



# THE ØRESUND FIXED LINK

## DREDGING & RECLAMATION

### Facts about the Øresund Fixed Link:

A 16 km long traffic link carrying a railway and a motorway between Kastrup near Copenhagen and Lernacken on the Swedish coast.

### The link comprises:

- a 430 m wide, artificial peninsula at Kastrup.
- a 3,750 m immersed tunnel.
- a 4,210 m long, artificial island called Peberholm.
- a 7,470 m two-level high bridge with a 490 m free span and a navigational clearance of 57 m.

The Øresund Fixed Link is one of the largest infrastructure projects ever built in Scandinavia. All dredging and reclamation works on this impressive project were included in one contract, executed by Øresund Marine Joint Venture consisting of American Great Lakes Dredge & Dock Co., Dutch Ballast Nedam Dredging and Aarsleff.

The contract had a tight schedule and strict demands as to quality and environmental conditions. This called for the use of specialised equipment, development of new methods and careful planning. Not least a demand for incorporation of all dredged material constituted a big challenge.

The actual dredging works were executed with state-of-the-art dredging equipment by Aarsleff's partners. The Great Lakes dredge "Chicago" produced a daily amount of 12,000 m<sup>3</sup> of material for incorporation, while the daily production of the Ballast Nedam dredge "Castor" was 24,000 m<sup>3</sup>. In addition to establishing the reclaimed revetments Aarsleff were to receive and place the dredged material.



Looking East  
across the island  
towards Sweden.



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*Dredging & Reclamation*



The artificial island Peberholm and the Kastrup peninsula were created from dredged material. Peberholm was reclaimed within 9 km of stone revetments, and the island itself was established using materials dredged from the Øresund, in total 11 million m<sup>3</sup>.

It was a specific contractual requirement that all dredged material be utilized in the reclamation. This implies that Aarsleff used many different materials and reclamation methods for the construction of Peberholm. The methods included hydraulic and mechanical filling of moraine clay, limestone and sand as well as various types of preloading. Common for all methods is that they were documented and verified through calculations and tests.

For construction of the motorway access ramp a specially developed self-draining sandwich construction was applied, which combines sand layers with layers of saturated moraine clay. By doing so, normally unfit, saturated moraine clay was used for quality reclamation with a minimum of settlements.

## FACTS

### Peberholm:

- 4 km long, 500 m wide, area of 1.3 km<sup>2</sup>
- Revetments, 1.5 million tons of stone used, in total 9 km
- Reclaimed volume 11 million m<sup>3</sup>

### Kastrup Peninsula:

- Area: 0.9 km<sup>2</sup>
- Revetments, 0.5 million tons of stone used, in total 4 km
- Reclaimed volume 4 million m<sup>3</sup>

### Total volumes:

- 2 million tons of stone
- 8 million m<sup>3</sup> of dredged material
- 15 million m<sup>3</sup> of reclaimed material

### Contract price:

DKK 2.2 billion

### Contractor

- Øresund Marine Joint Venture:
- Per Aarsleff A/S (sponsor)
  - Great Lakes Dredge & Dock Co., USA
  - Ballast Nedam Dredging, Holland

### Client

Øresundskonsortiet

### Construction Period

1995-2000

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