BACKGROUND INFORMATION #11

Raquette River Settlement Key Parties
RAQUETTE RIVER SETTLEMENT KEY PARTIES (LIHI #11)

Mr. Peter Skinner  
*American Whitewater Association*  
2 Snyder Road  
West Sand Lake, New York 12196  
(518) 674-5519 (home)  
(518) 474-2432 (work)

Mr. Bruce Carpenter  
*New York Rivers United*  
PO Box 1460  
199 West Dominick Street  
Rome, New York 13440  
(315) 339-2097

Ms. Betty Lou Bailey  
*Adirondack Mountain Club*  
4029 Georgetown Square  
Schenectady, New York 12303-5300  
(518) 355-0604

Mr. Jon Montan  
*St. Lawrence County Planning Office*  
48 Court Street, Courthouse Room 225  
Canton, NY 13617-13617-1194  
(315) 379-2281

Mr. David Stilwell  
*U.S. Fish and Wildlife Service*  
3817 Luker Road  
Cortland, New York 13045  
(607) 753-9334

Mr. George Outcalt  
*Adirondack Park Agency*  
PO Box 99  
Ray Brook, New York 12977  
(518) 891-4050

Mr. Len Ollivett (Retired)  
Ms. Alice Richardson  
*NYS Department of Environmental Conservation*  
317 Washington Street  
Watertown, New York 13601  
(315) 785-2267

Mr. Kevin Mendik  
*National Park Service*  
10th Floor  
Boston, MA 02109  
(617) 223-5299
I declare that the material presented in this application to the Low Impact Hydropower Institute for certification of the Raquette River Projects consisting of the Carry Falls Project (FERC No. 2060), Upper Raquette River Project (FERC No. 2084), Middle Raquette River Project (FERC No. 2320), and Lower Raquette River Project (FERC No. 2330) is true and complete to the best of my knowledge and belief.

The primary goal of the Low Impact Hydropower Institute's Certification Program is public benefit. The Governing Board and its agents are not responsible for financial or other private consequences of its certification decisions. The undersigned Applicant agrees to hold the Low Impact Hydropower Institute, the Governing Board and its agents harmless for any decision rendered on this or other applications or on any other action pursuant to the Low Impact Hydropower Institute's Certification Program.

Dated: 6/21/04
Signed: David J. Youken
Title: Managing Director Hydro Generation
BACKGROUND INFORMATION #12

Project Description and Project Drawings
PROJECT DESCRIPTION

The Raquette River, with a drainage basin of 1,269 square miles, originates in the Adirondack Mountains, flows generally north-northwest for more than 120 miles, and empties into the St. Lawrence River near Massena, New York. Most of the basin is sparsely populated, with much of the land forested and brushland. The region’s economy depends primarily on recreational tourism and timber-based industries.

The Carry Falls Project is a seasonal storage reservoir with no associated generating capacity. It includes a 826-foot-long dam, varying in height from 63 to 76 feet; an intake structure with provision for future power installation; five earth dikes totaling approximately 2,300 feet in length; and a 3,000-acre reservoir with a usable storage capacity of 104,463 acre-feet.15

Under its original license, the project operates within an elevation of 1,355.0 to 1,332.0 feet mean sea level (msl). These elevations are governed, in part, by the use of a guide curve that provides the project with a series of target elevations to be met over the course of a given year. These elevations are also governed by the potential backwater effects caused by the Stark development of the Upper Raquette River Project (FERC No. 2084) located immediately downstream of the Carry Falls reservoir. In practice, when the elevation of the Carry Falls reservoir falls below 1,355.0 feet msl, the Stark impoundment must be drawn down. The two reservoirs are thus essentially linked.

15A more detailed project description is contained in ordering paragraph B(2).
SETTLEMENT

As discussed in the lead order, because the Settlement is also a condition of the water quality certifications issued for the projects, we must, giving equal consideration to developmental and environmental values, determine whether the project proposal, as conditioned by these mandatory conditions, is best adapted to a comprehensive plan for improving or developing a waterway for beneficial public purposes.

Pursuant to the Settlement, Erie proposes a new guide curve that will govern the operation of the Carry Falls reservoir. This new guide curve will continue to provide a series of target elevations over the course of a given year, but will raise the lower elevation limit from 1,332 to 1,355.0 feet msl. This change will allow for the separate operation of the Carry Falls reservoir and Stark impoundment at all times.\textsuperscript{22}

\textsuperscript{22}See EA at 8-10.
as part of this license, and subject to the regulations the Commission issues under the provisions of the FPA.

