

Navigation Committee

07 September 2023

Agenda item number 9

Construction Maintenance and Ecology work programme progress update

Report by Head of Construction, Maintenance & Ecology, and Ecology & Design Supervisor

Purpose

To give an update on the Broads Authority's management activities to maintain public navigation, develop mooring facilities for public use and demonstrate the effective use of available resources in managing the Broads waterways.

Broads Plan context

C1: Maintain navigation water depths to defined specifications, reduce sediment input, and dispose of dredged material in sustainable and beneficial ways.

C2: Maintain existing navigation water space and develop appropriate opportunities to extend access for various types of craft.

C3: Manage water plants, riverside trees and scrub, and seek resources to increase operational targets.

C4: Maintain and improve safety and security standards and user behaviour on the waterways.

Recommended decision

To note the report.

Contents

1.	Maintaining water depths for navigation	2
2.	Maintaining safe public mooring facilities	2
3.	Water plant management	4
4.	Channel marking	4
	Appendix 1 – Annual dredging progress 2023-24 (April 2023 to end July 2023)	5

1. Maintaining water depths for navigation

- 1.1. The detailed breakdown in Appendix 1 gives progress and volumes for the dredging programme for 2023/24 (April 2023 to end July 2023). A total of 22,740 m³ of dredged sediment was removed from the prioritised sites. This figure represents 57% of the programmed target of 40,050 m³ for the year.
- 1.2. Dredging on the River Ant, which carried on to this July from the previous year was completed largely to plan. Refinements to the mapping and weekly work instructions to the team on site resulted in an improved ability to track productivity and progress. Since the dredging equipment had to work its way gradually into the more width-restricted and shallow areas at Stalham, the timing in the season meant that the final section towards Stalham staithe was not possible this year. This work has been programmed for winter 2024/25 when more notice time can be given to the businesses and private moored boats in that area, so the dredging pontoon and wherries can gain safe access. Overall, the River Ant dredging campaign, from Barton Broad to Stalham, including Sutton Broad in late spring 2022, has been very successful. A total of 23,130m³ has been dredged during this time. The landowner and the Broads IDB have been valuable partners at the sediment re-use site, where the material has been used to strengthen the riverbank. Final restoration and reshaping of the re-use site will occur in 2024/25.
- 1.3. At Oulton Broad the total duration of this campaign has been extensive, starting in June 2019 when sediment was placed in the dedicated re-use location at Horseshoe Point. Since then, the team have been filling the reedbed habitat creation area at Peto's marsh. The mechanical issue with the concrete pump has been resolved and productivity has increased, with all work due to end and demobilisation from site programmed for September.
- 1.4. The autumn 2023 project is dredging on the Upper Bure. The lagoon to receive the sediment is due for construction in October, with dredging starting in November.

2. Maintaining safe public mooring facilities

- 2.1. The replacement of 137 metres of timber quay heading and horizontal barge boards at Horning Marshes 24-hour mooring was completed ahead of the program. The project did receive some enquiries as to the timing of the project, from mid-April to mid-June. The design of this type of quay heading is such that it requires prolonged periods of Operation Technicians working manually below the normal water line. This is quite unlike vertical sheet piling which is usually driven from above by machinery. Due to water levels, winter working is not safe at this site. Equally, any disruption to mooring provision in the busiest period for river traffic between July to September would be damaging for local businesses. Given that part of the 24-hour mooring was open throughout the works and the publicly available moorings on the opposite bank were unimpacted, the timing selected was optimal for this project. The learning point to take

from this project is that this type of project planning decision needs to be communicated ahead of the project.

