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Water / Wastewater Projects

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Arvida Park of Commerce

Reclaimed Water Project

CKA provided mechanical & civil design, permitting, and contract negotiations for the transition to reclaimed water for irrigation of the club's golf course. This project includes hydraulic analysis, pump station modifications, site civil design, permitting, and general consulting for contract negotiations with the municipal provider.

Owner: Arvida Park of Commerce

Size: 0.100 MGD

Scope: Design & Permitting

Cost: $100,000

Broken Sound Country Club

East Course Reclaimed Water Project

CKA provided mechanical, site civil & stormwater design, permitting, and general contracting for the transition of traditional surface water resources to reclaimed water for irrigation of the clubs' east golf course. This project includes new vertical turbine pump stations, controls, SCADA, pipeline construction, permitting, and contract negotiations with the municipal provider.

Owner: Broken Sound Country Club

Size: 0.6 MGD

Scope: Design / Build

Cost: $1,200,000

Broken Sound Country Club

West Course Reclaimed Water Project

CKA provided mechanical & civil design, permitting, and general contracting for the transition of traditional surficial water resources to reclaimed water for irrigation of the clubs west golf course. CKA's ingenuity resulted in the new delivery concepts that enabled the owner to eliminate the original concept requiring a $1M new vertical turbine pump stations, controls, SCADA, and pipeline construction. CKA was able to negotiate extensively and successfully with the City of Boca Raton for a delivery point that deleted this need. Additionally, CKA assisted the City in the procurement of a new RCW client facilitating this project's success.

Owner: Broken Sound Country Club

Size: 0.8 MGD

Scope: Design / Build

Cost: $400,000

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Broken Sound Country Club

East Course Reclaimed Water Triplex Pump Station, controls, Structural Mods

CKA provided the design for mechanical, fabrication, controls, and structural modifications for a reclaimed water pump station servicing this Florida premier East Country Club golf course. This project includes new triplex vertical turbine pump station, controls, SCADA, fertigation system, pipeline construction, and structural modifications.

Owner: Broken Sound Country Club

Size: 0.6 MGD

Scope: Design / Fabricate / Build

Cost: $282,000

City of Boca Raton

Reclaim Water System

CKA, in association with the prime consultant, won a continuing services contract for the design & installation of upgrades, modifications, and additions to the City of Boca Raton's Reclaim Water System.

Owner: City of Boca Raton

Size: 10 MGD

Scope: Construction Management Services

Term: 5-Yr Continuing Services Contract

City of Margate

Water Treatment Plant

CKA provided process mechanical engineering & hydraulic analysis for the design and construction of the City of Margate's Water Treatment Plant. The project involves the removal and replacement of two lime softening/filtration trains while maintaining continuous treatment for the City's water demand. CKA, provided process mechanical design and generation of construction documents for two IDI solids contact clarifiers, two IDI Greenleaf filters, complete automated backwash system, electrical and I&C upgrades, yard piping, low pressure air service, high pressure air service, and structural design.

Owner: City of Margate

Size: 16 MGD Lime Softening Water Treatment Plant

Scope: Process Mechanical Engineering & Construction

Cost: $8,140,000

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City of West Palm Beach

Aquifer Storage & Recovery (ASR) Well & Pumping Expansion

Owner: City of West Palm Beach

Size: 8 MGD

Scope: Design, Permitting, Construction Management

Cost: $674,000

CKA, as the "design engineer of record", partnered with CH2M Hill providing design services and Construction Management for the largest ASR well in Florida. The City of West Palm Beach had recently expanded the capacity of their ASR well. CKA, working with CH2M Hill, was successful in receiving PBCHD/FDEP permits to convert the well from a finished water storage facility to a surface water/raw water storage facility. This was a highly visible project with South Florida Water Management District and the Palm Beach County Health Department as it was a "first" in storing surface water in an ASR well and is the largest capacity ASR well in the state. This technology provides a reliable method of meeting south Florida's growing demands on the current water supply and is under study for use in the ACOE and SFWMD joint CERP Program. CKA has provided design services providing all of the surface facilities that include storage pump, recovery pump, piping, disinfection, associated appurtenances, and has also assisted with the P&ID, and electrical design. CKA also provided the Construction Administration for the project, which yielded a record setting 0.25% change order amount. This is a prime example of thorough engineering and concise construction management.

City of West Palm Beach

Valley Forge Storage Tank & Repump Station

Owner: City of West Palm Beach

Size: 3 MGD

Scope: Design & Construction Management

Cost: $2,500,000

CKA provided mechanical pump station design, hydraulic analysis, and construction management for this very visible project within the heart of the City of West Palm Beach. As part of the City's current plan to upgrade older facilities within the City, a replacement of an old steel storage tank and re-pump station was embarked upon. CKA, working with Brown & Caldwell have teamed together to deliver this project to the City of West Palm Beach. The project includes a new 3 MG pre-stressed concrete tank, new pumps, piping, electrical supply, controls, and site civil modifications.

