Construction of CRT Wal-Zwijn

What

This action involves the realization of a Controlled Reduced Tide (CRT) in an area called 'Wal Zwijn'. 'Wal Zwijn' is the combination of 2 areas located right next to each other; Wal in the South and Zwijn in the North. This area has a total surface of approximately 148 hectares, from which 114 ha will develop in tidal nature.

The construction of this FCA-CRT has already been initiated; the construction of the ring dyke, which has a length of almost three kilometres has started in the summer of 2016. The construction of the in and outlet construction will therefore be part of this action.

Where

'Wal Zwijn' is located along the river Scheldt near the village of Kastel in the province of East-Flanders. It is located 5 kilometres downstream of 'Vlassenbroek'.

How

For the sluice of Wal: 3 inlet pipes on top of a row of 6 outlet pipes with dimensions of 3 m X 2,20 m. When comparing the shape of the area with an hourglass, the sluice of the Wal-part is located in the central part of the hourglass between 2 historical dykes, where the ground level is relatively low. The dyke South from the sluice will be breached (and a bridge will connect both sides of the breach) to allow the flow of water from and towards the sluice.

For the sluice of Zwijn: 4 inlet pipes on top of a row of 6 outlet pipes with dimensions of 3 m X 2,20 m. This sluice will be constructed in the upper North of the area at the lowest part, where a naturally existing creek is situated, enhancing the distribution of inflowing tidal water in the area.

Why

When looking towards the evolution of the measurements of the mean high water level in the Scheldt estuary in the 20th century, it was clear that especially the more upstream parts were subject to a gradual increase of the high tides, with a maximum in the river section between Schelle (Antwerp) and Dendermonde (East-Flanders). The flood control area ‘Wal Zwijn’ is located in this river section.

Hydrological models in combination with a cost-benefit model, while considering the impact on agriculture, yielded several alternatives for the increase on safety while enhancing the ecological value. The models showed that alternatives considering ‘space for the river’ proved to be most robust and sustainable.

The flood control area Wal Zwijn with a total surface of approximately 148 ha, will have a large impact on safety for its surface and its location along the Scheldt. During storms the FCA Vlassenbroek will be flooded first, as its overtopping dyke is constructed slightly lower, consequently FCA Wal Zwijn will become operational if water levels are still high on the river Scheldt.

During extreme events Wal Zwijn and Vlassenbroek together form one great temporary buffer for river water. By means of 2 in and outlet construction this FCA will be combined with the development of tidal nature with a surface of 114 ha. The estuarine nature

that will develop here will contribute towards the nature objectives for the Scheldt estuary.

