



Sandy foreshore Houtribdike

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“The levee that never became one”

The Houtribdike connects Lelystad to Enkhuizen and separates Lake Marken from Lake IJssel (fig 1).

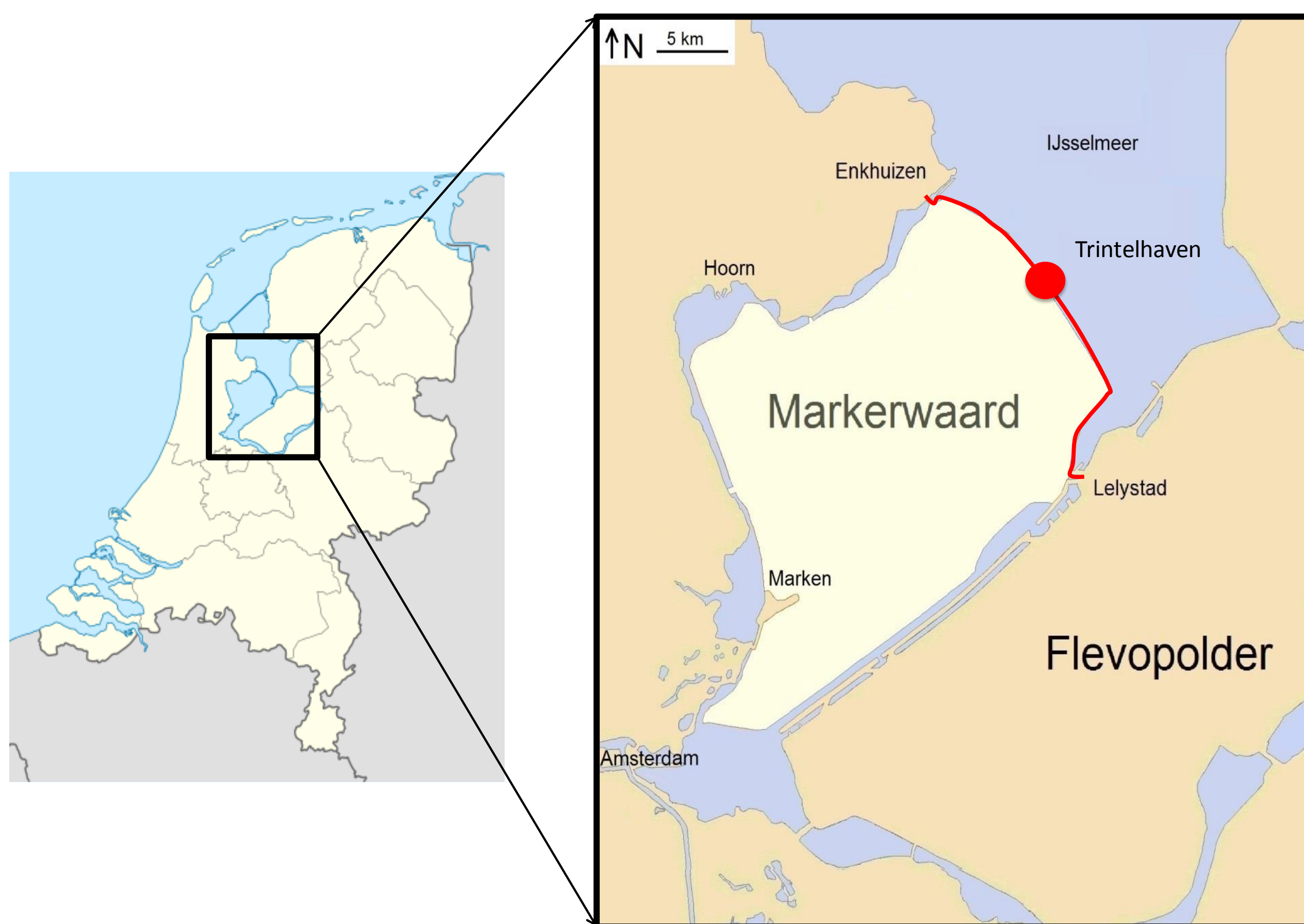


Fig 1: Location Houtribdike

Initially, the levee was constructed to create new agricultural land, the ‘Markerwaard’. However, politics decided to not built the polder. As a result of that, the levee became a dam. The Houtribdike acts as a wave breaker and prevents a water level increase due to storm surges in the lakes. Besides its function in flood risk protection, it has several water management, water quality, ecological and transport functions. The original layout of the levee is shown in fig 2 & 3.



