



January 19, 2009

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

Re: Riverbank Sparta, LLC  
Application for Preliminary Permit  
Sparta Pumped Storage Project

Dear Secretary Bose:

On behalf of Riverbank Sparta, LLC, I herewith offer for filing an application for a Preliminary Permit pursuant to Section 4.30 of Commission's regulations. The application is for development of a pumped storage project at the Limecrest Quarry in Sparta, New Jersey. Riverbank Sparta, LLC is submitting this application in order to secure and maintain priority of the application for a license while undertaking activities to assess the feasibility of the Sparta pumped storage project and support of an application for license. The applicant is located in Albany, New York.

Please do not hesitate to contact me at 416-861-0092 ext. 118 if you have any questions.

Very truly yours,

RIVERBANK POWER CORP.

A handwritten signature in cursive script that reads "William S. Helmer".

William S. Helmer

WSH/prb

encl.

**UNITED STATES OF AMERICA  
BEFORE THE  
FEDERAL ENERGY REGULATORY COMMISSION**

**Riverbank Sparta, LLC**

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**PROJECT NO. \_\_\_\_\_**

**APPLICATION FOR PRELIMINARY PERMIT  
FOR THE  
SPARTA PUMPED STORAGE PROJECT  
SPARTA, NEW JERSEY**

**JANUARY 2009**

**Prepared by:**



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UNITED STATES OF AMERICA  
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RIVERBANK SPARTA, LLC

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PROJECT NO. \_\_\_\_\_

APPLICATION FOR PRELIMINARY PERMIT  
FOR THE  
SPARTA PUMPED STORAGE PROJECT  
SPARTA, NEW JERSEY

JANUARY 2009

**INITIAL STATEMENT**

1. Statement of Application

Riverbank Sparta, LLC (the Applicant), a New Jersey limited liability company and a wholly-owned subsidiary of Riverbank USA Holdings Corporation, which is a wholly-owned subsidiary of Riverbank Power Corporation (Riverbank Power), a Canadian limited liability company, hereby applies to the Federal Energy Regulatory Commission ("FERC" or "the Commission") for a preliminary permit for the proposed Sparta Pumped Storage Project ("Project"), as described in the attached exhibits. This application is made so that the Applicant may secure and maintain priority of application for a license for the Project under Part I of the Federal Power Act while obtaining the data and performing the acts required to determine the feasibility of the Project and to support an application for a license.

2. Location

The location of the proposed project is:

State: New Jersey  
County: Sussex  
City/Town: Sparta Township  
Waterbody: Limecrest Quarry

3. Applicant/Agent

The exact name, business address, and telephone number of the applicant is:

Riverbank Sparta, LLC  
P.O. Box 1579  
Hudson Street Station  
Albany, NY 12201  
518-694-6462

The exact name, business address, and telephone number of each person authorized to act as an agent for the Applicant in this application:

John Douglas, President and CEO  
c/o Riverbank Power Corp.  
Royal Bank Plaza, South Tower, Box 166  
200 Bay Street, Suite 3110  
Toronto, Ontario  
M5J2J4 Canada  
416-861-0092 ext. 156

William S. Helmer, Esq.  
c/o Riverbank Power Corp.  
Royal Bank Plaza, South Tower, Box 166  
200 Bay Street, Suite 3110  
Toronto, Ontario  
M5J2J4 Canada  
416-861-0092 ext. 118

4. Business Structure

Riverbank Sparta, LLC is a limited liability company organized and existing pursuant to the laws of the State of New Jersey, and as such the Applicant is qualified under Section 4(e) of the Federal Power Act (FPA) to apply for and hold hydroelectric licenses issued under Part I of the FPA. The Applicant is not claiming preference under Section 7(a) of the FPA at this time.

5. Term

The proposed term of the requested permit is 36 months.

6. Existing Dams or Other Project Facilities

There is no existing dam associated with the Project.

## **EXHIBIT 1 – DESCRIPTION OF THE PROPOSED PROJECT**

*18 CFR §4.81(b)*

### **1. General Project Configuration**

The Project site (the Site) is located at and in the vicinity of the Limecrest Quarry within the Sparta Township in Sussex County, New Jersey (Exhibit 4, Figure 1). The Site (disregarding for this purpose the transmission line) is bounded by: Limecrest Road which becomes Houses Corner Road to the north, the township limit with Lafayette Township to the west, Sussex Mills Road to the south and a housing development to the east.

