

Construction and Maintenance Work Programme
Report by Head of Construction, Maintenance and Environment

Summary: This report sets out the progress made in the delivery of the 2013/14 Construction, Maintenance and Environment Section work programme to date.

Members are invited to comment on the report and ask questions.

1 Construction and Maintenance Programme 2013/14

- 1.1 The progress of the Construction and Maintenance work programme is described in this report. As agreed with members, a further detailed breakdown shows that up to the end of March 2014, 54,139m³ 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 108% of the programmed target of at least 50,000m³.
- 1.2 Mud pumping at Heigham Sound has been progressing well with cell one and cell two filled with 10,000m³. Cell three still had capacity and we asked the contractors to extend the contract period, having agreed the extension with Natural England, a further 3,339m³ was removed before the contractors needed to leave site to honour other commitments. We will now monitor the consolidation of the material and reed growth at Duck Island over the next year, with the potential to 'top-up' in future years if the levels allow.
- 1.3 Dredging at Upton Dyke has been completed, with plant and equipment removed from site and boats being allowed back into the dyke. The required bed profile was dredged to specification and 3,000m³ of material was removed. The arisings have been put into a shallow set back adjacent to the dyke to de-water. Once dried, the area will be restored to a grassed area with a small wetland section at the basin end, to encourage biodiversity. Any surplus material will be stored on the toe of the flood wall to allow for future repairs/topping up of the crest.
- 1.4 The dredging in the River Chet, from Pye's Mill to the 24hr mooring has been completed, including Loddon basin. Some of this sediment is being used within a Prisma Material Stability Trial. Sediment is being mixed with varying amounts of cement and lime to see what level of additive is needed to bring the material up to the required sheer strength. This trial will help with future flood defence works and has the potential of providing a future re-use of dredged material.

- 1.5 Breydon Water had some maintenance spot dredging undertaken, with 500m³ of consolidated sand removed near the downstream span, adjacent to the true right bank. This small lump was causing a shallow spot and was picked up by the Rangers on a routine patrol. The removed material was placed onto the foreshore following permission from Natural England and no objections from the RSPB. Whilst in the vicinity a damaged navigation channel marker post was replaced, which had fallen foul of the gribble worm.

2 Maintenance Team

- 2.1 The Maintenance Team has been actively engaged with preparing the Broads for the new visitor season and a few of the maintenance works completed to date are detailed below.
- 2.2 The new 24hr mooring at Hardley Cross has been completed and opened for use. A total of 90m of new mooring space is available, with 25 new mooring posts and 125m of stock fencing to separate the grazing cattle from the mooring. The initial 30m, by the stone cross, is not available for mooring and leaves the historic feature in full view as not to spoil the aesthetics of this popular location. The site is built to the Broads Authority standard and incorporates double safety chains and access ladders.
- 2.3 Bramerton Mooring has undergone refurbishment to replace damaged and rotten timbering and new mooring posts. Over 60m of new timbers has been completed on the downstream end. The work has been completed and the facility is ready for the forth coming season.
- 2.4 Tree and scrub removal has been undertaken on two main rivers, with works concentrating on the Upper Bure and Upper Ant. On the Bure, between Belaugh and Hoveton encroachments and poor visibility on bends was targeted with a total of 150m being cleared. On the Upper Ant, over 300m of tree and scrub were removed again concentrating on poor visibility and encroachment.
- 2.5 Maintenance teams have been at Whitlingham improving access and drainage at the tool and equipment store, this work will stop flooding at the site and improve the surface around the storage sheds. An area of 324m² has been levelled and graded ready to receive a hand laid bitumen surface, and new gully pots and 14 tonnes of gravel has been used to improve the French drains. This work is funded via the Whitlingham Trust Service Level Agreement.

3 Environment Team

- 3.1 Post-dredge hydrographic surveys have been commissioned for the River Chet and Heigham Sound, which will be completed at the end of March. The survey will also include Horsey Mere as the closed access period for over wintering birds has ended.

3.2 With mud pumping at Heigham Sound continuing and the concerns regarding prymnesium, extra water sampling is being conducted and shared with the EA to ensure potential triggers and mitigations are adhered to. We are trying to complete the filling of Duck Island in one visit to allow the restoration of this land to start and to reduce re-visit costs.

3.3 LEC Marine has been awarded the contract to replace the hydraulic and electrical control units at Mutford Lock. Parts and equipment are being fabricated off-site and their timetable for on-site work will begin in May.

