

HIDING IN PLAIN SITE: CONSTRUCTING A WATER TREATMENT FACILITY IN A RESIDENTIAL NEIGHBORHOOD



Project Spotlight

Daphne Utilities and HMR, partnered together to design and build one of the most innovative water production and treatment facilities in the southeast. This project was constructed out of necessity to replace old and failing infrastructure and to maintain regulatory compliance. In the process, the historic character of an entire neighborhood was preserved.



In 1953, the Waterworks Board of the Town of Daphne built its first production water well and treatment facility. This facility was built near the present City Hall on what has become a densely populated residential area. While the treatment facility served its purpose for more than 60 years, an upgrade was desperately needed to meet customer demands, continue to meet federal and state regulations, and maintain water quality standards. The primary problem facing Daphne Utilities as it sought to upgrade was a lack of space to construct the new facility. The original treatment building was a 20'X20' concrete bunker on a narrow lot. There was no room to build a new building on the lot and furthermore, Daphne Utilities could not afford to take the building out of service for the year it would take to construct a new facility.



In 2013, a residential house located across the street from the water treatment facility was put up for sale. The house was a 1940s-era structure which had previously been the Deacon's Cottage for a local church. Daphne Utilities purchased the property and house knowing the property would be large enough to construct a new treatment works and close enough to the existing well to be a cost effective option for connecting to the well and water distribution system. Additionally, a new facility in this location would solve lingering water quality issues from the out-of-date treatment plant and could be designed to meet the long-term capacity needs of the growing area. Daphne Utilities saw this project as an opportunity to eliminate an eyesore in a residential community. In the design and construction of this project, Daphne Utilities and HMR faced the challenge of saving a stately and historic Live Oak tree as well as satisfying residential neighbors who were skeptical of the construction of new commercial building in the heart of their neighborhood.

Prior to construction, a professional arborist was consulted who advised on best management practices to protect the tree. These included preventative pruning and root fertilization a full year in advance of any construction. The biggest hurdle however, was to minimize any damage to the tree's root system. This was addressed by designing the new structure on exactly the same footprint as the old house and driveway. While this limited the size of the structure, it dovetailed nicely with the plan to rebuild the structure to look architecturally similar to the 1940s cottage. This residential style was chosen to pay respect to the character of the neighborhood and to satisfy any concerns the existing residents may have regarding the construction.

Daphne Utilities and HMR designed the facility to be as quiet as possible. Low-noise treatment equipment was specified and installed, and the design and installation of the entire structure considered noise abatement as a goal. In fact, with the system fully operational the decibel level is no louder than a typical residential AC unit. The facility was also designed with energy efficiency in mind. Heavily insulated walls and roof help control heating and cooling costs and the facility incorporates a piping design which transports treatment water throughout the structure providing a temperature-moderating effect. Skylights installed in the treatment room provide natural light and LED lighting in other areas have low cost of operation and virtually no heat load. Considering the safety of the community, Daphne Utilities also elected not to use traditional chlorine for disinfection at this location due to the proximity of nearby homes, schools, and businesses. They chose instead, to install an on-site sodium hypochlorite generation system which provides a disinfectant using only salt, water, and electricity.



By the conclusion of this project, this building appears to the casual passerby to be nothing more than a cottage on a quiet residential street. Underneath this façade though, lies a state-of-the-art water treatment facility providing more than 1.5 million gallons per day of high quality drinking water to residential along the Eastern Shore.