The Project concept is based on the traditional pumped storage technology of “storing” electric energy, in the form of hydraulic potential, by pumping water to an upper reservoir during off-peak times and allowing it to flow back through hydroelectric turbines when electric demand is peaking. The Project will deliver the significant benefits of the traditional pumped storage technology, essentially increasing off-peak load and increasing generating capacity during peak demand periods, but the Applicant proposes to do so in an improved manner that reduces and/or avoids many of the environmental impacts of the traditional pumped storage facility design.

The Applicant proposes to utilize its Aquabank™ technology, an innovative but proven approach which departs from the traditional pumped storage design inasmuch as it can use an abandoned flooded quarry as its upper reservoir. The powerhouse and lower reservoir are then installed deep underground and below the quarry in a hard rock formation beneath. With this design approach, the lower reservoir(s) found at the surface at traditional pumped storage facilities disappear. An intake structure inside the quarry, a small switchyard, and the associated transmission line will be the only visible components of the project. No dam or other impoundment will be required for the project. Environmental impacts are minimized by virtue of the “closed loop” water circulating feature of the quarry application.

The Project consists of four 250 MW hydroelectric turbines with a combined capacity of 1,000 MW, an output similar to that of a large fossil-fired or nuclear baseload power generating plant. As a pumped storage facility, the Project is configured to generate 1,000 MW in cycling or peaking mode for approximately six hours a day, with eight hours of the remainder of the daily cycle used to pump the water from the underground storage reservoir back up to the quarry, using the reversible turbines as pumps running on abundant and inexpensive off-peak power.

The Project will temporarily use water from the Limecrest Quarry (upper reservoir) channeling it through an intake structure, using the force of gravity, down four 13-foot diameter vertical penstocks lined with steel and concrete, to a powerhouse constructed about 2,000 feet underground. The powerhouse will be 415 feet long by 220 feet wide, including the machine hall and transformer gallery, by approximately 160 feet high, with a generator floor elevation of 1,600 feet below mean sea level (bmsl). Once through the turbines, the water is temporarily

stored in six underground storage galleries (lower reservoir), excavated at approximately the same depth.

## **2. Reservoir**

### Upper Reservoir

The Project will utilize Limecrest Quarry as the upper reservoir. An intake structure will be constructed along the side of the excavated area to draw approximately one billion gallons of water during the generation cycle. The intake structure will have four parallel intake units with the centerline of water passage through the intake gate at 17 feet above the bed of the quarry. Intake gates will be 13 feet by 13 feet in size and will be spaced approximately 66 feet apart. The intake will occupy about 350 linear feet along the quarry side.

### Lower Reservoir

Six underground galleries will be constructed at approximately 1,800 feet below mean water level to function as the Project's lower reservoir. Each gallery will be about 90 feet wide and 150 feet high. The total combined length of the six galleries will be 14,018 feet. The combined volume of the galleries will be approximately 1.23 billion gallons with a six hour storage capacity.

## **3. Transmission Lines**

The proposed new transmission line will consist of a double circuit 500 kVac line connecting the Riverbank Sparta pumped storage facility to the new Jefferson substation located approximately 5.7 miles southeast of Limecrest Quarry. The electric interconnection will either be buried or overhead on compact structures, and will run parallel to the existing overhead electric right-of-ways.

## **4. Estimate of Annual Energy Production**

The powerhouse will be equipped with four reversible pump-turbines isolated from the downstream reservoir by butterfly valves with a combined installed capacity of 1,000 megawatts (MW). The estimated average annual energy production is 2,190 GWh. Descriptive details of the powerhouse and generating units are provided below.

<b>POWERHOUSE</b>	
Number of Units	4
Unit Spacing	66 feet
Maximum Intake Capacity	7,600 cfs
Maximum Pumping Capacity	6,000 cfs
<b>GENERATING UNITS</b>	
Turbine (shaft) Power per Unit – Nominal	254 MW
Nominal net head	1,798 feet
Pump Power Input per Unit – Nominal	250 MW
Installed Power	1,000 MW
Generating Time	6 hours
Pump-turbine Type	Reversible Francis
Rated discharge (per unit)	1,900 cfs

**5. Lands of the United States**

There are no lands of the United States included within the proposed Project boundary. There are no known rivers in the vicinity of the proposed Project boundary that are included in or have been designated for study for inclusion in the National Wild and Scenic Rivers System.

