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Project Summary

Easley Water Treatment Plant Improvements | Easley, South Carolina

Project Highlights

- Water Treatment Plant Upgrades
- Architectural, Structural, Electrical, Civil, Plumbing, HVAC and Instrumentation/ Control design
- Site expansion and improvements
- Staged construction for ongoing operational usage
- Permitting (SC DHEC)
- Creation of PER and bid documents (drawings, specifications, bid schedule, and contract)

Client

Easley-Central Water District

Description

This project involved feasibility study, preliminary and detailed design, bidding assistance, along with construction support to expand 2 MGD water treatment plant to 3 MGD to support municipal growth for Easley Central Water District. Existing 2,100 SF control building was expanded to 3,700 SF, which included structural, electrical, plumbing, HVAC and instrumentation design. Plant improvements included new: influent control, chemical feed, flash mix tanks, and first stage flocculation facilities. Additionally, modifications were made to existing facilities including: pump station intake, yard piping, flocculator mixers, and filter units.

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Work included generating Plans and Specifications detailing all areas of new facilities work required to expand plant capacity sufficient for submittal to SC DHEC for construction permitting. Submittal of Plans and Specifications was accomplished, and coordination with review staff was performed to address agency comments. Efforts resulted in regulatory approval and issuance of a Permit to Construct.

Construction services included review of shop drawings, construction observation and resolving issues encountered by the Contractor in execution of the work.

Unique Aspects

Provisions during the design phase must include staging new facility equipment installation. Keeping facilities operational during construction is a key measure to success. Working with operators to determine low flow times which provides windows of opportunity for shut downs should be undertaken during design. Additionally, knowing treatment processes allows designers to optimize equipment placement for ease of construction.

Lessons Learned

Taking existing facility's equipment and infrastructure into consideration during design may allow construction cost savings. When possible, refurbishing used equipment for reuse in the facility should assist with construction costs. This should be considered when planning construction phasing.

Challenges and Solutions

Challenge: The water district was experiencing demand increases which exceeded the SC DHEC maximum of 80% of capacity. The water district investigated the alternatives of either installing a water main to allow purchasing water from a neighboring water district or expanding the capacity of their existing water treatment plant.

Solution: Rogers and Callcott was enlisted to study the feasibility of upgrading the existing water treatment plant to increase capacity to 3 MGD while a separate engineering firm studied the water main addition alternative. We evaluated existing facility configuration and source limitations to develop a workable concept for plant expansion, resulting in a Preliminary Engineering Report that was submitted for SC DHEC review. The concept report was approved and the District elected to pursue the plant expansion option.

Outcome

The facility with the new upgrades resulted in dedicating the building to be the "Harold G. Gaines Water Treatment Facility". It is currently in use and has allowed development within the service area.