversation on March 24, 2014, that the "missing pages" were removed because the information is unnecessary and inaccurate.

(continued)

rules and regulations and are approved by ordering paragraph (A) of this order. The previous Exhibit As are superseded by this order. Ordering paragraphs (B) and (C) of this order revises the project description in ordering paragraphs (B)(2) of the licenses to reflect as-built conditions.

4. Our review of the Exhibit F drawings found they have been updated to accurately display as-built conditions. The drawings submitted conform to the Commission's rules and regulations and are approved by this order, as shown in ordering paragraph (D). In ordering paragraph (E), we are requiring the licensee to file the approved exhibit drawings in aperture card and electronic file formats.

The Director orders:

(A) The revised Exhibit As for the Lewiston Falls Project No. 2302 and the Hiram Project No. 2530, filed on March 21, 2014, conform to the Commission's rules and regulations, and are made part of the licenses. The previous Exhibit As are eliminated from the license.

(B) Ordering paragraph (B) (2) of the license for the Lewiston Falls Project No. 2302, is revised to read as follows:

(2) Project works consisting of: (a) the Great Stone Dam, which is comprised of five sections with an elevation of 168.17 feet (ft.) mean sea level (msl); four stone masonry main sections capped with reinforced concrete, and one concrete section known as Island Spillway. Sections 1 and 2 include 4.9-foot-high inflatable bladders, while sections 3 and 4 (A & B) include 4.43-foot-high inflatable bladders. The fifth section includes a 1.34-foot-high flash boards; (b) a 200-acre reservoir with a storage capacity of 1,600 acre-feet at a full pond elevation of 168.17 ft. msl; (c) a new powerhouse near the east end of Dam #4 containing two turbine/generators with a total installed capacity of 28.44 MW and a hydraulic capacity of 6,600 cfs; (d) two gate house buildings impounding the reservoir; (e) a canal system consisting of two main canals; Upper and Lower Canal, and three interconnecting canals; Cross canals #1, #2, and #3. The canals vary from 10 to 12 ft. in depth, from 23 to 65 ft. in width, and from 570 to 4,400 in length ft.; (f) the Upper Canal, 4,400 ft. long and 65 ft. wide, which directs water to the Bates Weave Shed located at the head of Cross Canal #1, containing three turbine/generators for an installed capacity of 3,900 kW; (g) two penstocks off the Upper Canal, each serving three turbines at the Hill Mill Station located at the head of Cross Canal #2, which contains six turbine/generators for an installed capacity of 2,160 kW; (h) two

The licensee will correct the page numbering for the next time it files a revised as-built Exhibit A.

penstocks at the Lower Canal, which is 1,300 ft. long and 50 ft. wide and provides water to Continental Mills located on Cross Canal #3, which contains five turbine/generators for an installed capacity of 1,584 kW; (i) three stone arch tailrace tunnels; (j) the Lower Androscoggin Station located on Gulley Brook containing one turbine/generator for an installed capacity of 270 kW; (k) the tailrace, part of the powerhouse foundation, which discharges directly into the Androscoggin River; (l) 600-volt generator leads and appurtenant facilities for the existing plants; (m) 12.5-kV generator leads; (n) a 12.5/34.5-kV, 30 MVA transformer; (o) a short 34.5-kV service-drop; and (p) appurtenant facilities.

(C) Ordering paragraph (B) (2) of the license for the Hiram Project No. 2530, is revised to read as follows:

(2) Project works consisting of: (a) a 235-foot-long concrete overflow dam with a maximum height of 30 feet with a 5.38-foot-high inflatable bladder gate system; (b) a 102-foot-long gate section integral with the dam containing a deep sluice gate, a log sluice gate, a trash sluice and a Taintor gate; (c) a 25-foot-wide, 26.9-foot-high abandoned and sealed intake section integral with the dam; (d) an 85-foot-long trashrack, intake and stop log structure; (e) a 255-acre reservoir with a usable storage capacity of approximately 500 acre-feet at 2 feet of drawdown from the top of the flashboards and a normal water surface elevation 349.0 feet (U.S.G.S.); (f) a 320-foot-long, 15.5-foot-diameter penstock bifurcating to a 10-foot-diameter, 170-foot-long penstock to turbine-generator #1 and a 15.5-foot-diameter, 80-foot-long penstock to turbine-generator #2; (g) a powerhouse containing two turbine/generators with a total rated capacity of 10.9 MW; (h) the 300-foot-long, 2.4-kV generator leads and facilities connecting to the 3.9-MVA transformer; (i) the 3.9-MVA, 2.4 / 36.3-kV transformer; (j) the 250-foot-long, 15 kV generator leads; (k) the 10.5-MVA, 12.47 / 34.5-kV transformer; (l) appurtenant facilities.

(D) The following Exhibit F drawings, filed February 6, 2014, conform to the Commission's rules and regulations, and are approved and made part of the licenses:

Exhibit	FERC Drawing No.	Superseded FERC Drawing No.	Title
F-1	2302-60	2302-29	Typical plan – Elevations - Dams No. 1, 2, 3, 4 & 5
F-1	2530-31	2530-21	Concrete Dam - Plan, Elevation, & Sections

(E) Within 45 days of the date of issuance of this order, the licensee shall file the approved exhibit drawings in aperture card and electronic file formats.

a) Three sets of the approved exhibit drawings shall be reproduced on silver or

gelatin 35mm microfilm. All microfilm shall be mounted on type D (3-1/4" x 7-3/8") aperture cards. Prior to microfilming, the FERC Project-Drawing Number (i.e., P-2302-60 and P-2530-31) shall be shown in the margin below the title block of the approved drawing. After mounting, the FERC Drawing Number shall be typed on the upper right corner of each aperture card. Additionally, the Project Number, FERC Exhibit (i.e., F-1, etc.), Drawing Title, and date of this order shall be typed on the upper left corner of each aperture card (See Figure 1).

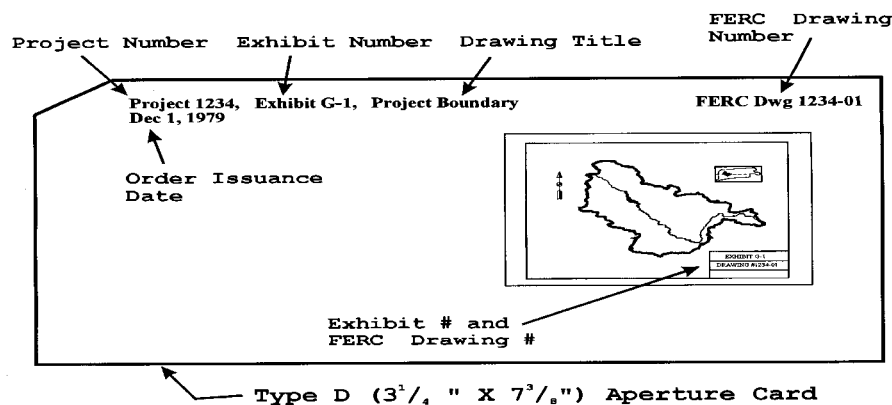


Figure 1. Sample Aperture Card Format

Two of the sets of aperture cards shall be filed with the Secretary of the Commission, ATTN: OEP/DHAC. The third set shall be filed with the Commission's Division of Dam Safety and Inspections New York Regional Office.

b) The licensee shall file two separate sets of exhibit drawings in electronic raster format with the Secretary of the Commission, ATTN: OEP/DHAC. A third set shall be filed with the Commission's Division of Dam Safety and Inspections New York Regional Office. Exhibit F drawings must be segregated from other project exhibits, and identified as **(CEII) material under 18 CFR §388.113(c)**. Each drawing must be a separate electronic file, and the file name shall include: FERC Project-Drawing Number, FERC Exhibit, Drawing Title, date of this order, and file extension in the following format [P-2302-60, F-1, Typical plan – Elevations - Dams No. 1, 2, 3, 4 & 5, MM-DD-YYYY.TIF]. Electronic drawings shall meet the following format specification:

IMAGERY - black & white raster file
 FILE TYPE – Tagged Image File Format, (TIFF) CCITT Group 4
 RESOLUTION – 300 dpi desired, (200 dpi min)
 DRAWING SIZE FORMAT – 24” x 36” (min), 28” x 40” (max)
 FILE SIZE – less than 1 MB desired

(F) This order constitutes final agency action. Any party may file a request for rehearing of this order within 30 days from the date of its issuance, as provided in section 313(a) of the Federal Power Act, 16 U.S.C. § 825*l* (2012), and the Commission's regulations at 18 C.F.R. § 385.713 (2014). The filing of a request for rehearing does not operate as a stay of the effective date of this order, or of any other date specified in this order. The licensee's failure to file a request for rehearing shall constitute acceptance of this order.

Charles K. Cover, P.E.
Chief, Project Review Branch
Division of Hydropower Administration
and Compliance

161 FERC ¶ 62,095UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Brookfield White Pine Hydro, LLC

Project No. 2302-085

ORDER AMENDING LICENSE AND REVISING ANNUAL CHARGES

(Issued November 9, 2017)

1. On February 24, 2017, as supplemented,¹ Brookfield White Pine Hydro, LLC (licensee), licensee for the Lewiston Falls Hydroelectric Project No. 2302, filed an application to amend its license.² The licensee proposes to remove project-related portions of the Lewiston canal system and its four non-operating power stations located on the canal system from the project. The licensee proposes to convey the canal system to the City of Lewiston, Maine, for possible redevelopment for non-power and public use purposes. The Lewiston Falls Project is located on the Androscoggin River in the town of Lewiston, Androscoggin County, Maine. The project does not occupy any federal lands.

Background

2. The Lewiston Falls Project consists of a dam comprised of five sections (Dams No. 1, 2, 3, 4 and 5), impoundment, mainstem power station (Monty Station), and portions of the Lewiston canal system. The current license includes multiple generating facilities with a total authorized installed capacity of 36.35 megawatts (MW).³ In addition to the Monty Station there are four other generating stations on the canal system including: Continental Mill, Hill Mill, Bates Upper, and the Lower Androscoggin stations. The licensee owns and operates the turbine/generating units and associated equipment on the canal system but does not own all the mill buildings housing this

¹ The licensee supplemented its application on June 9, 2017, and November 3, 2017.

² *Central Maine Power Company and Union Water-Power Company*, 36 FERC ¶ 62,353 (1986).

³ *Central Maine Power Company and Union Water-Power Company*, 84 FERC ¶ 62,092 (1989).

equipment. The licensee has stopped generation at all four of the above power stations (generation continues at the Monty Station) but continues to release flows through the canal system consistent with its license, its 1986 Water Quality Certification (WQC), and an agreement with the City of Lewiston.

Proposed Action

3. The licensee proposes to remove the following generating stations from the license: Continental Mill, Hill Mill, Bates Upper, and the Lower Androscoggin stations. In addition, the licensee proposes to remove the following canals and water control facilities from the license: Upper and Lower Canals, Gully Brook (canal), Cross Canals No. 1, 2 and 3, Bates Weir, Continental Weir, Androscoggin Weir, and Red Shop. Facilities that would remain under license include the dam on the mainstem, the Lewiston Falls impoundment, Monty Station, the Main Gatehouse located at the entrance to the canal system, the Little Gatehouse located on the south abutment of Dam No. 4, and the project's transmission facilities. The proposed amendment would reduce the total installed capacity of the project from 36.35 to 28.44 MW.

4. Project operations at the Monty Station and at the remaining facilities would continue unchanged and the licensee would continue to release its required minimum flow of 1,430 cubic feet per second (cfs) or inflow, whichever is less, in accordance with the project's WQC issued on June 6, 1986.

5. The licensee has developed a separate agreement with the City of Lewiston, whereby the licensee would continue to control flows into the Upper Canal and would provide a minimum flow of at least 50 cfs into the Upper Canal at all times, except during periods of maintenance, or in the event of operating emergencies. In addition, the licensee would provide periodic canal "refreshment flows" of 300 cfs. Any flows provided through the canal system would be a portion of the project's required total 1,430 cfs minimum flow.

6. On June 9, 2017, the licensee filed a revised decommissioning plan for its proposed amendment application. The decommissioning plan includes a description of how each of the generation stations would be decommissioned, stabilized, or removed if necessary to maintain safety. The licensee would install fencing where needed, stabilize the tailrace tunnel at Hill Mill, stabilize any unsafe walkways and platforms, and maintain existing security infrastructure. There is very little ground-disturbing activities proposed in the licensee's decommissioning plan.

Comments on the Application

7. Prior to filing its amendment application with the Commission, the licensee submitted a draft application on September 26, 2016, for comment to the appropriate federal, state, and local agencies, tribes, and non-governmental organizations. The licensee received comments from the U.S. Fish and Wildlife Service, Maine Department

of Environmental Protection (Main DEP), Maine Historic Preservation Office (Maine SHPO), Historic Preservation Officer for the Houlton Band of Maliseets, City of Auburn, Androscoggin Land Trust, and Grow L+A. All of these comments were incorporated or addressed in the final amendment application submitted to the Commission.

8. However, in addition to filing comments with the licensee, the City of Auburn and Grow L+A also filed comments with the Commission.⁴ The City of Auburn says it's a stakeholder in this project because it occupies one side of the river and has a contract with the City of Lewiston for shared expenses, revenues, and water use in the canal system. However, requests to renegotiate the contract for shared expenses, revenues, and water use have been denied by the City of Lewiston. Both organizations (the City of Auburn and Grow L+A) expressed similar concerns saying the project supports more recreation than reported by the licensee and both organizations provided additional examples of recreational use including events and festivals held by the Androscoggin Land Trust, the City of Lewiston, the City of Auburn, and Bates College that encourage recreation on the river.

9. Both organizations say the amendment would reduce the licensee's expenses for maintaining facilities and structures and would result in greater profits for the company. The City of Auburn recommends the Commission shorten the license term for the project or recognize that the amendment would be substantial because the licensee's costs would be reduced and public costs would increase. The City of Auburn also recommended the licensee be required to develop a supplemental recreation enhancement plan to help balance public and private impacts to the river. The City of Auburn cited Grow L+A's recommendations that the licensee be required to fulfill the need identified in the *Future Development and Management of Central Maine Power Company's Recreational Facilities, Volume 2: Technical Report (1987)*, by enhancing existing attributes, supporting river-based economic development and supporting cultural and community events. To fund these activities, Grow L+A recommends the licensee allocate \$175,000 to local communities and sponsor \$10,000 annually toward community events and programming. Grow L+A also expressed concern about the amount of water passing over Lewiston Falls saying greater flows would improve aesthetics in the area.

Licensee's Response

10. In its response to these comments, the licensee says it has consulted with the City of Auburn but it disagrees with Auburn's recommendations saying they are unrelated to the hydroelectric project and therefore not the licensee's responsibility and outside the

⁴ The City of Auburn, Maine, filed comments on December 1, 2016 and Grow L+A filed comments on December 15, 2016.

Commission's jurisdiction.⁵ The licensee updated its final application to include the additional recreation information provided by the City of Auburn and Grow L+A. In addition the licensee says the 1987 Technical Report cited by Grow L+A was the basis for the approved recreation plan for the project.⁶

11. Further, the licensee says its application would reduce generation as well as its expenses and that any costs savings would be offset by reduced generation receipts.

12. Because the canal system does not support any recreation facilities, and is currently not available for recreational use, the licensee says the proposed action would not affect recreation at the project. The licensee notes that the canal system would now be available to the City of Lewiston for potential redevelopment including the opportunity for enhanced recreation and access. The licensee says it already has an approved recreation plan for the project and a supplemental recreation enhancement plan is not needed at this time.

13. Finally, in response to Grow L+A's concern about aesthetics at the falls, the licensee says its amendment would not reduce the flows that are currently passed over the falls.

Commission Response

14. Commission staff generally agree with the licensee. Because the license does not require recreation within the canal system, removing this system from the license would not adversely affect project-related recreation. Further, Grow L+A did not provide information to demonstrate a nexus between the proposed action to remove the canal from the project and the need for more recreation. Therefore, we will not require additional recreation as mitigation for this amendment.

15. The City of Auburn recommended the Commission shorten the term of the license for the project so additional mitigation measures can be added to the project in the near future. However, the City of Auburn likewise did not demonstrate a nexus between the proposal and this recommendation. The proposed application would not adversely affect recreation or other environmental resources (as discussed below) and therefore, mitigation is not warranted. The proposed amendment would allow the licensee to convey the canal system to the City of Lewiston which would then be able to redevelop and add recreation should the City choose to do so. The project was given a 40-year license term that expires on September 1, 2026. The licensee must file a Notice of Intent

⁵ The Union Water Power Company conveyed its rights to the water in the Lewiston Canal to the City of Lewiston by deed dated April 10, 1991.

⁶ *Central Maine Power Company*. 55 FERC ¶ 62,010 (1991).

to relicense the project along with a Preliminary Application Document no later than March 2021. The Commission will review this project in a comprehensive manner at that time.

Public Notice

16. On March 13, 2017, the Commission issued a public notice of the application soliciting comments, motions to intervene, and protests with a closing date of April 13, 2017. On April 5, 2017, Maine DEP filed a letter stating that the application required a minor amendment to its Maine Waterway Development and Conservation Act (MWDCa) permit and associated WQC issued June 6, 1986. No other comments were received on the public notice.

17. On July 27, 2017, the licensee filed Maine DEP's determination that the proposed modifications would not significantly affect natural resources in the area or permitted operation of the project. The canal system was removed from the project's MWDCa permit and WQC. This approval was subject to its Standard Conditions of Approval and all other findings remain as approved in the WQC currently issued for the project.

Environmental Review

18. As discussed above, the proposed action would only require minor ground-disturbing activities associated with the licensee's decommissioning plan. The proposed amendment would not involve any significant changes in how the canal system is operated. All project-required minimum flows would continue to be released as specified by the license. Therefore, removing the four generating stations and the canal system as proposed by the licensee would administratively remove these facilities from the license without significant environmental effects.

Fishery Resources

19. In 2009 the Gulf of Maine Distinct Population Segment of Atlantic salmon was listed under the Endangered Species Act. The National Marine Fisheries Service (NMFS) determined that Lewiston Falls is the upstream terminus of critical habitat for this species on the Androscoggin River. NMFS required the licensee to prepare an Interim Species Protection Plan (ISPP) and on July 19, 2013, NMFS issued a Biological Opinion (BO) for the Lewiston Falls, Brunswick, Lockwood, Shawmut, and Weston Projects that approved the ISPP. The BO and the ISPP were incorporated into the project license on December 13, 2012.⁷

⁷ *Brookfield White Pine Hydro, LLC*. 145 FERC ¶ 62,188 (2013).

20. There are no provisions in the BO relative to the operation of the canal system and the canal system does not provide any habitat for Atlantic salmon. In fact, there is no natural fish habitat within the canal system at all. Some fish may periodically use the canal but as discussed above the proposed action only involves minor ground-disturbing activities and all currently-required minimum flows would be maintained. Therefore, removing the canal system from the license would not affect Atlantic salmon and should not significantly affect other fish species.

Recreation

21. All project-required recreation facilities would remain and would continue to be operated in accordance with the license and the project's approved recreation plan. Other than vehicular and pedestrian bridges, there is currently no recreational access to the canal system.

Historic Properties

22. The entire Lewiston canal system is a designated historic district to which some portions of the exiting project are contributing elements. The entire Lewiston Mill and canal historic district have been fully researched, documented, and were listed on the National Register of Historic Places on July 14, 2015. As part of the proposed action, ownership of the canal system would be transferred to the City of Lewiston and the historic properties that comprise the canal system would be nominated to, and listed in, Section 6 of Article XV of the City's Land Use Code which requires these properties to be managed by the City's Historic Preservation Review Board.

23. In a letter dated November 3, 2016, the Maine SHPO determined that the proposed action would adversely affect historic properties because the properties would be transferred out of federal control. The Maine SHPO recommended the Commission enter into a Memorandum of Agreement (MOA) to mitigate for adverse effects. An MOA would ensure that measures are put in place to protect the canal system in the future.

24. Since that letter was issued, the City of Lewiston continued consultation with the Maine SHPO and stated that the canal system would be designated in accordance with Section 6 of its Land Use Code in Article XV and that the formal designation process is underway. In a letter filed September 6, 2017, the Maine SHPO stated that if the designation process is completed prior to issuing the amendment, an MOA would not be necessary.

25. By letter filed November 3, 2017, the licensee notified the Commission that the formal designation process has been completed and therefore, no MOA is needed to mitigate for the adverse effect of removing the canal system from federal jurisdiction. Therefore, no further action is needed to protect historic properties as part of approving the licensee's amendment application.

Administrative Issues

Authorized Installed Capacity and Annual Charges

26. The license authorizes a total installed capacity of 36.35 MW. The proposed amendment would reduce the total installed capacity to 28.44 MW. The Commission collects annual charges from licensees for administration of Part I of the Federal Power Act. Due to the reduction in the authorized installed capacity, ordering paragraph (C) of this order revises Article 201, which provides for the collection of such funds.

As-Built Exhibits

27. The proposed action would remove the canal system and four generating stations from the license. Therefore, we are requiring the licensee in ordering paragraph (D) to file for Commission approval revised as-built Exhibits A, F, and G, as applicable, to show these facilities removed. The revised Exhibit A must comply with 18 CFR section 4.41(b) of the Commission's regulations and the revised Exhibit F and G drawings must comply with sections 4.39 and 4.41(g) and (h) of the Commission's regulations.

Dam Safety

28. The licensee's revised decommissioning plan filed on June 9, 2017, does not satisfactorily address how it would abandon the steel penstock at the Hill Mill left intake to ensure that this facility is left in a safe condition. To ensure project safety, we are requiring the licensee in ordering paragraph (E) to file for Commission approval final plans and specifications and a schedule for abandoning this facility. The final plans and specifications must include, among other things, appropriate measures to ensure the long-term safety of the steel penstock at the Hill Mill left intake. Order paragraph (F) requires the licensee to file a report with photos documenting that the project facilities have been decommissioned in accordance with this order.

Conclusion

29. In its amendment application, the licensee proposes to remove the canal system and its four non-operating generation stations from the project license. This proposal would reduce the project's total installed capacity from 36.35 to 28.44 MW. As discussed above, this work would only involve minor ground-disturbing activities associated with decommissioning and would not involve any significant changes to how flows are released from the project. We do not expect any significant environmental effects from the proposed action. In conclusion, the licensee's proposed amendment application should be approved with the modifications discussed in this order.

The Director orders:

(A) Brookfield White Pine Hydro, LLC's application filed February 24, 2017, and supplemented on June 9, 2017 and November 3, 2017, to amend its license to remove the canal system and its four non-operating generating stations is approved, as modified in ordering paragraphs (B) through (F) below.

(B) Ordering Paragraph (B)(2) of the September 29, 1986 license, is revised to read as follows:

(2) Project works consisting of: (a) the Great Stone Dam, which is comprised of five sections with an elevation of 168.17 feet (ft) msl; four stone masonry main sections capped with eight inches of reinforced concrete and one concrete section known as Island Spillway. The first four sections include 4-foot-high flashboards. The fifth section include 1.34-foot-high flashboards; (b) a 200-acre reservoir with a storage capacity of 1,600 acre-feet at a full pond elevation of 168.17 ft. msl; (c) a powerhouse near the east end of Dam # 4 containing two turbine/generators with a total installed capacity of 28.44 MW and a hydraulic capacity of 6,600 cfs; (d) two gate house buildings impounding the reservoir; (e) 12.5-kV generator leads; (f) a 12.5/34.5-kV, 30 MVA transformer; (g) a short 34.5-kV service-drop; and (p) appurtenant facilities.

(C) Article 201 of the license is revised to read as follows:

Article 201. Administrative Annual Charges. The licensee must pay the United States annual charges, effective the first day of the month in which the license is issued, and as determined in accordance with the provisions of the Commission's regulations in effect from time to time, for the purposes of reimbursing the United States for the cost of administration of Part I of the Federal Power Act. The authorized installed capacity for that purpose is 28.44 MW, effective with the issuance date of this order.

(D) Within 90 days of completion of the decommissioning work authorized by this order, the licensee must file for Commission approval, revised as-built Exhibits A, F, and G, as applicable, to reflect the removal of the facilities from the license as approved in this order. The revised Exhibit A must comply with 18 CFR section 4.41(b) of the Commission's regulations and the revised Exhibit F and G drawings must comply with sections 4.39 and 4.41(g) and (h) of the Commission's regulations.

(E) *Plans and Specifications.* At least 60 days before starting any decommissioning activities, the licensee must submit one copy to the Division of Dam Safety and Inspections (D2SI) – New York Regional Engineer and two copies to the

Commission (one of these must be a courtesy copy to the Director, D2SI) of: (1) a detailed description of the sequence of activities and schedule for removing, repairing, or abandoning project facilities and for any needed site restoration activities; (2) final contract plans and specifications; (3) a Quality Control and Inspection Program; (4) a Temporary Construction Emergency Action Plan; (5) a Blasting Plan, if necessary; (6) a Public Safety Plan during decommissioning activities; and (7) a Debris Disposal Plan. The licensee must also submit monthly progress reports that summarize all decommissioning activities to the D2SI, New York Regional Engineer. The licensee may not begin decommissioning activities until the D2SI- New York Regional Engineer has reviewed and commented on the plans and specifications, and has determined that all preconstruction requirements have been satisfied.

(F) *Final Decommissioning Report.* Within 60 days of completing all project decommissioning activities including any needed restoration activities, the licensee must submit a final decommissioning report to the Division of Dam Safety and Inspections (D2SI) – New York Regional Engineer. The final report must contain photographs as needed and must demonstrate that all project decommissioning activities have been completed in accordance with this amendment.

(G) This order constitutes final agency action. Any party may file a request for rehearing of this order within 30 days from the date of its issuance, as provided in section 313(a) of the Federal Power Act, 16 U.S.C. § 8251 (2012), and the Commission's regulations at 18 C.F.R. § 385.713 (2017). The filing of a request for rehearing does not operate as a stay of the effective date of this order, or of any other date specified in this order. The licensee's failure to file a request for rehearing shall constitute acceptance of this order.

