

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

Report by Head of Construction, Maintenance & Environment

Summary: This report sets out the progress made in the delivery of the 2017/18 Construction, Maintenance and Environment Section work programme to date. The final volumes for the 2017/18 dredge programme are also presented.

1 Dredging and Waterways Specification

- 1.1 The progress of the Construction, Maintenance, Plant & Equipment and Environment & Design teams work programmes is described in this report. The detailed breakdown in Appendix 1 gives the full year's figures for the dredging programme. A total of 58,540 m³ of dredged sediment was removed from the prioritised sites. This represents 110% of the programmed target of 53,000 m³.
- 1.2 Project planning and habitat mitigation work has been undertaken to establish forward dredging re-use sites in a setback area at Oby and downstream of Beccles on the Waveney. A planning application has been submitted by the Environment & Design team for restoration of reedswamp habitat in Hickling Broad, which will utilise sediment dredged from the marked channel. The details of this planning application can be found via the Planning Portal under reference BA/2018/0173/FUL.
- 1.3 Dredging on the Lower Bure is currently on-going and has progressed to downstream of Marina Quays. An off-loading location is being utilised near Herringby, with a concrete pump placing the sediment directly at the base of the floodbank. This work on the Lower Bure has been extended in time as the sites for placing the dredged material have proven very workable and the material will be put to good use in topping up the floodbanks. The current work on the Lower Bure is planned to finish in mid-July, from where this dredging crew will move to the Waveney downstream of Beccles. This work on the Waveney will again use a concrete pump to move the sediment to the floodbank where it will be allowed to dry and be re-used.
- 1.4 The forward dredging plan for 2018/19 was outlined at the last Navigation Committee and caused concern with one member as the predicted volume to be removed was lower than in previous years. The reduction in the planned quantity for this year is to allow the sediment disposal sites, used in 2017/18, to be restored in 2018/19, allowing the dredged sediments to be re-used. Given the greater than planned volumes achieved in 2017/18, some of this

reduction in 2018/19 is clearly offset as inter annual variation; as different projects bring different challenges and rewards. The general rule of thumb since 2007 has been that approximately 50,000 m³ removal from the navigation per year would be sufficient to maintain navigable depths. This volume of sediment removal also allows steady inroads to achieving the desired Waterways Specification depths across the Broads.

- 1.5 Since 2007, advances in both the hydrographic surveying technology used, and the Authority's improved ability to process the vast amount of data generated through our Geographical Information System (GIS) has showed that simply dredging a set volume per year is not the most effective way to produce tangible benefits for waterway users. Since 2007 the plant & equipment used by the Authority to achieve the dredging programme has also undergone a wholesale transformation. The old barge mounted grab cranes used for dredging have been entirely replaced by long reach hydraulic 360 excavators mounted on modular linkfloat pontoons. This transition has radically enhanced the Authority's flexibility, particularly in re-use of the sediment and ensuring ecological impacts at these locations are minimised. In terms of gaining riparian landowners agreement and meeting all the waste and environmental regulations, the ability of the Authority to positively use the sediment has become paramount at each dredging project location. To reflect the changes in project planning and design requirements for dredging work, as well as the technical ability to meet these challenges, a refresh of the Sediment Management Strategy is required. Officers have identified this need and have an initial scoping meeting planned for this June. Timescales for the review will be reported after this meeting.
- 1.6 In support of Suffolk Wildlife Trust's expansion of their Carlton Marshes reserve and Heritage Lottery Fund project, the Authority is in talks to secure opportunities to use dredged sediment to create habitat and strengthen floodbanks at the site. This arrangement will enable significant dredging in Oulton Broad and on-going prospects for sediment re-use in the Lower Waveney. Details are being discussed with a planning application by the Broads Authority expected in early 2019.
- 1.7 The sediment settlement lagoons at Hickling where this winter's mudpumping occurred are continuing to dry out. Surface water has been pumped out and plans with the landowner for spreading in the early autumn are being prepared.

2 24 hour moorings

- 2.1 At Herringfleet staff have completed extensive timber replacement with 90m of new capping and waling. Several mooring posts have been replaced and the new style of safety ladders with removable handles installed. The new ladders allow easier replacement as and when the top handles get damaged (a frequent occurrence)
- 2.2 Reactive repairs ahead of the main season included several others sites having the new style safety ladders installed. Ten mooring locations also

needed to have multiple mooring posts renewed or replaced. Reactive repairs at Ranworth was required to the capping and waling, where 30 m of frontage onto the broad were damaged. Contractors have also replaced five sections of capping that had been damaged at How Hill.

- 2.3 At St Benets 20m of capping and waling are to be replaced so the site is serviceable for the summer. This interim repair is ahead of larger refurbishment work planned for the 2018 winter period.
- 2.4 The grass mowing season on the moorings in in full swing with all sites having had two cuts already.
- 2.5 At Acle Bridge moorings structural assessment and investigative work is being carried out with test excavations behind the piling carried out to establish the state of the piling and tie rods. A larger refurbishment project is planned for the mooring this winter, but the scope of this depends on the conditions found.

