

**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 2016/17 Construction, Maintenance and Environment Section work programme.

Also included is an update on the Hickling Enhancement Project for member's information.

1 Construction Programme update 2016 /17

- 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 2016, 15,090m³ 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 30% of the programmed target of at least 50,000m³.
- 1.2 From May to the beginning of July, dredging was carried out on the River Waveney, half a mile upstream of Burgh Castle. Spoil from this dredging site was transported to 7 Mile House and placed in the set-back area on the River Yare. Then from July this equipment and dredging crew remobilised to the River Yare, upstream of Berney Arms. Dredging arising was again deposited at 7 Mile House. Following this short duration scheme, Grab 10 and crew mobilised to Reedham to assist in offloading material from Haddiscoe Cut to a large setback, upstream of the Ferry Public House.
- 1.3 A second dredging crew has been operating on the River Bure from April to June, between Horning Hall and Horning Church. Material has been stockpiled at Horning Hall in order that it can dry and be re-used to 'top-up' the flood defence walls in this location. From July the second crew relocated to Haddiscoe Cut to carry out this locations 5 yearly maintenance dredging. Material from Haddiscoe is being placed at the set-back in Reedham as mentioned above.
- 1.4 In preparation for the dredging works at Whitlingham bends, works to improve the offloading point at Postwick tip has been completed. Due to a change in the offloading methodology (changing from Grab Crane to 360 Excavator) the bank needed to be stabilised and the steel piling and fendering improved to cope with the additional stresses placed upon it from a large machine sitting closer to the water's edge. This improvement works will also make it safer and easier to moor up the wherries and secure them whilst they are offloaded. We

have also future proofed the works and built-in anchor points needed to be able to secure a mud-pump and the pontoons needed, for future projects at Postwick.

1.5 During the summer other construction works required whilst dry weather is available are carried out. These include:

- Re-timbering the hull of Iona (sacrificial timbers to protect the steel hull from 360 damage)
- Repairs to track at Potter Heigham Eel Sett
- Repairs to roadway leading to Horning Water Works
- Repainting of the decks of John Fox & Tony Hewett with slip resistant paint
- Breaking up and disposal of four abandoned vessels, removed from the network as instructed by the Ranger service
- Liana, the Fen Harvester and assorted equipment taken and displayed at the Royal Norfolk Show

2 Maintenance Programme Update 2016/17

2.1 The Maintenance Team have been fully deployed over the summer months, below are a few highlights of the projects and tasks undertaken:

2.2 Between May and July weed cutting has been a high priority:

- Upper Thurne – between Dungeon Corner & Somerton Staithe
- Upper Bure – from Belaugh to Horstead Lock
- Upper Ant – Wayford bridge and Dilham Staithe
- Upper Waveney - Beccles Town Reach, Three Rivers Junction and Wherry Dyke at Geldestone
- Upper Yare at Carrow Yacht Club area and Thorpe Island
- Wensum – between Carrow Bridge and New Mills

} Two Cuts

2.3 Mooring refurbishments/repairs have been undertaken at:

- Potter Heigham, downstream of the demasting mooring.
- Potter Heigham, Dingy Park.
- Somerleyton – with 140m of new type one laid to improve the footway
- Burgh Castle – 250 m of replaced capping, new safety ladders and waling repaired
- Somerton – 200m of new path edging laid to prevent material being lost through the piling
- Ranworth Mooring – urgent repairs required to the pathing
- Wroxham Bridge/Ludham Bridge – urgent repairs to the gauge boards following damage from boat movements
- Polkey's Mill – Repairs to fenders
- Horning Marshes mooring – Voids in pathway filled

2.4 We are trialling 'large' signs, warning of the narrowing river and the need to proceed slowly on the River Ant near Irstead, to keep the speed of vessels

approaching Barton Broad down to an acceptable level. These signs are clearly visible and their effectiveness will be monitored by the Ranger service.