Steve Hocking, Chief
Environmental and Project Review Branch
Division of Hydropower Administration
and Compliance

173 FERC ¶ 62,025
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Brookfield White Pine Hydro, LLC

Project No. 2302-095

ORDER AMENDING PROJECT BOUNDARY AND APPROVING REVISED
EXHIBIT G DRAWINGS

(Issued October 14, 2020)

1. On April 21, 2020, as supplemented on June 3 and 8, 2020, Brookfield White Pine Hydro, LLC, filed an application to amend the license for the Lewiston Falls Hydroelectric Project No. 2302.¹ The licensee proposes to modify the project boundary to shorten the downstream extent of the project boundary by approximately 5 miles. The Lewiston Falls Project is located on the Androscoggin River in the town of Lewiston, Androscoggin County, Maine, and does not occupy any federal lands.

Background

2. As amended,² the Lewiston Falls project consists of: (a) the Great Stone Dam, which is comprised of five sections; (b) a 200-acre reservoir with a storage capacity of 1,600 acre-feet at a full pond elevation of 168.17 ft. msl; (c) a powerhouse near the east end of Dam # 4 containing two turbine/generators with a total installed capacity of 28.44 MW and a hydraulic capacity of 6,600 cfs; (d) two gate house buildings impounding the reservoir; (e) 12.5-kV generator leads; (f) a 12.5/34.5-kV, 30 MVA transformer; (g) a short 34.5-kV service-drop; and (h) appurtenant facilities. The project boundary currently encloses approximately 5.3 miles of the Androscoggin River downstream of the project powerhouse.³

Licensee's Filing

3. The licensee proposes to modify the project boundary to shorten the downstream extent of the project boundary by approximately 5 miles. The revised boundary would

¹ *Central Maine Power Company and Union Water-Power Company*, 36 FERC ¶ 62,353 (1986).

² *Brookfield White Pine Hydro, LLC*, 161 FERC ¶ 62,095 (2017).

³ *Brookfield White Pine Hydro, LLC*, 164 FERC ¶ 62,141 (2018).

enclose approximately 0.28 mile of the downstream river. The licensee's proposal does not include the removal of any lands from the boundary. Additionally, the proposal does not include any changes to current project features, operations, recreation facilities, or public access, and it will have no impact on the generating or water control capabilities.

Comments on the Application

4. Prior to filing its amendment application with the Commission, on March 3, 2020, the licensee provided a draft application for comment to the appropriate federal, state, and local agencies, tribes, and non-governmental organizations. The licensee received comments from the U.S. Fish and Wildlife Service (FWS), Maine Department of Environmental Protection, Maine Bureau of Parks and Lands, and Maine Department of Inland Fisheries and Wildlife. All the comments either stated the agencies had no comments or no concerns.

5. On May 5, 2020, Peter Rubins filed comments on behalf of Grow L+A River Working Group (Grow L+A). On May 8 and June 18, 2020, the City of Auburn (Auburn) and City of Lewiston (Lewiston), respectively, filed comments. Grow L+A, Auburn, and Lewiston all requested the Commission deny the licensee's requested amendment, and stated the proposal should be addressed in the upcoming relicensing proceeding due to possible impacts to aesthetic flows and recreation.

6. The licensee responded to Grow L+A's and Auburn's comments on June 3, 2020. The licensee clarified that no lands or recreational facilities would be removed from the project boundary.

7. On June 8, 2020, the licensee filed a letter dated April 30, 2020, from the Maine Historic Preservation Commission (Maine SHPO) in which the Maine SHPO concluded no historic properties, architectural or archaeological, would be affected by the proposed undertaking.

Public Notice

8. On August 3, 2020, Commission staff issued a public notice of the application soliciting comments, motions to intervene, and protests with a closing date of September 2, 2020. No responses to the public notice were filed with the Commission.

Review

9. Section 4.41(h)(2) of the Commission's regulations provides that a project boundary "must enclose only those lands necessary for operation and maintenance of the project and for other project purposes, such as recreation, shoreline control, or protection

of environmental resources.”⁴ Thus, in evaluating the licensee’s proposal, we must determine whether the area proposed for removal serves a project purpose.

10. We reviewed the licensee’s request to remove approximately 5 miles of the downstream Androscoggin River from the project boundary, and agree that this area is not needed for any project purpose under the license. As described in the licensee’s application, the subject area is downstream of all project facilities and comprises only waters within the mainstem Androscoggin River. The waters are not used for project operations, project recreation, or any other project purposes. Additionally, the downstream project recreation site, the Durham Boat Launch, will remain within the project boundary and be unaffected by this amendment.

11. Based on the comments from the Maine SHPO, FWS, and state fish and wildlife agencies, we determined that the subject waters do not include any unique or sensitive natural resources (e.g., sensitive species or historic properties) that would require protection. The amendment will not adversely affect aquatic resources or water quality, such as dissolved oxygen and minimum flow.

12. Grow L+A and Auburn both requested that the licensee’s amendment be denied, and addressed in the upcoming relicensing proceeding. The requested amendment does not impact any requirements under the current license, including those related to flow and recreation, and will in no way prejudice the relicensing proceeding, including any possible studies the licensee may be required to complete. Therefore, Commission staff find no basis for denying licensee’s application or delaying the processing of it until the relicensing proceeding.

13. Furthermore, none of the other consulted agencies, tribes, or non-governmental organizations raised concerns with the proposal or identified any sensitive resources that would be affected by the proposed project boundary amendment. Additionally, the Commission did not receive any comments in response to the public notice. For the above reasons, the licensee’s request should be approved.

14. The licensee’s amendment application included three revised Exhibit G drawings that reflect the revised project boundary. We georeferenced the drawings and found they agree with our current mapping requirements. The revised drawings conform to the Commission’s rules and regulations and should be approved. In ordering paragraph (C) of this order, we require the licensee to file the approved exhibit drawings and associated geographic information system data in electronic file format.

⁴ 18 C.F.R. 4.41(h)(2) (2020).

The Director orders:

(A) Brookfield White Pine Hydro, LLC's application, filed on April 21, 2020, as supplemented on June 3 and 8, 2020, requesting Commission approval to amend the project boundary for the Lewiston Falls Hydroelectric Project No. 2302, is approved.

(B) The Exhibit G drawings filed on April 21, 2020, for the Lewiston Falls Hydroelectric Project No. 2302, conform to the Commission's rules and regulations, and are approved and made part of the license, as shown below. The previous Exhibits G-1, G-2, and G-3 (drawing nos. P-2302-61, P-2302-58, and P-2302-62, respectively) are superseded and deleted from the license.

Exhibit No.	FERC Drawing No.	Drawing Title
G-1	P-2302-63	Project Detail Map
G-2	P-2302-64	Project Detail Map
G-3	P-2302-65	Project Detail Map

(C) Within 45 days of the date of issuance of this order, as directed below, the licensee must file the approved exhibit drawings and geographic information system (GIS) data in electronic file format.

a) The licensee must prepare digital images of the approved exhibit drawings in electronic format. Prior to preparing each digital image, the licensee must add the FERC Project-Drawing Number (*i.e.*, P-2302-63 through P-2302-65) in the margin below the title block of the corresponding approved drawing. Each drawing must be a separate electronic file, and the file name must include: FERC Project-Drawing Number, FERC Exhibit Number, Filename Title, date of this order, and file extension in the following format [P-2302-63, G-1, Project Detail Map, MM-DD-YYYY.TIF].

Each Exhibit G drawing that includes the project boundary must contain a minimum of three known reference points (*i.e.*, latitude and longitude coordinates or state plane coordinates), arranged in a triangular format for GIS georeferencing the project boundary drawing to the polygon data. The licensee must identify the spatial reference for the drawing (*i.e.*, map projection, map datum, and units of measurement) on the drawing and label each reference point. In addition, a registered land surveyor must stamp each project boundary drawing. All digital images of the exhibit drawings must meet the following format specification:

IMAGERY: black & white raster file
FILE TYPE: Tagged Image File Format, (TIFF) CCITT Group 4
(also known as T.6 coding scheme)
RESOLUTION: 300 dots per inch (dpi) desired, (200 dpi minimum)
DRAWING SIZE: 22" x 34" (minimum), 24" x 36" (maximum)
FILE SIZE: less than 1 megabyte desired

b) Project boundary GIS data must be in a georeferenced electronic file format (such as ArcGIS shapefiles, GeoMedia files, MapInfo files, or a similar GIS format). The filing must include both polygon data and all reference points shown on the individual project boundary drawings. Each project development must have an electronic boundary polygon data file(s). Depending on the electronic file format, the polygon and point data can be included in single files with multiple layers. The georeferenced electronic boundary data file must be positionally accurate to ± 40 feet in order to comply with National Map Accuracy Standards for maps at a 1:24,000 scale. The file name(s) must include: FERC Project Number, data description, date of this order, and file extension in the following format [P-2302, boundary polygon or point data, MM-DD-YYYY.SHP]. The filing must include a separate text file describing the spatial reference for the georeferenced data: map projection used (*i.e.*, UTM, State Plane, Decimal Degrees, *etc.*), the map datum (*i.e.*, North American 27, North American 83, *etc.*), and the units of measurement (*i.e.*, feet, meters, miles, *etc.*). The text file name must include: FERC Project Number, data description, date of this order, and file extension in the following format [P-2302, project boundary metadata, MM-DD-YYYY.TXT]

(D) This order constitutes final agency action. Any party may file a request for rehearing of this order within 30 days from the date of its issuance, as provided in section 313(a) of the Federal Power Act, 16 U.S.C. § 825l (2018), and the Commission's regulations at 18 C.F.R. § 385.713 (2020). The filing of a request for rehearing does not operate as a stay of the effective date of this order, or of any other date specified in this order. The licensee's failure to file a request for rehearing shall constitute acceptance of this order.

Kelly Houff
Chief, Engineering Resources Branch
Division of Hydropower Administration
and Compliance

Appendix C
Water Quality Certificates

Environmental Services Dept.
DF 12-2
File # LEW-1113 Water Quality
LEW-PER-51A



STATE OF MAINE

Department of Environmental Protection

MAIN OFFICE: RAY BUILDING, HOSPITAL STREET, AUGUSTA
MAIL ADDRESS: State House Station 17, Augusta, 04333

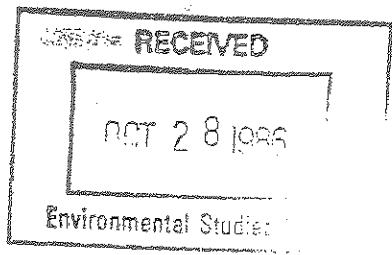
JOSEPH E. BRENNAN
GOVERNOR

KENNETH C. YOUNG, JR.
COMMISSIONER

June 12, 1986

COMMENTS

Kenneth F. Plumb, Secretary
FEDERAL ENERGY REGULATORY COMMISSION
825 North Capitol Street, N.E.
Washington, D.C. 20426



RE: Application for New License
Lewiston Falls Hydro Project
FERC No. 2302

Dear Mr. Plumb:

This Department has reviewed your Notice of Application for New License and the actual application of Central Maine Power and the Union Water Power Company for the Lewiston Falls Project, located on the Androscoggin River in the Cities of Lewiston and Auburn, Androscoggin County, Maine.

The Board of Environmental Protection's Order issuing a hydropower development permit and Water Quality Certification for the proposed project is enclosed (DEP #L-009206-35-A-N, dated June 6, 1986).

In summary, we have approved the construction and operation of the project subject to the following special conditions:

1. Except as specifically limited by conditions beyond the applicant's control, water levels in the impoundment shall be maintained between elevation 168.17 feet (flashboard crest) and elevation 164.17 (spillway crest).
2. An interim instantaneous minimum flow release of 1,000 cfs shall be maintained from the project at all times.
3. The applicants shall conduct a study assessing the impact of minimum flow releases on fish habitat and resources below the project. The results of this study shall be submitted to the Department in conjunction with Central Maine Power Company's Application for New License for the Deer Rips - Gulf Island Project (FERC No 2283). The Department reserves the right to make such adjustments to the approved interim minimum flow release as are warranted by the results of the study.

Kenneth F. Plumb, Secretary

June 12, 1986

Page -2-

4. Acceptable fish passage facilities shall be provided as may be required in the future to allow the migration of anadromous fish through the project site.
5. Except as specifically limited by conditions beyond the applicant's control, dissolved oxygen concentrations shall be maintained at or above an instantaneous minimum of 5.0 ppm in the Androscoggin River below Lewiston Falls and at or above a 30 day average of 6.5 ppm in the Androscoggin River below Dresser's Rips.
6. The applicants shall conduct a study assessing a) reaeration in the project area under existing water quality conditions and operational modes and b) water quality in the Androscoggin River below Lewiston Falls.
7. Acceptable plans for the control of erosion and sedimentation during project construction and operation shall be formulated and followed.
8. Acceptable plans for preventing the stagnation of water in the Lower Canal and for designing the new powerhouse to be compatible with the Cowan Mill Building shall be formulated and followed.
9. The applicants shall conduct a study assessing future recreational needs in and on the water within the project boundary in the Androscoggin River downstream from Lewiston Falls. The Department reserves the right to order the development of such recreational facilities as are warranted by the results of the study.

We recommend that the foregoing special conditions be included in the Articles of any License granted for the project. Please make reference to the enclosed Order for our analysis of the project and the precise language of our conditions.

We note that the U.S. Fish and Wildlife Service and the Maine Department of Inland Fisheries and Wildlife have recommended that existing levels of dissolved oxygen be maintained in the river below Lewiston Falls. We disagree that such levels of dissolved oxygen are necessary to protect existing and planned fish populations in the river. We have instead required that dissolved oxygen concentrations be maintained at not less than a 30 day average of 6.5 ppm, which is above the minimum class C water quality standards of 5.0 ppm, in the river below Dresser's Rips. We have also required further study by the Department's staff, in cooperation with the applicants and the State's fisheries agencies, to determine the level of dissolved oxygen in the river between the Lewiston Falls Dam and Dresser's Rips necessary to ensure adequate fish habitat.

Kenneth F. Plumb, Secretary
June 12, 1986
Page -3-

We also note that the U.S. Fish and Wildlife Service and the State's fisheries agencies have all recommended an instantaneous flow release from the project of 1,450 cfs or inflow to the project area, whichever is less. As discussed in our Order (see pages 11-13), such a requirement could result in periods of zero outflow from the project, due to the operation of the existing Deer Rips-Gulf Island Project. Such an outflow situation at the Lewiston Falls Project will not adequately maintain fish habitat and is therefore unacceptable. We have instead required an interim minimum flow release of 1,000 cfs, as agreed to by the applicants, and a study by the applicants assessing the impact of minimum flow releases on fish habitat below the project.

By Executive Order of the Governor of the State of Maine, the terms and conditions contained in the enclosed Order represent the State's sole, official recommendations regarding the subject Application for License, superceding all preliminary recommendations by individual State agencies.

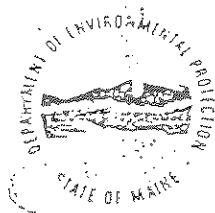
If you should have any questions regarding these comments, please contact Dana Murch of the Department's staff at 207-289-2111.

Sincerely,


Kenneth C. Young, Jr.
Commissioner

KCY:DPM:j
Enclosure

cc: Ralph Bean, Central Maine Power Co.
Thomas Doyle, Esq., representing Central Maine Power Company
Anthony Buxton, Esq., representing Cities of Lewiston and Auburn
Fred Springer, Project Management, FERC
Elizabeth Higgins, Region 1, US EPA
Gordon Beckett, US Fish & Wildlife Service
Ruth Rehfus, National Marine Fisheries Service
Derrill Cowing, Maine Office, US Geological Survey



STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION
STATE HOUSE STATION 17 AUGUSTA, MAINE 04333

BOARD ORDER

IN THE MATTER OF

CENTRAL MAINE POWER COMPANY and) MAINE WATERWAY DEVELOPMENT AND
THE UNION WATER POWER COMPANY) CONSERVATION ACT and
Auburn & Lewiston, Maine, Androscoggin County) WATER QUALITY CERTIFICATION
LEWISTON FALLS HYDROELECTRIC PROJECT)
#L-009206-35-A-N) FINDINGS OF FACT AND ORDER

Pursuant to the provisions of Title 38 MRSA Section 636 and U.S. Public Law 92-500, Section 401 (as amended), the Board of Environmental Protection has considered the application of CENTRAL MAINE POWER COMPANY and THE UNION WATER POWER COMPANY with its supportive data, staff summary, agency review comments, and other related materials on file and finds the following facts:

1. PROJECT DESCRIPTION

The applicants propose to construct a hydroelectric generating facility at Lewiston Falls on the Androscoggin River in the City of Lewiston and to license existing hydroelectric generating facilities located in the Lewiston Canal System.

EXISTING FACILITIES

The existing Great Stone Dam is located on the Androscoggin River in Auburn and Lewiston at the head of Lewiston Falls (also known as Great Falls), approximately 4,000 feet upstream from the confluence of the Little Androscoggin River and the Androscoggin River. The dam actually consists of four main stone-masonry dams, dating from the Civil War era, which are integrated with ledge outcroppings, islands, and a concrete dam spillway section to form a continuous barrier across the river. The stone dams vary in height up to a maximum of 23 feet and are equipped with 4 foot high wooden flashboards. The dam and spillway structures have a combined spillway length of approximately 813 feet.

The dam creates an impoundment with a surface area of approximately 200 acres at a full-pond elevation of 168.17 feet (USGS). The impoundment extends upstream two and one-half miles to the Deer Rips Dam, which is licensed to Central Maine Power Company as part of FERC Project No. 2283. The estimated average flow at the project site is 5,562 cfs from a drainage area of 2,901 square miles.

A gatehouse located at the east end of the dam on the Lewiston bank of the river is used only to dewater the pond for maintenance or under emergency conditions. A second gatehouse located approximately 550 feet to the southeast of the first gatehouse serves as the intake structure and flow regulator for the canal system.

Three existing hydroelectric generating facilities are located between the gatehouses and take water directly from the impoundment. Two of these facilities, the Libbey Mill and Columbia Mill, are owned and operated by the W.S. Libbey Company. These facilities have a combined installed capacity of 735 KW and an average annual power output of 4,400,000 KWH. The other facility is owned and operated by the City of Lewiston. This facility has an installed capacity of 700 KW and an average annual power output of 3,200,000 KWH.

CENTRAL MAINE POWER COMPANY and	2	MAINE WATERWAY DEVELOPMENT AND
THE UNION WATER POWER COMPANY	)	CONSERVATION ACT and
Auburn & Lewiston, Maine, Androscoggin County	)	WATER QUALITY CERTIFICATION
LEWISTON FALLS HYDROELECTRIC PROJECT)	
#L-009206-35-A-N	)	FINDINGS OF FACT AND ORDER

The Lewiston Canal System was constructed during the 1850's to provide water power for various industrial concerns in the City of Lewiston. The system consists of an Upper Canal, a Lower Canal, and three Cross Canals with a total length of approximately 8200 feet (1.55 miles). The canal system was excavated in ledge and till and formed with stone-masonry walls, and is designed to accommodate a maximum flow of 4,000 cfs. The canals vary in depth from 10 to 12 feet and in width from 23 to 65 feet. The system discharges water to the Androscoggin River through Cross Canal No. 1, Cross Canal No. 3, and the Upper Canal via Gulley Brook.

Water levels in the canals are regulated by coordinated operation of the canal gatehouse and a system of gates and flashboards at four control facilities (Bates Weir and Androscoggin Weir on the Upper Canal, Red Shop Weir and Continental Weir on the Lower Canal.) In addition, the Centennial Weir regulates water levels in Gulley Brook.

A total of 19 generating units are located at six separate stations within the canal system. These facilities utilize the various hydraulic heads created between the Upper Canal and the Lower Canal, the Lower Canal and river, and the Upper Canal and the river. These facilities have a total installed capacity of 7,325 KW and an average annual power output of 48,400,000 KWH.

EXISTING OPERATION

The existing Lewiston Falls, Deer Rips, and Gulf Island facilities are currently operated in a coordinated fashion to provide power to meet system load demands and to maximize canal generation during mill production hours.

A. Gulf Island and Deer Rips.

Gulf Island Dam, which along with Deer Rips Dam is licensed to Central Maine Power Company as part of FERC No. 2283, is located approximately 5 miles upstream of Lewiston Falls. The Gulf Island Dam creates an impoundment, Gulf Island Pond, with a surface area of approximately 4,000 acres at a full pond elevation of 262 feet (USGS). This impoundment extends upstream for approximately 17 miles.*

The flow of the Androscoggin River is initially regulated at five headwater storage dams located in Maine and New Hampshire to provide flows of between 1,500 cfs and 2,500 cfs at Berlin, New Hampshire to the maximum extent possible. The Gulf Island Dam is operated to reregulate available flows to the lower river. Anticipated inflow to Gulf Island is estimated for each 7 day period. Using available pondage in Gulf Island

*It is noted that the Deer Rips - Gulf Island Project is not the subject of this proceeding. Consequently, the Board has no jurisdiction at this time to require any operational changes at the Deer Rips Dam or Gulf Island Dam without the consent of CMP.

CENTRAL MAINE POWER COMPANY AND
THE UNION WATER POWER COMPANY
Auburn & Lewiston, Maine, Androscoggin County
LEWISTON FALLS HYDROELECTRIC PROJECT
#L-009206-35-A-N

) MAINE WATERWAY DEVELOPMENT AND
) CONSERVATION ACT and
) WATER QUALITY CERTIFICATION
)
) FINDINGS OF FACT AND ORDER

Pond, daily flow releases from Gulf Island Dam are optimized for a five and a half day production week, running from 7 a.m. on Monday to 3 p.m. on Saturday, up to a point where water is not wasted at Lewiston unless the inflow to Gulf Island exceeds the total turbine capacity at Lewiston. Flows are then curtailed out of Gulf Island for the balance of the weekend to allow the Pond to refill by Monday morning. During normal operation under low and median flow conditions, the Gulf Island Pond is drawn down by a maximum of approximately 4 feet. Under high flow (in excess of 6,600 cfs) conditions, excess water is spilled over the Gulf Island Dam. On a weekly basis, outflow from Gulf Island equals inflow to the dam.

The Deer Rips Dam creates an impoundment with a surface area of approximately 130 acres at a full-pond elevation of 205.7 feet (USGS). This facility operates on a run-of-river basis, with outflows equalling inflows (i.e., outflow from Gulf Island) on an instantaneous basis.

Sustained periods of zero outflow from Gulf Island and Deer Rips are currently standard practice during a portion of the weekend period, except under conditions of high inflow to Gulf Island.

B. Lewiston Falls.

The Lewiston Falls Dam is currently operated with headpond fluctuations of up to 4 feet (from flashboard crest down to dam crest) to reregulate daily flows from the Gulf Island and Deer Rips Dams while satisfying existing contractual obligations and providing a minimum flow in the river.

Available water is currently apportioned at Lewiston in accordance with the following priority of water rights:

- (1) First priority to a flow of 141 cfs for 24 hours a day, 7 days a week, goes to the City of Lewiston's facility, which provides power for municipal street lighting and water pumping systems. By mutual agreement, however, the City exercises its water rights by drawing 282 cfs for 12 hours a day (6 p.m. to 6 a.m.).
- (2) Second priority to a flow of 1,479 cfs for 24 hours a day, 5.5 days a week, goes to Bates Manufacturing and Central Maine Power for the partial operation of various facilities within the Canal System.
- (3) Third priority to a flow of 250 cfs for 14 hours a day (7 a.m. to 11 p.m.), 5.5 days a week, goes to the W.S. Libbey facilities.*

*Libby actually has first priority to a flow of 101 cfs for its Columbia Mill facility. However, Libbey does not utilize this water until its Lincoln Mill rights, which are located "upstream" from the Columbia Mill rights, are satisfied.

- (4) Fourth priority to a flow of 1,730 cfs for 24 hours a day, 5.5 days a week, goes to Bates Manufacturing and to Central Maine Power for the balance of the Canal System facilities, up to a total hydraulic capacity of 3,209 cfs.
- (5) Fifth priority goes to the City and to Libbey to provide generation for 24 hours a day.

Inflows to Lewiston above a total of 3,741 cfs are currently spilled at the Lewiston Falls Dam. Such spillage occurs approximately 40% of the time.

Historically, a minimum flow of approximately 300 cfs has been provided at Lewiston during the weekend through uncontrolled leakage at the Lewiston Falls Dam and at the various discharge points from the headpond and Canal System. In recent years, actual operation has provided an additional minimum flow of approximately 300 cfs to the City of Lewiston and to Bates in excess of their existing water rights.

PROPOSED FACILITIES AND LICENSING ACTIVITIES

The applicants propose to utilize the hydroelectric potential of the existing dam by: installing a new intake structure; constructing a new powerhouse in a deep ledge excavation at the site of the City of Lewiston's existing municipal facility; excavating a new tailrace channel; and installing two turbine-generator units, rated at a total generating capacity of 25 MW at a gross head of 54 feet and maximum hydraulic capacity of 6,600 cfs, and appurtenant equipment.

The applicants further propose to obtain an operating license from the Federal Energy Regulatory Commission for all existing generating facilities located within the Canal System. The applicants further propose to subsequently convey the existing Upper Androscoggin generating facility and appurtenant rights to the City of Lewiston, such that Lewiston will own and operate this facility after the proposed new facility begins commercial operation.

The construction and licensing of the project is proposed in accordance with a Project Agreement dated December 5, 1984, entered into by the applicants, the City of Lewiston, and the City of Auburn.

