STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

IN RE PETITIONS FOR REVOCATION, MODIFICATION OR SUSPENSION OF PERMITS AND WATER QUALITY CERTIFICATIONS FOR THE LOCKWOOD, HYDRO-KENNEBEC, SHAWMUT AND WESTON HYDRO PROJECTS

Merimil Limited Partnership Lockwood Hydro Project #L-20218-33-C-N	)	
Hydro Kennebec Limited Partnership Hydro-Kennebec Project #L-11244-35-A-N	)	**PRE-FILED DIRECT TESTIMONY OF ROBERT C. RICHTER III ON BEHALF OF FPL ENERGY MAINE HYDRO, LLC AND MERIMIL LIMITED PARTNERSHIP (LOCKWOOD, SHAWMUT AND WESTON PROJECTS)**
FPL Energy Maine Hydro, LLC Shawmut Hydro Project #L-19751-33-A-M	)	
FPL Energy Maine Hydro, LLC Weston Hydro Project #L-17472-33-C-M	)	

PRE-FILED DIRECT TESTIMONY AND EXHIBITS OF ROBERT C. RICHTER III

- Implementation of Upstream Anadromous Fish Passage Measures at the Shawmut and Weston Projects;

- Implementation of Downstream Anadromous Fish Passage Measures at the Weston, Shawmut and Lockwood Projects; and

- Implementation of Downstream Eel Passage Measures for the Weston, Shawmut and Lockwood Projects.

January 17, 2007

PRE-FILED DIRECT TESTIMONY AND EXHIBITS OF ROBERT C. RICHTER III

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MAINE BOARD OF ENVIRONMENTAL PROTECTION
KENNEBEC RIVER PETITIONS

PRE-FILED DIRECT TESTIMONY AND EXHIBITS OF
ROBERT C. RICHTER III

QUALIFICATIONS OF WITNESS

My name is Robert C. Richter III. I am currently employed by FPL Energy Maine Hydro LLC (FPLE) as a Senior Environmental Specialist overseeing anadromous and catadromous fish passage operations and studies on the Kennebec, Sebasticook and Androscoggin Rivers. I also oversee various Federal Energy Regulatory Commission (FERC) license compliance issues at a number of hydro projects in Maine.

I graduated from the University of New England in Biddeford Maine with a Bachelor of Science Degree in Marine Biology in 1982.

From 1982-1987, I was employed by Northeast Utilities (NU) in Connecticut and Massachusetts as an environmental technician conducting various fisheries related biological monitoring and permitting studies at NU hydroelectric, fossil fuel and nuclear power stations. From 1987-1989, I was employed by NU in Connecticut and Massachusetts as a Scientist coordinating and conducting environmental audits and real estate site assessments at NU facilities.

From 1989-1993, I was employed by Central Maine Power Company (CMP) as an Environmental Specialist conducting fish, wildlife and recreation studies and preparing FERC re-licensing applications for hydroelectric projects. From 1993-1998 I was

employed by CMP as a Senior Biologist coordinating and managing the operations, effectiveness studies and educational programs at CMP's fish passage facilities at its hydroelectric projects on the Saco, Presumpscot, Androscoggin, Kennebec and Sebasticook Rivers.

From 1999 to the present, I have been employed by FPLE coincident with its purchase of the CMP generating assets. At the present time I am a Senior Environmental Specialist coordinating and managing operations, effectiveness studies and educational programs at FPLE's fish passage facilities at its hydroelectric projects on the Kennebec, Sebasticook and Androscoggin Rivers. In addition, I am involved with the coordination and completion of FERC license compliance items for a number of hydro projects in Maine.

During my over-24 years of employment with NU, CMP and FPLE, I have been involved at the local, state and federal level on a number of FERC license compliance issues dealing with general environmental issues and issues related to fish passage at the subject projects. I was also involved on behalf of CMP and other hydro developers in the formation of the 1998 Kennebec Hydro Developers Group Agreement (1998 KHDG Agreement) which outlines the fish passage obligations for the projects that are the subject of this proceeding.

PURPOSE AND SCOPE OF TESTIMONY

The purpose of my testimony is to 1) provide the Board an overview of the implementation of upstream anadromous fish passage measures at the Shawmut and

Weston projects; 2) provide the Board an overview of the implementation of downstream anadromous fish passage measures at the Weston, Shawmut and Lockwood projects; and 3) provide the Board an overview of implementation of downstream eel passage measures at the Weston, Shawmut and Lockwood projects.