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City of West Palm Beach

Water Treatment Plant

CKA provided the City with Project Management Services for the 42 mgd lime softening water treatment plant. The City's WTP is one of the few larger plants in south Florida utilizing surface water for a raw water source. This project includes a sundry of process modifications for the water treatment plant. The improvements for this project include: removal of existing lime sludge collection system; installation of a new proprietary lime sludge collection system; removal and replacement of backwash sludge pumps; construction of two new sludge pumping stations; construction of new anhydrous ammonia building, bulk storage, and chemical feed process equipment; removal and replacement of existing ferric tanks and transfer pumping station; construction of new ozone generation, liquid oxygen storage facility, and delivery system; construction of new potassium permanganate feed system; and construction of new Carbon Dioxide Feed and Injection system.

Owner: City of West Palm Beach

Size: 47.5 MGD Lime Softening Water Treatment Plant

Scope: Project Management

Cost: $2,600,000

CMA of Broken Sound

Common Areas Reclaimed Water Project

CKA provided design, permitting, and general contracting for the construction of a new reclaimed water pumping station. CKA designed and constructed a municipal grade reclaimed water pumping station for this project that has just been transitioned to reclaimed water in the City's Yamato Road Corridor. This pumping station included 100% redundancy, stainless piping, automated controls and security measures.

Owner: CMA of Broken Sound

Size: 264 GPM

Scope: Design / Build

Cost: $116,500

Loxahatchee River District

Neighborhood Sewer Projects

CKA provided civil design and permitting for three (3) small neighborhood sewer projects. This project included two (2) small projects serving low-pressure sewer to a total of 12 home and one (1) gravity sewer project serving four (4) homes. The project(s) included engineering, hydraulic analysis, survey, equipment selection,

Owner: Loxahatchee River District

Size: Three Small Neighborhood Sewer Project

Scope: Design & Permitting

Cost: $70,228

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Water / Wastewater Projects

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Fort Pierce Utility Authority

Reverse Osmosis Water Treatment Plant, Ft. Pierce, FL

CKA provided Value Engineering, Construction Contract Document Review, and a Constructability Review for the FPUA Reverse Osmosis Water Treatment Plant for the engineer of record, CH2M Hill. The Plant capacity is 5.33 MGD with expansion capabilities to 8 MGD. This report identified cost saving measures, construction related simplification, and an overall review and coordination of the documents. The extensive construction experience within the firm has enabled the ability to identify, troubleshoot and rectify many problems before they arise. The construction costs for this facility were $7.6M

Owner: Fort Pierce Utility Authority

Size: 5.33 MGD Reverse Osmosis Water Treatment Plant

Scope: Value Engineering / Contract Document / Constructability Review Report

Cost: $7,600,000

Engineer: CH2M Hill

City of West Palm Beach

Water Treatment Plant

CKA provided planning, design, permitting, bidding, and construction management services to the City of WPB during an emergency failure situation. The City's ammonia storage and delivery system experienced failure due to faulty equipment and poor design standards. CKA acted immediately upon request to provide a full working system replacement as well as a temporary system supply and delivery system for this critical disinfection component at the Banyan Street WTP. The City's Risk Management department expressed deep gratitude to CKA for responsive and cost effective solutions.

Owner: City of West Palm Beach

Size: Anhydrous Ammonia Storage, Chemical Feed, Piping & Distribution System for 47 MGD Surface Water WTP

Scope: Planning, Design, Permitting, Bidding & Construction Management Services

Cost: $138,000

LTC Ranch

Reverse Osmosis Water Treatment Plant

CKA provided ASME B31.3 R/O process piping design for all of the stainless membrane piping associated with this project. Many owners are beginning to realize the importance of properly designed high pressure piping for membrane plants. CKA designed a program that assists in the laborious calculations required for compliance to this code. To our knowledge, there is no other engineering firm in Florida, and only a few nationwide providing this engineering service.

