

Open Report on behalf of the Environment Agency

Report to:	Flood and Water Management Scrutiny Committee
Date:	22 February 2021
Subject:	Environment Agency Update

Summary:

This report updates the Flood and Water Management Scrutiny Committee on Environment Agency (EA) activities, primarily in relation to Covid-19 with particular reference to the ongoing delivery of the capital programme and recovery.

Actions Required:

The Flood and Water Management Scrutiny Committee is asked to consider and comment on the detail contained in the report.

1. COVID-19 Delivery Impact

- 1.1 We are continuing to deliver all of our Flood and Coastal Risk Management projects where it is safe for our teams and delivery partners to do so. We are following the latest guidance from Public Health England regarding safe working on construction sites.
- 1.2 We are also carrying out maintenance, operation and repair of our assets, again where it remains safe to do so.
- 1.3 Our current focus remains on how best to deliver the £100m in year Defra Grant-in-Aid allocation efficiently in terms of governance structures and allocation of existing and new resource. We are working on this in collaboration with our supply chain partners.
- 1.4 We remain ready to respond to flood incidents should the need arise and we continue to support partners as our own operational requirements permit. We continue to support our LRFs (Local Resilience Forum) with Mutual Aid in the form of equipment and some staff time.
- 1.5 Overall, we accept that productivity will be impacted yet progress is and will continue to be made and we will seek to emerge from lockdown as an even better organisation.

2. Recovery Programme Update

Background

- 2.1 The Flood Recovery team, led by Peter Reilly as Flood Recovery Manager, is an internal team set up to manage the recovery programme. The team is made up of staff from across Operations and FCRM bringing together the expertise to deliver the programme of works. This is being done hand in hand with our colleagues in Programme and Contract Management (PCM).
- 2.2 The Recovery programme has a value of approximately £30 million and is made up of over 130 individual projects which are scheduled to be completed by 31 March 2021.
- 2.3 The whole programme is being delivered by a range of partners under the various frameworks we are able to call on, including Jacksons Civil Engineers, Arup, JBA-Bentley, Stonbury, and under Public Sector Co-operate Agreements (PSCA), a number of local Internal Drainage Boards – Lindsey Marsh, Black Sluice and Witham Fourth. Using this mixture of frameworks and partners allows us to get the best value for money and making the best available use of resources to return assets to the required standard of service as effectively as possible.

Summary of Progress

- 2.4 Good progress is being made to repair assets damaged during the winter of 2019/20. The Recovery Sub-Programme Board is meeting fortnightly to track, monitor and report on progress of the various projects.
- 2.5 The Programme of works are made up of 138 projects and currently (end of 2020) approximately:
- 51% Sites were completed
 - 20% Sites were in construction
 - 29% Sites in the design or scope phase
- 2.6 However, please be aware these numbers are constantly changing as the programme moves forward.
- 2.7 All of our delivery partners have multiple gangs working over various sites with around 10 live sites at any one time. Many of these are of a smaller scale and on site for around a week at a time; updates on some of the large projects can be seen below. Sites have been completed from all of our delivery partners, thanks to their hard work during the difficult restrictions placed on them as a result of Covid-19.

Specific Site Updates

- 2.8 **Black Sluice Complex, Boston:** In April 2020 a programme of works began on the gravity sluice and navigation lock at the Black Sluice Complex

in Boston. Over the winter of 2019/20, the navigation lock was operated continuously as a secondary gravity sluice and ensured we were able to manage the high levels in the South Forty Foot Drain during the prolonged heavy rain. The works we have now completed was to mitigate the expected 'wear and tear' that will help ensure these critical assets remain functional during flood incidents. In addition, the navigation lock was due for its 10 year detailed inspection service to make sure our river users can safely gain passage to the South Forty Foot Drain.

- 2.9 The first phase of this programme has been completed on the gravity sluice, and involved replacing the hinges to the guillotine gate and fitting new straps to the tidal pointing doors. Because of the importance of this flood defence, this first phase was completed during the Coronavirus lockdown period, with our contractors applying the Government guidelines to safeguard staff and the general public.