SUMMARY OF TESTIMONY

The following testimony relates to the implementation of fish passage measures at the Lockwood, Shawmut and Weston Projects. The locations of these projects are shown in EXHIBIT FPLE -1 attached to Mr. Wiley's testimony. Exhibits showing the general arrangement of each of the project facilities are included herein as EXHIBIT FPLE–8, Lockwood Project Aerial Photograph; EXHIBIT FPLE–9, Lockwood Project Site Plan; EXHIBIT FPLE–10, Shawmut Project Aerial Photograph; EXHIBIT FPLE–11, Shawmut Project Site Plan; EXHIBIT FPLE–12, Weston Project Aerial Photograph; and EXHIBIT FPLE–13, Weston Project Site Plan.

Based upon my intimate knowledge of the fish passage requirements for the Lockwood, Shawmut and Weston projects and based upon experience in overseeing the operation of the fish passage facilities and related studies at these facilities, it is my professional opinion that 1) these projects do not pose a threat to human health or the environment; 2) there has not been a change in any condition or circumstance that warrants modification of the terms of the water quality certifications for the projects; and 3) the projects have

not violated any laws administered by the Department. Therefore, the Board should deny petitioners' request to modify the water quality certifications for the projects.[1]

IMPLEMENTATION OF UPSTREAM ANADROMOUS FISH PASSAGE MEASURES AT THE SHAWMUT AND WESTON PROJECTS

As noted in Mr. Wiley's testimony, the Lower Kennebec River Comprehensive Hydropower Settlement Accord (Settlement Accord or Accord) and its attendant agreement, the 1998 KHDG Agreement, is a reflection of a very involved and comprehensive effort between hydropower owners, state and federal fisheries agencies and non-governmental organizations to resolve years of litigation associated with the Edwards Dam and the State's efforts to restore anadromous and catadromous fisheries in the lower Kennebec River. The Settlement Accord set the framework for advanced fish restoration on the Kennebec River which resulted in the removal of the controversial Edwards Dam in Augusta in 1999.

The language in the DEP water quality certifications and the FERC licenses either simply refers to the KHDG Agreement or mimics the language from the Agreement.

Among other things, the 1998 KHDG Agreement established schedules for installing permanent upstream anadromous fish passage facilities at four hydroelectric projects located upstream from the Edwards Dam on the lower Kennebec River from the Lockwood Dam in Waterville to the Weston Dam in Skowhegan. These schedules were

[1] The question of whether the Board has the means to address the petitioners' request to revoke, modify or suspend the water quality certifications for the projects is addressed in the testimony of Mr. Wiley.

developed by the parties to the Agreement in a rational, sequential and scientific manner based primarily on the anticipated growth in the population of American shad but also in consideration of other species. In the interim period, a new upstream anadromous fish lift, trap, sort and truck facility at Lockwood would collect fish for transport to upstream habitat above the Lockwood, Hydro-Kennebec, Shawmut and Weston projects as determined by fishery agency personnel.

In 2006, pursuant to the 1998 KHDG Agreement, FPLE installed, operated and began studying the effectiveness of the new $2.7 million "interim" fish lift, trap, sort and truck facility at Lockwood.[2] Per the Agreement, the new Lockwood "interim" fish lift is a trap and transport facility only and is not required to pass fish directly into the headpond. An additional flume that will transport fish directly to the headpond will be added to the "interim" lift when certain trigger numbers of returning fish are achieved as set forth in the 1998 KHDG Agreement.[3] These facilities will then constitute the "permanent" fish passage facilities for the Lockwood project.

Specifically, at Lockwood, the requirement is to install the additional flume when 8,000 American shad are captured at the Lockwood fish lift or a biological assessment trigger is initiated for Atlantic salmon, alewife or blueback herring. At Shawmut, the requirement is to install permanent upstream passage when 15,000 American shad are captured at the downstream Hydro-Kennebec facility or a biological assessment trigger is initiated for Atlantic salmon, alewife or blueback herring. At Weston, the requirement is to install

[2] While not subject to this proceeding, a description of upstream anadromous fish passage at Lockwood is included to provide clarity for the Board.
[3] The additional flume is projected to cost approximately $500,000.

permanent upstream passage when 35,000 American shad are captured at the downstream Shawmut facility or a biological assessment trigger is initiated for Atlantic salmon, alewife or blueback herring.

