

## **Hundred Foot Washes I.D.B.**

### **Consulting Engineers Report – March 2022**

#### **The Right to Connect**

During the passage of the Environment Act through the House of Lords an amendment was sought which aimed to minimise the impact of new housing development on levels of local flood risk and the likelihood of storm discharges of untreated sewerage effluent into rivers and coastal waters. It aimed to ensure that housing developers designed systems according to a hierarchy of drainage options that seek to reduce to a minimum the volume of rainwater entering combined sewerage systems removing the current “right to connect” to public sewers.

As members of the Cambridgeshire and Peterborough Flood and Water Management (FloW) Partnership the Middle Level Commissioners and their associated Boards/Commissioners have been asked to consider taking the opportunity to write to government to voice concerns over the right to connect for new developments. The County Council in its role as the LLFA was going to prepare a letter requesting that the right to connect be removed, or at the very least that a change be considered, but at the time of report such a letter had not been circulated for comment.

Members need to consider that there may be unassessed beneficial or detrimental impacts on the Commissioners’/Boards’ systems arising from any change and in addition such changes could impact upon the viability of developments (particularly the re-development of sites within older parts of town centres).

**In order to assist further discussion, the Board/Commissioners are asked to consider if they would support removal of the right to connect to public sewers or not.**

#### **River Delph Improvements**

This project remains in the early planning stages and it is expected that an initial meeting will be arranged soon to define the scope and aims of the scheme.

#### **Cranbrook/Counter Drain (CCD) FRM Strategy**

Since the last Board meeting, the Middle Level Commissioners’ Planning Engineer has represented both the Middle Level Commissioners and the relevant Boards at regular “Update” Progress

Meetings, as well as more specific Meetings. Unless there is a specific issue related to the authority attendance at these meetings is not charged to the Board.

## **Stakeholder briefing**

### Background

The Cranbrook/Counter Drain is primarily a drainage and flood protection system which drains part of the 'Middle Level' Fenlands in Cambridgeshire and Norfolk immediately adjacent to the Ouse Washes, at Block Fen and Langwood Fen in between Chatteris and Mepal.

Members will recall that the Strategy is investigating ways in which a more sustainable, holistic long term flood risk management solution for the Block Fen and Langwood Fen area, between Chatteris and Mepal, could bring wider social and environmental benefits, including water resources, carbon reduction and sequestration, peat restoration, biodiversity enhancements, navigation, amenity and reduced costs.

### Progress during 2021

A topographical aerial drone survey was undertaken in April covering Block Fen and Langwood Fen from Welches Dam to Mepal. This survey provides high-resolution topographical data to feed into the modelling work. The survey will be used to create a 3D topographical GIS model to investigate the volumetric storage that may be available and allow an assessment on how to transfer the water around the site efficiently.

A groundwater monitoring network of nine boreholes was installed during May. Monthly readings are being taken to assist in understanding the groundwater conditions.

In May, partner organisations were consulted on their aspirations for the area, this included the Middle Level Commissioners, Cambridgeshire County Council, RSPB, Natural England, Water Resources East and the Great Ouse Boaters Association. A meeting was held after this and several more opportunities for benefits additional to flood risk mitigation were identified. The outcomes from this consultation have been included in the Cranbrook/Counter Drain Strategy Vision for the area.

Financial approval has been received through the Environment Agency's internal assurance process. In September the business case was approved which allows Strategy development to continue.

Procurement for a number of requirements has been underway since the summer, including:

**1. Modelling of the Cranbrook/Counter Drain catchment;** this will inform how existing assets are operated in the catchment and will be used to confirm the volume of water that will need to be stored in flood storage areas.

**2. Topographical/Volume modelling;** this will be used to calculate how much storage volume can be created across the site. This activity can be used to move towards an outline design and help to inform restoration proposals. It will also consider enabling infrastructure and the transfer of flood water into and out of the storage areas.

**3. Groundwater modelling;** groundwater will impact the feasibility of using empty spaces for storage and any clay lining that may be below ground level will impact the transfer of groundwater. The modelling will assess the impact of groundwater on the feasibility of storage options and likewise the impact of storage options on groundwater.

