



Township Council

1 Municipal Plaza
Bloomfield, NJ 07003

Louise M. Palagano
Municipal Clerk

<http://www.bloomfieldwpnj.com>

Meeting: 03/03/14 06:30 PM

2014 RESOLUTION AWARD OF CONTRACT

AUTHORIZING THE AWARD OF A NON-FAIR AND OPEN CONTRACT FOR AN ENGINEER AND ENVIRONMENTAL PLANNER

WHEREAS, the Township of Bloomfield needs the services of an Engineer and Environmental Planner; and

WHEREAS, the Township desires to make this appointment under the provisions *N.J.S.A. 19:44A-20.5*, as a non-fair and open contract; and

WHEREAS, this contract will end December 31, 2014; and

WHEREAS, the Township Administrator has determined that the value of these services will exceed \$17,500; and

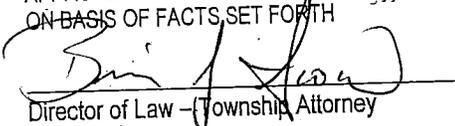
WHEREAS, Princeton Hydro, 1108 Old York Road, Ringoes, NJ, 08551 (hereinafter "Professional") has submitted the attached proposal indicating the Professional will provide the necessary services; and

WHEREAS, the Professional has completed and submitted a Business Entity Disclosure Certification which certifies they have not made any reportable contributions to a political or candidate committee in the Township of Bloomfield in the previous one year and that the contract will prohibit the Professional from making any reportable contributions during the term of the contract; and

WHEREAS, the Director of Finance has certified that funds are available to cover the cost of this service.

NOW, THEREFORE, BE RESOLVED, that the Mayor and Council of the Township of Bloomfield authorizes the Mayor to execute a contract with the Professional as described herein; and

APPROVED AS TO FORM AND PROCEDURE
ON BASIS OF FACTS SET FORTH


Director of Law - Township Attorney

BE IT FURTHER RESOLVED, that the Professional is hereby authorized to provide recommendation to the appropriate authority to consider for implementation while performing the responsibilities in the attached proposal; and

BE IT FURTHER RESOLVED, that no minimum payment is implied or guaranteed; and

BE IT FURTHER RESOLVED, that the Business Entity Disclosure Certification, the Township Administrator's Determination of Value, the proposal of the Professional and the contract itself be placed on file with this resolution; and

BE IT FURTHER RESOLVED, that the above documents shall be available for public inspection at the office of the Township Clerk during regular business hours; and

BE IT FURTHER RESOLVED, that the Township reserves the right to cancel this contract upon thirty (30) days notice and the Professional shall only be paid for the work completed or on a pro-rated amount if the contracts calls for a monthly retainer; and

BE IT FURTHER RESOLVED, that a notice of this action shall be printed once in the official newspaper of the Township of Bloomfield.

* * * * *

I hereby certify that the above resolution was duly adopted by the Mayor and Council of the Township of Bloomfield at a meeting of said Township Council held on March 03, 2014.



Municipal Clerk of the Township of Bloomfield



Mayor of the Township of Bloomfield

<input checked="" type="checkbox"/> Vote Record - Resolution 3299						
<input checked="" type="checkbox"/> Adopted <input type="checkbox"/> Adopted as Amended <input type="checkbox"/> Defeated <input type="checkbox"/> Withdrawn <input type="checkbox"/> Tabled <input type="checkbox"/> Approved <input type="checkbox"/> Approved by Consensus <input type="checkbox"/> Not Discussed <input type="checkbox"/> Tabled with No Vote <input type="checkbox"/> Discussed <input type="checkbox"/> Veto by Mayor <input type="checkbox"/> Approved No Vote <input type="checkbox"/> Deferred			Yes/Aye	No/Nay	Abstain	Absent
	Elias N. Chalet		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Nicholas Joanow		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Carlos Bernard		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Wartyna Davis		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Joseph Lopez		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Carlos Pomares		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Michael J. Venezia		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

*Scientists, Engineers &
Environmental Planners
Designing Innovative
Solutions for Water,
Wetland and Soil
Resource Management*

January 29, 2014

**Township of Bloomfield
Law Department
Ms. Danielle Christiano
One Municipal Plaza
Bloomfield, NJ 07003**

JAN 31 RECD

Reference: Business Entity Disclosure Certification

Dear Ms. Christiano,

Enclosed please find the completed referenced form. If you require additional information, please contact me.

Very truly yours,



Gail A. Skupien

Business Administrator

Enclosure

Princeton Hydro, LLC

- 1108 Old York Road PO Box 720 Ringoes, NJ 08551 t. 908.237.5660 f. 908.237.5666
- 1200 Liberty Place Sicklerville, NJ 08081 t. 856.629.8889 f. 856.629.8866
- 120 East Uwchlan Avenue Suite 204 Exton, PA 19341 t. 610.524.4220 f. 610.524.9434
- 931 Main Street Suite 2 South Glastonbury, CT 06073 t. 860.652.8911 f. 860.652.8922

BUSINESS ENTITY DISCLOSURE CERTIFICATION
FOR NON-FAIR AND OPEN CONTRACTS
 Required Pursuant To N.J.S.A. 19:44A-20.8

JAN 31 RECD

Part I – Vendor Affirmation

The undersigned, being authorized and knowledgeable of the circumstances, does hereby certify that the professional/business entity has not made and will not make any reportable contributions pursuant to N.J.S.A. 19:44A-1 et seq. that, pursuant to P.L. 2004, c. 19 would bar the award of this contract in the one year period preceding January 1, 2012 to any of the following named elected officials, candidate committee, joint candidates committee; or political party committee representing the elected officials of the Township of Bloomfield as defined pursuant to N.J.S.A. 19:44A-3(p), (q) and (r).

<u>Elected Officials</u>	
Mayor Michael J. Venezia	
Councilman Joseph Lopez	Councilman Carlos Pomares
Councilman Elias N. Chalet	Councilman Nicholas Joanow
Councilwoman Wartyna Davis	Councilman Carlos Bernard
<u>Committees</u>	
Bloomfield Democratic Committee	
The Election Fund of Michael Venezia	
Team Venezia	
The Election Fund of Nicholas Joanow	
Friends of Carlos Bernard Councilman	
Elias N. Chalet for Councilman	
Bloomfield Town Council Candidates – Carlos Bernard & Elias N. Chalet	

Part II – Ownership Disclosure Certification

I certify that the list below contains the names and home addresses of all owners holding 10% or more of the issued and outstanding stock of the undersigned.

Check the box that represents the type of business entity:

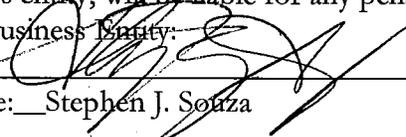
- Partnership
 Corporation
 Sole Proprietorship
 Subchapter S Corporation
 Limited Partnership
 Limited Liability Corporation
 (X) Limited Liability Company

Name of Stock or Shareholder	Home Address
Stephen J. Souza	20 Iron Horse Drive, Ringoes, NJ 08551
Mark Gallagher	1902 Sylvan Terrace, Yardley, PA 19067
Geoffrey M. Goll	5 South Homestead Drive, Yardley, PA 19067

Part 3 – Signature and Attestation:

The undersigned is fully aware that if I have misrepresented in whole or part this affirmation and certification, I and/or the business entity, will be liable for any penalty permitted under law.

Name of Business Entity: _____

Signed:  _____

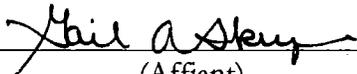
Title: President

Print Name: Stephen J. Souza

Date: 1/29/14

Subscribed and sworn before me this 29 day of January, 2014.

My Commission expires: 7/25/14



 (Affiant)
Gail A. Skupien, Business Administrator
 (Print name & title of affiant) (Corporate Seal)

GAIL A. SKUPIEN
NOTARY PUBLIC OF NEW JERSEY
 My Commission Expires July 25, 2014

AGREEMENT FOR PROFESSIONAL ENGINEERING SERVICES

THIS AGREEMENT is made and entered into this **13th day of December 2013**, by and between **Princeton Hydro**, having its principal place of business at **1108 Old York Road, Suite 1, Ringoes, New Jersey 08551**, hereinafter called "**Consultant**"; and **TOWNSHIP OF BLOOMFIELD**, having its offices at 1 Municipal Plaza, Bloomfield, New Jersey 07003 hereinafter called the "**Client**".

WHEREAS, the Client wishes to retain Consultant for the purpose of proceeding with certain professional services;

NOW, THEREFORE, in consideration of the premises and the mutual covenants and undertakings of the parties hereto, it is agreed as follows:

ARTICLE 1 **SCOPE OF WORK**

Consultant shall provide the services for the Project ("Scope of Work") as set forth in Consultant's Proposal to the Client dated **December 13, 2013**, a copy of which is attached hereto as Attachment A. and the Client's Resolution, dated **March 3, 2014**, a copy of which is attached hereto as Attachment B. All services to be performed by Consultant under this Agreement shall be performed in accordance with the terms and conditions set forth in this document. Services not expressly provided for in the Scope of Work as set forth in the Proposal are excluded from the scope of services and Consultant assumes no duty to perform such services.

ARTICLE 2 **COMMENCEMENT OF AND CHANGES** **IN THE WORK**

- a. Consultant will initiate the tasks as set forth in the Proposal upon receipt of a fully executed Agreement from the Client. Consultant and the Client may at any time, by mutual written agreement, make changes with the general scope of this Agreement by additions, alterations, deviations, or omissions from this Agreement.
- b. If such changes cause an increase or decrease in Consultant's cost of or time required for the performance of this Agreement, or if Consultant, in the performance of the services, encounters conditions differing materially from those anticipated under this Agreement or beyond what could reasonably have been anticipated by an experienced professional in work of the nature involved, Consultant shall be entitled to an equitable adjustment in the compensation and performance time of this Agreement.
- c. If, in the performance of its services, Consultant encounters hazardous materials, or pollutants that pose unanticipated risks, Scope of Work and Consultant's compensation and time of performance will be reconsidered and this Agreement shall immediately become subject to renegotiation or termination, at Consultant's option. In the event that this Agreement is so terminated, Consultant shall be paid for its fees and charges incurred to the date of such termination, including if applicable, any additional fees or charges incurred in demobilizing.

ARTICLE 3 **PROJECT SCHEDULE**

- a. Consultant shall proceed with the work diligently and shall faithfully progress the work toward completion.

- b. It is recognized that other contractors may be retained separately by the Client for the Project (including but not limited to geological, drilling and laboratory contractors) who may provide inputs to the Project to be utilized by Consultant and Consultant shall have the right to rely upon the timely receipt, correctness and completeness of said inputs. Consultant shall not be responsible for the acts, errors or omissions of any remediation action contractors or other contractors working for the Client on the Project.
- c. Consultant shall not have the authority to control the work of contractors retained by the Client and Consultant shall not have any responsibility for the means, methods, sequences, procedures or techniques of Project site safety or for the use of safe construction practices by such contractors, such responsibilities resting solely with Client's other contractors or parties other than Consultant.
- d. Consultant shall not be held responsible for damages or delays in performance (and the direct or indirect costs or consequences arising from such delays) caused or arising in whole or in part from force majeure or other events beyond Consultant's reasonable control and to the extent Consultant is impacted by the same, then Consultant shall be entitled to an equitable adjustment of this Agreement. For purposes of this Agreement force majeure shall include, but not be limited to, adverse weather conditions, changes in law, floods, epidemics, war, riot, strikes, lockouts and other industrial disturbances, accidents, sabotage, fire, terroristic acts, acts of God, acts, orders, laws or regulations of any government agency and unavoidable delays in the receipt of laboratory testing results.

ARTICLE 4
PAYMENT

Payment for the services rendered by Consultant shall be in accordance with the following:

- a. Consultant shall be compensated for its services on a time and materials basis with total payment not to exceed **(See attached hourly rates)**.
- b. Invoices shall be submitted monthly by Consultant to the Client and shall indicate the charges due from the Submission Form.
- c. Payment shall be made by the Client within thirty (30) days of its receipt of the invoice. The Client shall promptly review Consultant's invoices and if the Client disputes any amounts invoiced the Client shall give prompt written notice thereof, including the item or items disputed and basis for the dispute. The Client shall in any event pay all amounts invoiced that the Client does not dispute as provided herein.
- d. The compensation for Consultant's services has been agreed to in anticipation of the orderly and continuous progress of the Project through completion. If there are material modifications or changes in the extent of the Project or in the time required for Consultant's services, its compensation and time of performance shall be equitably adjusted.

ARTICLE 5
RESPONSIBILITIES OF THE CLIENT

The Client, at its own expense, will:

- a. Provide all criteria and full information as to the Client's requirements for the Project as specified in the Scope of Work and will make available to Consultant all information, documents and assistance necessary or reasonably requested by Consultant in order to enable it to perform the Services in a timely manner, all of which Consultant shall be entitled to rely upon without independent verification.

- b. Make decisions, provide approvals and obtain all necessary authorizations, licenses and permits required in order to permit the timely performance of the Services, notify Consultant if it becomes aware of any matter that may change the scope, timing, order or complexity of the Services, and act reasonably, professionally and in good faith in all respects in connection with the Agreement.
- c. Upon request by Consultant, furnish Consultant with copies of all existing data, reports, surveys, plans and other materials and information, within the possession of the Client, required for the Project, all of which Consultant may use and rely upon in performing its services under this Agreement.
- d. Arrange for access to and make all provisions for Consultant to enter upon public and private property as required for Consultant to perform its services.
- e. Be responsible for locating existing underground or covered site utilities, pipelines, tanks and other structures owned and operated by the Client prior to the installation of borings, wells or excavations and be responsible for all claims, liabilities and damages resulting from the failure to accurately locate same. Client shall review all boring, well and excavation locations prior to installation and shall direct that they be relocated if any conflict exists with any underground utilities, tanks or other structures owned and operated by the Client. Consultant shall be responsible for contacting New Jersey One Call or equivalent service to locate those utilities not operated by the Client.
- f. Provide a description of activities which were conducted at the site at any time by the Client or by any person or entity which would relate to the services and identify by name, quantity, location and date any releases of hazardous substances or pollutants.
- g. Give prompt written notice to Consultant whenever the Client observes or otherwise becomes aware of any development that affects the scope or timing of Consultant's services or any alleged defect in Consultant's services.
- h. Designate an individual or individuals to act as the Client's representative(s) with respect to the services to be rendered under this Agreement. Said individual(s) shall each have complete authority to transmit instructions, receive information and interpret and define the Client's requirements, decisions, policies, drawings, plans, surveys, data and reports.
- i. To the extent required by law, promptly report all regulated conditions, including, without limitation, the discovery of releases of hazardous substances at the site to the appropriate authorities in accordance with applicable law.

ARTICLE 6 **INSURANCE**

Consultant shall carry the following specific types and amount of insurance during the performance of its services and shall provide certificates of insurance evidencing its coverage, prior to starting work on the Project site. The certificates of insurance shall provide for advance notice to the Client of any subsequent modification or cancellation of the coverages.

- a. Worker's Compensation Insurance with statutory coverage and \$1,000,000.00 employer's liability coverage.
- b. Comprehensive General Liability Insurance with annual aggregate limits of \$1,000,000.00
- c. Automobile Liability insurance with annual aggregate limits of \$1,000,000.00.
- d. Professional Liability Insurance with limits of \$1,000,000.00 for each claim and \$1,000,000.00 aggregate each policy period.

ARTICLE 7
GENERAL CONSIDERATIONS

- a. Where provided, statements concerning probable costs and cost estimates prepared by Consultant shall represent their judgment as professionals familiar with such matters. It is recognized, however, that Consultant has no control over the cost of labor, materials, or equipment, over the contractor's methods of determining prices, over regulatory agencies' requirements, or over competitive bidding or market conditions. Accordingly, Consultant cannot and does not guarantee that costs will not vary from any statement of probable construction cost or other cost estimate prepared by it nor warrant or guarantee any specific outcomes or results.
- b. All documents prepared and delivered by Consultant pursuant to this Agreement are instruments of service in respect of the Work ordered. They are not intended or represented to be suitable for reuse by Client or others on extensions of the Work or on any other project. Client shall not reuse said documents without the express written consent of Consultant. Any such reuse shall be at the sole risk of the Client, and the Client shall indemnify, defend and hold Consultant harmless from any losses, claims, expenses or damages resulting from such reuse.
- c. Project Records – As used in this Agreement, the term, "Records", shall include plans, reports, documents, field notes, work product, or other items generated or obtained for the Project by Consultant. Only original signed and sealed documents and drawings shall constitute Records. Unsigned or unsealed copies, prints, CADD files, computer programs, magnetic deliverables and/or any other media shall not be considered Records. If there is a discrepancy between the signed and sealed Records and any other documents or drawings, the Records shall prevail.
- d. Records which are instruments of service deliverable under this Agreement shall become the property of the Client upon payment for all the Work. Originals of Records shall remain in the possession of Consultant. The Client shall be entitled to additional copies of all Records within a reasonable period of time after forwarding a written request to Consultant, provided that the Client has paid the Consultant for all the Work. Consultant shall be compensated for the reasonable costs of research and reproduction of the additional copies of the requested Records.
- e. Consultant will (a) perform the Services with due care and skill in accordance with the standard of care normally exercised by professionals providing similar services under similar circumstances, and (b) re-perform any Services that fail to comply with this standard of care if Client gives Consultant notice of such failure within 12 months of performance of such Services.
- f. Because geologic and soil formations are inherently random, variable, and indeterminate in nature, the services are not guaranteed to discover actual site conditions or levels of contamination, all of which are also subject to change with time as a result of nature or man-made processes.
- g. Consultant's services shall not include an independent analysis of work conducted by or information provided by independent laboratories or other independent contractors retained by Consultant in the performance of the services.
- h. Unless specifically listed in the Proposal, Consultant's services exclude testing for the presence of asbestos, polychlorinated biphenyls (PCB's), radon gas, or any airborne pollutants.
- i. Unless specifically listed in the Proposal, in the event that samples and/or materials contain or are suspected to contain substances or constituents hazardous or detrimental to health, safety, or the environment as defined by federal, state, or local statutes, regulations, or ordinances, Consultant will, after completion of testing, return such samples or materials to the Client, who will be responsible for having such samples and materials properly disposed of in accordance with applicable laws, at its own cost. The Client recognizes and agrees that Consultant will at no time assume the ownership or control of said waste.

- j. The Client acknowledges that, prior to commencing the work, Consultant has had no role in generating, treating, storing, transporting or disposing of waste materials which may be present at the project site and Consultant has not benefited from the processes that produced any such waste materials. It is understood and agreed that Consultant is not and has no responsibility as a generator or operator or as a storage, treatment, transport or disposal facility (as those terms are defined by the Resource Conservation and Recovery Act, as amended, or any state statute or regulation) for substances or wastes found or identified at the work sites. Consultant's services shall not include directly or indirectly arranging for the treatment, storage, transport or disposal of waste materials or pollutants, on or off site. Consultant shall not directly or indirectly assume title to, ownership of, or responsibility for such substances or wastes, and the Client shall indemnify, defend and hold harmless Consultant for and against all claims and liabilities arising or resulting from or in connection with substances or wastes found or identified at work sites (including, without limitation claims and liabilities arising from statutes such as RCRA, CERCLA, SARA, or any other federal or state statutes).
- k. If there are conflicts or inconsistencies with any of the conditions or requirements specified in this Agreement (Articles 1 through 17) with those that may be provided in the attached Proposal (Attachment A), those requirements or conditions within the proposal shall supersede the requirements in this Agreement that are in conflict. The conflicting conditions within this Agreement shall therefore become null and void.

ARTICLE 8
TERMINATION OF AGREEMENT

This Agreement may be terminated by either party by thirty (30) day's advance written notice to the other party without cause; by mutual written agreement with the other party; or by either party on five (5) days' written notice to the other in the event of substantial failure to perform in accordance with the terms hereof through no fault of terminating party. If this Agreement is terminated, Consultant shall be paid for the services properly performed by it and reimbursable expenses incurred, to the effective date of termination.