Figure 1: Works being completed to the gravity sluice in May 2020

- 2.10 The second phase was a far larger piece of work focused on the navigation lock which involved a full drain down of the structure. This would allow specialist contractors to safely carry out detailed inspections of all parts of the lock which are often under water, as well as replacing and repairing any required parts. We also carried out general maintenance and a full service of the asset, plus a 3D survey of the whole structure to provide an extremely detailed model of the lock for our records.
- 2.11 The drain down of the lock has involved fitting purpose-built dam boards, sealing off the inflow of water and closing the lock to navigation. Because of the lock's vital role as a gravity sluice during heavy rain, we opted to close the asset during the summer months to mitigate the flood risk. However, inclement weather throughout August and the complexity of the work did push back the completion date into the beginning of the winter period. As well as planning the works to take place during the lower risk summer period, we have had a clear and concise contingency plan in place should we receive a high rainfall alert and need to use the lock to discharge water. The work has progressed without incident from rainfall with all fluvial discharge to date being managed with the gravity outfall alone.

2.12 This second phase has now been completed and the lock has been recommissioned, ready to be operated again as both a navigation lock and gravity sluice. Whilst it has been a complex and extended piece of work, maintaining the resilience of our flood risk assets is the priority. As with any detailed survey, there is an inherent risk of significant works required. However the teams on site were able to carry out all repairs needed within this closure period.



Figure 2: Stop logs lifted in to drain down the lock



Figure 3: Under the road bridge looking downstream to the lock

2.13 **Barlings Eau:** By mid-November repair works to the breach were nearing completion with the embankment nearing full height. The sheet piles installed in the winter of 2019 were cut to height and the breach infilled using imported clay.

2.14 Whilst on site, another section of the bank slipped; contractors advised they were aiming to complete the additional works before the Christmas break.



Figure 4: Barlings Eau Geocell erosion protection in place

2.15 **Timberland Delph:** There were three sites of works along the Delph. These include the locations where piping was taking place at the downstream end of the Delph. Works have been to strip the existing top soil and place new clay within the bank.



Figure 5 (Left): Repairs to right hand bank of Timberland Delph

Figure 6 (Right): Repairs to right hand bank of Timberland Delph with new grass cover (site of piping defect)

3. Boston Barrier

- 3.1 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.
- 3.2 The primary Boston Barrier gate can now be raised in tidal events using its manually controlled Emergency Hydraulic Power Units (EHPUs) and is on programme to be fully operational on its primary hydraulics in the coming weeks once site acceptance testing is complete. Once completed we will be providing an enhanced level of protection to 13,732 properties.
- 3.3 Construction is now approximately 65% complete with the scheme as a whole projected to be completed in 2022 when the remainder of properties will be claimed benefitting 14,256 properties in total.
- 3.4 BAM Nuttall is continuing to work in accordance with government guidance, but there has been minimal disruption to progress to date due to the safe systems of work that have been employed at the earliest opportunity. The team continue to monitor and adjust working practice in accordance to the evolving guidance to ensure the project can continue safe and well.
- 3.5 Next steps for the scheme include installing over 2500 tonnes of steel sheet piles for new flood walls along the North Bank, the installation of a replacement flood gate at the Port of Boston wet dock entrance in 2021, and associated works to tie the project into the Haven Banks Improvement Scheme – a separate Environment Agency project which will raise and strengthen 5km of existing flood banks running from the Barrier towards the Wash.

