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# COE DRILLING SUCCESSFULLY COMPLETES VENUS BAY SALINE WASTEWATER OUTFALL PROJECT

In Early 2005, South Gippsland Water (SGW) awarded the Construction of the New Venus Bay Ocean Outfall contract to Coe Drilling Pty Ltd on the Regional Saline Wastewater Project.

### THE PROJECT

South Gippsland Region Water Authority (SGW) provides urban water and wastewater services to townships in the South Gippsland Region of Victoria.

The Authority owns and manages a saline wastewater disposal facility comprising a pipeline system from Korumburra and Leongatha to an existing ocean outfall at Venus Bay on the coast of South Gippsland, Victoria. The system was initially commissioned in 1969 to service the dairy industry located in Korumburra and Leongatha.

The work involved the installation of a 750m HDD Shore Crossing and the installation of a 108m Steel Diffuser in 10m water depth as well as the construction of a Concrete De-Aeration Chamber on the Shore together with the diversion and connecting pipework from the existing outfall.

### **MOBILISATION, DESIGN & ENGINEERING**

Detailed project engineering and design was required to satisfy the client and to confirm that the proposed methodology could achieve a successful installation of the product pipes and conduits. Comprehensive management plans were prepared for the project covering OH&S and Environmental Management as well as all aspects of the drilling and marine procedures including project risk analysis, engineering analysis covering stress analysis and marine mooring analysis for the marine spread.

Work commenced with mobilisation of the CoeDrill 180 Drilling Spreads direct from another successful Shore Crossing project in Western Australia. A Drilling water supply system was installed from a nearby dam to the drilling site to provide a continuous supply of water for mixing Drilling Fluids at the site.

The final design of the outfall involved installing a DN 450 HDPE 100 PN 16 pipeline from onshore behind the coastal dune system to terminate 750m offshore in 10m water depth. The offshore diffuser was selected as a DN 450 16mm Coated Steel Pipeline 108m in length secured to the seabed with galvanised piles at 9m centres and with 16 outlet diffuser ports.

The location of the Drilling site within Cape Liptrap Coastal Park managed by Parks Victoria and the conditions of consent for the project meant that fabrication of the HDPE pipeline and Steel Diffusers were not possible at the HDD Site. This work would be completed remote to the drilling site at Andersons Inlet near Inverloch some 20km along the coastline. Selection of the fabrication site was based on access and approvals by Gippsland Ports.



### **FABRICATION OPERATIONS**

On site at Mahers Landing Road Inverloch, Coe Drilling fabricated the 750m long DN 450 HDPE 100 PN 16 Pipeline onshore in readiness for the 20 KM seaward voyage to the offshore HDD Exit Location. A marine spread was mobilised to site complete with Air Diving Spread to complete the underwater connection of the HDPE Pipeline to the HDD Drill String.

The DN 450 Steel Diffuser complete with Outlet Ports and Pile Support Brackets was fabricated by Coe and coated both internally and externally prior to delivery to site. The Steel Diffuser was designed to be towed to site in two sections and bolted together on the seabed. The fabricated Steel Diffuser was joint coated both internally and externally and was fitted with Buoyancy Tanks to assist during the seaward tow ready for use and positioned on Coe's pipeline rollers.

### **DRILLING OPERATIONS**

Drilling operations commenced in early November using the Coedrill 180 drilling spread. The Pilot hole was drilled with a 12.25" Mill Tooth Bit and a Jetting Assembly using a conventional Magnetic Guidance System. The drill string used was a 6 5/8". The ground conditions as expected consisted of dense sands.

Following completion of the Pilot Hole the borehole was opened up in progressive stages (17.5" & 24"). The marine spread and diving operations were in place during all stages of the crossing fitting and breaking out downhole tools offshore.

### **HDPE PIPELINE INSTALLATION**

Once all hole opening had been completed and an anchoring system was installed at the HDD Exit site the prepared DN 450 HDPE pipeline was towed out from Mahers Landing through the Channel at Andersons Inlet with a tide window of less than 3 hours turn around. The pipeline tow could only proceed with all tide and weather conditions complying with the requirements of the safety plan developed for the project. In Bass Strait this can be difficult to programme and execute as Coe would know having completed three other shore crossings along the Victorian Coastline in recent years. The marine support spread continued to pull the HDPE Pipeline offshore until in position and aligned with the HDD Exit. The DN 450 HDPE Pipeline was flooded prior to the subsea hook up to the drill string pullback swivel assembly using the Diving Spread.

### **STEEL DIFFUSER INSTALLATIONS & CIVIL WORKS**

After installation of the DN 450 HDPE Pipeline within the borehole, Coe installed and secured the two sections of DN 450 Steel Diffuser to the seabed and completed the HDPE/Steel connection. Onshore the HDD Spread was demobilised from site in preparation for construction of the De-Aeration Chamber. The Chamber consisted of a 8.0m deep x 7.7m long concrete Chamber which required a sheet piled cofferdam to be constructed with de-watering to allow construction of the base and rising walls to commence. Once completed the existing outfall pipeline was isolated and connections to the new outfall completed.

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