ARTICLE 9
DELEGATION OF DUTIES

- a. Neither the Client nor Consultant shall assign this Agreement without the written consent of the other. Unless specifically stated to the contrary in any written consent to an assignment, will release or discharge the assignor from any duty or responsibility under this Agreement.
- b. Neither party will, during the term of the Agreement or for a period of 12 months thereafter, either directly or indirectly on its own behalf or jointly with or on behalf of any other person, solicit, engage or employ any employee, independent contractor or other representative of the other party (or any of its affiliates) that has been involved in the provision of Services or with whom the party has otherwise had contact in connection with the Agreement.

ARTICLE 10
INDEMNIFICATION AND WAIVER

- a. Consultant agrees to indemnify, defend and hold harmless the Client of it officers, agents and employees from and against any and all losses, claims, expenses or damages, and from all suites and costs of every description, including but not limited to legal fees and related expenses, to the extent arising or resulting from the negligent acts, errors or omissions of Consultant, its agents, officers, directors and employees in the performance of their services under this Agreement.
- b. Client agrees to indemnify, defend and hold harmless Consultant and its agents and employees from and against any and all losses, claims, expenses or damaged, and from suits and costs of every description, including but not limited to legal fees and related expenses, to the extent arising

or resulting from the negligent acts, errors or omissions of the Client, its agents, officers, directors and employees in the performance of their services under this Agreement.

- c. In addition to b. above, Client shall indemnify, defend and hold harmless Consultant from and against all losses, claims, expenses and damages in whole or in part arising or resulting from or in connection with substances or wastes found or identified at work sites (including, without limitation claims and liabilities arising from statutes such as RCRA, CERCLA, SARA, or any other federal or state statutes) and including but not limited to losses, claims, expenses and damages which arise in whole or in part out of or are related to, or are based upon, the actual, alleged or threatened dispersal, discharge, escape, release or saturation of smoke, vapor, soot, fumes, acids alkalis, toxic chemicals, wastes, solids, liquids, gases, thermal irritants or contaminants, hazardous, toxic residual or special wastes, materials or substances nuclear material, asbestos material, or any other material, irritant, contaminant or pollutant in or into the atmosphere, or on, onto, upon in or into the surface or subsurface (a) soils, (b) water or watercourses, (c) objects, or (d) any tangible or intangible matter, whether sudden or not.
- d. The Client acknowledges that Consultant's agreement to the amount of compensation provided for under this Agreement has been negotiated and agreed by reason of Consultant's reliance on the foregoing limitation, indemnification and waiver undertakings of the Client.
- e. Any provision or part of this Agreement held to be void or unenforceable under any applicable law or regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon Client and Consultant who agree that the Agreement shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

ARTICLE 11 **DISPUTE RESOLUTION**

Client and Consultant agree that any disputes arising out of this Agreement which cannot be resolved through good faith negotiations shall be submitted to binding alternative dispute resolution proceedings to be conducted before ENDISPUTE or a comparable private dispute resolution service. All fees incurred in the maintenance of such ADR proceedings (exclusive of attorney fees) shall be equally born by Client and Consultant.

ARTICLE 12 **ATTACHEMENTS AND SPECIAL PROVISIONS**

- a. The following Attachments are attached to and made a part of this Agreement: Consultant's Proposal to Client, dated **December 13, 2013** (Attachment A) and Client's signed **March 3, 2014** Resolution (Attachment B).
- b. The mandatory language of applicable equal employment opportunity and affirmative action laws and regulations promulgated by the federal and state governments having jurisdiction are incorporated by reference into this Agreement. Consultant agrees to afford equal opportunity in performance of this Agreement in accordance with an affirmative action program approved by the appropriate authorities.

ARTICLE 13 **EXTENT OF AGREEMENT**

- a. The terms and conditions hereof, together with the Attachments referred to herein, represent the entire and integrated between the Client and Consultant and supersede all prior negotiations, representations or agreements, either written or oral, for this Project.

- b. Nothing herein shall be construed to give any rights or benefits hereunder to any one other than the Client and Consultant. Consultant's work product may not be used or relied upon by any other person without Consultant's express written consent.
- c. This Agreement (consisting of Pages 1 to 8, inclusive), together with the Attachments identified in Section 12 above), constitutes the entire agreement between Client and Consultant and supersedes all prior written or oral understandings.

ARTICLE 14
INTELLECTUAL PROPERTY

- a. Each party retains title to all intellectual property (including all patents, trademarks, copyright, trade secrets and know how) owned or possessed by it or any of its affiliates and used by it in fulfilling its obligations under the Agreement, including any modifications or improvements made thereto ("Background IP"). All new and original intellectual property created by Consultant during the course of performing the Services ("Project IP") is the property of Consultant. Consultant grants the Client a non-exclusive, non-transferable and, unless otherwise agreed, royalty-free license to use (i) any Consultant Background IP used in the performance of the Services but only to the extent required to use any deliverables provided by Consultant for the purpose for which they have been provided, and (ii) Project IP for any purpose whatsoever.
- b. Upon receipt of full payment for the related Services all reports, drawings and other deliverables provided to the Client by Consultant will become the property of the Client.
- c. Each party will keep confidential all Confidential Information disclosed to it by the other party: provided that (a) Consultant will be able to disclose Client's Confidential Information to those persons who need to know such information for purposes that relate to the performance of the Services Except as specifically provided herein, neither party will acquire any right, title or interest in or to the Confidential Information of the other party.
- d. Information, work product, reports or deliverables provided by Consultant to Client in any form in connection with the Services is provided solely for Client's own use and for the purpose for which the Services were engaged. In no case will any such information be used in connection with any offering or sale of securities or any other financing transaction or otherwise be made available to the public generally.

ARTICLE 15
SUCCESSORS AND ASSIGNS

The Client and Consultant bind themselves and their successors, executors, administrators, assigns and legal representatives to these Terms and Conditions.

ARTICLE 16
GOVERNING LAW

Governing Law - This Agreement will be interpreted and construed in accordance with the internal laws of the State of New Jersey without giving effect to its principles of conflicts of law. The professional Service Entity acknowledges that they will comply with the requirements of NJSA 10:5-31 et. seq. and NJAC 17:27 et. seq.

ARTICLE 17
HEALTH & SAFETY

Client shall be solely responsible for the health, safety and welfare of its employees and agents and others with regard to the Work, and shall strictly comply with all health and safety rules, including but not limited to Consultant's Injury, Illness and Prevention Program or applicable guidance which may be provided by Consultant, and all other applicable rules, regulations and guidance required by Consultant, Client or applicable government agencies relating to the Work. Client is solely responsible for establishing and enforcing any additional requirements that Client deems necessary to protect its employees, Consultant's employees, and any other persons entering the site for purposes relating to Client's operations.

(REVISED 4/10)

EXHIBIT A
MANDATORY EQUAL EMPLOYMENT OPPORTUNITY LANGUAGE
N.J.S.A. 10:5-31 et seq. (P.L. 1975, C. 127)
N.J.A.C. 17:27

GOODS, PROFESSIONAL SERVICE AND GENERAL SERVICE CONTRACTS

During the performance of this contract, the contractor agrees as follows:

The contractor or subcontractor, where applicable, will not discriminate against any employee or applicant for employment because of age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex. Except with respect to affectional or sexual orientation and gender identity or expression, the contractor will ensure that equal employment opportunity is afforded to such applicants in recruitment and employment, and that employees are treated during employment, without regard to their age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex. Such equal employment opportunity shall include, but not be limited to the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the Public Agency Compliance Officer setting forth provisions of this nondiscrimination clause.

The contractor or subcontractor, where applicable will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex.

The contractor or subcontractor will send to each labor union, with which it has a collective bargaining agreement, a notice, to be provided by the agency contracting officer, advising the labor union of the contractor's commitments under this chapter and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

The contractor or subcontractor, where applicable, agrees to comply with any regulations promulgated by the Treasurer pursuant to N.J.S.A. 10:5-31 et seq., as amended and supplemented from time to time and the Americans with Disabilities Act.

The contractor or subcontractor agrees to make good faith efforts to meet targeted county employment goals established in accordance with N.J.A.C. 17:27-5.2.

EXHIBIT A (Cont)

The contractor or subcontractor agrees to inform in writing its appropriate recruitment agencies including, but not limited to, employment agencies, placement bureaus, colleges, universities, and labor unions, that it does not discriminate on the basis of age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex, and that it will discontinue the use of any recruitment agency which engages in direct or indirect discriminatory practices.

The contractor or subcontractor agrees to revise any of its testing procedures, if necessary, to assure that all personnel testing conforms with the principles of job-related testing, as established by the statutes and court decisions of the State of New Jersey and as established by applicable Federal law and applicable Federal court decisions.

In conforming with the targeted employment goals, the contractor or subcontractor agrees to review all procedures relating to transfer, upgrading, downgrading and layoff to ensure that all such actions are taken without regard to age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex, consistent with the statutes and court decisions of the State of New Jersey, and applicable Federal law and applicable Federal court decisions.

The contractor shall submit to the public agency, after notification of award but prior to execution of a goods and services contract, one of the following three documents:

Letter of Federal Affirmative Action Plan Approval

Certificate of Employee Information Report

Employee Information Report Form AA302 (electronically provided by the Division and distributed to the public agency through the Division's website at www.state.nj.us/treasury/contract_compliance)

The contractor and its subcontractors shall furnish such reports or other documents to the Division of Purchase & Property, CCAU, EEO Monitoring Program as may be requested by the office from time to time in order to carry out the purposes of these regulations, and public agencies shall furnish such information as may be requested by the Division of Purchase & Property, CCAU, EEO Monitoring Program for conducting a compliance investigation pursuant to **Subchapter 10 of the Administrative Code at N.J.A.C. 17:27.**

IN WITNESS WHEREOF, the parties hereto have made and executed this Agreement as of the day and year first written above.

ATTEST:

Joseph Polyzano

TOWNSHIP OF BLOOMFIELD

By *MJ Venezia*

Michael J. Venezia
Print or Type Name

Mayor
Title

ATTEST:

Gail Akey

(NAME OF COMPANY)

Princeton Hydro LLC

By *Mark Gallagher*
(Print Name & Title)

Mark Gallagher

ATTACHMENT "A" - PROPOSAL

TOWNSHIP OF BLOOMFIELD

CHECKLIST

PROFESSIONAL SERVICE TITLE: Engineering and Environmental Design Services

SUBMISSION DATE: December 13, 2013

The following items, as indicated below (X), shall be provided with the receipt of sealed submissions:

1. Non-Collusion Affidavit X
2. Disclosure of Ownership Form X
3. Insurance Requirement Acknowledgment Form X
4. Mandatory Equal Employment Opportunity
Notice Acknowledgment X
5. Copy of your **Business Registration Certificate** as issued
by the State of New Jersey, Department of Treasury,
Division of Revenue X
6. Professional Service Entity Information Form X
7. Qualifications Submission X
8. Business Entity Disclosure Certificate X
9. Acknowledgment of Corrections, Additions or Deletions Form X

Reminder

Please submit one (1) original and (2) additional sets of the sealed submission. In addition, if available, an electronic copy (PDF File) or compact disk (CD) would be appreciated.

TOWNSHIP OF BLOOMFIELD

NON-COLLUSION AFFIDAVIT

STATE OF NEW JERSEY :
: COUNTY OF ESSEX :SS.
:

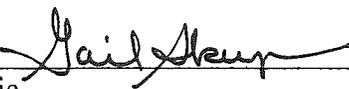
I, Mark Gallagher of the Town
of Ringoes in the County of Hunterdon and
the State of New Jersey, of full age, being duly sworn according to law on my oath depose and
say that:

I am Vice President
of the firm of Princeton Hydro

the Professional Service Entity making the submission for the above named Service, and that I
executed the said submission with full authority to do so; that the Professional Service Entity has
not, directly or indirectly, entered into any agreements, participated in any collusion, or
otherwise taken any action in restraint of fair and open competition in connection with the above
named Service; and that all statements contained in said submission and in this affidavit are true
and correct, and made with full knowledge that the Township of Bloomfield relies upon the truth
of the statements contained in said submission and in the statements contained in this affidavit in
awarding the contract for said Service.

I further warrant that no person or selling agency has been employed or retained to solicit or
secure such contract upon an agreement or understanding for commission, percentage, brokerage
or contingent fee.

Subscribed and sworn to before me
this 13 day of December 2013

Gail Skupien 
Notary Public

State of New Jersey

My Commission Expires July 25, 2014

GAIL A. SKUPIEN
NOTARY PUBLIC OF NEW JERSEY
My Commission Expires July 25, 2014

(Signature of Professional)


(Type or print name of Affiant and
Title under signature)
Mark Gallagher, Vice President

TOWNSHIP OF BLOOMFIELD

DISCLOSURE OF OWNERSHIP FORM

N.J.S.A. 52:25-24.2 reads in part that "no corporation or partnership shall be awarded any contract by the State, County, Municipality or School District, or any subsidiary or agency thereof, unless prior to the receipt of the submission of the corporation or partnership, there is provided to the public contracting unit a statement setting forth the names and addresses of all individual who own 10% or more of the stock or interest in the corporation or partnership"

1. If the professional service entity is a *partnership*, then the statement shall set forth the names and addresses of all partners who own a 10% or greater interest in the partnership.
2. If the professional service entity is a *corporation*, then the statement shall set forth the names and addresses of all stockholders in the corporation who own 10% or more of its stock of any class.
3. If a corporation owns all or part of the stock of the corporation or partnership providing the submission, then the statement shall include a list of the stockholders who own 10% or more of the stock of any class of that corporation.
4. If the professional service entity is other than a corporation or partnership, the contractor shall indicate the form or corporate ownership as listed below.

COMPLETE ONE OF THE FOLLOWING STATEMENTS:

I. Stockholders or Partners owning 10% or more of the company providing the submission:

Name:

Address:

Stephen J. Souza

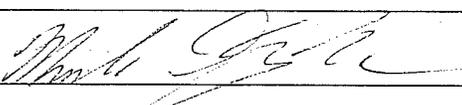
20 Iron Horse Drive, Ringoes, NJ 08551

Mark Gallagher

1902 Sylvan Drive, Yardley, PA 190675

Geoffrey M. Goll, PE

South Homestead Drive, Yardley, PA 19067

SIGNATURE: 

DATE: December 13, 2013

II No Stockholder or Partner owns 10% or more of the company providing this submission:

SIGNATURE: _____

DATE: _____

III. Submission is being provided by an individual who operates as a sole proprietorship:

SIGNATURE: _____ DATE: _____

IV. Submission is being provided by a corporation or partnership that operates as a (check one of the following):

_____ Limited Partnership Limited Liability ^{Company} ~~Corporation~~

_____ Limited Liability Partnership _____ Subchapter S Corporation

SIGNATURE:  _____ DATE: December 13, 2013

TOWNSHIP OF BLOOMFIELD

INSURANCE REQUIREMENTS AND ACKNOWLEDGEMENT FORM

Certificate(s) of Insurance shall be filed with Township Clerk's Office upon award of contract by the Mayor and Council.

The minimum amount of insurance to be carried by the Professional Service Entity shall be as follows:

PROFESSIONAL LIABILITY INSURANCE

Limits shall be a minimum of \$1,000,000.00 for each claim and \$1,000,000.00 aggregate each policy period.

Acknowledgment of Insurance Requirement:



(Signature)

December 13, 2013

(Date)

Mark Gallagher, Vice President

(Printed Name and Title)

TOWNSHIP OF BLOOMFIELD

MANDATORY EQUAL EMPLOYMENT OPPORTUNITY NOTICE

(N.J.S.A. 10:5-31 ET SEQ. AND N.J.A.C. 17:27 ET SEQ.)

GOODS, PROFESSIONAL SERVICES AND GENERAL SERVICE CONTRACTS

This form is a summary of the successful professional service entity's requirement to comply with the requirements of N.J.S.A. 10:5-31 et seq. and N.J.A.C. 17:27 et seq.

The successful professional service entity shall submit to the Township one of the following three documents as forms of evidence:

- (a) A photocopy of a valid letter that the vendor is operating under an existing Federally approved or sanctioned affirmative action program (good for one year from the date of the letter):

OR

- (b) A photocopy of a Certificate of Employee Information Report approval, issued in accordance with N.J.A.C. 17:27-1.1 et seq.;

OR

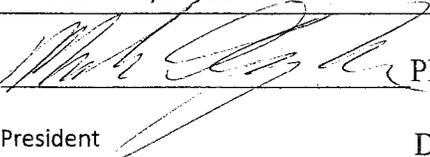
- (c) A photocopy of an Employee Information Report (Form AA302) provided by the Division of Contract Compliance and distributed to the Township of Bloomfield to be completed by the vendor in accordance with N.J.A.C. 17:27-1.1 et seq.

The successful professional service entity may obtain the Employee Information Report (AA302) from the Township of Bloomfield during normal business hours.

The undersigned professional service entity certifies that he/she is aware of the commitment to comply with the requirements of N.J.S.A. 10:5-31 et seq. and N.J.A.C. 17:27 et seq. and agrees to furnish the required forms of evidence.

The undersigned professional service entity further understands that his/her submission shall be rejected as non-responsive if said professional service entity fails to comply with the requirements of N.J.S.A. 10:5-31 et seq. and N.J.A.C. 17:27 et seq.

COMPANY: Princeton Hydro, LLC

SIGNATURE:  PRINT NAME: Mark Gallagher

TITLE: Vice President DATE: December 13, 2013

TOWNSHIP OF BLOOMFIELD

PROFESSIONAL SERVICE ENTITY INFORMATION FORM

If the Professional Service Entity is an **INDIVIDUAL**, sign name and give the following information:

Name: _____

Address: _____

Telephone No: _____ Social Security No: _____

Fax No: _____ E-Mail: _____

If individual has a TRADE NAME, give such trade name:

Trading As: _____ Telephone No: _____

If the Professional Service Entity is a **PARTNERSHIP**, give the following information:

Name of Partners: Stephen J. Souza, Mark Gallagher and Geoffrey M. Goll, PE

Firm Name: Princeton Hydro, LLC

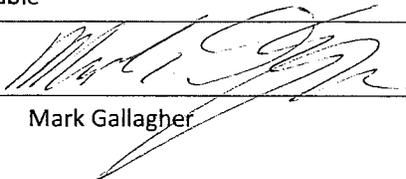
Physical address: 1108 Old York Road, Suite 1, Ringoes, NJ 08551

Address: Mailing address: PO Box 720, Ringoes, NJ 08551

Telephone No: 908-237-5660 Federal I.D. No: 22-3590229

Fax No: 908-237-5666 E-Mail: mgallagher@princetonhydro.com

Social Security No: Not applicable

Signature of Authorized Agent: 
Mark Gallagher

If the Professional Service Entity is **INCORPORATED**, give the following information:

State under whose laws incorporated: _____

Location of Principal Office: _____

Telephone No: _____ Federal I.D. No: _____

Fax No: _____ E-Mail: _____

Name of agent in charge of said office upon whom notice may be legally served:

Telephone No: _____ Name of Corporation: _____

Signature: _____ By: _____

Title: _____ Address: _____

TOWNSHIP OF BLOOMFIELD

SUBMISSION FORM

1. Names and roles of the individuals who will perform the services and description of their education and experience with projects similar to the services contained herein including their education, degree and certifications.

Please see attached resumes for the following key staff:

Mark Gallagher

Geoffrey M. Goll, PE

John A. Miller, PE, CFM, CSM

Jacob E. Helminiak, PE

James P. Shallenberger

Paul Woodworth

Michael Rehman

Lauren Kovacs

2. References and record of success of same or similar service:

The Honorable David M. DeVecchio, Mayor, City of Lambertville, 609-397-9728

Grace Messenger, Watershed Specialist, North Jersey Resource Conservation and Development Council, 908-735-0733

Brett Berkley, Senior Vice President, GreenVest, LLC, 732-902-6644

Please see attached project summaries for select project descriptions.

3. Description of ability to provide the services in a time fashion (including staffing, familiarly and location of key staff):

Since our inception in 1998, Princeton Hydro, LLC (pH) has provided unparalleled consulting services in the assessment, management, and restoration of our important water, wetland, and soil resources. The unique skills and cumulative expertise of our highly experienced staff are reflected in the innovative nature of Princeton Hydro's projects and our ability to deliver comprehensive ecosystem based solutions on time and within budget. Our commitment to excellence is not just corporate rhetoric. It is what enables us, individually and as a company, to consistently stand apart from others.