**6. Public Interest**

The Project will fulfill the public interest in the following manner:

- Provides reliable source of green, renewable power;
- Produces carbon-free renewable power;
- Adds much needed peaking capacity;
- Offers sustainable development for each 1,000 MW project with:
  - \$2 billion new direct investment into a local and regional economy;
  - 600 to 1,000 jobs during 4 year construction period, and
  - 50 to 100 full time direct and indirect jobs during operation
- Improves black start capability of the regional power grid;
- Increases transmission system performance and reliability;
- Improves thermal plant efficiency by reduced operation in inefficient rapid response mode;



- Offers highest operating efficiency of all known generation systems;
- Reduces thermal generation reserve requirement;
- Reduces volatility of electricity prices, adding balance to existing load disparities in local market area; and
- Provides method to store intermittently generated energy, such as wind energy.

## **EXHIBIT 2 – DESCRIPTION OF PROPOSED STUDIES**

*18 CFR § 4.81(c)*

### **1. Description of Studies**

The Applicant has performed preliminary review of proposed project site as part of a pre-feasibility study. The Applicant proposes to conduct a detailed feasibility study of the technical features of the Project. The feasibility study will be designed to evaluate various project concepts, layouts, and equipment arrangements to optimize the project configuration, while considering potential environmental impacts. The study will be in sufficient depth and breadth to provide information needed for preparation of an application for license of the pumped storage project, as well as construct the project. The feasibility study will include:

- Evaluations of alternative project configurations, and selection of preferred alternative;
- Topographic land surveys and bathymetric surveys;
- Geologic investigations;
- Ecological resources investigations, including but not limited to endangered & threatened species investigations and wetland surveys;
- Cultural resources surveys;
- Engineering studies to optimize project configuration, while avoiding and minimizing potential project impacts;
- Power marketing assessments and preliminary power sales analyses
- Transmission interconnection planning
- Cost estimating, economic feasibility, and financial planning investigations

Based on the results and findings of the initial stages of the feasibility study, the Applicant will prepare a Notice of Intent and Pre-Application Document as detailed in 18 CFR Sections 5.5 and 5.6.

### **2. Need for New Roads**

There are no new access roads needed to complete the studies. All areas within the proposed Project boundary are accessible from existing roadways.

**3. Proposed Overall Schedule**

<b>STUDIES/TASKS</b>	<b>TIME FRAME</b>
Engineering Feasibility Studies	November 2008 – February 2009
PAD Preparation	February 2009 – April 2009
Study Plan Preparation & Scoping	March 2009 – April 2009
Environmental/Cultural Resources Field Studies	April 2009 – November 2009
Prepare and File Draft License Application	October 2009 – March 2010
Prepare and File Final License Application	March 2010 – July 2010
NEPA Review and Licensing Decision	August 2010 – June 2011

**4. Waiver**

18 CFR Section 4.81 (c)(3) permits FERC to waive certain requirements for studies for new dam construction. The Project does not involve dam construction and the Applicant seeks no waivers under this section.

### **EXHIBIT 3 – STATEMENT OF COSTS AND FINANCING**

#### *Section 4.81(c)*

#### **1. Estimated costs of carrying out the requirements of the preliminary permit:**

The estimated cost for planning and executing the studies, investigations, and surveys, including design plans and other related specifications for the proposed Project is estimated to be between \$1,500,000 and \$2,000,000

#### **2. Expected sources and extent of financing available to the applicant:**

The expected source of financing to conduct the activities identified in Exhibit 2 is the Applicant. The source of funding for these activities is from private funds available to the Applicant.

#### **3. Description of proposed power market:**

PJM Interconnection is a regional transmission organization (RTO) that coordinates the movement of wholesale electricity in all or parts of Delaware, Illinois, Indiana, Kentucky, Maryland, Michigan, New Jersey, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia and the District of Columbia.

Acting as a neutral, independent party, PJM operates a competitive wholesale electricity market and manages the high-voltage electricity grid to ensure reliability for more than 51 million people.

