



## CIVIL SITE ENGINEERING & FEDERAL EXPERIENCE

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## FIRM PROFILE

# PWGC: SOLUTIONS FOR A CHANGING WORLD

## MEET PWGC

PWGC was founded by Paul Grosser, PhD, PE, PG, a thought leader who recognized the need for a multi-disciplined engineering and environmental consulting firm that offered a diverse range of services to meet market demand regionally and nationally. Based in Bohemia, NY, PWGC has offices in New York City, Syracuse, Saratoga Springs, Monticello and Connecticut.

PWGC serves the New York Metropolitan region and has established an industry recognized reputation for innovative problem solving and providing quality services to municipal, educational, private, public and federal clients. We are dedicated to providing cost-effective and timely services that result in practical solutions for its clients.

PWGC has a multi-disciplined staff of more than 70 professionals. Our strength lies with these licensed professional engineers, geologists and hydrogeologists, LEED accredited professionals and environmental compliance specialists, which gives PWGC a wealth of experience key to helping bring your project from idea to reality.

## CHOOSE PWGC

Whether your objectives are planning, design, redevelopment, or resiliency, PWGC's solutions are innovative and economical. PWGC is committed to client goals and our dynamic team of professionals provide innovation and flexibility to deliver customized solutions to projects regardless of size, complexity or duration.

## THE PWGC DIFFERENCE

What sets us apart is our customized approach to each project, our rapport with regulatory agencies and our exceptional project management. PWGCs assets that translate into additional value for you include the following:

- Strong working relationships with key regulatory sector players
- Specialists in regulatory requirements to facilitate quicker approvals
- Highly responsive to budget & time constraints to get your project on line faster
- Project and quality control monitoring to exceed your project needs
- More than 70 dedicated professionals to provide a wide array of services
- Strict adherence to environmental compliance standards

**Make PWGC's quality environmental consulting and engineering solutions work for you.**



## PWGC QUICK FACTS

### Corporate

- Founded & Incorporated: 1990
- SAM/SBA Registered
- Small Business
- DUNS # 798730966
- Federal ID: 11-3612196

### Offices

- Bohemia, NY
- New York, NY
- Monticello, NY
- Saratoga Springs, NY
- Syracuse, NY
- Shelton, CT

### Qualifications

- LICENSES - Engineer, Geologist, LSP, NC, NY, NJ, PA, MD, IN, NH, MA, FL, WA
- LEED-AP
- Envision

### Service Codes

#### NAICS

- 562910 Environmental Remediation
- 541330 Engineering
- 541620 Environmental Consulting
- 562998 Waste Management Services
- 541370 GIS Base Mapping
- 237130 Green Services

#### SIC

- 87489905 Environmental Consulting
- 8711 Engineering Services



# SUMMARY LIST OF SERVICES

## SEQRA Consulting and Planning Services

- Administration of the SEQRA Process
- Type II Opinion Letters
- Coordinated Review
- Environmental Assessment Forms
- Scoping Documents
- Environmental Impact Statements
- Determinations of Significance
- Findings Statements
- Notices and Assistance with Resolutions
- Land Use and Zoning Assessments

## Environmental Services

- Contract Administration
- Petroleum & Chemical Spill Investigation & Remediation
- Remedial Alternative Assessment & Design
- Remedial Construction Management
- Property Transaction Services
  - Due Diligence, RI/FS, PCR
  - Brownfields Redevelopment—Investigation, Remediation, Program Management
  - Phase I, Phase II Environmental Site Assessments
  - NYC E-Designated Sites
  - NYC OER Program Management—Investigations, Remediation, Grant Application
  - Cost Estimating—Property Investigation & Remediation
- Environmental Audits—Assess Environmental Liability
- Environmental Assessment & Contaminant Source Evaluation
- Groundwater Investigation & Remediation
- Aquifer/Pumping Testing
- Risk-Based Approach Solutions
- Site Closure Reports
- UST/AST Management
- Air, Water, Soil & Soil Vapor Sampling/Monitoring Community Air Monitoring
- Environmental & Health Risk Assessment
- Radiological Investigation & Remediation Services
- Hazardous Waste Management
- Soil Management, Certified Clean Fill
- Storm Water Management
- Water Table Evaluation & Flood Mitigation
- Dewatering Design, Permitting & Compliance Sampling

## Environmental Compliance/Management

- Air Quality—Title V Permitting, Air Emission Inventories, Tier II & TRI Reporting
- Articles XI & 12 Hazardous Materials Storage Compliance for Nassau & Suffolk Counties, NY
- Chemical/Petroleum Bulk Storage Tanks—Permitting, Audits, Regulatory/Environmental Compliance Management
- Facilities Contingency Plan Development/Management, including SPCC, SWPPP, FRP
- Compliance Review
- Regulatory Compliance Reporting
- FAR 139.321 Fire Safety Inspections
- Fuel Storage Facilities & Mobile Fuel Equipment

## Industrial Hygiene

- Asbestos Inspections and Testing
- Indoor Air Quality

- Legionnaire Insoections
- Lead/Mold Testing and Remedial Plans
- Noise Surveys

## Expert Counseling/Client Representation

- Expert Testimony, Support & Counsel

## Wastewater/Water Supply

- Water Supply/Wastewater—Systems, Planning, Design
- Groundwater Modeling
- Site/System/Feasibility Evaluation, Planning & Technical Assistance
- Water Conservation Plan Development

## Natural Resource Studies

- Wetlands Delineation, Permitting & Mitigation Design
- Threatened & Endangered Species Surveys
- Migratory Studies
- Ecological Studies
- Ecological Risk Assessments
- National Environmental Policy Act (NEPA) Studies
- Planning
- Watershed Analysis

## Energy/Sustainability Solutions

- Geothermal System Feasibility Analysis, Design, Permitting & Construction Management
- Renewable Energy Design for Solar & Wind
- Carbon Footprint Analysis, Profile & Management
- Alternative Fueling Station Planning & Design, Equipment Specification, Construction Observation, Permitting, Compliance & Facility Commissioning for Compressed Natural Gas, Hydrogen, Biodiesel & Ethanol-85
- Building Due Diligence & Energy Studies
- LEED Administration & Sustainable Design Practices
- High Performance Sustainable Buildings
- Energy Conservation & Energy Recovery Alternatives
- MEP/High Efficiency Equipment Solutions
- Power Generation, Cogeneration & Fuel Cells
- Energy Modeling, Utility Rebate Programs & Tax Incentives
- Green Legislation & ARRA Stimulus Grants
- GIS Based Modeling for Wind, Solar & Carbon Footprint Analysis

## Civil/General Engineering

- “Best Economic Alternatives” Evaluation
- Comprehensive Feasibility Studies
- Conservation Plan Development
- Construction Planning, Management, QA/QC
- Drainage Planning, Grading & Design
- Evaluation, Planning & Technical Assistance
- Facility Design & Condition Assessment
- Planning & Design
- Property Condition Report

## Geographical Information Systems/Global Position Systems

- Data Collection & Conversion
- Infrastructure & Asset Management
- Wetlands & Endangered Species Delineation
- Digital Elevation Model Analysis
- Customized GIS Applications, GIS/CAD Integration
- Database Development, Conversions, Manual Digitizing
- Website Development
- GPS Field Data Collection & Post-Processing
- Remote Sensing & Image Processing



A construction site under a clear sky. In the foreground, a surveyor wearing a yellow hard hat and a high-visibility vest stands with their back to the camera, looking through a theodolite mounted on a tripod. They are holding a clipboard. In the background, a large yellow tower crane is visible, and several vertical rebar structures are rising from the ground. The bottom half of the image is overlaid with a blue graphic consisting of several concentric, curved lines that sweep from the left towards the center.

# CIVIL SITE ENGINEERING

## INTRODUCTION TO CIVIL SITE ENGINEERING

PWGC is an experienced engineering firm with a significant understanding of real estate-related civil site design requirements. Founded in 1990 by thought leader Paul W. Grosser, PhD, PE, PG, Executive Chairman, PWGC has developed a well-honed approach to assessing civil site requirements and drafting innovative and sensible solutions that unlock hidden value.

Given its economic importance, civil site represents one of PWGC's largest market segments. These efforts are directed by some of the firm's most senior and experienced associates. Our spectrum of experience ranges in size from small residential and commercial sites to area-wide projects for the public and private sector, including school districts, large-scale commercial and multi-family developments.

PWGC's team of engineering and environmental professionals is led by Senior Vice President Bryan Grogan, PE, and Vice President Gerry Rosen, PE, whose real-world experience working in cooperation with development and legal interests gives PWGC the seasoned perspective to deliver civil site designs drafted to receive positive regulatory review.

PWGC recognizes that every development project has its own identity, which requires the tailored application of civil site design depending on client objectives, site conditions and regulatory environments. Our established approach to

civil site engineering is based on open communication with the client, which ensures our designs meet project objectives.

PWGC's know-how has enabled us to work with some of New York metropolitan region's most influential developers and institutions. Our clients include RXR Realty, REDCOM, Rechler Equity Partners, TRITEC Real Estate, Benjamin Beechwood, New York City's Department of Parks and Recreation, The Ross School, and Suffolk County's Department of Public Works, to name a few.

PWGC's professionals have more than 100 years combined experience associated with civil site engineering. On a daily basis, PWGC delivers civil site engineering services efficiently and economically on behalf of our clients. Our personnel give PWGC's clients the foresight to make well-informed decisions to allow their projects to move from the realm of ideas to reality.