4 Prisma

4.1 Reports and final preparations are being made by officers for the Prisma final conference, taking place in Antwerp in June. Deadlines for reporting on the multitude of activities we have been involved with is May, although draft reporting and sharing information with partners is needed before. Officers are in the stages of wrapping up the project and will bring a completed report on the Prisma Project to a later meeting of the Committee.

5 Plant Utilisation

5.1 Earlier in the year Members requested that Construction and Maintenance Plant utilisation figures were reported at the end of each financial year and through the work programme and timesheets, data is captured and collated. Unfortunately the current method for capturing plant usage data is too basic to give Members an accurate picture of total hours worked, stood or being repaired. I proposed to work with the Vice Chairman of the Navigation Committee and with Supervisors to develop a plant utilisation system which will allow Officers to present the required information.

5.2 Carrying out construction and maintenance within the Broads area is challenging and because of the landscape, remoteness and access we need to operate a variety of machines and vessels. For instance our two large wherries are excellent on the Bure or Waveney, but cannot work on the Chet and Ant. The long reach excavators are good when offloading into a setback close to the river edge, but cannot easily reach over an area behind a flood wall. The crawler crab cranes are heavy and cannot always stand on the river bank to offload. Therefore not all plant and equipment will be used all the time and some may only be used infrequently, depending on the location and methodology of the dredging site.

5.3 In order to gauge the cost effectiveness of owning and operating our own plant and equipment, the table below shows a comparison between Broads Authority plant and hire costs.

Plant Item	*Weekly Hire £ per item	*Weekly BA Cost £ Per item	**Annual Cost BA	Annual Hire Cost	Comment
Long Reach 360	1,050	537	62,292	121,800	A 22m reach machine (like ours) is a highly specialised item. Difficult to hire locally. We operate two of these machines
RB22 Grab	1,000	149	34,569	232,000	Smaller grabs are very rare, although larger 50 tonne versions are available for hire. Hire companies are reluctant to allow these machines to be used on the water. We operate 4 Grabs
40t Mud Wherry	P.O.A	423	24,534		Not available locally. Hire is possible but mobilization costs and labour charges to launch on the Broads is circa £5,000. We operate 6 wherries
Tug	P.O.A	100	5,800		As above. We heavily use our tugs at the start and finish of a dredging project to move the plant. Not cost effective to hire in due to the standing time. We operate 3 tugs.
Total	***2,050	1,209	127,195	404,800	When plant and equipment is specialised, owning, maintaining and operating your own plant is shown to be cost effective and represents value for money as long as depreciation and replacements are factored in.

*These prices include hire charges, fuel and average maintenance costs. They do not include mobilisation or Operator charges

** Costs calculated on 58 dredging weeks

*** Does not include wherry or Tug Hire costs

Background papers: Nil

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Appendices: APPENDIX 1 –Dredging Programme 2013/14

APPENDIX 1

Project Title	Project Element	Active dredging duration (weeks) Completed (Apr-Feb)/Planned	Volume Removed m ³		Annual project cost	Actual project cost ¹ (Apr-Feb)
			Planned	Actual	Planned	Actual
Lower Bure	Six Mile House to Acle Bridge	28/ 22	20,000	26,230	174,000	£201,050
<i>Now completed, although work extended to utilize all the volume capacity available in the setback area. Six Mile House setback is now full.</i>						
Mid Bure	Thurne Mouth to Horning Church	3/12	9,000	1,570	66,000	£37,790
<i>Delayed start due to extension of Lower Bure dredging. Arisings being placed on rond and flood bank</i>						
Salhouse Spit	Site restoration	0	0	0	45,000	£38,190
<i>Dredging completed. Expenditure represents final payments of 2012/13 work and any remaining staff maintenance on site</i>						
Heigham Sound	Navigation Channel	15/16	10,000	13,339	154,000	£113,910
<i>Mud Pumping Contract is now complete with approximately 3,000m3 being removed following and extension of works. Complete total will be reported in next Committee Report.</i>						
Upton Dyke	Whole length of boat dyke	5/6	3,000	3,000	24,000	£13,790
<i>Basin and main channel completed.</i>						
Hardley Dyke	Centre channel dredged of the full boat dyke length	7/4	3,000	3,000	65,000	£87,500
<i>Completed. Excavator completed the sediment removal rather than the trial of mudpumping into Geo-bag</i>						
Breydon Water	Spot dredging near Bridge, downstream span	1/1	500	500	0	
Loddon Basin	Dredge channel from basin to Pye's Mill, Pye's 24hr mooring and Wherry Close moorings.	6/8	6,000	6,500	110,000	£65,610
<i>Basin completed. Final PRISMA sediment stability trials continuing</i>						
TOTAL			51,500m³	54,139	£638,000	£557,840

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.