

**Construction, Maintenance and Environment Work Programme
Progress Update**

Report by Head of Construction, Maintenance and Environment

Summary: This report sets out the progress made in the delivery of the 2014/15 Construction, Maintenance and Environment Section work programme and includes an update on progress at Turn Tide Jetty.

Members' views are sought on dredging priorities in section 3.7 and are invited to comment on the report and ask questions.

1 Construction Programme Update 2014/15

- 1.1 The progress of the Construction and Maintenance work programme is described in this report. As previously reported verbally to members, a further detailed breakdown shows that up to the end of July 2014, 13,530m³ of sediment has been removed from the Rivers and Broads, and the details of quantities and costs achieved so far are set out in Appendix 1. This represents 27% of the programmed target of at least 50,000m³.
- 1.2 The Mid Bure continues to be a high priority for the Authority to dredge and good efforts have been made over the summer to remove sediment between Thurne Mouth and Horning Hall. This sediment is being placed along the road at Thurne where, once dry, it will be used by the Environment Agency for crest raising and to improve the river bank at that location.
- 1.3 A second Dredging crew has been mobilised to the river Waveney and is currently dredging on the bends at Burgh Saint Peter. This material is being placed in the set back at Black Mill, on the lower Waveney.
- 1.4 A team of Operations Technician, being led by Environment Officers have been involved in the restoration of the island at Duck Broad. Further planting of the baskets making up the retaining structure has been needed. This planting helps the sediment placed within the baskets bind with root development and screens the island, both key success criteria placed upon us by the planning process.

2 Maintenance Programme Update 2014/15

- 2.1 During the summer months the maintenance crews are busy with cutting aquatic plant growth and footway mowing. Aquatic plants have been cut in the Upper Bure, Upper Ant, Upper Thurne, river Waveney, Whitlingham Broad and the Yare up into Norwich. To date over 65 miles of navigation has been

cut. The footways have already received two full cuts; the growth on the paths has been considerable this year with the weather conditions, warm and wet, making growth rates very high. Our cutting programme has been reduced following a review of the footways, but with over 30km still needing mowing our total cut to date has exceeded 60km.

- 2.2 De-masting Dolphins on the Lower Bure and Breydon have been installed. The steel piles were installed by the construction crews and the frames have been fabricated and welded into position by the maintenance crews. Rubber rubbing strips have been installed on the steel frames to protect vessels using these facilities.
- 2.3 The Motor Launch Billet at Wroxham has been refurbished and works undertaken to stop the shed sinking. The structure has been 'jacked up' and new supports installed, new timbers have been added to replace rotten ones and fendering has been replaced. The existing wooden doors have been refurbished and re-hung, now that the aperture is squared again.
- 2.4 Smaller reactive maintenance has been taking place on many of the 64 Broads Authority Moorings across the network, with surfaces repaired, new signage erected, grass cut and safety lines and information boards being replaced.

3 Environment Team Programme Update 2014/15

- 3.1 The new Softrak MkII Fen Harvester has been delivered and operatives have been trained in its operation and maintenance. The first site to be cut with this new machine is Clayrack marsh at How Hill. The Softrak operated as expected with no issues, the flail cutter dealt with the long grass and rushes without problems experienced with the previous Fen Harvester. Some alterations are needed to the cleated tracks before it progresses onto a soft peaty site and these are in progress.
- 3.2 Work is being carried out to further develop scrapes at Buttles Marsh; these shallow ponds will be an extension to ponds already on this site. Potential areas have been identified and utilise areas where the desired fen vegetation has not established.
- 3.3 Erosion protection plans, for implementation during this winter, are being developed for the Old River Yare near Carey's meadow.
- 3.4 Water plant surveys are in full swing at Martham, Strumpshaw and Reedham Water. This is the first year of data collection for Reedham Water at How Hill, and early indications are favourable with many aquatic plant species being identified, including the rare Stonewort. The amount and range of aquatic plants identified within the water bodies helps to give a 'health check' of the water quality and these surveys help to demonstrate the inroads we are making to improve, conserve and enhance the rivers and Broads.