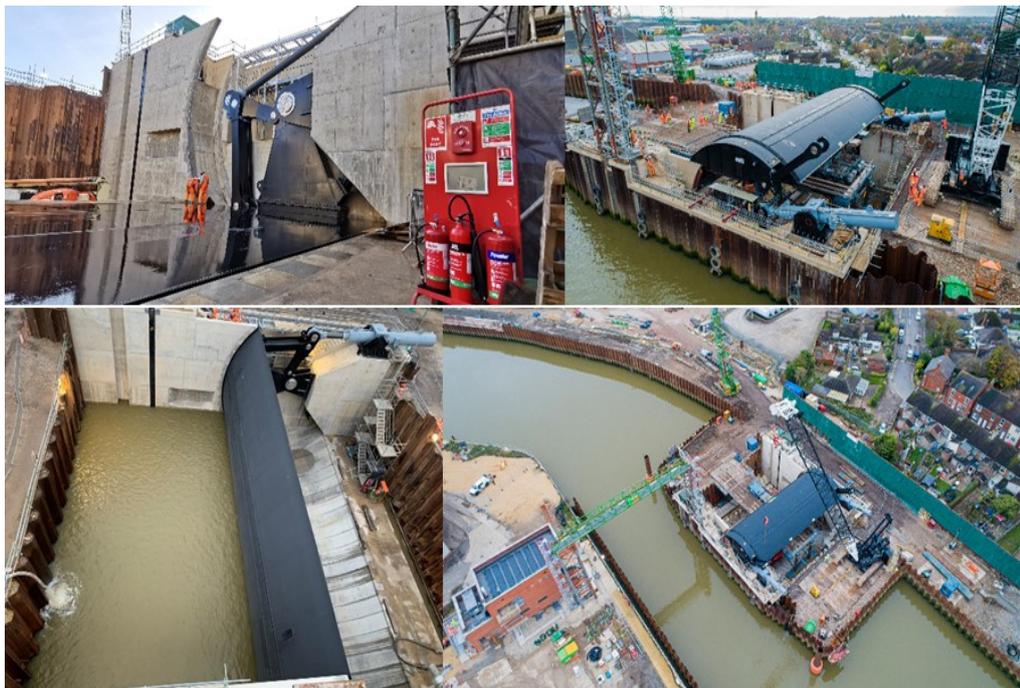


Figure 7: Assorted pictures of Boston Barrier

4. East Coast

Interim Beach Management Lincolnshire Coast 2018 to 2021 (LBM2018to21)

- 4.1 This is a 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.
- 4.2 Following on from this year's successful nourishment campaign the project team have carried out improvements to the outfall at Ingoldmells, along with installation of replacement navigation markers at the outfalls at Boy Grift, Anderby and Ingoldmells.
- 4.3 64,500m³ of sand was also recycled at Winthorpe to protect the hard sea defences; contractors for this particular element of the project mobilised within a week and completed the task within three weeks.
- 4.4 The residual life works to establish the condition of the sea wall are underway between Mablethorpe and Skegness at nine locations.
- 4.5 This involves excavating a 200m trench at each location to the toe of the defence, visual inspections are then made and followed by intrusive investigations including GPR tests, concrete coring and hydro-demolition.
- 4.6 The residual life study will be complete by the end of the year and reports are expected in January 2021, which will feed into the Saltfleet to Gibraltar Point Strategy project.
- 4.7 In summary, the Interim Beach Management Lincolnshire Coast 2018-2021 has successfully concluded its final year of nourishment, including the additional sand movements at Winthorpe that were identified as necessary through the routine monitoring. Improvements to Ingoldmells Outfall structure have also been delivered to reduce the risk of tunnel blockages. Our contractors remain onsite, with works to some navigation markers being finalised and improvements at Boy Grift tunnel planned for early 2021. To underpin the evidence of the future approaches and that all approaches rely on the concrete sea defences, Residual Life Testing is underway; the findings are due to be published in January 2021 and will further identify if any additional testing is required.

Saltfleet to Gibraltar Point Strategy (SGPS)

- 4.8 Beach re-nourishment remains the most cost effective solution in the short-term as we keep pace with climate change. However, this option alone may not be viable longer term. The SGPS highlights the trigger points where decisions for alternative approaches and capital investment will need to be considered and the need for partnership contributions.

4.9 The Saltfleet to Gibraltar Point Strategy was approved in December 2019 and the Lincolnshire Beach Management project will take over the nourishment between 2021 and 2024. Approval for the Outline Business Case was secured in August 2020. This will run alongside the development of a major project to deliver the longer term ambition of the Strategy, Enhancing the Lincolnshire Coast, with our partners, stakeholders and the public. The programme of works will develop the Full Business Case (FBC) for a major project with an approximate value of £450m, to be delivered over 20-30 years. This investment will underpin the partners' vision to transform the resilience of the coastal communities, transform our approach to asset management on this coastline and adapt to climate change, delivering whole-life benefits in excess of £4.1bn over 100 years, and realise significant cash and carbon savings.