(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, filed January 28, 1999:

<table>
<thead>
<tr>
<th>Exhibit G Drawing</th>
<th>FERC No. 2060-</th>
<th>Showing</th>
</tr>
</thead>
<tbody>
<tr>
<td>G-1</td>
<td>1001</td>
<td>Project Boundary and Location Map</td>
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<tr>
<td>G-2</td>
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<td>Project Boundary and Location Map</td>
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<td>G-3</td>
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<tr>
<td>G-5</td>
<td>1005</td>
<td>Project Boundary and Location Map</td>
</tr>
</tbody>
</table>

(2) Project works consisting of: (a) a 826-foot-long dam; (b) a 368-foot-long by 76-foot-high concrete gravity spillway with a crest elevation of 1,386 feet mean sea level (msl); (c) a 258-foot-long by 63-foot-high concrete gated non-overflow spillway with two 14.5-foot by 27-footainter regulating gates, two 10-foot-square low-level sluice gates, and an intake structure with two 15-foot-square openings for future power installation; (d) five earth dikes totaling approximately 2,500 feet in length, with lengths varying from 320 feet to 1,015 feet, maximum heights varying from 12 feet to 31 feet, and each with a crest width of 12 feet at elevation 1,392 feet msl with upstream and downstream slopes of 3:1 and 2:1 respectively; and (e) a 7-mile-long reservoir with a surface area of 3,000 acres and a usable storage capacity of 104,463 acre-feet at a normal pool elevation 1,385 feet msl.

The project works generally described above are more specifically shown and described by those portions of Exhibits A and B shown below:

The Commission orders:

(A) This license is issued to Erie Boulevard Hydropower, L.P. (licensee) for a period of 31 years, 11 months, effective the first day of the month in which this order is issued, to operate, and maintain the Cany Falls Project. The license is effective February 1, 2002, and will expire on December 31, 2033. This license is subject to the terms and conditions of the Federal Power Act (FPA), which is incorporated by reference.
Exhibit A: The following Exhibit A sections, filed on January 28, 1999:

Pages A-4 to A-8, describing the existing mechanical, electrical, and transmission equipment.

Exhibit F: The following Exhibit F drawings, filed on January 28, 1999:

<table>
<thead>
<tr>
<th>Exhibit F Drawing</th>
<th>FERC No. 2060-</th>
<th>Showing</th>
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</thead>
<tbody>
<tr>
<td>F-1</td>
<td>1006</td>
<td>General Plan and Sections, Dam and Intake</td>
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<tr>
<td>F-2</td>
<td>1007</td>
<td>Plan and Sections Intake</td>
</tr>
<tr>
<td>F-3</td>
<td>1008</td>
<td>Plan and Sections, Tainter Gate and Spillway</td>
</tr>
<tr>
<td>F-4</td>
<td>1009</td>
<td>Plan and Section, Dikes &quot;A&quot; and &quot;B&quot;</td>
</tr>
<tr>
<td>F-5</td>
<td>1010</td>
<td>Plan and Section, Dike &quot;C&quot;</td>
</tr>
<tr>
<td>F-6</td>
<td>1011</td>
<td>Plan and Section Dikes &quot;D&quot; and &quot;E&quot;</td>
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</table>
PROJECT DESCRIPTION

The Raquette River, with a drainage basin of 1,269 square miles, originates in the Adirondack Mountains, flows generally north-northwest for more than 120 miles, and empties into the St. Lawrence River near Massena, New York. Most of the basin is sparsely populated, with much of the land forested and brushland. The region's economy depends primarily on recreational tourism and timber-based industries.

The Upper Raquette River Project consists of five developments (from upstream to downstream): Stark, Blake, Rainbow, Five Falls, and South Colton. The five developments have a total installed capacity of 102,389 kW and are located in a 16-mile reach of the Raquette River commencing 52 miles above its confluence with the St. Lawrence River.

The Stark development includes a 35-foot-high dam with an overflow section; seven earthen dikes totaling approximately 1,700 feet in length; a reservoir; an intake with trashracks, a slide gate, and a 651-foot-long pipeline; and a powerhouse containing a 23,872-kW generating unit.

The Blake development has a 75-foot-high dam; three earthen dikes totaling approximately 1,840 feet in length; a reservoir; an intake with a 731-foot-long pipeline; and a powerhouse containing a 13,913-kW generating unit.

The Rainbow development has a 81.5-foot-high dam; two earthen dikes, approximately 2,570 feet in length; a reservoir; an intake with a 645-foot-long pipeline; and a powerhouse containing a 22,828-kW generating unit.

The Five Falls development includes a 50-foot-high dam with an overflow spillway and a stoplog section, flanked at each end by dikes totaling approximately 1,190 feet in length; a reservoir; a gated intake with a 1,399-foot-long pipeline; and a powerhouse containing a 22,828-kW generating unit.
The South Colton development includes a 45-foot-high dam with an overflow spillway and a stoplog section; a reservoir; a gated intake with a 1,300-foot-long pipeline; and a powerhouse containing a 18,048-kW generating unit.\textsuperscript{14}

As currently licensed, and proposed to be relicensed, these developments are operated run-of-river with pondage mode using releases from the Carry Falls Project.\textsuperscript{15}

\textsuperscript{14}A more detailed project description is contained in ordering paragraph B(2).