PROPOSED CONSTRUCTION ACTIVITIES

The applicants propose the following construction activities: the excavation of a total of approximately 59,000 cubic yards of rock and soil in the intake, powerhouse and tailrace areas; the placement of approximately 15,000 cubic yards of permanent backfill material around the intake, powerhouse, and tailrace structures; the placement of approximately 13,000 cubic yards of impervious fill in a temporary cellular-steel headwater cofferdam; and the placement of approximately 49,000 cubic yards of rock, granular and impervious fill in a temporary tailwater cofferdam/access road.

Construction activities are currently scheduled to begin in May of 1987 and to be complete within 3 1/2 years.

THE UNION WATER POWER COMPANY)
Auburn & Lewiston, Maine, Androscoggin County)
LEWISTON FALLS HYDROELECTRIC PROJECT)
#L-009206-35-A-N)

CONSERVATION ACT and
WATER QUALITY CERTIFICATION
FINDINGS OF FACT AND ORDER

PROPOSED OPERATION

The applicant proposes to continue to operate the Lewiston Falls Project with headpond fluctuations of up to 4 feet. The new 25 MW facility would utilize flows ranging from approximately 825 to 6,600 cfs.

Under the terms of the Project Agreement, the City of Lewiston will convey its existing water rights at its Municipal Station to the applicants. The applicants have also entered into an agreement with Bates Fabrics, Inc. to terminate the water rights and generating equipment leases for the operation of various canal facilities previously held by Bates under contract from the Union Water Power Company and other subsidiaries of Central Maine Power Company. As a result of these agreements and the construction of the proposed new generating facility, the applicants propose to apportion available water at Lewiston as follows:

- (1) First priority to a flow of 150 cfs to the Upper Androscoggin Station (and Lower Androscoggin Station).
- (2) Second priority to a flow of 1,470 cfs for the partial operation of the new facility.
- (3) Third priority to a flow of 250 cfs, per existing water rights, to the W.S. Libbey facilities.
- (4) Fourth priority to a flow of 5,130 cfs for the balance of operation of the new facility.
- (5) Fifth priority to a flow of 1,280 cfs to the Bates Weave Shed Station (and Continental Mills Station).
- (6) Sixth priority to a flow of 555 cfs for the balance of operation at the Upper Androscoggin Station (and Lower Androscoggin Station).
- (7) Seventh priority to a flow of 1,224 cfs to the Hill Mill and Bates No. 2 Stations.

This proposed operating regime will utilize all available river flows up to 10,059 cfs, with spillage at the Lewiston Falls Dam reduced to occur approximately 12% of the time, and will result in the annual production of 125,000,000 KWH of electricity at the new facility and 13,300,000 KWH of electricity at the existing canal facilities. Project power will be utilized by the mills located along the Canal System, with the excess fed into the transmission and distribution system of Central Maine Power Company.

CENTRAL MAINE POWER COMPANY and
THE UNION WATER POWER COMPANY
Auburn & Lewiston, Maine, Androscoggin County
LEWISTON FALLS HYDROELECTRIC PROJECT
#L-009206-35-A-N

6 MAINE WATERWAY DEVELOPMENT AND
) CONSERVATION ACT and
) WATER QUALITY CERTIFICATION
)
) FINDINGS OF FACT AND ORDER

The applicants plan to negotiate with the W.S. Libbey Company to secure or lease their existing water rights. A transfer of these water rights would enable the applicants to maximize the total energy production of the project due to the greater hydraulic head and superior efficiency of the proposed new facility. Any transfer of these water rights would involve just compensation from the applicants so that Libbey would not be disadvantaged. Any assumption by the applicants of Libbey's water rights would displace the proposed flow priority to Libbey's facilities to a position following the full operation of the new facility and the canal facilities.

The applicant further proposes to maintain a minimum flow release from the project of 1,450 cfs or inflow, whichever is less.

2. PROCEDURAL HISTORY

On December 29, 1983, Central Maine Power Company filed an initial Application for Project Approval Under the Maine Waterway Development and Conservation Act and Request for Water Quality Certification for the proposed Lewiston Falls Hydro Project. This Application (DEP #49-9206-01010) was deemed acceptable for processing on January 19, 1984.

On December 4, 1984, CMP reported that negotiations regarding the development of the project has been successfully concluded with the Cities of Auburn and Lewiston, and requested withdrawal of its pending Application.

On January 15, 1986, CMP and the Union Water Power Company filed a revised Application for the project. This application was deemed acceptable for processing on January 16, 1986.

On April 9, 1986, the City of Lewiston and the City of Auburn were granted status as parties to the proceeding, in accordance with the provisions of the Maine Administrative Procedures Act.

3. JURISDICTION

The proposed development qualifies as the "construction of a hydropower project" under the Maine Waterway Development and Conservation Act, 38 MRSA 630-636. Section 633 requires a permit from the Board of Environmental Protection prior to the construction of a hydropower project within its jurisdiction. The project is located in the Cities of Auburn and Lewiston, which are organized municipalities subject to the Board's jurisdiction.

The proposed project is subject to the licensing jurisdiction of the Federal Energy Regulatory Commission pursuant to the Federal Power Act. The applicants have filed an Application for New License to construct and operate the Lewiston Falls Project (FERC No. 2302). The proposed project also qualifies as an "activity...which may result in (a) discharge into the navigable water (of the United States)" under the Clean Water Act, 33 USC 1251 et. seq. Section 401 requires that an applicant for a federal license or permit to conduct such an activity obtain a certification that the activity will comply with applicable state water quality standards. The Board of Environmental Protection has been designated as the certifying agency for issuance of Section 401 Water Quality Certification for hydropower projects within its jurisdiction.

THE UNION WATER POWER COMPANY) CONSERVATION ACT and
Apburn & Lewiston, Maine, Androscoggin County) WATER QUALITY CERTIFICATION
LEWISTON FALLS HYDROELECTRIC PROJECT)
#L-009206-35-A-N) FINDINGS OF FACT AND ORDER

All lands, structures, generating facilities and water rights necessary for the construction and operation of the proposed project are currently owned by or will be conveyed prior to project construction to Central Maine Power Company or one or more of the following wholly-owned subsidiaries of CMP: The Union Water Power Company; Cumberland Securities Corporation; and Central Securities Corporation.

4. FINANCIAL CAPACITY AND TECHNICAL ABILITY

The estimated total cost of the proposed project is \$55 million.

Central Maine Power Company is a public utility operating under the regulation of the Maine Public Utilities Commission, and is a corporation in good standing under the laws of the State of Maine.

The project is to be constructed and operated under the supervision and direction of CMP. CMP has extensive experience in the design, construction and operation of hydroelectric facilities.

CMP currently plans to finance the project with general corporate funds. Specifically, CMP expects internally generated cash to be sufficient to fund its construction requirements for the project. To the extent that actual internal funds generated are less than requirements for construction, CMP would normally raise such additional capital through bridge financings with commercial lenders and/or the issuance of commercial paper.

5. SAFETY

Construction traffic, building demolition, drilling and blasting activities, and open excavations could all constitute hazards to public safety. The applicants propose to implement standard traffic control and blasting monitoring and warning procedures and to restrict public access to the site as appropriate during project construction and operation.

6. PUBLIC BENEFITS

The project would result in economic benefits to the public in the form of direct construction employment, increased energy security, a measure of increased electrical rate stability, and increased local, state, and federal tax revenues.

The project could result in economic costs to the public in the form of the economic, employment, income, and tax costs of any future industrial activity foregone as a result of any decrease in the capacity of the Androscoggin River to assimilate additional effluent loading within established water quality standards.

7. TRAFFIC MOVEMENT

The project would result in increased traffic movement during the construction phase. Construction traffic will consist mainly of concrete trucks, gravel trucks, various trailer trucks and private passenger vehicles for construction workers. The applicants propose to utilize off-road staging areas for construction activities, to coordinate the routing and scheduling of truck traffic with local officials, and to implement standard traffic control procedures.

8. MAINE LAND USE REGULATION COMMISSION

No part of the proposed project lies within the jurisdiction of the Land Use Regulation Commission; therefore, consistency with LURC zoning is not applicable.

9. ENVIRONMENTAL MITIGATION

The applicants propose to realize the environmental benefits and to mitigate the adverse environmental impacts of the project by:

- maintaining a minimum flow release from the project of 1,450 cfs or inflow, whichever is less;
- conducting a study to further evaluate existing reaeration at the project site and water quality conditions from Lewiston Falls to Dresser's Rips;
- monitoring dissolved oxygen levels above and below the Lewiston Falls Dam following the commencement of project operation;
- initiating necessary measures to maintain dissolved oxygen concentrations in the river below Dresser's Rips at or above an instantaneous minimum of 5.0 ppm and at or above a 30 day average of 6.5 ppm;
- monitoring water quality in the Canal System to determine what operational modifications, if any, will be required to prevent stagnation of the canal water;
- implementing appropriate erosion and sedimentation control measures during project construction;
- maintaining stable water levels to the maximum extent possible;
- cooperating with state and federal fisheries agencies to provide the necessary fish passage facilities at the project if and when required;
- Leasing to the City of Auburn the area known as the "West Pitch", located adjacent to and overlooking Lewiston Falls, and contributing up to \$150,000 for the design and construction by the City of Auburn of a scenic overlook to be called the West Pitch Park; and

THE UNION WATER POWER COMPANY	)	CONSERVATION ACT and
Auburn & Lewiston, Maine, Androscoggin County	)	WATER QUALITY CERTIFICATION
LEWISTON FALLS HYDROELECTRIC PROJECT.)	
#L-009206-35-A-N	)	FINDINGS OF FACT AND ORDER

- designing the project so that it blends harmoniously with the surrounding environment to the fullest extent possible.

10. ENVIRONMENTAL AND ENERGY CONSIDERATIONS

A. SOIL STABILITY; WATER QUALITY; COASTAL AND INLAND WETLANDS; NATURAL ENVIRONMENT.

The Androscoggin River is currently classified as having Class C water from the Maine-New Hampshire boundary to Merrymeeting Bay. These waters shall be acceptable for recreational boating and fishing, for fish and wildlife habitat, and for other uses except potable water supplies and water contact recreation. The dissolved oxygen (DO) content of these waters shall not be less than 5 parts per million.

The estimated 7 day average low flow which has a 1 in 10 year recurrence interval (7Q10) at Rumford is 1,600 cfs.

Staff analysis indicates that under critical temperature (24 degrees C), flow (1,600 to 2,700 cfs, measured as a 7 day average at Rumford), and maximum daily point source loading conditions, DO concentrations in violation of the Class C minimum standard will occur in the Gulf Island impoundment. Such sub-standard DO levels appear to be the result of existing effluent loading between Rumford and Jay in conjunction with the long time-of-travel through Gulf Island Pond.

The turbine intakes at Gulf Island Dam draw water from the top 12 meters of the Pond. Staff has measured DO levels, averaged over this water column, as low as 4.0 ppm. Under summer conditions, this impoundment stratifies chemically, with measured DO levels approaching zero ppm over the Pond's bottom 6 meters.

Staff analysis of available water quality data indicates (1) that under most conditions there is little, if any, recovery in DO levels between Gulf Island Dam and the Lewiston Falls Dam; (2) that there is currently significant reaeration occurring at the various discharge points from the Lewiston Falls Project, primarily at the Red Shop, Continental, and Gully Brook Weirs, to return DO to acceptable levels; and (3) that DO concentrations decline again between Gully Brook and Dresser's Rips, the first major point of natural reaeration on the river (located approximately 3 miles downstream from the Lewiston Falls Dam). This latter decline appears to be the result of residual waste load in the river and new loading introduced from the Lewiston-Auburn municipal waste water treatment plant.

Staff analysis further indicates that the proposed construction and operation of the Lewiston Falls Project would, without mitigation, result in DO violations in the river between Lewiston Falls and Dresser's Rips. This would be due to the loss of existing reaeration at the Canal Weirs as generation at the new facility replaces that in the Canal System. Appropriate mitigation involving spillage of water at dams or weirs and/or artificial air injection in turbine discharge tubes during critical water quality events can eliminate the anticipated violations.

CENTRAL MAINE POWER COMPANY and
THE UNION WATER POWER COMPANY
Auburn & Lewiston, Maine, Androscoggin County
LEWISTON FALLS HYDROELECTRIC PROJECT
#L-009206-35-A-N

10 MAINE WATERWAY DEVELOPMENT AND
) CONSERVATION ACT and
) WATER QUALITY CERTIFICATION
)
) FINDINGS OF FACT AND ORDER

The applicants propose to (1) conduct a study to further evaluate existing reaeration at the project site and water quality conditions below Lewiston Falls, (2) monitor DO levels above and below the Lewiston Falls Dam following the commencement of project operation, and (3) initiate appropriate measures, which may include equipment and/or operational modifications at Gulf Island, Deer Rips, or Lewiston Falls, singly or in combination, and which at a minimum would involve replicating existing flow and reaeration conditions at the Lewiston Falls project, in order to maintain DO levels below Lewiston Falls at or above 5.0 ppm under critical water quality conditions. The applicant specifically limits its proposal to the duplication of existing levels of reaeration under critical conditions, and thus does not extend its proposal to the maintenance of the Class C DO standard under temperature, flow, or loading conditions that are "worse" than the modelled critical conditions (i.e., water temperatures in excess of 24 degrees C, 7 day average flows at Rumford of less than 1,600 cfs, and waste loading in excess of total licensed discharge limits).

No significant project impacts on soil stability or coastal or inland wetlands have been identified.

The project would affect the natural environment by reducing the occurrence of spillage over Lewiston Falls from approximately 40% to approximately 12% of the time. The applicants have conducted a study concerning minimum flow releases over Lewiston Falls and have concluded that the aesthetic loss due to the proposed reduced spillage over the Falls will not be significant.

The project could result in significant harm to water quality unless project construction and operation are adequate to maintain Class C water quality criteria, designated uses, and standards.

Project impacts on the designated uses of the Androscoggin River for fish and wildlife habitat and for recreation are discussed in paragraphs B and D below.

B. FISH AND WILDLIFE RESOURCES

1. RESOURCES

The Androscoggin River currently supports a number of indigenous warmwater fish species, including large mouth and small mouth bass, pickerel, and perch. Wildlife species common to an urban terrestrial environment are likely to be inhabitants or transients in the project area.

The Atlantic Sea Run Salmon Commission (ASRSC) and the Departments of Inland Fisheries (DIF&W) and Marine Resources (DMR) are currently seeking to restore anadromous fish species to the river via the fishway and trapping facility at the Brunswick Hydroelectric Station. Since 1983, migrating alewives, Atlantic salmon and American shad have been selectively trapped at the Brunswick facility and either released to the Brunswick Dam headpond or trucked upstream to appropriate spawning and nursery areas in the watershed, including the Sabattus River system, the Little Androscoggin River system, and the Androscoggin River as far upstream as Lewiston Falls. Supplemental alewife and shad brood stock have also been trucked to the Androscoggin River watershed from other drainages. To date, salmon restoration has not been supplemented by stocking from outside sources.

DIF&W is also currently pursuing a program of experimentally stocking brown trout in the river between Brunswick and Lewiston. While intended primarily as a resident inland coldwater species, brown trout have the capacity to develop as a sea-run species.

2. FISH PASSAGE

As a result of the success to date of the restoration effort, the Board has previously required that upstream and downstream fish passage facilities be constructed and operational by May 1, 1988 at the existing Pejepscot and Worumbo Dams, located between Brunswick and Lewiston, in order to accommodate self-sustaining runs of anadromous fish in the future.

There are no specific plans at this time to reintroduce anadromous species above Lewiston Falls. However, it is noted that the ASRSC has a legislative mandate to restore Atlantic salmon to their historic range in State's inland waters. The Androscoggin River historically supported a large salmon population as far upstream as Rumford Falls, which constituted a natural barrier to migration. Thus ASRSC has a long-term goal of restoring salmon to the habitat above Lewiston Falls.

3. FISH HABITAT

The Androscoggin River below Lewiston Falls contains significant spawning and nursery habitat for shad, salmon, and brown trout and serves as temporary migratory habitat for alewives. The quality and quantity of these habitats depends in part on the amount of river flow available at any given time and on the dissolved oxygen content of the water.

a. MINIMUM FLOWS

The applicants propose to maintain an instantaneous minimum flow release from the project of 1,450 cfs or inflow, whichever is less. A flow of 1,450 cfs represents the approximated unregulated median August flow at the project site. This proposal is supported by ASRSC, DIF&W and DMR as being adequate to maintain downstream aquatic habitat.

THE UNION WATER POWER COMPANY)
Auburn & Lewiston, Maine, Androscoggin County) CONSERVATION ACT and
LEWISTON FALLS HYDROELECTRIC PROJECT) WATER QUALITY CERTIFICATION
#L-009206-35-A-N) FINDINGS OF FACT AND ORDER

As detailed under "Existing Operation" in paragraph 1 above, the operation of the Gulf Island and Deer Rips Dams results in sustained periods of zero inflow to the Lewiston Falls impoundment during most weekends. This means that, in theory, the applicant's minimum flow proposal could result in periods of zero outflow from the Lewiston Project, thus reducing flows in the river from Lewiston to Brunswick to that provided by tributary streams and by runoff from adjacent lands.

As a practical matter, however, outflows from the project have not been and are not likely to ever be zero. Currently, minimum outflows result from uncontrolled leakage at the dam and canal weirs and from contractual flow obligations. These minimum flows occur during the non-production hours of each weekend, beginning at approximately 3 p.m. on Saturday and ending at approximately 10:30 p.m. on Sunday, at which time extra flow is released from Gulf Island and Lewiston to refill the river for the start of mill operations on Monday morning. However, there is nothing to prevent the applicants from taking action in the future to reduce outflow from Lewiston by minimizing existing uncontrolled leakage. Furthermore, the changes in the ownership of water rights detailed under "Proposed Operation" in paragraph 1 above appear to mean that in the future the applicant's contractual flow obligations during the period from mid-day Saturday to Monday morning will amount to only 150 cfs.

It thus appears that the applicants' proposal may in fact result in minimum flow releases from Lewiston that are at times significantly less than 1,450 cfs or inflow to Gulf Island. As noted above, this situation is a direct result of the operation of the Gulf Island facility, which is currently not subject to any minimum flow requirement. Because the Gulf Island Project is not the subject of this proceeding, the Board has no jurisdiction at this time to require a minimum flow release from the Gulf Island Dam.

However, the applicants have stated a willingness to provide an instantaneous minimum flow release from the project of 1,000 cfs as an interim measure, and to conduct a minimum flow study of the river below Lewiston Falls in conjunction with the relicensing of the Deer Rips - Gulf Island Project. The flow of 1,000 cfs represents the approximate minimum hydraulic capacity of the proposed new generating facility (850 cfs) plus the contractual flow requirement for the Upper Androscoggin Station (150 cfs). The applicants have stated that this minimum flow release could be achieved through drawdowns of up to 4 feet in the Lewiston Falls impoundment and through a reallocation of the existing pattern of weekly flow releases from Gulf Island Dam.

THE UNION WATER POWER COMPANY)
Auburn & Lewiston, Maine, Androscoggin County)
LEWISTON FALLS HYDROELECTRIC PROJECT)
#L-009206-35-A-N)

CONSERVATION ACT and
WATER QUALITY CERTIFICATION
FINDINGS OF FACT AND ORDER

In view of the current operation of the Gulf Island facility, it appears that the alternative of an instantaneous minimum flow release of 1,000 cfs from the Lewiston Falls Project is superior to the applicants' current proposal. It is noted that the current FERC license for the Deer Rips - Gulf Island Project is set to expire on December 31, 1993; under FERC's Regulations, CMP must file its application for a new license for this project no later than December 31, 1990. Furthermore, it is noted that sizeable runs of anadromous fish are not expected in the river for at least two generations (6-8 years). It appears, therefore, that a minimum flow study conducted in conjunction with the relicensing of the Deer Rips - Gulf Island Project will result in the biological data necessary for a determination of long-term minimum flow releases to the river below Lewiston being available in a timely fashion.

b. DISSOLVED OXYGEN

As proposed, the project would result in an incremental decrease in existing DO levels below the project during those times when reaeration measures are not triggered but existing reaeration through the Canal System is reduced due to the routing of available water through the new generating facility where minimal reaeration is expected to occur.

DIF&W and DMR recommend that existing DO levels be maintained at all times. These agencies argue that any decrease in existing DO levels would result in less than optimal conditions for the anadromous and inland fish species currently inhabiting the river.

The Department's Bureau of Water Quality Control recommends that DO levels be maintained at or above a minimum 30 day average of 6.5 ppm. The Bureau argues that such levels are necessary to insure adequate growth and reproduction of salmonids (in this case, brown trout and Atlantic salmon).

The applicants agree to maintain dissolved oxygen concentrations in the river below Dresser's Rips at or above a 30 day average of 6.5 ppm. The applicants state that they have agreed to abide by this condition without prejudice and with full reservation of their rights to contest in any future proceeding the Department's interpretation of 38 M.R.S.A. Section 361 et. seq. (or any successor statute), including, without limitation, the Department's position that the dissolved oxygen concentration for certain Class C rivers may be set at a limit of not less than a 30 day average of 6.5 ppm by action of the Board or Department of Environmental Protection.

A requirement for a minimum 30 day average DO of 6.5 ppm, while allowing some decline in existing DO levels under certain flow conditions, appears to be justified in order to prevent significant harm to salmonids.

The project would result in significant benefit to fish and wildlife resources if adequate fish passage facilities were provided as required to pass anadromous fish through the project site.

The project could result in significant harm to fish and wildlife resources unless (1) water levels and flows are adequate to maintain upstream and downstream aquatic environments, (2) adequate measures are taken to maintain dissolved oxygen levels at or above a 30 day average of 6.5 ppm in the river below Dresser's Rips, and (3) adequate measures are taken to control erosion and sedimentation during and following project construction.

C. HISTORIC AND ARCHAEOLOGIC RESOURCES

The Lewiston Canal System, owned by the applicants, and the Cowan Mill Building, owned by Mr. Bradley L. McCurtain, have both been determined to be eligible for listing on the National Register of Historic Places. Eligible facilities within the Canal System include the dams, gatehouses, weirs, and canals but do not include any existing generating equipment.

The future historic value of the Canal System and the Cowan Mill Building is dependent upon the preservation of the structural and visual integrity of these facilities.

The applicants propose to continue to maintain the physical structures associated with the Canal System, to provide such flows as may be necessary to prevent stagnation in the Lower Canal, and to design the new powerhouse to blend harmoniously with the adjacent mill buildings.

No significant project impacts on archaeological resources have been identified.

The project could result in significant harm to historic resources unless (1) adequate measures are taken to prevent stagnation in the Lower Canal, and (2) the new powerhouse is designed so as to be visually compatible with the Cowan Mill Building.

D. PUBLIC RIGHTS OF ACCESS AND USE

Currently, the river in the project area receives limited boating, fishing, and passive recreational use. Existing recreational facilities include: a private boat launch facility located on the west side of the project impoundment that is used by the City of Auburn for an annual canoe race on the river; a private boat launching ramp located 0.4 miles below the dam on the Auburn shore; the Auburn Esplanade, a riverside park in Auburn below the Lewiston Falls Dam; a city park called Sunnyside on the Lewiston side of the impoundment; and Heritage Park, a day use area in Lewiston below the Lewiston Falls.

River-related recreational activities, both active and passive, can be expected to increase as water quality improves, as river front areas are revitalized, and as anadromous and other fish species are restored to the river.

In accordance with the terms of the Project Agreement, the applicants propose to lease the necessary land and to contribute up to \$150,000 to the City of Auburn for the creation of a scenic overlook to be called the West Pitch Park. Under the terms of the Project Agreement, the City of Auburn will be responsible for the design, construction and maintenance of the new park.

DIF&W requests that the applicants provide the necessary facilities to allow public recreational access to the Androscoggin River below Lewiston Falls. It is noted that there are currently no public boat launching facilities in either Lewiston or Auburn below the project dam. It is further noted that the primary goal of the restoration of shad, salmon, and brown trout is to provide a recreational fishery for these species in the river below Lewiston Falls.

The project could result in significant benefit to public recreational use if (1) the West Pitch Park is developed as proposed, and (2) adequate recreational facilities are provided within the project boundary below Lewiston Falls as required to meet future recreational needs.

E. FLOOD BENEFIT/FLOOD HAZARD

The project would not result in any increase in existing impoundment levels or any change in spillway discharge capacity.

No significant project flood control benefits or flood hazards have been identified.

F. ENERGY BENEFITS

The project would result in the following hydroelectric energy benefits:

- (1) A net increase of 24.3 MW in installed in-state hydroelectric generating capacity;
- (2) An increase of approximately 90 million KWH in average annual in-state hydroelectric energy output; and
- (3) The potential displacement of nonrenewable fuel in the form of 150,000 barrels of oil or 41,780 tons of coal used annually in the generation of electricity.

BASED on the above Findings of Fact, the Board concludes that the proposed LEWISTON FALLS HYDRO PROJECT will satisfy the requirements of Title 38, M.R.S.A., Section 636 and U. S. Public Law 92-500, Section 401, for the issuance of a Maine Waterway Development and Conservation Act Permit and Water Quality Certification in that:

1. The applicant has the financial capacity and technical ability to undertake the project provided that the adequacy of any alternate plan for financing the construction of the project from sources other than internal cash flow is demonstrated prior to the commencement of project construction.
2. The applicant has made adequate provisions for protection of public safety.
3. The project will result in significant economic benefits to the public.
4. The applicant has made adequate provisions for traffic movement.
5. The project is not within the jurisdiction of the Maine Land Use Regulation Commission.
6. The applicant has made reasonable provisions to realize the environmental benefits and mitigate the adverse environmental impacts of the project, including provisions to maintain applicable water quality standards, provided that:
 - A. Water levels in the Lewiston Falls impoundment are maintained between spillway crest and flashboard crest elevations to the maximum extent possible;
 - B. Adequate instantaneous minimum flows are maintained from the project;
 - C. Adequate fish passage facilities are constructed and are operational at such time as may be required to pass anadromous fish through the project site;
 - D. Adequate measures are taken to maintain dissolved oxygen levels in the river below the project;

THE UNION WATER POWER COMPANY) CONSERVATION ACT and
Auburn & Lewiston, Maine, Androscoggin County) WATER QUALITY CERTIFICATION
LEWISTON FALLS HYDROELECTRIC PROJECT)
#L-009206-35-A-N) FINDINGS OF FACT AND ORDER

- E. Adequate measures are taken to control erosion and sedimentation during the construction and operation of the project;
 - F. Adequate measures are taken to prevent stagnation in the Lower Canal;
 - G. The new powerhouse is designed so as to be visually compatible with the Cowan Mill Building; and
 - H. Adequate recreational facilities are provided below the dam as required to meet future recreational needs.
7. The advantages of the project are greater than the direct and cumulative impacts over the life of the project provided that the project is constructed and operated in accordance with the terms of Conclusion #6 above.