The Agreement's biological assessment trigger calls for consultation between resource agencies and dam owners to adopt an alternative approach to trigger fishway construction if the growth of Atlantic salmon or river herring runs warrants a change in the construction timetables. Everyone agreed that in no case will permanent upstream passage facilities be required at Lockwood, Shawmut and Weston before 2010, 2012, and 2014, respectively.

In 2006, its first year of operation, the new Lockwood fish lift captured 15 adult Atlantic salmon during the migration season. These fish were collected by FPLE personnel operating the new fish lift and then transported the same day to the upper Sandy River by Maine Atlantic Salmon Commission (MASC) personnel. None of the salmon were injured or killed during collection or transport operations. In addition, MASC personnel spent time snorkeling in the Sandy River during various occasions in 2006 and observed some of the trucked Atlantic salmon in the Sandy River. In a call to Paul Christman from MASC on December 11, 2006, Mr. Christman indicated to me that the salmon they observed appeared in good condition, he did not observe any dead salmon, nor did he did get any reports of any salmon mortalities.

During the 2006 migration season, 4,094 river herring were captured at the new Lockwood fish lift. DMR personnel transported 2,793 of these river herring to Wesserunsett Lake in Skowhegan (above Shawmut), 146 to Lovejoy Pond in Albion and 213 to Pleasant Pond in Richmond. The remaining 924 river herring were returned to the river below the Lockwood Project and not transported upstream because this total was comprised of numerous daily small catches of fish which made trucking them logistically inefficient. Of the 4,094 river herring captured, only 18 mortalities (0.4 %) were observed during fishlift operations.

During the 2006 migration season, no American shad were captured at the new Lockwood fish lift.

The installation and operation of the fish lift at Lockwood allows fish captured at this location to be sorted and transported to suitable habitat above all four of the dams that are being considered by the Board in this proceeding. These trap and transport operations provide for effective upstream passage past each of the dams as further discussed in Mr. Kulik's testimony.

Based on the above evidence, FPLE has demonstrated its commitment to adhere to the KHDG Agreement requirements relating to upstream anadromous fish passage at the Shawmut and Weston projects. It is my best professional judgment that 1) the existing arrangements for fish passage at the projects do not pose a threat to human health or the environment; 2) there has not been a change in any condition or circumstance that

warrants modification of the terms of the certification; and, 3) licensees have not violated any laws administered by the Department.

IMPLEMENTATION OF DOWNSTREAM ANADROMOUS FISH PASSAGE MEASURES AT THE WESTON, SHAWMUT AND LOCKWOOD PROJECTS

The 1998 KHDG Agreement calls for "permanent" downstream anadromous fish passage facilities to be installed coincident with the installation of permanent upstream anadromous fish passage facilities. As noted previously, these permanent downstream facilities are scheduled to be installed no sooner than 2010, 2012, and 2014 for the Lockwood, Shawmut, and Weston projects, respectively. In the meantime, the Agreement calls for "interim" downstream passage measures to be provided by using existing facilities until such permanent facilities are installed. Construction of new diversionary structures to achieve downstream passage, such as those suggested by petitioners, is specifically not required under the Agreement. "Interim" passage facilities may become "permanent" passage facilities if they are demonstrated to be effective.

The Agreement calls for the project owners to consult with state and federal fisheries resource agencies to develop plans for interim downstream passage measures to avoid significant injuries or mortalities on downstream migrating fish. The Agreement also calls for conducting fish passage effectiveness studies in consultation with these resource agencies prior to the date by which permanent downstream passage facilities are to be operational.

Since 2000, FPLE has opened various bypass gates at the Shawmut and Lockwood projects to provide downstream passage for adult and juvenile river herring and juvenile shad.[4] During 2000-2005 these fish were the only anadromous fish stocked above these projects. During this time, FPLE conducted visual observations of juvenile and adult passage at these two projects. The results of these observations were included in the annual Kennebec River Fish Restoration Progress reports that are submitted annually to the resource agencies and FERC. Based on the visual observations, it was determined that juvenile river herring and shad appear to be passing the project with no significant injury or mortalities. Very few adult river herring were observed so no specific conclusions regarding downstream passage can be reached.