\textsuperscript{15}This means that the licensee uses/releases flows received from upstream developments and in addition may use/release water stored in the particular reservoir (pondage), subject to drawdown limitations.

\textbf{SETTLEMENT}

As discussed in the lead order, because the Settlement is also a condition of the water quality certifications issued for the projects, we must, giving equal consideration to developmental and environmental values, determine whether the project proposal, as conditioned by these mandatory conditions, is best adapted to a comprehensive plan for improving or developing a waterway for beneficial public purposes.

Pursuant to the Settlement, Erie proposes to release minimum flows as follows:

1. from Stark, 45-cubic-feet-per-second (cfs) year-round through the stoplog section of the dam, raised to 90 cfs when releases are made for 24 hours or more through the Tainter gates;

2. from Blake, 55 cfs from the stoplog section of the dam, with an increase to 120 cfs during walleye spawning season;

3. from Rainbow, 20 cfs year-round from the stoplog section of the dam;

4. from Five Falls, 50 cfs from the stoplog section of the dam, with an increase to 145 cfs during walleye spawning season; and

5. from South Colton, 20 cfs year-round over the visible portion of the falls.

In addition, to protect and enhance project-related environmental resources, Erie proposes to:

1. make fisheries habitat improvements at the Stark and Blake developments;

2. limit normal reservoir fluctuations to no more than 1.0 feet at Stark, Blake, and Rainbow, and to no more than 2.0 feet at Five Falls and South Colton.
(3) develop a streamflow monitoring plan;

(4) provide measures to facilitate downstream fish movement at all the developments;

(5) install 1-inch clear spacing physical barriers at existing trashrack structures at each development; and

(6) develop a recreation plan to provide a canoe portage at each development, access to Dead Creek at Blake, and a primitive access trail to the Clear Pond Wild Forest at Rainbow; and

(7) modify the project boundary to include all Erie lands that will be occupied by these recreational facilities.

In the lead order, we approve the Settlement and conclude, giving equal consideration to developmental and environmental values, that the Upper Raquette River Project, as conditioned by these mandatory conditions, is best adapted to a comprehensive plan for improving or developing a waterway for beneficial public purposes.
The Commission orders:

(A) This license is issued to Erie Boulevard Hydropower, L.P. (licensee) for a period of 31 years, 11 months, effective the first day of the month in which this order is issued, to operate and maintain the Upper Raquette River Hydroelectric Project. The license is effective February 1, 2002, and will expire on December 31, 2033. This license is subject to the terms and conditions of the Federal Power Act (FPA), which is
incorporated by reference as part of this license, and subject to the regulations the
Commission issues under the provisions of the FPA.

(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, filed January 28, 1999;

<table>
<thead>
<tr>
<th>Exhibit G Drawing</th>
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<th>Showing</th>
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<tbody>
<tr>
<td>G-1</td>
<td>1001</td>
<td>Project Boundary and Location Map</td>
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<td>G-2</td>
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<td>Project Boundary and Location Map</td>
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<tr>
<td>G-3</td>
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</tr>
<tr>
<td>G-9</td>
<td>1009</td>
<td>Project Boundary and Location Map</td>
</tr>
</tbody>
</table>

(2) Project works consisting of five developments:

The Stark development comprising: (a) a 35-foot-high concrete gravity dam with
a 294-foot-long by 35-foot high concrete overflow section with a crest elevation of
1,355.0 feet above mean sea level (msl) and a 94-foot-long control gate section
consisting of two 27-foot-long by 15-foot-high radial tailgates with a crest elevation
of 1,340.8 feet msl, a low-level sluice gate section consisting of one motor controlled
12-foot square slide gate, and a 6-foot-wide stoplog section; (b) seven earthen saddle dikes
with a crest elevation of 1,362.0 feet, totaling approximately 3,700 feet in length, each 16
feet wide with upstream and downstream slopes of 3:1 and 2.5:1, respectively; (c) a 1.5-
mile-long reservoir at normal pool elevation 1,355.0 feet; (d) a concrete intake structure
housing the trusslacks and trussrack raking structure, and a 18.33-foot-high by 18.66-
foot-wide motor-driven slide gate; (e) a 651-foot-long, 18-foot-diameter welded steel
pipeline; (f) a 75-foot-long by 73-foot-wide concrete powerhouse containing a 22,872
kilowatt (kW) generating unit; and (g) appurtenant facilities.

