



# Engineering Project Case Study

## *New Forest Offsite Utilities*



New Forest subdivision is a 400+ acre community between the East Sam Houston Parkway, State Highway 90, Uvalde Road, and a 150' H.L. & P. Fee Strip. The development is bisected by the Houston Coastal Water Authority West Canal and had no drainage for the east 124 acres. Providing water, sewer, and drainage to the subdivision required crossing 21 pipelines belonging to 13 different companies over the 2,000+ foot trek. Crossing the pipelines required significant negotiation and overcoming multiple design challenges because any one of the pipeline companies could have kept the project from occurring.

The New Forest Offsite Utilities project included storm drainage sufficient to carry the 100-year storm, sanitary service including a lift station, and water. All of the utilities had to navigate the 21 pipelines including a 5-foot diameter concrete raw water line which could not be

moved or adjusted. Crossing this many pipelines, many of them in close proximity to each other provided an engineering challenge because of the size of the storm sewer required to carry the 100 year storm from this development. Using the Atkinson Engineers team philosophy, every engineer in the firm was engaged in a round table discussion to devise effective solutions to the challenges this project posed. These solutions were presented to all of the pipeline companies involved, and the most cost effective solution was used.

The immovable 5' diameter raw water line was one of the largest issues on this project. We were informed early in the process that if the flow through that pipe was interrupted, the base cost to the owner would be over 1 million dollars a day. In the end the only way to keep from interrupting the flow in the water line, and get our project built, was to build a room around the water line and have our storm water flow underneath it. The room was 30' X 35', and the roof was designed to handle parking lot loads. The room was designed so that the water would spread out as it went across the room, and around the supports holding up the water line.

The project included an off site detention pond that was upstream of the eventual outfall into Carpenter's Bayou. The pond was built in compliance with a drainage report prepared by Lott & Brown Engineers, and approved by Harris County. We designed the detention pond to be built in increments as development happened in the area. The detention pond now serves 204 acres of new development.

A larger engineering company was originally hired to design the water and sanitary portions of this job. However, since we had made so much more progress in contacting and receiving approvals from the involved pipeline companies, we were given the water and sanitary portions of the job. This is just one of the instances where our nimble "no ties and no voice mail" attitude has been successful for our clients.



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