

Inside The Design

Meet Our Water Resources Team



Pictured left to right: Robert Knotz, PE; Christopher Marx, PE; William Pyontek, PE, PP; Steven A. Tardy, PE; Joseph M. Edwards, PE, PP; Peter J. Tardy, PE

French & Parrello Associates, P.A. (FPA) **Water Resources Team** is an integrated group of professional engineers offering comprehensive dam engineering services. Our team includes experts in the field of hydrology and hydraulics, geotechnical, structural, site, mechanical and construction engineering. Services include hydrologic and hydraulic analyses, development of design storms, dam breach analyses, dam inspections, geotechnical and structural analyses, preparation of construction documents for dam rehabilitation and new construction, dam removal assessments, Operation and Maintenance Manuals, Emergency Action Plans, permitting, grant applications and construction engineering services and testing.

Proud members of the
Association of State Dam Safety Officials

French & Parrello Events Schedule

Visit French & Parrello at the following events:

- Monmouth County Planning Board Dinner**
Oct. 5 at PNC Arts Center, Holmdel
- New Jersey School Boards Association Workshop 2011**
Oct. 25-26 at Atlantic City Convention Center (Booth #930)
- New Jersey State League of Municipalities Conference**
Nov. 15-17 at Atlantic City Convention Center (Booth #1827)

Our team has experience on many of New Jersey's largest dams including Round Valley, Boonton, Manasquan and Monksville. FPA and its staff are members of the Association of State Dam Officials (ASDSO) and have considerable experience working with the NJDEP Bureau of Dam Safety & Flood Control.

Rehabilitation of Mountain Lakes Dams – Restoring a piece of history!

The Mountain Lakes Dams are located within the 80 acre Mountain Lake Preserve in Princeton Township, Mercer County, NJ. The Preserve is comprised of land surrounding two lakes and a pond created by three dams which impound the tributary of Stony Brook.

The Preserve is rich in history, not only due to the prominence of past owners, but because the dams were part of an ice-making industry from the late 19th century to early 20th century. The ownership history of the property traces back to circa 1700, when William Penn sold part of his tract to Richard Stockton. After the property passed ownership several times, it was acquired by Stephen Margerum in 1883, who by 1884 had established an ice-making industry on the site. The lower earthen dam and spillway, where the ice making facilities were, was built in 1884 to impound water needed for ice formation. As the ice business flourished, the upper stone masonry dam was built in 1902. The Princeton Ice Company was in business until 1929. Princeton Township acquired the property in 1987. The Preserve is listed on the State and National Register of Historic Places.

The dam structures had deteriorated over time and fallen into serious disrepair



requiring remedial measures to avoid further deterioration and the possibility of a dam failure. Therefore, in 2004, FPA was retained by Princeton Township to perform topographic surveys, soil borings, concrete cores, test pits and condition surveys of the dams. FPA then developed conceptual schemes for the rehabilitation of the dams, which resulted in recommended methods of rehabilitation presented in a 2006 Report. The report aided in obtaining a Historic Site Management Grant from the Garden State Historic Preservation Trust Fund.

In 2007, Princeton Township again retained FPA to prepare final designs, plans, specifications and permit documents for the project. The work included rehabilitation of the upper stone masonry/concrete dam and spillway (pictured above); raising of the lower earthen dam to provide one foot freeboard over the Spillway Design Storm, including rehabilitation of a stone retaining wall within the dam and construction of a new "ice wall" (picture of wall under construction on left) on the upstream side of the earthen dam; reconstruction of the stone masonry/concrete spillway at the lower earthen dam; stabilization of the eroded downstream channel; construction of a new concrete wall downstream of the lower spillway; rehabilitation of the stone culvert and access bridge; and rehabilitation and reconstruction of



REGULATORY COMPLIANCE THROUGH PRACTICAL SOLUTIONS

COMPLETE DAM ENGINEERING SERVICES

- Dam Safety Inspections
- Dam Rehabilitation Design
- Dam Removal Design
- Regulatory Compliance/Permitting
- Grant/Loan Applications
- Construction Engineering Services
- Operation & Maintenance Manuals
- Emergency Action Plans

a connecting stone masonry retaining wall along the downstream channel.

FPA's Engineers worked closely with Historians from the State Historic Preservation Office (SHPO) and the Princeton Township Historic Commission to ensure that the rehabilitation of the structures was designed to be consistent with the U.S. Secretary of the Interior Standards for Historic Rehabilitation, as well as to meet NJDEP Dam Safety Standards. The construction is scheduled to be complete by the end of 2011.