The Blake development comprising: (a) a 75-foot-high concrete gravity dam with
a 592-foot-long by 80-foot-high concrete overflow section with a crest elevation of
1,250.5 feet msl and a 140-foot-long non-overflow section with a crest elevation of
1,266.0 feet; (b) three earthen dikes with a crest elevation of 1,259.5 feet, totaling
approximately 1,840 feet in length, each 16 feet wide with upstream and downstream
slopes of 3:1 and 2.5:1, respectively; (c) a 5.5-mile-long reservoir at normal pool
elevation 1,259.5 feet; (d) a concrete intake structure housing the trusslacks and
trussrack raking structure, and a 18.33-foot-high by 18.66-foot-wide motor-driven slide
gate; (e) a 731-foot-long, 18-foot-diameter welded steel pipeline; (f) a 75-foot-long by
73-foot-wide concrete powerhouse containing a 13,913 kW generating unit; and (g)
appurtenant facilities.

The Rainbow development comprising: (a) a 2,677-foot-long by 75-foot-high
concrete gravity-type dam with a 751-foot-long by 81.5-foot-high concrete overflow
section with a crest elevation of 1,181.5 feet msl and two non-overflow sections totaling
120 feet and 176 feet in length, respectively; (b) two earthen saddle dikes with a crest
elevation of 1,190.0 feet, totaling approximately 2,570 feet in length, each 16 feet wide
with upstream and downstream slopes of 3:1 and 2.5:1, respectively; (c) a 3.5-mile-long
reservoir at normal pool elevation 1,181.5 feet; (d) a concrete intake structure housing
the trusslacks and trussrack raking structure, and a 18.33-foot-high by 18.66-foot-wide
motor-driven slide gate; (e) a 645-foot-long, 18-foot-diameter welded steel pipeline; (f) a
75-foot-long by 73-foot-wide concrete powerhouse containing a 22,828 kW generating
unit; and (g) appurtenant facilities.

The Five Falls development comprising: (a) a 1,750-foot-long by 50-foot-high
concrete gravity dam flanked at each end by earthen dikes totaling approximately 1,190
feet in length, each 16 feet wide with upstream and downstream slopes of 3:1 and 2.5:1,
respectively; (b) a 500-foot-long concrete gravity ogee overflow spillway with a crest
elevation of 1,077.0 feet; (c) a 6-foot-wide stoplog section with a sill elevation of 1,072.0
feet; (d) a 1.0-mile-long reservoir at normal pool elevation 1,077.0 feet; (e) a 60-foot-
long gated concrete intake structure housing the trusslacks and trussrack raking
structure, and a 18.33-foot-high by 18.66-foot-wide motor-driven slide gate; (f) a 1,399-
foot-long, 18-foot-diameter welded steel pipeline; (g) a 75-foot-long by 73-foot-wide
concrete powerhouse containing a 22,828 kW generating unit; and (h) appurtenant facilities.

The South Colton development comprising: (a) a 970-foot-long, 45-foot-high concrete gravity-type dam and earthen abutments; (b) a 592-foot-long, 42-foot-high concrete gravity ogee spillway with a crest elevation of 973.5 feet NAD; (c) a 6-foot-wide stoplog section with a sill elevation of 968.0 feet; (d) a 1.5-mile-long reservoir at normal pool elevation 973.3 feet; (e) a 60-foot-long gated concrete intake structure housing the trashracks and trashrack raking structure, and a 18.33-foot-high by 18.66-foot-wide motor-driven slide gate; (f) a 1,300-foot-long, 18-foot-diameter pipeline; (g) a 75-foot-long by 73-foot-wide concrete powerhouse containing a 18,948 kW generating unit; and (h) appurtenant facilities.

The project works generally described above are more specifically shown and described by those portions of Exhibits A and F shown below:

Exhibit A: The following Exhibit A sections, filed on January 28, 1999:

Pages A-6 to A-36, describing the existing mechanical, electrical, and transmission equipment.

Exhibit F: The following Exhibit F drawings, filed on January 28, 1999:

<table>
<thead>
<tr>
<th>Exhibit F Drawing</th>
<th>FERC No. 2084-</th>
<th>Showing</th>
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<tbody>
<tr>
<td>F-1</td>
<td>1010</td>
<td>Stark - Plan and Sections of Dam and Intake</td>
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<tr>
<td>F-2</td>
<td>1011</td>
<td>Blake - Plan and Sections of Dam and Intake</td>
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<td>F-3</td>
<td>1012</td>
<td>Rainbow - Plan and Sections of Dam and Intake</td>
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<td>F-4</td>
<td>1013</td>
<td>Five Falls - Plan and Sections of Dam and Intake</td>
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<td>F-5</td>
<td>1014</td>
<td>South Colton - Plan and Sections of Dam and Intake</td>
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<td>F-6</td>
<td>1015</td>
<td>Typical Plan and Sections - Powerhouse, Pipeline, and Surge Tank</td>
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</table>
PROJECT DESCRIPTION

The Raquette River, with a drainage basin of 1,269 square miles, originates in the Adirondack Mountains. It flows generally north-northwest for more than 120 miles, and empties into the St. Lawrence River near Massena, New York. Most of the basin is sparsely populated, with much of the land forested and brushland. The region's economy depends primarily on recreational tourism and timber-based industries.