Beginning in 2003 and continuing on an annual basis, the MASC has been experimenting with salmon egg stocking via in-stream incubation structures in the Sandy River above the projects. The purpose of this experiment is to test in-stream incubation as a potential method for Atlantic salmon restoration. Also, in 2006, Atlantic salmon from the Lockwood fish lift were stocked for the first time above the Weston Project. Beginning in 2006, FPLE provided interim downstream passage at Weston, Shawmut and Lockwood via surface spill gates for these Atlantic salmon and for salmon smolts produced by the egg stocking. In addition, there were additional spillage at all three dams due to high river flows which salmon could have used for downstream passage. During the fall 2006 Atlantic salmon migration season, neither FPLE nor MASC personnel received any

[4] Similar measures were not required at Weston since no stocking of these species has occurred upstream of the Weston dam.

information of post-spawned Atlantic salmon mortalities at any of the three projects or at any locations on the Kennebec River.

After consultation with the resource agencies, on September 6, 2005, FPLE filed with FERC an interim downstream fish passage plan for the Lockwood Project. This plan included the results of the 2000-2005 visual observations regarding juvenile river herring and shad passage at Lockwood and Shawmut. The plan also included a proposed downstream passage radio telemetry study plan for adult river herring, Atlantic salmon, American shad and salmon smolts at Lockwood in 2007. This plan was prepared in anticipation of permanent downstream passage measures as may be required by the Agreement (to be installed no earlier than 2010). The plan calls for FPLE to conduct a comprehensive downstream radio telemetry study in 2007 to determine the effectiveness of various downstream passage routes at the Lockwood Project for adult American shad, river herring, Atlantic salmon and Atlantic salmon smolts. Similar studies will be conducted at the Shawmut and Weston Projects in consultation with resource agencies after completion of the Lockwood studies. FERC approved the Lockwood plan on March 8, 2006. FPLE plans to implement this study during the 2007 migration season.

Based on the above evidence, FPLE has demonstrated its ongoing commitment to adhere to the KHDG Agreement requirements relating to downstream anadromous fish passage at the Weston, Shawmut and Lockwood projects. It is my best professional judgment that 1) the existing arrangements for fish passage at the projects do not pose a threat to human health or the environment; 2) there has not been a change in any condition or

circumstance that warrants modification of the terms of the certification; and, 3) licensees not violated any laws administered by the Department.

IMPLEMENTATION OF DOWNSTREAM EEL PASSAGE MEASURES FOR THE WESTON, SHAWMUT AND LOCKWOOD PROJECTS

The 1998 KHDG Agreement has a stand-alone section that collectively addresses eel passage for the seven projects covered under the Agreement. The Agreement specifies a collaborative process for the dam owners to work with DMR to determine appropriate eel passage measures for each project. Provisions are also provided for the dam owners and DMR to consult with the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS) on a three-year research project on eel passage measures. This research project was to be supervised and funded by DMR. Ultimately, if consensus is not reached on appropriate eel passage measures for the projects, then the Agreement provides an opportunity for the parties to petition FERC to seek to insert appropriate terms and conditions into the FERC license.

Based on several years of observation of eel upstream migration patterns, consensus was reached by the parties regarding the appropriate location for upstream eel passage facilities at the Lockwood, Shawmut and Weston projects. These seasonal facilities have been approved by resource agencies and will be installed at Lockwood in 2007 and have been installed at Shawmut and Weston since 2004 and 2005 respectively.[5]

[5] These upstream eel passage facilities are not subject of this proceeding because they have been completed. Thousands of juvenile eels have been observed migrating upstream past these projects in the last few years.

Downstream eel passage studies were conducted by DMR on the Sebasticook River at the Benton Falls and Fort Halifax projects in 2000 and 2001, respectively. The Benton falls studies indicated that the eels migrated downstream past the project via the turbines, the downstream fish bypass gate and the spillway. The results of the Fort Halifax studies were not conclusive because the turbines were not operating due to abnormally low river flow conditions. The Fort Halifax studies indicated that the eels migrated past the project via a spill gate or the downstream fish bypass gate.

In 2002, with assistance from FPLE, DMR conducted a small scale[6] downstream eel passage pilot study at the Lockwood. The results of this study were inconclusive due to the limited numbers of test eels used. However, the study did provide some information, including that one eel passed via a surface spill gate, two eels passed via the turbines, and two eels had unconfirmed passage routes. Of this total, three eels were presumed to be alive after passage as they were subsequently detected on several dates in various locations below the project. One of the eels that passed via the turbines was detected in a pool east of the powerhouse and did not continue migrating so was presumed injured or dead. Another eel that passed via the turbines was detected once along the east shore of Ticonic Bay but its ultimate status was unconfirmed.