Owner: St. Lucie County

Size: 2.1 MGD Water Treatment Plant

Scope: ASME B31.3 R/O Piping Design

Cost: $5,570,000

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Water / Wastewater Projects

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Martin County Utilities

Tropical Farms Water & Wastewater Treatment Plants

Owner: Martin County Utilities

Size: 1.5 MGD Water Treatment Plant / .94 MGD Wastewater Treatment Plant

Scope: Construction Management

Cost: $10,430,000

CKA provided Construction Management Services for the construction of both the Water and Wastewater Treatment Plants. The water and wastewater treatment plants were constructed simultaneously, adjacent to each other and on one contiguous site. The facility can be operated under manual or automated modes. The WTP construction project included the development and construction of a well field consisting of seven surficial aquifer production wells. The plant utilizes membrane-softening treatment with pretreatment and post-treatment chemical injection systems for acid, antiscalant, caustic, chlorine, and ammonia. The plant is equipped with Odor Control and Degasification. Structures built included, membrane softening bldg, chemical bldg, chlorine bldg, concrete clearwell with vertical turbine pump wetwell, and two Crom pre-stressed concrete ground storage tanks. The WTP houses the PLC, telemetry and monitoring stations for the WWTP and Well Field. The WWTP was one of the first permitted systems to receive and blend membrane concentrate with tertiary treated reclaim water to be delivered to the end user. The WWTP utilizes Return Activated Sludge treatment and incorporates two DAVCO Package treatment plants installed in Crom pre-stressed concrete shells. Structures included blower bldg, utility bldg, two traveling-bridge filters housed in a concrete tank, two concrete chlorine contact basins with vertical turbine effluent pump wetwell, and one pump station. Both projects were provided with emergency/automated standby power generation systems. The project also included all site civil improvements and road construction of approximately three miles of 2-lane county roadway. CKA was instrumental in delivering this project to the client during inclimate weather conditions such as the flood of October 1995.

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Water / Wastewater Projects

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Pelican Lake Village

Reverse Osmosis Water Treatment Plant

CKA provided engineering "design/build services to provide a potable water supply and nanofiltration membrane treatment plant for a private community from concept to delivery. The owner contacted CKA because their water supplier, US Sugar, was discontinuing service to the community. CKA stepped up to the plate to provide efficient, cost effective, quality engineering and equipment via a design/build contract to furnish this community of 100 homes with quality potable water. This project will achieve that goal in a timeframe unprecedented in the industry. Equipment for this project include: raw water supply well and pump, booster pump, nanofiltration membrane treatment plant, disinfection, ground storage, degasification, hydropneumatic pressure control, high service distribution pump station, controls, piping, and appurtenances.

Owner: Pelican Water Corporation

Size: 86,400 GPD Reverse Osmosis Water Treatment Plant & Water Supply

Scope: Design / Build: Planning, Design, Permitting, Bidding, & General Contracting

Cost: $460,000

Seacoast Utility Authority

PGA Wastewater Treatment Plant 12 MGD Plant Expansion Project

CKA provided Construction Management for the "PGA WWTP - 12 MGD Expansion Project". CKA, as the Resident Construction Manager, was instrumental in delivering this project to the client. The expansion project, from 8 MGD to 12 MGD, included the following: construction of an additional 110 ft diameter clarifier; construction of a diffused air aeration basin; incorporation of new Anoxic Basins and Nitrified Recycle into the treatment system; construction of a blower building, blowers and air delivery system; retrofitting existing mechanically aerated basins to diffused air; construction of three covered sludge storage bays; addition of Gravity Belt Thickening to the solids treatment cycle; addition of a polymer injection system; emergency/automated standby power generation; SCADA and Telemetry Systems Upgrades; piping modifications; electrical, and I&C systems upgrades. This plant has received the 1998 Region 6, FWPCOA Award for "Best Operated WWTP over 10 MGD" and continues to be one the premier designed and operated plants in South Florida.

Owner: Seacoast Utility Authority

Size: 12 MGD

Scope: Construction Management

Cost: $7,200,000

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Pelican Lake Village

Wastewater Treatment Plant

CKA provided engineering design and permitting services to provide upgrades to the plant's secondary effluent disposal system to meet current regulatory requirements. This wastewater treatment plant was required to be upgraded by the FDEP in order to facilitate a concentrate disposal permit for the new RO water treatment plant located on the same site. The plant's upgrades included new percolation ponds, effluent piping, hydraulics, and site work.

Owner: Big Lakes Villages, Inc.

Size: 680,000 GPD RAS Wastewater Treatment Plant

Scope: Design, Planning, Permitting

Cost: $240,000

Seacoast Utility Authority

PGA Reclaim Water Facilities Expansion Project

CKA, as the "design engineer of record", partnered with CH2M Hill providing planning, design, construction documents, and construction management services for the construction of the State of Florida's largest tertiary treatment system. CKA provided all mechanical process engineering, hydraulic analysis, site civil, and construction management for this project. This project expands and replaces the entire existing tertiary treatment process of one of Florida's award winning plants that delivers reclaim water to one of south Florida's largest wholesale and retail bases. This project was unique and challenging because of the wide flexibility for flow direction and the retrofit nature of the project, which required no treatment and distribution shutdowns.