PWGC performs all consulting, project management, and support services in accordance with strict quality assurance and quality control standards. All senior personnel are actively involved in day-to-day operations, making key decisions and monitoring project progress for tasks as varied as engineering design and construction support to review for technical investigations.



Ross School  
East Hampton, NY



## CIVIL SITE ENGINEERING SERVICES

PWGC provides a complete range of civil site design and engineering consulting services for a variety of clients, including residential and commercial applications in the public and private sector. Our engineering group has the required expertise to be a valued team member for your project.

**PWGC provides Civil Site Development Design and Engineering services specializing in the following:**

| PRE-DESIGN SERVICES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | DESIGN AND ENGINEERING                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | CONSTRUCTION SERVICES                                                                                                                                                                                                                                                                                                                                                                                                                        |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• Site Assessment/Inspection</li> <li>• Feasibility Studies</li> <li>• Schematic Plans/Sketches</li> <li>• Environmental Assessments</li> <li>• Environmental Impact Statements</li> <li>• Zoning Analysis</li> <li>• Change of Zone/Variance Applications</li> <li>• Floodplain and Wetland Investigation</li> <li>• Wetland Permitting</li> <li>• Hydrological Studies</li> <li>• Yield Mapping</li> <li>• Traffic Letters and Studies</li> <li>• Geotechnical Investigation</li> <li>• SEQRA</li> </ul> | <ul style="list-style-type: none"> <li>• Foundation Engineering</li> <li>• Site Removal and Demolition Plans</li> <li>• Site Plans and Master Plans</li> <li>• Grading and Drainage Plans</li> <li>• Builders Pavement Plans</li> <li>• Stormwater Management Designs</li> <li>• Stormwater Permitting and Compliance</li> <li>• Wastewater and Sanitary Engineering</li> <li>• Utility Plans, Location and Coordination</li> <li>• Approvals and Permitting</li> <li>• Water Supply Design</li> <li>• Electrical and Mechanical Support</li> <li>• Geothermal Systems</li> <li>• Geotechnical Engineering</li> </ul> | <ul style="list-style-type: none"> <li>• Project Management</li> <li>• Construction and Bidding Documents</li> <li>• Specifications</li> <li>• Construction Cost Opinions</li> <li>• Community Meetings</li> <li>• Storm Water Pollution Prevention Plans</li> <li>• Construction Administration/Observation/Inspection</li> <li>• Shop Drawing Review</li> <li>• Bid Analysis</li> <li>• Certifications for Municipal Acceptance</li> </ul> |



**The Shipyard at  
Port Jeff Harbor**

## PWGC REFERENCES

PWGC provides a complete range of civil site development design and engineering consulting services for a variety of clients, including residential and commercial applications in the public and private sector. PWGC's engineering group has the required expertise to be a valued team member for your project.

### The Ross School

Dan Ruzow - 631-907-5249  
18 Goodfriend Drive,  
East Hampton, NY 11937

### Inlet Seaford

Julia Bartlet - 631-668-3419  
533 East Lake Drive, PO Box 2148,  
Montauk, NY 11954

### Amber Court

Raphael Weiss - 516-334-383  
3400 Brush Hollow Road,  
Westbury, NY 11590

### Town of Oyster Bay

Matthew Russo - 516-677-5886  
150 Miller Place,  
Syosset, NY 11791

### Suffolk County Department of Public Works

Michael J. Monaghan - 631-852-4225  
335 Yaphank Avenue, Yaphank, NY 11980

### TRITEC

Marty DePasquale - 631-751-0300  
45 Research Way, Suite #100,  
East Setauket, NY 11733

A photograph of a construction site for a large concrete structure, possibly a bridge or a large building. The structure is composed of several large, rectangular concrete pillars. The top of the structure is heavily reinforced with a dense network of steel rebar. Numerous vertical rebar bundles protrude from the top of the structure. Several construction workers wearing hard hats and high-visibility vests are visible. One worker is in the foreground, looking towards the structure. Another worker is on a higher level, near a yellow crane. The background shows a clear blue sky and some trees. A large, stylized blue graphic with concentric circles is overlaid on the bottom half of the image.

## CIVIL SITE ENGINEERING EXPERIENCE & CLIENTS



Eastport South Manor K-2 Primary School



Sebonack Golf Club

## CIVIL SITE ENGINEERING CLIENTS

| LENDERS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | DEVELOPERS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | PUBLIC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>American Community Bank</li> <li>Bank of China</li> <li>People's United</li> <li>Investors Bank</li> <li>Citigroup</li> <li>Independence Community Bank</li> <li>Long Island Commercial Bank</li> <li>M&amp;T Bank</li> <li>First National Bank of Long Island</li> <li>Sterling National Bank</li> <li>The Bank of East Asia</li> <li>United Commercial Bank</li> <li>Valley National Bank</li> <li>BankUnited</li> <li>Goldmans Sachs</li> </ul> | <ul style="list-style-type: none"> <li>Belvedere Property Management</li> <li>The Witkoff Group</li> <li>Marstan Development Corp.</li> <li>Hudson Companies</li> <li>Hudson Development USA</li> <li>Greater Jamaica Development Agency</li> <li>Advanced Residential Communities</li> <li>Seabreeze Homes</li> <li>Atlantic Development Corp.</li> <li>Bedford Real Estate Planners</li> <li>Renaissance Realty</li> <li>Crystal Bay Homes of Long Island</li> <li>Beechwood Organization</li> <li>Heatherwood Communities</li> <li>Trinity Real Estate</li> <li>WinMar Homes</li> <li>Benjamin Development Company</li> <li>Tritec Real Estate Company</li> <li>REDCOM</li> <li>RXR Realty</li> </ul> | <ul style="list-style-type: none"> <li>Suffolk County Dept. of Public Works</li> <li>City of Long Beach</li> <li>City of Glen Cove</li> <li>Water Authority of Great Neck North</li> <li>Village of Hempstead</li> <li>Village of Sag Harbor</li> <li>Village of Freeport</li> <li>Town of Shelter Island</li> <li>Town of Southold</li> <li>Town of Riverhead</li> <li>Town of North Hempstead</li> <li>Town of Babylon</li> <li>Town of East Hampton</li> <li>Town of Southampton</li> <li>Town of Oyster Bay</li> <li>Town of Islip</li> <li>NYC Dept. of Design and Construction</li> <li>NYC Housing Authority</li> <li>NYC School Construction Authority</li> <li>SUNY Old Westbury</li> </ul> |

# NYC PARKS PLANNING DESIGN CONSULTING & MANAGEMENT

**CLIENT:** NYC DEPARTMENT OF PARKS AND RECREATIONS

**CONTACT:** SOL COHEN WESLER-COHEN ASSOCIATES, INC

**SITE:** MULTIPLE GOLF COURSES, CITY PARKS

**PRINCIPAL:** PAUL W. GROSSER, PHD, PE, PG, EXECUTIVE CHAIRMAN

## PROJECT DESCRIPTION

P.W. Grosser Consulting, Inc. (PWGC) provided design, planning, specifications for modifications according to site-specific aspects, standard/consolidated wells, and standard rock wells related to irrigation issues at selected DPR golf courses. PWGC coordinated with the NYC Department of Parks and Recreations to ensure all permits and legal requirements were met.

## PWGC's ROLE

- Comprehensive site assessments including Hydrogeologic/Geologic Review, Site Inspections & Summary Reports
- Site assessments to determine feasibility of the planned lake constructions at uncertain sites, as well as sites that called for pre-design tests, soil analyses (organic content); existing well testing; and percolation tests
- Construction Management, QA & QC, Contractor Selection & Monitoring

PWGC provided plans and specifications for unconsolidated wells at seven golf courses across Brooklyn, Queens and Staten Island. We are determined not to pursue irrigation wells at the remaining courses based on unfavorable subsurface conditions and poor water quality identified during the initial site visits. However, PWGC did advise the client to continue pre-design testing at all identified courses, resulting in the discovery of a shallow well at the Staten Island site, and an existing pond at a Brooklyn site that could serve as a feasible and environmentally compliant alternative to an irrigation well. Based on the results of the water quality and recharge rate testing, that pond was approved as the irrigation water supply.

PWGC provided shop drawing review, site visits and other construction administration services were provided by PWGC for wells at the four Queens courses, and the shallow wells at the Staten Island course.

PWGC designed irrigation lakes for nine golf courses in Brooklyn, Queens, Bronx, and Staten Island which included location siting, plan and profile views, inlet/filter well details, available pond volume calculations to satisfy DPR's one million gallon requirement, and construction specifications. Further, PWGC incorporated supplemental water supply from potable water sources options for the Brooklyn and Staten Island lake sites. The lakes at three courses in the Bronx were supplied through either runoff and/or natural streams. The three courses in Queens and one in Staten Island were supplied from the new irrigation wells. In addition, one course in Brooklyn, one in Staten Island, and a third in the Bronx which also included the new irrigation lakes, used existing lakes for the irrigation supply. Another course in Staten Island utilized a reservoir as the supply source. PWGC designed inlet structures to the new pump stations at the two golf courses in Staten Island, the other course in Brooklyn, and for one of the courses in the Bronx. These designs also included plans and specifications.

PWGC provided shop drawing review, site visits, and other construction administration services for 10 new lakes at nine golf courses, and for four existing lakes (including the reservoir) at four golf courses. In addition, permit applications were prepared for construction in freshwater wetlands at two of the existing lakes. This application required approval from the NYS Department of Environmental Conservation as well as the Army Corps of Engineers.



