

DRAINAGE PUMP STATION NO. 13 MADE HURRICANE-READY

| By Margie Church



West elevation of existing pump station and new generator building



East elevation of new generator building



Under slab piping and conduit at new generator building

For the past six years, the U.S. Army Corps of Engineers' Hurricane Protection Office has worked with contractors such as The McDonnell Group (TMG), to rebuild and shore up buildings ravaged by Hurricane Katrina. As the sixth anniversary of that devastating storm has recently passed, The McDonnell Group is mid-stride in a project to preserve and protect hurricane-vulnerable property in Algiers. Drainage Pump Station No. 13 sits on a bridge spanning the Norman Canal. It survived the hurricane, but was earmarked for repairs and improvements.

The existing station houses seven water pumps and two electrical generator sets to handle storm water flow through a densely-populated neighborhood. TMG made improvements to the building for the 2011 hurricane season, plus it is constructing a new building with two more electrical generator sets for use next year. TMG is acting as a subcontractor to Southern Services & Equipment on the nearly \$17 million-dollar contract.

Repair and Reinforce the Existing Pump Station

None of the building's existing masonry and brick walls were structurally stable enough to withstand head pressure from floodwaters. TMG will reinforce the unstable walls, build floodwalls around the water pumps installed below flood elevation level, and replace the building's roof. Windows, shutters, and doors are also slated to be upgraded to current hurricane codes.

While work progressed, the station had to remain fully operational. To accomplish this, a temporary backup sys-



Radiator and day tank platform

tem was devised in case a storm blew in and the pump station was needed. "The system couldn't be down longer than thirty minutes. Our temporary system never had to be used, but it was available and ready," said Todd Pierce, TMG Superintendent.

Replacing the existing metal roof was not a simple demolish and replace project. Sensitive, expensive equipment inside the building was not removed and the Army Corps of Engineers was deservedly concerned about protecting it.

To assuage the army's concerns, TMG constructed an elaborate temporary, waterproof roof under the existing structure first. Then the old roof was demolished and the permanent roof was built. Lou Campero, TMG Project Manager, thinks the design may be a first for TMG, and reports the Army Corps is very happy with the results. The permanent roof was completed in early June, and there were no leaks throughout the process.

All the electrical control and equipment starting panels inside the existing building were also relocated safely above flood elevations during this time.

With good reason, Campero and his team were doing the high-five in early June. The existing station was ready for the 2011 hurricane season, and could provide reliable service, without concerns about being flooded.

Mega Power Installed

The main event for this project is the installation of two electrical generator sets in a new 40-foot wide by 130-foot-long by 60-foot-tall building. Campero says people are stunned when they learn the size of the new diesel engine-driven units. Each weighs approximately 100,000 pounds and can produce 3,580 kilowatts of electricity. The generators are being assembled at EMDSI on the West Bank (New Orleans) and will support the two existing power units at Pump Station No. 13.



75 ton concrete crane in action

The new building's piles are installed and the foundation and the concrete framework has been completed. Architectural pre-cast concrete panels will cover the walls and roof system. In addition to making the building hurricane-resistant, the material also mitigates the sounds of the running equipment. The panel glazing and windows are missile impact rated and designed for three-second, 156 mile-per-hour wind gusts.

A platform for the generator sets will be built 11-feet above ground to eliminate flooding concerns. The units are scheduled for installation at the end of September. At this time, there are two installation options. The preferable plan is to bring the units through the loading bay doors. If that isn't suitable, some of the building wall panels may be left off and the generators will be brought in through the walls. Campero says the rigging company will make the ultimate decision closer to the installation date.

Two mammoth fuel tanks, directly tied to the generators, will be installed on a timber pile and concrete foundation. The 30,000 gallon, double-wall, steel tanks will sit approximately 30 feet from the building. Diesel fuel will be fed to the generators through underground lines.

When this building is finished, a catwalk will be built connecting it to the control room in the pump station. The site is manned around the clock. In the event of a flood, the operator can walk above flood elevation to get to the generator building.

Real Estate Squeeze

The worksite is extremely tight. An average of 80 people are working at any given time, plus another project is going on immediately behind this one. Campero said coordination for deliveries and departures between the two jobs is complex and there is a limited amount of real estate available to lay down materials. "As soon as materials are delivered, they're installed as quickly as possible," he said.



New generator building



New generator building



Operating floor of generator building

A number of homes are within 200 feet of the new building. Campero said it was dicey for semis to negotiate the surface streets with 94-foot-long concrete piles loaded on the trailers.

A plan to control sediment and erosion was put in place to eliminate any negative impact on the Algiers Canal. "Even though we are disturbing the earth around the canal, we aren't causing any negative environmental impact," Campero said. "There is minimal risk of any kind of exposure or spills into the canal. If we discover anything along the way, work will be stopped and the problem will be solved before continuing."

The Army Corps of Engineers is also extremely concerned about the safety of everyone working on the project. A detailed safety and hurricane preparedness plan was implemented and Pierce is in charge of making sure the personnel are trained and the plans are followed.

"The army has complimented us on our proactive safety procedures," Campero said. "There have been no accidents and we will do everything possible to ensure that the project is completed without safety violations or incidents."

The New Orleans Sewage and Water Board expects to take control of the building on January 31, 2012.



Operating floor of generator building



Loading bay connects existing pump station to new generator building