



## Sydney Water Desalination Project – Bay Crossing

Principal: MCB Partnership

Location: Kyeemagh, Sydney, NSW

### Scope of Work

Neumann Contractors were engaged as the dredging contractor for the Botany Bay pipeline crossing, part of Sydney's desalination plant construction at Kurnell, Southern Sydney.

When completed, water from the desalination plant will be piped to the City Water Tunnel at Erskineville. The works are part of the Potts Hill Water system, which services areas south of Sydney Harbour to Bankstown in the west and Sutherland in the south.

### Scope of Work:

- Mobilisation to the Nu Bounty and Nu Endeavour site, 2000 hp booster station, 2 x purpose-built spreader barges, 3600m of 18" pipeline, and multiple support vessels.
- The dredging of a berth pocket & navigation channel on the Kyeemagh foreshore provides marine access to the shore-based staging area. The dredging involved dredging of approx. 70,000 m<sup>3</sup> and pumping the material 2.7 km to a temporary underwater storage area.
- Dredging the pipeline trench and concurrently backfilling the trench post pipe lay across Botany Bay to a +/- 200mm vertical tolerance. The pipe-laying programme required 120 lineal metres of trench to be dredged and backfilled per day. The volume of material was involved in meeting the program's needed program, both the Nu Bounty and Nu Endeavour to be engaged on site. The trenching and pipe laying were undertaken with both Nu Endeavour and Nu Bounty, the pipelay barge and both spreader barges working "in train" together working across Botany Bay. The pipeline trench was 6,970 metres long, starting from Kyeemagh on the northern side of Botany Bay, finishing at Kurnell on the south-west side of Botany Bay. The design of the pipeline trench required 710,000 m<sup>3</sup> of material to be dredged and backfilled during this phase of the project.

This part of the project required significant interfacing between the various marine operations and was undertaken on a 24/7 basis.



## Sydney Water Desalination Project – Bay Crossing (continued)



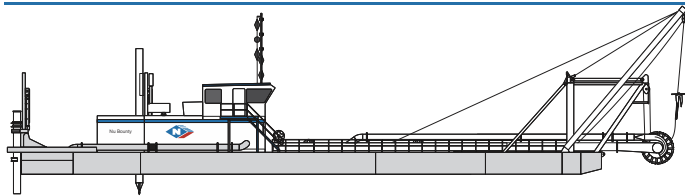
- Backfilling of the final 1,500 lineal metres of trench, post pipelay, dredging 220,000 m<sup>3</sup> of material from a temporary underwater storage location.
- Detailed dredging for removal of tunnel boring machines.
- Dredging of 70,000 m<sup>3</sup> for the backfilling and restoration of Kyeemagh berth pocket.

### Challenges:

- Strict environmental limitations on noise, turbidity, sedimentation and waste.
- High profile project within the densely populated residential area.
- Strict and critical tolerances on completed works for pipelay operations.
- Sudden and extreme changes in weather and sea-state conditions on Botany Bay.
- Strict program of works.
- Interfacing the dredging activities with the pipe-laying activities in a concurrent operation.

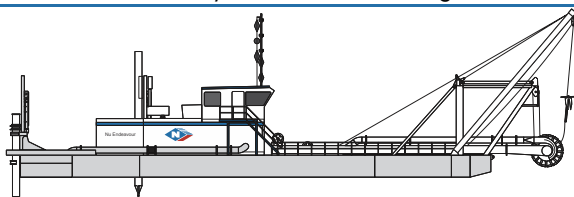
### Outcomes:

- The dredging works were successfully completed in December 2009, well within the construction program.
- Neumann Contractors recorded zero LTI's during the project



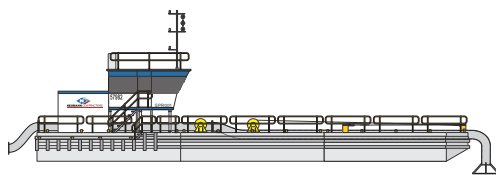
Nu Bounty Cutter Suction Dredge

Length (short/long): ..... 33.4/41.30m  
 Nominal Production Rate: ..... 650m<sup>3</sup>/hr  
 Total Power/Power at Pump: .. 1,454/1,044kW (1,950/1400 hp)  
 Pipeline Diameter: ..... 450 mm  
 Maximum Digging Depth (short/long): ..... 15/22 metres  
 Gross Weight (short/long): ..... 220/240 Tonnes



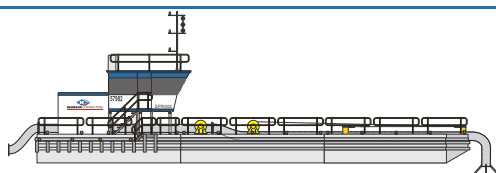
Nu Endeavour Cutter Suction Dredge

Length: ..... 34.78m  
 Nominal Production Rate: ..... 650m<sup>3</sup>/hr  
 Total Power/Power at Pump: .. 1,454/1,044kW (1,950/1400 hp)  
 Pipeline Diameter: ..... 450 mm  
 Maximum Digging Depth: ..... 15 metres  
 Gross Weight: ..... 220 Tonnes



Spreader Barge 1

Length: ..... 24.8m  
 Pipeline Diameter: ..... 450 mm  
 Gross Weight: ..... 82 Tonnes



Spreader Barge 2

Length: ..... 24.8m  
 Pipeline Diameter: ..... 450 mm  
 Gross Weight: ..... 82 Tonnes