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# PORT JEFF APARTMENTS

**CLIENT:** TRITEC REAL ESTATE

**CONTACT:** MARTY DEPASQUALE • MARTIND@TRITECREALESTATE.COM • (631) 751-0300

**SITE:** THE SHIPYARD AT PORT JEFF HARBOR

**PRINCIPAL:** PAUL K. BOYCE, PE, PG, PRESIDENT/CEO

## PROJECT DESCRIPTION

PWGC provided East Setauket, NY based Tritec Real Estate Co. with a drainage plan for the development at 201 W. Broadway in the Village of Port Jefferson, a 112-unit apartment complex, known as The Shipyard at Port Jeff Harbor. Among the challenges the site faced was being located in a shallow groundwater area and being traversed by a natural drainage way, Old Mill Creek. PWGC provided specific means to ensure that site was properly drained and did not cause adverse environmental conditions nor exacerbated existing issues and conformed to the requirements of local and state regulations.

The 201 W. Broadway site is in a low-lying area of Port Jefferson in proximity to the harbor. Shallow depths to groundwater existed across the site as well as soil conditions that were addressed relating to storm water retention. PWGC took in account the Village of Port Jefferson's requirement that stormwater systems be designed to handle a minimum three-inch rainfall event. The New York State Department of Environmental Conservation (NYSDEC) Stormwater Pollution Prevention Plan (SWPPP) requirement was consistent with the Village's. It was assumed that 50 percent of the site would be covered with impervious surfaces and would require drainage that equated to approximately 20,147 cubic feet of storage for a three-inch precipitation event.

Several storage options were considered including locating all site drywells on the portion of the site that is south of the creek, which would require substantial amounts of storm water be collected and pumped across the underside of the vehicular bridge. Shallow chamber drainage structures such as Contech Chambers, or possibly a shallow rectilinear system were also considered. Each option was evaluated by PWGC and vetted out during the schematic design phase.



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# OPEN LOOP GEOTHERMAL SYSTEM DESIGN

**CLIENT:** WIEDERSUM ASSOCIATES ARCHITECTS

**CONTACT:** NEEDS CONTACT

**SITE:** NEW PRIMARY SCHOOL (K-2), EASTPORT, NY

**PROJECT MANAGER:** TAMMY CUNHA, LEED AP, PROJECT MANAGER



## PROJECT DESCRIPTION

PWGC provided civil site design services and geothermal system, in coordination with Wiedersum Associates Architects, for a new K-2 primary school for the Eastport South Manor School District. The project pursued LEED Gold Certification.

PWGC conducted a feasibility study and field testing program for design of an open loop geothermal system to provide heating and cooling to the new school. PWGC assessed the local groundwater quality for optimum location and depths of the wells and evaluated potential impacts from the pumping on a nearby regulated wetland. PWGC subsequently designed the supply and return well field, piping system, interior manifold, and associated controls. To attain points under the LEED water conservation criteria, PWGC designed an irrigation system that will utilize the “once through” groundwater pumped from the geothermal system to irrigate the playing fields.

PWGC designed the site to have as little possible impact on the natural environment and meet LEED requirements in relation to parking capacity, clearing and coverage, storm water runoff, alternative transportation, reducing light pollution, and water use reduction. Natural indigenous species will be used to re-vegetate disturbed areas and the site will incorporate sustainable engineered storm water runoff control, water supply, wastewater elimination, and landscaping.

PWGC provided construction administration and field observation services to the design team. Construction was completed in early 2014 and the new building is operating.

# THE ROSS SCHOOL

**CLIENT:** THE ROSS SCHOOL

**CONTACT:** THOMAS SZAJKOWSKI • 631-907-5249

**SITE:** EAST HAMPTON, NY

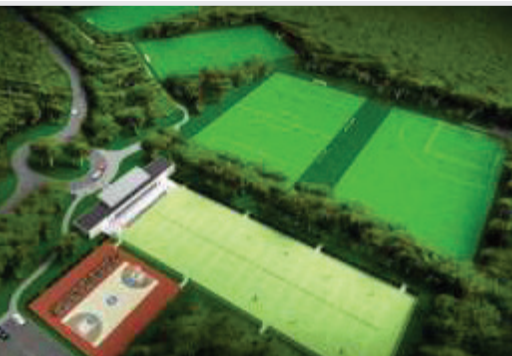
**PRINCIPAL:** PAUL K. BOYCE, PE, PG, PRESIDENT/CEO

## PROJECT DESCRIPTION

PWGC provided comprehensive civil/site engineering designs, in coordination with the Ross School and regulatory agencies, related permitting services, water supply/sanitary system design, site plan and construction planning for the planned construction of the campus site's buildings 2, 5 and 10.

## PWGC's ROLE

Today, Building No. 2, the Humanities and Media Pavilion, incorporates a television studio, avid editing room, film editing rooms, orchestra rehearsal and music practice rooms. Building No. 5 is the Center for Well-Being and comprises an executive chef café, gymnasium and a volleyball court that can be converted to a movie theater/performing arts center with roll-away bleachers. Building No. 10 is the Senior Thesis building and includes a recital hall, library, photography labs, and science laboratories. PWGC's tasks spanned from geothermal well design and mechanical piping, to water supply and sanitary system services, to extensive civil site design and site application preparation.



## PWGC's APPROACH

Bldg. 10 – PWGC provided design services which included:

- Water Supply and Fire Protection
- On-Site Subsurface Sanitary Disposal System
- Site Grading and Drainage, and Location
- Coordination of site utilities and traffic control devices

Building 2 – Services included:

- Geothermal Well Design
- Water Services Design and Permitting
- Grading Drainage, Parking and Traffic Controls
- Sanitary Wastewater Disposal Design and Permitting
- Site Plan Application Drawings
- Construction Administration and Observation

Building 5 – Design work included:

- Sanitary and Drainage System
- Septic Tanks and Leaching Pools
- Storm Water Drainage Drywells
- Geothermal Wells
- Potable Water Supply/Fire Protection Services
- Grading, paving, traffic controls and site lighting



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# SEWAGE TREATMENT PLANT DESIGN & CIVIL SITE ENGINEERING ANALYSIS

**CLIENT:** IGY MARINAS

**CONTACT:** ERIC SIMONTON, EXECUTIVE VICE PRESIDENT

**SITE:** MONTAUK YACHT CLUB, MONTAUK, NEW YORK

**PRINCIPAL:** PAUL K. BOYCE, PE, PG, PRESIDENT/CEO

## PROJECT DESCRIPTION

PWGC provided site planning and civil design services and sewer treatment plan (STP) design to satisfy the Town of East Hampton settlement pre-requisites for the Montauk Yacht Club (MYC) development. In 1986, the Town of East Hampton had rejected the previous owner's proposal for development of 68 new condominium units. After an Article 78 proceeding, the ruling was overturned, ordering the Town to reconsider the project. The Town and MYC agreed on a Settlement: The Town granted a Special Permit to build 50 condominium units, stipulating several site condition prerequisites.



## PWGC's ROLE

- Engineering, planning and design services to address identified issues of concern
- Design to meet stipulations for compliance set forth in the settlement
- Preparation of the Natural Resources Special Permit (NRSP) application as required by the Town

PWGC reviewed site records and information on the identified areas of concern, such as wetlands area, poor soil conditions, and a high groundwater table condition. Utilizing the study findings and research results, PWGC prepared and submitted the NRSP application for the Town, and the design for MYC to satisfy the conditions of the settlement. For the final design, PWGC prepared construction documents related to the proposed water supply and the necessary NRSP for the resort and Marina Deep Sea Residence Parcel. Design and plans for a water supply system that conformed to Suffolk County Department of Health Services and Suffolk County Water Authority regulations. A Wastewater Treatment Plant utilizing Sequenced Batch Reactor (SBR) technology for secondary treatment and nitrogen removal, designed to treat up to 50,000 gallons per day of sewage from the proposed condominium project and the existing facilities of the MYC and adjacent properties. PWGC selected the SBR technology for sewage treatment for its ability to treat readily varying sewage flows, experienced weekly and seasonally at the facility. The design also included use of low profile infiltrators to recharge the treated wastewater into the ground.

PWGC's design will not only meet the conditions of the settlement to satisfaction, but also make a significant improvement on existing legal discharges upon groundwater by reducing the current nitrogen loading by 81.5 percent once the STP is constructed.



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# ARVERNE BY THE SEA

**CLIENT:** BENJAMIN BEECHWOOD COMPANY, LLC

**CONTACT:** GERRY ROMSKI, COUNSEL AND PROJECT EXECUTIVE

**SITE:** ARVERNE BY THE SEA, ROCKAWAY, NY

**PRINCIPAL:** PAUL W. GROSSER, PHD, PE, PG, EXECUTIVE CHAIRMAN

## POLLUTANT ASSESSMENT MODEL FOR DRAFT & FINAL ENVIRONMENTAL IMPACT STATEMENT (DEIS & EIS)

PWGC's work served to satisfy HPD requirements, ensure continued community support for the Urban Renewal Area (URA) plan, and economic feasibility. Part of the DEIS called for assessing how the development of the URA western portion would impact meeting TMDL's at nearby Sommerville, Barbadoes, and Vernam basins, located on the northern shore (Rockaway Industrial Park/Beach 79th St area; see map). Since the area of the proposed development that drains into the Barbadoes Basin would largely retain its existing infrastructure, PWGC believed a more detailed impact analysis on Barbadoes Basin, Vernam and Sommerville Basin was necessary. As part of PWGC's comprehensive project support services at the Arverne URA, PWGC conducted a stormwater analysis to determine the potential impact of increased stormwater loading due to nitrogen and other contaminants that would result because of the proposed development.