#### Next steps in 2022

The modelling activities will start at the beginning of 2022 and are the key activities in developing the detail of how the flood storage area will operate.

Early next year more high-resolution aerial surveys of the whole Cranbrook/Counter Drain catchment will be carried out, which will feed into the catchment modelling. This will extend the coverage from the survey undertaken in 2021.

A formal Steering Group workshop, which will bring all the stakeholders together, including minerals companies and Internal Drainage Boards, is currently planned for June. This will be used to advise on the next steps, following the modelling activities, and enable the development of the strategy with a more detailed proposal of how flood storage can be delivered in the catchment.

#### Strategy Vision

In 2009, a Strategy Vision was developed following consultation with key stakeholders. The updated 2021 version of this Vision incorporating the aspirations from the Stakeholder Steering Group meeting held in May follows.

**Members are encouraged to review and provide comments on the document and:**

**a) Confirm the Vision still captures stakeholder needs**

**b) Refresh with any further opportunities which may have arisen since 2009**

It is appreciated that the Vision, which concentrates on the Block Fen/Langwood Fen area, may require some debate on what is included and it is suggested that a separate meeting could be arranged for the spring to specifically discuss the issues involved.

The updated Vision is provided below:

## **Cranbrook Drain/Counter Drain Flood Risk Management Strategy**



### **Flood Risk Management Principles**

**A vision to create a Flood Storage Area at Block Fen  
December 2021**

#### **Introduction**

In 2008 the Environment Agency's Flood Risk Management Strategy for the Cranbrook/Counter Drain was developed. One important component of the preferred strategy is to investigate and, if possible, develop flood storage over the medium term to replace Welches Dam pumping station. In so doing to provide a more sustainable long term flood risk management solution for the area that can bring wider social and environmental benefits.

The Cranbrook/Counter Drain is primarily a drainage and flood protection system. As structures within this system are approaching the end of their useful lives a strategic approach is required to safeguard the future of the system. The current standard of flood risk to the 10,550ha catchment is a 1 in 25 chance of flooding in any given year. This document presents the vision and key principles for flood storage at Block Fen.

## Shared vision

Synergies between the Cranbrook/Counter Drain Flood Risk Management Strategy and the Cambridgeshire and Peterborough Minerals and Waste Development Plan were first identified during the development of the Environment Agency's Strategy. There is an opportunity to provide flood storage as one of a range of after-uses following mineral extraction in the Earith/Mepal area at Block Fen. This opportunity was recognised through the production of a Block Fen/Langwood Fen Master Plan which was adopted by Cambridgeshire County Council on 19 July 2011. The Master Plan continues to be part of the Cambridgeshire and Peterborough Minerals and Waste Local Plan, which was recently updated and adopted by Cambridgeshire County Council on 28 July 2021.

The Environment Agency's ambition is to be able to deliver their primary objective of providing sustainable flood risk management to the Cranbrook Drain catchment in the face of a changing climate whilst also contributing to partner ambitions surrounding recreation, amenity, biodiversity gains and maximising efficient use of natural resources.

This flood storage scheme accords very well with the National Flood and Coastal Erosion Strategy (2020), in particular Measure 1.5.4:

*"By 2025 the Environment Agency will work with farmers, land managers, water companies, internal drainage boards and other partners to develop a long-term plan for managing future flood risk in the Fens."*

And the Environment Agency's Corporate Strategy 'Fit for 2025' and its 3 long term goals:

- A nation resilient to climate change
- Healthy air, land and water
- Green growth and a sustainable future

In 2009, the Environment Agency established a Project Steering Group to help them to progress the flood storage element of their approved strategy. This comprised Natural England, Cambridgeshire County Council, the Royal Society for the Protection of Birds (RSPB), minerals companies, the Sutton and Mepal Internal Drainage Board (IDB) and the Middle Level Commissioners.

Engagement with these stakeholders helped the Environment Agency to understand their various aspirations for the area, the challenges the project faces and the multiple benefits that it can deliver. This improved understanding was used to inform the drafting of a number of key principles for the future design, operation and management of a flood storage area at Block Fen.

During 2021 and into 2022, the Environment Agency has been seeking to undertake various studies to develop the technical feasibility of flood storage. As part of this, the principles identified in 2009 are being revisited to ensure they still represent the views of key stakeholders.