- 2.2. A comprehensive structural survey methodology of the Authority's piled assets has been tested over the past two years and has been applied across approximately two-thirds of the existing assets. Those sites remaining to be surveyed over the next two years have the newest piling. Condition scoring of the piling at sites is based on criteria including surface condition of the piling material; visible hazards; condition of the connectivity between piles; tie rod condition; vertical angle; "straightness" of the horizontal piling line; thickness of the piling material; and land deformation/slippage behind the piling. Initial results show that several smaller 24-hour moorings require re-piling in the next few years (subject to lease agreements where applicable, available budgets and works scheduling) such as Catfield Staithe, Potter Heigham – Repps Bank, and Wroxham Castle Staithe. The bigger projects on the near horizon are the repiling of the three separate moorings between Heigham Sound and Hickling Broad. These are all currently of the vertical "trench" sheet steel piles.
- 2.3. In recent years, the cost per linear metre of like-for-like replacement of steel piles by contractors has more than doubled. The price of raw materials has increased, and all other costs passed on by contractors have increased. The Authority is at a critical point in terms of the future asset management strategy to be adopted for this type of mooring infrastructure. The previous assessment of the future replacement costs of piled assets was back in 2009. This is due to be repeated as part of the Integrated Access Strategy (IAS) due for final reporting in March 2024. Consultation on the initial stages of the strategy review has started. A summary of the completed Stage 1 consultation on the values, principles and aims of the IAS is planned for the November Navigation Committee meeting.
- 2.4. We are considering options to demonstrate the best value for structural elements. One option is to bring the piling installation work in-house. Some technical and practical skills and experience already exist within the construction and maintenance teams for this type of work. The Authority already owns and operates most of the large plant and equipment needed to carry out such projects. Additional training and hands-on experience will be required by the teams, as well as the hire of specialist pile-driving equipment. The in-house delivery option will require some further development over the next two years.
- 2.5. The second option is to review the actual design and type of mooring provision at Authority-managed 24hr moorings. Where the numbers of users visiting specific moorings are low and/or where land access and connectivity to public footpaths, local amenities and services is restricted, the necessity of vertical piled edges needs to be reviewed. Alternate designs that potentially offer cheaper mooring options per linear metre include floating pontoons and timber dolphins. The further exploration and assessment of cost implications, safety, desirability and accessibility of such options will be included as part of the refreshed Integrated Access Strategy.

3. Water plant management

- 3.1. The introduction of the new water plant cutter into the fleet has been successful. Three rounds of cutting have already been completed in the Upper Thurne this season. The total volumes of plant material removed have been high in all locations. The additional areas within Rockland and Bargate Broads are now routinely cut.

4. Channel marking

- 4.1. Current work planned for March 2024 includes replacement of up to 30 of the older wooden posts or those entirely missing, with new steel posts in Breydon Water. The potential exists for the continuation of this work in April 2024 to add another 20 posts and extend this project into the new financial year 2024/25, although this decision awaits further confirmation of budget allocation to this task. The additional posts would be the final stage to replace all the previous wooden posts with steel.

Author: Dan Hoare, Sue Stephenson

Date of report: 14 August 2023

[Broads Plan](#) strategic actions: C1, C2, C3, C4

Appendix 1 – Annual dredging progress 2023-24 (April 2023 to end July 2023)

Appendix 1 – Annual dredging progress 2023-24 (April 2023 to end July 2023)

Project title Dredge site and sediment re-use location	Active Broads Authority dredging weeks completed/ planned	Planned volume removed m³	Actual volume removed m³	Planned annual project cost ¹	Actual project cost
River Ant River Ant - Wayford to Barton (Apr '23 - Jul '23)	18/17	12,230	12,990	£115,740	£102,200
<i>COMPLETE – lower actual cost was due to slightly lower staff numbers needed to achieve the targets than planned</i>					
River Waveney Oulton Broad (Apr '23 – Aug '23)	18/16	7,600	9,750	£98,430	£75,940
<i>ONGOING – lower actual cost so far has been down to slightly lower staff numbers needed to achieve the targets than planned</i>					
River Bure Coltishall to Hoveton Viaduct (Oct '23 – Mar '24)	0/30	13,630	0	£176,510	£5,480
<i>Planned start date delayed owing to mobilisation restrictions. Costs so far are all related to project planning costs and site set up</i>					
River Yare Haddiscoe Cut (Nov '23 – Jan '24)	0/13	6,590	0	£80,630	£220
<i>There will be some reduction in dredging duration on this project owing to the extension of time at Oulton</i>					
Site restoration Hardley Flood (<i>yet to be fully completed</i>)	-	-	-	£8,800	£1,180

¹ project costs include staff time for all elements (pre-works ecological mitigation, site set-up, active dredging & site restoration); BA plant; & budgetary expenditure (equipment hire, survey costs, contractor costs, mitigation works, materials & consumables etc); within the reporting period.

Project title Dredge site and sediment re-use location	Active Broads Authority dredging weeks completed/ planned	Planned volume removed m³	Actual volume removed m³	Planned annual project cost ¹	Actual project cost
Future site preparation Survey, mitigation & set-up	-	-	-	£6,810	£1,790
Dredging support activities Maintenance of ancillary dredging kit, etc	-	-	-	-	£6,710
Total	36/76	40,050	22,740	486,920	193,520