PWGC utilized the Tidal Prism approach to account for the flushing of the basins each tidal cycle by waters from the Jamaica Bay. Due to the large tidal range in Jamaica Bay, the tidal flushing is significant. These basins currently receive the stormwater flow from this entire area of Rockaway Beach totaling, on the average, 7.6 million cubic feet annually. The proposed development will provide, on the average, an additional 1.9 million cubic feet per year of stormwater to the basins. Which means the proposed development would increase the volume of stormwater going to these basins by 25 percent. Each of these basins has a direct connection to a major channel (Grass Haddock Channel) in Jamaica Bay through large inlets. The basins are also relatively short in length, Barbadoes (1,600 ft.), Vernam (1,800 ft.) and Sommerville (3,600 ft.) allowing for free flow of water from Jamaica Bay deep into the basins.

PWGC's analysis indicated a 0.1 percent increase in contaminant concentrations because of the area's development without using Best Management Practices (BMPs). Noting that the increase would not create a measurable impact on the basins, PWGC projected that implementing BMPs would reduce sediment loading by 72 percent and the nutrient and heavy metal loading by 66 percent, thus further lessening the impact on the basins.

## DESIGN/ENGINEERING MANAGEMENT SERVICES, STORMWATER COLLECTION & CONVEYANCE SYSTEM

PWGC was responsible for design and siting of a stormwater collection and conveyance system for an 80+ acre development along the south shore of Queens County. Responsibilities included locating catch basins, grading design, sizing interconnecting piping networks and tie-ins with the local NYC storm sewer system. PWGC also managed the inclusion of BMP's in the system design.

## STORMWATER QUALITY IMPACT ASSESSMENT ON LOCAL SURFACE WATER BODY

PWGC was responsible for determining stormwater roadway run-off concentrations for total petroleum hydrocarbons (TPH), suspended solids, metals, coli forms, pH, and dissolved oxygen. To estimate the influence of these parameters on the nearby canal basins into which they were to be discharged, PWGC employed chemical and mathematical relations using chemical properties and mass balances based on flow rates and tidal flushing volumes to estimate potential effects. Subsequently, PWGC prepared the stormwater portion section of a DEIS.

## GENERAL PERMIT FOR STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITY (SPDES) TO COMPLY WITH NYSDEC PERMIT NO. GP-02-01 REQUIREMENTS

PWGC prepared a SWPPP for the proposed development of the approximately 110-acre portion as part of the DEIS and FEIS, which were required by the NYS Department of Housing Preservation and Development. Further, PWGC developed the weekly inspection program, required for the permit. The program is being implemented for the Western Portion. Inspections include summary reports of compliance, deficiencies and required remedial measures.

PWGC prepared SWPPPs for Parcels 1A and 1B in the Palmer's Landing neighborhood. Parcel 1A consists of approximately nine acres of two-family housing; Parcel 1B consists of approximately three acres of mid-rise residential buildings.



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# ENVIRONMENTAL CIVIL SITE ASSESSMENT & REDEVELOPMENT

**CLIENT:** EXPEDITORS C/O CARGO VENTURES, LLC

**CONTACT:** STEVE BARTHEL, EXECUTIVE VICE PRESIDENT

**SITE:** INWOOD, NY

**PRINCIPAL:** JAMES RHODES, PG, COO

## PROJECT DESCRIPTION

PWGC provided civil site engineering services, investigation services, remediation services, and the redevelopment of a 4.25 acre former Shell Oil terminal located along Negro Bar Channel in Inwood, NY.

## PWGC's ROLE

As part of this multifaceted project, PWGC:

- Prepared a phase I environmental site assessment to satisfy the necessary lending institutions as well as to document historic environmental work performed at the site
- Completed a subsurface investigation to determine current site conditions for the preparation of appropriate NYSDEC approved corrective and remedial action plans.
- Oversaw and managed the removal of petroleum-impacted soils, which resulted in an excavation measuring 300 x 200 feet and over 40,000 tons of impacted soils processed.
- Prepared design for a new parking lot with lighting, drainage and landscaping plans

PWGC determined through review of aerial photographs during the Phase I ESA that a former channel near the center of the property had likely been backfilled with dredged material. Subsurface investigation results showed that a bog/meadow mat layer existed at approximately 5-7 feet below grade and likely represented the former surface of the site. The soil quality information indicated that this bog layer acted as a confining layer for the impact; however, where this layer had been removed (such as the channel), contamination was found to depths of approximately 14 feet below grade. Since money was to remain in escrow until a no further action letter was received for the site from the NYSDEC, the project team decided to remove the impacted soils on an accelerated schedule. PWGC used the above information and prepared an excavation plan, which included scraping the top two feet across the site for reuse, excavating down to the bog layer where it existed and pursuing contamination to deeper depths below the water table where it had been removed. To accomplish this, PWGC negotiated the water discharge from the excavation to the municipal sewer system following the removal of floating product resulting in huge cost saving. Given the size of the excavation and the need to backfill portions of the excavation upon completion, PWGC developed an endpoint-sampling plan in conjunction with the NYSDEC. Expedited turnaround of endpoint samples was performed and forwarded to the NYSDEC for immediate approval so that backfilling could take place. During this time, PWGC had to contend with a multifaceted project, which included the demolition of a number of buildings on the property and the installation of a new bulkhead with tiebacks placed below grade across the site. In addition, new drainage structures needed to be installed as part of the new parking lot designed by PWGC. These activities were incorporated into the remediation, while the NYSDEC was kept informed on a daily basis.

Since PWGC was able to demonstrate through endpoint sampling that the removal effort was highly successful, the NYSDEC reduced the post excavation monitoring significantly. Only two monitoring wells were required over this 4.25- acre site and were placed within the former channel after the installation of the new parking lot. With this new parking, Expeditors is now able to relocate their parking facility, which in turn frees the way for the expansion of the company's current building, paving the way for their corporate growth.



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# COMMERCIAL REDEVELOPMENT SITE PLAN DESIGN & ENGINEERING

**CLIENT:** INLET SEAFOOD PROPERTY, LLC

**CONTACT:** JULIA BARTLETT

**SITE:** MONTAUK INLET SEAFOOD, INC. EAST LAKE DRIVE

**PRINCIPAL:** PAUL K. BOYCE, PE, PG, PRESIDENT/CEO

## PROJECT DESCRIPTION

PWGC, in conjunction with an architect, survey, and law firm, was charged with the proposed re-development of the existing 6.7-acre commercial fishery into a multiple-use site consisting of an expanded fishing facility, shops, warehouse, storage buildings, new bar and restaurant.

## PWGC's ROLE

PWGC managed planning and preparation of site plan application drawings and design/construction documents, which included:

- Construction documents for site grading and drainage, parking lot layout, traffic circulation infrastructure and safety, site lighting, landscaping, and utilities, sanitary designs and layouts, clearing and coverage calculations
- Site plan applications and environmental permitting documentation for regulatory agencies (i.e. SPDES permits, tank registrations, wetlands permits, Board of Zoning Appeals)

PWGC design/plans, comprehensive in scope yet customized to the site, focused on preserving overall feel and view of the site's original use:

- Site grading and drainage plans that incorporated previous parking and roadway surfaces to minimize the required number of drainage structures
- Parking lots/facilities and traffic circulation layouts that provided 115 private, commercial, and handicapped parking spaces at the new buildings, ease/segregate, visitor and commercial traffic, and provide for fire lanes and sufficient turning radii around commercial fishing facilities
- Site lighting that met safety and security requirements, illuminated interesting and attractive areas, walkways, building entrances, parking areas and egress
- Landscaping designs integrated native grasses and natural vegetation wherever possible, and included accent plants and shrubs around the proposed buildings and walkways to enhance architectural aesthetics
- PWGC designed and coordinated the location of project utilities, such as potable water and fire protection services. PWGC met with the SCWA and SCDHS to address the water service design, which involved retrofitting the entire site with new water lines to accommodate the upgraded sanitary loading
- Sanitary design for the site was one of the more challenging design issues PWGC faced, since the owner did not want to build, operate, and maintain any type of sewage treatment facility. Addressing the client's request and constraints such as setbacks from surface water bodies, the site's location within the Town's Harbor Protection Overlay District (HPOD) and a shallow depth to groundwater, restricted development somewhat
- PWGC reconfigured the existing dock and boat slips for the commercial fishing facility for more efficient usage and give access to larger boats
- Permitting issues that PWGC was responsible for included registration of a new 12,000 gallon aboveground diesel fuel tank for the fishing fleet, a SPDES (State Pollution Discharge Elimination System) permit for the new sanitary systems (permit required when sanitary discharge is over 1,000 gpd) and a wetlands permit with the NYSDEC and U.S. Army Corp of Engineers



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# LONGWOOD PUBLIC LIBRARY

**CLIENT:** LONGWOOD PUBLIC LIBRARY

**CONTACT:** NEEDS CONTACT

**SITE:** MIDDLE ISLAND, NY

**PRINCIPAL:** GERRY ROSEN, PE, VICE PRESIDENT

## PROJECT DESCRIPTION

To meet the growing needs of the community, Longwood Public Library expanded its existing 31,000-square-foot building that is located on a 4.5 acre piece of property at the southwest corner of Middle Country Road and Yaphank-Middle Island Road, in Middle Island, NY. PWGC was selected to provide the civil engineering scope of services, which was separated into two parts:

- Pre Referendum Phase
- Post Referendum Phase



## PWGC's ROLE

### PRE REFERENDUM PHASE

This phase included the development of community visioning and goal setting for the project. The library developed a needs analysis and building program that established conceptual design and budgets by the stakeholders and construction manager, and the library board of trustees. Specific services in the scope of this phase include the following:

- Boundary and topographic survey
- Stormwater analysis of existing flows on and across the property
- Review of baseline data, drawings and existing conditions – site analysis and feasibility report
- Attend and participate in charrette collaboration meetings with design team to develop schematic layout and materials plan
- Develop schematics for: demolition, clearing and grading plan, and sanitary waste disposal system
- Design; stormwater management plan; sediment and erosion control plan
- Provide a cardboard work model
- Assist with completion of NYSED paperwork applicable to the civil scope of work
- Assist and participate with the design team in the permitting and approvals process related to the civil engineering scope of work for the pre referendum phase
- Assist and participate in the LEED™ certification process with the design team and LEED™ consultant
- Attending meetings and teleconferences as necessary with the library board of trustees, staff and administration as required and present at public meetings

### POST REFERENDUM PHASE

During the post referendum phase, PWGC was responsible for continued development of the approved schematic civil/site design and engineering plans along with the specifications to create working design development (DD) documents. Working alongside of the design team, Library Administration and the CM, a set of design documents was ultimately created for approval by the Library Board of Trustees. PWGC's team approach to the site engineering incorporated low impact design elements, and cost minimizing features to minimize the cost of construction.

During the 18 month construction period, PWGC attended jobsite coordination meetings, provided information and clarifications to the contractor, review shop drawings, review payment requisitions, review requests for change orders, and provide signed copies of an "as-built" drawing for records. Following the construction period, PWGC assisted with the close out of LEED and NYSED paperwork, punch list items, and assisted with the commissioning of the building as it related to civil/site engineering services.



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# AMBER COURT ASSISTED LIVING FACILITY

**CLIENT:** AMBER COURT

**CONTACT:** NEEDS CONTACT

**SITE:** AMBER COURT ASSISTED LIVING FACILITY

**PRINCIPAL:** GE

## PROJECT DESCRIPTION

PWGC provided professional engineering services for the design and construction of a new 40,000-gallon-per-day sewage treatment plant (STP) at the Amber Court Assisted Living Facility. In addition, PWGC also performed civil engineering services for the site design of the new facility.

## PWGC's ROLE

- Creating detailed plans and specifications for the construction of the new Treatment facility.
- Preparation of a detailed report describing all critical aspects of the plant's operation and construction to demonstrate the feasibility of the plant's construction, as well as for obtaining regulatory approval for the Plant's design and construction.
- PWGC worked successfully with the client other consultants as necessary to provide any and all information necessary for the State Environmental Quality Review Act (SEQRA) process.

PWGC created a detailed report for the site of the proposed facility to evaluate the potential for on-site sewage treatment. This report was used to successfully gain all requisite regulatory agency approvals necessary to start the design of the facility. After the initial report was approved PWGC proceeded with detailed design of the treatment system, creating detailed plans and specifications for regulatory approval.

In addition to Treatment Plant design, PWGC was also able to offer site design services. By designing both the treatment facility and site aspects of the new facility in-house, PWGC was able to offer greater coordination between site utilities, the new treatment facility and the new assisted living facility; offering the client an expedited design and approval process.

Currently, PWGC is providing professional services to oversee the construction of the new treatment plant. After the new plant is successfully completed, PWGC will continue to oversee the operation of the plant as the Engineer of Record, responsible for reviewing monthly treatment results and reviewing health department inspections.



# VILLAGE OF SAG HARBOR DOCK ASSESSMENT

**CLIENT:** VILLAGE OF SAG HARBOR

**CONTACT:** DEE YARDLEY, SUPERINTENDENT OF PUBLIC WORKS

**SITE:** VILLAGE OF SAG HARBOR MARINA, SAG HARBOR, NY

**PRINCIPAL:** PAUL K. BOYCE, PE, PG, PRESIDENT/CEO

## PROJECT DESCRIPTION

PWGC provided fixed and floating dock assessment consulting services for the Village of Sag Harbor (Village) Marina, Long Island, New York. The Village is a waterfront community that services both seasonal boat slip rentals, as well as transient or temporary boat slip rentals. The Village Marina is made up of five (5) separate dock areas including Long Wharf, Marine Park, Dinghy Dock, A-Dock, and B-Dock. Due to Superstorm Sandy in October 2012 and following Nor'easter storm events, the marina incurred damage that could have potentially prevented the Village from opening the Marina for the 2013 boating season.

## PWGC's ROLE

PWGC evaluated the Village's five (5) main fixed and floating docks to determine the incurred damages. The project was broken down into the tasks below:

- Assess the damage to the fixed and floating docks
- Prepare a cost estimate on the incurred damages
- Prepare a set of construction bid documents including;
  - Construction plans
  - Construction specifications
- Assist in bid phase services including;
  - Pre-Bid contractor walkthrough of docks
  - Attending bid opening
  - Reviewing bid packages and preparing a recommendation of award letter
- Perform construction administrative services during the construction phase



# NYC PARKS PLANNING DESIGN COMPLIANCE CONSTRUCTION MANAGEMENT

**CLIENT:** JASON WANDRES

**CONTACT:** JASON WANDRES

**SITE:** NYC PARKS (MANHATTAN, BRONX, BROOKLYN, QUEENS, STATEN ISLAND)

**PRINCIPAL:** PAUL W. GROSSER, PHD, PE, PG, EXECUTIVE CHAIRMAN

## WELL/LAKE AERATION SYSTEM:

PWGC served as a subcontractor to CDM Federal Programs under a USEPA Remedial Action Contract in USEPA's Region 2 (NY, NY and Puerto Rico). The contract involves the performance of Remedial Investigation Feasibility Studies at National Priorities List sites under Superfund. As many of the projects are still in the Remedial Investigation phase, PWGC's role on the contract to date has involved hydrogeologic oversight of soil borings, monitoring well installation programs and groundwater sampling. Additionally, PWGC provides data management services for the subsurface investigation programs using LogPlot® software.

## PWGC's ROLE

PWGC reviewed hydrogeologic and geologic information available, inspected the site and summarized results in a report, Identified the optimum location and prepared the design for the new well Prior to construction, PWGC checked discharge flow rate to ensure compliance with NYCDPR standards and compliance with Modified Drinking Water Standards, Prepared drawings/specifications, and supervised the new well/lake aeration system's construction. PWGC reviewed existing information, inspected the site to locate the new well, coordinated drilling contractor selection and progress monitoring of drilling at the test well, short-term pump testing for the well, and water quality testing. Prior to mechanical and electrical equipment sizing, PWGC designed a water well, submersible and a recirculation pump, fountain, and electrical services. Construction drawings of the existing recirculation system—similar to that proposed—were also reviewed prior to design. PWGC construction management services included shop drawing review, inspections, progress reports, drawing revisions to address field conditions and equipment/materials availability, and coordination with NYCDPR for start-up and final inspection. The well, aeration system, and fountain are in operation; the NYCDPR nominated the project as one of its most notable efforts to create environmentally improved recreational space.

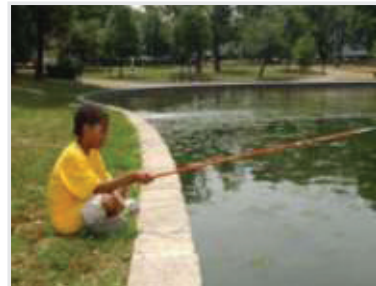
## EMERGENCY WELLS & LAKE LIFTS:

Large-scale emergency construction project of five wells at parks in Manhattan, the Bronx, and Staten Island; and of two lake lifts in Queens and Bronx parks on an accelerated time schedule.

## PWGC's ROLE

- Comprehensive site assessments including hydrogeologic/geologic review, site inspections and summary reports
- Identified optimum locations for the wells
- New wells/lake lift siting and construction designs
- Drawings/specifications, and construction documents for the five new wells, and two lake lifts compliant with modified drinking water standards and according to DPR discharge flow rate requirements
- Liaison to regulatory agencies to gain approval
- Construction management, QA & QC, contractor selection & monitoring

Based on the review, sampling results and pump tests, and site inspections of the new wells, PWGC selected drilling firms, supervised the work at test wells, and sampled water for analysis. PWGC designed bedrock water wells for the Bronx and Manhattan sites, and water wells for Manhattan, Bronx, and Staten Island sites. Prior to pumping and electrical equipment sizing, PWGC reviewed physical site characteristics at all well locations (i.e. topography, existing utility locations, and power supply availability/location). Based on discussions and site visits with DPR prior to construction, PWGC designed a portable lake lift for a Manhattan site, and one that could be used at any given site. After completing contract documents, PWGC assisted with bid documents preparation, the bidding process for construction; and provided shop drawing reviews, site visits, and other construction administration services for the wells and lake lifts during construction. PWGC translated the project's concept within the client's timetable and budget. All new wells and lake lifts are performing as intended.



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# BAY RIDGE CHEVROLET

**CLIENT:** REDCOM DESIGN & CONSTRUCTION LLC

**CONTACT:** JOHN MALARBE, CEO

**SITE:** BAY RIDGE CHEVROLET, BROOKLYN, NY

**PROJECT MANAGER:** TAMMY CUNHA, LEED AP, PROJECT MANAGER

## PROJECT DESCRIPTION

PWGC provided civil engineering/site design in collaboration with the design team that provided architectural services, structural, mechanical, electrical and plumbing services for the project.