Princeton Hydro's staff consists of twenty-eight technical personnel and four support personnel. Our staff is composed of individuals with academic training and project experience - many with advanced degrees and/or professional licenses- in stormwater quality engineering, geotechnical investigations, hydrology and hydrogeology, aquatic and wetland ecology, fishery biology, population and community ecology dynamics, environmental planning and environmental risk analysis. Our staff's unique perspectives are apparent in the innovative nature of many of our projects, especially in the disciplines of aquatic and wetland ecology, environmental engineering and watershed management.

4. Cost details, including the hourly rates of each of the individuals who will perform Services and all expenses:

Mark Gallagher	\$170
Geoffrey M. Goll, PE	\$170
John A. Miller, PE, CFM, CSM	\$148
Jacob E. Helminiak, PE	\$115
James P. Shallenberger, PG	\$126
Paul Woodworth	\$83
Michael Rehman	\$83
Lauren Kovacs, LLA, LEED AP, GACP	\$70
Please also see attached rate sheet.	

Note: Attach Additional sheets as necessary.

Firm: Princeton Hydro, LLC Date: December 13, 2013

Authorized Representative (Print): Mark Gallagher

Signature:  Title: Vice President

Telephone No: 908-237-5660 Fax No: 908-237-5666

**TOWNSHIP OF BLOOMFIELD
BUSINESS ENTITY DISCLOSURE CERTIFICATION
FOR FAIR AND OPEN CONTRACTS**

Part I – Vendor Affirmation

The undersigned, being authorized and knowledgeable of the circumstances, does hereby certify that it has listed in the table below all reportable contributions as defined under N.J.S.A. 19:44A-3 that were made in the one year period preceding the solicitation notice that were made by the individual, firm, partnership, corporation or association of principals responding to this solicitation to any of the following named elected officials and committees listed.

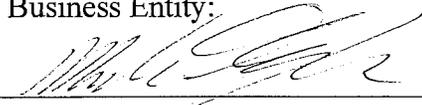
<u>Elected Officials</u>
Mayor Michael J. Venezia
Councilman Joseph Lopez
Councilman Elias N. Chalet
Councilwoman Wartyna Davis
Councilman Carlos Pomares
Councilman Nicholas Joanow
Councilman Carlos Bernard

<u>Committees</u>
Bloomfield Democratic Committee
The Election Fund of Michael Venezia
Team Venezia
The Election Fund of Nicholas Joanow
Friends of Carlos Bernard Councilman
Elias N. Chalet for Councilman
Bloomfield Town Council Candidates – Carlos Bernard & Elias N. Chalet

Part II – Signature and Attestation:

The undersigned is fully aware that if I have misrepresented in whole or part this affirmation and certification, I and/or the business entity, will be liable for any penalty permitted under law.

Name of Business Entity:

Signed:  Title: Vice President

Print Name: Mark Gallagher Date: December 13, 2013

Subscribed and sworn before me this 13 day of
December, 2013

My Commission expires:
July 25, 2014


(Affiant)
Gail Skupien, Notary Public

(Print name & title of affiant) (Corporate Seal)

**GAIL A. SKUPIEN
NOTARY PUBLIC OF NEW JERSEY
My Commission Expires July 25, 2014**

BUSINESS ENTITY DISCLOSURE CERTIFICATION
FOR NON-FAIR AND OPEN CONTRACTS
 Required Pursuant To N.J.S.A. 19:44A-20.8

JAN 31 RECD

Part I – Vendor Affirmation

The undersigned, being authorized and knowledgeable of the circumstances, does hereby certify that the professional/business entity has not made and will not make any reportable contributions pursuant to N.J.S.A. 19:44A-1 et seq. that, pursuant to P.L. 2004, c. 19 would bar the award of this contract in the one year period preceding January 1, 2012 to any of the following named elected officials, candidate committee, joint candidates committee; or political party committee representing the elected officials of the Township of Bloomfield as defined pursuant to N.J.S.A. 19:44A-3(p), (q) and (r).

<u>Elected Officials</u>	
Mayor Michael J. Venezia	
Councilman Joseph Lopez	Councilman Carlos Pomares
Councilman Elias N. Chalet	Councilman Nicholas Joanow
Councilwoman Wartyna Davis	Councilman Carlos Bernard
<u>Committees</u>	
Bloomfield Democratic Committee	
The Election Fund of Michael Venezia	
Team Venezia	
The Election Fund of Nicholas Joanow	
Friends of Carlos Bernard Councilman	
Elias N. Chalet for Councilman	
Bloomfield Town Council Candidates – Carlos Bernard & Elias N. Chalet	

Part II – Ownership Disclosure Certification

I certify that the list below contains the names and home addresses of all owners holding 10% or more of the issued and outstanding stock of the undersigned.

Check the box that represents the type of business entity:

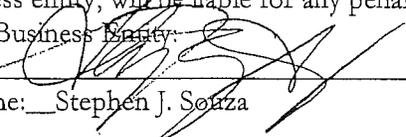
- Partnership
 Corporation
 Sole Proprietorship
 Subchapter S Corporation
 Limited Partnership
 Limited Liability Corporation
 (X) Limited Liability Company

Name of Stock or Shareholder	Home Address
Stephen J. Souza	20 Iron Horse Drive, Ringoes, NJ 08551
Mark Gallagher	1902 Sylvan Terrace, Yardley, PA 19067
Geoffrey M. Goll	5 South Homestead Drive, Yardley, PA 19067

Part 3 – Signature and Attestation:

The undersigned is fully aware that if I have misrepresented in whole or part this affirmation and certification, I and/or the business entity, will be liable for any penalty permitted under law.

Name of Business Entity: _____

Signed: 

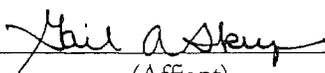
Title: President

Print Name: Stephen J. Souza

Date: 1/29/14

Subscribed and sworn before me this 29 day of
 January, 2014.

My Commission expires: 7/25/14


 (Affiant)

Gail A. Skupien, Business Administrator
 (Print name & title of affiant) (Corporate Seal)

GAIL A. SKUPIEN
 NOTARY PUBLIC OF NEW JERSEY
 My Commission Expires July 25, 2014

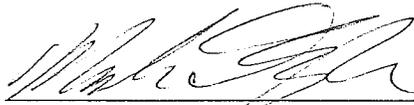
TOWNSHIP OF BLOOMFIELD

ACKNOWLEDGMENT OF CORRECTIONS, ADDITIONS AND DELETIONS FORM

I, Mark Gallagher

of the firm Princeton Hydro

hereby acknowledge that any corrections, additions and/or deletions have been initialed and dated in the Submission Package.



(Signature)

Mark Gallagher, Vice President
(Type or print name of Affined and Title, under signature)

December 13, 2013
(Date)

STATE OF NEW JERSEY
BUSINESS REGISTRATION CERTIFICATE
FOR STATE AGENCY AND CASINO SERVICE CONTRACTORS

DEPARTMENT OF TREASURY/
DIVISION OF REVENUE
PO BOX 252
TRENTON, N J 08646-0252

TAXPAYER NAME:
PRINCETON HYDRO, L.L.C.

TRADE NAME:

TAXPAYER IDENTIFICATION#:
223-590-229/000

SEQUENCE NUMBER:
0086910

ADDRESS:
1108 OLD YORK ROAD
RINGOES NJ 08551

ISSUANCE DATE:
06/19/03

EFFECTIVE DATE:
03/26/98

FORM-BRC(08-01)

J.P. & Tully
Acting Director

This Certificate is NOT assignable or transferable. It must be conspicuously displayed at above address.

Certification

CERTIFICATE OF EMPLOYEE INFORMATION REPORT

25555

RENEWAL
This is to certify that the contractor listed below has submitted an Employee Information Report pursuant to N.J.A.C. 17:27-1.1 et. seq. and the State Treasurer has approved said report. This approval will remain in effect for the period of

15-SEP-2012 to 15-SEP-2019

PRINCETON HYDRO, LLC
PO BOX 720 1108 OLD YORK ROAD
RINGOES NJ 08551



Andrew P. Sidamon-Eristoff
Andrew P. Sidamon-Eristoff
State Treasurer

ATTACHMENT A

**2013 - Hourly Billable Rates for Princeton Hydro Personnel and
Basis for Billing of Direct Charges**

<u>Job Grade</u>	<u>Hourly Billable Rate (\$)</u>
Principal	\$170.00
Associate	\$148.00
Senior Project Manager	\$127.00
Engineer III	\$111.00
Engineer II-A	\$102.00
Engineer II	\$93.00
Engineer I	\$84.00
Staff Engineer II	\$73.00
Staff Engineer I	\$62.00
Environmental Scientist III	\$108.00
Environmental Scientist II-A	\$99.00
Environmental Scientist II	\$90.00
Environmental Scientist I	\$82.00
Staff Scientist II	\$73.00
Staff Scientist I	\$55.00
Technician II	\$75.00
Technician I	\$64.00
Technician	\$47.00
Administrator III	\$80.00
Administrator II	\$57.00
Administrator I	\$46.00

Note:

1. Labor is billed in increments of 0.25 hours; any portion thereof shall be considered as 0.25 hours.
2. For work performed off premises, labor hours are billed as time of departure - time of arrival from the office of Princeton Hydro.

Direct Charges:

Disbursements: All appropriate direct charges, authorized lodging and meals, field supplies, expendables, telecommunications, computer, GPS/GIS equipment, plan reproduction, report production will be marked up by 20% to cover administrative and handling expenses.

Internal Charges:

Blue Printing -	\$ 0.30 per square foot	
Photocopies - Letter	\$ 0.12 per page (BW)	\$0.50 per page (Color)
Legal	\$ 0.25 per page (BW)	\$0.75 per page (Color)
Tabloid	\$ 0.75 per page (BW)	\$1.50 per page (Color)
Auto Use -	\$ 0.60 per mile	
Plan Plotting -	\$ 5.00 per plot	
Color Plotting-	\$ 10.00 per plot	
Truck Usage	\$125.00 per day	

Education:

- M.S. Botany and Plant Physiology, Rutgers University, 1984
- B.S. Biology, Moravian College, 1977

Certification:

- OSHA Health and Safety for Hazardous Waste Site Investigation, No. 300590

Professional Affiliations:

- American Water Resources Association
- Society of Wetland Scientists
- Society for Ecological Restoration
- New Jersey Association for Floodplain Management
- Hunterdon Land Trust, Technical Advisory Board
- Bowman's Hill Wildflower Preserve, Board of Trustees

Training:

- Plant Stewardship Index Course: Bowman's Hill Wildflower Preserve, 2005-current

Teaching:

- Co-adjunct Professor, Rutgers University, Edward J. Bloustein School of Planning and Public Policy (2011-Spring 2013)
- Instructor, Rutgers University Continuing Education Program, Pond Management Course, 2004-present

Summary of Qualifications:

Mr. Gallagher is the Vice President of Princeton Hydro and is in charge of all wetland and terrestrial ecological projects. He is responsible for the supervision of a broad variety of environmental assessment activities, primarily those involving wetlands and wildlife habitat elements. He is highly experienced in the preparation of state and federal permit applications, the preparation of environmental impact statements, and the design and implementation of wetland mitigation plans and has acquired comprehensive familiarity with pertinent administrative and policy directives of regulatory agencies such as the U.S. Army Corps of Engineers (USACE), NJDEP, PADEP, and the U.S. Fish & Wildlife Service. Mr. Gallagher has provided expert testimony before numerous local and regional planning authorities.

Prior to forming Princeton Hydro, Mr. Gallagher served as a director, group manager and scientist at several environmental consulting firms in New Jersey and Pennsylvania. His experience in these positions emphasized wetland delineations and evaluations, wetland and Coastal Zone permitting, vegetation and wildlife surveys, endangered species habitat suitability assessments and the preparation of wetland mitigation plans.

Mr. Gallagher's specific project experience has included the delineation of wetlands and the preparation of permit applications for numerous projects through New Jersey and eastern Pennsylvania. These permits included complex Coastal Zone Permits which required the approval of both the USACE as well as the NJDEP. The permittees for these projects included residential developers, commercial developers, industrial facility operators and remediation contractors.

Mr. Gallagher has written numerous environmental impact assessments/statements for a wide range of projects, including residential development projects, commercial projects, redevelopment projects and waterfront projects. Mr. Gallagher regularly provides expert testimony regarding the potential impacts to natural resources, including wetlands and wildlife, associated with various types of development projects, and had provided testimony in New Jersey, Pennsylvania, New York, Kentucky and Indiana. Mr. Gallagher also has experience with the restoration and enhancement of wetland habitat on Brownfield sites and has prepared numerous waterfront development applications.

As part of larger projects Mr. Gallagher is involved with surveying and assessing the suitability of habitats at numerous development sites for threatened and endangered species; those diverse projects include a Burlington County (NJ) Solid Waste Facility, a 2,000 acre landfill site in Benecia, California, and a proposed mine site in southeastern Kentucky. He also designed

Areas of Experience:

- Habitat Restoration, Creation and Enhancement
- Wetland Mitigation and Banking Design
- Wetland Investigation
- Regulatory Compliance/Permitting
- Municipal EIS/Reviews
- Ecological Surveys, including Swamp Pink Surveys
- Natural Stormwater Facilities
- Impact Assessments
- Environmental Impact Studies
- Watershed Studies
- Expert Testimony

Mark Gallagher
Vice President

mitigation plans for the creation or enhancement of wetlands throughout New Jersey and Pennsylvania for USACE 404 and Department of Environmental Protection Permits and has managed the design of several mitigation projects related to the proposed widening of the Garden State Parkway.

Mr. Gallagher has contributed to several Superfund projects in which he managed the implementation of wetland restoration plans. These include at two Superfund sites in Massachusetts, one in North Dartmouth and another in Woburn. He managed the restoration of estuarine wetlands at a PCB remediation site at the Naval Radio Transmitting Facility in Driver, VA. He also designed and provided construction oversight for the restoration of a stream and riparian forest in Glover Archbold National Park in Washington, DC.

Mr. Gallagher has assisted Tinicum Township for the past 17 years regarding issues and projects associated with Tinicum Creek, an Exceptional Value watercourse in upper Bucks County, PA. He also managed the preparation of the Tohickon Creek Watershed Conservation Plan. Mr. Gallagher participated in a USEPA-funded project that evaluated the contribution that wetlands in upper Bucks County Pennsylvania played in aquifer recharge. As part of this study aerial photography was used to map wetlands and to categorize them with regard to their hydrogeomorphic classification.

Select Project Experience:

Kingsland Redevelopment Area Project (formerly EnCap) (current) – Retained to identify and resolve regulatory issues associated with the project's failed wetland mitigation project.

GreenVest Environmental Lawrence Brook Wetland Mitigation Project, New Brunswick, NJ (2011) – Provided consulting services related to the design of the 14-acre Lawrence Brook freshwater tidal wetland mitigation project.

Walnut Brook Stream and Wetland Restoration, Raritan, NJ (2010) - Managed design of riparian wetlands component of this project. *Project received a New Jersey Governors' Award for Environmental Excellence.*

Hunterdon Land Trust, Quakertown Preserve Wetland and Riparian Restoration, Quakertown, NJ (2010) - Oversaw the design of this dam removal and floodplain restoration project; worked with the Hunterdon Land Trust to obtain project funding from the New Jersey Wetlands Mitigation Council.

ProLogis's Port Reading Business Park, Wetland Creation and Mitigation, Woodbridge, NJ (2008) - Prepared waterfront development application, obtained USACE AND NJDEP permits, and designed ~3 acres of created/restored intertidal wetland designed to enhance the local fishery as compensation for wetlands impacted by remediation activities for the redevelopment of this Portfield site. Project was designed to balance the Brownfield redevelopment with a Greenfield element in which an additional 12.1 acres of wetlands was restored through the creation of a wetland mitigation bank.

Somerset County Wetland Mitigation Bank, Neshanic, NJ (2005) - Designed an 8.1-acre private wetland mitigation bank adjacent to the South Branch of the Raritan River for Somerset County, NJ. Design created a floodplain wetland system composed primarily of forested wetland from an existing upland agricultural field. *Project was awarded the 2005 Firman E. Bear Chapter, Soil and Water Conservation Society award for Ecological Excellence.*

Pennswood Village Stormwater System, Middletown, PA (1999) – Consulted on the project's conceptual design and planting plan for the creation of a stormwater system that mimics the functional properties and appearance of a riparian corridor floodplain. *This project has received multiple awards, serves as a model for other naturalized stormwater systems, and is listed in the Bucks County Planning Commission's "Bucks County Innovative Stormwater Management BMPs".*

Bayonne Golf Club Wetland Mitigation, Bayonne, NJ (1998) – Designed a 14-acre estuarine wetland mitigation project; prepared the initial waterfront development application for the remediation of the site and its capping with processed dredged material; and prepared Biological Assessment regarding the impacts of the use of amended dredged material as a landfill cap on peregrine falcon. This unique project mitigated regulated impacts associated with the closure of the Bayonne Landfill and the eventual development of the Bayonne Golf Course. An extensive area of mudflat was filled to an elevation suitable to establish vegetation. *Project received the Environmental Excellence award from the New Jersey Business and Industry Association.*

Mark Gallagher
Vice President

SV Farming Wetland Restoration, Quinton, NJ (1991) – Design and construction management for the restoration/creation of 58+ acres of wetland in a gravel/clay mine that included the restoration of an eight-acre wetland that supported swamp pink, a plant protected by the Federal Endangered Species Act. This mine restoration effort was complicated by the presence of acid producing clays. The project required coordination with the US Fish and Wildlife Service, US Army Corps of Engineers and the NJ Department of Environmental Protection. *Project was awarded the 2000 Firman E. Bear Chapter, Soil and Water Conservation Society award for Ecological Excellence.*

Publications and Presentations:

Steiner, Frederick, Mark Simmons, Mark Gallagher, Janet Ranganathan, Colin Robertson. September 2013. The Ecological Imperative for Environmental Design and Planning. *Frontiers in Ecology and the Environment*. Volume 11(7) 355-361.

Gallagher, Mark. August 6, 2012. Training Ecologists for Action in Restoration and Management. Presented at the Ecological Society of America's Annual Conference, Portland, Oregon.

Gallagher, Mark. March 16, 2012. Presenter and panel member. *Blue Infrastructure* Mitigation and Managing When There is Too Much Water, Sponsored by the Sustainable Raritan River Engineering Council

Messinger, Grace and Mark Gallagher. September 12, 2011. Walnut Brook: A Floodplain Reconnection Tale. Presented at the 2011 New Jersey Association for Floodplain Management (NJAFM) conference at the Palace at Somerset Park Somerset, New Jersey

Gallagher, Mark. November 30, 2010. Metropolitan Waterfront Alliance, 2010 Conference. Panelist regarding the implementation of the Comprehensive Restoration Plan for the NY/NJ Harbor Estuary: Constraints and Opportunities. New York, NY.

Gallagher, Mark. September 30, 2010. Restoration Opportunities, presented at the workshop entitled "Best Management Practices for the Raritan River Watershed; Open Space, Stream and River Banks, Parks and Other Public Properties", Rutgers University's Edward J. Bloustein School of Planning & Public Policy

Gallagher, Mark. June 12, 2010. Taught Bowman's Hill Wildflower Preserve's PSI Master Class; Wetland Plants.

Gallagher, Mark. June 4, 2010, How to Satisfy Watershed Level Stormwater Management Objectives Through Habitat Restoration. Presented at "The 2nd Annual Sustainable Raritan River Symposium", Rutgers University.

Gallagher, Mark. February 21, 2010. Natural Landscaping of Stormwater Basins. Presentation jointly sponsored by Chester-Ridley - Crum Watersheds Association, Penn State Brandywine and Habitat Resource Network of Southeast Pennsylvania. Penn State Brandywine Campus.

Gallagher, Mark, Michael Rehman and Geoff Goll. The Establishment of a Flood Prone Wetland System on the South Branch of the Raritan River. March 13, 2009. Presentation at the Society for Ecological Restoration and The Ecological Society of America Mid-Atlantic Chapters conference at The College of New Jersey.