The project consists of four developments (from upstream to downstream): Higley, Colton, Hannawa, and Sugar Island. The four developments have a total installed capacity of 47,073 kW and are all located in an 11-mile reach of the Raquette River commencing 38 miles above its confluence with the St. Lawrence River.

The Higley development includes a 34-foot-high dam with 3-foot-high flashboards, two flood gates, a trashrack, two waste gates; a 742-acre reservoir; a 160-foot-long, 50-foot-wide intake; and a powerhouse containing three generating units with a total capacity of 4,972 kW. On October 14, 2001, one of the generating units ceased operation due to turbine failure. Erie proposes to construct a new 13-foot-diameter, 225-foot-long steel intake pipeline and a new powerhouse containing one generating unit with a capacity of 7,300 kW. The existing powerhouse will be retired.

The Colton development includes a 27-foot-high dam with 2-foot-high flashboards, a log drum, a trash gate, and a gated spillway; a 195-acre-reservoir; an 11,090-foot-long steel pipeline; three penstocks; and a powerhouse containing three generating units with a total capacity of 30,101 kW.

The Hannawa development has a 38-foot-high dam with 3.5-foot-high flashboards, a log chute, a Tainter gate, and a sluice gate; a 204-acre reservoir; a 2,700-foot-long canal; two penstocks; and a powerhouse containing two generating units with a total capacity of 7,200 kW.

\[14\] The Raquette River is a navigable waterway of the United States. 8 FPC 569 (1949).
The Sugar Island development has a 37-foot-high dam with two Tainter gates; a 29-acre reservoir; an intake structure with trash racks and a headgate; a 4,700-foot-long steel pipeline; two penstocks; and a powerhouse containing two generating units with a total capacity of 4,800 kW.\textsuperscript{15}

As currently licensed, and as proposed to be relicensed, these developments, except for Higley, are operated run-of-river with pondage mode using releases from the Carry Falls and the Upper Raquette River Projects.\textsuperscript{16} The Higley development operates as a re-regulating development to provide steadier flows for the downstream hydropower developments.

SETTLEMENT

As discussed in the lead order, because the Settlement is also a condition of the water quality certifications issued for the projects, we must, giving equal consideration to developmental and environmental values, determine whether the project proposal, as conditioned by these mandatory conditions, is best adapted to a comprehensive plan for improving or developing a waterway for beneficial public purposes.

Pursuant to the Settlement, Erie proposes to release minimum flows from each of the developments as follows:

1. from Higley, a 20-cubic-feet-per-second (cfs) year-round flow through the siplog section of the dam to facilitate downstream movement of fish;

2. from Colton, 110 cfs from November 1 through the start of walleye spawning season, 200-240 cfs during the walleye spawning season, 200 cfs from the end of the walleye spawning season through June, 125 cfs from July 1 to August 15, 90 cfs from August 16 to September 15, and 125 cfs from September 16 through October 31;

3. from the siplog section of the Hannawa dam, 50 cfs from October 31 through the start of walleye spawning season, 90 cfs for the walleye spawning season through June 30, and 65 cfs from July 1 through October 31; and

4. from Sugar Island, 300 cfs year-round from the minimum flow pipe, with an increase to 400 cfs from the start of the walleye spawning season through June 30.

In addition, to protect and enhance project-related environmental resources, Erie proposes to:
(1) limit normal reservoir fluctuations, according to a seasonal regime at Higley, to provide regulating flows and recreational opportunities;

(2) limit normal reservoir fluctuations at Colton and Hannawa to no more than 0.4 feet, and at Sugar Island to no more than 1.0 feet;

(3) provide additional measures to facilitate downstream fish movement at the Higley, Colton, and Hannawa developments;

(4) provide a 1-inch clear spacing physical barriers at the location of the existing trashrack structures at Higley, Colton, and Hannawa;

(5) provide scheduled whitewater releases, a flow notification system, and access trails at Colton, Hannawa, and Sugar Island;

(6) develop a recreation plan to provide a canoe portage at each development, a whitewater access at Colton, Hannawa, and Sugar Island, a car-top boat launch with overnight parking at Colton, a scenic overlook, picnic facilities, and roadside parking at Hannawa, and a day use area at Sugar Island; and

(7) modify the project boundary to include all Erie lands that will be occupied by these recreational facilities.