A meeting was held in May 2021 with the RSPB, Natural England, Great Ouse Boating Association, the Middle Level Commissioners and Cambridgeshire County Council to discuss the vision for the area. The original eleven principles remain relevant with minor amendments proposed (highlighted in yellow), with an additional principle also suggested (principle 12).

Further engagement is planned with landowners, minerals companies, IDBs and Water Resources East to ensure these principles are up to date.

## Flood Storage Principles

A set of guiding principles for a flood storage area at Block Fen.

**PRIMARY OBJECTIVE** To Provide a Sustainable Flood Risk Management Solution for the Cranbrook Drain/Counter Drain Catchment.

In meeting the primary objective the Environment Agency will look to:

- PRINCIPLE 1** Provide a sustainable flood risk management solution that is resilient to predicted changes in our climate (e.g. wetter winters with more intense rainfall events and warmer drier summers).
- PRINCIPLE 2** Ensure that there are no significant effects of the scheme on the ability of the IDB to manage the surrounding drainage system.
- PRINCIPLE 3** Minimise future operational and maintenance costs (e.g. pumping) through careful design and maximising funding opportunities.
- PRINCIPLE 4** Provide a water resource for local irrigators and consider how flood storage can contribute to strategic water resource opportunities and challenges across the East of England.
- PRINCIPLE 5** Maximise opportunities to balance land use with flood storage through careful design (e.g. focussing of high return period flood events into defined parts of the wider storage area).
- PRINCIPLE 6** Only where Principle 5 is unachievable, provide appropriate compensation to landowners, where required, for disruption caused by infrequent high return flood events.
- PRINCIPLE 7** Explore the potential for providing inert waste disposal (landfill) where it can be accommodated in the design and where it is in accordance with the Cambridgeshire and Peterborough Minerals and Waste Local Plan.
- PRINCIPLE 8** Promote appropriate recreational after-uses, particularly navigation, where there will be no detriment to the primary objective of flood storage, other land users and local habitat.
- PRINCIPLE 9** Maximise benefits to biodiversity and achieve biodiversity net gain e.g. providing water to and avoiding flooding of the habitat restoration area; reducing the volume of water pumped into the Ouse Washes SPA, SSSI, SAC and Ramsar site.
- PRINCIPLE 10** Actively engage with stakeholders as the vision and proposals for the area develop.
- PRINCIPLE 11** Ensure proposals comply with the Objectives and principles outlined in the Agency's Strategic Environmental Assessment for the Cranbrook/Counter Drain Flood Risk Management Strategy (SEA due to be updated in 2022)
- PRINCIPLE 12** Maximise opportunities to reduce current carbon emissions (i.e. through reduced pumping) and seek carbon offset opportunities (e.g. through habitat creation), contributing to net zero.

## What we are proposing

Following the extraction of minerals from the area the vision shared by partners is to utilise the restored land for storage of water from flood events, along with maximising opportunities for wider benefits as set out in the principles. During periods of non-flooding the land would be available for various land uses. During times of flood the land would be inundated to varying depths depending on the intensity of the flood event.

The Environment Agency propose to undertake detailed investigations into the mechanisms of flood risk management and to work closely with the minerals extraction companies to develop their restoration proposals; in line with the primary objective of flood storage, according to the principles outlined above and the policies of the Cambridgeshire and Peterborough Minerals and Waste Local Plan (July 2021).

The Environment Agency's concept for flood storage is shown in Figure A. Conceptual cross-sections of the area are provided in figures B-D. These schematics are conceptual in nature and will be developed as more detail is provided through further studies to be undertaken in 2022.

These studies are due to commence at the start of 2022 and include several modelling exercises to calculate storage volumes, the impact on groundwater and how floodwater could be moved in and out of flood storage.

