

Hamestring Lift Station

Design of new lift station — the headworks to the new Wastewater Treatment Plant

The City of Fayetteville has implemented a \$125 million Collection System Improvement project to facilitate the rapid population growth the City and surrounding area has experienced over the last decade. RJN was retained to provide design services for the City's Westside Interceptor System. This project included the design of the new Hamestring Lift Station which is a 36 MGD lift station feeding a new wastewater treatment plant through an 11,100 feet force main.



The Hamestring Lift Station is essentially the headworks to the new City of Fayetteville Wastewater Treatment Plant. When the WWTP starts up this coming June the only feed it will be receiving will be from the Hamestring Lift Station.

The RJN team completed:

- Preliminary and final design which included:
 - Site layout
 - Site drainage system
 - Perimeter fencing
 - Landscape buffer
- Permits and technical specifications
- Value engineering
- Project bidding and award
- Construction observation

The site is in rock and approximately 8,300 yards of rock was blasted and removed to construct the station. The design project was completed on time and within budget. The construction bid of \$6.13 million was within the Engineer's Estimate and construction was completed five months early.

The station is a wet-well / dry-well type design and has seven 350 HP pumps, six are required for full capacity and one is an installed spare. The pumps connect to a 24-inch and 30-inch force main. The two sizes are required to maintain high enough flow velocities over a range of flows in the pipe to help clean (scour) the pipes. There are hydraulic actuated check valves at each pump for hydraulic surge protection. There are three VFD drives and four soft starts for flow control and surge control (both hydraulically and electrically) and a back-up generator. The dry-well is also equipped with environmental control for dehumidification.