THEREFORE, the Board APPROVES the application of CENTRAL MAINE POWER COMPANY and THE UNION WATER POWER COMPANY to construct and operate the LEWISTON FALLS HYDROELECTRIC PROJECT in Auburn and Lewiston, Maine, and GRANTS certification that there is a reasonable assurance that the activity will not violate applicable Water Quality Standards, subject to the following conditions:

1. WATER LEVELS

Except as irreconcilably limited by inflows to the impoundment, by temporary abnormal operating conditions, by unit operation or interruption under power supply emergencies, or by order of state, local or federal authorities, where all such conditions are beyond the applicants' control, and except as limited by normal maintenance activities that are not subject to a permit requirement pursuant to the Maine Waterway Development and Conservation Act, and commencing with project operation, water levels in the impoundment shall be maintained between elevation 168.17 feet (flashboard crest) and elevation 164.17 feet (spillway crest).

* 2. MINIMUM FLOWS

- A. Except as may be modified by the Board, or as irreconcilably limited by order of state, local or federal authorities, or as temporarily limited by construction activities or by the requirements of any study conducted in compliance with this condition, and commencing with project construction, an interim instantaneous minimum flow of 1,000 cfs shall be maintained from the project at all times.
- B. The applicants shall, at least 60 days prior to the anticipated start of project construction, submit the specific details of a plan to monitor minimum flows and to comply with the terms of this condition. This plan shall be reviewed by and must receive approval of the Commissioner prior to the commencement of project construction.

* COND. MODIFIED by ... B-M : FEB. 24, 1987, See Order.

- C. The applicants shall, in consultation with the Department of Inland Fisheries and Wildlife and Marine Resources, conduct a study assessing the impact of minimum flow releases on fish habitat and resources below the project. The results of the study and the applicants' proposal for long-term minimum flow releases that will adequately maintain fish habitat and resources shall be submitted to the Commissioner before December 31, 1990, in conjunction with Central Maine Power's Application for Relicense for the Deer Rips-Gulf Island Hydro Project (FERC No. 2283). After reviewing the study results, the applicants' proposal, and agency comments, the Board shall, after opportunity for hearing, order such continuation or modification of the interim minimum flow established by this approval as is deemed necessary to maintain fish habitat and resources below the project.

3. FISH PASSAGE

Based on recommendations from the Department of Marine Resources or the Atlantic Sea Run Salmon Commission, the applicants shall provide such fish passage facilities as may be required by the Board, after notice to the applicants and opportunity for hearing, to allow the migration of anadromous fish into and out of the watershed upstream from the project.

* 4. WATER QUALITY

- A. The applicants shall take all necessary measures to insure that dissolved oxygen concentrations are maintained at or above an instantaneous minimum of 5.0 ppm in the Androscoggin River below Lewiston Falls and at or above a 30 day average of 6.5 ppm at a monitoring site to be established by the applicants in the Androscoggin River at or near the project boundary below Dresser's Rips. When the dissolved oxygen concentration at the monitoring site decreases to 6.0 ± 0.5 ppm, the applicants shall initiate measures necessary to achieve the above 30 day average. Such measures shall not extend to the modification of the operation of the project beyond the applicants' duplication of existing levels of reaeration provided by the Lewiston Canal System.

- B. The applicants shall, in consultation with the Department, conduct a study assessing (1) reaeration in the project area under existing water quality conditions and operational modes and (2) water quality in the Androscoggin River below Lewiston Falls.

The applicants shall submit the specific details of a study plan within one year of the issuance of this approval. This plan shall be reviewed by and must receive approval of the Commissioner prior to initiation of the study. The results of the study shall be submitted in conjunction with the water quality compliance plan outlined in part C of this condition.

4(C)
DELETED

#L-009206-P-M:
JUL. 23, 2002

- ** C. The applicants shall, at least 60 days prior to the anticipated start of project operation, submit the specific details of a plan to monitor dissolved oxygen levels and to comply with the terms of this condition, prepared in consultation with the Department's staff. This plan shall be reviewed by and must receive approval of the Commissioner prior to the commencement of project operation.

* COND. MODIFIED by ... J-C : MAY 21, 1990. See order. / ... M-M : JAN. 22, 1994

** 4(C) COMPLIANCE SATISFIED : See LETTER FROM MIKE HOOVER : FEB. 4, 2002

- D. The applicant shall not be considered to be in violation of this condition if non-compliance with the dissolved oxygen concentrations specified in part A is the result of causes beyond the applicant's control including, without limitation, acts of God, accidents not reasonably foreseeable, appropriation or diversion of water by rule or order of any governmental authority, and any condition at the Lewiston Falls Project likely to result in imminent significant disruption of electric service to the applicants' customers or which is imminently likely to cause bodily injury or property damage.
- E. Notwithstanding part A of this condition, the applicants shall not be required to maintain dissolved oxygen concentrations at or above a 30 day average of 6.5 ppm in the event of unlicensed waste discharges to the river above Dresser's Rips, violations of waste discharge license limitations for BOD from point sources above Dresser's Rips, or drought conditions which result in flows in the Androscoggin River measured at the Auburn gage (USGS) of less than an average daily flow of 1,000 cfs.
5. POSSIBLE MODIFICATION OF DISSOLVED OXYGEN STANDARD;
MANAGEMENT STUDY

The Department of Environmental Protection staff shall conduct a 2-year study of the management of the Androscoggin River. The DEP staff shall request the participation of the Department of Inland Fisheries and Wildlife, the Department of Marine Resources, the Atlantic Sea Run Salmon Commission, the applicants for the certification and others, in a manner deemed appropriate by the staff. The management study shall consider current and future near-term proposed uses of the river that may affect water quality criteria at and below the proposed project. The results of the study shall be used by the Board to determine the level of dissolved oxygen in that stretch of the river between the Lewiston Falls Dam and Dresser's Rips that is necessary in order to ensure that the quality of those waters will be satisfactory for fishing and for a fish and wildlife habitat. At the first regularly-scheduled Board meeting in June, 1988, the DEP staff shall report to the Board the results of the study, together with a recommendation of the appropriate dissolved oxygen content in the river between the Lewiston Falls Dam and Dresser's Rips. The Board, after notice and opportunity for hearing, and upon consideration of the study and the recommendation, will then determine whether to modify the certification with regard to the dissolved oxygen standard for those waters. If modification is determined by the Board to be appropriate, the modified dissolved oxygen standard will then be incorporated into this certification; however, the applicants shall not be required to provide levels of dissolved oxygen greater than those existing under current operating conditions, as described in paragraph 1 ("Project Description") of this certification.

* 6. SOIL EROSION AND SEDIMENTATION CONTROL

- A. The applicants shall take all reasonably necessary measures to insure that their activities and the activities of their agents do not result in measurable erosion or sedimentation of soils during the construction and operation of the project.

CENTRAL MAINE POWER COMPANY and	20	MAINE WATERWAY DEVELOPMENT AND
THE UNION WATER POWER COMPANY	)	CONSERVATION ACT and
Auburn & Lewiston, Maine, Androscoggin County	)	WATER QUALITY CERTIFICATION
LEWISTON FALLS HYDROELECTRIC PROJECT)	
#L-009206-35-A-N	)	FINDINGS OF FACT AND ORDER

- B. The applicants shall, at least 60 days prior to the anticipated start of project construction, submit the specific details of a plan to control erosion and sedimentation and to comply with the terms of this condition. This plan shall include, but not be limited to, final cofferdam plans and provisions for the secure disposal of all construction and excavation spoils. This plan shall be reviewed by and must receive approval of the Commissioner prior to the commencement of project construction.

7. HISTORIC RESOURCES

- A. The applicants shall take all necessary measures to prevent the stagnation of water in the Lower Canal and shall design the new project powerhouse to be compatible with the Cowan Mill Building.

SEE DEP ORDER
5/10/1990
FOR DETAILS
OF PLAN.

- B. The applicants shall, at least 60 days prior to the anticipated start of project operation, submit the specific details of a plan to prevent the stagnation of water in the Lower Canal, prepared in consultation with the Maine Historic Preservation Commission and the Department's staff. This plan shall be reviewed by and must receive approval of the State Historic Preservation Officer and the Commissioner prior to the commencement of project operation.

MODIFIED
by
... E-M
MAY 7, 1987
See Order

- C. The applicants shall, at least 60 days prior to the anticipated start of project construction, submit final exterior design plans for the new project powerhouse, prepared in consultation with the Maine Historic Preservation Commission. This plan shall be reviewed by and must receive approval of the State Historic Preservation Officer and the Commissioner prior to the commencement of project construction.

* 8. RECREATIONAL FACILITIES

- A. The applicants shall provide, or shall assist in providing, such recreational facilities as may be required to meet future recreational needs in and on the water within the project boundary in the Androscoggin River downstream from Lewiston Falls.
- B. The applicants shall, in consultation with the Department of Conservation, the Department of Inland Fisheries and Wildlife, the Department of Marine Resources, the City of Auburn, and the City of Lewiston, conduct a study assessing future recreational needs in and on the water within the project boundary in the Androscoggin River downstream from Lewiston Falls. The results of the study and the applicants' proposal for the development of recreational facilities shall be submitted to the Commissioner within 5 years following the issuance of this approval. After reviewing the study results, the applicants' proposal, and the comments and recommendations of the consulting agencies and municipalities, the Board shall, after opportunity for hearing, order the development of such recreational facilities as are deemed necessary and appropriate to meet future recreational needs.

* COND. 8 MODIFIED by ... K-C : Aug. 22, 1990. see Order.

CENTRAL MAINE POWER COMPANY and
THE UNION WATER POWER COMPANY
Auburn & Lewiston, Maine, Androscoggin County
LEWISTON FALLS HYDROELECTRIC PROJECT
#L-009206-35-A-N

21 MAINE WATERWAY DEVELOPMENT AND
CONSERVATION ACT and
WATER QUALITY CERTIFICATION
FINDINGS OF FACT AND ORDER

9. MONITORING RECORDS

The applicants shall maintain an on-site record of river flows, impoundment water levels, minimum flow releases, and dissolved oxygen levels monitored in compliance with the terms and conditions of this approval.

10. FINANCIAL CAPACITY

In the event that internal cash flow is insufficient to fully fund project construction, the applicants shall submit evidence of financial capacity from alternate sources. This evidence shall include a total project cost estimate in current dollars and a demonstration of the availability and commitment of funds sufficient to construct and operate the project as conditioned by this approval. Such evidence shall be reviewed by and must receive approval of the Commissioner prior to the commencement of project construction.

11. LIMITS OF APPROVAL

This approval is limited to and includes the proposals and plans contained in the application and supporting documents submitted and affirmed to by the applicants. All variances from the plans and proposals contained in said documents are subject to the review and approval of the Board or the Department prior to implementation.

12. COMPLIANCE WITH ALL APPLICABLE LAWS

The applicants shall secure and appropriately comply with all applicable federal, state and local licenses, permits, authorizations, conditions, agreements, and orders prior to or during construction and operation.

13. INSPECTION AND COMPLIANCE

Authorized representatives of the Board or the Attorney General shall be granted access to the premises of the applicants at any reasonable time for the purpose of inspecting the construction or operation of the project and assuring compliance with the conditions of this approval.

14. APPROVAL INCLUDED IN CONTRACT BIDS

A copy of this permit must be included in or attached to contract bid specifications for the project.

15. INITIATION AND COMPLETION OF CONSTRUCTION

Construction shall commence and shall be completed in accordance with the terms of any license issued for the project by the Federal Energy Regulatory Commission.

CENTRAL MAINE POWER COMPANY and
THE UNION WATER POWER COMPANY
Auburn & Lewiston, Maine, Androscoggin County
LEWISTON FALLS HYDROELECTRIC PROJECT
#L-009206-35-A-N

22 MAINE WATERWAY DEVELOPMENT AND
CONSERVATION ACT and
WATER QUALITY CERTIFICATION
FINDINGS OF FACT AND ORDER

16. REEXAMINATION AFTER FIVE YEARS

If construction of the project upon the terms and conditions hereof is not completed and the operation of the project is not commenced within 5 years from the date of the granting of this approval, the Board may reexamine its approval and impose such additional terms or conditions or prescribe such other corrective actions as it deems necessary to respond to significant changes in circumstances which may have occurred within the 5 year period.

17. NOTIFICATION OF PROJECT OPERATION

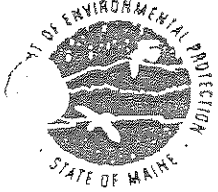
The applicant shall notify the Department of the commencement of commercial operation of the project within 10 days of such commencement.

DONE AND DATED AT AUGUSTA, MAINE, THIS 6TH DAY OF JUNE, 1986.

BOARD OF ENVIRONMENTAL PROTECTION

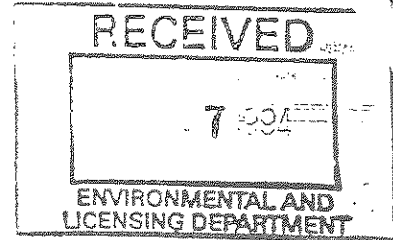
BY: Samuel M. Zaitlin
Samuel M. Zaitlin, Chairman

PLEASE NOTE ATTACHED SHEET FOR APPEAL PROCEDURES...



STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION
STATE HOUSE STATION 17 AUGUSTA, MAINE 04333

DEPARTMENT ORDER



IN THE MATTER OF

CENTRAL MAINE POWER COMPANY AND	)	MAINE WATERWAY DEVELOPMENT AND
THE UNION WATER POWER COMPANY	)	CONSERVATION ACT PERMIT AND
Auburn & Lewiston, Androscoggin County	)	WATER QUALITY CERTIFICATION
LEWISTON FALLS HYDROELECTRIC PROJECT)	
#L-009206-35-M-M	)	MODIFICATION

After reviewing the project file with the application, supportive data and other related materials, the Department finds the following facts:

1. APPLICATION SUMMARY

The applicants have filed to modify the approved flow apportionment schedule under critical water quality conditions at the Lewiston Falls Hydro Project.

2. PROCEDURAL HISTORY

By Board Order #L-009206-35-A-N dated June 6, 1986, the Department approved the construction of a new hydro generating facility at the Great Falls Dam and the continued operation of six existing hydro generating facilities in the Lewiston Canal System, known collectively as the Lewiston Falls Hydro Project.

Condition #4 of the Board's June 6, 1986 approval required that the applicants submit for DEP review and approval a plan to monitor and maintain specified levels of dissolved oxygen in the Androscoggin River at Lewiston Falls and at Dresser's Rips.

By filing dated March 27, 1990, the applicants submitted a Post-Operational Water Quality Monitoring Plan. This Plan called in part for river flows up to 3,741 cfs, less 250 cfs allocated to W.S. Libbey Mill per existing water rights, to be reapportioned from the new generating facility (Monty Station) back to the Canal System as necessary to raise dissolved oxygen levels at Dresser's Rips above an instantaneous minimum of 5.5 ppm and a 30-day average of 6.5 ppm.

The applicants' Post-Operational Water Quality Monitoring Plan was approved by Department Order #L-009206-35-J-C dated May 21, 1990.

3. SUMMARY OF MODIFICATION PROPOSAL

The applicants now propose to modify the flow apportionment schedule contained in the approved Post-Operational Water Quality Monitoring Plan to reflect the applicants' purchase of the W.S. Libbey Company's water rights.

Under the modified Plan, all river flows up to 3,491 cfs will be reapportioned from Monty Station back to the Canal System as necessary to maintain the required dissolved oxygen levels at Dresser's Rips. All river flows in excess of 3,491 cfs will continued to be utilized at Monty Station.

The W.S. Libbey Mill hydro facility has not operated since the applicants' purchase of the attendant water rights, and is not expected to operate in the near future.

CENTRAL MAINE POWER COMPANY AND)
THE UNION WATER POWER COMPANY)
Auburn & Lewiston, Androscoggin County)
LEWISTON FALLS HYDROELECTRIC PROJECT)
#L-009206-35-M-M)
2 MAINE WATERWAY DEVELOPMENT AND)
CONSERVATION ACT PERMIT AND)
WATER QUALITY CERTIFICATION)
MODIFICATION)

4. DISCUSSION

The applicants' purchase of W.S. Libbey's water rights and the subsequent shut down of the Libbey hydro facility was anticipated and described in the Board's June 6, 1986 project approval.

The proposed change in flow allocation will not materially affect the applicants' ability to maintain the required dissolved oxygen levels in the Androscoggin River.

THEREFORE, the Department APPROVES the modification of the Post-Operational Water Quality Monitoring Plan for the Lewiston Falls Hydro Project, as described above.

DONE AND DATED AT AUGUSTA, MAINE, THIS 2nd DAY OF January, 1994.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: Dean C. Marriott
DEAN C. MARRIOTT, COMMISSIONER

PLEASE SEE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES.

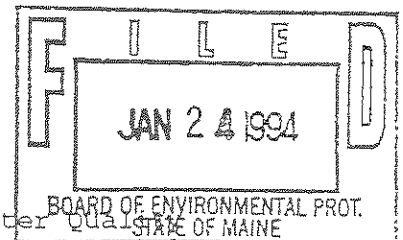
Date of initial receipt of application: 3/26/92

Date application accepted for processing: 4/2/92

Date filed with Board of Environmental Protection

This Order prepared by Dana Murch, Bureau of Land & Water

L09206MM



Androscoggin River below Lewiston Falls and at or above a 30 day average of 6.5 ppm at the monitoring site to be established by the applicants in the Androscoggin River at or near the project boundary below Dresser's Rips. When the dissolved oxygen concentration at the monitoring site decreases to 6.0 ± 0.5 ppm, the applicants shall initiate measures necessary to achieve the above 30 day average. Such measures shall not extend to the modification of the operation of the project beyond the applicants' duplication of existing levels of reaeration provided by the Lewiston Canal System.

- B. The applicants shall, in consultation with the Department, conduct a study assessing (1) reaeration in the project area under existing water quality conditions and operational modes and (2) water quality in the Androscoggin River below Lewiston Falls.
- C. The applicants shall, at least 60 days prior to the anticipated start of project operation, submit the specific details of a plan to monitor dissolved oxygen levels and to comply with the terms of this condition, prepared in consultation with the Department's staff. This plan shall be reviewed by and must received approval of the Commissioner prior to the commencement of project operation."

By Order #L-009206-35-J-C dated May 21, 1990, the Department approved the applicants' Pre-Operational Water Quality Monitoring Report and Post-Operational Water Quality Monitoring Plan, in compliance with Parts B and C of Condition 4, as noted above. Under the approved plan, the applicants were to: continue to operate automated water quality monitors at North Bridge and Dresser's Rips; calculate and record instantaneous and 30-day running average dissolved oxygen levels at Dresser's Rips; and change flow apportionment as needed at Lewiston Falls as needed to maintain dissolved oxygen levels.

In its May 21, 1990 Order, the Department specifically noted that water quality conditions in the river were improving and that the required monitoring might be modified or discontinued at some time in the future.

By Order dated December 23, 1998, DEP approved the transfer of all permits, certifications, condition compliances and other approvals for CMP's hydroelectric facilities, including the Lewiston Falls Project, to FPL Energy Maine Hydro LLC.

3. MONITORING RESULTS

The applicant now reports that dissolved oxygen levels have been continuously monitored on a seasonal basis at North Bridge and Dresser's Rips from 1988 through 2001, inclusive. The results of the monitoring show that, since the start-up of the Gulf Island Pond Oxygenation Project (GIPOP) in 1992, dissolved oxygen levels at the two monitoring sites have consistently exceeded the required 5.0 ppm instantaneous and 6.5 ppm 30-day average levels.

Based on the results of the monitoring, the applicant now proposes to delete Condition 4(C) from the original project permit so that dissolved oxygen monitoring will no longer be required.

4. DISCUSSION

Review by the DEP's Division of Environmental Assessment indicates that dissolved oxygen levels have been met below Lewiston Falls for the past 5 years, and that critical low flows were approached in at least one of those years (1999). As a result, the staff concurs with the applicant's proposal to discontinue dissolved oxygen monitoring.

THEREFORE, the Department MODIFIES Order #L-009206-35-A-N dated June 6, 1986 to delete Condition 4(C), as described above.

DONE AND DATED AT AUGUSTA, MAINE, THIS 23rd DAY OF July, 2002.

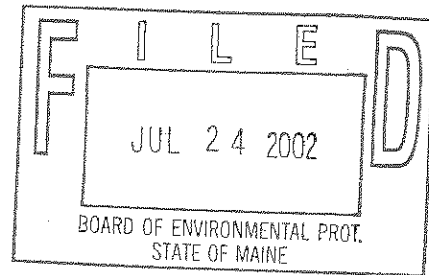
DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: 
Martha Kirkpatrick, Commissioner

PLEASE SEE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of receipt of application: 07/03/2001

Date application accepted for processing: 07/23/2001



Date filed with Board of Environmental Protection: _____

This Order prepared by Dana Murch, Bureau of Land and Water Quality.

VL-009206-35-P-M



STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION
STATE HOUSE STATION 17 AUGUSTA, MAINE 04333

DEPARTMENT ORDER

IN THE MATTER OF

FPL ENERGY MAINE HYDRO LLC	)	MAINE WATERWAY DEVELOPMENT AND
Auburn and Lewiston, Androscoggin County	)	CONSERVATION ACT PERMIT AND
	)	WATER QUALITY CERTIFICATION
LEWISTON FALLS HYDRO PROJECT)	
	)	CONDITION COMPLIANCE AND
#L-009206-35-T-C (Approval)	)	MODIFICATION

Pursuant to the provisions of 38 MRSA Section 464 et seq. and Section 401 of the Federal Water Pollution Control Act (a.k.a. Clean Water Act), the Department of Environmental Protection has considered the application of FPL ENERGY MAINE HYDRO LLC with its supportive data, agency review comments, and other related materials on file and FINDS THE FOLLOWING FACTS:

1. APPLICATION SUMMARY

The applicant has submitted the results of a study assessing the impact of minimum flow releases on fish passage and habitat below the Lewiston Falls Hydro Project. The project is licensed to FPL Energy Maine Hydro LLC as FERC Project No. 2302 and is located on the Androscoggin River in the Cities of Auburn and Lewiston.

2. PRIOR APPROVAL

By Order #L-009206-35-A-N dated June 6, 1986, the Department approved the construction of a new hydroelectric generating facility at Lewiston (Great) Falls and the continued operation of a number of existing hydroelectric generating facilities in the Lewiston Canal System. The approval was issued to Central Maine Power Company and Union Water Power Company, who owned and operated the project at the time.

In its approval, the Department found that the Androscoggin River below Lewiston Falls contains significant spawning and nursery habitat for shad, salmon and brown trout and serves as temporary migratory habitat for alewives. The Department also found that the quality and quantity of these habitats depends in part on the amount of river flow available at any given time. The Department further found that the flow of the Androscoggin River is regulated by the operation of the Gulf Island-Deer Rips Hydro Project, located immediately upstream from the Lewiston Falls Project, and that the weekly cycling operation of the Gulf Island-Deer Rips Project resulted in sustained periods of zero inflow to the Lewiston Falls impoundment during most weekends, which in turn limited outflows from the Lewiston Falls Project to uncontrolled leakage and the flows needed to meet contractual obligations. Finally, the Department found that the applicants had stated a willingness to provide an instantaneous minimum flow release of 1,000 cfs from the Lewiston Falls Project as an interim measure, and to conduct a minimum flow study of the river below Lewiston Falls in conjunction with the upcoming relicensing of the Gulf Island-Deer Rips Hydro Project.

Based on these findings, the Department attached a condition to its approval requiring that an interim minimum flow be maintained from the Lewiston Falls Project and that a minimum flow study be conducted in the river below the project.

Condition 2 of the Department's June 6, 1986 approval reads in pertinent parts as follows:

"2. MINIMUM FLOWS

- A. Except as may be modified by the Board, or as irreconcilably limited by order of state, local or federal authorities, or as temporarily limited by construction activities or by the requirements of any study conducted in compliance with this condition, and commencing with project construction, an interim minimum instantaneous minimum flow of 1,000 cfs shall be maintained from the project at all times.

*

*

*

- C. The applicants shall, in consultation with the Department[s] of Inland Fisheries and Wildlife and Marine Resources, conduct a study assessing the impact of minimum flow releases on fish habitat and resources below the project. The results of the study and the applicants' proposal for long-term minimum flow releases that will adequately maintain fish habitat and resources shall be submitted to the Commissioner before December 31, 1991, in conjunction with Central Maine Power's Application for Relicense for the Gulf Island-Deer Rips Hydro Project (FERC No. 2283). After reviewing the study results, the applicants' proposal, and agency comments, the Board shall, after opportunity for hearing, order such continuation or modification of the interim minimum flow established by this approval as is deemed necessary to maintain fish habitat and resources below the project."