In 2003 and 2004, with assistance from FPLE, DMR attempted a more comprehensive study at Lockwood but high river flows and lack of test eels resulted in the cancellation of these studies. However, in response to concerns raised at the Benton Falls facility, FPLE initiated additional eel observations in the tailraces of Lockwood, Shawmut and

[6] The sample size consisted of five eels.

Weston in 2004 to see if there were any issues with downstream eel passage mortality at these sites.

Specifically, FPLE began a program in 2004 of systematic searches for dead and injured eels in the tailrace of each project. The program started by conducting periodic checks of the tailraces during the 2004 fall migration season with observations done by wading in certain areas of the tailraces. Information from these sampling episodes helped to identify areas where dead and injured eels collected (or may likely collect) in each of the tailraces and focused efforts and sampling techniques in 2005 and 2006. In 2005, observations were conducted in the morning generally on a daily basis from late August until mid-November at Lockwood and Shawmut and about three times per week at Weston. The program was repeated in 2006. In addition, in 2006 FPLE experimented with using a canoe, as well as an under water camera and view tubes to access and observe areas that could not otherwise be accessed by wading.

The tailrace observation program does not produce an exact count of the dead and injured eels because not all areas of the tailraces can be observed safely due to water depth and velocity. However, it is my professional judgment that the program does provide meaningful data on the relative abundance and seasonal trend of dead and injured eels occurring at each project and this evidence indicates that significant mortality events (similar to those observed in the past on the Sebasticook River and Cobbosseecontee Stream) have not been observed at these projects.

During the 2004 downstream migration season, no eel mortalities were observed below the Weston Project, 15 eel mortalities were observed below the Shawmut Project, and 5 eel mortalities were observed below the Lockwood Project.

In 2005, no eel mortalities were observed below the Weston Project, 27 eel mortalities were observed below the Shawmut Project and one eel mortality was observed below the Lockwood Project.

In 2006, no eel mortalities were observed below the Weston Project, 38 eel mortalities were observed below the Shawmut Project, and no eel mortalities were observed below the Lockwood Project.

Based on this evidence, significant eel injuries or mortalities from downstream passage at the Lockwood, Shawmut or Weston sites have not been observed.[7] Even so, in 2006, FPLE developed additional plans in consultation with DMR, NMFS and USFWS to further quantify downstream eel passage effectiveness at the Lockwood, Shawmut and Weston projects. These plans were filed with the DEP and FERC on January 12, 2007. These detailed radio telemetry studies will be conducted at Lockwood and Shawmut in 2007 and at Weston in 2008 in order to obtain more quantitative data on eel migration routes and passage efficiencies at the projects. Approximately 30-50 eels will be collected, tagged and movements observed over multiple tests at each site. Approximately 13 separate monitoring locations will be established at Lockwood

[7] DMR and DIFW fishing regulations allow up to 50 eels to be taken per person throughout the year. An unlimited number of eels can be taken each day by persons possessing an eel harvester license.

upstream and downstream of possible eel passage routes. For Shawmut and Weston, 14 and 10 locations will be monitored, respectively.

Results from the studies will provide additional information to see if current measures are effective, or if additional, cost-effective downstream eel passage measures are necessary for the projects. An additional year of study will be conducted at each site if results warrant it.

Based on the above information, FPLE has demonstrated its commitment to adhere to the KHDG Agreement requirements relating to downstream eel passage at the Lockwood, Shawmut and Weston projects. It is my best professional judgment that 1) the existing arrangements for eel passage at the projects do not pose a threat to human health or the environment; 2) there has not been a change in any condition or circumstance that warrants modification of the terms of the certification; and, 3) licensees have not violated any laws administered by the Department.

CONCLUSION

Based upon my intimate knowledge of the fish passage requirements for the Lockwood, Shawmut and Weston projects and based upon experience in overseeing the operation of the fish passage facilities and related studies at these facilities, it is my professional opinion that 1) these projects do not pose a threat to human health or the environment; 2) there has not been a change in any condition or circumstance that warrants modification of the terms of the certification; and, 3) they do not violate any laws administered by the

Department. Therefore, the Board should deny petitioners' request to modify the water quality certifications for the projects.

Dated: 1/11/07

Robert C. Richter III

STATE OF MAINE
COUNTY OF Kennebec

Personally appeared before me the above-named Robert C. Richter and made oath that the foregoing is true and accurate to the best of his knowledge and belief.

