



## Morphological investigation environmental compensation area WCT

As a compensation measure for the planned Western Scheldt Container Terminal (WCT) an area adjacent to the Sloehavens has been designated for natural development. Grontmij has been given the assignment to make plans for development of this area as an intertidal marsh. A complication in this design is that the area between the Sloehavens and the new marsh is already an ecologically valuable site. Therefore erosion in that area should be minimised. Grontmij asked Svašek Hydraulics to investigate their proposed gully system and offer improvements if necessary.

To answer this question Svašek set up a Sloehavens hydrodynamic model. The area of interest is modelled with an extremely fine resolution: down to 4 m cross section of the computational elements. A morphological simulation has been set-up. The area is actually composed of a very complicated mix of fine sands, clays and vegetation. Svašek argued that these clays will slow down all morphological developments, but can not stop them in the end. Therefore a morphological model incorporating just fine sands will give an idea of the kind of dynamics to be expected in the drainage gullies of the area.

As can be seen in the developed bathymetry after simulation in the above left figure, the model was able to simulate tidal channels of very small dimensions. The size of the combined gully leading through the existing natural area to the Sloehavens is actually larger than expected and planned for by Grontmij.

Based on the model results, Svašek proposed a revised gully system, which will minimise damage to the existing natural marsh area (see right figure).

**Client**  
Grontmij

**Location**  
Sloehavens (port),  
Western Scheldt estuary

**Date**  
2009

**Services**  
FINEL2D  
morphological simulation  
redesign gully plan

### Svašek Hydraulics

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