3. STUDY RESULTS AND MINIMUM FLOW PROPOSAL

On December 10, 1991, Central Maine Power Company (CMP) and Union Water Power Company (UWPCo.) filed an application with the Federal Energy Regulatory Commission for a new license for the Gulf Island-Deer Rips Hydro Project. Included in the application were the results of an instream flow study of the Androscoggin River from Gulf Island Dam to the downstream Worumbo Project impoundment (a distance of 15.4 miles), as well as the applicants' proposal to provide a long-term minimum flow release of 1,100 cfs or inflow, whichever is less, from both the Gulf Island-Deer Rips Project and the Lewiston Falls Project. The applicants concurrently requested water quality certification from the Department in conjunction with the proposed relicensing of the Gulf Island-Deer Rips Hydro Project.

By filing dated February 21, 1992, CMP and UWPCo. filed an application for condition compliance and a proposal for a long-term minimum flow release of 1,100 cfs or inflow,

whichever is less, from the Lewiston Falls Hydro Project, in compliance with Condition 2(C) of Department Order #L-009206-35-A-N.¹

4. GULF ISLAND-DEER RIPS PROJECT PROCEEDINGS

By Order #L-17100-33-O-N dated September 21, 2005, the Department approved water quality certification for the continued operation of the Gulf Island-Deer Rips Hydro Project. The approval was issued to FPL Energy Maine Hydro LLC (FPLE), which purchased the project from CMP and UWPCo. in 1999.

In its approval, after summarizing the results of the Instream Flow Incremental Methodology (IFIM) study conducted in the Androscoggin River below Gulf Island Dam, the Department made the following findings with respect to minimum flows:

“Minimum Flows. The priority management species most affected by minimum flow releases from the Gulf Island, Deer Rips and Lewiston Falls dams is brown trout. The evidence indicates that overall habitat suitability for brown trout in the Deer Rips and Dresser's Rips Reaches increases as flows increase above 1,000 cfs, but that the rate of increase in habitat suitability, especially for adult brown trout, declines as flows increase. The evidence also indicates that overall habitat for brown trout in the Deer Rips and Dresser's Rips Reaches increases by 10% between 1,000 cfs and 1,430 cfs.

Other species of concern in the river below Gulf Island Dam include smallmouth bass, American shad and Atlantic salmon. The evidence indicates that habitat value for combined life stages of bass peaks at 1,430 cfs in the Deer Rips Reach and at 1,200 cfs in the Dresser's Rips Reach. The evidence also indicates that, while habitat value for shad in the Run Reach increases with increasing flows, there is significant habitat available even at 1,000 cfs. Finally, the evidence indicates that there is no value in providing higher minimum flows for salmon until and unless there is an active salmon restoration effort underway in the river basin.

The minimum flow of 1,430 cfs recommended by the state fisheries agencies approximates the historic (i.e., unregulated) Aquatic Base Flow (median August flow) in the river at Gulf Island. It is noted that an ABF minimum flow has been previously established as the minimum flow release at the upstream Rumford Falls Project and the downstream Worumbo Project and Pejepscot Project. It is also noted that, because of headwater regulation, a minimum target flow of 1,550 cfs is maintained virtually all the time at Berlin, NH; as a result, regulated inflow to Gulf Island rarely drops below 1,430 cfs, thus enhancing the habitat value of this flow.

In view of the evidence in the record, a minimum flow of 1,430 cfs or inflow, whichever is less, from each of the project dams will improve habitat conditions for various fish species, including brown trout, smallmouth bass, and American shad, and

¹ This application was subsequently withdrawn and refiled each year by CMP and UWPCo. or FPLE until a decision on the pending request for water quality certification for the Gulf Island-Deer Rips Hydro Project was made by the Department.

is necessary to ensure that the waters in the project tailrace areas will meet applicable water quality standards, subject to the other provisions of this Order. Specifically, there is a reasonable assurance that a minimum flow of 1,430 cfs or inflow, whichever is less, is necessary to ensure that the waters in the project tailrace areas will be suitable for the designated uses of habitat for fish and for fishing, and that the identified waters will be of sufficient quality to support all species of fish indigenous to these waters.”

Based on these findings, the Department attached a condition to its approval requiring that, except as temporarily modified by specified conditions, an instantaneous minimum flow of 1,430 cfs or inflow, whichever is less, be released from the Gulf Island Dam and the Deer Rips Dam at all times.

On October 21, 2005, timely appeals of the Department’s September 21, 2005 decision were filed by FPLE and by the Conservation Law Foundation, Maine Rivers, Androscoggin River Alliance, and Androscoggin Lake Improvement Association (collectively, “CLF et al.”). An additional appeal filed by the Towns of Livermore Falls and Jay was subsequently withdrawn, pursuant to a Stipulation and Consent Order approved by the Board on May 2, 2007.

In its appeal, FPLE argued, among other things, that the minimum flow required by the water quality certification was excessive and not supported by the evidence in the record, and that Condition 2 of the certification should be modified to reduce the minimum flow releases required from the project dams from 1,430 cfs to 1,100 cfs, as initially proposed by CMP and UWPCo.

In a Procedural Order dated March 30, 2006, the Chair of the Board of Environmental Protection approved a stay of the conditions relating to, among other things, minimum flow releases in FPLE’s water quality certification until the Board issued a decision on FPLE’s appeal.

On August 3, 2006, the Board of Environmental Protection voted to schedule a consolidated public hearing on the pending appeals of the water quality certification for FPLE’s Gulf Island-Deer Rips Hydro Project, and the permits and licenses for Verso Paper’s Jay pulp and paper mill, Rumford Paper Company’s Rumford pulp and paper mill, and the Town of Livermore Falls’ wastewater treatment facility. The appeal of the waste discharge license and Maine Pollutant Discharge Elimination System permit for the Town of Livermore Falls’ wastewater treatment facility was subsequently withdrawn, pursuant to a Stipulation and Consent Order approved by the Board on May 2, 2007.

On February 2, 2007, FPLE confirmed that it was withdrawing its appeal of Condition 2 of the water quality certification relating to minimum flow releases from the Gulf Island-Deer Rips Hydro Project.

An adjudicatory hearing to receive testimony from the parties and the general public was held by the Board of Environmental Protection on May 2, 3, 4, 8 and 9, 2007 in Auburn, Maine and on May 10, 2007 in Augusta, Maine. On July 5, 2007, the Board heard closing arguments on the pending appeals from the parties.

On February 7, 2008, the Board of Environmental Protection voted to deny the appeal of CLF et al. The Board also voted to partially grant the appeal of FPLE and to modify various conditions of the Department's September 21, 2005 water quality certification relating to water quality monitoring and additional oxygen injection requirements in Gulf Island Pond and to the payment for phosphorus control at the Livermore Falls municipal waste water treatment facility.

5. PROPOSED MODIFICATION

By letter dated February 26, 2008, the Department notified FPLE of its intention to modify the existing water quality certification for the Lewiston Falls Hydro Project to require an increase in the interim minimum flow of 1,000 to a new minimum flow of 1,430 cfs. By this letter, the Department also advised FPLE of its opportunity to request a public hearing prior to final action by the Department on the proposed modification.

On March 28, 2008, FPLE notified the Department that it would not be requesting a public hearing on the proposed modification.

6. DISCUSSION

Based on its independent review, the Department has determined that the instream flow study for the Androscoggin River from Gulf Island Dam to the Worumbo Project impoundment, as submitted, satisfactorily addresses the requirements of Special Condition 2(C) for assessing the impact of minimum flow releases on fish habitat and resources below the Lewiston Falls Project.

In view of the evidence in the record, the Department concludes that a minimum flow of 1,430 cfs or inflow, whichever is less, from the Lewiston Falls Hydro Project will improve habitat conditions for various fish species, including brown trout, smallmouth bass, and American shad, and is necessary to ensure that the waters in the project tailrace areas will meet applicable water quality standards, subject to the other provisions of the water quality certification approved for the project. Specifically, there is a reasonable assurance that a minimum flow of 1,430 cfs or inflow, whichever is less, is necessary to ensure that the waters in the project tailrace areas will be suitable for the designated uses of habitat for fish and for fishing, and that the identified waters will be of sufficient quality to support all species of fish indigenous to these waters. This conclusion is consistent with the Department's findings in the water quality certification for the upstream Gulf Island-Deer Rips Hydro Project, as discussed above.

THEREFORE, the Department CONCLUDES that FPL ENERGY MAINE HYDRO LLC has complied with Special Condition 2(C) of Department Order #L-009206-35-A-N dated June 6, 1986.

FURTHERMORE, the Department MODIFIES Condition 2 ("MINIMUM FLOWS") of Order #L-009206-35-A-N dated June 6, 1986 to include the following additional paragraphs:

D. Except as temporarily modified by (1) approved maintenance activities, (2) extreme hydrologic conditions, as defined below, (3) emergency electrical system conditions, as defined below, or (4) agreement between the applicant and appropriate state and/or federal agencies, and commencing on the date of this order, an instantaneous minimum flow of 1,430 cfs or inflow, whichever is less, shall be released from the project at all times. This flow supercedes and replaces the interim instantaneous minimum flow of 1,000 cfs established by Condition 2(A) of DEP Order #L-009206-35-A-N dated June 6, 1986.

“Extreme Hydrologic Conditions” means the occurrence of events beyond the Licensee’s control such as, but not limited to, abnormal precipitation, extreme runoff, flood conditions, ice conditions or other hydrologic conditions such that the operational restrictions and requirements contained herein are impossible to achieve or are inconsistent with the safe operation of the Project.

“Emergency Electrical System Conditions” means operating emergencies beyond the applicant's control which require changes in flow regimes to eliminate such emergencies which may in some circumstances include, but are not limited to, equipment failure or other temporary abnormal operating conditions, generating unit operation or third-party mandated interruptions under power supply emergencies, and orders from local, state, or federal law enforcement or public safety authorities.

DONE AND DATED AT AUGUSTA, MAINE, THIS 3RD DAY OF APRIL, 2008.

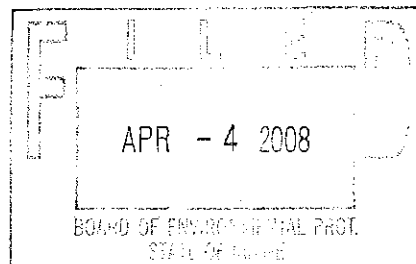
DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: 
DAVID P. LITTELL, Commissioner

PLEASE SEE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of receipt of application: 09/07/2005

Date application accepted for processing: 09/08/2005



Date filed with Board of Environmental Protection: _____

This Order prepared by Dana Murch, Bureau of Land and Water Quality.



STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION



PAUL R. LEPAGE
GOVERNOR

PAUL MERCER
COMMISSIONER

April 2017

Kelly Maloney
Brookfield White Pine Hydro LLC
150 Main St.
Lewiston, ME 04240

RE: LEWISTON FALLS PROJECT, MINOR AMENDMENT, LEWISTON and
AUBURN, DEP APPLICATION #L-9206-35-U-B

Dear Ms. Maloney:

Please find enclosed a signed copy of your Department of Environmental Protection Minor Amendment Order for your Project's existing Maine Waterway Development and Conservation Act permit and Water Quality Certification. You will note that the Minor Amendment Order includes a description of your project and findings of fact that relate to the approval criteria the Department used in evaluating your project. The Department reviews every application thoroughly and strives to formulate reasonable conditions of approval within the context of the Department's environmental laws. You will also find attached some materials that describe the Department's appeal procedures for your information.

If you have any questions about the order or thoughts on how the Department processed this application please feel free to contact me at (207) 441-1732 or Michael.OConnor@maine.gov.

Sincerely,

Michael O'Connor
Licensing Project Manager
Bureau of Land Resources, Land Division

pc: File



DEPARTMENT ORDER

IN THE MATTER OF

BROOKFIELD WHITE PINE HYDRO LLC) MAINE WATERWAY DEVELOPMENT
Lewiston and Auburn) AND CONSERVATION ACT AND
Androscoggin County) WATER QUALITY CERTIFICATION
LEWISTON FALLS HYDROELECTRIC)
PROJECT)
#L-9206-35-U-B (approval)) MINOR AMENDMENT

Pursuant to the provisions of the Water Classification Program, 38 M.R.S. §§464-468, Rules Concerning the Processing of Applications and Other Administrative Matters, 06-096 C.M.R. ch. 2, and Section 401 of the Clean Water Act (formerly the Federal Water Pollution Control Act), the Department of Environmental Protection (Department or DEP) has considered the application of BROOKFIELD WHITE PINE HYDRO LLC (applicant) with its supportive information and other related materials on file and FINDS THE FOLLOWING FACTS:

1. PROJECT SUMMARY

In Department Order #L-9206-35-A-N, dated June 6, 1986, the Department issued a Maine Waterway Development and Conservation Act (MWDCA) permit and Water Quality Certification (WQC) for the construction of a hydroelectric generating facility at Lewiston Falls on the Androscoggin River in the City of Lewiston and licensed the continued operation of six existing hydroelectric generating facilities located in the Lewiston Canal System. The project is collectively known as the Lewiston Falls Hydroelectric Project (Project). The Federal Energy Regulatory Commission (FERC) issued a new major project license for the Project on September 29, 1986 for a period of 40 years (FERC Project No. 2302). Two of the existing hydroelectric generating facilities in the Lewiston Canal System were subsequently removed from the FERC license. The Upper Androscoggin generating facility was transferred to the City of Lewiston in 1991 (FERC Project No. 11006). The Bates Lower station was removed from the Project in 1998 after FERC approval. The four remaining generating facilities in the Lewiston Canal System are the Continental Mill, Hill Mill, Bates Upper, and Lower Androscoggin stations.

The Project consists of a dam (Lewiston Falls Dam), impoundment, powerhouse (Monty Station), intake structure, tailrace, two gatehouses, and a canal system (Lewiston Canal System), which includes several canal channels, weirs, gates, and generating facilities. The Project operates as a reregulating facility for the Gulf Island and Deer Rips dams located upstream of the Project. The Project is allowed to operate with headpond fluctuations up to 4.0 feet (spillway crest to flashboard crest). The Project is required to release a minimum flow of 1,430 cubic feet per second (cfs) or inflow, whichever is less, with a portion of that minimum flow being transported through the canal system. The Project is located on the Androscoggin River in the cities of Lewiston and Auburn, Androscoggin County, Maine.

2. MODIFICATION PROPOSAL

The applicant proposes to remove the Lewiston Canal System from the Project and to convey the system to the City of Lewiston for non-hydropower redevelopment and public use. The Project would continue to include the Project dam on the mainstem of the Androscoggin River, impoundment, Monty Station, and gatehouses. The applicant would maintain the minimum flow requirement downstream of the Project including 50 cfs to the Lewiston Canal System with periodic 300 cfs “refreshment flows”. The proposed action would reduce the total installed capacity of the Project from 35.6 megawatts (MW) to 28 MW through the removal of four generating facilities in the canal system from the Project.

The applicant submitted an application to FERC for a non-capacity amendment of its license to remove the Lewiston Canal System on February 24, 2017, which is currently under review. The applicant included the FERC non-capacity amendment application, which includes a decommissioning plan and Lewiston Canal System stagnation prevention plan, to the Department for review as part of its minor amendment application.

3. DISCUSSION

The applicant notes that Monty Station has been the primary generating facility at the Project since it became operational in 1990, and that generation within the Lewiston Canal System has been curtailed over time. More recently, the canal system has not been generating although a portion of the minimum outflow from the Project is still conveyed through the canal system in accordance with the FERC license requirements and the Department’s MWDCa permit and WQC.

The applicant states that except for reducing the total installed capacity of the Project by 7.6 MW, the proposed modification will have no significant effect on the overall operation of the Project. The Project will continue to operate in close coordination with the upstream Gulf Island-Deer Rips Project (FERC No. 2283) with no changes to licensed minimum outflows or water level fluctuations. At least 50 cfs will continue to be discharged through the Lewiston Canal System as part of the 1,430 cfs minimum flow release from the Project. Therefore, the proposed modification will likely not have any significant effects on water quality or quantity, fish and aquatic life use or habitat, recreation resources or use, historic resources, or other natural resources in the Project area. The only listed species in the Project area is Atlantic salmon, with waters downstream of the Project dam designated as critical habitat for the Gulf of Maine Distinct Population Segment (GOM DPS) of Atlantic salmon. The applicant prepared an Interim Species Protection Plan (ISPP) for GOM DPS Atlantic salmon and the National Marine Fisheries Service (NMFS) issued a Biological Opinion (BO) for the Project in 2013, approving the ISPP. There were no provisions in the ISPP or BO related to the operation of the Lewiston Canal System; therefore, the proposed modification will not significantly affect GOM DPS Atlantic salmon because no habitat is present in the canal system and current minimum flows downstream of the Project are not proposed to change.

4. FINDINGS:

Based on its review of the application, the Department finds that the proposed modification to remove the Lewiston Canal System from the Lewiston Falls Hydroelectric Project will not significantly affect natural resources in the area or permitted operation of the Project. The Lewiston Canal System is removed from the Project's MWDCa permit and WQC and the total rated capacity for the Project is modified from 35.6 MW to 28 MW.

All other findings of fact, conclusions and conditions remain as approved in Department Order #L-9206-35-A-N, and subsequent orders.

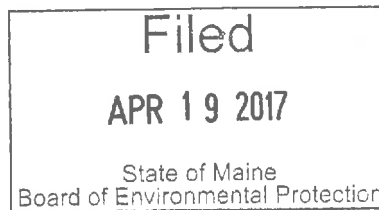
THEREFORE, the Department APPROVES the application of BROOKFIELD WHITE PINE HYDRO LLC to modify Department Order #L-9206-35-A-N to remove the Lewiston Canal System from the Lewiston Falls Hydroelectric Project and reduce the total rated capacity from 35.6 MW to 28 MW, SUBJECT TO THE FOLLOWING CONDITIONS and all applicable standards and regulations:

1. The Standard Conditions of Approval, a copy attached.
2. Severability. The invalidity or unenforceability of any provision, or part thereof, of this License shall not affect the remainder of the provision or any other provisions. This License shall be construed and enforced in all respects as if such invalid or unenforceable provision or part thereof had been omitted.
3. All other Findings of Fact, Conclusions and Conditions remain as approved in Department Order #L-9206-35-A-N, and subsequent orders, and are incorporated herein.

DONE AND DATED IN AUGUSTA, MAINE, THIS 19TH DAY OF APRIL, 2017.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: *Mark Byrson*
For Paul Mercer, Commissioner



PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES...

MO/L9206UB/ATS81644

Standard Conditions of Approval

1. **Limits of Approval.** This approval is limited to and includes the proposals and plans contained in the application and supporting documents submitted and affirmed to by the applicant. All variances from the plans and proposals contained in said documents are subject to the review and approval of the Commissioner prior to implementation.
2. **Noncompliance.** Should the project be found, at any time, not to be in compliance with any of the conditions of this approval, or should the permittee construct or operate this project in any way other than specified in the application or supporting documents, as modified by the conditions of this approval, then the terms of this approval shall be considered to have been violated.
3. **Compliance with all Applicable Laws.** The permittee shall secure and appropriately comply with all applicable federal, state and local licenses, permits, authorizations, conditions, agreements, and orders prior to or during construction and operation.
4. **Inspection and Compliance.** Authorized representatives of the Board, Commissioner, or the Attorney General shall be granted access to the premises of the permittee at any reasonable time for the purpose of inspecting the construction or operation of the project and assuring compliance by the permittee with the conditions of this approval.
5. **Initiation and Completion of Construction.** If construction is not commenced within 3 years and completed within 7 years from the date of issuance of this permit, this approval shall lapse, unless a request for an extension of these deadlines has been approved by the Commissioner.
6. **Construction Schedule.** Prior to construction, the permittee shall submit a final construction schedule for the project to the Commissioner.
7. **Approval Included in Contract Bids.** A copy of this approval must be included in or attached to contract bid specifications for the project.
8. **Approval Shown to Contractor.** Work done by a contractor pursuant to this approval shall not begin before a copy of this approval has been shown to the contractor by the permittee.
9. **Notification of Project Operation.** The permittee shall notify the Commissioner of the commencement of commercial operation of the project within 10 days prior to such commencement.
10. **Assignment or Transfer of Approval.** This approval shall expire upon the assignment or transfer of the property covered by this approval unless written consent to transfer this approval is obtained from the Commissioner. To obtain approval of transfer, the permittee shall notify the Commissioner 30 days prior to assignment or transfer of

property which is subject to this approval pending Commissioner determination on the application for a transfer or assignment of ownership of this approval, the person(s) to whom such property is assigned or transferred shall abide by all of the terms and conditions of this approval. To obtain the Commissioner's approval of transfer, the proposed assignee or transferee must demonstrate the financial capability and technical ability to (1) comply with all terms and conditions of this approval and (2) satisfy all other applicable statutory criteria. A "transfer" is defined as the sale or lease of property which is the subject of this approval or the sale of 50 percent or more of the stock of or interest in a corporation or a change in a general partner of a partnership which owns the property subject to this approval.



DEP INFORMATION SHEET

Appealing a Department Licensing Decision

Dated: March 2012

Contact: (207) 287-2811

SUMMARY

There are two methods available to an aggrieved person seeking to appeal a licensing decision made by the Department of Environmental Protection's ("DEP") Commissioner: (1) in an administrative process before the Board of Environmental Protection ("Board"); or (2) in a judicial process before Maine's Superior Court. An aggrieved person seeking review of a licensing decision over which the Board had original jurisdiction may seek judicial review in Maine's Superior Court.

A judicial appeal of final action by the Commissioner or the Board regarding an application for an expedited wind energy development (35-A M.R.S.A. § 3451(4)) or a general permit for an offshore wind energy demonstration project (38 M.R.S.A. § 480-HH(1)) or a general permit for a tidal energy demonstration project (38 M.R.S.A. § 636-A) must be taken to the Supreme Judicial Court sitting as the Law Court.

This INFORMATION SHEET, in conjunction with a review of the statutory and regulatory provisions referred to herein, can help a person to understand his or her rights and obligations in filing an administrative or judicial appeal.

I. ADMINISTRATIVE APPEALS TO THE BOARD

LEGAL REFERENCES

The laws concerning the DEP's *Organization and Powers*, 38 M.R.S.A. §§ 341-D(4) & 346, the *Maine Administrative Procedure Act*, 5 M.R.S.A. § 11001, and the DEP's *Rules Concerning the Processing of Applications and Other Administrative Matters* ("Chapter 2"), 06-096 CMR 2 (April 1, 2003).

HOW LONG YOU HAVE TO SUBMIT AN APPEAL TO THE BOARD

The Board must receive a written appeal within 30 days of the date on which the Commissioner's decision was filed with the Board. Appeals filed after 30 calendar days of the date on which the Commissioner's decision was filed with the Board will be rejected.

HOW TO SUBMIT AN APPEAL TO THE BOARD

Signed original appeal documents must be sent to: Chair, Board of Environmental Protection, c/o Department of Environmental Protection, 17 State House Station, Augusta, ME 04333-0017; faxes are acceptable for purposes of meeting the deadline when followed by the Board's receipt of mailed original documents within five (5) working days. Receipt on a particular day must be by 5:00 PM at DEP's offices in Augusta; materials received after 5:00 PM are not considered received until the following day. The person appealing a licensing decision must also send the DEP's Commissioner a copy of the appeal documents and if the person appealing is not the applicant in the license proceeding at issue the applicant must also be sent a copy of the appeal documents. All of the information listed in the next section must be submitted at the time the appeal is filed. Only the extraordinary circumstances described at the end of that section will justify evidence not in the DEP's record at the time of decision being added to the record for consideration by the Board as part of an appeal.

WHAT YOUR APPEAL PAPERWORK MUST CONTAIN

Appeal materials must contain the following information at the time submitted:

1. *Aggrieved Status.* The appeal must explain how the person filing the appeal has standing to maintain an appeal. This requires an explanation of how the person filing the appeal may suffer a particularized injury as a result of the Commissioner's decision.
2. *The findings, conclusions or conditions objected to or believed to be in error.* Specific references and facts regarding the appellant's issues with the decision must be provided in the notice of appeal.
3. *The basis of the objections or challenge.* If possible, specific regulations, statutes or other facts should be referenced. This may include citing omissions of relevant requirements, and errors believed to have been made in interpretations, conclusions, and relevant requirements.
4. *The remedy sought.* This can range from reversal of the Commissioner's decision on the license or permit to changes in specific permit conditions.
5. *All the matters to be contested.* The Board will limit its consideration to those arguments specifically raised in the written notice of appeal.
6. *Request for hearing.* The Board will hear presentations on appeals at its regularly scheduled meetings, unless a public hearing on the appeal is requested and granted. A request for public hearing on an appeal must be filed as part of the notice of appeal.
7. *New or additional evidence to be offered.* The Board may allow new or additional evidence, referred to as supplemental evidence, to be considered by the Board in an appeal only when the evidence is relevant and material and that the person seeking to add information to the record can show due diligence in bringing the evidence to the DEP's attention at the earliest possible time in the licensing process or that the evidence itself is newly discovered and could not have been presented earlier in the process. Specific requirements for additional evidence are found in Chapter 2.

OTHER CONSIDERATIONS IN APPEALING A DECISION TO THE BOARD

1. *Be familiar with all relevant material in the DEP record.* A license application file is public information, subject to any applicable statutory exceptions, made easily accessible by DEP. Upon request, the DEP will make the material available during normal working hours, provide space to review the file, and provide opportunity for photocopying materials. There is a charge for copies or copying services.
2. *Be familiar with the regulations and laws under which the application was processed, and the procedural rules governing your appeal.* DEP staff will provide this information on request and answer questions regarding applicable requirements.
3. *The filing of an appeal does not operate as a stay to any decision.* If a license has been granted and it has been appealed the license normally remains in effect pending the processing of the appeal. A license holder may proceed with a project pending the outcome of an appeal but the license holder runs the risk of the decision being reversed or modified as a result of the appeal.

