



Open Report on behalf of Environment Agency

Report to:	Flood and Water Management Scrutiny Committee
Date:	21 November 2022
Subject:	Environment Agency Update

Summary:

To update Flood and Water Management Scrutiny Committee on Environment Agency activities in Lincolnshire, including progress on key capital schemes.

Actions Required:

The Flood and Water Management Scrutiny Committee is invited to review and comment on the contents of this written update and share feedback on projects and key capital schemes with Environment Agency.

1. Programme Update

1.1 Saltfleet to Gibraltar Point Beach Management

Lead Organisation	Environment Agency
Start Date	March 2020
End Date	December 2021
Total project cost	£31,958,170
Partnership Funding required?	N
Total Partnership Funding	N/A
Who is contributing?	N/A
Households better protected	9,352

Background:

Beach re-nourishment scheme protecting approximately 20,000 houses, 35,000ha prime agricultural land and 30,000 static caravans as well as major tourism developments between Mablethorpe and Skegness.

Update since last meeting:

The Project Team have again delivered another successful nourishment campaign which was completed at the end of July. A total of approximately 400,000m³ of sand was dredged, pumped and profiled. Beaches at Trusthorpe, Boygrift, Huttoft, Wolla Bank, Chapel Six Marshes, Trunch Lane and Ingoldmells were nourished, and we carried out beach re-cycling at Sutton on Sea. There are various minor maintenance projects being undertaken along with detailed asset inspections of the outfalls in the area.

1.2 Saltfleet to Gibraltar Point Enhancing Lincolnshire Coast

Lead Organisation	Environment Agency
Start Date	Jul-20
End Date	Aug-35
Total project cost	£32,006,000
Partnership Funding required?	N
Total Partnership Funding	N/A
Who is contributing?	N/A
Households better protected	4,676

Background:

Enhancing Lincolnshire Coast project would be a significant investment from government and therefore needs to deliver the maximum returns for all partners and stakeholders, by 'doing the project right' and 'doing the right project'. Enhancing the Lincolnshire Coast project will be the phase of works that follows on from the nourishment which is currently proposed until around 2040 and will evidence and deliver transformation of flood risk management infrastructure of the East Coast of Lincolnshire.

Update since last meeting:

Longlisting options will be assessed against multi-criteria analysis tables (currently being prepared) to produce a short list of options for the project.

1.3 Wainfleet Flood Resilience Scheme

Lead Organisation	Environment Agency
Start Date	Aug-21
End Date	Jul-24

Total project cost	£3,178,824
Partnership Funding required?	Y
Total Partnership Funding	£2,000,000
Who is contributing?	Other Government Departments (OGD)
Households better protected	47

Background:

In June 2019 two and a half times the month's average rainfall fell in 3 days in the Steeping catchment. This led to overtopping of the defences and ultimately a breach in the right bank of the Wainfleet Relief Channel on 12 June 2019. As a direct result 75 homes and businesses were flooded as well as 2000 acres of agricultural land.

In response to this the Steeping River Steering Group was set up and published a Catchment action Plan which was recently refreshed and published in May 2021. This contains an action to increase the resilience of the raised defences that protect the western side of Wainfleet against overtopping and the effects of climate change. This capital project seeks to deliver this action.

Update since last meeting:

The Strategic Outline Case (SOC) of the Wainfleet Flood Resilience Project is complete and will now be put through the assurance process. Once approved it will then progress onto the development of an Outline Business Case (OBC). More work will then be required in order to develop option(s), obtain outline costs and then undertake a more detailed analysis on the economic benefits to build the case for investment.

1.4 Boston Barrage-Barrier Works

Lead Organisation	Environment Agency
Start Date	May-14
End Date	Sep-22
Total project cost	£42,147,805
Partnership Funding required?	N
Total Partnership Funding	N/A
Who is contributing?	N/A
Households better protected	525

Background:

The Boston Barrier scheme once finished will provide better protection to over 14,000 properties against tidal flooding and is deemed a ‘National Priority Project’ within the Environment Agency’s Six Year Programme.

Update since last meeting:

More than 13,700 properties are now better protected from tidal flooding by the primary barrier gate which was used for the first time against a high tide in November 2021 and continues to be available as required.