In the lead order, we approve the Settlement and conclude, giving equal consideration to developmental and environmental values, that the Middle Raquette River Project, as conditioned by these mandatory conditions, is best adapted to a comprehensive plan for improving or developing a waterway for beneficial public purposes.
The Commission orders:

(A) This license is issued to Erie Boulevard Hydropower, L.P. (licensee) for a period of 31 years, 11 months, effective the first day of the month in which this order is issued, to operate, and maintain the Middle Raquette River Hydroelectric Project. The license is effective February 1, 2002, and will expire on December 31, 2033. This license is subject to the terms and conditions of the Federal Power Act (FPA), which is incorporated by reference as part of this license, and subject to the regulations the Commission issues under the provisions of the FPA.

(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, filed December 24, 1991, and April 28, 2000.35

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<th>Exhibit G Drawing</th>
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<tr>
<td>G-1</td>
<td>1001</td>
<td>Higley - Development Detailed Map, Sheet 5A</td>
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<td>G-2</td>
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<td>Higley - Development Detailed Map, Sheet 6A</td>
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<td>G-3</td>
<td>1003</td>
<td>Colton - Project Boundary and Location Map</td>
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<td>G-5</td>
<td>1005</td>
<td>Hannawa - Project Boundary and Location Map</td>
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</table>

35Exhibits G-1 and G-2 were approved in an order approving revised exhibits, 92 FERC ¶ 62,178 (2000).

The Higley development comprising: (a) a 34-foot-high concrete gravity dam with 3-foot-high wooden flashboards, a 209-foot-long concrete gravity ogee-crested spillway, two flood gates, eight steel forebay gates each measuring 12 feet high by 5 feet, 9 inches wide, a trashrack, and two 10-foot-high by 8-foot-wide waste gates; (b) a 742-acre reservoir at normal pool elevation 583.6 feet above mean sea level (msl); (c) a 160-foot-long by 50-foot-wide flume formed by concrete retaining walls on each side; (d) a powerhouse measuring 64 feet to a side by 38 feet high containing three generating units with a total capacity of 4,972 kilowatts (kw); (e) an intake structure with a 14 x 14 foot headgate, a 13-foot-diameter, 225-foot-long steel pipeline, and a powerhouse measuring 80 feet long and 53 feet wide containing a 7,300 kW generating unit; and (f) appurtenant electrical and mechanical facilities.

The Colton development comprising: (a) a 27-foot-high concrete gravity dam with 2-foot-high flashboards, an 8-foot-wide log flume, a trash gate, and a 204.67-foot-long ogee-crested spillway equipped with a single tainter gate measuring 10 feet high and 25 feet wide; (b) a 155-acre reservoir at normal pool elevation 837.0 feet msl; (c) a concrete intake structure with a brick superstructure, which measures 50 feet wide by 30 feet long by 12 feet high overall, equipped with a motor driven, 16-foot-high by 25.5-foot-wide, tainter gate; (d) a steel pipeline, 11,090 feet long with a diameter of 13.5 feet and 2,100 feet long with a diameter of 12 feet; (e) a 80-foot-high Johnsson differential surge tank; (f) three penstocks of lengths 160 feet, 140 feet, and 125 feet, and diameters of 7.5 feet, 7.5 feet, and 9 feet respectively; (g) a brick and structural steel powerhouse measuring 165 feet long and 46 feet wide containing three generating units with a total capacity of 30,101-kw; and (h) appurtenant electrical and mechanical facilities.

The Hannawa development comprising: (a) a 38-foot-high stone and concrete dam with 3.5-foot-high wooden flashboards, a log chute, a motor operated tainter gate measuring 14 feet high by 28 feet wide, an ogee-crested spillway, and a sluice gate; (b) a 204.67-acre reservoir at normal pool elevation 552.0 feet msl; (c) a headworks structure with five sliding timber gates, all of which are 18 feet high, three are 9.7 feet wide, one is 9 feet wide, and one is 8.8 feet wide; (d) a 2,700-foot-long canal measuring 30 feet wide at the bottom, 120 feet wide at the top, and an average of 22 feet deep, equipped with trashracks that completely cover the canal entrance; (e) two 10-foot-diameter penstocks of 190 feet in length; (f) a sandstone and structural steel powerhouse measuring 66 feet wide
by 248 feet long by 40 feet high containing two generating units with a total capacity of 7,200-kW; and (g) appurtenant electrical and mechanical facilities.