WHAT TO EXPECT ONCE YOU FILE A TIMELY APPEAL WITH THE BOARD

The Board will formally acknowledge receipt of an appeal, including the name of the DEP project manager assigned to the specific appeal. The notice of appeal, any materials accepted by the Board Chair as supplementary evidence, and any materials submitted in response to the appeal will be sent to Board members with a recommendation from DEP staff. Persons filing appeals and interested persons are notified in advance of the date set for Board consideration of an appeal or request for public hearing. With or without holding a public hearing, the Board may affirm, amend, or reverse a Commissioner decision or remand the matter to the Commissioner for further proceedings. The Board will notify the appellant, a license holder, and interested persons of its decision.

II. JUDICIAL APPEALS

Maine law generally allows aggrieved persons to appeal final Commissioner or Board licensing decisions to Maine's Superior Court, see 38 M.R.S.A. § 346(1); 06-096 CMR 2; 5 M.R.S.A. § 11001; & M.R. Civ. P 80C. A party's appeal must be filed with the Superior Court within 30 days of receipt of notice of the Board's or the Commissioner's decision. For any other person, an appeal must be filed within 40 days of the date the decision was rendered. Failure to file a timely appeal will result in the Board's or the Commissioner's decision becoming final.

An appeal to court of a license decision regarding an expedited wind energy development, a general permit for an offshore wind energy demonstration project, or a general permit for a tidal energy demonstration project may only be taken directly to the Maine Supreme Judicial Court. See 38 M.R.S.A. § 346(4).

Maine's Administrative Procedure Act, DEP statutes governing a particular matter, and the Maine Rules of Civil Procedure must be consulted for the substantive and procedural details applicable to judicial appeals.

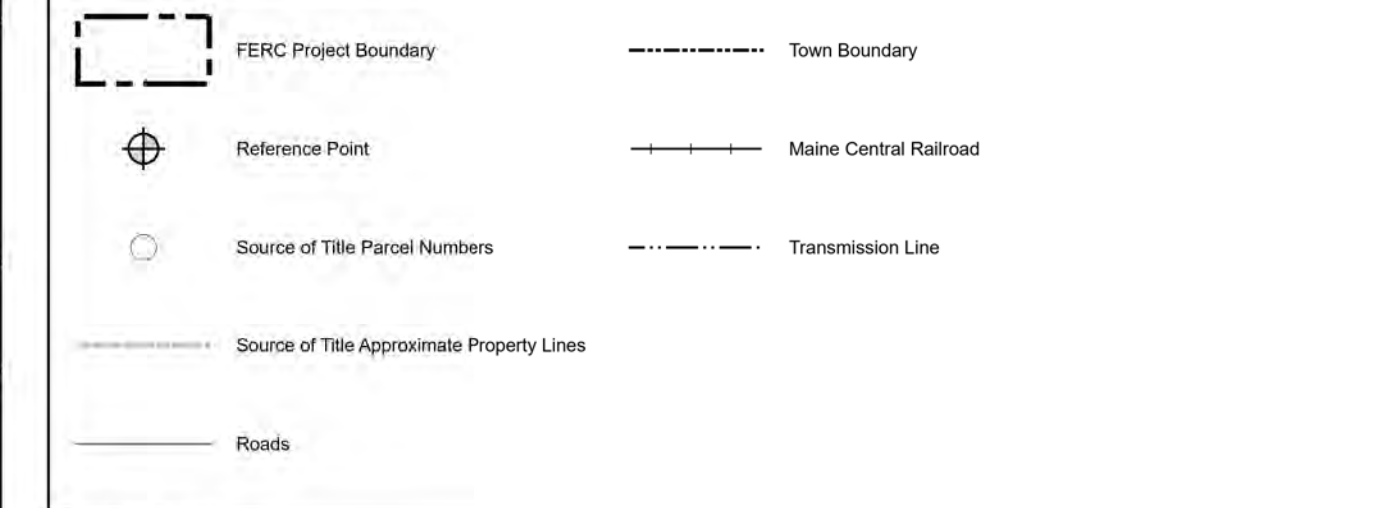
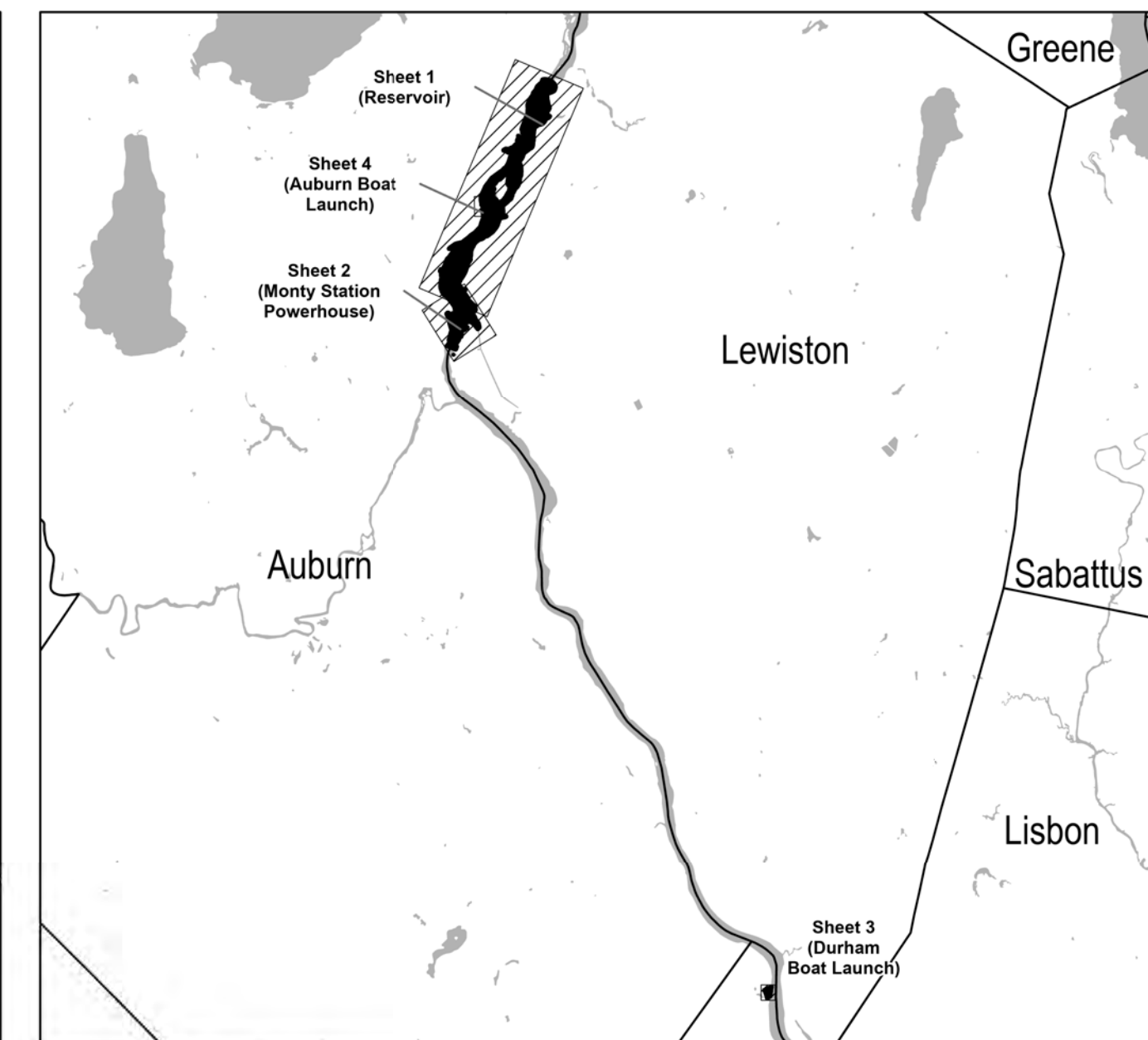
ADDITIONAL INFORMATION

If you have questions or need additional information on the appeal process, for administrative appeals contact the Board's Executive Analyst at (207) 287-2452 or for judicial appeals contact the court clerk's office in which your appeal will be filed.

Note: The DEP provides this INFORMATION SHEET for general guidance only; it is not intended for use as a legal reference. Maine law governs an appellant's rights.

APPENDIX D

EXHIBIT G DRAWINGS



- GENERAL NOTES:**
1. AS USED ON THESE PLANS, CMP MEANS CENTRAL MAINE POWER COMPANY AND MAY INCLUDE UWP WHICH MEANS UNION WATER POWER COMPANY AND CUMBERLAND SECURITIES CORPORATION, BOTH OF WHICH ARE SUBSIDIARIES OF CMP. FERC MEANS FEDERAL ENERGY REGULATORY COMMISSION.
 2. UNLESS OTHERWISE NOTED HEREON OR IN THE DEED, TRANSMISSION AND DISTRIBUTION-RELATED LINES, SUPPORT STRUCTURES EXCLUDING BUILDINGS OR GENERATION-ASSET-RELATED STRUCTURES INCLUDED IN THE DESCRIPTION OF THE GRANTED PREMISES IN THE DEED, APPURTENANCES AND EQUIPMENT ARE OWNED BY CMP AND ALL GENERATION-ASSET-RELATED FACILITIES, STRUCTURES AND EQUIPMENT INCLUDING, WITHOUT LIMITATION, DAMS, POWERHOUSES, FISH ELEVATORS AND FISH LADDERS, FLUMES, PENSTOCKS, GATES, GATEHOUSES, SPILLWAYS, RETAINING WALLS, BUILDINGS AND APPURTENANCES THERE TO, IF ANY, ARE OWNED BY BROOKFIELD WHITE PINE HYDRO LLC.
 3. UNLESS OTHERWISE NOTED HEREON OR IN THE DEED, RAILROAD RIGHTS OF WAY, PUBLIC ROADS, BRIDGES, AND THIRD PARTY UTILITIES ARE NOT PART OF THE FERC LICENSED PROJECT WORKS.
 4. CMP TRANSMISSION RIGHTS OF WAY ARE RETAINED IN EASEMENT WITHIN THE PROJECT BOUNDARIES.
 5. UNLESS OTHERWISE NOTED HEREON OR IN THE DEED, PROJECT LANDS INCLUDE ALL LANDS WITHIN THE PROJECT BOUNDARY, INCLUDING CERTAIN ISLANDS IN THE RIVER, THE RIVERBED, AND THE POWERHOUSE PARCEL.
 6. CONTOURS AND ELEVATIONS ARE BASED ON USGS DATUM AND REFERENCED AS FEET ABOVE MEAN SEA LEVEL. USGS REFERENCE SM STAMPED "T12 TWC 1954 267" LOCATED IN EAST AUBURN EL. 242.547.
 7. THE PROJECT BOUNDARIES SHOWN ON THIS PLAN INCLUDE ALL LANDS WITHIN THE FERC LICENSED PROJECT BOUNDARY IN EFFECT FOR THE PROJECT AT THE DATE OF THE SALE.
 8. CIRCLED PARCEL NUMBERS REFER TO THE SOURCE OF TITLE AS LISTED ON THE DEED SCHEDULE ENTITLED "DETAILS - LAND RIGHTS OWNED AND PURCHASED" AND USUALLY REFERRED TO AS TABLE G-11 INCLUDED IN THE FERC APPLICATION.
 9. FOR LIMITS OF CONVEYANCE IN PARCELS NO. 5-13 INCLUSIVE IN BOTH AUBURN AND LEWISTON, SEE DEED OF WALTER E. ROSE TO UWP CO. DATED 3 SEPTEMBER 1996 A.C.R.D. BK. 217 PH. 644.
 10. THE LIBBY MILL INTAKES ARE NON-PROJECT STRUCTURES OWNED AND MAINTAINED BY OTHERS.
 11. ORIGINAL FLOWAGE RIGHTS ON ALL PARCELS IN THE RESERVOIR AREA WERE ACQUIRED FROM FRANKLIN COMPANY AS PART OF PARCEL 1-13.
 12. PROJECT FENCES ARE MAINTAINED AT ALL POINTS WHERE IT IS DEEMED NECESSARY FOR PUBLIC SAFETY.
 13. FLOWAGE RIGHTS OWNED TO EL. 169.50. FIXED CREST OF STONE DAMS AT LEWISTON: EL. 164.17. NORMAL FULL POND: EL. 168.17.

PLACEHOLDER FOR SURVEYOR STAMP

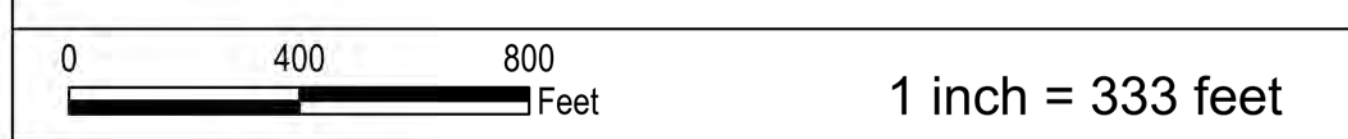
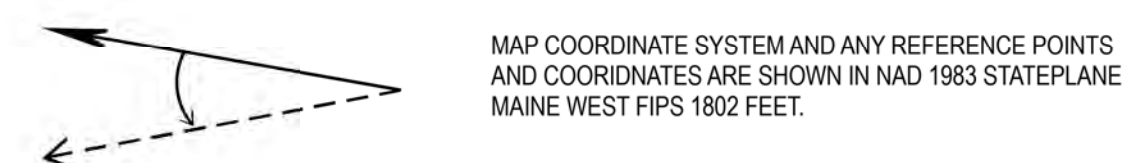
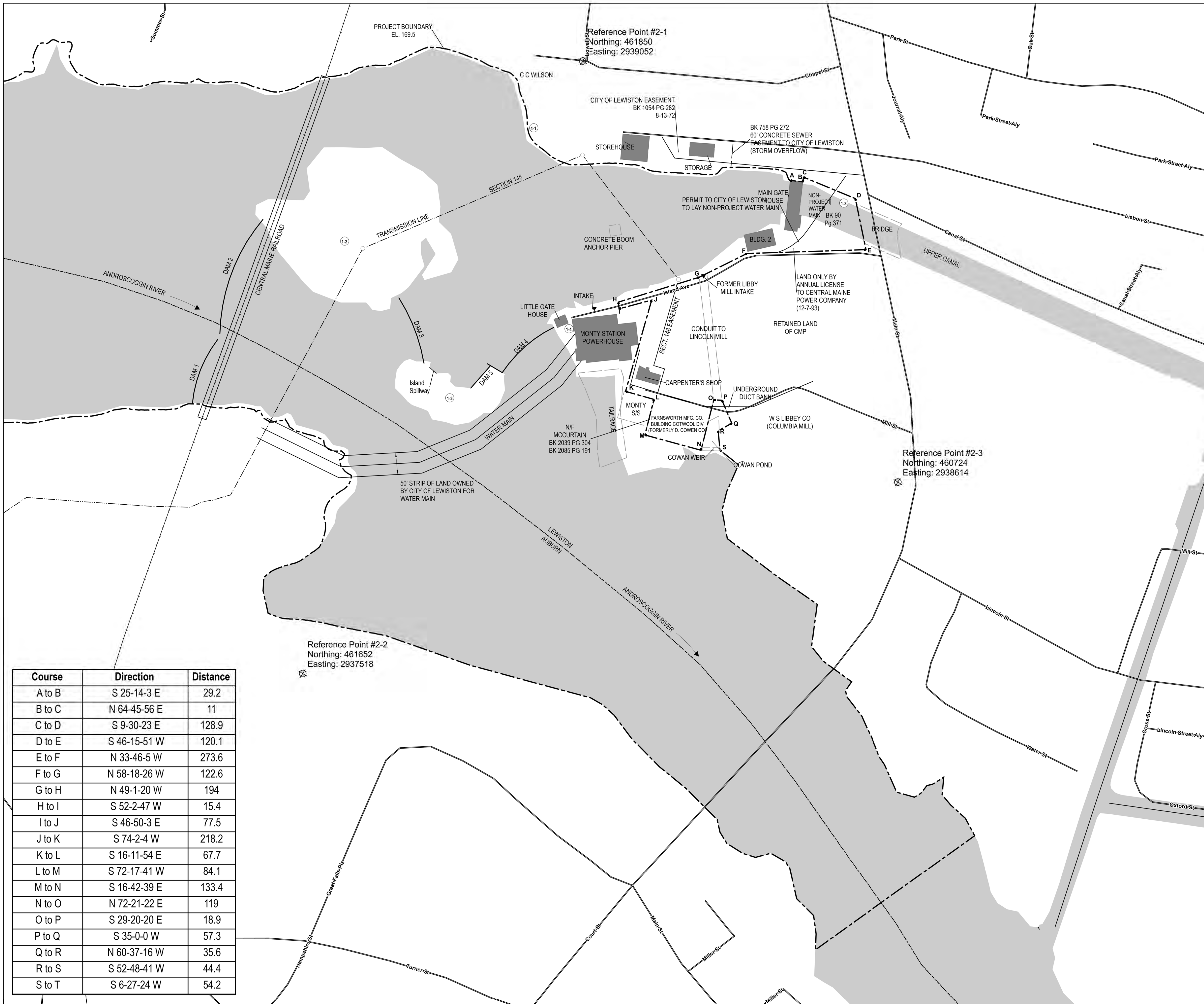
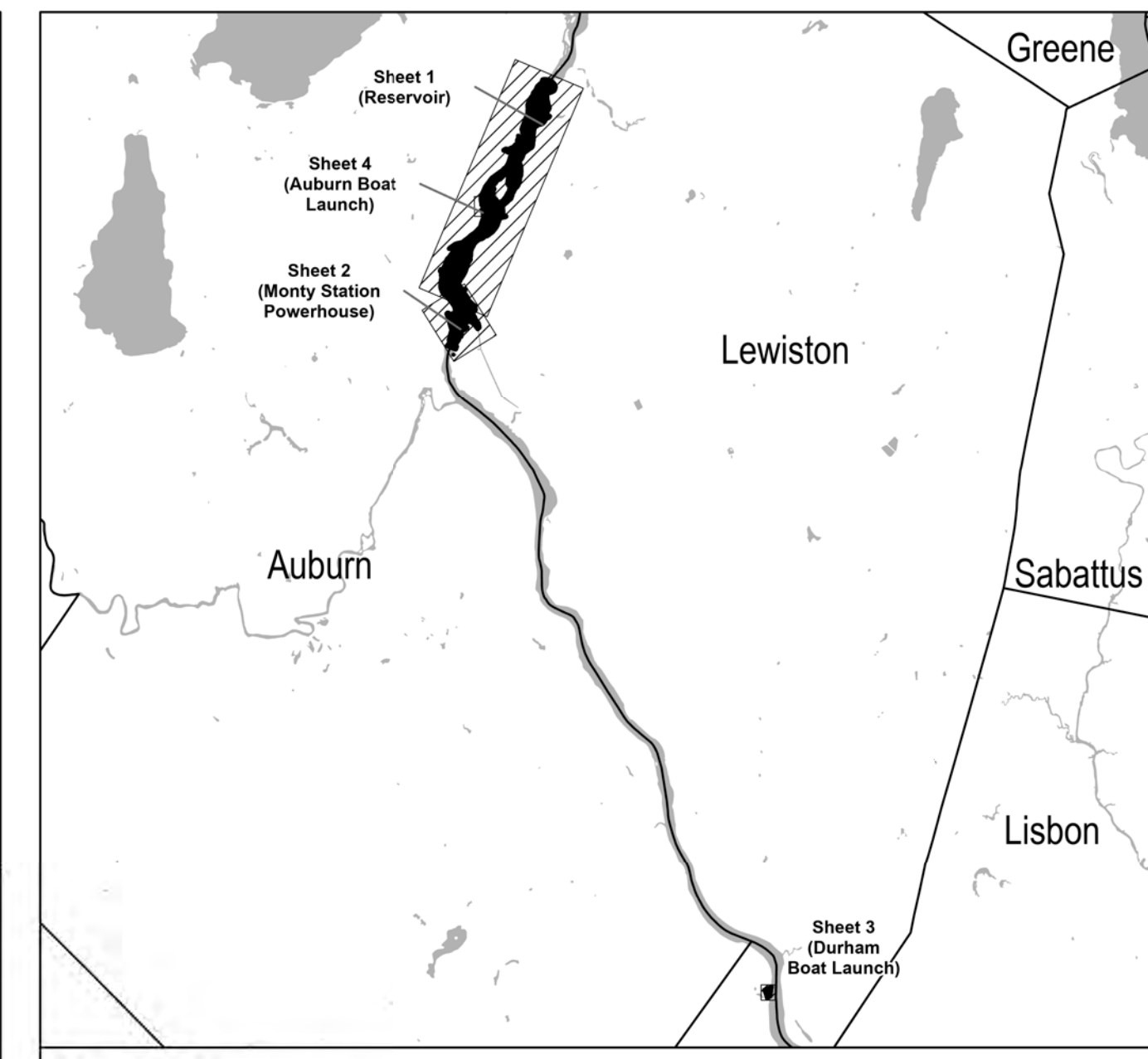


Exhibit G Project Detail Map (Reservoir)
LEWISTON FALLS PROJECT FERC NO. 2302
BROOKFIELD WHITE PINE HYDRO, LLC

Date: 03/19/2021 **Sheet 1 of 3** Prepared by: **Kleinschmidt**



Course	Direction	Distance
A to B	S 25-14-3 E	29.2
B to C	N 64-45-56 E	11
C to D	S 9-30-23 E	128.9
D to E	S 46-15-51 W	120.1
E to F	N 33-46-5 W	273.6
F to G	N 58-18-26 W	122.6
G to H	N 49-1-20 W	194
H to I	S 52-2-47 W	15.4
I to J	S 46-50-3 E	77.5
J to K	S 74-2-4 W	218.2
K to L	S 16-11-54 E	67.7
L to M	S 72-17-41 W	84.1
M to N	S 16-42-39 E	133.4
N to O	N 72-21-22 E	119
O to P	S 29-20-20 E	18.9
P to Q	S 35-0-0 W	57.3
Q to R	N 60-37-16 W	35.6
R to S	S 52-48-41 W	44.4
S to T	S 6-27-24 W	54.2



Legend

- FERC Project Boundary
- Town Boundary
- Reference Point
- Maine Central Railroad
- Source of Title Parcel Numbers
- Transmission Line
- Roads