The civil/site design and engineering services included the preparation of a base site alignment plan, site grading and drainage design, builders pavement plan, pedestrian and traffic circulation design, site lighting design, sanitary sewer and utility coordination and layout (to 5 feet from the building line), and prepared civil site design documentation for the City of New York Building Department and Department of Environmental Protection submission.

### PWGC provided two phases:

**1.** Schematic site design, site plan and engineering phase, which included, but was not limited to:

- Site plan of existing site location
- Review of existing site conditions and architectural site plan
- Utility and municipal agency coordination
- Meetings

**2.** Design development, site plan and engineering phase, which included, but was not limited to:

- Regulatory review
- Design development site plan package
- Landscape plans
- Utility and municipal agency coordination
- Meetings





# FEDERAL SERVICES

## FEDERAL SERVICES EXPERIENCE

PWGC is an experienced engineering firm with a significant understanding of real estate-related civil site design requirements. Founded in 1990 by thought leader Paul W. Grosser, PhD, PE, PG, Executive Chairman, PWGC has developed a well-honed approach to assessing civil site requirements and drafting innovative and sensible solutions that unlock hidden value.

As a leading environmental consulting, engineering and project management firm, PWGC is highly responsive specializing in solving environmental problems and providing engineering solutions to our clients nationwide. This is demonstrated by the fact that we were recently awarded **“2012 Small Business Sub-Contractor of the Year” for U.S. Small Business Administration (SBA) Region II (New York and New Jersey, Puerto Rico and the U.S. Virgin Islands)”**.

PWGC has a proven track record in: Environmental Consulting; Remediation; Waste Management; Engineering; Environmental Compliance; D&D, Project Management and Health & Safety.

The following project briefs have been selected to demonstrate our spectrum of experience. Detailed project descriptions can be provided upon request.

### USDOE Brookhaven National Laboratory Upton, NY (BNL)

Since 1993, PWGC has provided a wide range of environmental consulting and engineering services at BNL, a National Priorities List site, in its efforts to remedy the legacy environmental liabilities resulting from nearly 100 years of site use. PWGC services have included:

- Remedial investigations
- Feasibility studies
- Remedial system design
- Operation and maintenance support for seven Operable Units under the lab's Superfund cleanup effort, which was completed in 2005.

More recently, PWGC assisted the lab in its efforts to eliminate its decaying atomic research infrastructure by providing:

- Project management support
- Engineering cost estimating
- Budget preparation
- Planning services
- Waste Management

This initiative also included:

- Contaminated soil removal
- Decontamination & Demolition (D&D) projects
- UST removal/installation and civil site design services

The list of services provided to BNL is long ranging from large scale remedial investigations and clean-ups to very small scale actions, such as permitting and compliance services including:

- Preparation of hundreds of regulatory planning documents, such as Demolition Plans, Waste Management Plans, Work Plans, Health and Safety Plans, Quality Assurance Plans, Community Participation Plans, Community Air Monitoring Plans, and Sampling and Analysis Plans
- Soil and groundwater monitoring
- Soil gas surveys
- Infrastructure Management via Geographic Information System (GIS)

Recent projects have included:

- HFBR Stabilization: Preparation of reactor for long term safe storage
- A&B Waste Line Removal: Removal of radiologically contaminated underground waste transfer lines
- Underground Utilities: Removal of general utility lines (contaminated and clean) in vicinity of reactor buildings
- BGRR Engineered Cap: Demolition of a Duct Service Building and installation of an Engineered Cap to prevent future contaminant migration
- Fan House Demolition: Demolition of all fan houses (Buildings 704, 802) structures, systems, and components, and contaminated soils beneath the building
- Former Hazardous Waste Management Facility Perimeter Soils: Remediation of radiologically contaminated soils
- Design for sewage treatment plant discharge modification



## FEDERAL SERVICES EXPERIENCE

### CDM Federal Programs

PWGC serves as a subcontractor to CDM Federal Programs under a USEPA Remedial Action Contract in USEPA's Region 2 (NY, NJ and Puerto Rico). The contract involves the performance of Remedial Investigation Feasibility Studies at National Priorities List sites under Superfund. As many of the projects are still in the Remedial Investigation phase, PWGC's role on the contract to date has involved hydrogeologic oversight of soil borings, monitoring well installation programs and groundwater sampling. Additionally, PWGC provides data management services for the subsurface investigation programs using LogPlot® software.

### USDOE/NNSA Lawrence Livermore National Laboratory (LLNL), Livermore, CA

#### Independent Project Review for the Demolition of Building 431

PWGC was part of an independent project review (IPR) team responsible for evaluating the CD-O (mission need) planning of a D&D project to remove an unused research building at LLNL. PWGC's areas of responsibility primarily included the technical scope and the value engineering aspects of the review. Project documents were obtained and reviewed and key project personnel were interviewed. PWGC then participated in preparing a report presenting the findings of the review that included positive achievements, suggestions for improvement, recommendations and stated that the project was justifiable and the mission need was sound.

### DOE Hanford 300 Area, Richland WA

#### Value Engineering and Project Review for the River Corridor Contract, Hanford 300 Area

PWGC, as subconsultant to a prime firm, performed a detailed analysis of the project scope, schedule, and costs related to the cleanup of radiologically contaminated facilities and soils along the Columbia River at the US Department of Energy owned Hanford Reservation. PWGC engineers focused their efforts on validation of cost estimates for the D&D of contaminated facilities and site restoration and made improvements to the project schedule.

### Separations Process Research Unit (SPRU)

#### CD-1 Support - Preparation of Project Plans, Cost Estimates and Schedules for Knolls Atomic Power Laboratory (KAPL)

PWGC, under subcontract, prepared project plans, cost estimates, and schedules related to the cleanup of radiologically contaminated buildings and soils at SPRU at the KAPL, located in Niskayuna, New York. The project plans, cost estimates, and schedules were required to provide the US Department of Energy with the necessary information to approve Critical Decision 1 (CD-1) for the remediation and D&D of contaminated structures.

### General Services Administration (GSA) Contract

Since inception of the contract, PWGC has provided services for multiple government agencies for a variety of projects. Some of those projects are listed below.

#### Oakridge National Laboratory (ORNL)

PWGC provided professional consulting services for an Environmental Technical Review (ETR), which included document review, conference call participation, site visit and participation in report preparation.

#### Department of Public Works Fleet Management, Various Projects, Citywide, Washington DC

PWGC prepared Standard Operating Procedures (SOPs) for fuel cites, a Spill Prevention Control Countermeasure Plan (SPCC), and prepared Underground Storage Tank (UST) Compliance Audits for City Wide Fuel Sites Washington, DC Department of Public Works Fleet Management.

#### Badlands National Park MWR- NEKOTA MABO- Mt. Rushmore, NM

PWGC prepared SPCC plans for Badlands National Park Service.

#### US Army National Training Center DPW - Title V Applicability Determination

To determine Title V applicability, PWGC conducted a site visit for inspection of pertinent air pollution that included spot checks for generators, boilers, parts, washers, fuel tanks, waste tanks, paint facilities, etc. to confirm the accuracy of the information provided. A walkthrough of the location to confirm the existence and specifications of equipment regarding air pollutant emissions was also performed.



# BNL EXPERIENCE

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**CLIENT:** BROOKHAVEN NATIONAL LABORATORY

**CONTACT:** VINCENT RACANIELLO, PROJECT MANAGER

**SITE:** UPTON, NY

**PROJECT MANAGER:** ANDREW LOCKWOOD, PG, SR. VICE PRESIDENT

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## PROJECT DESCRIPTION

Since 1993, PWGC has provided a wide range of environmental and engineering services to this state of the art research facility located in eastern Suffolk County. Owned by the US Dept. of Energy, the 5,300 acre facility has evolved from a US Army Camp in the early 1900s to an atomic energy research facility throughout most of the twentieth century to a world class high energy physics research center today. For more than 15 years PWGC has assisted the laboratory in its efforts to remedy the legacy environmental liabilities resulting from nearly 100 years of site use. PWGC services have included remedial investigations, feasibility studies, remedial system design and operation and maintenance support for seven Operable Units under the lab's Superfund cleanup effort which was completed in 2005. More recently, PWGC assists the lab in its efforts to eliminate its decaying atomic research infrastructure by providing project management support, engineering cost estimating, budget costing and planning services. This initiative also includes contaminated soil removal; decontamination & demolition (D&D) projects, UST removal designs and civil site design services.

## BNL STAFF AUGMENTATION BASIC ORDERING AGREEMENT (BOA) CONTRACT

Since 2015, PWGC has supplied BNL with personnel under our current staff augmentation BOA contract. The personnel have worked in various departments throughout the Laboratory campus, providing scientific, engineering, contracting and other professional support services to BNL.

## ENVIRONMENTAL RESTORATION PROGRAM DECONTAMINATION AND DECOMMISSIONING

PWGC supplied a wide range of engineering, project controls, radiological controls, ES&H, and project management professionals to the Environmental Restoration Program between 2008 and 2011. The PWGC employees were incorporated into the ERP organization and played a key role in the successful completion of the BGRR and HFBR decommissioning, the Fanhouse D&D, Underground Utilities D&D, and Former HWMF perimeter area remediation. As many as 15 employees were seconded full time to ERP for the duration of the program.