## Characteristics of the flood storage area

The following provides a list of characteristics that, as a minimum, will need to be met in order to satisfy the primary objective to provide a long term sustainable flood risk management solution at Block Fen:

1. Sustain the current standard of flood protection of 1 in 25 year statistical return period event.
2. Provide 16 million cubic metres of flood storage capacity, equivalent to two 1 in 25 year statistical return period flood events in succession, including an allowance for increased river flows caused by climate change.
3. Serve the same area as is currently served by Welches Dam pumping station.
4. A phased restoration of land to bring flood storage on-line as land is released over the 40 year minerals extraction programme.
5. Maximise the capacity of lakes provided through restoration to maximise the available flood storage volume contained within the lakes, thereby reducing frequency of flooding on the remaining restored land.
6. Provide continuity of the drainage of the area with the surrounding IDB system to reduce ongoing drainage and pumping costs associated with the restoration of the site.

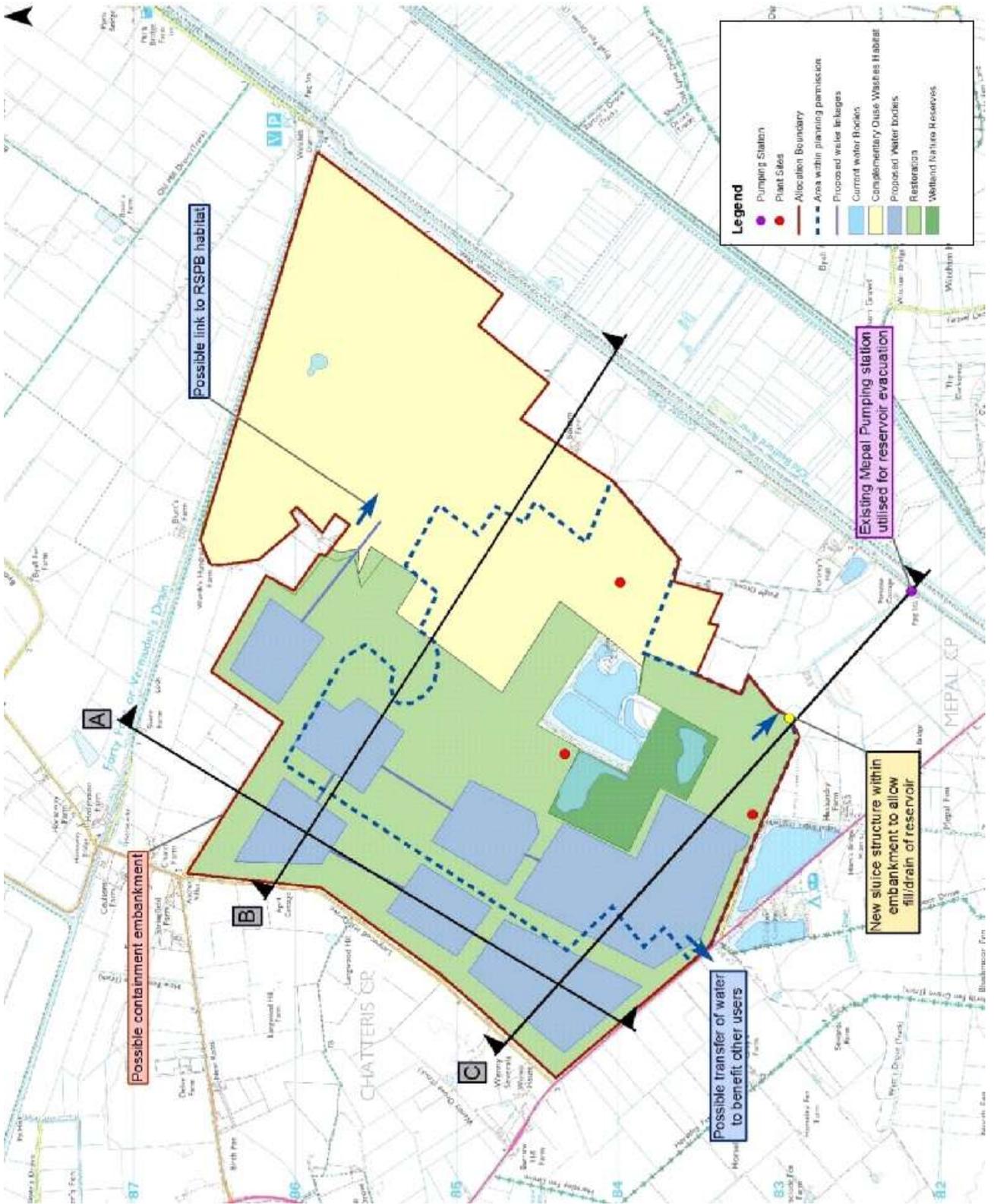


Figure A Environment Agency Flood Storage Concept – ‘area within planning permission’ indicative only



