

BOSKALIS WESTMINSTER: SKILLS, RESOURCES, EXPERIENCE

Boskalis Westminster brings together the skills, resources and experience of Royal Boskalis Westminster. Our capabilities include seabed rectification works for pipeline/cable and platform installation, construction of pipeline shore approaches and landfalls, offshore mineral mining, offshore supply and support services and decommissioning services. Boskalis provides clients with tailored, project-specific solutions, as illustrated by the following project summary.

PROJECT DESCRIPTION

The Friars' Bay Long Sea Outfall (Brighton Outfall) is part of the £300 million environmental improvement scheme to bring cleaner seas to Sussex.

The subcontract was awarded to a joint venture between Westminster Dredging and Land & Marine for the assembling and installation of the outfall pipeline. Westminster Dredging carried out the dredging of the trench and Tunnel Boring Machine (TBM) reception pit, assisted in the towing, aligning and placement of the pipeline in the trench and backfilled the pipe trench after pipe installation. In addition Westminster Dredging supplied and transported the 60-300kg rock for placement as protection to the top of the diffuser domes and assisted with the recovery of the TBM from its reception pit and its transport back to shore. Westminster Dredging also provided its in-house hydrographic surveyors and equipment to the Joint Venture.

The trench excavation was executed using the large backhoe dredger, 'Nordic Giant', dredging mainly chalk and fine sand in depths up to 25 metres. The material was stockpiled alongside the trench, so it could be easily re-used during the backfilling operation.

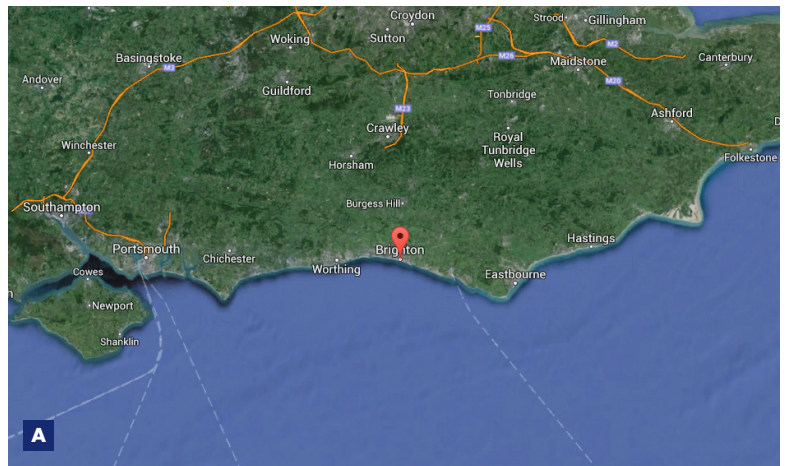
The Ø1400mm PPE pipe was initially towed to Shoreham Port by sea from Norway in four sections, three sections of 550 metres and one diffuser section 220 metres long. The three longer sections were joined in Shoreham Harbour and the 800 concrete collars fitted to provide the negative buoyancy once the pipe was flooded. The 1650 metre long pipeline was towed out through the lock gates over a high tide, an operation that had to be carefully planned due to the potential consequences if the gates were unable to be closed again, and kept at sea waiting for suitable weather to connect the diffuser section. It was then subsequently towed to the Port of Newhaven.

PROJECT SHEET

BRIGHTON AND HOVE OUTFALL
PEACEHAVEN, BRIGHTON, UK

FEATURES

Project Name	Brighton and Hove Outfall
Client	Brighton & Hove 4D Delivery Ltd (a Consortium of Southern Water, Costain and MHW)
Contractor	Land and Marine & Westminster Dredging JV (LMWJV)
Location	Peachaven, Brighton, UK
Execution period	Apr - Oct 2010



- A** Location map
- B** Pipeline being carefully towed to sea



All details of the towing operations were planned and approved by the Marine and Coastguard Agency in advance.

Once connected, the full length of 1,870m¹ pipeline arrived at site and the pipe installation operation commenced. The marine spread for the operation included the backhoe dredger 'Manu Pekka', grab dredger 'Strekker' and the 'Tarka 3' which was used as an assisting tug and survey vessel using multi-beam equipment.

The positioning, flooding and sinking of the pipe into the trench was a successful eight hour operation.

When the pipe was installed, the backfill operation could commence using the backhoe Manu Pekka. The earlier dredged material that had been placed in the stockpiles next to the dredged trench, was now

placed back into the trench in a controlled operation. The backfilling process also involved the 'Tarka 3', towing a 10 tonne plough for levelling the seabed. The final phase of the backfilling over the pipe utilized the Westminster Dredging small trailing suction hopper dredger 'Sospan Dau' to place a final layer of sand on top of the backfilled material in the trench.

'Strekker' was employed as the support vessel for the Land & Marine divers whilst installing the riser pipes and domes at the diffuser section during the day, and reverted to backfilling at other times.

Once the installation was complete, the barge L&M Constructor placed 60-300kg protective rock on top of the concrete domes, and finalised the final tie-in by connecting in a 30metre long spool piece.



- C** Tarka 3 tows the 1,800m pipe through the locks of Shoreham Port
- D** Connecting the diffuser section to the normal pipe section
- E** Backhoe dredger Manu Pekka digs trenches for the pipeline

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