

PROJECT

Drainage Pump Station Buildings
New Orleans, Louisiana

CLIENT

Hurricane Protection Office
Department of the Army
New Orleans District
U.S. Army Corps of Engineers



PROJECT DESCRIPTION

Drainage Pump Stations are extremely important for the city of New Orleans in order to pump water out of the city during rainfall events and reduce the duration of flooding. However, the pump station buildings were not designed to withstand hurricane level winds, and most of them were submerged after the hurricane Katrina. Atkinson-Noland & Associates worked with Masonry Solutions International to conduct an extensive condition survey of the existing masonry buildings, perform in-situ material testing to determine material properties necessary for structural capacity analysis and design of internal strengthening systems, and assess water penetration resistance characteristics. Our involvement continued during the implementation phase to provide construction engineering services as the buildings were strengthened using historically appropriate techniques. Buildings were ultimately strengthened using a combination of helical ties to connect wythes with vertical and horizontal stainless steel enhancement bars installed internal to the wall. Additionally, Compatible Injection Fill (CIF) was used to stabilize walls, bond new reinforcement to surrounding masonry, and enhance masonry water penetration resistance.

SERVICES PROVIDED BY ATKINSON-NOLAND

- Condition survey of exterior masonry walls to identify damage
- Investigation of concrete structural elements and masonry walls to generate as-built section details using microwave radar scanning
- Flatjack testing to determine masonry compressive response and mortar bed joint shear strength
- In-situ tests to determine the mortar flexural bond strength
- In-situ tests to characterize pullout and shear capacity of embedded masonry anchors
- Water penetration testing per ASTM C1601
- Laboratory testing of concrete masonry unit samples
- Conceptual repair recommendations
- Construction engineering during strengthening
- Develop steel enhancement bar shop drawings
- Design historically compatible repair materials and methods



Atkinson-Noland & Associates
Consulting Engineers
www.ana-usa.com

2619 Spruce Street
Boulder, CO 80302
303.444.3620

32 Old Slip, 10th Floor
New York, NY 10005
917.647.9530