Fig 2: Layout Houtribdike

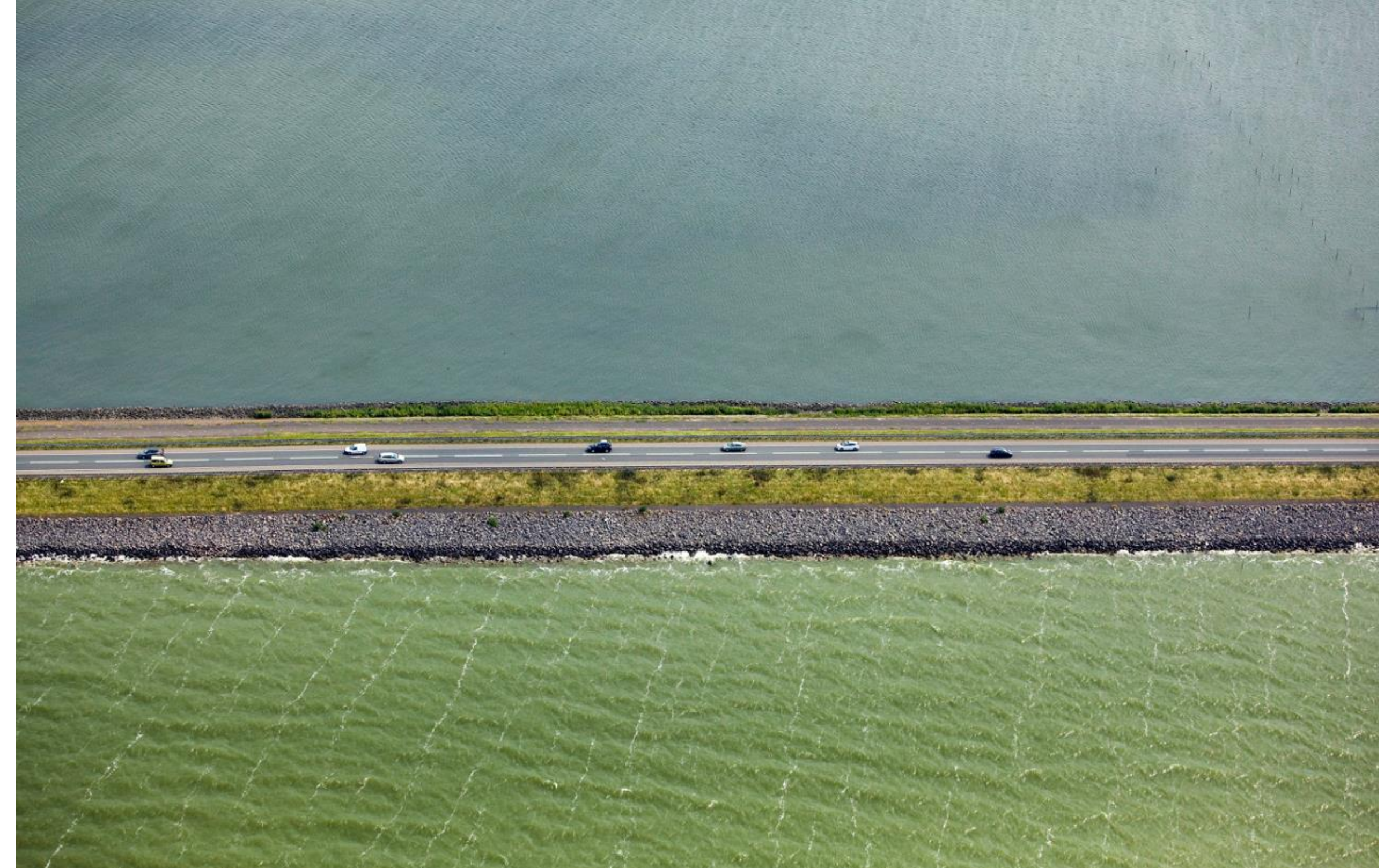


Fig 3: Picture of current Houtribdike (Source: Rijkswaterstaat)

In 2006 the levee failed the safety assessment and reinforcement on mainly the revetment is needed. The reinforcement approach between Trintelhaven (fig. 1) and Enkhuizen has been derived from the proven coastal approach in the Netherlands; by means of sand (see fig 4 for a preview of the levee).