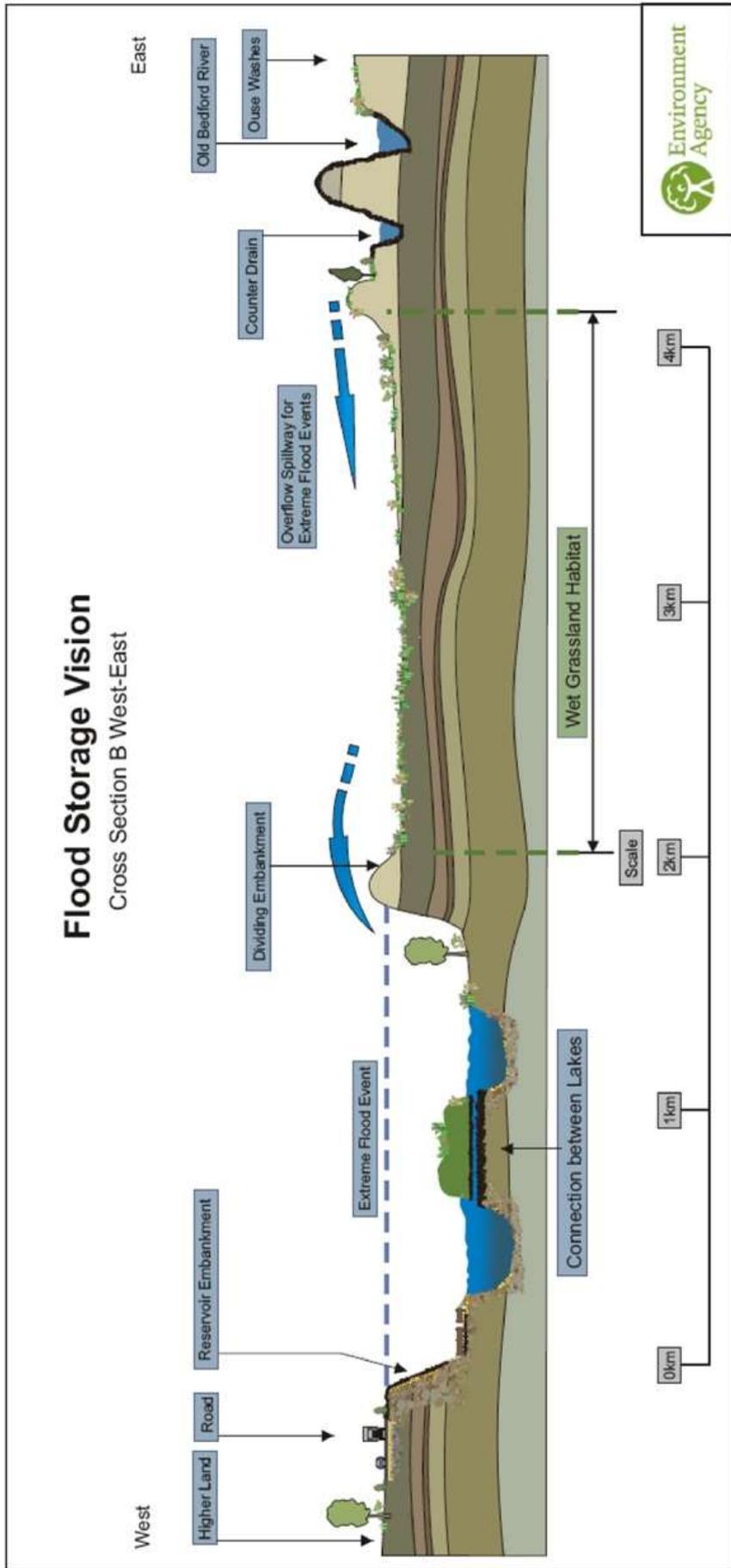


Figure C - artistic representation of vision only, based on low level restoration. Sites could be reinstated closer to ground level.