- 2.5 The land purchased at Scare Gap on the lower Bure, has been made ready as a mooring location. Timbering, new mooring posts, safety chains and a safety ladder have been installed. The site has Broads Authority signage and it has been entered onto the Rangers Site Checks and is under their routine safety inspection regime. The mooring is a 'layby' and emergency mooring available for those awaiting the tide to transit under the bridges and across Breydon.

3 Environment Team Programme Update 2016/17

- 3.1 Water plant surveys have been planned for 26 Broads sites over the summer, plus an additional survey along the Waxham Cut to assess plant growth and species on the navigable section. More rapid turn-around and mapping of the water plant hydro-acoustic survey data is now possible. The data is to be used for assessing the growth levels of plants in Barton and Hickling, and whether weed-cutting is required in the marked channels.
- 3.2 Re-survey and prioritisation of the riverbank tree clearance work has been completed by Environment Officers for the whole of the Broads navigable network. The priority areas identified in the rolling programme for clearance work this coming winter (2016/17) are sections of the Bure between Wroxham and Horning; the River Chet; the River Yare near Whitlingham; and sections of the Waveney upstream of Beccles. This heavier clearance specification is in addition to the routine cutting to improve visibility on bends and remove lone overhanging branches. The work will be carried out by a range of Operations Technicians, volunteers, Rangers and contractors.
- 3.3 The Rivers Engineer is finalising the permissions and method statements for the winter dredging programme. At Hickling planning application has been approved; at Rockland Boat Dyke we are working with a neighbouring farmer for bankside deposit and the RSPB and BESL for topping up a flood bank; at Limekiln Dyke all site preparation were completed last winter; and on the Lower Bure upstream of Marina Quays, we are negotiating with two landowners for sediment storage and dewatering prior to use of the material for floodbank enhancements.

4 Hickling Enhancement Project – Update

- 4.1 The planning application [BA/2016/0191/FUL](#) was submitted and the planning approval was granted at the Planning Committee meeting on Friday 19 August. The work is to install two areas of reed swamp restoration using dredged sediment retained by a series of textile membranes held in place by posts. There will also be three areas of protection of existing reed swamp vegetation with 750 metres of floating PVC curtains with integral goose guard mesh perpendicular to the existing vegetation margin to reduce erosive forces and allow vegetation restoration. This work is planned over a three year project timescale, with the reed swamp restoration in year one; mud-pumping

to arable land in year two; and installation of floating curtains to protect vegetation in year three.

- 4.2 Following the planning consultation period, some amendments were made to the documentation supporting the application, to make explicit the preservation of access to boathouses adjacent to the reed swamp restoration areas; provide extra information on the water management function role of the dyke network behind Churchill's Bay; and clarify the intention to gain vegetation for planting in the restoration areas from the network of dykes behind Churchill's Bay.

5 Water Plant Growth in Hickling Broad

- 5.1 Hydro-acoustic (sonar) surveys of the broad in mid-June found that detectable plants only covered 17.4% of the whole broad bed – a relatively low amount for such a naturally plant-dominated shallow waterbody. The map below shows the area where plants were present as green hatchings and the water draught as depth contours. The surveys showed several areas where water plants were high and visible to the surface, but these were distinct and confined to areas north of Pleasure Island; on the western margins; and in the north bay.



Figure 1 - Map showing where plants were present as green hatchings and water draught as depth contours

- 5.2 There were also several patchy areas of less dense plants, but with tall (more than 50 cm) straggling growth. The tall plants were typically fennel-leaved pondweed and spiked water milfoil. It is these plant species that have caused issues with some keels and smaller engines getting fouled when travelling outside the marked channel. The Authority has shared this information with Hickling Broad Sailing Club and publically via the Broads Blog, to reach as many different users as possible and keep them up to date.
- 5.3 The Authority has previously had no routine agreement with Natural England for cutting of water plants in the marked channel of Hickling, despite the channel being the deeper access and main navigation route to the village. In the spring of 2016 the Authority sought this agreement.
- 5.4 The operation details had to be such that any cutting carried out does not have a significant impact on the water plant community as a whole, which is

protected by UK and EU legislation. The method for carrying out this evaluation was via a Habitats Regulation Assessment (HRA). In discussion with Natural England, increasing the scope of the assent to cutting outside the marked channel in Hickling was not possible in time for a decision for this year's growth period.