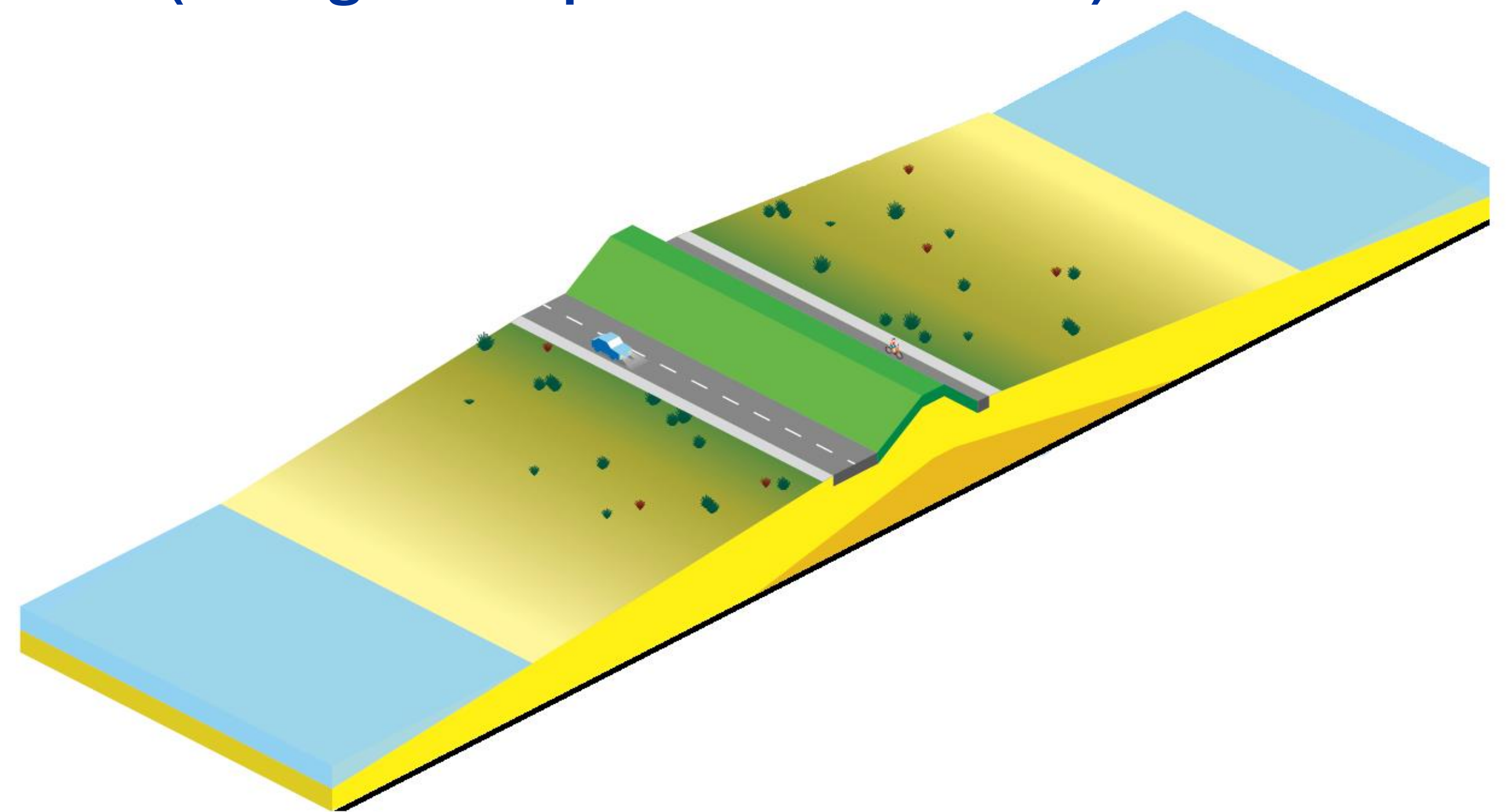


Fig 4: Visualization future layout Houtribdike

This type and scale of sandy levee reinforcement in a fresh water lake system is new. Therefore, still a lot of open questions remain about the behaviour of this solution. Based on a small scale pilot already some conclusions on the effectiveness of a natural foreshore will be drawn. During the forthcoming years, after construction, a largescale study into the effectiveness of the sandy foreshore will be performed. Hydrodynamic, morphodynamic and ecological behaviour and interactions will be studied by means of monitoring to draw conclusions on the effectiveness and applicability of sandy foreshores in fresh water lake systems.