- 3.5 The development of dredging disposal sites continues with helpful meeting with land owners and Estate Managers, with our particular attention focussing on Hickling and the Bure.
- 3.6 Discussions are at a very early stage, but work has been started to consider the feasibility of larger scale dredging work at Hickling Broad, to follow up on previous works completed at Heigham Sound. Currently, many complaints are being received about the shallow water at the approach to Pleasure Boat dyke and Parish Dyke, and the hydrographic survey shows that areas adjacent to the navigation channel are also not achieving agreed waterway specifications. Hickling Broad has long been high on the list of priority dredging areas, but without a disposal site has been difficult to progress. With the techniques learned through the Prisma project however, possible bank reinstatement works could be developed to restore lost reed bed and also beneficially reuse dredged material.
- 3.7 Members' views are sought as to the relative priority of this work, as a major scheme would need to be carried out in phases over a number of years, and would be a significant commitment to enter into.
- 3.8 Based on prioritisation using the Sediment Management Strategy and response to reported issues, the draft dredging programme for 2015/16 is as outlined below. Provisionally the draft programme includes an initial phase of dredging in Hickling Broad and Catfield Dyke.

| Dredge Area | Estimated volume (m³) |
|--|---|
| River Bure Three Mile House to Marina Keys | 10000 |
| River Bure Acle bridge to Stokesby | 7000 |
| Oulton Broad North Bay | 10000 |
| River Ant Limekiln Dyke | 3500 |
| River Yare Berney Arms to Seven Mile House | 5000 |
| River Yare Whitlingham Bends | 4500 |
| Upper Thurne Hickling Broad (Phase 1) | 8000 |
| Upper Thurne Catfield Dyke | 2000 |

- 3.9 The work on Hickling Broad will require a significant commitment to planning and preparing the project and may require significant budget allocation. A number of other areas are also identified as high priority sites and could be considered as alternatives to dredging work at Hickling Broad. Such areas include:

- Barton Broad (could be planned in conjunction with Limekiln Dyke)
- Lower Bure (further work continuing the ongoing campaign)
- Sutton Dyke

Undertaking dredging work in these areas also requires a significant commitment to project planning and will likely require a significant budget allocation to specialist equipment such as concrete pumps or mud pumps. Therefore these dredging locations have not been included in the programme alongside work on Hickling Broad.

4 Fitters

- 4.1 With two dredging crews operating and Rangers actively patrolling for the summer season the fitters have been very busy with maintaining and repairing workboats, cranes and motor launches.
- 4.2 ML Martin Broom, Spirit of Breydon, ML Chet and ML Charles Collier have all received attention during the summer with repairs being made to throttle cables, batteries and inverters.
- 4.3 With two weed cutters operating, in waters that have seen a heavy water weed growth, the Fitters have had to make regular visits to carry out repairs to these workboats, with substantial attention being needed from Horace our oldest weed cutter.
- 4.4 John Fox, one of the two large wherries has gone into dry dock to have its five yearly major refit. The propeller shaft and propeller need major repairs, the steering system is being replaced and the hull is being shot blasted and a new paint is being applied. Once this is completed the second large wherry, Tony Hewett will have its major refit as both wherries are the same age and have the same usage.
- 4.5 The wherry in production in Kilkeel, Ireland is progressing with the hull structure fabricated, seams welded and the important paint being added whilst the weather is warm (paint systems need good temperatures to ensure the bond between steel and paint). Delivery to Norfolk is thought to be due at the end of October.

5 Turn Tide Jetty Update

- 5.1 In July 2012 Broads Authority members agreed to undertake a contract to model the water movement and sediment transport within Breydon Water. This was so that the role of the Turntide Jetty in particular could be assessed in terms of maintaining open navigation channels at the confluence of the Yare and Waveney. In June and July 2013, the Environment and Design Supervisor reported back to the Navigation Committee and Broads Authority respectively, on the implications of the completed hydromorphic and engineering study carried out by JBA Consulting.