Dated: January 11, 2007

Notary Public
My Commission Expires:

DEBORAH L. FRANK
Notary Public, Maine
My Commission Expires August 27,2012

EXHIBIT FPLE-8

Lockwood Project Aerial Photograph

EXHIBIT FPLE-8 LOCKWOOD

EXHIBIT FPLE-9

Lockwood Project Site Plan

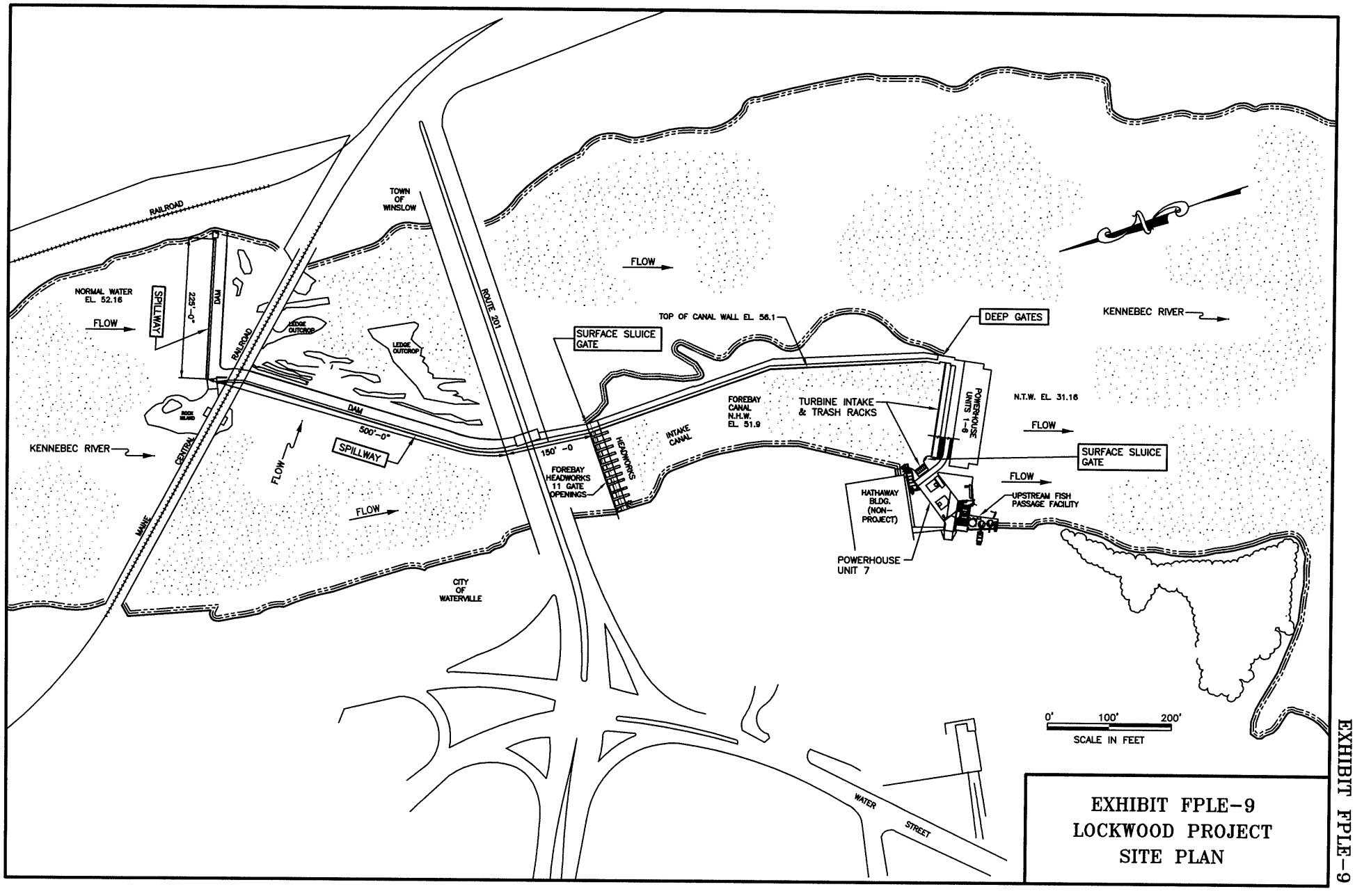

EXHIBIT FPLE-9
LOCKWOOD PROJECT
SITE PLAN

EXHIBIT FPLE-9

EXHIBIT FPLE-10

Shawmut Project Aerial Photograph

EXHIBIT FPLE-10 SHAWMUT

EXHIBIT FPLE-11