The project is currently incurring delays associated with the agreement of temporary works that are required before the wet dock can be closed to enable Port of Boston operations to continue without the use of the wet dock. Once temporary works are finalised, the wet dock works can proceed.

The latest construction programme anticipates completion of the Boston Barrier Scheme as a whole in Q4 2023/2024.

Once finished, this work will further protect 525 properties from tidal flooding taking the total number of properties better protected from tidal flooding to 14,256.

1.5 Boston Upstream Tidal System Sustain Project

Lead Organisation	Environment Agency
Start Date	Aug-21
End Date	Mar-25
Total project cost	£6,201,034
Partnership Funding required?	N
Total Partnership Funding	N/A
Who is contributing?	N/A
Households better protected	900

Background:

The geographical scope of the project is along the Witham Haven between the Boston Barrier and Grand Sluice (Grand Sluice refurb. being excluded).

The objective of this commission is to sustain a revised standard of service of 5.5m AOD, improve the management of flood risk assets in the town of Boston and reduce the risk of an asset failure.

We are undertaking the following:

- Review of the data: a desktop study of the existing asset data.
- Screening of the data and assessment of the robustness/ usability of data.

- Undertake gap analysis of existing data.
- Provide a report with recommendations, for asset inspection or further surveys as and if required to allow for the SOC to be written including options and costings.
- Prepare a plan for the next stage of the asset inspections. Provide programme, number of people and durations.
- The next stage - surveys will be added under a separate instruction before SOC stage.

Update since last meeting:

Ground investigation works now expected February 2023, following challenges in securing site access and business case approval.

1.6 Gibraltar Point to Freiston Shore System Sustain Project

Lead Organisation	Environment Agency
Start Date	Mar-22
End Date	Jan-24
Total project cost	£1,774,948
Partnership Funding required?	N
Total Partnership Funding	£0
Who is contributing?	N/A
Households better protected	2,018

Background:

The project is to look at sustaining the primary line of defence of the Wash Frontage from Gibraltar Point to Freiston Shore. The Asset Performance (AP) team have identified key Low spots, cattle poaching and burrowing animal areas of concern which are resulting in red card maintenance activities and concern for bank stability. This project will look to repair the embankment and sustain the whole line back to its nominal standard of protection and service.

Update since last meeting:

The Strategic Outline Business Case has been submitted to, and reviewed by, the National Project Assurance Service. As of 1st September, the project team were working through questions raised. Works on site now expected 2024.

1.7 Lincoln Defences

Lead Organisation	Environment Agency
Start Date	Nov-18
End Date	Oct-22
Total project cost	£1,982,802

Partnership Funding required?	Y
Total Partnership Funding	£946,535
Who is contributing?	Other Government Departments (OGD), Anglian Water
Households better protected	347

Background:

Lincoln is located in a limestone ridge, through which the River Witham flows. A complex system of channels runs through the City managed by several water level management structures. Key river channels within the City of Lincoln include The River Brant, The Fosdyke Canal, The Sincil Dyke, Boutham Catchwater and Great Gowts Drain. The City of Lincoln has suffered flooding on numerous occasions, most notably in 1947 and 1958.

Water levels are controlled by three sluices (namely Great Gowl Sluice, Stamp End Sluice and Bargate Sluice). The Lincoln Washlands and a system of linear flood defences comprising walls and embankments works in conjunction with the sluices to protect Lincoln from fluvial flooding.

Flood defence assets are generally in good condition, however a section of the defences along the Foss Bank was reported to be leaking through cracks/ joints in the flood wall. Surveys carried out in 2017, also highlighted that sections of the walls along the River Witham are in need of repair work.

The electric components of the three sluices are near the end of their mechanical and electrical life and are unreliable. Good status of the defences is crucial to maintain the existing Standard of Protection in Lincoln and avoid flooding even in relatively moderate flood events.

Update since last meeting:

This project is complete.

1.8 Lincoln Washlands control panels

Lead Organisation	Environment Agency
Start Date	Sep-19
End Date	Jun-21
Total project cost	£843,350
Partnership Funding required?	Y
Total Partnership Funding	£60,000
Who is contributing?	Upper Witham IDB
Households better protected	1,969

Background:

The project consists of replacing key components to the control panels and instrumentation for the Lincoln washlands on the River Till, River Witham and River Brant. Additional works to bolster site security and safety have also been carried out.