Cooper, Paul, Michael Rehman, Mark Gallagher. Increasing Fish Utilization by Enhancing Ecosystem Complexity Via Integration of Subtidal and Intertidal Components in an Urban Estuary. March 13, 2009. Presentation at the Society for Ecological Restoration and The Ecological Society of America Mid-Atlantic Chapters Conference at The College of New Jersey.

Gallagher, Mark. Integration of Natural Elements into the Design of Stormwater Facilities. February 19, 2009. Presented at Bowman's Hill Wildflower Preserve's Land Ethics Symposium.

Souza PhD., Steve and Mark Gallagher. January 26, 2009. Creative Strategies to Integrate Ecological Landscaping into Stormwater BMP, Design...Form, Function and Aesthetics. Presentation at NJASLA Annual Meeting and Exposition in Atlantic City, NJ

Education:

- M. Eng. Professional Practice, University of Wisconsin, Madison
- B.S. Civil Engineering, Rutgers University

Professional Certifications:

- Professional Engineer:
Maryland, Massachusetts, New Jersey, New York,
Pennsylvania, Vermont, Virginia
- Nuclear Regulatory Commission, Certified Radiation Safety Officer and
Soil Density and Moisture Content Gauge Operator

Professional Training:

- Rosgen Level I

Professional Affiliations:

- Continuing Education Instructor Rutgers Office of Continuing Education
- American Society of Civil Engineers
- Association of State Dam Safety Officials

Summary of Qualifications:

Mr. Goll is a founding Partner of Princeton Hydro and has extensive experience in geotechnical engineering, stormwater management, hydrology, floodplain hydraulics, environmental assessments, and environmental permitting; his professional background is specific to water resource and geotechnical engineering. The breadth of his experience ranges from stream restoration and modeling to the design of large retaining structures and building foundations; he has provided expert consultation, engineering design and support on a variety of projects including residential developments, casinos, solid waste transfer stations, correctional facilities, and wastewater treatment plants. However, it is his experience in team building and development of consensus among clients and technical team members that is his primary focus as managing partner at Princeton Hydro.

Mr. Goll has extensive experience in subsurface investigations, geotechnical design, and soils classification and engineering. He has designed and implemented over 100 subsurface investigation programs ranging from foundation investigations to septic system design, includes test borings in soil, bedrock and in-lake and harbor sediment. He has designed engineered steep slopes (greater than 2:1) and retaining walls, performed slope stability analysis and has provided on-site earthwork and compaction monitoring services. With regard to subsurface sewage disposal, Mr. Goll has progressed subsurface investigations for residential developments of up to 100 units. Mr. Goll has provided extensive subsurface investigations within the New Jersey coastline, the Coastal Plain, Piedmont, Highlands and Ridge and Valley geologic provinces. Mr. Goll has also provided forensic subsurface investigations to determine the origins of historic fills and determine original ground surface elevations to determine appropriate bearing locations for structure footings.

Mr. Goll has provided engineering design services, testimony, and review of stormwater management facilities for public and private clients, and has provided guidance in the development of watershed management plans and stormwater ordinance development in both New Jersey and Pennsylvania. He is well versed in stormwater runoff theory and modeling, as well as extensive knowledge of soil infiltration testing and design methods, as is required by the Phase II Stormwater Management Regulations.

Mr. Goll has extensive experience in the quantification and analysis of accumulated sediment within freshwater lakes and rivers. He is also well versed in the processes of sediment transport and accumulation and has been in responsible charge for the design of over 500,000 cubic yards of dredging projects and over 1,000,000 cubic yards of sediment quantification in lakes and rivers throughout the Mid-Atlantic region. His experience also extends to harbor dredged materials where he was in

Areas of Experience:

- Stream and river restoration
- Stormwater management
- Dredging
- Flood hazard area and floodplain modeling
- Dam restoration and removal
- Geotechnical engineering and subsurface investigation
- Wetland mitigation project design and implementation
- Regulatory permitting
- Construction administration
- Expert witness/forensic investigation for water resource-related litigation
- Coordination and implementation of public outreach and education
- Assembling project partners for water resource restoration projects

responsible charge of the stabilization of dioxin-, PCB- and heavy metal-contaminated dredged materials for a Brownfield redevelopment. Mr. Goll's most important value to dredging projects is through his understanding of the spatial distribution of sediment types throughout a waterbody's environment and his ability to create technical and bidding specifications that ensures cost control of projects and eliminates the open interpretation of vertical and horizontal project excavation limits via strict survey control.

Mr. Goll has pioneered dam removals for the purposes of fish passage in the State of New Jersey. He was in responsible charge of the first dam removal in New Jersey funded by American Rivers, NOAA, NRCS and the US Fish and Wildlife Service. Mr. Goll regularly coordinates multiple grant sources to fund such removals as well brings different parties together to create momentum for projects. Mr. Goll has prepared public presentations to educate local communities regarding the benefits of dam removal and providing conceptual photographic images of post-removals. His understanding of sedimentation mechanisms and management of sediment behind impoundments has been instrumental in managing the mitigation of environmental impacts during and after demolition of river and streams obstructions.

Mr. Goll has also been in responsible charge of the restoration of Low to High Hazard Potential dams. He has provided design and construction management services for a number of clients in the States of New Jersey and Pennsylvania. He has run hydrologic and hydraulic modeling, and inundation mapping; prepared Emergency Action Plans and Operation and Maintenance Manuals; progressed geotechnical investigations and stability analysis; and prepared technical and bidding specifications.

During the construction phase of projects, Mr. Goll has the practical knowledge of implementation of designs through his past experience as a field inspector for civil works projects, such as residential developments and dam construction. His past field experience, combined with his design knowledge and current oversight of many construction projects, allows him to make informed and practical decisions in the field when confronted with physical site challenges.

Mr. Goll has been accepted as an expert witness by the Superior Court of New Jersey (Morris and Gloucester Counties) in the areas of stormwater management and soils. Mr. Goll provided live testimony on stormwater impacts to high elevation headwaters to the Vermont State Legislature. Mr. Goll has also provided expert testimony on behalf of applicants in front of Planning Board and Zoning Board of Adjustments and governing committees and council; projects included mining applications, residential developments, and golf courses.

Selected Project Experience:

Westtown Dam Analysis and Emergency Action Plan, Westtown Township, Chester County, PA (2012) – Mr. Goll was in responsible charge of the assessment, stability analysis, and hydrologic and hydraulic modeling of the Westtown Lake Dam, a Significant Hazard dam owned and operated by the Westtown School. Princeton Hydro completed a hydrologic and hydraulic analysis of the watershed to Westtown Lake, including developing spillway design storm flows, dam breach analysis, and the preparation of inundation mapping. Following the completion of the inundation analysis, an Emergency Action Plan (EAP) was prepared to allow for a coordinated emergency response effort to notify the public and to address varying breach scenarios during an overtopping or breach event.

NJM Regional Operations Facility Stormwater Management System, Hammonton, NJ (2010) – Mr. Goll was the engineer-of-record for the stormwater management design and geotechnical investigations for a 250,000 square foot corporate campus on a 55-acre site. Due to a number of site physical constraints, the site was designed to contain nearly all stormwater runoff on site, up to and including the 100-year frequency, 24-hour duration storm event. Site geotechnical investigations included investigations for building foundations, parking lot and drive subgrades and stormwater infiltration with all laboratory testing completed in-house.

Medford Lakes and Birchwood Lakes Dredging, Burlington County, NJ (2007) – Mr. Goll was in direct charge of the investigation, design, permitting and construction management of these projects Princeton Hydro progressed sediment surveys, analyzed the sediment for geotechnical properties and contamination, designed the dredging, prepared permit application and managed the construction phase of the dredging. The quantity of sediment removed from both dredging projects totaled

Geoffrey M. Goll, P.E.
Vice President, Principal Engineer

143,000 cubic yards. Both projects were completed on time and on budget. The Medford Lakes Colony dredging was completed for a construction cost of \$2.2 million and the Birchwood Lakes dredging was completed for a construction cost of \$1.3 million.

Earthwork Monitoring and Materials Testing for Multi-family Residential Development, Lambertville, NJ (2008) – Princeton Hydro was contracted to provide earthwork monitoring and materials testing for a 129-unit, multi-family residential development. The site required fills in excess of 20 feet and cuts through bedrock of 10 feet. Princeton Hydro's role was to complete laboratory testing of soils, in-field compaction rate testing, and observation of placement and excavation of fills.

Subsurface Investigation – 37 Foot High Stream Crossing, West Amwell, NJ (2003) – Provided subsurface investigation for a 9-foot high by 35-foot span concrete arch culvert with associated 20-foot high retaining walls and reinforced earth slopes. The span was to be overlain with 26 feet of controlled compacted fill. The investigation focused on the determination of bearing capacities of the underlying bedrock and to prepare specifications for the placement of controlled compacted fill.

Select Presentations and Publications:

Goll, Geoffrey M. (Presenter), *Lake Management Course; Dredging and Dam Safety Compliance sessions (1996 to present)*. Rutgers University, Office of Continuing Education, New Brunswick, NJ.

Goll, Geoffrey M. (Presenter), *Pond Management, Construction and Restoration; Dredging and Dam Safety Compliance sessions (2000 to present)*. Rutgers University, Office of Continuing Education, New Brunswick, NJ.

Goll, Geoffrey M. (Presenter and Panel Discussion), March 9, 2012, *NJ Future Redevelopment Forum 2012, Treating Flooding as the "New Normal"*, New Brunswick, NJ.

Goll, Geoffrey M. (Instructor and Course Coordinator), September 29, 2011, *Dam Removal Technical Track Half Day Program*, Association of State Dam Safety Officials, National Conference, Washington, DC.

Goll, Geoffrey M. (Instructor), September 20-22, 2010, *Dam Removal Case Studies*, The University of Wisconsin, Madison, Succeeding with a Dam Removal Project, Philadelphia, PA.

Woodworth, Paul, Galster, Josh, Wyrick, Josh (Presenter), Goll, Geoffrey M. (Presenter), May 18, 2010. *Dam Removal: Adaptive Management & Bed Sediment Monitoring Before and After*, ASCE, Environment and Water Resource World Congress 2010, Providence, RI.

Goll, Geoffrey M. (Presenter), Paist-Goldman, Mary, May 18, 2010. *Case Study: Preparing for Dam and Barrier Removals along the Darby Creek*, ASCE, Environment and Water Resource World Congress 2010, Providence, RI.

Goll, Geoffrey M. (Author and Presenter), May 18, 2010. *Sediment Management and Dredging for Dam Removal*, ASCE, Environment and Water Resource World Congress 2010, Providence, RI.

Helminiak, Jacob, Wildman, Laura, Goll, Geoffrey M. (Presenter), May 18, 2010. *Removing Barriers at Road Crossings Using Stream Simulation Techniques in the Northeast United States*, ASCE, Environment and Water Resource World Congress 2010, Providence, RI.

Goll, Geoffrey M., *Sustainable Approach to Stormwater Management Design: NJM Hammonton Regional Operations Facility*, April 8, 2010. Presentation at the University of New Hampshire Stormwater Center Workshop, Jacque Cousteau National Estuarine Research Reserve, Tuckerton, NJ.

Education:

- B.C.E., Civil Engineering, Villanova University, with honors, Villanova, PA, 1993
- Graduate courses in Water Resources Engineering at Villanova University

Professional Licenses and Certification:

Professional Engineer:

New Jersey, Pennsylvania and
Maine



- Certified Floodplain Manager, Association of State Floodplain Managers (ASFPM)
- Certified Stormwater Manager, American Public Works Association (APWA)

Professional and Volunteer Affiliations:

- Member, Passaic River Basin Flood Commission; created by the Governor of New Jersey by Executive Order, appointments by the Commissioner of the New Jersey Department of Environmental Protection, 2010-2011;
- Legislative Committee Chair 2007-2013, New Jersey Association for Floodplain Management (chapter of ASFPM) Past Chair and founder 2005-2006; recipient of the 2010 Floodplain Management Leadership Award “for outstanding leadership in issues related to floodplain management in New Jersey” and the 2006 NJAFM Founders Award acknowledging “creative leadership”;
- Member, City of Lambertville, NJ Planning Board, Chairman of Stormwater Committee, 2004-2013; member of Emergency Management Council (local OEM). FEMA Community Rating System Coordinator, 2011-2013. The City of Lambertville Mayor and Council formally recognized Mr. Miller’s contributions by Resolution in January 2010;
- Member of the Board of ASFPM as a Regional Director (Region II - New York, New Jersey, Puerto Rico and Virgin Islands), 2006-2009. Continued involvement with Association staff and leadership on national policy and representation on Capitol Hill, Washington, DC;
- Member of Cadre of Experts for Scientific Resolution Panels, managed by the National Institute for Building Sciences on behalf of the Federal Emergency Management Agency (FEMA) 2010-2013;
- Past-President, American Water Resources Association - New Jersey Section,; President 2007; Vice President 2006; Secretary 2004-2005; recipient of the 2008 NJ-AWRA President’s Award for time and dedication to the organization;
- Member of the New Jersey Governor’s Delaware River Flood Mitigation Task Force and Technical Subcommittee, 2005-2007.

Areas of Expertise:

- Floodplain management and mitigation, policy and analysis
- Stormwater management and stormwater management planning
- Forensic water resources analysis and expert testimony
- Best Management Practice (BMP) water quantity and quality design and retrofits
- National and state water resources policy
- Wastewater planning, analysis, design and permitting
- Hydrologic and hydraulic modeling

Qualifications:

Mr. Miller manages projects and studies involving stormwater, floodplain and wastewater management. His interests include stormwater management planning and policy; floodplain management, analysis, mitigation and policy; land use, especially with regard to water resources and open space; forensic analysis; and expert testimony. With experience in urban stormwater management methods for more developed localities, he has designed and analyzed many proposed and existing structures including storm sewers, culverts, swales, water quality and detention facilities. He has frequently identified problems caused by inadequate stormwater drainage and applied various methods to correct them.

Mr. Miller utilizes his expertise in hydrologic and hydraulic modeling to offer clients sustainable floodplain management solutions that look beyond traditional engineering “hard” approaches. His work within Princeton Hydro has resulted in award-winning projects that include the creation and restoration of functioning wetlands and floodplains proven to attenuate flow and reduce flood damage and provide flood backflow prevention. Mr. Miller has overseen projects that include non-structural and structural techniques including infrastructure retrofit and upgrades and property acquisition to reduce community risk. As a Certified Floodplain Manager, he has the knowledge and background to assess if a FEMA grant program is a potential funding source for retrofitting a locale. He has a thorough understanding of FEMA policies, programs and with the suite of FEMA grant programs. Mr. Miller has focused much of his energies on flood planning, analysis and mitigation. With regard to flood

planning, he has extensive experience with Federal Emergency Management Agency (FEMA) all Hazard Mitigation Planning, specifically on examining mitigation of flood risk. He has worked on the production of two (2) New Jersey local all Hazard Mitigation Plans and the update (near full replacement) of the New Jersey State all Hazard Mitigation Plan. Mr. Miller has completed and assisted in grant applications with Benefit Cost Analyses for property acquisitions, structure elevation and infrastructure retrofits for a culvert to prevent backflooding. He has worked with municipalities on identifying and prioritizing flood mitigation projects. He has assisted clients in determining if a project is eligible for the Federal Emergency Management Agency (FEMA) grant programs, prepared federal eGrant applications, developed concept and final designs, and managed projects from start to finish. Mr. Miller has completed two trainings on FEMA's Benefit-Cost modules – a vital component of any FEMA grant application.

Mr. Miller has been qualified as an engineering expert in stormwater and floodplain management by courts in Pennsylvania and New Jersey. He has been accepted as an expert witness by the Court of Common Pleas of Bucks County, Pennsylvania and the Superior Court in Monmouth County, New Jersey in the areas of stormwater and floodplain management. Mr. Miller has provided expert testimony on behalf of applicants and interested parties in front of Planning Boards/Commissions, Zoning Boards of Adjustment and Governing Bodies.

Select Project Experience:

Review New Jersey Stormwater Management Implementation (2009-present) – Lead investigator for Delaware Riverkeeper Network's document titled *New Jersey Stormwater Management Implementation: A Case Study of Hamilton Township, Mercer County, NJ* which assesses compliance and reports on a dozen projects after their municipal stormwater permit was issued. Mr. Miller continues to provide review of stormwater management implementation for the client.

Ely Creek Backflow Prevention Project, Lambertville, NJ (2009-present) - Project engineer for this flood retrofit. Mr. Miller designed the concept, authored the feasibility report, successfully applied for FEMA Flood Mitigation Assistance grant, performed analysis, wrote specifications, conducted bid review and oversaw construction.

Passaic River Basin Flood Advisory Commission, Trenton, NJ (2010-2011) New Jersey Department of Environmental Protection Commissioner Robert Martin selected Mr. Miller to serve on the Passaic River Basin Flood Commission, created by the Governor of New Jersey by Executive Order. As one of two technical members, the seven-member Commission comprised of the Commissioner, a New Jersey assemblyman, two mayors from impacted municipalities, the Dean of Montclair University Science and Mathematics, and the Superintendent of New Jersey State Police.

New Jersey (Delaware River) Flood Mitigation Task Force, Trenton, NJ (2005-2006) Recognizing Mr. Miller's strengths in stormwater and floodplain management, New Jersey Governor Codey appointed him to a 16 member Task Force in 2005 to address the substantial flood events impacting the Delaware River region in 2004 to 2006.

Recent Presentations:

John A. Miller, P.E., CFM, CSM. Keynote Address: Lessons Learned from Hurricane Sandy. 2013 Virginia Water Conference. Richmond, VA March 5, 2013.

John A. Miller, P.E., CFM, CSM. Understanding NJDEP's Emergency Flood Rule. Princeton Hydro Webinar. Ringoes, NJ February 7, 2013.

John A. Miller, P.E., CFM, CSM. City of Lambertville – A Riverfront Town. Climate Change and Flooding: What to Expect and How to Prepare. Sustainable Jersey Forum. New Brunswick, NJ. January 16, 2013.

John A. Miller, P.E., CFM, CSM. Hurricane Sandy Aftermath Part One – A Look at Risk Management, Tax Assessment and Municipal Budgeting. New Jersey State League of Municipalities. Panel Discussion on Claim and Recovery Issues. West Windsor, NJ. November 28, 2012.

John A. Miller, P.E., CFM, CSM. Lessons from the Passaic River Basin. 4th Annual Raritan River Conference. Hillsborough, NJ. June 14, 2012.

Education:

- B.S. Civil Engineering, concentration in Water Resources, Pennsylvania State University, University Park, PA, 2002

Professional Certifications:

- Professional Engineer, State of New Jersey
- Certified Floodplain Manager, ASFPM

Professional Training:

- River2D Workshop, Amherst, Massachusetts, 2012
- Applied Fluvial Geomorphology (Rosgen I), 2007
- River Morphology and Applications (Rosgen II), 2008

Professional Affiliations:

- American Fisheries Society
- Association of State Dam Safety Officials
- Association of State Floodplain Managers
- Trout Unlimited, Bucks County, Pennsylvania Chapter

Summary of Qualifications:

Mr. Helminiak has over ten years of experience in the field of water resources with the majority of his work focusing on hydraulic engineering in support of ecological restoration; in that capacity he has been involved with the analysis and design of over 50 barrier removals and river restoration projects, and more than 20 coastal and freshwater wetland restoration projects. He has prepared and managed the preparation of complete engineering analyses, design plans, and construction specifications for non-profit, commercial, institutional, and residential clients, at the local, State, and Federal agency levels for a variety of Water Resource projects.

Mr. Helminiak has extensive experience progressing Barrier Removal Feasibility Studies, and detailed Barrier Removal Design and Analyses, having been involved with numerous barriers, ranging in size from smaller run-of-the-river dams to larger concrete and masonry High Hazard Class structures, throughout New England and the Mid-Atlantic. His dam engineering experience also includes the preparation of Inundation Mapping and Hazard Classification, Emergency Action Plans, Operation and Maintenance Manuals and Dam inspection reports, Spillway Adequacy Analyses.

