Paper for AOCP on 16 September 2021 **Agenda Item 7**

Flood Cell 9 Hazlewood Marshes

Issue: the impacts of the deterioration of the remaining defences around Flood Cell 9 since the FC was catastrophically breached in 2013 need examining to assess any consequences for the Alde and Ore Estuary Plan and what steps if any should be taken to address them.

Recommendation: to commission a report on the possible impacts on the estuary and river flow (volume and speed) resulting from the deterioration of remaining cell walls and flooding in the FC9 area.

Background

1. In December 2013, the year before EA were planning to repair the flood cell walls, the walls were breached and the flood cell became subject to daily tidal in and outflows. At the time the Alde and Ore Estuary Plan was in the process of being written, there was no government money to restore the rare freshwater march habitat that had been protected by the walls. The main landowner SWT looked instead to enhance what would become intertidal habitat and nesting places for waders. A smaller wall was built at the eastern end to protect some pasture, some freshwater marsh habit and also the lower part of the river golf course and some bunds were constructed around individual properties funded in part by the EA's funding capacity to protect properties from extreme flooding and largely by private individuals.

2. The Estuary Plan (see references to Plan in the attached annex) took note of the changes that had taken place and that the new intertidal habitat would in part help compensate over time for land lost to coastal squeeze. It made no provision for more action, the plan being essentially about providing resilience to the remaining river defence structures to keep the estuary largely as it is.

3. Regular annual surveys of the state of river defences run by the Alde and Ore Association River Defence Committee have drawn attention to the changing nature of erosion in the Hazelwood area. Hence this consideration now. It is becoming apparent that the remaining original walls, which lie between the main estuary and the inside of the flood cell, are likely to disintegrate further in the next few years. At present they have a protective effect from the strong southerly wind impact on waves on the inside area of the flood cell including the new wall and by limiting the amount of tidal inflow : this protection is likely to disappear: This is because, with the now large areas of tidal water inside the flood cell regularly, the impact of waves driven by northerly winds within the flood cell is undermining the rear inland side of the original river walls of westward reaching original wall spur which provides such protection. (More details in the Annex)

4. The consequences of this erosion over time are several it seems, from a first visit :
- the new inner wall is likely to be unable to withstand the increased water capacity of the flood cell, leading to loss of the land behind it, to the loss of two or three holes on the river golf course,
- reduced protection afforded to prevent flooding water reaching up the valley towards the Saxmundham Road, and
- potentially significant increases in the volume and flow of water in the estuary and area in and

around the flood cell.

5. At the time of the 2013 breach, a study made suggested that the loss of the FC9 walls making FC9 a tidal area would mean an increase in tidal prism of 6-7% which was estimated to still enable navigation and not have damaging consequences for adjacent flood cells (unlike the conclusion that for the Iken Flood Cell if that had not been repaired the 20% increase in flow would have been detrimental to the existence of the estuary as it is and defences.) The study also commented that it might take 5-10 years for the changed tidal flow in FC9 to stabilise. There is a growing feeling among water users, including Brian Upson who runs Slaughden Quay and many moorings, that not only has the tidal flow increased significantly since FC9 became part of the regular tidal flow but that this rate seems to be increasing.

Possible Action

6. The Alde and Ore Estuary plan is silent on flood defence action for FC9 as it was considered that as restoration of the defences had not been possible and that it was likely to stabilise as a new habitat. As matters have evolved it is now apparent that if nothing is done there is likely to be, over next few years, a significant enlarging of the tidal flow into and out of the flood cell with consequences for adjoining lands, possibly the main road in the longer term, and for the estuary.

7. It is proposed that a report be commissioned initially on the likely increase in river flow and erosion of the remaining flood defences and adjacent land. In the light of that steps can be taken to consider possible consequences for the Estuary Plan, what action might be needed and what funds would be needed and met by whom.

8. The AOCP officers are investigating possible experts to call on to make such an initial assessment and where the necessary funding to cover that might be found.

Recommendation

9. That AOCP authorise the Officers to commission and initial assessment report and seek sources for funding it, and then to report back when the consequences for the Area can be assessed. The AOCP will also keep in close touch with the Alde and Ore Estuary Trust

Report by Alison Andrews
10.9.2021

Detailed description of FC 9 Hazlewood Marshes east of Barbers Point on the north side of the estuary and south of the A1094)

Although the vast majority of this flood cell has become inter tidal, there are some areas within the flood plain that are not subjected to daily flooding. A private defence, constructed of clay, protects the last area of freshwater marsh in the flood cell and provides a limited amount of defence to part of the golf course and the rising land behind the marsh, but is about a metre lower than the original adjacent walls but built for resilience when overtopped in exceptional high or surge tides. It also provides some flood protection for the low lying inlet of land which runs north and abuts to the low lying point of the Saxmundham Road, at about 17 feet above sea level, some 700 yards inland. The whole area, not just the mud areas but adjoining grasslands, floods completely at least once a year currently up to some 400-500 yards inland.

The new clay wall is itself protected by a breakwater of stakes and plastic netting which appears to have been effective in dissipating the power of waves generated within the flood cell by the prevailing westerly winds. However, it is clear that substantial benefit is gained from the last residual spur of the old sea wall extending from Round Hill upstream to the first breach. At this point the fetch across to Iken Marshes on the southern opposite side of the river is over a mile in length and the old wall, still faced with concrete blocks, provides protection to the new inner wall from waves that it is not designed to withstand.

Unfortunately, the old river wall is now subject to erosion that was not anticipated in 2013. Northerly winds blowing across the flooded area are able to attack what was originally the rear face of this wall, (which like all the inland side of the estuary's river walls is not concrete faced): this erosion is the most likely cause by which the spur will be lost in the next few years. Once lost, the erosion on the inner wall will be increased and its life shortened significantly, leading to increased flooding. Equally if further breaches occur in the river wall as it collapses, the tidal inflow to the area and out will increase with likely consequences for the estuary flow as a whole.

Possible solution- this is just one idea, but first a clear assessment of what is developing is needed but the idea is mentioned here to give an idea of the possible modest scale of works: Unusually for this estuary, a solution may be quite straight forward. Extending the stake and plastic breakwater that protects the new inner Wall along the rear face of the old wall spur will be sufficient to protect against the waves generated within the flood cell, which are much smaller than those in the main estuary.

Photos : Wall being undermined from the rear north side and, right, inner wall at exceptional tide flooding with spur beyond which is being undermined from the rear as in detailed photo.

References to FC9 in the Alde and Ore Estuary Plan

(available on www.aocp.co.uk)

Page 21 Note 2 following damage in December 2013, government formal advice was reinstatement of defences was not to be funded, a small wall was but and works done to make intertidal habitat more attractive for key species

Page 29- (at that time assessed as no case for sustained repairs) cell provides the basis to build up and enhance intertidal habitats. Detailed description of what was contained in FC9

Appendix 12 Pages 86-88

AOCP Secretariat
10 September 2021