Update since last meeting:

This project is complete.

1.9 Lower Witham Flood Resilience Project

Lead Organisation	Environment Agency
Start Date	Jun-21
End Date	Aug-27
Total project cost	£29,914,388
Partnership Funding required?	Y
Total Partnership Funding	£6,000,000
Who is contributing?	Other Government Departments (OGD)
Households better protected	1,362

Background:

In 1997 the Lower Witham Strategy recommended reinforcement of key embankments whilst allowing some areas to flood, in order to relieve the pressure on the system. Since then, 30km embankments have been reinforced, but repeated high flows have damaged more. Storage options have not been implemented, due to availability of suitable sites and difficulties in meeting HM Treasury funding rules of the time.

The works in the 2000s included the creation of Fiskerton Nature Reserve, as environmental mitigation. Now these types of works are seen as offering a real alternative to hard defences, providing room for flood water as well as having a lower carbon footprint and enhancing the local environment. Flooding in 2019 has again highlighted the need to update the long-term plan to manage flood risk in the area.

With revised partnership funding rules, allowing more projects to proceed, and a new interest from landowners in providing public goods such as flood storage, it is hoped that the original vision can now be realised. The Lower Witham is one of six river catchments within the East of England Fens that will come together under the Future Fens: Flood Risk Management programme. This work will contribute towards the ambitions for Climate Resilient Places within the National Flood & Coastal Erosion Risk Management Strategy where there is a specific measure focussed on the Fens.

It is anticipated that a significant capital investment programme will start on the ground in 2025, and in the meantime the Environment Agency’s operational teams will continue to maintain and manage the flood risk assets where resources allow.

Update since last meeting:

Survey Data continues to be reviewed, and discussions to agree the baseline scenario and sensitivity runs for the updated model are ongoing. The first newsletter for the project was issued in July and will be updated as the project progresses, along with updates to the Citizen Space webpage for the project. More detailed meetings have been held with key partners and will continue throughout the project as we work together. Data gathering of all flood risk assets in the project area has started.

1.10 River Slea Flood Resilience Project

Lead Organisation	Environment Agency
Start Date	Oct-22
End Date	Dec-26
Total project cost	£6,860,709
Partnership Funding required?	N
Total Partnership Funding	N/A
Who is contributing?	N/A
Households better protected	582

Background:

This project covers the River Slea main river which runs through the town of Sleaford to Cobblers Lock. In the east of the town the river splits to follow the Sleas Navigation channel to the north and the original course of the Old River Sleas to the south. The navigation follows the contours of the land, dropping the river level from around 13m above sea level in Sleaford, to around 3.5m above sea level via a series of historical locks (not all of which are operational). The Old River Sleas follows a more natural course through the Sleas valley before joining back with the navigation again at Cobblers Lock.

As a river heavily influenced by groundwater flows, the Sleas can suffer from low flows at times making abstractions for drinking water and irrigation a challenge. A flow augmentation scheme supports water levels in the river during dry periods.

Through the town itself, a series of movable structures maintain a water level for aesthetic reasons, although these do interfere with natural river processes, are a barrier to fish and eel migration and increase flood risk, which is why they have to open during high flows. These structures now require significant investment. Structures along the old navigation channel are also in a state of disrepair. With government funding to the EA dependent upon evidenced reductions in flood risk, securing sufficient funding to repair/replace assets with no flood risk benefit is not possible.

Update since last meeting:

Introductory presentations and the first newsletter were carried out and issued in July to introduce key internal and external stakeholders to the project. A longlisting workshop with internal and external stakeholders has been scheduled for the end of September.

Longlisting options will be assessed against multi-criteria analysis tables (currently being prepared) to produce a short list of options for the project.

The hydraulic modelling baseline scenario and final hydrology is currently being reviewed by the EA. Agreed sensitivity model runs are being prepared by the supplier. Once reviewed, model outputs can be used to inform which options are taken forward and can be used to assist with engagement activities.

1.11 Crowland and Cowbit Washes (Welland Flood Banks) refurbishment

Lead Organisation	Environment Agency
Start Date	Sep-21
End Date	Mar-28
Total project cost	£2,799,759
Partnership Funding required?	N
Total Partnership Funding	N/A
Who is contributing?	N/A
Households better protected	0

Background:

The Crowland and Cowbit Washes (the Washes) are not performing as anticipated. The Cradge bank for the Crowland and Cowbit Washes is in need of refurbishment along with inlet syphons. The current focus of the study is to understand the area that benefits from the Washes. The Washes have not been utilised in recent years and the Welland system has been significantly altered since their construction.