Mr. Helminiak has designed numerous wetland mitigation projects, both freshwater and estuarine, ranging from small mitigation sites to large (greater than 30 acre) sites that are planned for use as mitigation banks. The larger sites are located on the Arthur Kill, Newark Bay, Raritan River, and the Hudson River. Working closely with the wetland ecologists of Princeton Hydro, Mr. Helminiak has designed a variety of wetland habitats through the use of innovative control structures and detailed topographic grading. These include subtidal channels, wetland pools, intertidal marsh, and upland island habitats for both freshwater and estuarine systems. In 2012, Mr. Helminiak designed the first use of dam removal as direct wetland mitigation in the State of New Jersey.

Mr. Helminiak has extensive experience with a variety of stream restoration and streambank stabilization practices and techniques, and is Rosgen Level II certified. He has extensive knowledge of fluvial geomorphic processes associated with natural stream channel design methodologies and has utilized such approaches in post-dam removal scenarios, as well as wetland mitigation designs. He has both training and experience with the classification and geomorphic assessment of streams, and has utilized such to identify and prioritize potential restoration opportunities on a watershed scale. Mr. Helminiak also has extensive experience with a variety of bio-engineering and stream bank stabilization technologies and has implemented such technologies to stabilize eroding banks on small creeks to large rivers, as well as lake and pond shorelines.

Areas of Experience:

- 1D and 2D Hydrologic and Hydraulic Modeling
- Dam Removal Design
- Fish Passage Engineering
- Floodplain Management
- Dam Inspection and Inundation/Breach Analyses
- Stream Restoration Design
- Streambank Stabilization Design
- Wetland Mitigation/Banking Design
- Stream Classification / Geomorphic Assessment
- Stormwater Management Design
- Soil Erosion and Sediment Control Design
- Construction Management and Oversight
- Regulatory Compliance

Mr. Helminiak's modeling experience includes hydrologic modeling with a variety of industry standard software including the United States Army Corps of Engineers (USACE) HEC-HMS, PondPack, HydroCAD, as well as ESRI ArcMap Geographic Information Systems (GIS). Utilizing ArcMap, he has experience determining hydrologic conditions for numerous watersheds, ranging in size from small creeks to large river systems. Mr. Helminiak's hydrologic modeling experience for stormwater design also includes NRCS TR-20, TR-55, and the Rational Method. In modeling stream and culvert hydraulics, fish passage design, dam breach and inundation analyses, and dam removal and stream restoration design, Mr. Helminiak is proficient in the use of USACE HEC-RAS. Using HEC-RAS, he has developed floodplain limits, including floodway and floodplain delineations along numerous watercourses, as well as determined waterway openings for new and replacement bridges and culvert crossings. Further, Mr. Helminiak has utilized HEC-RAS to analyze and predict scour at bridges and culverts and to determine streambank stability. Mr. Helminiak has also utilized HEC-RAS extensively to guide development of proposed stream channel dimension, pattern, and profile for stream restoration, fish passage, and bank stabilization designs. He is also proficient with use of the HEC-GeoRAS module within the GIS platform to utilize digital data for import to and export from HEC-RAS. Mr. Helminiak is proficient in the use of 2-D hydraulic modeling software, including River2D, for the assessment of in-stream habitat. Mr. Helminiak is also proficient in the use of the legacy USACE programs HEC-1 and HEC-2.

Select Project Experience:

Pleasant Grove Dam Removal and Wetland Restoration, Jackson, NJ (2012) – Completed hydrologic and hydraulic analyses and restoration design for the removal of an earthen dam on unnamed tributary to Toms River. Project included the creation and restoration of wetland habitat within the former impoundment, marking the first use of dam removal for direct wetland mitigation in the State of New Jersey.

Little Lehigh Creek Dam Removals, Allentown, PA (2010-2012) – Completed hydrologic and hydraulic analysis, geomorphic assessments, topographic survey, sediment sampling, and restoration design for the removal of three dams on Little Lehigh Creek, as well as analysis and design of a naturalized fishway to pass migratory fish at a fourth barrier.

Nevius Street Dam Fish Passage Feasibility and Design, Raritan Borough, Hunterdon County, New Jersey (2011-2012) – Completed feasibility and fish passage assessment for creation of passable conditions by notching a dam while still supplying an existing water supply intake. Project progressed to include hydrologic and hydraulic modeling and final design of dam notch, optimizing conditions for the upstream migration of American shad.

Mitchell Brook Culvert Replacement, Whately, MA (2010-2012) – Completed hydrologic and hydraulic analyses and applied USFS Stream Simulation guidelines and Massachusetts Stream Crossing Standards to design an open-bottom culvert crossing to replace an existing blockage, improving connectivity and passage of resident native brook trout and other cold-water fishes.

Quakertown Preserve Dam Removal and Wetland Restoration, Franklin Township, Hunterdon County, NJ (2010-2011) – Completed hydrologic and hydraulic analysis and restoration design of the first dam removal in New Jersey to be financed in part by wetland mitigation funding. With this project, Princeton Hydro has set an important precedent, demonstrating that dam removal, which results in floodplain / wetland restoration is not only eligible but suitable for wetland mitigation.

Dunkard Creek Dam Removals, Dunkard, PA (2009-2010) – Completed hydrologic and hydraulic analyses in support of feasibility study, and ultimately final restoration design of two dam removals on Dunkard Creek to restore channel features, banks and a native riparian / floodplain community, and reduce adjacent flooding.

Westtown Lake Dam Restoration, Chester County, PA (2007) – Completed hydrologic and hydraulic analyses of earthen dam to determine adequacy of existing spillway and outlet works, justification of hazard classification, and inform design of overtopping protection and restoration of outlet works. Analysis included downstream channel modeling and simulation of a hypothetical dam breach.

James P. Shallenberger, P.G.

Senior Project Manager; Geologist; Ecologist

Princeton Hydro



Education:

- M.S., Environmental and Forest Biology, State University of New York, College of Environmental Science and Forestry, Syracuse, NY 2001
- B.S., Geosciences, The Pennsylvania State University, University Park, PA 1993

Professional Certifications:

- Registered Professional Geologist – Pennsylvania (PG004810)
- OSHA Hazardous Waste Operations (CFR 1910.120)

Professional Affiliations:

- American Water Resources Association
- Society of Environmental Toxicology and Chemistry

Summary of Qualifications:

Mr. Shallenberger has 20 years professional experience as a consulting ecologist and geologist in a career that has emphasized the design, management and execution of water and wetland resource sampling and analysis projects. Mr. Shallenberger has planned, coordinated, implemented, and/or evaluated complex and multi-faceted scientific investigations pertaining to: (i) restoration of wetland and aquatic habitats; (ii) watershed and wetland physical hydrology related to land use decision-making and wetland mitigation; (iii) ecological risk assessment; (iv) contamination of soil, groundwater, and surface water resources; and, (v) water supply (quantity and quality) evaluation. Mr. Shallenberger routinely interacts with and coordinates assets among Princeton Hydro's array of technical specialty disciplines to fulfill a client's unique project demands. His fields of competence span a wide array of disciplines including:

- Ecological Risk Assessment (ERA) planning, evaluation, and interpretation of stressor impacts to sensitive organisms/communities, including ecological and biological investigations and analyses to characterize community assemblages, identify suitable habitat, perform ecological functional assessments, and inventory natural resources in terrestrial, wetland, and aquatic settings.
- Environmental geology/hydrogeology investigation and analysis techniques to characterize landscape setting and subsurface conditions.
- Groundwater-Surface Water Interface (GSI) assessment and modeling methods to support point and non-point source (NPS) pollutant loading/fate/transport characterization, water allocation, pollutant load reduction and management, land use management, and habitat mitigation decisions.
- Statistical methods and data evaluation applications using graphic, descriptive, regression, ordination, and analysis of variance based on parametric and non-parametric approaches.

Select Project Experience:

Stream and Wetland Restoration Feasibility Study/Engineering Design – Century Bog Cranberry Plantation; Wareham, MA (2011-present) – Project oversight for multi-disciplined team engaged in data collection, interpretation, design, permitting, and planning for restoration of this 65-acre site. Multiple-stakeholder goals include re-naturalizing the cranberry farm through restoration of historic peatland and other community conditions, reducing stream water temperatures through the cranberry production area to improve sea run brook trout spawning habitat (current conditions raise stream temperature more than 10°C during passage through the cranberry production zone), and ensuring that river herring can migrate to spawning grounds upstream of the site. Using cost-effective data collection approaches, Princeton Hydro's team developed essential information that informed preliminary design alternatives consistent with the varied stakeholder goals. Mr. Shallenberger completed an ecological risk assessment that addressed historic pesticide residues with outcome that restoration design is not affected by environmental contaminants.

Areas of Experience:

- Ecological Risk Assessment
- Environmental geology and hydrogeology investigation
- Groundwater-Surface Water Interface (GSI) assessment
- Water budget development
- Ability to design, schedule and implement large-scale field sampling efforts
- Management of large, diverse project teams
- Collection and analysis of complex water quality and biological datasets
- Proficient at various statistical evaluation methods
- Environmental risk and impact assessment
- Technical review and expert

Baseline Water Quality Monitoring Study, Lower Delaware River, Bucks, Lehigh, and Southampton Counties, PA (2011) – As preparation for possible natural gas production in the Lower Delaware River Wild and Scenic Management Area, the National Park Service funded a two-year research project to develop and implement a baseline water quality monitoring program. Mr. Shallenberger conceived and managed an innovative approach that integrated surface water and potable well monitoring locations throughout a large and geologically-diverse setting. The approach included a two-prong aqueous chemistry analysis strategy: characterization of the fundamental water type for each monitoring station based on water, and quantification of specific marker substances that occur in hydraulic fracturing fluids and deep natural waters and that are expected in the event of a drilling mishap.

Ecological Risk Assessment for Proposed Wetland Mitigation Bank Site, Linden, NJ (2012) – Developed and implemented a two-year investigation to characterize the magnitude and distribution of mercury and other contaminants at, as well as a nearby completed wetland mitigation site in sediment, wetland soil, water, and plant/animal tissue. The objective of activities was to evaluate food chain exposure to mercury by wildlife, determine whether recontamination rates in Lower Rahway River wetlands obscure the benefits of habitat enhancement, and inform the project design regarding approaches to reduce contaminant exposure. Mercury concentrations are elevated in abiotic and biotic media; however, Princeton Hydro showed that a nearby restored site exhibited marked statistical improvements in terms of contaminant exposure.

Wetland Restoration/ Mitigation Feasibility Study – Various Sites – Mr. Shallenberger regularly develops, supervises, and implements data analyses and interpretation regarding site-specific hydrology factors to prepare for wetland restoration/mitigation design and to monitor performance following completion of wetland restoration/mitigation projects. Through use of hydrologic data collection monitoring networks that include staff gauges, well points, piezometers, weirs, and rain gauges, and combinations of both automated and manual data acquisition means, Mr. Shallenberger collects and evaluates site hydrologic data factors, and determines water budgets.

Linking Salamander Use/Recruitment in a Headwaters Catchment to Hydrologic Variables, Nockamixon, PA (2010) – Mr. Shallenberger developed and led an amphibian survey of sites along a hydrology gradient from intermittent discharge to perennial flow to investigate potential association and correlation between individual salamander species/similar guilds and hydrologic variables in a headwaters catchment. The salamander investigation expanded upon an intensive, two-year hydrologic investigation that Mr. Shallenberger implemented in the catchment in order to improve the understanding of groundwater recharge mechanisms in diabase rock terrane. The hydrologic investigation quantified recharge potential; the salamander study documented differences among use/preference for hydrologic variables according to fundamental life history traits of salamander taxa. Moreover, it is anticipated that both investigation findings will be incorporated into municipal land use rules in order emphasize protection of surface water resources and headwaters catchment areas that display disproportionate importance to a sensitive organism class (i.e., salamanders) at vulnerable life stages (i.e., breeding and larval development).

Publications/Presentations:

- Princeton Hydro/Shallenberger, J.P. 2011. *Baseline Water Quality Monitoring Pilot Study Report: Implications for Shale Gas Production in the Lower Delaware River Wild and Scenic Management Area*. Two-year research report funded by National Park Service grants.
- Shallenberger, J.P. 2010. *The Deepwater Horizon Accident* Princeton Hydro, LLC Emerging Issues, Vol 4, No. 1. Princeton Hydro, LLC, Ringoes, NJ. 6 pp.
- Shallenberger, J.P. 2010. *Potential Impacts of Hydro-Fracking in the Marcellus Shale*. Presentation at the New York State Federation of Lake Associations Annual Meeting; Hamilton, NY. 30 April 2010.
- Shallenberger, J.P. 2010. *Marcellus Shale: Does Regulation Protect Water? – Focus on Pennsylvania* Princeton Hydro, LLC Emerging Issues, Vol 2, No. 1. Princeton Hydro, LLC, Ringoes, NJ. 14 pp.
- Shallenberger, J.P. 2010. *Salamanders and Protection of Headwaters Streams*. Presentation at the Chester-Ridley-Crum Watershed Association annual meeting; Glen Mills, PA. 21 March 2010.
- Shallenberger, J.P. 2010. *Water Monitoring Strategies and the Marcellus Shale: Focus on Pennsylvania*. Presentation at the Pennsylvania Lake Management Society annual conference; State College, PA. 4 March 2010.
- Princeton Hydro/Shallenberger, J.P. 2009. *Groundwater Recharge Assessment in Diabase Terrane: Implications for Potable Water Supply and Natural Resource Stewardship in Bucks County, Pennsylvania*. Research report funded by USEPA Grant no. CD973082-01-0

Education

- Master of Arts, Geography,
University of Connecticut, 2008
- Bachelor of Arts, Biology and Environmental Studies, Middlebury
College, 1999

Professional Training

- River 2D Workshop, Amherst, Massachusetts, 2012
- River & Stream Restoration: Geomorphic & Ecological Processes,
NJAWRA, 2009
- Certificate in Geographic Information Systems,
University of Connecticut, 2008
- Master Wildlife Conservationist, Connecticut Department of
Environmental Protection, 2005

Professional Affiliations

- NJ American Water Resources Association,
Stream Committee

Summary of Qualifications:

Removing obsolete dams and restoring rivers – projects generating meaningful ecosystem uplift – are the focus of Mr. Woodworth’s work at Princeton Hydro and he has been involved with over 35 barrier removal projects while with the firm. Mr. Woodworth advances all phases of project development, from initial project conceptualization through data collection, design, permitting and implementation or construction. He has completed detailed studies that demonstrate dam removal feasibility and identify project constraints and special considerations for the design phase. During planning phases, Mr. Woodworth regularly conducts geomorphic assessments, sediment sampling, topographic surveys of channels, bathymetric surveys of impoundments and the collection of flow data. Mr. Woodworth analyzes and interprets sediment analysis results, discharge data, and sediment transport capacity.

Using field collected data informed by recent research, Mr. Woodworth creates site-sensitive dam removal designs that optimize ecological uplift while mitigating site constraints, and satisfying client concerns and regulatory requirements. Dam removal designs involve responsible management of sediments, restoration of channel-forming processes, enhancement of in-stream habitat and restoration of riparian plant communities. In addition to removal of obsolete barriers, Mr. Woodworth has experience with complex removals or modifications of active dams, designing creative solutions that balance aquatic organism passage with existing dam services including the design of fish by-pass channels, fish-passable rock ramps, and fish ladders. Mr. Woodworth is experienced in the interpretation of applicable regulations, completion of permit applications for county, state, and federal regulatory agencies, as well as coordination and negotiation with regulators. While guiding construction, Mr. Woodworth has worked closely with contractors to guide the removal of approximately 10 individual dams; work that involved adapting designs to dynamic river conditions while still satisfying project goals.

Mr. Woodworth also applies fluvial geomorphology to the assessment and restoration of stream channels, corridors and floodplains. He has developed unique stream assessment protocols by synthesizing existing diverse approaches incorporating geomorphology with aquatic ecology and riparian floristic quality. Mr. Woodworth designs projects to restore fluvial processes and provide stable channel morphology, pool-riffle sequences, woody debris features, re-directive structures and longitudinal and lateral connectivity. He has conducted long-term, repeat geomorphic surveys to monitor project success and recently coordinated a watershed-scale study to assess 100 culvert crossings and identify priority sites for fish-passage restoration projects.

Areas of Experience:

Fluvial Geomorphology

- Geomorphic Assessment
- Channel Forming Processes
- Sediment Transport
- Hydrodynamic 2-D Modeling

Stream Restoration

- Process-Based Restoration
- Habitat Creation and Enhancement
- Channel Design
- Bank Stabilization Design
- Aquatic Organism Passage
- Stream Simulation / Continuity

Dam Removal

- Feasibility Assessment
- Sediment Management
- Removal Design / Site Restoration

Project Support

- Total Station and Bathymetric
Survey
- Regulatory Compliance
- Construction Oversight

Select Project Experience:

Pleasant Grove Dam Removal and Wetland Restoration, Jackson, NJ (2012) – Completed permitting and restoration design for the removal of an earthen dam on unnamed tributary to Toms River. Project included the creation and restoration of wetland habitat within the former impoundment, marking the first use of dam removal for direct wetland mitigation in the State of New Jersey.

Jordan Creek Dam and Barrier Removals, Jordan Creek, Allentown, PA (2011-2012) – Completed geomorphic assessment, topographic survey, sediment sampling, restoration design, permitting and coordination with regulatory agencies for the removal of three low-head dams and five barriers.

Little Lehigh Creek Dam Removals, Allentown, PA (2010-2012) – Completed geomorphic assessments, topographic survey, sediment sampling, permitting and restoration design for three low-head dams for Allentown-based environmental nonprofit, Wildlands Conservancy.

Cooks Creek Culvert Assessment, Bucks County, PA (2011-2012) – Developed culvert assessment protocol, trained volunteers, analyzed and prioritized 100 stream-road crossings for retrofits, developed conceptual designs for Bucks County Chapter of Trout Unlimited.

Nevius Street Dam Fish Passage Feasibility and Design, Raritan, NJ (2011-2012) – Completed survey and site assessment; supported hydrologic and hydraulic modeling, and design of a dam notch that restores upstream migration of American shad while still supplying an existing water supply intake.

Mitchell Brook Culvert Replacement, Whately, MA (2010-2012) – Completed a geomorphic assessment, topographic survey, and applied USFS Stream Simulation guidelines and Massachusetts Stream Crossing Standards to complete final design of an open-bottom culvert crossing that enables passage of resident cold-water fish.

Quakertown Preserve Dam Removal and Wetland Restoration, Franklin Township, Hunterdon County, NJ (2010-2011) – Secured funding on behalf of Hunterdon Land Trust; led site assessment, design, permitting and construction oversight. Project set an important precedent, demonstrating that dam removal, which results in floodplain and wetland restoration is suitable for wetland mitigation. Project marks first dam removal financed by the NJ Wetland Mitigation Council.

Publications / Presentations:

Woodworth, P.M. 2011. *Redesigning Road Crossings with Stream Simulation Techniques and MA Stream Crossing Standards*. Presentation at Fish Passage 2011 – National Conference on Engineering & Ecohydrology for Fish Passage.

Woodworth, P.M., Helminiak, J.E. *Connectivity and Clutter: Ecological Uplift in Watson Creek*. February 19, 2010. Poster presentation at the Society for Ecological Restoration 2010 Mid-Atlantic Conference, New Brunswick, New Jersey.

Woodworth, P.M., J.C. Galster, J.R. Wyrick (presenter), G.M. Goll, P.E. (presenter). *Dam Removal: Adaptive Management & Bed Sediment Monitoring of Before and After Removal*. May 16-20, 2010. Presentation at the World Environment & Water Resources Congress 2010, Providence, Rhode Island.

Goll, Geoffrey M., Helminiak, Jacob E., Woodworth, Paul M. *Gruendyke Dam Removal: Initial Step in Restoring the Musconetcong River*. March 13-14, 2009. Poster presentation at the Society for Ecological Restoration and Ecological Society of America 2009 Mid-Atlantic Chapters Conference, The College of New Jersey, Ewing, New Jersey.