- GENERAL NOTES:**
- AS USED ON THESE PLANS, CMP MEANS CENTRAL MAINE POWER COMPANY AND MAY INCLUDE UWP WHICH MEANS UNION WATER POWER COMPANY AND CUMBERLAND SECURITIES CORPORATION, BOTH OF WHICH ARE SUBSIDIARIES OF CMP. FERC MEANS FEDERAL ENERGY REGULATORY COMMISSION.
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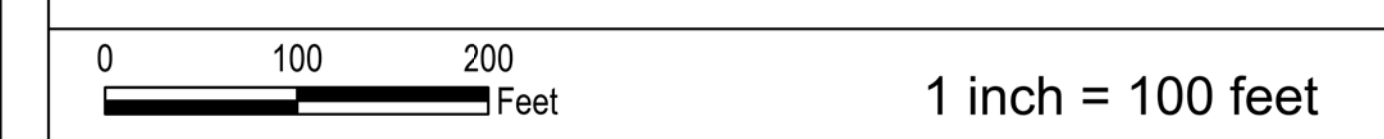
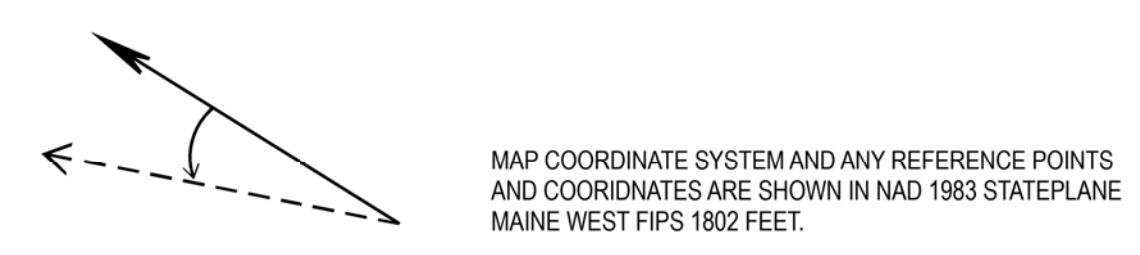
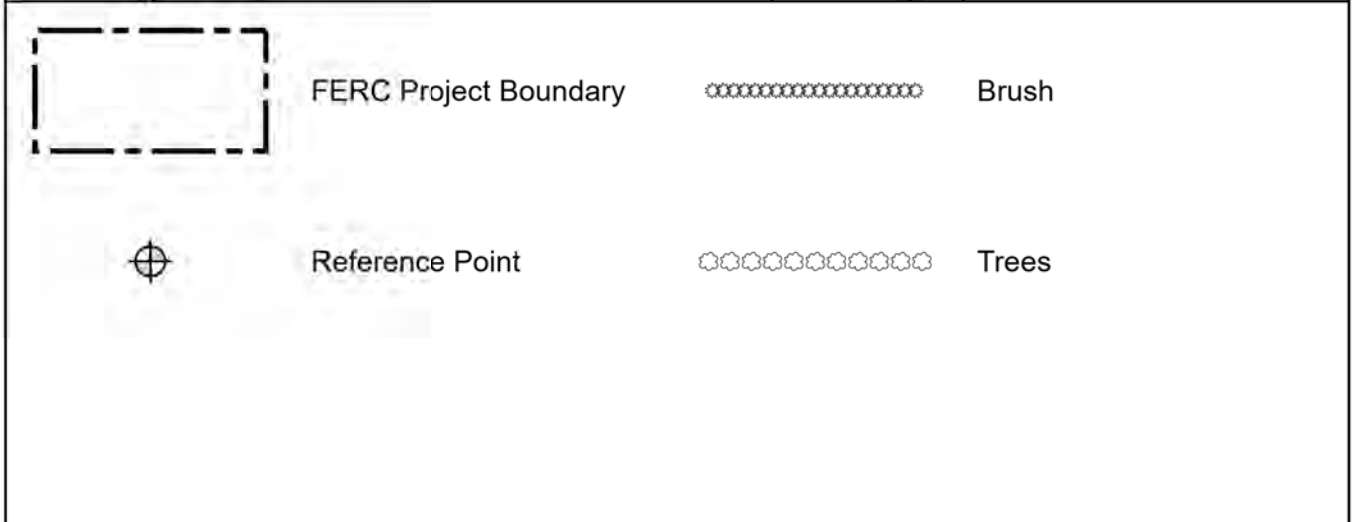
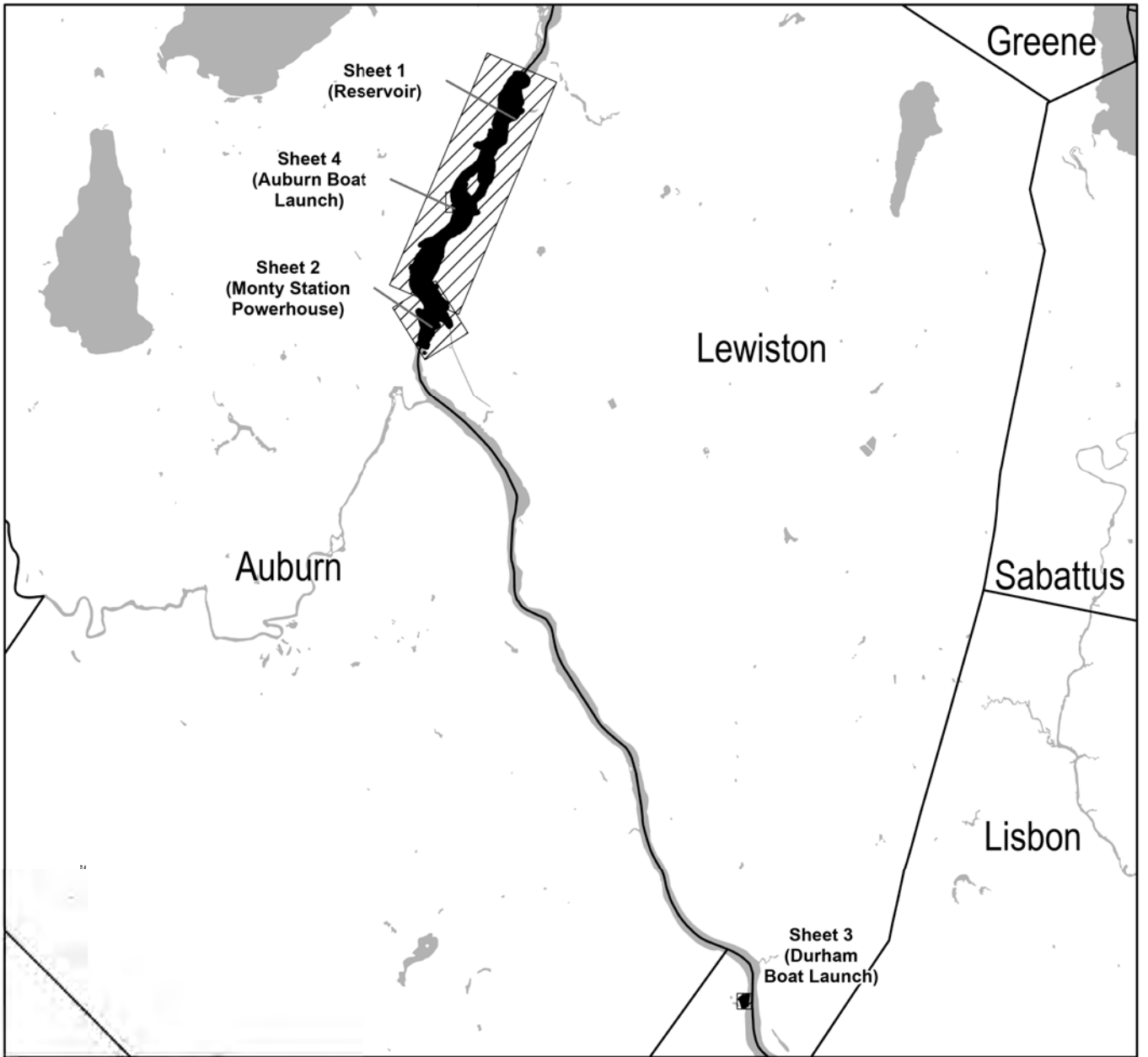
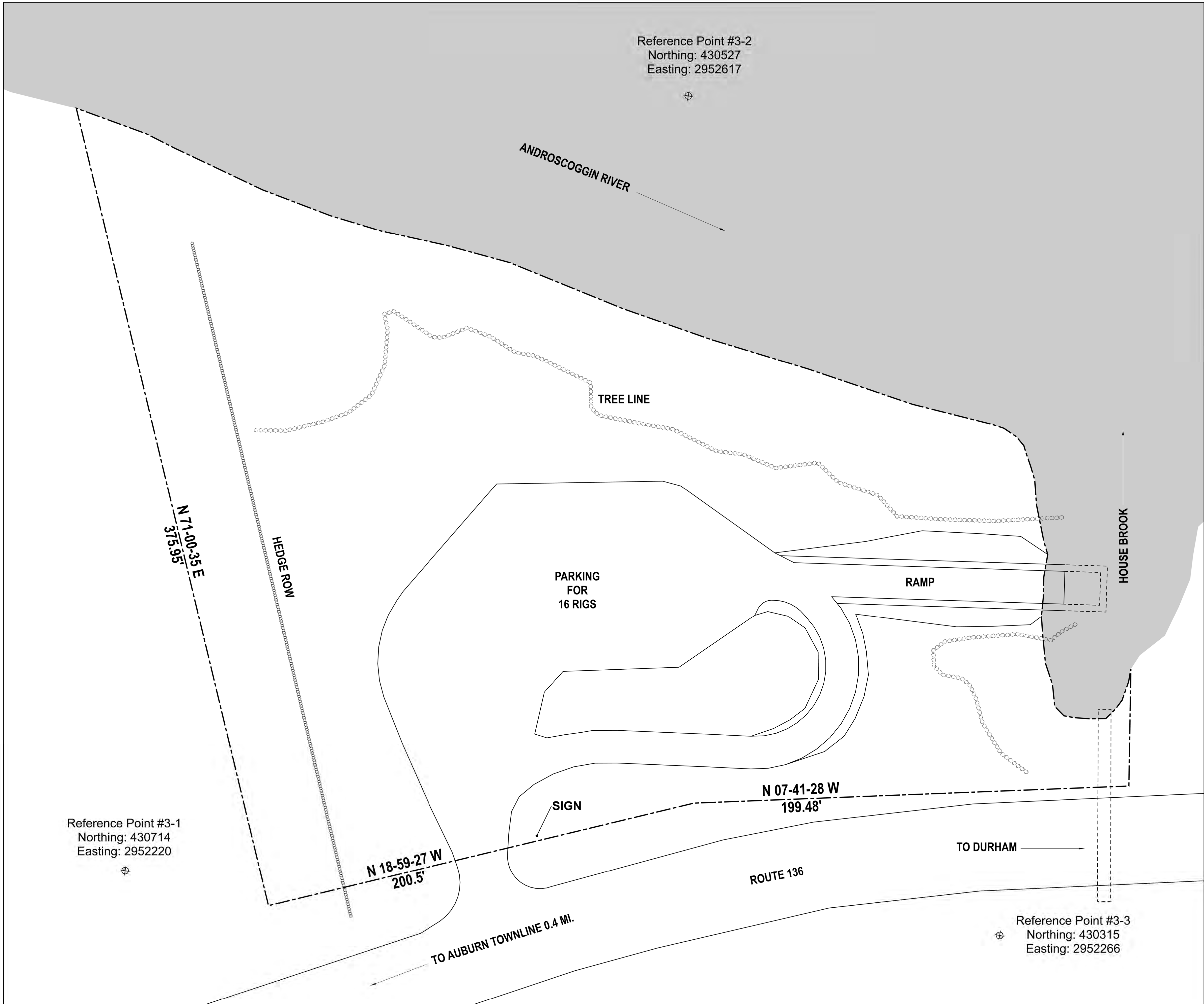


Exhibit G Project Detail Map (Monty Station Powerhouse)
LEWISTON FALLS PROJECT FERC NO. 2302
BROOKFIELD WHITE PINE HYDRO, LLC

Date: 03/19/2021 **Sheet 2 of 3** Prepared by: **Kleinschmidt**



- GENERAL NOTES:**
- AS USED ON THESE PLANS, CMP MEANS CENTRAL MAINE POWER COMPANY AND MAY INCLUDE UWP WHICH MEANS UNION WATER POWER COMPANY AND CUMBERLAND SECURITIES CORPORATION, BOTH OF WHICH ARE SUBSIDIARIES OF CMP. FERC MEANS FEDERAL ENERGY REGULATORY COMMISSION.
 - UNLESS OTHERWISE NOTED HEREON OR IN THE DEED, TRANSMISSION AND DISTRIBUTION-RELATED LINES, SUPPORT STRUCTURES EXCLUDING BUILDINGS OR GENERATION-ASSET-RELATED STRUCTURES INCLUDED IN THE DESCRIPTION OF THE GRANTED PREMISES IN THE DEED, APPURTENANCES AND EQUIPMENT ARE OWNED BY CMP AND ALL GENERATION-ASSET-RELATED FACILITIES, STRUCTURES AND EQUIPMENT INCLUDING, WITHOUT LIMITATION, DAMS, POWERHOUSES, FISH ELEVATORS AND FISH LADDERS, FLUMES, PENSTOCKS, GATES, GATEHOUSES, SPILLWAYS, RETAINING WALLS, BUILDINGS AND APPURTENANCES THERE TO, IF ANY, ARE OWNED BY BROOKFIELD WHITE PINE HYDRO LLC.
 - UNLESS OTHERWISE NOTED HEREON OR IN THE DEED, RAILROAD RIGHTS OF WAY, PUBLIC ROADS, BRIDGES, AND THIRD PARTY UTILITIES ARE NOT PART OF THE FERC LICENSED PROJECT WORKS.
 - CMP TRANSMISSION RIGHTS OF WAY ARE RETAINED IN EASEMENT WITHIN THE PROJECT BOUNDARIES.
 - UNLESS OTHERWISE NOTED HEREON OR IN THE DEED, PROJECT LANDS INCLUDE ALL LANDS WITHIN THE PROJECT BOUNDARY, INCLUDING CERTAIN ISLANDS IN THE RIVER, THE RIVERBED, AND THE POWERHOUSE PARCEL.
 - CONTOURS AND ELEVATIONS ARE BASED ON USGS DATUM AND REFERENCED AS FEET ABOVE MEAN SEA LEVEL. USGS REFERENCE SM STAMPED "TT2 TWC 1994 282" LOCATED IN EAST AUBURN EL. 242.547.
 - THE PROJECT BOUNDARIES SHOWN ON THIS PLAN INCLUDE ALL LANDS WITHIN THE FERC LICENSED PROJECT BOUNDARY IN EFFECT FOR THE PROJECT AT THE DATE OF THE SALE.

PLACEHOLDER FOR SURVEYOR STAMP

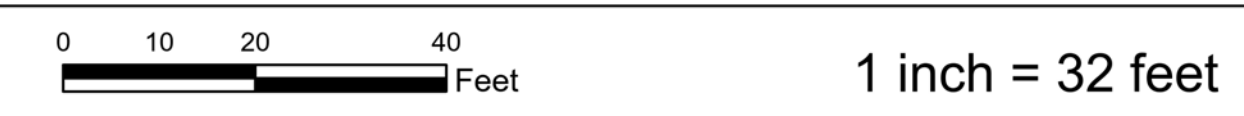
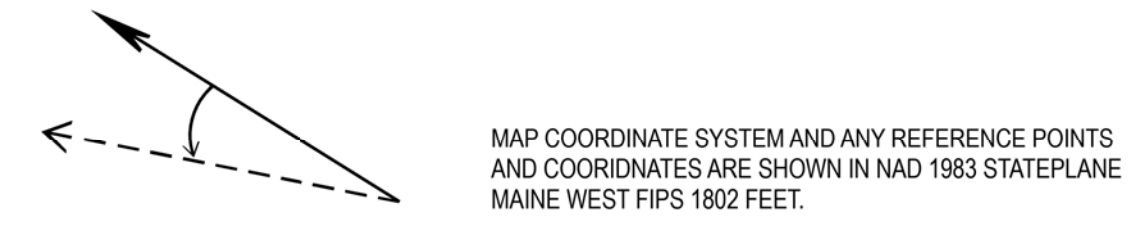


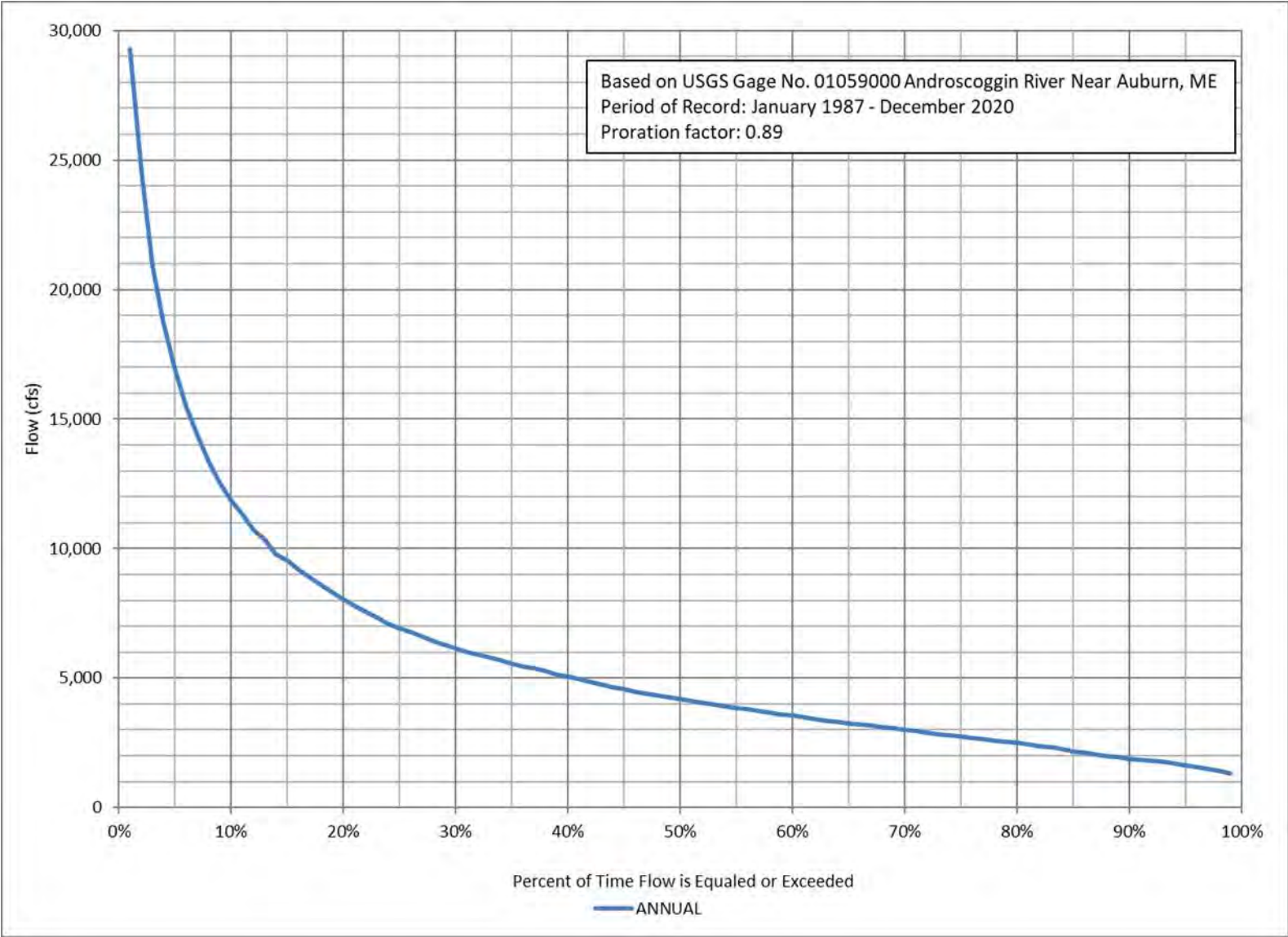
Exhibit G Project Detail Map (Durham Boat Launch)
LEWISTON FALLS PROJECT **FERC NO. 2302**
 BROOKFIELD WHITE PINE HYDRO, LLC

Date: 03/19/2021 **Sheet 3 of 3** Prepared by: *Kleinschmidt*

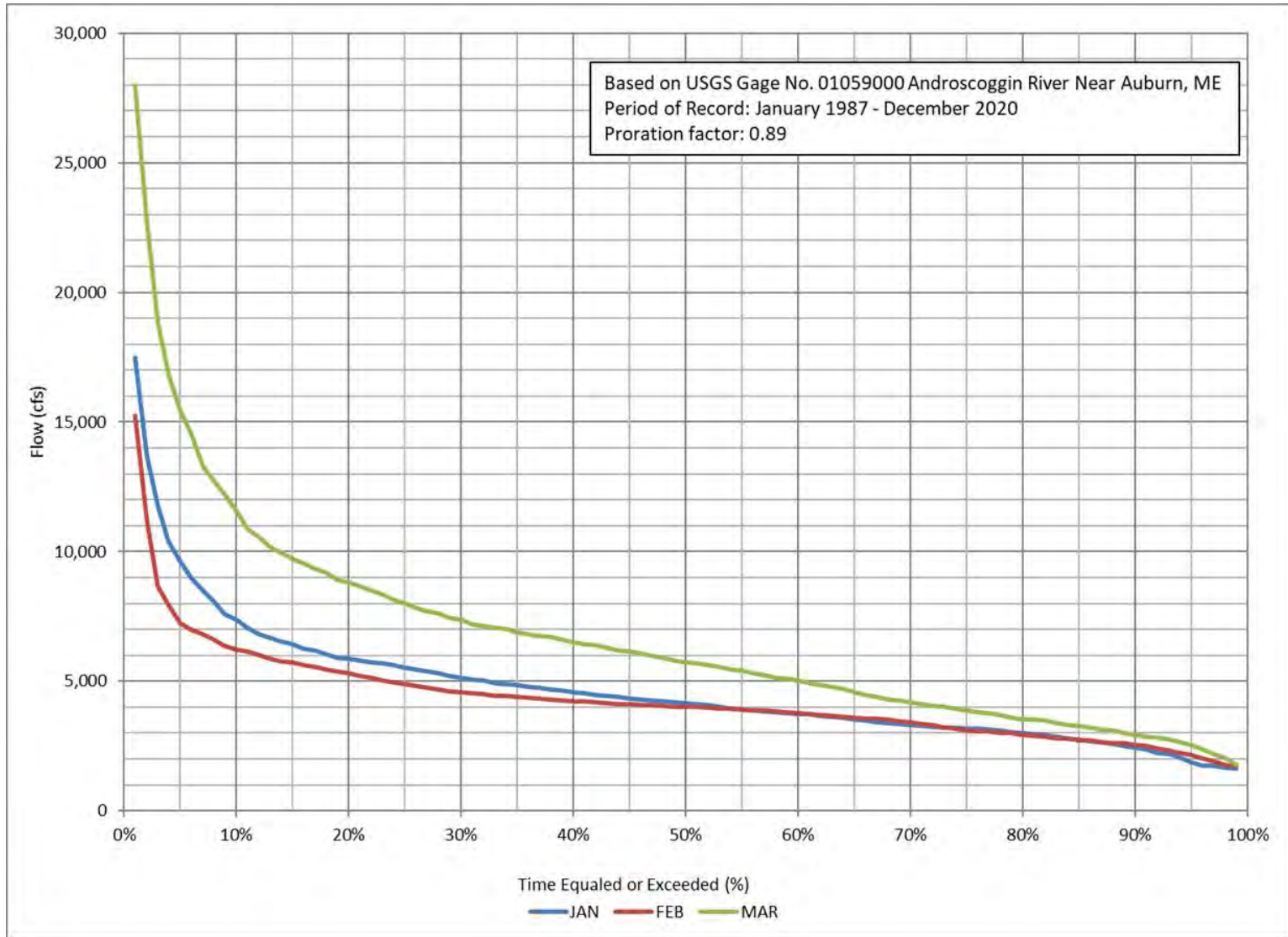
APPENDIX E

FLOW DURATION CURVES

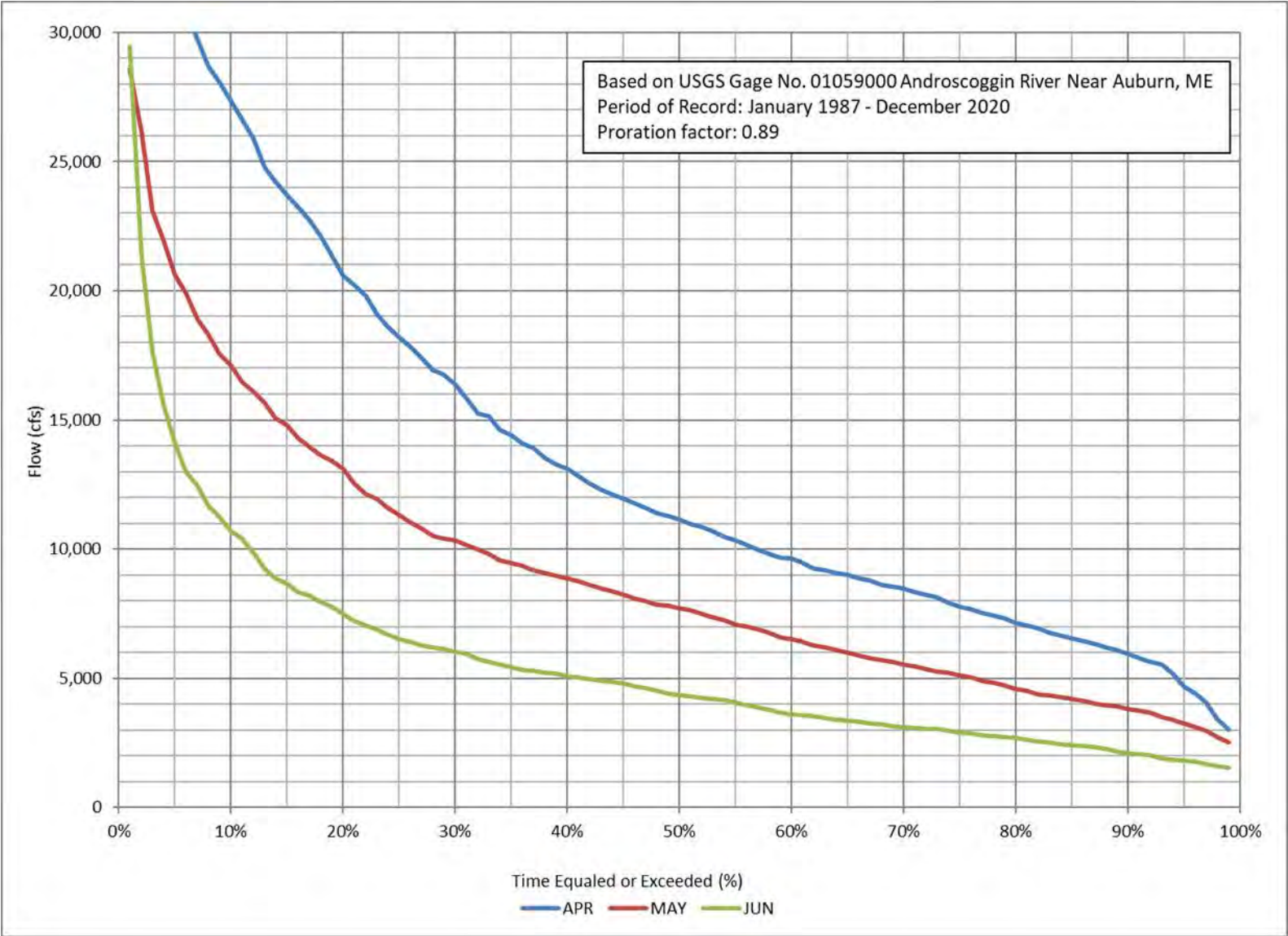
Annual Flow Duration Curve for Lewiston Falls Project