This project aims to provide a better representation of flood risk associated with the operation (or non-operation) of the Washes through modelling and mapping. We need to better understand how the Washes function, which communities benefit from their existence and whether any improvements can be made to utilise them more effectively and reduce flood risk. We also need to better understand the implications of failure to store water in the Washes to define the benefit area. The number of properties currently benefitting is estimated at 663.

It is intended that this evidence base will be used in conjunction with that derived for Maxey Cut Banks to support development of an Initial Assessment that supports a strategic approach to continue maintain the standard of protection for Lower Welland catchment in line with the Welland CFMP recommendations.

Update since last meeting:

Following completion of the hydraulic modelling and review, this project is now moving to the next stage of development - the strategic Outline Case (SOC). The long-listing of options has started and Pre-SOC uplift documents for both Crowland and Cowbit and Maxey Cut are being prepared to ensure that we have sufficient funds available to complete the SOC.

2. Incident Management Overview

2.1 Local Resilience Forum (LRF)

Local resilience Forums (LRFs) are multi-agency partnerships made up of representatives from local public services, including the emergency services, local authorities, the NHS, the Environment Agency and other professional and voluntary organisations. These agencies are known as Category 1 & 2 Responders, as defined by the Civil Contingencies Act.

Flood Ex 2022: Flood Ex 22 had been postponed until November 14-18 due to the sad news on 8 September of the death of Her Majesty Queen Elizabeth II, as the funeral will be held on Monday 19 September.

FloodEx22 will be Lincolnshire's major LRF exercise for that year. Exercise planning activities are also progressing well with Northamptonshire and cross-boundary areas (including Cambridgeshire and Humber). LNA's Area Incident Team (AIT) are working with neighbouring AIT teams to facilitate the pan-area exercise, and we are working to update critical plans and procedures in readiness for the exercise so they can be tested, including producing a multi-agency Tactical Information Guide for coastal breaches in Lincolnshire.

We are also using the opportunity that FloodEx22 presents to improve our duty officers' overall expertise on tidal flood risk by preparing a variety of tidal flood workshops (more information in section 3.2) that will be rolled out throughout this year. This will maximise the training benefit by extending the opportunity beyond the duty officers that will be participating in the exercise as live players. So far, we have delivered sessions to more than 500 attendees leading to 750+ hours of training in total.

2.2 Lincolnshire LRF update

Boston Barrier LRF Site Visit: In partnership with Lincolnshire County Council Emergency Planning team, we facilitated a site visit to the Boston barrier during one of the monthly test closures for a group of 10 LRF partners. Attendees included representatives from Boston Borough Council, East Lindsey District Council, South Holland District Council, and one of our military liaison officers, who were interested in learning more about how the barrier works to protect Boston from flooding.



Photo 1: Site visit to the Boston Barrier for LRF partners

The visit included a site walkover, observation of barrier closure, and a control building tour. Experts were on hand to give an overview of the scheme, explaining the barrier operational procedures, redundancies, and contingency plans. This was followed by a discussion around Coastal risk planning and multi-Agency flood plans. The attendees found the trip extremely useful and thanked us for organising it.



Photo 2: Lincolnshire Coast Senior Officer Tour

On Thursday 8 September we co-hosted a trip to the East Coast with the Lincolnshire County Council Emergency Planning team for Senior Officers of some key LRF organisations including Lincs Police, Fire & Rescue Service (both Lincolnshire and Northamptonshire) and a local Councillor.

The aim was to increase understanding of the risk that East Coast Inundation poses to Lincolnshire, and what the strategic considerations and challenges are when planning, preparing, and responding to this risk. We visited a number of key sites along the coast,

including Skegness, the caravan parks at Ingoldmells and Sutton-on-Sea.

The visit was well received by all attendees as it highlighted the significant multi agency challenges the LRF partners will face.

2.3 Preparation

Tidal Training Focus 2022: In the build-up to Flood Ex 2022 we are taking the opportunity to improve our tidal flood resilience by running a range of tidal focussed training sessions.. The 8 sessions below have been run for those participating, each based on a different element of our response to tidal flooding.