Woodworth, Paul M. *Assessment of Changes in Hydraulic Habitat from the Alteration or Removal of Poliak Pond Dam on Umpawaug Pond Brook in Redding, Connecticut*. 2008. M.A. Thesis. University of Connecticut.

Michael C. Rehman

Senior Scientist

Princeton Hydro



Education:

- B.S. Ecology & Evolutionary Biology
Cornell University, Ithaca, NY 2000

Professional Certifications:

- Rutgers University Wetland Delineator Program, 2006

Professional Training:

- Mid-Atlantic Association of Professional Soil Scientists: Field Indicators of Hydric Soils in the Coastal Plain Workshop. Various locations in Southern New Jersey, 2009
- Vegetation Identification for Wetland Delineation – South, 2008.
- Endangered and Threatened Species of Northern New Jersey, Rutgers University, 2007.
- Wetland Construction and Design, Rutgers University, 2006.

Summary of Qualifications:

Mr. Rehman has over twelve years' experience in a variety of environmental disciplines. His main directives with Princeton Hydro involve wetland permitting and delineations for USACE, NJDEP and PADEP projects; wetland mitigation projects; habitat assessments; threatened and endangered species investigations; analysis of terrestrial/wetland ecosystems; municipal EIS/reviews and water quality/land use issues.

Select Project Experience:

Monitoring Programs for Wetland Mitigation Projects-Statewide (ongoing) - Mr. Rehman is in charge of monitoring programs for the following wetland mitigation sites: Bayonne Golf Club, Port Reading Mitigation Bank, Bodine Pond Restoration, Jersey Gardens Mall, New Jersey Turnpike Sites (Bass River and Gunning River) and Wexford Residential. Mr. Rehman conducts all monitoring activities, including vegetative sampling and assessing whether any adaptive management strategies are necessary to bring the sites into compliance with permit conditions. Upon completion of data collection Mr. Rehman writes and submits the requisite monitoring reports for submittal to the requisite agency/agencies.

Black-Crowned Night Heron Bird Surveys, Park Ridge, NJ (2012) - Conducted black-crowned night heron bird surveys during the April – June 2012 time period as stipulated within the permit conditions related to implementation of a pedestrian footbridge and dam repairs on Silver Lake. A series of three surveys were conducted to determine if black-crowned night herons were utilizing Silver Lake and its surrounds for breeding, foraging or roosting activities. Mr. Rehman confirmed that black-crowned night herons were utilizing the area for foraging activities, however, no evidence of breeding or roosting was observed. Subsequent to the surveys, a report characterizing avian utilization of Silver Lake and its surrounds was prepared and provided to the Borough of Park Ridge.

Glimcher Realty - Jersey Gardens Mall Mitigation Site Adaptive Management Plan, Union County, NJ (2008-present) - Design and implementation of adaptive management plans for the Jersey Gardens Mall Mitigation Site. The implemented adaptive management measures have shown promise; specifically, a positive developmental trajectory is evident which ultimately would result in the site meeting the USACE success criteria of eight-five percent vegetative coverage. He has also conducted monitoring activities and subsequent report generation and submittal to agencies on behalf of the client during this timeframe.

Permitting for Conrail Trestle Replacement. Linden, NJ (2008) - This project involved the removal and replacement of a railroad trestle that spanned Piles Creek, a tributary of the Arthur Kill. Mr. Rehman conducted the wetland delineation and habitat assessment for night herons, and prepared the Waterfront Development, Freshwater Wetland and Flood Hazard Area Control Act permits and associated plan sets for the NJDEP, as well as a NWP 14 for submittal to the USACE – New York

Areas of Expertise:

Regulatory Compliance

- USACE
- NJDEP
- PADEP
- Municipal EIS/Reviews

Ecological Surveys

- Wood Turtle Surveys
- Vernal Pool Identification
- Swamp Pink Surveys

Wetland Investigation

- Delineations
- Assessments
- Flora/fauna inventories
- Presence/absence

Wetland Mitigation

- Monitoring
- Adaptive Management Plans
- Planting/Planting Oversight
- Design/Implementation

Michael C. Rehman
Senior Scientist

District. Mr. Rehman was also responsible for proactively tracking the applications through the various agencies. All required permits were obtained for the implementation of project objectives and the new trestle was installed in 2008.

Wetland Delineations for Bass River Wetland Mitigation Bank Sites and Threatened and Endangered Species Offsets for Garden State Parkway Widening Project, Dennis and Washington, NJ (2007) - Princeton Hydro was contracted to provide comprehensive ecological, engineering, geotechnical, and permitting support services for the aforementioned candidate mitigation banking sites. Mr. Rehman was responsible for all wetland delineation activities, including coordinating with project surveyors to ensure that all flags were surveyed and accurately depicted on the topographic survey. Site sizes ranged from 35 to 259 acres in size, with habitats ranging from saltwater marsh to forested freshwater wetland on each site. The 259-acre parcel was located within the Pinelands which not only requires an understanding of Pinelands ecology, but more importantly, an understanding of the Pinelands Commission wetland delineation standards to ensure that the delineation would be deemed accurate.

Publications:

Altomari C., Mark Gallagher and Michael Rehman. Dismal Swamp Watershed Management Plan. Edison Wetlands Association, February 2009.

Presentations:

Cooper, Paul, Michael Rehman and Mark Gallagher. **Increasing Fish Utilization by Enhancing Ecosystem Complexity Via Integration of Subtidal and Intertidal Components in an Urban Estuary.** March 13, 2009. Presentation at the Society for Ecological Restoration and The Ecological Society of America Mid-Atlantic Chapters Joint Conference 2009; Bridging the Gap: Connecting Ecological Research and Restoration Practice.

Gallagher, Mark, Michael Rehman and Geoffrey Goll. **The Establishment of a Flood Prone Wetland System on the South Branch of the Raritan River.** March 13, 2009. Presentation at the Society for Ecological Restoration and The Ecological Society of America Mid-Atlantic Chapters Joint Conference 2009; Bridging the Gap: Connecting Ecological Research and Restoration Practice.

Gallagher, Mark, Michael Rehman, Geoffrey Goll, P.E., John Miller, P.E., CFM. **Somerset County Wetland Mitigation Bank – The Creation of a Flood Prone Wetland Complex.** October 22, 2008. Fourth Annual New Jersey Association for Floodplain Management Conference. Cherry Hill, New Jersey.

Rehman, Michael, Mark Gallagher, Geoffrey M. Goll, P.E. and John Miller, P.E., CFM. **Riparian Wetland Creation/Establishment in an Agricultural Landscape.** July 1, 2008. 2008 AWRA Summer Specialty Conference; Riparian Ecosystems and Buffers: Working at the Water's Edge. Virginia Beach, Virginia

Rehman, Michael; Mark Gallagher; Geoffrey Goll, P.E.; John Miller, P.E., CFM. **Riparian Wetland Restoration/Establishment in a Flood Prone Setting.** March 1, 2008. Schuylkill Watershed Congress, Pottstown, Pennsylvania.

Education:

- B.S. Landscape Architecture, Cook College, Rutgers University, with honors, New Brunswick, NJ, 2006

Professional Certifications:

- Licensed Landscape Architect (LLA), State of New Jersey
- LEED Accredited Professional, US Green Building Council's Leadership in Energy and Environmental Design (LEED) Green Building Rating System™
- Green Advantage Certified Practitioner (GACP), Green Advantage Environmental Certification program

Professional Affiliations:

- American Society of Landscape Architects
- New Jersey Invasive Species Strike Team

Summary of Qualifications:

Ecological restoration is the heart of Ms. Kovacs' passion for design; the restoration and creation of complex, resilient natural systems is at the core of her environmental design practice. Whether designing an urban rain garden or producing a planting plan for a large mitigation site, her projects seek to produce the greatest number of benefits to maximize the value of each project – both to the client and the local ecosystem. By incorporating a holistic design approach early in the planning process, neither form nor function is sacrificed. Ms. Kovacs is responsible for preparing planting plans for all of Princeton Hydro's projects and is experienced in preparing restoration and creation designs for tidal marsh, freshwater and tidal wetland, riparian and vernal habitats.

Because every property exists within a landscape context, Ms. Kovacs understands the myriad of factors that influence each project. A project can receive stormwater flow or undesirable plant species from adjacent or nearby properties, making a comprehensive understanding of the site alone inadequate. Additionally, knowledge of a wide number of environmental factors, both natural and anthropogenic, and how they work within different systems, is necessary to assure that each project functions properly in the long term. With knowledge of regionally native plants and local ecological systems, she works to increase diversity in her designs to support native wildlife. In tough urban settings, consideration for poor soil conditions and use of salt- and urban-tolerant native plants help assure project success.

Invasive plant species are unfortunately ubiquitous in our landscape and the success of many projects depends on the proper control of invasive species. Her interest in the detection and control of emerging invasive plant species keeps her abreast of current trends in local plant ecology and invasive species control.

As the author of the website SavingPlace.net, Ms. Kovacs works to increase awareness of invasive plant species to the wider audience of landscape design professionals, the nursery trade, and home gardeners to control the spread of invasive species at the source. The site's pleasing aesthetic and easy-to-read narrative strive to polish the message of "green" gardening and bring this important issue to the front of the public's consciousness. Offering concise, compelling information about the threat invasive plants pose and the importance of native plants in our ecosystem, together with resources for including natives in garden design, Saving Place is striving to fill the important role of prevention in the realm of environmental restoration.

Areas of Experience:

- Habitat Restoration, Creation and Enhancement
- Wetland Mitigation and Banking Design
- Sustainable Landscape and Aquascape Design
- Stormwater Management Design and Review
- Invasive Species Management
- Public Outreach and Education
- Graphic Design

Equal to her passion for creating and restoring natural systems is Ms. Kovacs' interest in promoting the use of and designing sustainable stormwater systems. Beyond the simple incorporation of common Best Management Practices (BMPs), she advocates for the continuing innovation of simple, effective systems. While cities outside of our region have provided a number of exciting sample projects, she believes that it is important to reinterpret these project's BMPs within our local region's landscape context to increase their effectiveness. Additionally, by incorporating her knowledgeable of common restraints with maintenance and longevity concerns of these systems, it is possible to consistently improve on previous designs. Ms. Kovacs has participated in the critical review of a number of projects – giving her important insights into common failings of the design and review process.

In support of her interest in sustainable environmental design solutions, Ms. Kovacs has pursued her interest in the green building industry by joining the United States Green Building Council and becoming a Leadership in Energy and Environmental Design Accredited Professional (LEED AP). The LEED certification system is an internationally recognized green building certification system that provides verification that a building or community was designed and built using sustainable strategies. The system measures energy savings, water efficiency, CO₂ emissions reduction, improved indoor environmental quality, and stewardship of resources and sensitivity to their impacts.

Ms. Kovacs is also knowledgeable about the Sustainable Sites Initiative (SSI) which establishes voluntary national guidelines and performance benchmarks for sustainable land design, construction and maintenance. Finally, she is a Green Advantage Certified Practitioner under the Green Advantage Environmental Certification program, a green certification program for builders and building-related practitioners. The Green Build certification can be required of staff working on LEED and other green building projects to confirm that design standards and sustainable construction practices are being followed during the construction of a project.

Select Project Experience:

Colonial Terrace Golf Club Stormwater Management Projects, Ocean Township, NJ (2011-present) Provided site inventory and analysis, collaboration in site design, and production of final construction drawings for three stormwater management bio-infiltration “bunkers,” as well as design of shoreline restoration planting and supervision of volunteer planting effort.

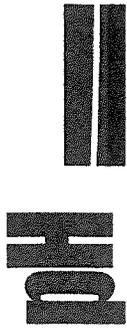
Bowman's Hill Pond Creation, New Hope, PA (2012-present) Responsible for project and permit management, site grading based on other's schematic design, and final construction documents for the installation of a man-made pond system, including pump house, well, and terrace.

The Hideout Environmental Enhancement, Lake Township, PA (2012) Participated in a variety of environmental enhancement projects in a lake community of approximately 3,000 homes. Prepared wetland enhancement planting plan and provided installation oversight for an existing wetland, provided maintenance services to floating islands installed in two of the site's lakes, and prepared site grading and planting plan for the enhancement of a five-acre existing wetland.

Watershed Restoration and Enhancement Report, Urban Coast Institute (2012) One of two primary authors and final editor for this report for the Lake Takanassee and Whale Pond Brook Watershed in Monmouth County, NJ. Also conducted stakeholder meetings before and during project, participated in site inventory and analysis, managed stakeholder input, and created document layout and graphics.

Imperial Oil/Champion Chemical Site Remedial Action Design, Marlboro Township, NJ (2011) Completed mitigation plan set from assemblage of information provided by a variety of project partners for 13-acre remediated Superfund site. Project design included planting plan for forested, scrub-shrub and emergent wetlands, and transition and upland areas. The client subsequently hired Princeton Hydro for, and Ms. Kovacs completed, a supplemental planting plan for an adjacent, township-maintained bike path, and post-construction review of both the remedial action design and supplemental planting area.

Petty's Run Stream Restoration, City of Trenton, NJ (2011) Prepared site grading and planting plan for urban stream daylighting and floodplain creation project. Other project responsibilities included invasive plant pesticide application observation and final plant installation oversight services.



Statement of Qualifications

Princeton Hydro, LLC

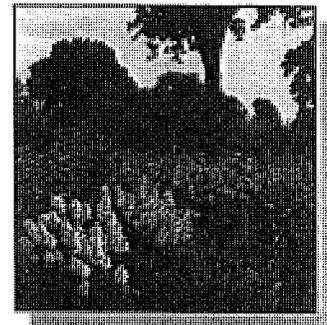
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**Scientists, Engineers & Geotechnical Experts
Designing Innovative Solutions for
Soil, Water & Wetland
Resource Management**



Technical Expertise Summary

Since our inception in 1998, **Princeton Hydro, LLC (pH)** has provided unparalleled consulting services in the assessment, management, and restoration of our important water, wetland, and soil resources. The unique skills and cumulative expertise of our highly experienced staff are reflected in the innovative nature of Princeton Hydro's projects and our ability to deliver comprehensive ecosystem based solutions. Our commitment to excellence is not just corporate rhetoric. It is what enables us, individually and as a company, to consistently stand apart from others.

Princeton Hydro's staff consists of twenty-eight technical personnel and four support personnel. Our staff is composed of individuals with academic training and project experience - many with advanced degrees and/or professional licenses- in stormwater quality engineering, geotechnical investigations, hydrology and hydrogeology, aquatic and wetland ecology, fishery biology, population and community ecology dynamics, environmental planning and environmental risk analysis. Our staff's unique perspectives are apparent in the innovative nature of many of our projects, especially in the disciplines of aquatic and wetland ecology, environmental engineering and watershed management. The following is an overview of our capabilities in different project disciplines.

Stormwater Quality Management

Princeton Hydro is a leader in designing innovative, cost-effective and environmentally sound stormwater management systems. Princeton Hydro has designed and implemented stormwater management systems and environmental enhancement programs for a number of sites, including lakes, corporate buildings, golf courses, planned residential developments and public parks.



Our innovative natural treatment systems improve stormwater quality by promoting the settling of sediments, enhancing nutrient uptake, trapping suspended solids and attached pollutants and creating wildlife habitat. These natural treatment systems are used to create aesthetically attractive environments, improve the client's public image, minimize mowing and reduce or eliminate the need for chemical treatments. Our approach integrates the engineering aspects of stormwater management with natural runoff treatment systems to fulfill such diverse objectives as flood control, water quality protection, erosion and sediment control, aesthetics and recreation, and pollutant reduction. These systems include bioswales, dry basins, extended detention basins, wet retention ponds, infiltration basins, infiltration trenches, sand filters and created wetlands. We have also sized and utilized manufactured treatment systems such as Vortech, Stormceptor, sumped basins and petrofilters. Our capabilities include hydrologic modeling and hydraulic analysis, as well as innovative designs for watershed-wide stormwater management systems.

The experience of Princeton Hydro's staff with non-point source management projects includes the development of regional non-point source pollutant budgets for over 100 waterways. The preparation of stormwater management plans and recommendations and the design of stormwater management basins for pollutant reduction and sediment control is an integral part of many of our lake restoration projects. We have prepared comprehensive pollutant loading analyses on a sub-watershed basis for several studies, and assessed relationships between land use and water quality under storm runoff conditions as part of studies conducted in urban, suburban and rural watersheds.

Princeton Hydro has extensive experience in developing watershed and stormwater management plans on both the local level and on a regional scale. We are recognized for our innovative approach



to stormwater quality and quantity management. Our staff consists of civil and hydraulic engineers, aquatic biologists, wetland scientists and a landscape architect who have collaborated on various projects to assure that hydraulic, water quality, and aesthetic elements are addressed accurately and comprehensively. Our project team is experienced in applying a wide variety of hydraulic and water quality models to stormwater management applications. Related stormwater management experience includes assessing development-related impacts on surface water quality, preparing stormwater quality enhancement plans for developing watersheds, and creating stormwater monitoring plans to meet requirements of the National Pollutant Discharge Elimination System (NPDES).

Hydrologic Studies

Princeton Hydro is experienced with the proper use of a variety of water quality and water quantity models, including many developed or adapted specifically for our projects. For example, Princeton Hydro personnel worked in concert with the NJDEP to develop pollutant loading parameters that could be used state-wide to predict total phosphorus, total nitrogen, and total suspended solids loadings to New Jersey lakes. Our engineers routinely use a variety of models to quantify trophic state and pollutant loading, with many of these models incorporated into spreadsheet programs for versatility and ease of use. Hydrologic models, including TR-20, TR-55, HECRAS, PondPAC, HEC-1, and HEC-2, are used to develop hydrologic budgets for lakes, streams, watersheds, and site development projects.

With the increased requirement for stormwater recharge comes the need to not only properly size infiltration systems, but also to understand their performance from the perspective of resource protection, pollutant control and/or peak flow attenuation. Our staff is fully familiar with the GSR32 methodology, and we have applied our expertise to the design of infiltration systems of various size and function. Some of these systems have been used as part of a base flow management strategy designed to protect sensitive wetlands and streams and threatened and endangered species.

Environmental Planning

Princeton Hydro provides environmental planning services to regional and municipal planning entities in the form of natural resource inventories, environmental inventories and river corridor studies. In each of these types of studies it is critical not only to accurately identify and map natural resources and sensitive environmental features, but also to make sense of how the public interfaces and interacts with these resources. Because the focus of planning is often on watershed management and the protection of natural resources, our planners collaborate closely with our scientists and engineers to ensure that recommendations are consistent with sound planning strategies and local, state and federal regulations.

Public outreach and education is another area of service offered through our environmental planning group. We have found this to be critical to the success of many of our projects given the conflicts that arise between user groups that emerge as part of any regional watershed effort, as well as the need for a well-educated stake holder group to ensure the implementation of watershed plans. We have developed nature trails, interpretive centers and educational kiosks. These elements help make the scientific and engineering components of the project more accessible at the user level, increasing the public's understanding and awareness of the restoration and management goals of our projects.



Public Education and Professional Involvement

Princeton Hydro makes public education an integral part of many of our projects and programs. Conducting public meetings, preparing fact sheets and developing public education programs are an essential component of many of our studies. A number of Princeton Hydro personnel have extensive experience with public education and involvement. This experience includes teaching courses at the university level, as well as educational activities associated with project work. Princeton Hydro personnel are active members in a variety of professional societies that cover a wide range of disciplines and regional environmental interest groups. These include Society for Ecological Restoration, North American Lake Management Society, American Water Resources Association, Society of Wetland Scientists, Association of State Floodplain Managers, Mid-Atlantic Exotic Pest Plant Council and the United States Green Building Council.