3 Water plant management

- 3.1 Across the Upper Thurne the first weed cut in the channels has been completed, including Somerton Dyke, Waxham Cut, Catfield Dyke and the marked channel through Hickling Broad. Following this work the weed harvester in the northern rivers then moves to the Bure to start cutting on the 28th May. Cutting on the Waveney at Beccles starts on the same date, with a planned move into Whitlingham Great Broad set for the 18th June.
- 3.2 The first (of three) planned hydroacoustic surveys at Hickling Broad for water plants was carried out in early May. The next ones are planned for August and October. The total area covered by plants across the broad was 46%. This is in line with growth recorded last year, if not a little greater. Mapping of the densest areas of growth will be produced in due course.
- 3.3 The presence of stonewort plants at survey points in May was also found to be above the 60% threshold for commencing the experimental cutting of stonewort in the test plots established last year. Given the abundance of the plants, application to Natural England for consent to repeat the experimental cutting has been submitted. Given the satisfactory outcomes of the cutting last year, the Authority is applying for two years' worth of cutting, to enable sufficient data to be gathered.

4 Markers and gauge boards

- 4.1 All the gauge boards in the Great Yarmouth area, along the Lower Bure to Breydon Bridge have been replaced for new ones. Also repairs to the gauge boards at St Olaves and Haddiscoe Cut have been carried out.

5 Overall work programme allocations

- 5.1 Table 1 shows the actual number of work days spent on navigation work by construction and maintenance team last year (2017/8) and that planned for

this coming year (2018/19). The annual target allocations for navigation, conservation and recreation work are 70, 20 and 10% respectively. As described previously, this allocation of staff time matches that for revenue budgets. Actual achievement in 2017/18 was 75, 18 and 7%. It has been a typical feature that navigation work is often over its set allocation, as the range of recreation work is relatively restricted, and the breadth of navigation work is much greater. Over the past five years, conservation work is usually on or very near target.

5.2 Of particular note for the coming year 2018/19, the proportion of time planned to be spent on dredging work is slightly higher than last year. This is a reflection of the amount of site restoration work and preparation for the Hickling enhancement project. The trend in increasing demand and requirement for weed harvester work across the system was a significant jump last year. The allocation planned for this coming year may need to be increased to meet demand. Given the relatively fixed number of work days available to cover all the navigational requirements, the challenge of meeting these competing demands is as great as ever.

Work Area	2017/18 Actuals		2018/19 Planned		Comparison
	Days	% of Actual Nav Total	Days	% of Planned Nav Total	
Dredging/restoration	1736	55	1794	61	+58 days
Moorings	527	17	566	19	+39 days
Other reactive works	329	10	188	6	-144 days
Weed harvester	184	6	111	4	-73 days
Reactive moorings	139	4	60	2	-79 days
Riverside trees	107	3	184	6	+77 days
Channel markers	67	2	10	<1	-57 days
Other dredging	49	1.5	0	0	-49 days
Signs & boards	35	1	7	<1	-28 days
Obstruction removal	17	0.5	10	<1	-7 days

TOTAL NAV DAYS	3190		2930		
OVERALL % split	75%		70%		

Background papers: Nil

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Broads Plan ref: 2.1; 2.3; 3.1; 3.2; 4.2; 6.1
Appendices: APPENDIX 1 – Dredging Progress 2017/18

Dredging Progress 2017/18 (April 2017 to end February 2018)

Project Title	Project Element	Active BA dredging weeks Completed (to end Jan / Planned)	Volume Removed m ³		Annual project Cost ^a	Actual project cost (Apr-Jul)
			Planned	Actual	Planned	Actual
Haddiscoe Cut	Reedham End (Mar)	1 / 1	500	670	5,600	3,870
<i>Completed. Sediment into setback areas on the River Yare upstream of Reedham</i>						
Lower Bure	Phase 1. Stokesby to Three Mile House (Apr-Sep); Phase 2. Three Mile House to Marina Quay (Sep-Jan)	47/ 36	18,000	23,520	222,400	245,440
<i>Use of ronds again for dewatering and a second location using a concrete pump to move sediment to the folding behind the floodbank</i>						
Oulton Broad	Phase 1 - North Bay (Apr-Aug); Phase 2 - North Bay (Sep-Oct)	22 / 22	16,000	20,750	104,800	100,000
<i>Completed. Suffolk Wildlife Trust setback area and Authority's own sediment lagoon filled at Horseshoe Point</i>						
Bure Mouth	Use of plough dredging to clear bars (March 2018)	Contractor	2,000	2,700	15,000	16,930
<i>Completed. Fishermans Quay to Bure Mouth shoals cleared to 1.8 m depth</i>						
Hickling Broad	Mudpumping marked channel in North Bay (Nov-Feb)	Contractor	6,000	4,900	69,300	66,560
<i>Completed. Hickling Staithe and northern section of marked channel in the North Bay mudpumped to 1.5 m</i>						
Limekiln Dyke	Gaye's Staithe to Neatishead Staithe (Nov-Jan)	7 / 12	3,500	3,500	33,300	14, 770
<i>Completed. Sidecasting material to the bank clear of trees last year</i>						
River Chet	Shoals near Hardley Flood (Nov-Jan)	5 / 12	4,000	2,500	22,300	14,520
<i>Completed. Sidecasting to provide additional material onto the weak/low sections of riverbank</i>						
Mid Bure	Thurne Mouth (Mar)	0 / 4	3,000	-	28,400	10,630
<i>Deferred until April 2018 targeting shoals in and around Horning</i>						
Site restoration	Rockland, Acle, Hickling	-	-	-	21,190	50,930
<i>Restoration of dredge sites from work in 2016/17. Rockland Dyke restoration completed</i>						
TOTAL		82 / 87	53,000	58,540	522,290	523,640

^a –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, survey costs, contractor costs, mitigation works, materials & consumables etc); within the reporting period.