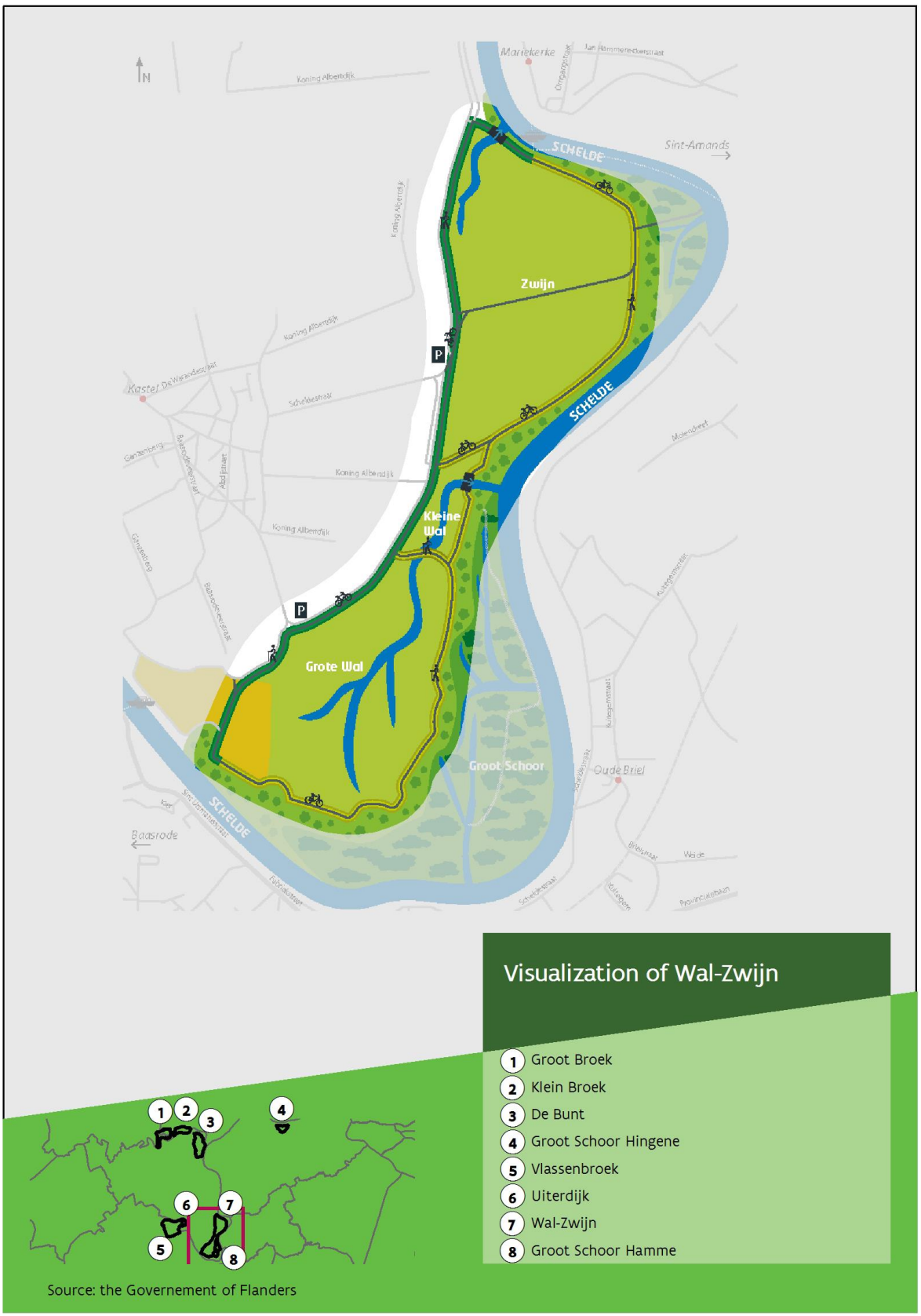
The use of two sluices

The reason for the realization of two sluices is to be found in the specific (historical) characteristics of the area. The Northern 'Zwijn' part of the area has in general a lower ground level, with levels ranging between 1 to 2,5 meters, and a large part between 1 and 1,5 meters. The Southern 'Wal' part on the other hand has a level ranging between 2 and 3 meters, and a large part between 2,5 and 3 meters.

To develop tidal nature in the Wal part by means of one big sluice would demand a repletion of the Zwijn part which is not favourable for two reasons. It is not favourable for the development of tidal nature in the Zwijn part, but neither favourable caused by the loss of storage capacity during the event of a storm tide (safety issue). Therefore the two parts have their own sluice with a different amount of inlet pipes; which can be adjusted with an accuracy of decimetres according to the ecological demand (monitoring). A good drainage is essential for mudflats and marshes

to develop, allowing a healthy succession and the establishment of the typical flora. The lobe shape of the total area does not allow good water transport between the two parts; the narrow part of the hourglass would have to endure erosion processes which would undermine the embankments.

The central historical dyke at the bottom of the 'Zwijn' part has a large archaeological and scenical value, and was put in place during the Middle Ages. Therefore this dyke will be maintained as a comparting dyke and will keep on playing an important role in the recreational network for cyclists and hikers in this area. A second historical dyke in the small part of the lobes in the 'Wal' part will be breached (after compromises were achieved) to allow the in and outflow of the water towards the sluice in the 'Wal' part. A bridge will be constructed over the breached part of this dyke allowing recreational activities.



Source: the Governement of Flanders