Owner: Seacoast Utility Authority

Size: 19.8 MGD Filter Design (26.4 MGD Build-out)
19.8 MGD Filter Feed Pump Station (26.4 MGD Build-out)
IQ Pump Station Expansion (15.0 MGD Total)
15.0 MGD Deep Injection Well Pump Station (26.4 Build-out)
8 MG Lined & Covered IQ Storage Pond
Lined Upset/Backwash Storage Pond
2.64 MGD Expanded Lined Equalization Wetwell
0.94 MG Lined & Covered DIW PS Wetwell
Electrical, I&C, Emergency Power

Scope: Design, Planning, Construction Management

Cost: $14,220,000

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Water / Wastewater Projects

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Seminole Tribe of Florida

Potable Water Distribution System Insertion Valves

CKA installed two 8-inch insertion valves into live potable water mains in order to provide the tribe with the safety features necessary for proper operation. The Seminole Tribe of Florida (STOF) contacted CKA in an emergency situation to install two isolation valves into live potable water mains. CKA proposed, contracted, procured, delivered, and installed this project in three (3) days.

Owner: Seminole Tribe of Florida

Size: Two 8-in. Insertion Valves

Scope: Construction

Cost: $17,000

Seminole Tribe of Florida

Hollywood Reverse Osmosis Water Treatment Plant

CKA installed two 8-inch isolation valves into the plant's raw water main feeding the R/O plant. The Seminole Tribe of Florida (STOF) contacted CKA as a sole spec contractor to install two 8-inch gate valves in the raw water main at the Hollywood Water Treatment Plant. These valve installations were nestled between several other piping streams not the least of which was live acid feed. The raw water mains were over 8-feet deep necessitating 24-hour dewatering systems and trench safety measures. CKA coordinated the plant's shut-down operation and delivered this project without a hitch.

Owner: Seminole Tribe of Florida

Size: Two 8-in. Insolation Valves

Scope: Design Review & Construction

Cost: $77,000

Seminole Tribe of Florida

Emergency Insertion Valve Installation

CKA provided emergency services to the tribe in Hollywood, FL for the installation of three (3) insertion valves in live potable water lines. The tribe called on the expertise and experience of CKA for the emergency installation of three (3) insertion valves in live potable water lines to eliminate the shutdown and boil water notices associated with pressure loss in potable drinking water distribution systems. CKA is now on the "hot-list" for emergency contractors for their reverse osmosis water treatment plant(s), collection, and distribution system(s).

Owner: Seminole Tribe of Florida

Size: 2 – 6" & 1- 8" Insertion Valves

Scope: Construction

Cost: $16,230

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Tampa Bay

Desalinization Water Treatment Plant

CKA has provided the membrane equipment design, ASME B31.3 process piping, structural skid, configuration, and pipe support design for the largest potable desalination plant in the United States. As alternative water supplies become an increasingly viable option; reverse osmosis for brackish water supplies and desalinization of salt water supplies are first choice treatment processes. Desalinization processes require much higher feed pressures than most engineers are typically accustomed to. Covanta, the lead engineer of record for this massive project, recognized early on the need for proper design and fabrication procedures ensuring public safety and longevity of the process equipment. CKA was contacted by Hydranautics, the OEM for the membrane process, to design and analyze the piping for this project in accordance with ASME B31.3 process piping codes and guidelines. CKA met this challenge with enthusiasm and followed up by generating a program that efficiently analyzes and designs in accordance with the B31.3 code. Most manifolds are cost effectively designed with extruded outlets, and therefor require extensive analysis to determine proper wall thickness for pressures of up to 1000 psi. Additionally, AL6XN was the material of choice for the high chloride concentrated feedwater piping due to its extensive crevice corrosion and physical properties. Hydranautics came to CKA for this engineering because of our mechanical and process design history and our attention to detail. Additionally, CKA provided the entire structural skid design and analysis for the carbon steel skid frames, piping and vessel coordination, and layout. We are very proud to have our engineering seal on this project and have awarded this project "CKA's 2002 MVP" (most visible project).

Owner: Tampa Bay Utilities

Size: 25 MGD Reverse Osmosis Desalinization Plant

Scope: OEM Membrane Equipment Design, High Pressure Piping Design, Process Piping Coordination & Piping Support Design

Cost: $110,000,000

Woodfield Country Club

Reclaimed Water Project

CKA provided mechanical & civil design, permitting, and contract negotiations for the transition to reclaimed water for irrigation of the club's golf course. This project includes hydraulic analysis, site civil design, permitting, and general consulting for contract negotiations with the municipal provider.

Owner: Woodfield Country Club

Size: 0.875 MGD

Scope: Design & Permitting

Cost: $200,000