Shawmut Project Site Plan

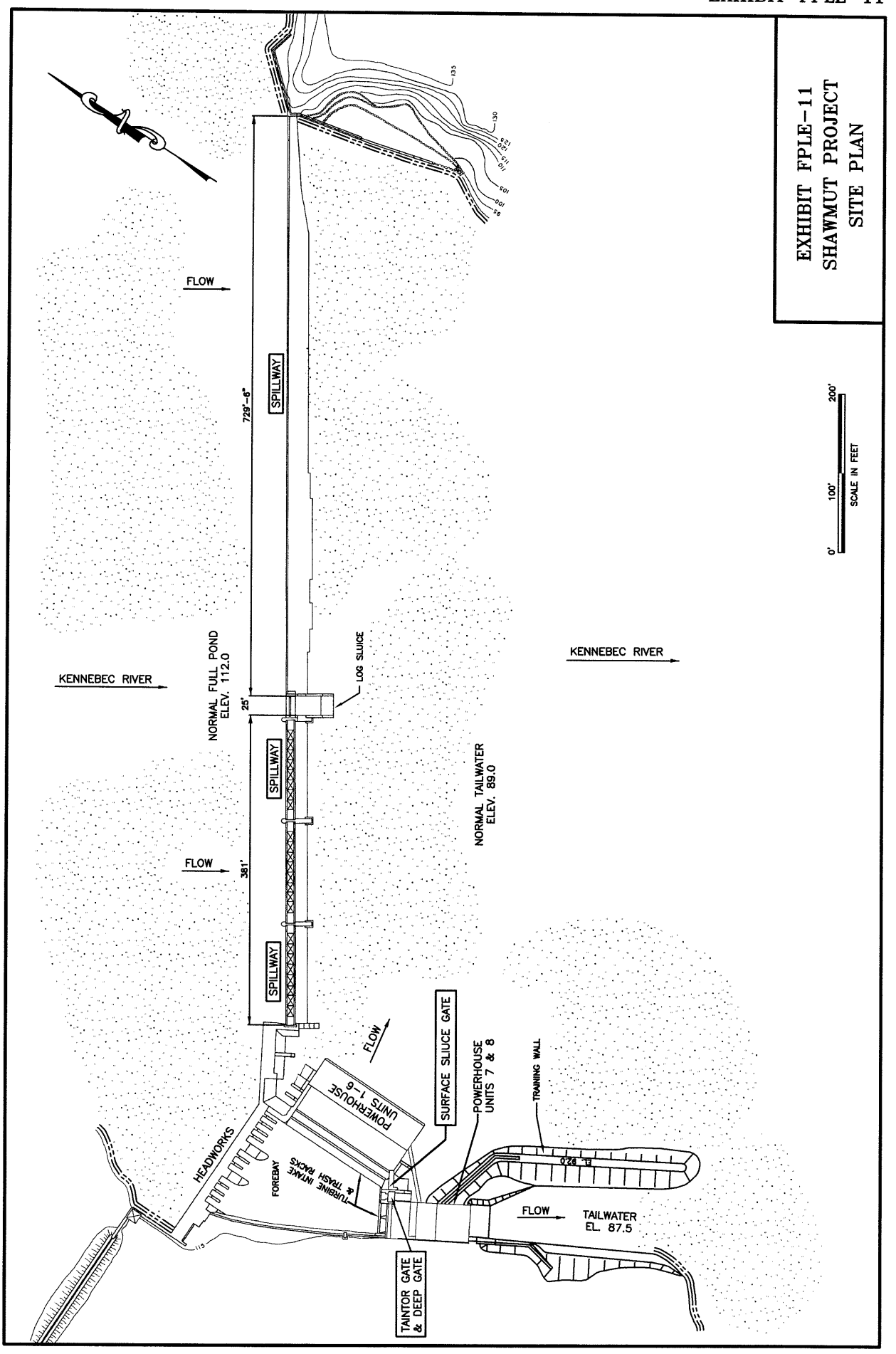
EXHIBIT FPLE-11
SHAWMUT PROJECT
SITE PLAN
FLOW
SPILLWAY
729'-6"
SPILLWAY
381'
SPILLWAY
25'
LOG SLUICE
NORMAL FULL POND
ELEV. 112.0
KENNEBEC RIVER
KENNEBEC RIVER
NORMAL TAILWATER
ELEV. 89.0
FLOW
FLOW
FLOW
SURFACE SLUICE GATE
POWERHOUSE
UNITS 1-6
POWERHOUSE
UNITS 7 & 8
TRAINING WALL
HEADWORKS
FOREBAY
TURBINE INTAKE
& TRASH RACKS
FLOW
TAILWATER
EL. 87.5
TAINTOR GATE
& DEEP GATE
0'
100'
200'
SCALE IN FEET