- 5.2 When considering management options for Turntide Jetty, members agreed that retaining half of the current length of the training wall would be a beneficial long term strategy to insure low maintenance navigation channels. Members also noted that capital dredging to create a 4m commercial navigational channel was not required at the present time and that maintaining the dredging depth of 2m in a clearly defined passage across Breydon Water through strategic repositioning of some marker posts would be acceptable. It was noted that these measures would reduce the likely financial requirement to approximately £250,000 over a ten year period.
- 5.3 Following on from the hydromorphic and engineering study, the Rivers Engineer and Environment and Design Supervisor undertook a condition survey of Turntide Jetty and this was reported to Navigation Committee in December 2013. The report outlined the progressive failure of the jetty structure and recommended some minor immediate repairs to prevent immediate catastrophic failure, followed by the reconstruction of the landward half of the jetty with a similar piled structure. Members agreed to progressing the design work with a view to letting a contract for construction work starting in early 2015, subject to detailed estimates and tender prices remaining in line with initial estimates, and costs spread over this and next financial year.



Photo: Failing jetty piling taken in August 2014

- 5.4 Since July 2014 the Authority has completed the minor repairs which included the replacement of steel cable ties and improved markers. Following their successful proposal and quotation, the Authority has also been working with Canham Consulting on the technical design. Canham Consulting have been appointed to design a suitable pile scheme, produce construction drawings and undertake a detailed cost estimate. The design and cost estimate will be completed by the end of August 2014, so there will be the opportunity to verbally update members on this at the committee meeting.



Photo: New steel cable ties and markers seen during recent survey

5.5 The anticipated forward programme for the construction work is shown in the following table:

| Activity | Date |
|---|---------------------------------|
| Issue tender documents to piling contractors (contractors to be those already held on the Broads Authority's standing list of approved piling contractors) | First week October 2014 |
| Deadline for submission of tenders | First week November 2014 |
| Complete evaluation of tenders and appoint preferred contractor | Mid November 2014 |
| Commence construction work on site | Late January 2015 |
| Completion of construction work | April 2015 |

Background papers: Nil

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Appendices: APPENDIX 1 –Dredging Programme 2014/15

Dredging Progress 2014/15 (April 2014 to end July 2014)

APPENDIX 1

| Project Title | Project Element | Active dredging weeks Completed (Apr-Jul)/Planned | Volume Removed m ³ | | Annual project cost | Actual project cost ¹ (Apr-Jul) |
|--|---|--|-------------------------------|---------------|---------------------|---|
| | | | Planned | Actual | Planned | Actual |
| Mid Bure | Thurne Mouth to Horning Hall | 14/28 | 19,000 | 9,150 | £165,000 | £103,250 |
| <i>Arisings along rond of River Thurne. Included 380 m³ dredged from River Thurne</i> | | | | | | |
| Waveney | Burgh St Peter bends | 7/16 | 12,000 | 4,380 | £112,500 | £46,700 |
| <i>Arisings to setback area at Black Mill on the lower Waveney</i> | | | | | | |
| Haddiscoe Cut | Reedham entrance | 0/4 | 2,000 | 0 | £22,700 | £0 |
| <i>Arisings to setback area upstream of the swing bridge</i> | | | | | | |
| River Ant | How Hill to Barton Broad | 0/12 | 6,000 | 0 | £99,500 | £0 |
| <i>Arisings to setback area at Buttle Marsh</i> | | | | | | |
| Upper Bure | Belaugh to Horstead Mill | 0/12 | 6,000 | 0 | £91,000 | £350 |
| <i>3,000 m³ of sediment to be incorporated into bankside erosion protections schemes; 3,000 m³ to be mud pumped to arable land</i> | | | | | | |
| River Chet | Pye's Mill to Hardley Flood | 0/10 | 5,000 | 0 | £53,800 | £0 |
| <i>Arisings side cast to folding of new flood bank</i> | | | | | | |
| Heigham Sound | Restoration of lagoon area | 0/0 | 0 | - | £17,500 | £14,850 |
| <i>Replanting of lagoon baskets and on-going maintenance. Part PRISMA funded in 2014/15</i> | | | | | | |
| Loddon Basin | Restoration of storage field & spreading sediment | 0/0 | 0 | - | £16,000 | £5,240 |
| <i>Final land spreading of stored and dried sediment. Part PRISMA funded in 2014/15</i> | | | | | | |
| Postwick Tip | Restoration of disposal cells & on-going management | 0/0 | 0 | - | £3,000 | £2,620 |
| <i>Final placing of dried sediment in the wet cell near the river edge</i> | | | | | | |
| TOTAL | | | 50,000m³ | 13,530 | £581,000 | £173,010 |

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