Five-Mile Long Sanitary Trunk Sewer Built in Bakersfield

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20-foot sections of Class IV and Class V 42-inch and 48-inch diameter wet cast RCP were installed in Bakersfield at depths up to 26 feet.

360-degree T-Lock® lined pipe was used throughout the sanitary trunk sewer project.

The warm California sun, business opportunities, high-tech industries and unique lifestyles are major draws for many people who move to the Golden State, and solid reasons for families to stay for generations. Considered the fifth or sixth most dynamic economy on the planet, the State of California continues to urbanize to support a population that exceeds 33 million. The Fresno Metropolitan Area is under constant pressure to expand its urban services, placing demands on local wastewater treatment plants and collection systems for upgrade and expansion. The City of Bakersfield is expanding its sanitary trunk sewers and wastewater treatment plants, and upgrading water treatment facilities to accommodate its share of residential and industrial growth.

Associated with the expansion of Plant 3, is the construction of a five-mile-long sanitary sewer interceptor known as the Buena Vista Trunk Sewer. Plant 3 is being upgraded to treat 16 million gallons per day, as part of an ongoing expansion including a 3rd pump at the effluent pump station, conversion of a trickling filter to a roughing filter, adding a pump station, and covering the filter for odor control. Other projects include an increase in the inflow pumping and bar screen capacity, and new storage reservoirs.

The Buena Vista Trunk Sewer runs along Buena Vista Road to McCutcheon Road and then on to Gosford Road. The project is a continuation of a previous phase that began on Allen Road. Ten miles of trunk sewer installation were included in the two phases of the Allen Road-Buena Vista Road sewer trunk lines. Rinker Materials, Hydro Conduit Division in Fresno, California provided over 27,000 linear feet of precast concrete pipe products for the project.

The Buena Vista sewer is comprised of 20-foot lengths of wet cast 42 and 48-inch diameter reinforced concrete pipe (RCP) with a 360-degree T-Lock® Protective Lining system. Manufactured by Ameron International, T-Lock Lining is a poly-vinyl chloride sheet material designed to protect concrete sewer pipe against hydrogen sulfide gas attack and other types of corrosion. The line consists of 2,100 feet of Class IV and 3,200 feet of Class V 42-inch

diameter RCP, and 17,300 feet of Class IV and 4,500 feet of Class V 48-inch diameter RCP. In addition to these quantities, Rinker Materials' Hydro Conduit Division supplied 35 feet of 144-inch diameter RCP from its Fresno plant for a wet well lift station. The sewer installation contractor was Utah Pacific Construction of Murieta, California.

The project involved road and rail crossings that ranged in length from 120 and 150 feet. Boring and jacking technology was utilized because road and rail traffic could not be disrupted by the trunk sewer construction. The five rail crossings called for pipe with steel joint rings that were bored into position. RCP was jacked under the road crossings.

Aside from the road and rail crossings, the trunk sewer was installed using open trench technology for the entire length of the project. The contractor was able to use the native soil for backfill since concrete pipe was specified. No backfill material was imported to the construction site. This would not have been possible with alternate pipe products. The depth to the pipe invert ranged from 20 to 26 feet with cover ranging from 15 to 20 feet. The rate of installation averaged 400 to 450 feet per day. Hydro Conduit shipped a total of 645 truckloads to the project over a distance of 112 miles (one way).

Pipe produced in Rinker Hydro Conduit plants are subject to its *Zero Defect Program*. This quality assurance program ensured successful air testing in the field. The final inspection of the entire sewer line was made by camera. The video of the line was viewed by an independent engineering company and then filed with the City of Bakersfield. This was the last procedure before acceptance of the project by the city. The new Buena Vista Trunk Sewer was commissioned for service in June 2002.

Workers position a section of 144-inch diameter RCP for a wet well lift station on the Buena Vista Trunk Sewer Project.

Project:	Buena Vista Trunk Sewer
Owner:	City of Bakersfield, Calif. Conchita Nieto-Moreno, P.E., Project Engineer
Designer:	Martin - McIntosh Engineering, Bakersfield, Calif.
Inspection:	Carollo Engineers, Bakersfield, Calif. Dale McPherson, P.E., Chief Inspector
Contractor:	Utah Pacific Construction, Murieta, Calif. Lynn Matthews
Quantities:	17,300 feet – 48-inch Class IV 360° T-Lock Lined RCP 4,500 feet – 48-inch Class V 360° T-Lock Lined RCP 2,100 feet – 42-inch Class IV 360° T-Lock Lined RCP 3,200 feet – 42-inch Class V 360° T-Lock Lined RCP 35 feet – 144-inch RCP Wet Well
Producer:	Rinker Materials, Hydro Conduit Division Fresno, California George Kerr, Region Manager – Northern California Peter Hunot, General Manager – Operations, Northern California Bobby R. Milton, Field Coordinator Cheryl Menser, Transportation Coordinator Rene Morquecho, Quality Assurance

Rinker Material's Hydro Conduit plant in Fresno, California has been manufacturing and supplying reinforced concrete pipe for the Central California area since 1956. The Fresno plant manufactures reinforced concrete pipe by the centrifugal, wet cast and packerhead processes in sizes from 12 inches to 144 inches in diameter. Florida-based Rinker Materials Corporation is a major supplier of construction materials, aggregates, and ready-mixed concrete throughout the United States. For more information on Rinker Materials, Hydro Conduit Division, visit: www.rinker.com.