EXHIBIT FPLE-12

Weston Project Aerial Photograph

EXHIBIT FPLE-12 WESTON

EXHIBIT FPLE-13

Weston Project Site Plan

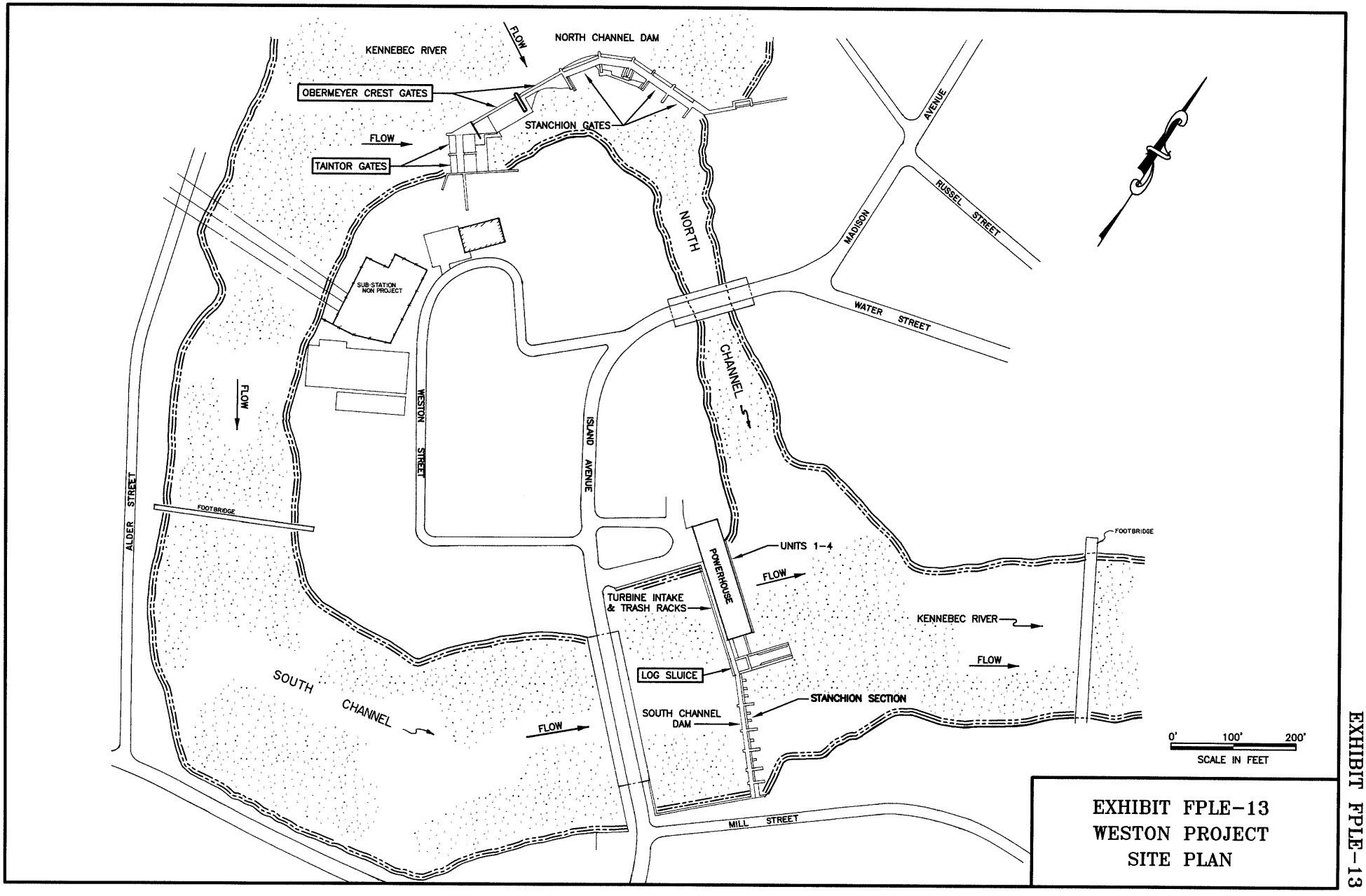

EXHIBIT FPLE-13
WESTON PROJECT
SITE PLAN

EXHIBIT FPLE-13