- 5.5 The scenario of water plants covering the majority of the Broad's area is not yet present, and the significant amount of supporting environmental and ecological data that would be required to form the Appropriate Assessment, is not in place for a decision this summer. Looking back on the outputs of the previous Appropriate Assessment panel, waterfowl, water plant and water quality data were analysed with a view to determining whether significant impacts were likely. Staff would need to collate this data from various partners. Some level of external validation would most likely be needed for the assessment. The estimate of Environment Officer time to be spent on this process would be about 15 days, with £1,500 required for external validation and analysis.
- 5.6 The trigger levels for weed-cutting in the marked channel agreed with Natural England, is '*when greater than 30% of the bed of the broad is covered by water plants, or when the channel is reduced to less than 2/3rds of its width by encroaching water plants, whichever occurs first.*' The threshold of 30% is based on the minimum area of plants that are required to retain a minimum viable population of water plants, which subsequently provide food and refuge for a range of invertebrates, fish and birds. Cutting when there are fewer plants than this in the broad threatens the ecological status of the site and the potential for water quality and site condition to improve in the long term.
- 5.7 Following Natural England's grant of assent, the Authority has now established this weed-cutting protocol in the marked channel as an on-going standard, which is active between June and August, for the next five years.

Background papers: Nil

Author: Rob Rogers/ Dan Hoare
Date of report: 1 April 2016

Broads Plan ref: NA1.1

Appendices: APPENDIX 1 – Dredging Programme 2016/17

Dredging Progress 2016/17 (April 2016 to end July 2016)

APPENDIX 1

Project Title	Project Element	Active BA dredging weeks Completed (to end Jul / Planned)	Volume Removed m ³		Annual project Cost ^a	Actual project cost (Apr-Jul)
			Planned	Actual	Planned	Actual
Mid Bure	Horning Church to Ranworth Dyke (Apr-mid Jun)	11/10	5,000	5,820	57,480	61,900
<i>Completed setback areas at Horning Hall</i>						
Bure Mouth	Contractor (April)	-	500	500	3,700	3,700
<i>Contractor completed plough/agitation dredging to clear bar</i>						
Lower Waveney	Burgh Castle (Apr-May)	6/8	4,000	4,140	43,430	38,220
<i>Upstream and including Burgh Castle 24 hr moorings. Shoal at Burgh Flats not completed.</i>						
Lower Yare	Seven Mile House to Berney Arms (June)	4/6	4,000	4,290	33,060	23,970
<i>Shoals planned for dredging were completed</i>						
Haddiscoe Cut	Haddiscoe and Reedham ends (End Jul-mid Nov)	1/16	14,000	340	94,790	22,050
<i>Started at the St Olaves end. Setback area near Reedham Ferry</i>						
Yare - Whitlingham	Bends downstream of Whitlingham Broad (Aug-Oct)	-/12	5,000		61,100	1,090
<i>Off-loading point at Postwick Tip has been improved as part of this project</i>						
Hickling	Marked channel north of Catfield channel (Nov-Jan)	-/15	6,000		129,250	7,750
<i>Planning permission granted</i>						
Rockland Boat Dyke	Rockland and bar at Langley Dyke (Dec-Jan)	-/8	2,900		29,630	0
<i>Agreements waiting to be signed</i>						
Limekiln Dyke	Gayes Staithe to Neatishead Staithe (Feb-Mar)	-/8	3,600		18,960	0
<i>Dependent upon new Linkflotes arriving</i>						
Lower Bure	Bure Loop (Feb-Mar)	-/6	5,000		34,940	430
<i>Start date in 2016/17 depends on final timing and progress of work at Hickling. Main works duration will be in 2017/18</i>						
TOTAL		22/95	50,000	15090	506,340	159,110

^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.