Hazard Mitigation Planning

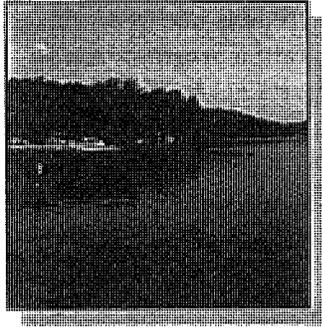
Per the federal Disaster Mitigation Act of 2000, all natural Hazard Mitigation Plans are a prerequisite to qualify for Federal Emergency Management Agency mitigation grants, often targeting flooding problems. Princeton Hydro has very successfully teamed with Jeffrey S. Ward, Inc., Mitigation Specialist, and Antares Planning Group, Mitigation and Disaster Planners, in producing the Hazard Mitigation Plan for the City of Trenton (the third such plan approved and adopted in the State of New Jersey) and the 2008 Update to the State of New Jersey Natural Hazard Mitigation Plan. Princeton Hydro provided engineering and GIS analysis in the production of the plans. Princeton Hydro provided GIS analysis to Antares Planning Group for the Alabama State Hazard Mitigation plan and for the update to the Jefferson Parish, Louisiana plan. Under James Lee Witt Associates, Princeton Hydro provided GIS analysis for New Jersey countywide Hazard Mitigation Plans for: Camden, Cumberland, Gloucester, Middlesex, Salem and Union.

Princeton Hydro teamed with Jeffrey S. Ward, Inc. on a two property buyout in Pohatcong Township, Warren County as one of the earliest FEMA flood mitigation projects in New Jersey. Completed in 2013, Princeton Hydro obtained a grant and progressed a backflooding prevention project from concept design through permitting and construction in the City of Lambertville, New Jersey. This project protects against 75-year return period flooding up tributaries of the Delaware River. Mr. John A. Miller, P.E., CFM, CSM is a local and national expert in floodplain management and has associations with other experts in the field to offer superior services to Princeton Hydro clients.

As part of the mitigation services provided by Princeton Hydro, we work with municipalities on entering and maintaining status in the FEMA Community Rating System. This "good driver" flood insurance discount program awards better practices in providing discounts to policyholders. Mr. Miller is the volunteer CRS Coordinator for the City of Lambertville and has saved an aggregate \$45,000 annually for his community.



Lake And Watershed Management



Princeton Hydro's extensive experience in lake restoration and watershed management projects has made us one of the foremost consulting firms in this field. Princeton Hydro personnel have conducted diagnostic studies and/or restoration projects for over 300 lakes and watersheds throughout the country. These projects have included public lake studies and watershed restoration projects, watershed management initiatives conducted with U.S. EPA and/or state funding programs and privately funded watershed projects. Our watershed management projects deal with stormwater management, septic management, soil erosion control, forestry management and the implementation of urban and agricultural best management practices (BMPs). Our experience with BMPs encompasses conservation tillage, feed lot management, fertilizer and pesticide management and the creation and maintenance of riparian, vegetated buffer strips.

Our previous Phase I studies have required the successful completion of all the tasks suggested in the Clean Lakes Program Guidance Manual (U.S. EPA, 1980/1990) for Diagnostic-Feasibility Studies. These tasks include statistical analysis of historical data sets, hydrologic modeling, pollutant load modeling, land use and water quality impacts assessment, analysis of existing ordinances concerning land use controls and development of lake and watershed management plans. Many of these projects also included the review of existing state and federal laws and regulations, and an assessment of their consistency in relation to stated long-term lake and watershed management goals.

Princeton Hydro's success in watershed management stems from the cumulative training and experience of our staff, and our ability to develop watershed management solutions that are both practical and effective. As a result, our projects have had a high rate of success, both in terms of receiving Phase II funding and in improving water quality. Princeton Hydro has implemented a variety of structural and non-structural stormwater management techniques, including created wetlands, sand filters and passive water treatment systems. The experience gained during these projects has also provided our staff with extensive knowledge of state and federal permitting requirements and procedures.

Princeton Hydro has extensive experience in meeting the special needs related to watersheds associated with public park and public recreational settings. Site constraints, extensive site utilization and the need to satisfy a high aesthetic requirement pose unique problems when addressing watershed and stormwater management issues in park settings. Project activities have included lake and watershed management recommendations, environmental evaluations, environmental education, stormwater management and environmental landscaping.

Wetland and Aquatic Habitat Creation and Restoration

Princeton Hydro is experienced with planning, design, permitting, implementing, and the monitoring and maintenance of tidal and freshwater wetland and aquatic restoration projects for both public and private sector clients. Our restoration, creation and enhancement projects utilize the most current bioengineering construction techniques and materials. Our projects include the design of constructed wetland stormwater management projects associated with major developments, restored brownfield and hazardous waste sites, and recreational and park lands. We have completed

projects on Federal facilities and Federal Park Lands, State Parks, and remediated hazardous waste sites throughout the Northeast and Mid-Atlantic States. Our substantial project experience encompasses sites throughout New Jersey including several high-profile projects within the Hudson-Raritan Estuary including its tributary watersheds and the Newark Bay.

Dam Removal and Stream Restoration

Princeton Hydro has designed small-scale stream stabilization projects on small first order streams to major revetments and breakwaters in coastal and harbor environments. Our staff is experienced in fluvial geomorphology, the United States Department of Agriculture Natural Resource Conservation Service National Engineering Handbook – Chapter 16, the US Army Corps of Engineers Shoreline Protection Manual and the manual's replacement the Coastal Engineering Manual. Princeton Hydro has the ability to use field-obtained data including bankfull discharge, Wolman pebble counts, and longitudinal profiles to correlate with and/or calibrate modeling data. We recognize that empirical formulas cannot be used alone in the design of any stream restoration or shoreline protection project and therefore, modeling must be used to corroborate field observations and vice versa. Additionally, input from our wetland and water resource scientists is utilized to establish appropriate benchmarks for fish and wildlife habitat. Princeton Hydro also has five Rosgen-trained staff members.



Dam Compliance

Princeton Hydro engineers are proficient with government requirements for the safety, maintenance, inspection and operation of dams. Princeton Hydro maintains professional engineers experienced with dam compliance and licensed in New Jersey, Pennsylvania, New York, Massachusetts, and Connecticut. Each State Regulatory agency has their own specific rules, regulations and guidelines for the preparation and completion of dam inspections, Emergency Action Plans (EAP), Operations and Maintenance (O&M) Manuals.

A visual inspection of a dam is an integral and important part of any dam inspection. The visual inspection of a dam provides the most objective indication of a dam's current condition and function. Many of the indicators of distress can be subtle and difficult to observe; Princeton Hydro's experienced, licensed professional engineers complete every visual inspection with extreme detail. Numerous photographs are taken during the inspection and reviewed in the office for any additional information. Princeton Hydro completes the Visual Inspection Checklist (provided and required by each State) and supplies the client with a summary report, including tables with all available engineering statistics. Princeton Hydro attempts to retrieve all previous inspection reports from the owner or the State for review and comparison, recognizing that the long term performance of the dam structure is important to each visual inspection, therefore, short term maintenance and repairs are separated from long term rehabilitation items. Princeton Hydro has worked with owner's budget constraints to complete short term repairs, while preparing the engineering design, calculations, and permits necessary for long term repairs. This way, each dam can be kept in acceptable and safe operating condition until rehabilitation can be achieved.



Dredging

One of Princeton Hydro's engineering focuses is dredging for the purpose of restoring recreational, ecological function and commercial function. Through the years Princeton Hydro has engineered, permitted and overseen the implementation of numerous dredging projects including freshwater lake and river projects from 10,000 cubic yards to over 75,000 cubic yards. Within estuarine environments, Princeton Hydro has provided consulting on stabilization of harbor dredged materials, including the beneficial reuse of several million cubic yards in the New York harbor. As part of Princeton Hydro's technical expertise, sediment surveys using dual frequency sounders have been used to develop existing water depths (hydrographic or bathymetric surveys) and determine the quantity and thickness of accumulated sediments. Additionally, Princeton Hydro has designed and implemented sediment sampling programs to ascertain the geotechnical and analytical parameters of sediment, and subsequently determined disposal options and locations.

Geotechnical and Geologic Engineering

Universal to all civil construction, obtaining appropriate and detailed subsurface information is vital to reducing the unforeseen conditions specific to earthwork and foundation construction. Princeton Hydro's geotechnical engineers have the essential skills necessary to design comprehensive, cost effective subsurface investigations. Our investigations are custom tailored for each site to specifically reveal subsurface constraints. Through a unique combination of traditional direct investigation techniques and non-intrusive technology, our engineers thoroughly document site limitations and develop parameters for natural and anthropogenic resources.

Our engineers are well versed in construction requirements, design, and methodology for numerous types of structures. We provide engineering for the purpose of determining foundation type, size, dimensions, depth, and limitations; site improvements; mitigation of unsuitable materials; and construction techniques. Our field services include the sampling and testing of concrete, monitoring and control of compacted fill materials, sand cone tests, electrical resistivity testing, foundation bearing certification, reinforcing steel inspection and certifications, and IBC 2006 special inspection requirements for structures. Princeton Hydro's engineers regularly provide forensic geotechnical investigation and engineering services and our projects have involved the assessment and repair of failing structures, the retrofit of existing structures to dissimilar uses, and the expansion of existing structures.



Data Analysis and Modeling

Many of our environmental assessments involve the design of statistically valid monitoring and assessment programs and the analysis and synthesis of large sets of environmental data. This work includes modeling efforts involving relationships between species and habitats, and the use of aerial photography to identify critical areas and the habitats of rare and endangered species. This experience has enabled Princeton Hydro to make full use of existing data for the analysis of water quality trends and the preparation of comprehensive lake and watershed management plans. The analysis of data obtained from these sampling programs has enabled our staff to estimate environmental parameters in a statistically sound manner.

Princeton Hydro is experienced with the proper use of a variety of water quality and water quantity models, including many developed or adapted specifically for our projects. For example, Princeton Hydro personnel worked in concert with the NJDEP to develop pollutant loading parameters that could be used state-wide to predict total phosphorus, total nitrogen and total suspended solids loadings in New Jersey lakes. We have developed TMDLs and verified the use of chlorophyll as a TMDL end point and the justification of a phosphorus criteria for lakes. Princeton Hydro routinely uses a variety of models for determining trophic state indices and evaluating pollutant loadings as part of our diagnostic studies. Models for determining non-point source loadings have been incorporated into spreadsheet programs for versatility and ease of use. In turn, we have integrated these models with our Geographic Information System (GIS) capabilities to enable our team of scientists and engineers to seamlessly evaluate or predict water quality impacts caused by changes in land cover.

Materials Testing Laboratory



Princeton Hydro provides soils, geologic, and construction materials testing to compliment its geotechnical engineering program. With our state-of-the-art laboratory, we are able to conduct geotechnical indexing, testing of soils and rock; performance testing for compaction, strength, and durability of construction materials; and assessment of soils for erosion and sedimentation potential. Tests performed at the laboratory include grain size analysis, plasticity index, organic content, moisture content, soil strength tests (UC, UU, CU, CD), California bearing ratio (CBR), 1-D and multi-dimensional consolidation, and flexible and rigid wall permeability testing under constant or falling head conditions. Our laboratory is AASHTO and US Army Corps of Engineers certified to complete a full complement of soils, rock, and construction materials testing.

Water Quality Monitoring

Princeton Hydro has conducted a variety of water quality monitoring programs. Many of our projects have included lake, stream, and watershed modeling, habitat evaluation, and the analysis and synthesis of large sets of environmental data. This work has included modeling efforts to examine relationships between species and habitats, and the use of aerial photography to identify critical areas and the habitats of rare and endangered species. Our personnel are fully conversant with the appropriate protocols associated with the collection and analysis of a variety of environmental parameters.

Most of Princeton Hydro's water quality projects have included the design and execution of sampling programs to evaluate existing water quality. We have conducted sampling programs for lakes to evaluating water chemistry and a variety of biological parameters, encompassing phytoplankton, zooplankton, benthos, macrophytes, and fish. In addition, Princeton Hydro has an in-house biological laboratory with both dissecting and compound microscopes and the associated materials and equipment necessary to conduct phytoplankton, zooplankton and macroinvertebrate identifications and enumerations as per accepted federal and state protocol. Our lab is NJDEP-certified for the in-situ measurement of key ecological parameters as well as the use of automated sampling devices. We have written numerous NJDEP, PADEP, NYSDEC and USEPA quality assurance protocols (QAPPs).



Princeton Hydro owns, operates and services a full array of field and analytical equipment for project use. The equipment available for our lake management and restoration efforts includes the following: boats with outboard motors (17-foot Key West and three Jon boats), four-wheel drive vehicles, Hydrolab Surveyor II, sediment/benthic sampling devices (Ponar, Surber), flow meters and automated samplers, calibrated sediment probes and coring equipment, plankton nets, fish seines, nets, Kemmerer bottles, Secchi disks and a continuous recording fathometer.

Wetland Surveys

Princeton Hydro's project experience includes wetland delineations, jurisdictional determinations, the survey and assessment of threatened and endangered species habitat and the implementation of wetland mitigation designs for the USACOE, NJDEP and U.S. EPA. We routinely direct or prepare wetlands permit applications and environmental impact statements, develop conceptual designs for mitigation projects and provide expert testimony before local and regional planning authorities.

Phase I Environmental Site Assessments

Princeton Hydro has performed Phase I Environmental Assessments for numerous clients in both the State of New Jersey and Commonwealth of Pennsylvania. Clients range from Brownfield redevelopers to non-profit organizations looking to purchase land. Phase I is performed in accordance with the American Society for Testing and Materials (ASTM) 1527. In addition, depending on the state, Princeton Hydro will add the requirements of NJAC 7:26E (New Jersey Department of Environmental Protection) or the ACT 1 Requirements (Pennsylvania Department of Environmental Protection). Princeton Hydro staff members assigned to projects have 40-hour HAZWOPER training.

Aquatic Surveys

Princeton Hydro routinely conducts a variety of sampling and monitoring programs in marine, estuarine and freshwater ecosystems. Many of our projects include the analysis and synthesis of large sets of environmental data. This work has included modeling efforts to examine relationships between species and habitats, and the use of aerial photography to identify critical areas and the habitats of rare and endangered species. Our aquatic projects encompass water quality assessments as well as the investigation of phytoplankton, zooplankton, periphyton, benthos, macrophyte and fish communities. We maintain in-house a full array of fish and benthic invertebrate sampling gear including boat and backpack electrofishing equipment, various sampling nets, water quality meters, automated monitoring devices, sediment sampling dredges and a number of boats. Our stream survey work has included the application of the Rosgen methodology for the assessment of stream corridor impact and the assessment of stream restoration strategies. We are recognized as the state's foremost lake and pond management company, providing such services for state, private and public lake associations.



Invasive Species Management

Princeton Hydro has the capability and experience to manage the most difficult invasive plants in both terrestrial and aquatic ecosystems. Princeton Hydro's invasive plant management specialists work in conjunction with our ecological staff to obtain necessary herbicide treatment permits to eradicate undesired and non-native plants from sites prior to project construction. Also, during the



follow-up monitoring phase required of every mitigation project, our staff is instrumental in suppressing emerging unwanted species to ensure the successful colonization by intended species.

Development Review and Impact Assessment

Princeton Hydro routinely provides services to municipal and regional planning boards in the assessment of development-related impacts on water and wetland resources. This has included the review of housing developments, golf courses, and commercial and industrial sites. As part of these reviews, we have prepared integrated pest management plans, innovative stormwater quality enhancement techniques, upland forest and grassland restoration plans, and wetland and riparian corridor mitigation projects. Princeton Hydro provides environmental consulting services to Princeton Township, Wayne Township, East Amwell Township, Readington Township, Union Township, High Bridge Borough, Montgomery Township, Bedminster Township, Tinicum Township (PA), Greenwood Lake Watershed Management District, Lake Hopatcong Commission, Lake Musconetcong Regional Planning Board and the Deal Lake Commission.

We have also been qualified as experts in Environmental Impact Assessment, Stormwater Quality Management and Environmental Mitigation in the Superior Court of New Jersey, Burlington County, Superior Court of New Jersey, Ocean County, Hopewell Township, Hainesport Township, Evesham Township, Plumstead Township, Chester Township, Jefferson Township, Roxbury Township, Borough of Hopatcong, Sussex County Planning Board, Clinton Township, Vernon Township, Egg Harbor Township, Ocean Township, Neptune Township, Borough of Interlaken, Township of Bernardsville, Randolph Township, Marlboro Township, Voorhees Township, Bordentown, Mansfield Township, Mendham Township, Berkley Township, Harding Township, Monroe (Gloucester Co.) Township, Tobyhanna Township (PA), Westchester (NY), Somers (NY), and Gay Head, Martha's Vineyard (MA).

Waterfront Development

Many of Princeton Hydro's ongoing projects involve the preparation or review of environmental impact assessments for proposed waterfront developments in the New York Harbor, Philadelphia Waterfront and Chesapeake Bay areas. The focus of those efforts is frequently development of study design and interpretation of results, or compliance with federal, state and local regulatory agency requirements.

The key objective of many of these assessments was to evaluate the possible influences of construction activities and post-construction operations on aquatic biota, particularly in estuarine locations. This emphasis largely reflects the professional backgrounds of Princeton Hydro's founders in marine biology, estuarine ecology and the analysis and mitigation of environmental impact.

Princeton Hydro's waterfront development capabilities include expertise in coastal geology, engineering, landscape architecture, planning, wetlands and hazardous materials. Princeton Hydro currently provides extensive site inventory, analytical and planning services for all types of waterfront development projects. Our ability to effectively perform such design and analytical services and to present our work products has been greatly facilitated by the seamless incorporation of GIS technology into virtually all of our projects.

Our comprehensive familiarity with requirements of Section 404 of the Clean Water Act, Section 10 of the Rivers and Harbors Act and other pertinent legislation has enabled us to rapidly develop studies ideally structured to meet regulatory agency objectives as well as to convincingly respond to issues of public concern.



Hamilton Path Stream Crossing

NJ Department of Property Management and Construction

Hamilton Township, New Jersey

Princeton Hydro was contracted by the NJ Department of Property Management and Construction to design, permit and oversee the construction of a pedestrian path at Lock One of the Delaware and Raritan Canal in Hamilton, NJ. This part of the Division of Parks and Forestry Land was landlocked between Interstate Route 295 and the section of the canal at Lock One. Princeton Hydro, along with its team members, Joseph B. Callaghan, Inc. (structural engineer), Hunter Research (archeological services), and Van Cleef Engineering (land surveyor), designed the pedestrian path and a bridge that would cross the canal.

Princeton Hydro secured the required project approvals including a Waterfront Development Permit, a Freshwater Wetlands General Permit No. 17 (NJDEP), and approval from the Delaware and Raritan Canal Commission (DRCC), US Army Corps of Engineers, and the Mercer County Soil Conservation District.

The path was designed as a six-foot wide stone path, and the bridge was designed to replicate a cable suspension bridge that was often utilized in canal operations in the 1800s. In addition to permitting, Princeton Hydro completed wetland delineations, prepared the site plans, progressed a geotechnical investigation, designed the foundation system of the bridge and provided construction inspection services. The project was completed in 2011 to connect the scenic view parking area on Interstate 295 to downtown Bordentown.





Trenton Stream Daylighting and Floodplain/Stream Creation

*Brownfield Redevelopment Solutions, Inc.
City of Trenton, NJ*

Princeton Hydro was retained by the City of Trenton to restore a stream as part of a larger urban revitalization and brownfield redevelopment project. The city has taken ownership of the former Magic Marker factory site and other properties adjacent to the stream to build affordable housing and create urban greenspace. The stream, Petty's Run, suffered a variety of common urban afflictions including a narrow road crossing that routinely flooded, 250 feet of channel piped underground, contaminated soils on both sides and heavy debris and litter throughout the channel.

Princeton Hydro developed a "green-infrastructure" design that addressed a range of issues including the restoration of many of the natural functions associated with this stream. Heavy debris and the concrete remains of earlier development were removed from the channel. The upstream road crossing was removed and replaced with a pedestrian crossing. Channel dimensions were designed to accommodate higher flows. In addition, the downstream 250-foot piped section was daylighted and a small adjacent floodplain meadow was created. At the downstream end of the project, a new headwall and larger pipe were constructed to connect to the existing downstream drainage network. While adding habitat value, the area serves as aesthetic public open space with a walking trail linked to the nearby neighborhood.

The stream was redirected from contaminated areas and failing banks were stabilized using a variety of bioengineering techniques. In the daylighted reach, a series of pool-riffle features using riverstone were installed to allow for the necessary changes in elevation. Princeton Hydro worked with NJDEP and the City of Trenton to finalize the design and acquire the required permits. This project was completed in the summer of 2011.