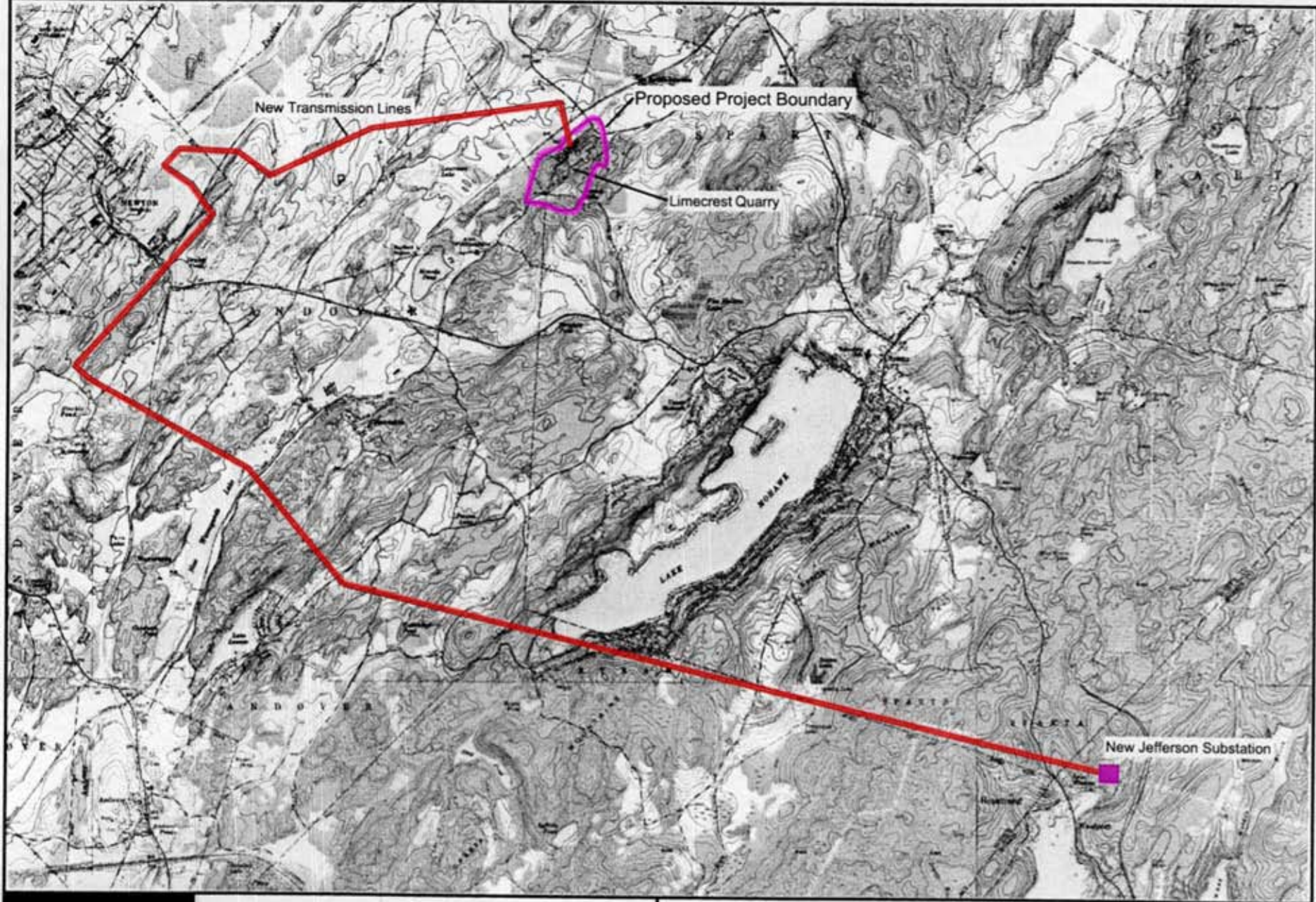
PJM's long-term regional planning process provides a broad, interstate perspective that identifies the most effective and cost-efficient improvements to the grid to ensure reliability and economic benefits on a system wide basis.

An independent Board oversees PJM's activities. Effective governance and a collaborative stakeholder process help PJM achieve its vision: "To be the electric industry leader – today and tomorrow – in reliable operations and efficient wholesale markets."

**EXHIBIT 4 – PROJECT MAPS**

Attached as part of this application are the following figures:

Exhibit 4, Figure 1: Proposed Project Boundary



**SECTION 4.32(A) INFORMATION**

1. Identification of persons, associations, domestic corporations, municipalities, or states that have or intend to obtain and will maintain any proprietary right necessary to construct, operate, or maintain the project:

The project facilities will be located on land currently owned by the Township of Sparta, the Township of Lafayette, and Limecrest Quarry Developers, LLC and the incumbent transmission provider. The Applicant intends to obtain and maintain the proprietary rights necessary to construct, operate and maintain Sparta Pumped Storage Project.