## GROUNDWATER REMEDIATION SYSTEM DESIGNS

### Western South Boundary Groundwater Pump and Treat (Air Stripping) System Design

PWGC prepared the design and specifications for a groundwater pump and treat system for the removal of volatile organic compounds from a sole source aquifer. System included two groundwater extraction wells and an air-stripping tower to remove contaminants. Treated groundwater is recharged back to the aquifer via open recharge basin. After design, PWGC assisted client with the bidding and procurement processes, construction administration, and start-up testing.

### North Street East Groundwater Pump and Treat (GAC) System Design

PWGC prepared the design and specifications for a groundwater pump and treat system for the removal of volatile organic compounds from a sole source aquifer. System included one groundwater extraction well and two granular activated carbon vessels to remove contaminants. Treated groundwater is recharged back to the aquifer via injection wells. Additional services included start-up testing and monitoring.

### Building 96 Pre-Design Investigation and Groundwater Treatment System Design

PWGC performed a detailed pre-design characterization program aimed at gathering the information necessary to support the design of a groundwater treatment system. The chosen system included four independent groundwater extraction wells piped to shallow tray air stripping systems for the removal of volatile organic compounds. Contaminated air from the stripping trays is treated via granular activated carbon. Treated groundwater is recharged back to the aquifer via a shallow well screen in the extraction well.



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# BNL EXPERIENCE

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**CLIENT:** BROOKHAVEN NATIONAL LABORATORY

**CONTACT:** VINCENT RACANIELLO, PROJECT MANAGER

**SITE:** UPTON, NY

**PROJECT MANAGER:** ANDREW LOCKWOOD, PG, SR. VICE PRESIDENT

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## SOIL REMEDIATION PROJECTS

One of BNL's environmental goals was the excavation of a 10-acre former disposal area known as the Glass Holes and Animal/Chemical Pits. The project entailed the excavation of hazardous, biological and radioactive waste materials in a total of 55 waste pits. As an approved BNL consultant, PWGC was one of nine firms responsible for the successful excavation of the site. Our specific responsibilities included: preparation of site design and excavation plan, review of sub-consultant work plans, daily on-site reviews of work in progress, collection of daily reports from subcontractors, preparation of daily summary reports for BNL senior management, preparation and review of engineering change notices at the request of the project manager, attendance at weekly progress meetings, maintenance of project database, tracking project costs and assessing cost variance, preparation of monthly accruals and coordination of excavation activities. At no time during the project could the contents of any one particular pit be anticipated. This uncertainty required that our team be ready to respond at a moment's notice to protect the health and safety of the workers and the environment in addition to maintaining the strict project schedule. By employing the specific expertise of their consultants, BNL was able to not only complete the project safely and on schedule, but also gain much needed confidence from the Dept. of Energy, local politicians and civic groups.

### Excavation Plan for Chemical Holes Remedial Excavation Project

PWGC prepared a detailed Excavation Plan to support the excavation of 50 individual waste pits. Historic information identified the contents of the pits as varying from waste lab chemicals to lab animal carcasses. Geophysical surveys performed by PWGC identified the location of each individual pit and the Excavation Plan identified the means, methods, and sequencing of the planned work.

### Characterization and Excavation of PCB Contaminated Soils

PWGC designed a soil-sampling program aimed at delineating the extent of PCB contaminated soils in a former warehouse area. Upon completion of the delineation effort, PWGC prepared an Excavation Plan detailing the areas of soil to be removed, waste staging, and loading areas, and other project support areas. PWGC field engineers were on-site during the removal effort to verify the work.

### Meadow Marsh Remedial Design and Wetland and Pond Re-Construction

PWGC designed a remedial excavation plan for several lined holding ponds that contained contaminated sludge. The design included dewatering and sludge removal plans to minimize the spread of contamination. Additionally, the ponds had become populated by Tiger Salamanders, an endangered species in NY State, which required a design for wetland and holding pond restoration to preserve the salamander habitat.

### Boneyard Remedial Excavation Design for the Removal of Radiologically Contaminated Soil

PWGC prepared a remedial design package (Design Implementation Plan) for the excavation and disposal of cesium contaminated soils from a former radioactive waste storage yard. In addition to the soil, the work required the size reduction of twenty concrete vaults formerly used for the storage of waste. The Design Implementation Plan included the preparation of design drawings and specifications, a Field Sampling Plan and Community Air Monitoring Plan.



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# BNL EXPERIENCE - STORMWATER MANAGEMENT

**CLIENT:** BROOKHAVEN NATIONAL LABORATORY

**CONTACT:** TOM DANIELS, ASSOCIATE LAB DIRECTOR

**SITE:** UPTON, NY

**PROJECT MANAGER:** PAUL K. BOYCE, PE, PE, PRESIDENT/CEO

## PROJECT DESCRIPTION

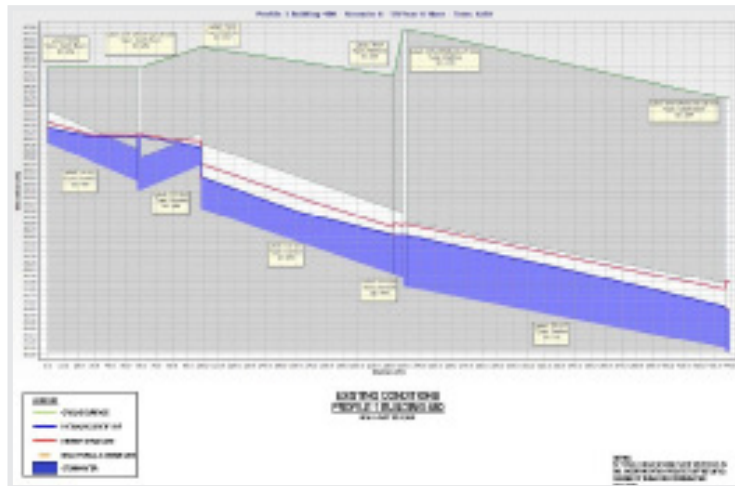
P.W. Grosser Consulting Inc. (PWGC) conducted hydraulic modeling and an associated evaluation of a portion of the existing storm water drainage system at Brookhaven National Laboratory (BNL). The work was in response to recommendations made during a safety analysis of a 2012 storm event that flooded and caused extensive damage to BNL facilities.

PWGC's scope of work included field inspections to acquire the physical information necessary to construct and run a hydraulic model of the storm water system, identifying deficiencies in the system under a variety of simulated storm conditions, and development of corrective actions to improve system performance based on construction costs, constructability, and potential impact from future development.

PWGC visually inspected 125 structures, including storm water manholes, catch basins, trench drains, and vaults. Each rim elevation and structure was located via global positioning system device. Hydraulic models were then created to simulate the effect of storm water flow on the existing storm water drainage system to evaluate the system's effectiveness to capture, drain and convey excess storm water in the study area. Model simulations were performed for the 25-year, 50-year and 100-year storm events for 6, 12- and 24-hour durations.

Proposed improvements to the existing storm water drainage system included: increasing pipe sizes, adjusting pipe slopes, and the installation of new manholes and area drains or catch basins. Implementation of these proposed drainage system improvements involved excavation and site restoration activities.

PWGC recommendations for BNL included developing a maintenance schedule and a hydraulic analysis study to evaluate whether on-site water bodies and their flow paths are impacting on the upstream portions of the existing drainage network.



# BNL EXPERIENCE - CULVERT ANALYSIS

**CLIENT:** BROOKHAVEN NATIONAL LABORATORY

**CONTACT:** BRIAN MCCAFFREY, PE, FACILITIES ENGINEERING MANAGER

**SITE:** UPTON, NY

**PROJECT MANAGER:** GERRY ROSEN, PE, VICE PRESIDENT

## PROJECT DESCRIPTION

P.W. Grosser Consulting, Inc. (PWGC) conducted the inspection, hydraulic analysis and prepared an in-depth report for two (2) culverts located along Bell Avenue at the 5,000-acre Brookhaven National Laboratory (BNL) complex in Upton, NY.

On behalf of BNL, PWGC examined the corrugated metal pipe (CMP) culverts that were 25 years in age and had not undergone significant repairs or maintenance since they were installed. In fact, a culvert load test - executed with a loaded fire truck - indicated a deflection of 1/16 of an inch.

In review of the two culverts, PWGC performed the following:

1. Conducted a detailed inspection in accordance with U.S. Department of Transportation (USDOT) and BNL guidelines.  
Culvert aspects inspected included:
  - a. End wing walls
  - b. Corrugated metal culvert; a shape inspection
  - c. Approach roadway
  - d. Stream bed
5. Performed a TR55 hydrologic analysis to determine the maximum expected storm water flows through the culvert.
6. Hydraulic analysis to determine the maximum capacity of the culvert.
7. Rated the components of the culvert according to USDOT guidelines.
8. Identified recommended repairs.
9. Prepared a preliminary cost estimate.
10. Prepared a detailed report that focused on the hydrologic, hydraulic, structural, and long-term durability performance of the culverts.