5. Boston Haven Banks

5.1 A number of low spots exist along the Haven banks downstream of the proposed Barrier location. To keep pace with sea level rise and maintain the required standard of protection for Boston, these low spots and works to raise earth embankments to 6.50m AOD are required.

5.2 Programme of works to be undertaken over the current six year Medium Term Plan (MTP) in conjunction with the Barrier scheme as described in the various phases of the Boston Combined Strategy.

5.3 Work continues to progress on the Boston Haven Banks project, which is classed as essential work by the Government. Contractors have strict precautionary measures in place in line with government guidelines and coronavirus restrictions, to ensure the health and safety of both workers and the general public.

5.4 Through partnership working with Lincolnshire County Council, this project has secured £1m of European funding. To ensure we deliver this project within the European timeframe we are aligning with the Boston Barrier project programme to utilise a more efficient delivery route through a design and build contract.

6. Steeping Catchment

6.1 The Steeping River Catchment Action Plan Action 2020+ was released on 21 April 2020 to partners and the community.

6.2 The plan was drawn up by the Steering Group chaired by Robert Caudwell. This group feeds into the Lincolnshire Flood Risk and Water Management Partnership (LFRWMP), chaired by Norman Robinson.

6.3 Covid-19 restrictions meant we were unable to host a public drop-in event linked to the release, but the plan is available publically on East Lindsey District Council's website. People are also able to email any questions they may have.

- 6.4 Newsletters informing the community on the work of the Steering Group continue to be distributed at key locations in the town and areas affected by flooding.
- 6.5 There are four Catchment Action Plan Themes; improving the flow through the system, a resilient community and infrastructure, strengthening and maintaining defences, and flood water storage. Each of these themes has its own list of actions, as well as a fifth list of additional actions not being taken forward at present, but are still highlighted and recorded.

Dredging

- 6.6 The Government lockdown announcements over the Christmas period to help combat Covid-19 has led to the delayed return by the dredging crews to the UK to complete the last section of the first dredging phase that was due to be completed mid-January. Royal Smals, the company carrying out the dredging, is based in Holland and there are implications for international travel in and out of the country. Staff safety and wellbeing is paramount. The situation is being regularly reviewed as all parties are committed to the earliest possible completion of the Phase 1 works. There will be no additional cost incurred as a result of the delay.