Any additional lands on adjoining parcels adjacent to the Riverbank Sparta property, as yet undetermined, necessary to construct, operate and maintain the Project would be acquired by lease, purchase, or appropriation.

2. Identify

- i. Every county in which any part of the project, and any Federal facilities that would be used by the project, would be located:

County:       Sussex County  
Address:       Sussex County Administrative Center  
                  One Spring Street  
                  Newton, New Jersey 07860

County:       Morris County  
Address:       Morris County Administrative Center  
                  PO Box 900  
                  Morristown, New Jersey 07963-0900

- ii. Every city, town, or similar local political subdivision:

- A. In which any part of the project, and any Federal facilities that would be used by the project, would be located:

Sparta Township  
Municipal Building  
65 Main Street  
Sparta, New Jersey 07871

LaFayette Township  
Municipal Building  
33 Morris Farm Road  
Lafayette, New Jersey 07848

Andover Township  
Municipal Building  
134 Newton-Sparta Road  
Newton, New Jersey 07860

Town of Newton  
Municipal Building  
39 Trinity Street  
Newton, New Jersey 07860

Byram Township  
Municipal Building  
10 Mansfield Drive  
Stanhope, New Jersey 07874

Hopatcong Borough  
Municipal Building  
River Styx Road  
Hopatcong, New Jersey 07843

Jefferson Township  
Municipal Building  
1033 Weldon Rd  
Lake Hopatcong, New Jersey 07849

- B. That has a population of 5,000 or more people and is located within 15 miles of the project dam:

There is no dam associated with the Project. The following political subdivisions have populations greater than 5,000 people according to 2006 U.S. Census Data and are within 15 miles of any part of the Project.

Gene F. Feyl, Freeholder Director  
Morris County  
PO Box 900  
Morristown, New Jersey 07963-0900

Glen Vitrano, Freeholder Director  
Sussex County  
One Spring Street  
Newton, New Jersey 07860



Sonia Rosado, Freeholder Director  
Passaic County  
Administration Building, Freeholders's Office  
401 Grand Street  
Paterson, New Jersey 07505

Richard D. Gardner, Freeholder Director  
Warren County  
Wayne Dumont, Jr. Admin. Bldg.  
165 County Road, 519 South  
White Township, New Jersey 07823-1949

James P. Dodd, Mayor  
Town of Dover  
37 N. Sussex St.  
Dover, New Jersey 07801

Kathyann Snyder, Mayor  
Rockaway Borough  
1 East Main St  
Rockaway, New Jersey 07866

Louis S. Sceusi, Mayor  
Rockaway Township  
65 Mount Hope Rd.  
Rockaway, NJ 07866

William Chegwidden, Mayor  
Borough of Wharton  
10 Robert St.  
Wharton, New Jersey 07885

David M. Scapicchio, Mayor  
Mount Olive Township  
Post Office Box 450  
Budd Lake, New Jersey 07828

P. Ted Husa, Mayor  
Denville Township  
1 St. Mary's Place  
Denville, New Jersey 07834

Tim Smith, Mayor  
Township of Roxbury  
1715 Route 46  
Ledgewood, New Jersey 07852

Arthur R. Ondish, Mayor  
Borough of Mount Arlington  
419 Howard Blvd  
Mount Arlington, New Jersey 07856

Glenn L. Sisco, Mayor  
Borough of Kinnelon  
130 Kinnelon Road  
Kinnelon, New Jersey 07405

Russell Felter, Mayor  
Jefferson Township  
1033 Weldon Rd  
Lake Hopatcong, New Jersey 07849

Eskil S. Danielson, Mayor  
Byram Township  
Municipal Building  
10 Mansfield Drive  
Stanhope, New Jersey 07874

Sylvia Petillo, Mayor  
Hopatcong Borough  
Municipal Building  
River Styx Road  
Hopatcong, New Jersey 07843

Thomas S. Russo, Jr., Town Manager  
Town of Newton  
Municipal Building  
39 Trinity Street  
Newton, New Jersey 07860

Bob Smith, Mayor  
Andover Township  
Municipal Building  
134 Newton-Sparta Road  
Newton, New Jersey 07860