PWGC also prepared a Phase Hazard Analysis, provided confined space monitoring equipment and attend



# SEWAGE TREATMENT PLANT FACILITIES UPGRADE

**CLIENT:** BROOKHAVEN NATIONAL LABORATORY

**CONTACT:** TOM DANIELS, ASSOCIATE LAB DIRECTOR

**SITE:** UPTON, NY

**PROJECT MANAGER:** PAUL K. BOYCE, PE, PG, PRESIDENT/CEO

## PROJECT DESCRIPTION

To comply with a New York State Department of Environmental Conservation (NYSDEC) directive to reduce concentrations of metals discharged into the Peconic River from Brookhaven National Laboratory's (BNL) Sewage Treatment Plant (STP), the laboratory decided to upgrade the STP by adding a tertiary treatment component and re-directing the plant effluent away from the Peconic River to groundwater recharge beds. Unique challenges to the project included the careful siting of the proposed groundwater beds so as not significantly alter the groundwater flow regime beneath the site. Altering of the flow regime could influence the pathways of several groundwater contaminant plumes that are currently being remedied under CERCLA. Further, the proposed groundwater recharge beds were required to be located close to the existing STP infrastructure, but not so close to the adjacent Peconic River that treated effluent would contribute base flow the river bed. PWGC worked closely with BNL and their groundwater modeling support team to identify a location for the groundwater recharge beds that would not negatively impact the local groundwater flow regime and Peconic River base flow.

## PWGC'S ROLE

- Title I and Title II Engineering Design Services including
  - Performance of hydrogeologic analysis to characterize soil conditions in the proposed recharge area
  - Design and location of four new recharge basins
  - Evaluation of Tertiary Filtration System options
  - Design of Tertiary Filtration System
  - Design of flow monitoring station and system controls
  - Demolition Plan design and sequencing of existing discharge and monitoring equipment
  - Preparation of Construction Cost Estimates
  - Preparation of Construction Schedule using Primavera P6 software
  - Electrical design including Arc Flash and Lightning Protection analyses and standby power upgrades
- Preparation of Title I Design Report
- Preparation of Title II Design Package including Plans and Specifications
- Bid Phase support services



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# BNL EXPERIENCE - MARSH POND RECLAMATION

**CLIENT:** BROOKHAVEN NATIONAL LABORATORY

**CONTACT:** VINCENT RACANIELLO, PROJECT MANAGER

**SITE:** UPTON, NY

**PROJECT MANAGER:** ANDREW LOCKWOOD, PG, SR. VICE PRESIDENT

## PROJECT DESCRIPTION

For the Marsh Pond Reclamation, PWGC provided Environmental and Engineering Consulting, Design, and Construction Services to reconstruct two existing ponds to protect indigenous endangered species, which used the ponds as breeding grounds. Prior to that, the ponds had been used for sewage sludge experiments.

## PWGC'S ROLE

As part of the process, PWGC prepared draft and final Remedial Action Work Plans (RAWPs) to document the procedures for remediating the non-hazardous soil and liners in the existing ponds in conformance with the US Environmental Protection Agency's (USEPA's) Record of Decision (ROD) for the site. As part of the RAWPs, prepare draft and final designs for the remedial action, for review and approval by BNL and regulatory agencies.

PWGC's RAWP included an array of measures to remediate the primary contaminants of concern, toxic metals that could impact the sensitive species in the Meadow Marsh:

- Pumping surface water that is present in the two existing ponds and disposing of the water off site as non-hazardous waste
- Excavation and off-site disposal of the non-hazardous sediments and PVC liners in the two ponds
- Excavating, stockpiling/sampling sludge & sediments and the existing PVC liner
- Sampling and removal of underlying and adjacent soils to meet clean up goals
- Off-site disposal of the non-hazardous sediments, liner material and soils
- Sampling and removal of soil from the berm between the two existing ponds to create one pond
- Replacement of the PVC liner, backfilling the new pond with approved soil, identifying and implementing a method that would provide sufficient water volume to support the desired ecological habitat, installation of indigenous wetland vegetation in and around the pond, and initially filling the pond with water from an approved source

PWGC submitted draft RAWPs to BNL and subsequently to the United States Department of Energy (USDOE), USEPA, and the New York State Department of Environmental Conservation (NYSDEC). The comments from each sequential submittal were addressed and incorporated by PWGC into the subsequent submittal. The final RAWP was ultimately filed with the regulators. PWGC also assisted BNL in preparation and submittal to the NYSDEC of a permit application for construction in freshwater wetlands (the Meadow Marsh).

PWGC provided shop-drawing review, construction oversight and construction administration services to BNL for the remedial action. The final RAWP was utilized by BNL as detailed documentation for this action.

PWGC provided oversight services as needed for the remedial action implemented and completed in accordance with the ROD and RAWP (see excerpt for details on the fast-track remediation).



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# BNL EXPERIENCE - LANDFILL INSPECTION, MONITORING AND REPORTING

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**CLIENT:** BROOKHAVEN NATIONAL LABORATORY

**CONTACT:** VINCENT RACANIELLO, PROJECT MANAGER

**SITE:** UPTON, NY

**PROJECT MANAGER:** KRIS ALMSKOG, PG, VICE PRESIDENT

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## PROJECT DESCRIPTION

Working with BNL's Environmental Directorate Management Groundwater Restoration and Protection program, PWGC provided landfill inspection, monitoring and reporting services for current, former and interim landfill areas.

## PWGC'S ROLE

PWGC was responsible for providing inspection, monitoring, operation and maintenance coordination, and reporting services for the current, former and interim landfill areas at BNL. These activities included the following:

- Monitoring the effectiveness of the impermeable caps
- Monitoring the potential generation and migration of soil-gas from the soil vapor well network
- Monitoring, coordinating maintenance and inspection of the various components of the landfill closure systems including:
  - The Landfill Caps
  - Drainage Structures
  - Environmental Monitoring Systems
- Oversight and coordination of maintenance crews and groundwater sampling field crew
- Preparation of monthly inspection reports and quarterly soil-gas monitoring reports
- Assisting with the preparation of the Annual Environmental Monitoring Report for the current and former landfill areas



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# BNL EXPERIENCE - POTABLE WATER SYSTEM UPGRADE

**CLIENT:** BROOKHAVEN NATIONAL LABORATORY

**CONTACT:** BILL DORSCH, PG, MANAGER

**SITE:** UPTON, NY

**PROJECT MANAGER:** PAUL K. BOYCE, PE, PG, PRESIDENT/CEO

## PROJECT DESCRIPTION

Brookhaven National Laboratory (BNL) supplies its own drinking water to all employees, facility-users, guests, residents, and visitors on site. As a federally approved drinking water supplier, BNL operates six potable-water wells, a Water Treatment Facility, and a water-distribution system, including two water towers, the smaller of which is seen by Police Headquarters and the larger of which is found on North Sixth Street.

Drawn from wells tapped into Long Island's upper glacial aquifer, the water on site is not impacted by legacy contamination, ongoing cleanup, and continued operations. Despite rumors to the contrary, BNL's water is in full compliance with all county, state, and federal regulations for safe drinking water. For more information on the Lab's water and supply system, read the annual BNL Water Quality Consumer Confidence Report, which is published each May.

In addition to its responsibility for the quality of the water within its supply system, the Lab is also responsible for the quality of the water coming out of the taps and water fountains on site, and for the condition of any bottled water and bottled-water coolers provided on site. Bottled water in coolers is provided in areas where there is no plumbing, or where the taps or water fountains have been disconnected because of plumbing problems that would result in non-compliant water.

PWGC was selected by BNL to recommend the most effective potable treatment technologies to remove VOCs from contaminated groundwater as part of a major upgrade at a BNL potable water treatment plant.

## PWGC'S ROLE

PWGC evaluated and analyzed several different treatment technologies that allowed PWGC to prepare a detailed report with recommendations.

PWGC's evaluation and subsequent analysis were based on:

- The desired flow capacities for the plant
- Various locations within the treatment train
- Types and concentrations of contaminants
- Client-specific economics involved, such as allotted capital and O&M budgets

PWGC's detailed report compared several different technologies, which included granular activated carbon, air stripping and spray aeration. The report ultimately recommended air stripping as the optimum alternative.

PWGC then prepared conceptual and preliminary designs to integrate two new 10-ft diameter air strippers each with roughly 25 feet of packed bed depth into the existing water treatment plant. PWGC recommended constructing the strippers atop an existing clear well, and piping them so that they could be operated in series or parallel with a set of booster pumps.

BNL accepted PWGC's suggestions and conceptual design, and the potable water system was constructed according to PWGC's recommendations.



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# BNL EXPERIENCE - HYDROGEOLOGIC CONSULTING & SUPPORT

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**CLIENT:** BROOKHAVEN NATIONAL LABORATORY

**CONTACT:** VINCENT RACANIELLO, PROJECT MANAGER

**SITE:** UPTON, NY

**PROJECT MANAGER:** THOMAS MELIA, PG, SR. PROJECT MANAGER

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## PROJECT DESCRIPTION

BNL's Environmental Directorate Management Groundwater Restoration and Protection program.

## PWGC'S ROLE

Projects in support of the program involved the installation of temporary vertical profile borings, permanent monitoring wells, and recovery/extraction wells using various drilling technologies that included Geoprobe®, Hollow Stem Auger, Mud-Rotary, Reverse Circulation, and Rota-Sonic.

PWGC provided observation and support services including the following:

- Coordination and execution of daily safety meetings
- Health and safety oversight
- Oversight of subcontractors and field crew
- Collection of soil and groundwater samples
- Soil classification using the USCS and Munsell Color Chart
- Field screening using instruments such as a PID, FID, and MVA

PWGC Field Hydrogeologist Support Services included the following:

- Decontamination of sampling equipment
- Documenting and tracking of wastes generated
- Development of permanent monitoring wells
- Maintenance and operation of granular activated carbon units and documentation of field observations including blow counts; sample collection techniques visual observation; health and safety information; construction activities; sample collection techniques visual observation; health and safety information; and construction activities.



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