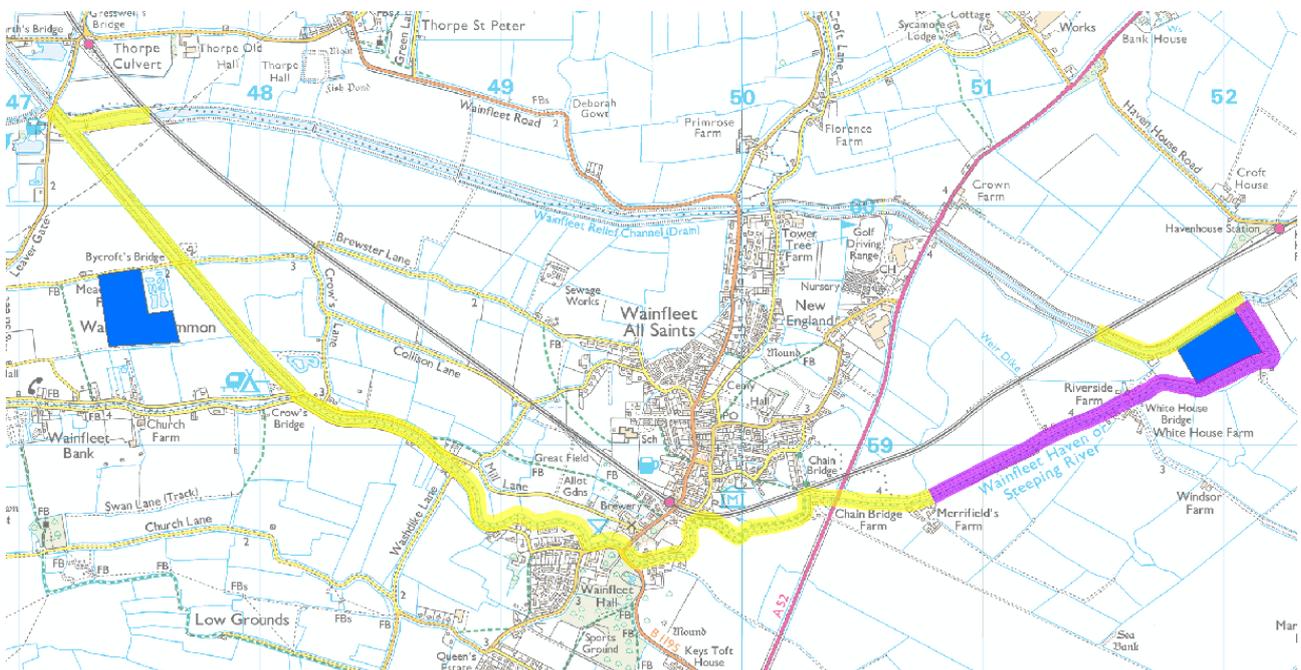


Figure 8: Phase 1 of the action plan - Dredging

- 6.7 More than 47,600 cubic metres of silt has been removed in total to date. The last section to be dredged in this first phase is shown in purple above, continuing then in yellow back round to the railway crossing. The 2020 dredging campaign had been extended to include the purple section because more silt was found at this location than surveys indicated. This is

not unusual in a complex silt removal operation like this. A third lagoon will start to be constructed in April/May 2021, ahead of the second phase of dredging on the Wainfleet Relief Channel (WRC) planned for the autumn 2021.

River Steeping Flood Alert Issued

- 6.8 Many residents will have received three messages from the EA's Flood Warning Service on 23 December, 14 and 28 January to say the River Steeping Flood Alert had been issued.
- 6.9 Flood Alerts are the lowest level of warning that are issued when flooding could affect low-lying land, driveways, gardens or roads.
- 6.10 The Alerts were issued because heavy rainfall in the catchment meant levels in the Steeping River and its tributaries were rising.
- 6.11 The next level of warning is a Flood Warning. These are issued when flooding could affect homes. Forecasts indicated that property flooding was not likely and therefore Flood Warnings were not expected to be issued.
- 6.12 After the flooding in June 2019, one of the Flood Warning Areas was extended to allow people home sooner, as they could be contacted to get immediate updates while the breach was being repaired.

Managing flood risk naturally

- 6.13 Theme number 4 in the Catchment Action Plan is Flood Water Storage. The theme has three sections which will be investigated.
- 6.14 One of these relates to methods and locations for Natural Flood Management (NFM) in the upper catchment.
- 6.15 Another section involves investigating changes to land management practices to reduce silt coming into the system. Both will involve working closely with landowners who can share their expertise and local knowledge to help explore where this could have the most impact to reduce flood risk. This could reduce water coming down the system by up to 5%.
- 6.16 There are many different forms of NFM, but some examples include:
 - Installing leaky timber barriers to slow the flow of water down into the catchment,
 - Creating a 'bund' in a field to temporarily store water until the high flow has passed,
 - Re-connecting rivers and their flood plains to allow storage during high flows.

- 6.17 Experienced Farmed Environment Advisor, Lesley Sharpe, has started walking the River Lymn and its tributaries, from Tetford to Ashby by Partney in the east to see where NFM techniques could be adopted.
- 6.18 Lesley has initially identified lots of opportunities which, following further validation work and conversations with landowners, will be narrowed down to a suite of opportunities that can be pursued over the next few years.
- 6.19 The aim is to establish which options work best in different parts of the upper catchment, support landowners to embrace and implement them on their land, and achieve enough of them along the river to make a substantial difference to the flow of water downstream.

Additional activity to reduce flood risk

- 6.20 **Reducing bank erosion:** Grass cutting took place just before Christmas in areas where no water voles are present ahead of 'toe protection' work starting in February. This will help protect the bottom of the embankment near the waterline from erosion. This activity is happening on the left hand bank of the WRC between Thorpe Culvert Railway and Spilsby Road and the left hand bank of the Steeping River between Crow's Bridge and Salem Bridge.
- 6.21 **Raising low spots:** Re-profiling and levelling the left and right hand bank top, between Great Steeping road bridge and the old railway bridge has commenced and will be completed in early Spring 2021.

7. Consultation

a) Risks and Impact Analysis

N/A

8. 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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