Henry M. Underhill, Township Manager  
Sparta Township  
Municipal Building  
65 Main Street  
Sparta, New Jersey 07871

George Sweeney, Mayor  
LaFayette Township  
Municipal Building  
33 Morris Farm Road  
Lafayette, New Jersey 07848

Paul B. Crowley, Mayor  
Franklin Borough  
Municipal Building  
P.O. Box 397  
46 Main Street  
Franklin, New Jersey 07416

Philip Yetter, Mayor  
Hampton Township  
Municipal Building  
1 Municipal Complex Road  
Newton, New Jersey 07860

James G. Armstrong, Mayor  
Hardyston Township  
Municipal Building  
149 Wheatsworth Road, Suite A  
Hardyston, New Jersey 07419

William Hahn, Mayor  
Frankford Township  
Municipal Building  
151 State Highway 206  
Augusta, New Jersey 07822-2023

Melinda Carlson, Township Manager  
Vernon Township  
Municipal Building  
21 Church Street  
Vernon, New Jersey 07462

Parker Space, Mayor  
Wantage Township  
Municipal Building  
888 Route 23 S.  
Wantage, New Jersey 07461

Bettina Bicri, Mayor  
West Milford Township  
1480 Union Valley Road  
West Milford, New Jersey 07480

Richard A. Caridi, Chairman  
Pike County  
County Administration Building  
506 Broad Street  
Milford, Pennsylvania 18337-1539

John P. Sivick, Chairman  
Lehman Township  
RR 4, Box 4000  
Bushkill, Pennsylvania 18324

Board of Supervisors  
Delaware Township  
116 Wilson Hill Road  
Dingmans Ferry, Pennsylvania 18328

Roxanne Donnery, Chairwoman  
Orange County  
255 Main Street  
Goshen, NY 10924

Michael Sweeton, Supervisor  
Town of Warwick  
132 Kings Highway  
Warwick, New York 10990

iii. Every irrigation, drainage, or special purpose subdivision of interest:

- A. In which any part of the project, and any Federal facilities that would be used by the project, would be located:

None

- B. That owns, operates, maintains, or uses any project facilities or any Federal facilities that would likely be interested in, or affected by, the application:

None

iv. Every other political subdivision in the general area of the project where there is a reason to believe they would likely be interested in, or affected by, the application:

None

v. All Indian tribes that may be affected by the project:

The Nanticoke Lenni-Lenape Indians of New Jersey  
18 East Commerce Street  
Bridgeton, NJ 08302

The Powhatan Renape Nation  
PO Box 225  
Rancocas, NJ 08073

The Ramapough Mountain Indians  
189 Stag Hill Rd  
Mahwah, NJ 07430

The Southern New Jersey Taino Tribe  
703 South Eighth Street  
Vineland, NJ 08360

**STATEMENT OF VERIFICATION**

This application for preliminary permit pursuant to 18 CFR section 4.81 and 18 CFR Section 4.36 is executed in the

State of New York            )  
  ) ss.:  
County of Albany            )

By: William S. Helmer, Esq., General Counsel  
Riverbank Sparta, LLC  
c/o Riverbank Power Corp.  
Royal Bank Plaza, South Tower, Box 166  
200 Bay Street, Suite 3110  
Toronto, Ontario  
M5J 2J4 Canada

Being duly sworn, says and declares under penalty of perjury under the laws of the United States of America that the contents of the foregoing Application for Preliminary Permit and Exhibits are true and correct to the best of his knowledge and belief. The undersigned has signed this Application for Preliminary Permit this 19<sup>th</sup> day of January, 2009.

By: William S. Helmer  
William S. Helmer, Esq.

Subscribed and sworn to before me, a Notary Public authorized by the State of New York to notarize documents, in the County of Albany on this 19<sup>th</sup> day of January, 2009.

By: Jocelyn C Fairlee

SEAL: JOCELYN C. FAIRLEE  
Notary Public, State of New York  
Commission #02FA6102305  
Qualified in Albany County  
Commission Expires December 1, 2011

My commission expires: December 1, 2011

**CERTIFICATE OF SERVICE**

I certify that I have sent a copy of the foregoing Application for Preliminary Permit with Exhibits to each person listed herein by certified U.S. mail.

Subscribed this 21<sup>st</sup> day of January, 2009 in Albany NY.

By: Patricia M. Gabriel