Session Title	What's covered
Tidal risk in LNA: Introducing the basics	<ul style="list-style-type: none"> • Introduction to Tidal risk in LNA • Key historic incidents • Primary and secondary impacts • The difference between overtopping and breaches • Unique challenges of tidal flooding
Tidal Warning and Informing	<ul style="list-style-type: none"> • LNA's tidal Flood Warning Service • New Emergency Alerts technology • Multi-Agency Comms • Warning & Informing key messages •
Tidal Flood Forecasting and Timeline of Key Decisions	<ul style="list-style-type: none"> • What causes tidal flooding • How we forecast tidal flooding • Confidence and uncertainty • Timeline of key actions • Case study: Jan 2017 tidal surge
Resourcing and ConOps	<ul style="list-style-type: none"> • Timeline of escalation • ConOps structure and shift patterns • HS&W considerations • Mutual Aid <p>Recovery phase</p>

LRFs & Multi-Agency Response	<ul style="list-style-type: none"> • LRF Timeline of decisions • Spotlight on each LRF covering: <ul style="list-style-type: none"> ○ What's at risk ○ Cross-boundary comms ○ LRF incident structure ○ LRF key strategies & plans • Military Aid
Mapping & Data	<ul style="list-style-type: none"> • The importance of LNA tidal maps in incidents • Sharing data with partners • Data collection • Aerial photography
Environmental impacts	<ul style="list-style-type: none"> • Pollution impacts resulting from tidal flooding • COMAH sites at risk
Tidal Procedures and Tactical options	<ul style="list-style-type: none"> • Overview of newly revised tidal procedures • Tidal tactical options • Data Collection

Figure 1: The range of tidal focused training sessions

2.4 Incidents and Emergency Response

Short Ferry 15072022: Increased water demand throughout the Witham and Ancholme catchments resulted in an elevated requirement for water transfer via pumping operations at Short Ferry. This high level of pumping reduced river levels which combined with the amount of weed in the system blocked the weed screen creating a temporary cessation to our ability to pump. We worked closely with partners, including Anglian Water (AWS), as this temporarily impacted their ability to abstract water for potable water supplies. A weed screen repair was carried out and the high voltage power supply restored.

Kettering, Spalding and Market Rasen Surface Water Flooding: We are aware of several surface water flooding incidents during August. These occurred as a result of intense rainfall after a prolonged period of dry weather. We expect to see further incidents like this as the dry conditions lead to rapid runoff when there is intense rainfall as the ground does not absorb the rainfall.

During these incidents, the local main rivers had plenty of capacity to accept the surface water had it been able to reach the rivers – typically the drainage networks running to main river are overwhelmed i.e., the water simply can't get into main river before there is surface water flooding and property flooding.

We continue to support the Lead Local Flood Authorities, who lead of surface water flooding matters, with any follow-on work that they need to undertake e.g., Section 19 Flood Investigations.

We have also responded to correspondence about these incidents with those communities affected and with Members of Parliament.

Look North Drone Use: On August 11th BBC Look North was out with Niamh Connolly from Land and Water and EM drone pilots, Kim Mynard and Michael Fallon, as they used the drone to identify active abstractors for the first time. Interviews with Yvonne Daly and Jo Gass took place and were shared in a number of broadcasts.

As we are in Drought status it is vitally important, we make sure all abstractions are permitted are operating within their permit conditions. We used the drone to help identify active abstractions, which we can then check against permits. Any illegal abstractors can then be identified, and appropriate enforcement action taken.

The drone can see 2km in each direction and zoom right in, so it makes it much more efficient than only using staff out on the ground. There is also huge potential in using thermal imaging to quickly identify where water is or has been used.

This is a great example of joint working and making the most of our resources and new technology available.



Photo 6: Look North and drone use

3. Conclusion

This report seeks to update Flood and Water Management Scrutiny Committee on Environment Agency activities in Lincolnshire, including progress on key capital schemes.

The Flood and Water Management Scrutiny Committee is invited to review and comment on the contents of this written update and share feedback on projects and key capital schemes with Environment Agency.

4. Consultation

a) Risks and Impact Analysis:

N/A

5. Background Papers

No background papers within Section 100D of the Local Government Act 1972 were used in the preparation of this report.

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