TRENCH SHORING COMPANY HELPS KIEWIT-SHEA

JOINT VENTURE KEEP IT SAFE IN THE TRENCHES ON THE 10-MILE-LONG PIPELINE FOR NEW CARLSBAD DESALINATION PLANT

Written By: Brian Hoover

On Jan. 17, 2014 Gov. Edmund G. Brown, Jr. declared a drought state of emergency and directed state officials to take all necessary actions to help conserve water supplies. Although we received some relief from the recent storms, California is still experiencing the worst drought in at least 165 years. Many ideas and plans are being hatched including building more and larger water storage facilities throughout California. Residents of San Diego County can rest a bit easier than many other parts of the Golden State, thanks to their new Carlsbad Desalination Plant scheduled to be online by 2016. The San Diego Water Authority (SDCWA) and Poseidon, a developer and financier of water infrastructure projects, have signed a 30-year Water Purchase Agreement for the entire output of the plant. When complete, the Carlsbad Plant will be one of, if not the largest, most technologically advanced plant of its kind in the entire Western Hemisphere. Locally controlled, the drought-proof plant will deliver water that meets and exceeds all state and federal drinking water standards to businesses and residents in San Diego County through its 10-mile water delivery pipeline.

Kiewit Shea Desalination (KSD), a joint venture of Kiewit Infrastructure West Co. and J.F. Shea Construction Company are the general contractors responsible for constructing the Carlsbad Desalination Project. IDE Americas is the sub-contractor in charge of the plants main process design (water pretreatment, reverse osmosis filtration, post treatment and instrumentation and control systems). Construction began in late 2012 with the San Marcos pipeline portion being complete as of last July 2013. Pipeline work is now

Above: Trench Shoring Company provided the Trench Shields pictured here in a section of the 10-mile water delivery pipeline for the Carlsbad Desalination Project.

Right: A John Deere 4500 Wide Track Excavator was used to lower pipe in combination with Trench Shoring Company Z-Shores.

underway in Vista and Carlsbad as it continues on toward the main plant currently being built in Carlsbad. The conveyance pipeline is 10-miles long and its 54-inch water delivery pipeline will travel eastward from the seawater desalination plant through Carlsbad, Vista and San Marcos to the San Diego County Water Authority's Second Aqueduct connection facility in San Marcos. As it stands now, the project is under budget and on schedule to soon be producing 50 million gallons of drinking water per day.

The 6-acre plant is more than 25 percent complete as large cranes continue to raise 30-foot-tall water filter racks into place and lower other machinery components as many as nine stories below the earth's surface.

The plant itself is located at the Encina Power Station in the City of Carlsbad. By tapping into the largest reservoir in the world (the Pacific Ocean), the plant will be fed with a virtually unlimited supply of water capable of producing 7 to 10 percent of the 300,000 San Diego residents daily water needs. After the job is complete in 2016, the San Diego region will have a safe, reliable and eventually less costly source of drinking water in place for many years.

The more than 10-miles of pipeline delivering this precious resource must traverse some pretty rough terrain, including a large amount of hills and valleys, as well as wildlife areas and busy roadways and business parks. Most of this is accomplished through open trenching methods requiring large long reach excavators that can dig as deep down as 32 feet and other smaller machines that need only go to the depths of 16 feet. Trench Shoring Company was selected to provide KSD with the tremendous amount of shoring and safety equipment needed to get the job done properly.

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Above: A Hitachi ZX450 Excavator was used for grading and excavating.

Below: John Deere Wheel Loader filling trench with bedding rock.

All types of shoring have been called upon and more and different shoring methods will be needed before jobs end.

Brian Mone is a full-time senior sales consultant for Trench Shoring Company and he has worked long, hard hours on all that it took to get this contract for Trench Shoring Company. "We consulted with site specific engineering companies to assure that we had every inch of this job covered with the proper solutions," says Mone. "After being selected as the shoring company for this project, we went right to work to maintain constant communication with KSD and go to every length to provide only the very best in service, delivery and pickup."

Trench Shoring Company was the most likely candidate for this job due to their size, inventory and years of experience. "This is an amazing project and it involves the use of a number of different types of shoring," says Mone. "Nearly 200 trench shields, high clearance heavy duty Z-Shores, hundreds of 1 inch and 1 ½ inch thick 8'x20' Trench Tops (steel plates), hydraulic whaler systems, Flo-Line, gas monitors, standard hydraulic shoring, trench shields."

Trench Shoring Company trucks are coming and going on a daily basis delivering and removing shoring and safety equipment as needed. "We keep the majority of the shoring on-site, but needs change as conditions change," says Mone. "There are numerous types of soils and changes in elevation. The soil changes from one mile to another from sugar sand to hard rock material and it all has to be shored."

Brian Mone points out that there are three different headings, managed by three separate pipe superintendents. All 10-miles of ground must be excavated, bed, and pipe has to be installed every 25 feet. "There are sections that need to cross busy intersections and the pipe has to be bored 32 feet under the pavement so that the

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Above: Caterpillar excavator compacts backfilled trench after 52" concrete mortar lined pipe is installed.

Top Right: Brian Mone, Senior Sales Consultant, Trench Shoring Company and Bart Crego, Superintendent, J.F. Shea Co., Inc.

roughly 60 inch of outside diameter pipeline can keep making its way to the ocean," says Mone. "The 25' pipe sections are all concrete mortor lined steel, and must be precision welded and wrapped in filter fabric. There are several bore pits that go under heavily congested intersections to keep the traffic flowing. In addition, there are wildlife tunnels under roadways that we must go under."

Brian Mone will be on this mind-blowing job for almost two years by jobs end. He started out in April 2013 and will most likely end his responsibility by January 2015. The general contractor faces close to a thousand utilities, water services, gas services, storm and sewer drains, water, electrical, cable, telephone, reclaimed and high-pressure gas lines all going every which way. Shoring and safety equipment must be chosen and utilized properly to assure that these utilities remain unharmed and in place. "We have to be available 24-hours a day because KSD may need us for consultation or specialized equipment at any time," says Mone. "KSD has done a terrific job directing traffic and closing and opening lanes as needed to support the change in traffic flow at various times of day. The communication and support between both of our companies is one of the main factors of our success thus far."

This is truly more than just a water supply project. This desalination plant will also preserve and enhance air quality and the coastal environment. It is as a matter of fact the first major California infrastructure project to eliminate its own carbon footprint. More than 300-acres of Agua Hedionda Lagoon preserve and its recreational and marine life resources area will be maintained. 66 acres of coastal wetlands in South San Diego Bay will be restored and more than 5,000 trees will be planted in areas damaged by wildfires.

Although the Carlsbad Desalination Plant is just a start at providing an estimated 56,000 acre-feet-per-year (AFY), more progress will be needed to fulfill the 150,000 AFY of seawater desalination that will be needed by 2020. Nothing is more important in California than water. Without it, there simply is no California. Joint venture contractors, Kiewit Shea and their suppliers like Trench Shoring Company will continue to do their part to keep the Golden State green and that's what it's all about.

Trench Shoring Company provides the construction industry with the finest in shoring equipment Trench Tops and services starting with consultation before you begin excavation. Whether it's a small utility trench or a 10-mile sewer line, Trench Shoring Company has the equipment to meet your needs. For more information on Trench Shoring Company and their equipment and services, please visit them online at www.trenchshoring.com, download their mobile app at mobile.trenchshoringcompany.com or call 800-423-4411. Cc