The project won a 2011 Phoenix Award for Brownfield Redevelopment and a 2013 Bowman's Hill Land Ethics Award.





Walnut Brook Stream & Wetland Restoration

*North Jersey Resource Conservation and Development Council
Raritan Township, New Jersey*

The North Jersey Resource Conservation and Development Council (NJRC&D) contracted Princeton Hydro to conduct streambank stabilization and wetland mitigation design services for Walnut Brook on the property known as Dvoor Farms located in Raritan Township, Hunterdon County, New Jersey.

Walnut Brook was actively eroding and re-meandering after a history of channelization for agriculture. The geomorphic readjustment process had been accelerated in recent years by heavy rain and flood events. Channel incision had disconnected the stream from its floodplain and meander development threatened an adjacent park. Riparian vegetation planting, wetland creation, floodplain enhancement and unique channel stabilization techniques were developed to address these issues.

The overriding objectives of the project were to enhance the functions and values provided by the floodplain and to stabilize the channel of Walnut Brook. The wetland creation component provides flood storage, which in turn fosters the development of the wetland communities. A suite of channel stabilization measures were employed to protect park infrastructure and to demonstrate the use of alternative methods that could be applied elsewhere in the state. The restoration project involved the creation of three acres of emergent wetland, restoration of the Walnut Brook floodplain and riparian areas (approximately 10 acres), and stabilization of over 700 linear feet of eroding banks. The wetland element of the project was designed to increase the flood storage functions of the floodplain.

Princeton Hydro conducted detailed field investigation and data collection to guide the design. For the wetland component, monitoring wells were installed to characterize groundwater conditions and a water budget was developed to guide the wetland design to ensure that there would be an adequate supply of surface and groundwater to maintain the system as a functioning palustrine wetland.

The project won the 2010 AWRA Excellence in Water Resources Protection and Planning Award for exceptional stream restoration. The project also received the 2010 Governor's Environmental Excellence Awards for Healthy Ecosystems



Rowan University Bio-Infiltration Stormwater Retrofit

*Rowan University
Glassboro, Gloucester County, NJ*

Princeton Hydro was contracted by Rowan University to provide design services for the construction of a stormwater retrofit in one of the University's main parking areas. The existing parking area was constructed prior to the implementation of current stormwater management requirements. Consequently, the original construction of the parking area did not contain any stormwater flow or water quality control measures. The uncontrolled runoff was creating impacts to existing infrastructure and severe streambank erosion on nearby Mantua Creek. In order to address the runoff volume, peak flow rate, and water quality impacts of the parking area, Princeton Hydro designed a series of bio-infiltration islands to capture and infiltrate incoming stormwater runoff as part of the Mantua Creek Implementation Plan.

Under the previous conditions, the series of stormwater inlets created large areas of nuisance ponding due to significant portions of runoff which bypass existing inlets. The bio-infiltration cells reduce the nuisance ponding and will also improve winter weather driving conditions.

The retrofit system was designed in a manner which does not require major infrastructure modifications. Runoff inflow to the bio-infiltration cells and overflow occurs via a series of curb cuts along each cell. Princeton Hydro designed a custom planting plan which focuses on native vegetation ideally suited for the unique hydrologic conditions expected in the bio-infiltration cells.

The project was constructed in the fall of 2011. The bio-infiltration cells provide groundwater recharge, water quality treatment, and peak flow control. In addition to their functional aspect, the bio-infiltration cells provide an aesthetic improvement to the parking area.



Stormwater Pond Restoration

Greenbriar at Whittingham

Monroe Township, NJ

An active adult community with over 1,600 homes, Greenbriar at Whittingham contacted Princeton Hydro to address a number of issues affecting their seven stormwater ponds. The ponds are an integral component of the community and serve as stormwater infrastructure, hazard features for the community golf course, and aesthetic centerpieces of the residential community.

Because each pond provides stormwater capture and retention, they are routinely inundated with nutrient rich runoff from the surrounding residential and golf course land uses that make up the ponds' watersheds. This process, over time, had increasing unsightly algal blooms, reducing the aesthetic benefits of the ponds for the residents. Additionally, because the ponds were surrounded by lawn right to the water's edge, wave action had severely eroded their shorelines.

Water monitoring was completed for four years to establish historic water quality parameters and to assess the effectiveness of management efforts. From this data, an individual treatment regime was tailored to each pond including aeration, aquatic pesticide applications, and nutrient control measures.

A native meadow planting was established around the two ponds at the main entrance to the development to help reduce sedimentation and filter overland runoff before it entered the ponds. Wetlands plants along the water's edge protect the shoreline from erosion. The plantings provide numerous benefits including reduced maintenance costs, goose control, and wildlife habitat.



Floodplain Delineation

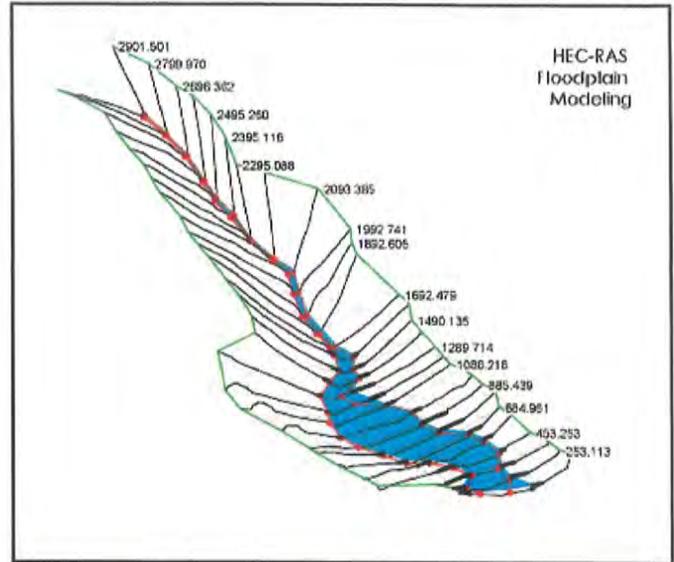
Bohler Engineering, P.C.

Allamuchy, Bridgewater, Hillsborough, Readington, and Warren Townships, Cedar Grove Borough, New Jersey

Bohler Engineering, P.C. contracted Princeton Hydro to delineate the 100-year Floodplain on sites in various municipalities in New Jersey. When proposed construction is near a non-delineated watercourse in New Jersey, an analysis is required to establish the floodplain limits. Stream flows were determined, in part by the Soil Conservation Service TR-55 method, utilizing soil information from the County soil surveys, zoning designations to determine the possible future impervious coverage as required by New Jersey regulations, and offsite drainage area from the US Geological Service quads. Roughness coefficients for the channel and overbank were estimated for the natural channels. Ground surveys were supplemented with aerial topography, when necessary, to create a composite topographic map.

A triangular irregular network (TIN) was created within the ArcVIEW GIS platform. Cross sections were defined and pre-processed into the HEC-RAS input file. Culverts and specific hydraulic data were entered directly into the HEC-RAS program. Several projects required the additional delineation of the floodway and floodway fringe. The floodway was obtained by equal conveyance reduction calculations to raise the 100-year flood elevation by less than 0.2 feet. Post-processing was reversed from HEC-RAS through HEC-GeoRAS and ArcVIEW to create the floodplain limit with agreement with the topographic surface.

Princeton Hydro's proficiency in CAD, GIS, and hydraulic modeling provided expedient floodplain and floodway limits to guide the designs of the site engineer, fulfill the requirements of NJDEP permitting, and protect critical water resources.





Ely Creek Backflow Prevention Project

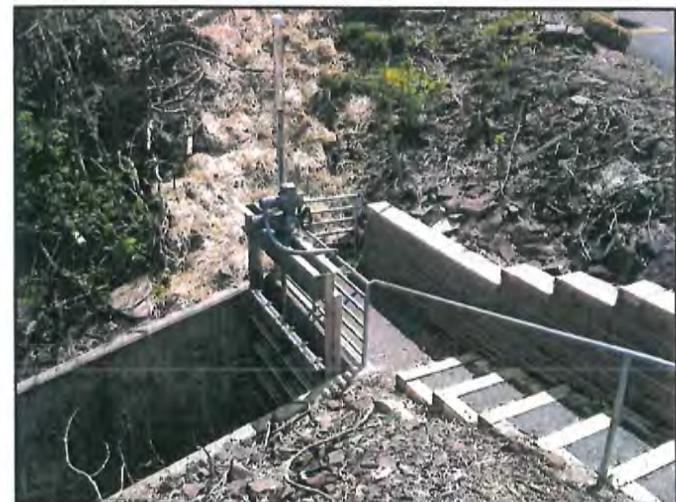
*City of Lambertville
Hunterdon County, NJ*

Ely Creek, a human-altered stream in the northern section of the City of Lambertville, backflows from the Delaware River when the river is high. Twenty-nine dwellings and five commercial structures were impacted by Delaware River floods in 2005 (75-year return event) and 2006 (60-year return event). The combined claims to the Federal Emergency Management Agency's (FEMA) National Flood Insurance Program were \$365,500 in this low lying area of the City. Residents were unable to reoccupy homes until utilities were repaired and replaced, and businesses were closed until carpeting, drywall, electric outlets and equipment were replaced. The Ely Creek basin has the worst commercial flooding in the City.

Working for the City, Princeton Hydro assembled data, modeled the watershed, performed a benefit-cost analysis, selected the components, performed preliminary and final engineering, submitted for permits, developed bid specifications, provided contractor oversight and administration of a FEMA \$150,000 Flood Mitigation Assistance grant overseen by New Jersey Office of Emergency Management.

The project includes the installation of a flood gate (slide gate) to block creek backflow, and the utilization of portable pump to bypass the flow of Ely Creek to the Delaware River. The project required little infrastructure modification and takes advantage of the Delaware and Raritan Canal embankment in protecting the low land surrounding the creek.

For a fraction of the claims paid by FEMA, residential dwellings and commercial properties are now protected from Delaware River backflooding via Ely Creek for storms similar to those of 2005 and 2006.





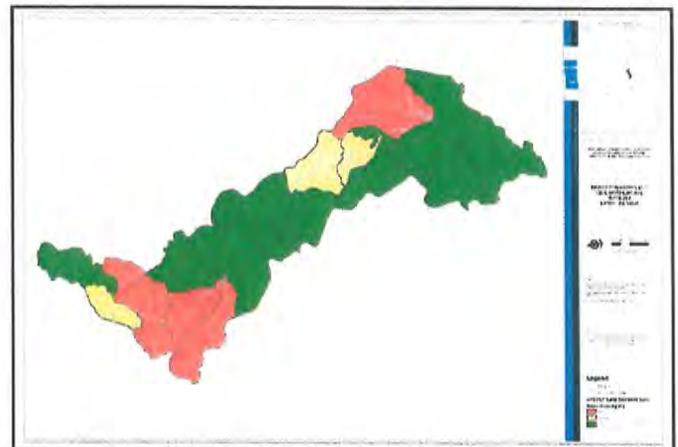
Manalapan Brook Watershed Protection and Management Plan

*New Jersey Water Supply Authority
Monmouth and Middlesex Counties, New Jersey*

Princeton Hydro was contracted by the New Jersey Water Supply Authority (NJWSA) to develop a comprehensive watershed protection and restoration plan for the Manalapan Brook watershed. A two-year monitoring investigation determined that a phosphorus Total Maximum Daily Load (TMDL) was not appropriate for the site specific conditions within the watershed. Additional water quality data indicated that the TMDL pollutant of concern should be Total Suspended Solids (TSS) instead of Total Phosphorus (TP). Both the NJWSA and the NJDEP agreed with this revision and a revised project scope and development of a Restoration Plan was initiated.

Princeton Hydro completed a comprehensive watershed characterization, conducted additional in-stream water quality monitoring, and completed a detailed Stream Visual Assessment (SVA) analysis of the Manalapan Brook watershed. The SVA included over 100 stations throughout the 43 square-mile watershed and was used in the identification and prioritization of restoration projects throughout the watershed. Princeton Hydro also applied the ArcView Generalized Watershed Loading Function Model (AVGWLF) to quantify the TSS and nutrient loads in the Manalapan Brook watershed. The AVGWLF results were then used in concert with the SVA results to efficiently identify and prioritize potential restoration projects to attain the target TSS load identified as part of the plan.

The project also included the design of five projects in the watershed to provide TSS load reduction. These projects included stormwater wetland retrofits, dry detention basin retrofits, and both shoreline and streambank stabilization/restoration projects. In addition to the five design projects, a demonstration/implementation project was also designed and constructed as part of the plan implementation. The implementation project entailed the construction of a large rain garden constructed in a public park with high visibility within the watershed. The retrofit rain garden treats runoff from the adjacent parking areas and provides aesthetic amenity for the heavily used public park.



Wetland Mitigation Bank

Somerset County

Branchburg Township, NJ

The Somerset County Wetland Mitigation Bank was developed to compensate for wetland impacts associated with both past and future County infrastructure projects. The remaining wetland credits created by this wetland project will be used, as needed, solely by Somerset County.

The 8.1 acre wetland mitigation bank was created as a floodplain wetland system composed mostly of forested wetland adjacent to the South Branch of the Raritan River. The project was designed to provide several important wetland functions such as flood storage, sediment removal and wildlife habitat. The site is appropriate for creating a floodplain wetland system because of the proximity of the South Branch of the Raritan River and the presence of similar wetlands to that proposed downstream of the site. This naturally occurring wetland was used as a model for the wetland system proposed.

The wetland mitigation included the construction of emergent and floodplain forested wetlands from an existing upland agricultural field. Extensive earthwork was required to lower the surface elevation and expand the current backflow channel to establish wetland hydrology. The grading was proposed to lower the surface elevation, thereby facilitating the retention of stormwater and stream backflow during flood events. The retention of surface water in the mitigation site will increase the duration of inundation and saturation typical of a floodplain wetland. HEC-RAS was used to establish the elevations needed to design the site so that it will flood at least four times a year. In addition, HEC-RAS was used to determine tractive force and velocity at different flood stages, depths, and cross sections to guide the mitigation design.

The long-term objective was to facilitate the development of a floodplain wetland consisting of three distinct vegetation planting types: forested wetland, scrub/shrub wetland, and emergent wetland as well as open water. In addition, plantings were installed to enhance wildlife value. The proposed species were limited to indigenous species that are common components of the local riparian or floodplain flora. Based on the Plant Stewardship Index (PSI) studies, the site has a comparatively high floristic quality and supports several rare species. The site is not only a natural-looking feature of the South Branch Raritan River floodplain, but one that supports a diverse flora and wildlife community.

This project was awarded a Firman E. Bear Chapter, Soil and Water Conservation Society award for Ecological Excellence.





Pleasant Grove Dam Removal and Wetland Mitigation

Greenvest, LLC

Township of Jackson, Ocean County, New Jersey

Princeton Hydro was contracted in 2012 to provide ecological restoration and engineering design services for a turnkey mitigation project for the NJ Turnpike Authority to compensate for impacts associated with the Garden State Parkway 83 to 100 Improvements Project.

The Pleasant Grove Mitigation Site is located just south of I-195 in Jackson, NJ, in the headwaters of a tributary to Toms River. This 130+ acre site was historically cleared, ditched and dammed for intensive cranberry and row crop production.

The project involved the removal of an earthen dam which created a two-pool impoundment, and restoration of 800 linear feet of zero-order stream channel that had been impaired since 1930. The site design included re-establishment of approximately 65 acres of wetland to upland forested riparian zone and enhancement of modified agricultural wetlands. The project resulted in restoration of 70 acres, and full integration of an additional 60 acres, for a total of 130 acres of headwater, forested wetlands and riparian zone, including the preservation of two stands of Atlantic White Cedar.

For this ecologically diverse project, Princeton Hydro provided a multifaceted analysis and design approach, weaving together expertise from our in-house ecologists, biologists, fluvial geomorphologists, and hydraulic engineers. The implemented design incorporated a much softer touch than typical stream restoration projects, with native vegetation and large woody debris playing a primary role in the form and function of proposed stream restoration through the former impoundment. Understanding of the overall lack of risk, and incorporation of anticipated lateral adjustment of the stream allowed Princeton Hydro to design and permit a cost effective, naturally functioning, and ecologically appropriate stream corridor.

With construction completion in 2012, this successful project marked the first permitted use of dam removal as direct wetland mitigation in the State of New Jersey.



ATTACHMENT "B" – RESOLUTION OF APPROVAL

37



Township Council
1 Municipal Plaza
Bloomfield, NJ 07003

Louise M. Palagano
Municipal Clerk

<http://www.bloomfieldtwpnj.com>

Meeting: 03/03/14 06:30 PM

2014 RESOLUTION AWARD OF CONTRACT

AUTHORIZING THE AWARD OF A NON-FAIR AND OPEN CONTRACT FOR AN ENGINEER AND ENVIRONMENTAL PLANNER

WHEREAS, the Township of Bloomfield needs the services of an Engineer and Environmental Planner; and

WHEREAS, the Township desires to make this appointment under the provisions *N.J.S.A. 19:44A-20.5*, as a non-fair and open contract; and

WHEREAS, this contract will end December 31, 2014; and

WHEREAS, the Township Administrator has determined that the value of these services will exceed \$17,500; and

WHEREAS, Princeton Hydro, 1108 Old York Road, Ringoes, NJ, 08551 (hereinafter "Professional") has submitted the attached proposal indicating the Professional will provide the necessary services; and

WHEREAS, the Professional has completed and submitted a Business Entity Disclosure Certification which certifies they have not made any reportable contributions to a political or candidate committee in the Township of Bloomfield in the previous one year and that the contract will prohibit the Professional from making any reportable contributions during the term of the contract; and

WHEREAS, the Director of Finance has certified that funds are available to cover the cost of this service.

NOW, THEREFORE, BE RESOLVED, that the Mayor and Council of the Township of Bloomfield authorizes the Mayor to execute a contract with the Professional as described herein; and

APPROVED AS TO FORM AND PROCEDURE
ON BASIS OF FACTS SET FORTH

Director of Law - Township Attorney

BE IT FURTHER RESOLVED, that the Professional is hereby authorized to provide recommendation to the appropriate authority to consider for implementation while performing the responsibilities in the attached proposal; and

BE IT FURTHER RESOLVED, that no minimum payment is implied or guaranteed; and

BE IT FURTHER RESOLVED, that the Business Entity Disclosure Certification, the Township Administrator's Determination of Value, the proposal of the Professional and the contract itself be placed on file with this resolution; and

BE IT FURTHER RESOLVED, that the above documents shall be available for public inspection at the office of the Township Clerk during regular business hours; and

BE IT FURTHER RESOLVED, that the Township reserves the right to cancel this contract upon thirty (30) days notice and the Professional shall only be paid for the work completed or on a pro-rated amount if the contracts calls for a monthly retainer; and

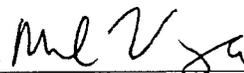
BE IT FURTHER RESOLVED, that a notice of this action shall be printed once in the official newspaper of the Township of Bloomfield.

......*...*

I hereby certify that the above resolution was duly adopted by the Mayor and Council of the Township of Bloomfield at a meeting of said Township Council held on March 03, 2014.



Municipal Clerk of the Township of Bloomfield



Mayor of the Township of Bloomfield

✓ Vote Record - Resolution 3299						
		Yes/Aye	No/Nay	Abstain	Absent	
<input checked="" type="checkbox"/> Adopted						
<input type="checkbox"/> Adopted as Amended						
<input type="checkbox"/> Defeated						
<input type="checkbox"/> Withdrawn						
<input type="checkbox"/> Tabled						
<input type="checkbox"/> Approved						
<input type="checkbox"/> Approved by Consensus						
<input type="checkbox"/> Not Discussed						
<input type="checkbox"/> Tabled with No Vote						
<input type="checkbox"/> Discussed						
<input type="checkbox"/> Veto by Mayor						
<input type="checkbox"/> Approved No Vote						
<input type="checkbox"/> Deferred						
	Elias N. Chalet	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Nicholas Joanow	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Carlos Bernard	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Wartyna Davis	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Joseph Lopez	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Carlos Pomares	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Michael J. Venezia	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	