

Client
City of Boca Raton

Scope of Services
Professional engineering
design services and services
during construction

Contact
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Start Date
10/2016

Completion Date
6/2019 (est.)

Construction Cost
\$1.169 million

Key MBC Staff
Frank A. Brinson, P.E.
Andrew Barba, E.I.

Key Features
Project included demolition of
existing system, design and
construction of temporary
carbon dioxide system and
design and construction of
replacement recarbonation
system.

WTP Recarbonation System Replacement Design and Services During Construction Boca Raton, Florida



Background

In 2001, Boca Raton installed a package carbon dioxide bulk storage and feed system (“recarbonation system”) for pH adjustment in the lime softening process. When the gaseous chlorine disinfection system was eliminated and replaced with on-site generation of sodium hypochlorite, the recarbonation was needed to adjust the pH of the lime softened water downstream of the lime softening units and upstream of the granular media gravity filters. The purpose of lowering the pH prior to the filters is to prevent the precipitation of lime in the filters which can cause “cementing” of the filter media. Recarbonation maintains the quality of the filter media and improves filter performance. The recarbonation system has been in continuous operation since its installation in 2001 and is reaching the end of its useful life. Boca Raton desired to replace the recarbonation system, and all of its piping and ancillary components, to maintain process efficiency and reliability.

The Project

Prior to demolition of the existing system and construction of the new system, a temporary system will be used to maintain water treatment during construction. The new carbon dioxide packaged system includes, but not limited to, installation of the following: two (2) new 18-ton horizontal liquid carbon dioxide storage tanks, refrigeration units, electric vaporizers and vapor heaters, first stage carbon dioxide regulators, associated piping systems, two (2) pressurized solution feed (PSF) carbonic acid feed panels, and all related electrical and instrumentation and controls components. Components are required for a complete and operating system. Maintenance of continuous plant operation and coordination with City operational staff are required as well.

MBC's scope of design services included preparation of construction drawings and technical specifications, submittal of opinion of probable cost, and bidding services. MBC will assist the city with engineering services during construction.

The scope of services during construction on the project includes the following:

- Review of record drawings and other documents.
- Preparation and submittal of 70% and 100% construction drawings.
- Preparation and submittal of 70% and 100% technical specifications.
- Finalize drawings and contract documents for bidding.
- Preparation and submittal of 70% and 100% opinion of construction cost.
- Preparation of notification letter to PBCHD
- Bidding services including preparation of written addenda, preparation of bid tabulation and review of bidder and consulting with city on bidder selection.

The contract for construction of the project was awarded to TLC Diversified, Inc with a Notice to Proceed dated June 4th, 2018. Estimated completion date is June 2019. MBC is assisting the City with services during construction.