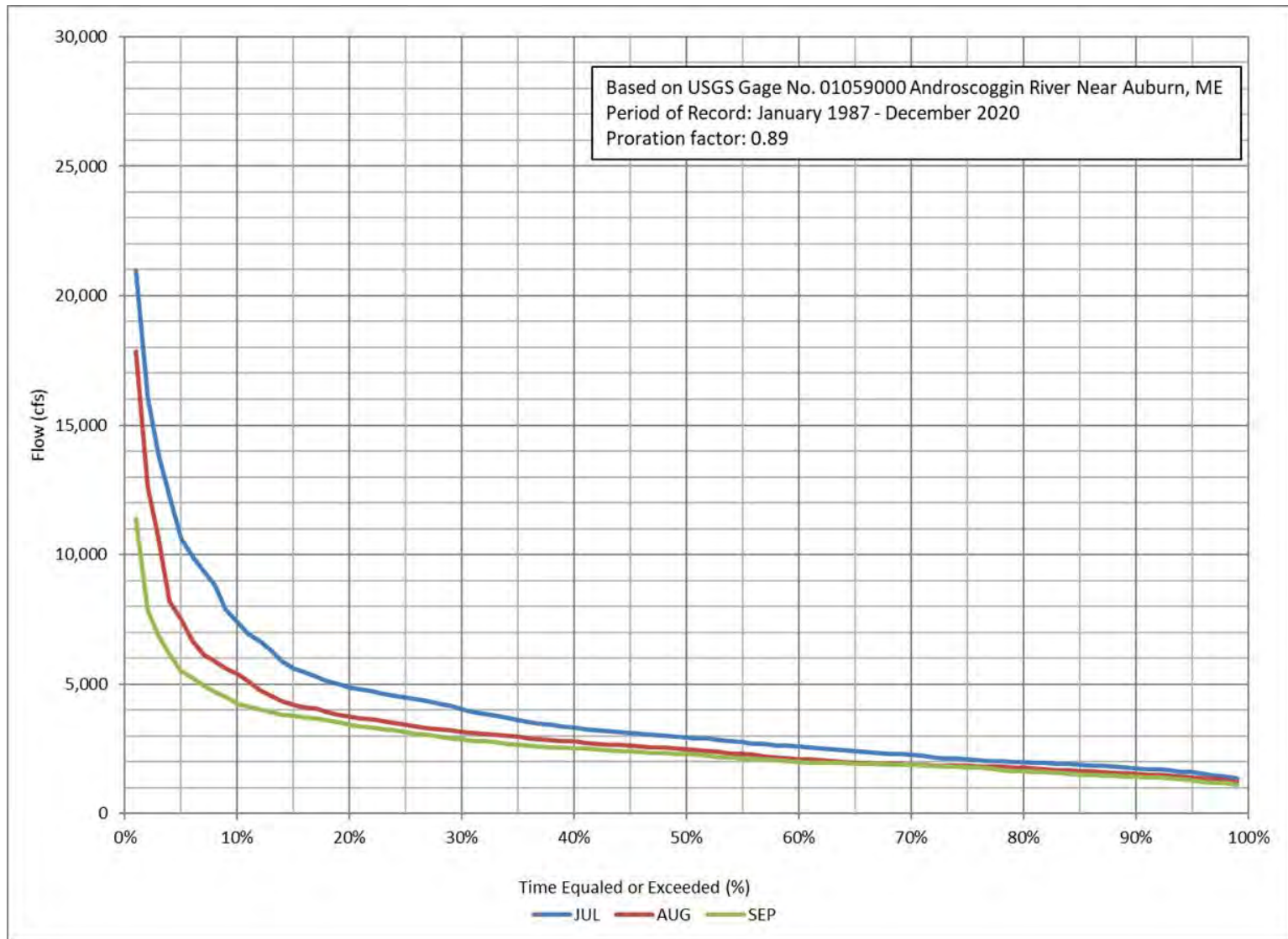
January, February, and March Flow Duration Curves for Lewiston Falls Project



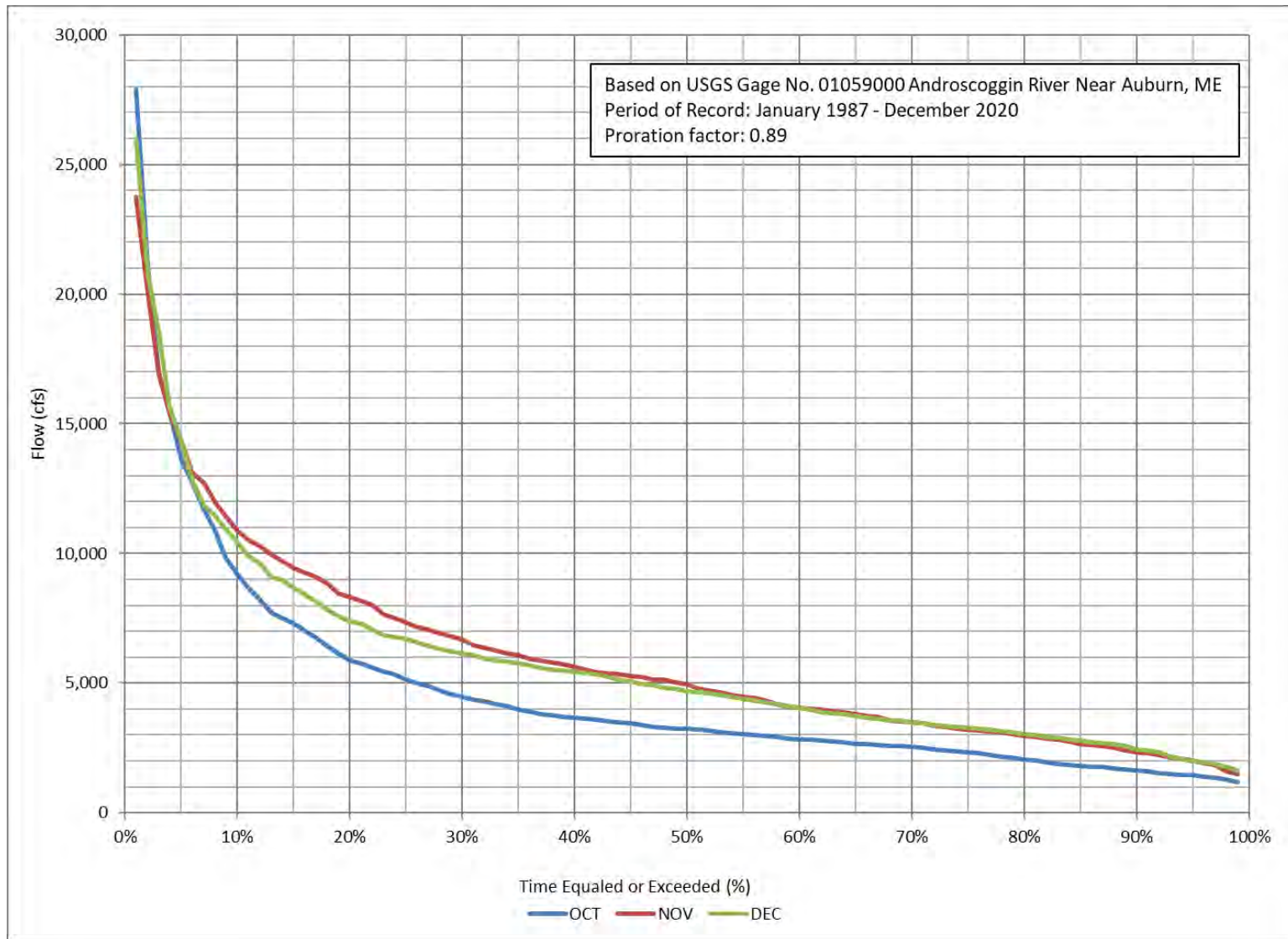
April, May, and June Flow Duration Curves for Lewiston Falls Project



July, August, and September Flow Duration Curves for Lewiston Falls Project



October, November, and December Flow Duration Curves for Lewiston Falls Project



APPENDIX F

MAINE NORTHERN HARDWOOD AND CONIFER FORESTS T/E SPECIES LIST

SGCN and Stressors Associated with Habitats

Macrogroup: Northern Hardwood & Conifer

Habitat Systems within Macrogroup:

MacrogroupName Northern Hardwood & Conifer

Appalachian (Hemlock)-Northern Hardwood Forest

Laurentian-Acadian Northern Hardwoods Forest

Laurentian-Acadian Pine-Hemlock-Hardwood Forest

Laurentian-Acadian Red Oak-Northern Hardwood Forest

Northeastern Coastal and Interior Pine-Oak Forest

Northern Hardwood & Conifer Macrogroup - Unknown Habitat System (i.e. Macrogroup)

Description: Wooded uplands of the north-temperate northeast, characterized by northern hardwoods, pines, hemlock, or red spruce

SGCN Associated With This Habitat

Total SGCN: 1: 12 2: 43 3: 99

Class	<i>Amphibia</i> (Amphibians)	SGCN Category
Species	<i>Ambystoma laterale</i> (Blue-spotted Salamander)	2
Species	<i>Gyrinophilus porphyriticus porphyriticus</i> (Northern Spring Salamander)	2
Class	<i>Aves</i> (Birds)	SGCN Category
Species	<i>Setophaga ruticilla</i> (American Redstart)	2
Species	<i>Scolopax minor</i> (American Woodcock)	3
Species	<i>Icterus galbula</i> (Baltimore Oriole)	3
Species	<i>Mniotilta varia</i> (Black-and-white Warbler)	2
Species	<i>Picoides arcticus</i> (Black-backed Woodpecker)	3
Species	<i>Coccyzus erythrophthalmus</i> (Black-billed Cuckoo)	3
Species	<i>Setophaga fusca</i> (Blackburnian Warbler)	3
Species	<i>Setophaga caerulescens</i> (Black-throated Blue Warbler)	3
Species	<i>Setophaga virens</i> (Black-throated Green Warbler)	3
Species	<i>Buteo platypterus</i> (Broad-winged Hawk)	3
Species	<i>Cardellina canadensis</i> (Canada Warbler)	2
Species	<i>Chaetura pelagica</i> (Chimney Swift)	2
Species	<i>Tyrannus tyrannus</i> (Eastern Kingbird)	2
Species	<i>Megascops asio</i> (Eastern Screech-owl)	3
Species	<i>Antrostomus vociferus</i> (Eastern Whip-poor-will)	2
Species	<i>Contopus virens</i> (Eastern Wood-pewee)	2
Species	<i>Coccothraustes vespertinus</i> (Evening Grosbeak)	2
Species	<i>Spizella pusilla</i> (Field Sparrow)	3
Species	<i>Passerella iliaca</i> (Fox Sparrow)	3
Species	<i>Perisoreus canadensis</i> (Gray Jay)	3
Species	<i>Ardea herodias</i> (Great Blue Heron)	2
Species	<i>Empidonax minimus</i> (Least Flycatcher)	3
Species	<i>Asio otus</i> (Long-eared Owl)	3
Species	<i>Parkesia motacilla</i> (Louisiana Waterthrush)	3
Species	<i>Geothlypis philadelphia</i> (Mourning Warbler)	3
Species	<i>Colaptes auratus</i> (Northern Flicker)	3
Species	<i>Setophaga americana</i> (Northern Parula)	3
Species	<i>Pinicola enucleator</i> (Pine Grosbeak)	3
Species	<i>Setophaga discolor</i> (Prairie Warbler)	2

SGCN and Stressors Associated with Habitats

Macrogroup: Northern Hardwood & Conifer

Species	<i>Haemorhous purpureus</i> (Purple Finch)	3
Species	<i>Loxia curvirostra</i> (Red Crossbill)	3
Species	<i>Pheucticus ludovicianus</i> (Rose-breasted Grosbeak)	3
Species	<i>Regulus calendula</i> (Ruby-crowned Kinglet)	2
Species	<i>Piranga olivacea</i> (Scarlet Tanager)	3
Species	<i>Egretta thula</i> (Snowy Egret)	3
Species	<i>Falciennis canadensis</i> (Spruce Grouse)	3
Species	<i>Catharus ustulatus</i> (Swainson's Thrush)	3
Species	<i>Oreothlypis peregrina</i> (Tennessee Warbler)	2
Species	<i>Catharus fuscescens</i> (Veery)	2
Species	<i>Zonotrichia albicollis</i> (White-throated Sparrow)	3
Species	<i>Loxia leucoptera</i> (White-winged Crossbill)	3
Species	<i>Hylocichla mustelina</i> (Wood Thrush)	1
Species	<i>Setophaga petechia</i> (Yellow Warbler)	3
Class	<i>Gastropoda</i> (Aquatic And Terrestrial Snails)	SGCN Category
Species	<i>Neohelix dentifera</i> (Big-tooth Whitelip)	3
Species	<i>Appalachina sayana</i> (Spike-lip Crater)	3
Class	<i>Insecta</i> (Insects)	SGCN Category
Species	<i>Hydroptila blicklei</i> (A Caddisfly)	3
Species	<i>Hydroptila parachelops</i> (A Caddisfly)	3
Species	<i>Hydroptila tomah</i> (A Caddisfly)	3
Species	<i>Ochrotrichia denningi</i> (A Caddisfly)	3
Species	<i>Ameletus browni</i> (A Mayfly)	3
Species	<i>Baetisca bernerii</i> (A Mayfly)	3
Species	<i>Baetisca carolina</i> (A Mayfly)	3
Species	<i>Baetisca lacustris</i> (A Mayfly)	3
Species	<i>Baetisca rubescens</i> (A Mayfly)	3
Species	<i>Hexagenia rigida</i> (A Mayfly)	3
Species	<i>Metretopus borealis</i> (A Mayfly)	3
Species	<i>Nixe horrida</i> (A Mayfly)	3
Species	<i>Parameletus midas</i> (A Mayfly)	3
Species	<i>Rhithrogena undulata</i> (A Mayfly)	3
Species	<i>Siphonurus barbaroides</i> (A Mayfly)	3
Species	<i>Siphonurus barbarus</i> (A Mayfly)	2
Species	<i>Siphonurus demaryi</i> (A Mayfly)	2
Species	<i>Cucullia speyeri</i> (A Moth)	3
Species	<i>Chaetagnaea cerata</i> (A Noctuid Moth)	2
Species	<i>Alloperla voinae</i> (A Stonefly)	3
Species	<i>Neoperla mainensis</i> (A Stonefly)	3
Species	<i>Xylena thoracica</i> (Acadian Swordgrass Moth)	3
Species	<i>Bombus pensylvanicus</i> (American Bumble Bee)	2
Species	<i>Satyrodes appalachia</i> (Appalachian Brown)	3
Species	<i>Stylurus spiniceps</i> (Arrow Clubtail)	3
Species	<i>Cordulegaster obliqua</i> (Arrowhead Spiketail)	3
Species	<i>Bombus ashtoni</i> (Ashton's Cuckoo Bumble Bee)	2

SGCN and Stressors Associated with Habitats

Macrogroup: Northern Hardwood & Conifer

Species	<i>Chaetagnela tremula</i> (Barrens Chaetagnela)	3
Species	<i>Metarranthis apiciaria</i> (Barrens Metarranthis Moth)	2
Species	<i>Enallagma durum</i> (Big Bluet)	3
Species	<i>Tramea lacerata</i> (Black Saddlebags)	3
Species	<i>Callophrys lanoraieensis</i> (Bog Elfin)	3
Species	<i>Zale lunifera</i> (Bold-based Zale Moth)	3
Species	<i>Ophiogomphus colubrinus</i> (Boreal Snaketail)	1
Species	<i>Xylotype capax</i> (Broad Sallow)	3
Species	<i>Neurocordulia michaeli</i> (Broad-tailed Shadowdragon)	3
Species	<i>Bombus griseocollis</i> (Brown-belted Bumble Bee)	3
Species	<i>Leucorrhinia patricia</i> (Canada Whiteface)	2
Species	<i>Tramea carolina</i> (Carolina Saddlebags)	3
Species	<i>Ischnura hastata</i> (Citrine Forktail)	3
Species	<i>Gomphus vastus</i> (Cobra Clubtail)	3
Species	<i>Anax longipes</i> (Comet Darner)	3
Species	<i>Progomphus obscurus</i> (Common Sanddragon)	3
Species	<i>Argia translata</i> (Dusky Dancer)	3
Species	<i>Erora laeta</i> (Early Hairstreak)	2
Species	<i>Hemileuca maia maia</i> (Eastern Buckmoth)	2
Species	<i>Satyrium edwardsii</i> (Edwards' Hairstreak)	2
Species	<i>Nannothemis bella</i> (Elfin Skimmer)	3
Species	<i>Ophiogomphus anomalus</i> (Extra-striped Snaketail)	3
Species	<i>Bombus fernaldae</i> (Fernald's Cuckoo Bumble Bee)	3
Species	<i>Hemaris gracilis</i> (Graceful Clearwing)	3
Species	<i>Paonias astylus</i> (Huckleberry Sphinx)	3
Species	<i>Somatochlora incurvata</i> (Incurvate Emerald)	3
Species	<i>Bombus insularis</i> (Indiscriminate Cuckoo Bumble Bee)	2
Species	<i>Bombus citrinus</i> (Lemon Cuckoo Bumble Bee)	3
Species	<i>Hesperia leonardus</i> (Leonard's Skipper)	3
Species	<i>Arigomphus furcifer</i> (Lilypad Clubtail)	3
Species	<i>Celithemis martha</i> (Martha's Pennant)	3
Species	<i>Libellula needhami</i> (Needhams Skimmer)	3
Species	<i>Enallagma laterale</i> (New England Bluet)	2
Species	<i>Somatochlora minor</i> (Ocellated Emerald)	3
Species	<i>Libellula semifasciata</i> (Painted Skimmer)	3
Species	<i>Psectraglaea carnosa</i> (Pink Sallow)	2
Species	<i>Ophiogomphus howei</i> (Pygmy Snaketail)	2
Species	<i>Somatochlora brevicincta</i> (Quebec Emerald)	2
Species	<i>Ischnura ramburii</i> (Rambur's Forktail)	3
Species	<i>Gomphus quadricolor</i> (Rapids Clubtail)	2
Species	<i>Xystopeplus rufago</i> (Red-winged Sallow)	3
Species	<i>Williamsonia lintneri</i> (Ringed Boghaunter)	1
Species	<i>Somatochlora albicincta</i> (Ringed Emerald)	3
Species	<i>Epeorus frisoni</i> (Roaring Brook Mayfly)	1
Species	<i>Bombus affinis</i> (Rusty-patched Bumble Bee)	1
Species	<i>Bombus sandersoni</i> (Sanderson's Bumble Bee)	3

SGCN and Stressors Associated with Habitats

Macrogroup: Northern Hardwood & Conifer

Species	<i>Polygonia satyrus</i> (Satyr Comma)	3
Species	<i>Enallagma pictum</i> (Scarlet Bluet)	2
Species	<i>Erythrodiplax berenice</i> (Seaside Dragonlet)	3
Species	<i>Aeshna juncea</i> (Sedge Darner)	2
Species	<i>Papilio brevicauda gaspeensis</i> (Short-tailed Swallowtail)	3
Species	<i>Catocala similis</i> (Similar Underwing)	3
Species	<i>Erynnis brizo</i> (Sleepy Duskywing)	2
Species	<i>Thorybes bathyllus</i> (Southern Cloudywing)	3
Species	<i>Lanthus vernalis</i> (Southern Pygmy Clubtail)	2
Species	<i>Rhionaeschna mutata</i> (Spatterdock Darner)	3
Species	<i>Papilio troilus</i> (Spicebush Swallowtail)	3
Species	<i>Pteronarcys comstocki</i> (Spiny Salmonfly)	3
Species	<i>Epiaeschna heros</i> (Swamp Darner)	3
Species	<i>Siphonisca aerodromia</i> (Tomah Mayfly)	1
Species	<i>Enallagma carunculatum</i> (Tule Bluet)	3
Species	<i>Lycia rachelae</i> (Twilight Moth)	2
Species	<i>Bombus fervidus</i> (Yellow Bumble Bee)	3
Species	<i>Bombus terricola</i> (Yellowbanded Bumble Bee)	3
Species	<i>Aeshna sitchensis</i> (Zigzag Darner)	3

Class	<i>Mammalia</i> (Mammals)	SGCN Category
Species	<i>Eptesicus fuscus</i> (Big Brown Bat)	2
Species	<i>Lynx canadensis</i> (Canada Lynx)	2
Species	<i>Lasiurus borealis</i> (Eastern Red Bat)	3
Species	<i>Myotis leibii</i> (Eastern Small-footed Myotis)	1
Species	<i>Lasiurus cinereus</i> (Hoary Bat)	3
Species	<i>Myotis lucifugus</i> (Little Brown Bat)	1
Species	<i>Myotis septentrionalis</i> (Northern Long-eared Myotis)	1
Species	<i>Lasionycteris noctivagans</i> (Silver-haired Bat)	2
Species	<i>Perimyotis subflavus</i> (Tri-colored Bat)	2

Class	<i>Reptilia</i> (Reptiles)	SGCN Category
Species	<i>Emydoidea blandingii</i> (Blanding's Turtle)	1
Species	<i>Terrapene carolina carolina</i> (Eastern Box Turtle)	2
Species	<i>Thamnophis sauritus</i> (Eastern Ribbon Snake)	2
Species	<i>Storeria dekayi dekayi</i> (Northern Brownsnake)	2
Species	<i>Clemmys guttata</i> (Spotted Turtle)	1
Species	<i>Glyptemys insculpta</i> (Wood Turtle)	1

Endangered (E) and Threatened (T) Plant Species Associated With This Habitat

Class	Dicots <i>Dicotyledoneae</i>	State Status
Species	Allegheny Vine <i>Adlumia fungosa</i>	T
Species	American Ginseng <i>Panax quinquefolius</i>	E
Species	Bitternut Hickory <i>Carya cordiformis</i>	E
Species	Boreal Bedstraw <i>Galium kamtschaticum</i>	T
Species	Cut-leaved Toothwort <i>Cardamine concatenata</i>	E
Species	Flowering Dogwood <i>Cornus florida</i>	E

SGCN and Stressors Associated with Habitats

Macrogroup: Northern Hardwood & Conifer

Species	Hairy Bush-clover <i>Lespedeza hirta ssp. hirta</i>	E
Species	Mountain Honeysuckle <i>Lonicera dioica</i>	E
Species	New Jersey Tea <i>Ceanothus americanus</i>	T
Species	Northern Wild Comfrey <i>Cynoglossum virginianum var. boreale</i>	E
Species	Scarlet Oak <i>Quercus coccinea</i>	E
Species	Spotted Wintergreen <i>Chimaphila maculata</i>	E
Species	Squirrel-corn <i>Dicentra canadensis</i>	T
Species	Tall White Violet <i>Viola canadensis</i>	E
Species	Wild Coffee <i>Triosteum aurantiacum</i>	E
Species	Wild Ginger <i>Asarum canadense</i>	T
Species	Wild Indigo <i>Baptisia tinctoria</i>	E

Class	Monocots <i>Monocotyledoneae</i>	State Status
Species	Autumn Coral-root <i>Corallorhiza odontorhiza</i>	E
Species	Bur-reed Sedge <i>Carex sparganioides</i>	E
Species	Nodding Pogonia <i>Triphora trianthophora</i>	T
Species	Ram's-head Lady's-slipper <i>Cypripedium arietinum</i>	E
Species	Showy Orchis <i>Galearis spectabilis</i>	E
Species	Small Whorled Pogonia <i>Isotria medeoloides</i>	E
Species	Spreading Sedge <i>Carex laxiculmis</i>	E
Species	Variable Sedge <i>Carex polymorpha</i>	E

SGCN and Stressors Associated with Habitats

Macrogroup: Northern Hardwood & Conifer

Stressors Associated With This Macrogroup

IUCN Level 2 Threat Name: Air-Bourne Pollutants

Notes: Atmospheric nitrogen, among others, but long term impacts are not clear

IUCN Level 2 Threat Name: Annual and Perennial Non-timber crops

Notes: Clearing for cropland

IUCN Level 2 Threat Name: Commercial and Industrial Areas

Notes: Industrial/commercial development rates highest in urban/suburban areas of southern/coastal ME

IUCN Level 2 Threat Name: Habitat Shifting or Alteration

Notes: Habitat shifting as a result of climate change; forestry adaptation may be possible

IUCN Level 2 Threat Name: Housing and Urban Areas

Notes: Residential development rates highest in suburban areas of southern/coastal ME

IUCN Level 2 Threat Name: Invasive Non-native-Alien Species-Diseases

Notes: Invasive plants & insects (gypsy moth, EAB, Asian Longhorn beetle, etc.); invasive plants generally worse in southern ME; spraying Bt may be problematic for inverts in spruce-fir forests

IUCN Level 2 Threat Name: Invasive Non-native-Alien Species-Diseases

Notes: Invasive plants & insects (gypsy moth, EAB, Asian Longhorn beetle, etc.); invasive plants generally worse in southern ME; spraying Bt may negatively impact some native Lepidoptera in spruce-fir forests

IUCN Level 2 Threat Name: Livestock Farming and Ranching

Notes: Clearing for pastureland

IUCN Level 2 Threat Name: Logging and Wood Harvesting

Notes: Severity varies depending on intensity. May be a stress to species preferring closed canopy or late-successional systems; provides habitat for species using early to mid-successional forests; forest mangement also maintains working forest as v

IUCN Level 2 Threat Name: Logging and Wood Harvesting

Notes: Severity varies depending on intensity. May be a stress to species preferring closed canopy or late-successional systems; provides habitat for species using early to mid-successional forests; working forests can also help provide valuable open

IUCN Level 2 Threat Name: Mining and Quarrying

Notes: Very small, localize rock mines and gravel pits.

IUCN Level 2 Threat Name: Recreational Activities

Notes: Off trail use

IUCN Level 2 Threat Name: Renewable Energy

Notes: Wind energy development has direct impacts to habitat and when not properly sighted can have long-term impacts to birc and bat populations

IUCN Level 2 Threat Name: Renewable Energy

Notes: wind farm development

IUCN Level 2 Threat Name: Roads and Railroads

Notes: Fragmentation from roads is highest in southern and coastal ME

IUCN Level 2 Threat Name: Utility and Service Lines

Notes: Powerlines, pipelines etc; some may provide early successional habitat

Habitat Conservation Actions:

Relevant conservation actions for this habitat are assigned within broader habitat groupings in Maine's 2015 Wildlife Action Plan: Element 4, Table 4-15. Click on the Habitat Grouping of interest to launch a habitat based report summarizing relevant conservation actions and associated SGCN.

Species Conservation Actions:

Conservation actions that may benefit species associated with this habitat can be found in Maine's 2015 Wildlife Action Plan:

SGCN and Stressors Associated with Habitats

Macrogroup: Northern Hardwood & Conifer

Element 1, Table 1-3. Click on the species of interest to launch a species based report summarizing relevant conservation actions and associated habitats.

The Wildlife Action Plan was developed through a lengthy participatory process with state agencies, targeted conservation partners, and the general public. The Plan is non-regulatory. The species, stressors, and voluntary conservation actions identified in the Plan complement, but do not replace, existing work programs and priorities by state agencies and partners.