The Sugar Island development comprising: (a) a 37-foot-high concrete gravity dam with two tainter gates and a 192-foot-long spillway; (b) a 29-acre reservoir at normal pool elevation 470.0 feet msl; (c) a concrete and brick intake structure with trashracks and a steel headgate measuring 14 feet wide by 16 feet high; (d) a 4,700-foot-long steel pipeline; (e) a 71-foot-high surge tank; (f) two 8-foot-diameter penstocks; (g) a brick and structural steel powerhouse measuring 35 feet wide by 67 feet long by 30 feet high containing two generating units with a total capacity of 4,800-kW; and (f) appurtenant electrical and mechanical facilities.

The project works generally described above are more specifically shown and described by those portions of Exhibits A and F shown below:

**Exhibit A:** The following Exhibit A sections, filed on December 24, 1991:

Pages A-3 to A-23, describing the existing and proposed mechanical, electrical, and transmission equipment.

**Exhibit F:** The following Exhibit F drawings, filed on December 24, 1991:

<table>
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<tr>
<td>F-9</td>
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<td>Sugar Island - Dam, Surge Tank, and Powerhouse</td>
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II. THE LOWER RAQUETTE RIVER PROJECT NO. 2330

BACKGROUND AND RELICENSING PROPOSAL

The Lower Raquette River Project, consisting of four developments, Norwood, East Norfolk, Norfolk, and Raymondville, was originally licensed in 1964 with a term expiring at the end of December 31, 1993.\(^53\) Erie filed an application for new license on December 24, 1991. Notice of the application was issued on February 23, 1993.\(^54\) Timely motions to intervene in this proceeding were filed by NYSDEC, the Mountain Club, Interior, and Rivers United, et al.\(^55\) A motion for late intervention was filed by the St. Regis Mohawk Tribe on August 25, 1998, and granted by notice of February 18, 1999.\(^56\)

The four developments, having a total installed generating capacity of 12 MW, are all located in an 8-mile reach of the Raquette River commencing 19 miles above its confluence with the St. Lawrence River. The developments are, from upstream to downstream:\(^57\)

(1) the Norwood development, consisting of a 23-foot-high dam with 1-foot-high wooden flashboards, a 350-acre reservoir, a gated concrete intake structure with

\(^{53}\) FPC 125 (1964).

\(^{54}\) 58 FR 16184, March 25, 1993.

\(^{55}\) New York Rivers United, Audubon Society, Natural Heritage Institute, Association for the Protection of the Adirondacks, Adirondack Council, American Whitewater, and American Rivers, Inc.

\(^{56}\) NYSDEC, apparently not realizing that it had timely sought intervention, filed a motion for late intervention on December 18, 1995.

\(^{57}\) A more detailed project description is contained in ordering paragraph B(2).
trashrack, and a log chute, a powerhouse containing a 2,000-kW generating unit, and a 3-mile-long transmission line:

(2) the East Norfolk development, consisting of a dam with seven, 9-foot-high by 8-foot-wide sluice gates, a 135-acre reservoir, a concrete intake structure, a 1,408-foot-long flume, a powerhouse containing a 3,500-kW generating unit, and a 0.86-mile-long transmission line;

(3) the Norfolk development, consisting of a 20-foot-high dam with 10-inch-high flashboards, headworks gates, two 9-foot by 9-foot sluice gates, a 10-acre reservoir, a 1,275-foot-long canal, a 700-foot-long wood stave pipeline, a 103-foot-long steel penstock, and a powerhouse containing a 4,500-kW generating unit; and

(4) the Raymondville development, consisting of a 17-foot-high dam with 2-foot-high flashboards, a 50-acre reservoir, a 447-foot-long concrete flume with trashracks, an ice chute, gates, a powerhouse containing a 2,000-kW generating unit, and a 2.32-mile-long transmission line.

As currently licensed these developments typically operate in a store and release pulsing or store and release peaking mode, using releases from the Carry Falls, Upper Raquette River Project, and the re-regulating Higley development of the Middle Raquette River Project. The project may operate continuously in a run-of-river mode during periods of high flows. Erie plans to continue selling the electricity generated by the project to its customers.

To protect and enhance project-related environmental resources, Erie proposes the following measures, consistent with the Settlement: (1) to facilitate movement of fish, year-round instream flows of 20, 75, 37.5, and 20 cfs, at Norwood, East Norfolk, Norfolk, and Raymondville, respectively; (2) normal reservoir fluctuations limited to no more than 0.5 foot at the Norwood, East Norfolk, and Raymondville developments and no more than 1.0 foot at Norfolk; (3) a tiered base flow below the Raymondville development; (4) measures to facilitate downstream fish movement at all developments; (5) installation of 1-inch clear spacing physical barriers at the existing trashrack structures at each development; and (6) development and implementation of a recreation plan that includes (a) canoe portage at each development (take-out only at East Norfolk, and put-in only at Norfolk), (b) parking at the canoe portage at the East Norfolk development, c) car-top boat launch, picnic facilities, and parking adjacent to the left abutment of the dam at the Raymondville development, and (d) modification of the project boundary to include all Erie lands occupied by these recreational facilities.