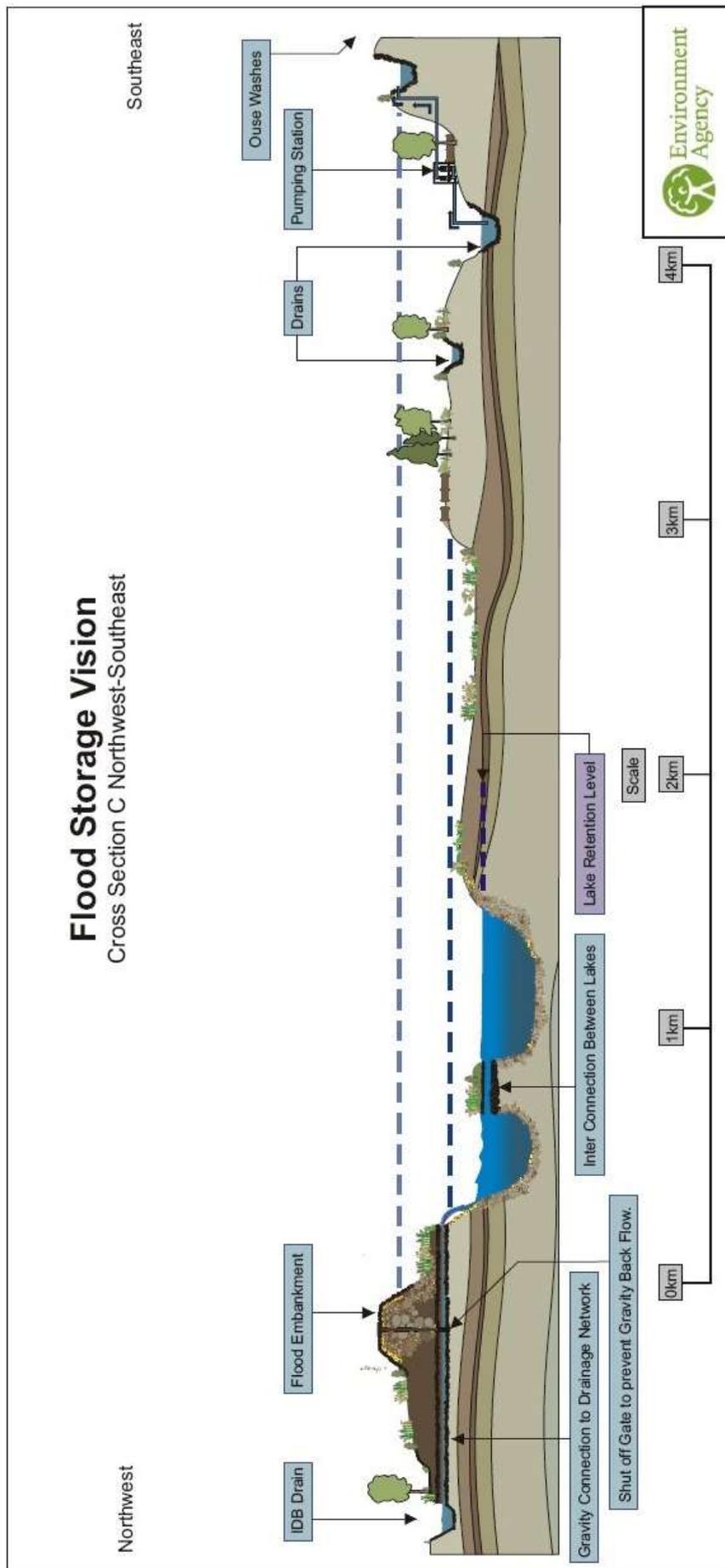


Figure D - artistic representation of vision only, based on low level restoration. Sites could be reinstated closer to ground level.

**Norfolk Water Management Partnership [Norfolk County Council (LLFA)]**

***Local Flood Risk Management Strategy Policy Review 2021***

No further correspondence has been received or discussion subsequently occurred concerning this matter.

Consulting Engineer

16 March 2022

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