58 Store and release pulsing operations follow an on/off cycle in response to the level of inflow and normal impoundment fluctuations, while store and release peaking operations respond to peak electric power demand, usually during weekday hours.
The Commission orders:

(A) The settlement is approved, except as otherwise noted, and this license is issued to Erie Boulevard Hydropower, L.P. (licensee) for a period of 31 years, 11 months, effective the first day of the month in which this order is issued, to operate, and maintain the Lower Raquette River Hydroelectric Project. The license is effective February 1, 2002, and will expire on December 31, 2033. This license is subject to the terms and conditions of the Federal Power Act (FPA), which is incorporated by reference as part of this license, and subject to the regulations the Commission issues under the provisions of the FPA.

(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 filed December 24, 1991:

2. Project works consisting of four developments:

The Norwood development comprising: (a) a 188-foot-long by 23-foot-high concrete gravity dam with 1-foot-high wooden flashboards; (b) a 150-acre reservoir at normal pool elevation 327.1 feet above mean sea level (msl); (c) a concrete intake structure with steel trashracks oriented 90 degrees to the direction of flow, a skimmer section, and three motor-operated steel sliding gates; (d) a timber flood gate, one 9 feet, 9 inches wide by 12 feet high, and the other 12 feet high by 12 feet wide; (e) a concrete log chute with stoplog opening 11 feet, 2 inches wide by 4 feet, 6 inches high; (f) a concrete and brick powerhouse 59 feet, 9 inches long by 43 feet wide by 34 feet high containing a 2,000-kW generating unit; (g) a 3-mile-long, 23 kilovolt (kV) transmission line connecting the Norwood and Norfolk developments; and (h) appurtenant facilities:

The East Norfolk development comprising: (a) a concrete gravity dam with seven hand-operated sluice gates measuring 8 feet wide by 9 feet high protected by steel trashracks oriented 24 degrees to the direction of flow; (b) a 4-foot-by-4-foot pond drain; (c) a 135-acre reservoir at normal pool elevation 287.9 feet msl; (d) a concrete intake structure equipped with steel trashracks oriented 90 degrees to the direction of flow, a skimmer section, and an ice chute with a steel sliding gate; (e) a 32-foot-wide by 1,408-foot-long oval steel flume; (f) a powerhouse containing a 3,500-kW generating unit; (g) a 0.86-mile-long, 23 kV transmission line connecting the East Norfolk and Norfolk developments; and (h) appurtenant facilities:

The Norfolk development comprising: (a) a 20-foot-high concrete dam with 10-inch-high flashboards, three 12-foot-wide by 10-foot-high steel headworks gates, and two 9-foot-wide by 9-foot-high sluice gates; (b) a 10-acre reservoir at normal pool elevation 254.9 feet msl; (c) a 1,275-foot-long power canal; (d) a 700-foot-long, 14-foot-diameter wood sluice pipeline protected by two steel trashracks oriented 90 degrees to the
direction of flow, a skimmer section, and a 6-foot-wide by 6-foot-high ice sluice gate
used for flushing ice and debris downstream; (e) a 14-foot-diameter, 103-foot-long steel
penstock fitted with a motor-operated 14-foot-diameter butterfly valve; (f) a concrete and
brick powerhouse measuring 52 feet, 6 inches wide by 50 feet, 7 inches long by 35 feet
high containing a 4,500 kW generating unit; (g) a short 2.4 kV underground transmission
line and a 2.32-mile-long, 115 kV transmission line connecting the Norfolk and
Raymondville developments; and (h) appurtenant facilities.

The Raymondville development comprising: (a) a 292-foot, 6-inch-long by 17-
foot-high concrete gravity dam having two-foot-high rubber and steel flashboards; (b)
two 4-foot by 4-foot pond drains; (c) a 90-acre reservoir at normal pool elevation 211.6
feet msl; (d) a 48-foot-wide by 447-foot-long concrete power flume having trashracks
oriented 90 degrees to the direction of flow, an ice chute, and three steel flume intake
gates, each 12 feet wide by 10 feet high; (e) a concrete, brick, and steel powerhouse
measuring 59 feet, 9 inches wide by 42 feet long by 34 feet high containing a 2,000 kW
generating unit; and (f) appurtenant facilities.

The project works generally described above are more specifically shown and
described by those portions of Exhibits A and F shown below:

**Exhibit A:** The following Exhibit A sections, filed on December 24, 1991:

Pages A-2 to A-13, describing the existing mechanical, electrical, and
transmission equipment.

**Exhibit F:** The following Exhibit F drawings, filed on December 24, 1991:

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