

**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 from April 2017 to end July 2017. A summary of the year-end figures for dredging work during the 2016/17 year is also provided.

**1 Construction Programme update**

- 1.1 The progress of the Construction and Maintenance work programme is described in this report. The detailed breakdown in Appendix 1 shows that up to the end of July 2017, 22,200 m<sup>3</sup> of sediment dredged has been removed from the prioritised sites. This represents 42% of the programmed target of 53,000m<sup>3</sup>.
- 1.2 As part of the enhancement project at Hickling Broad the planned dredging, reedswamp restoration and margin protection has now been completed. Reed and other wetland plants have been installed in restored reedswamp areas. A length of floating goose-guard and wave barrier protection has been installed south of The Studio to protect marginal vegetation from erosion and encourage regrowth in that area.
- 1.3 Plans for mudpumping priority areas in the marked channel in the North Bay of Hickling, and access to the Hickling public staithe are also well underway. The sediment is aimed to be used for arable benefit on adjacent farmland. The outcome of the Authority's application for an Environmental Permit for this re-use of waste activity is pending.
- 1.4 Restoration work to return dredging sites to previous condition or better has been underway over the summer months. At Rockland St Mary, the sediment placed on the bank of the Boat Dyke over the winter has been moved and spread.
- 1.5 Two major dredging projects this year focus on the Lower Bure between Stokesby and Marina Quays at Yarmouth; and Oulton Broad. On the Lower Bure, priority shoals have been identified where Waterways Specification was not being met. The re-use of all the planned dredged sediment in this section will be for supplying additional material for floodbank topping up and maintenance. The reed ronds have been temporarily used for dewatering and storage, before re-handling the sediment into place along the front face of the floodbank. Later in the autumn, where the ronds become wider, a concrete pump will be used to span the greater distance from the river, with some

material being used on the foldings and the back face of the floodbanks. At Oulton Broad two phases of work involve filling a setback area on land owned by Suffolk Wildlife Trust (which is now completed) and filling the Authority owned lagoon on the corner of Horseshoe Point. The focus of dredging in Oulton Broad is in the north bay, where a considerable volume of sediment has accumulated and this large source of sediment has impacts on depths in the main channel that runs through the broad.

## **2 Maintenance Programme Update**

- 2.1 Refurbishment and repair work at the Authority's network of 24 hr moorings has continued since April, including timberwork refurbishment at Commissioner's Cut on the River Yare at Thorpe St Andrew; refurbishment and opening of the 40 m stretch of the former Boundary Farm mooring, which is now owned by the Authority; and timberwork replacement at Cantley 24 hr mooring.
- 2.2 This year, the Authority will be able to bring several new free 24hr moorings locations into use. The new length of mooring at Rockland Short Dyke has been completed and is now open for public use. Work is to be completed this autumn to bring newly acquired moorings up to Authority standards at Berney Mill on the Lower Yare, and Acle Bridge on the River Bure.
- 2.3 Work to rebuild and improve the Irstead Ranger billet, re-pile the whole site and improved access have been completed. The site now has a host of new features that will make working from the location much safer and effective.
- 2.4 Buoys marking the shallow water hazards near Pleasure Island in Barton Broad have been refurbished and repositioned. Additional marking of the re-profiled bank along Upton Dyke has also been carried out, to help delineate the deeper channel.
- 2.5 One of the most significant areas of work for the Maintenance Team over the summer has been the on-going programme of water plant management using the Authority's two Berky "cut and collect" weedharvester vessels. One operates in the northern broads, covering the Upper Thurne (Somerton Dyke; Hickling Broad, Catfield Dyke & Waxham Cut), the Ant (Tylers Cut & main river at Wayford) and the Bure (upstream of Wroxham); the other covers the southern rivers (Yare/Wensum upstream of Thorpe River Green) and the Waveney (Beccles to Geldeston). This year we have seen very healthy growth of water plants all across the Broads rivers. The main factors behind this are continuing improvements in water quality and fine weather in the early summer. The ranger teams have been reporting back on the conditions in their various areas which has helped determine priorities and the order in which sites are managed.
- 2.6 A 2.5 hectare area in Hickling Broad, outside the marked channel was also cut this summer, as per consent from Natural England. The area to cut in Hickling was guided by local users and the cut was only of the more common water plant species. During cutting, the operator did encounter stoneworts, so these were left and an alternative area of common species was cut adjacent to the marked channel, to ensure that the consented 2.5 ha was managed.

### **3 Environment & Design Team update**

- 3.1 Following completion of last winter's riverbank tree management work, environment officers and ranger teams have prioritised the locations for work during 2017/18. These areas have been divided between work to be completed by contractors and that to be done by Authority teams. Integration of effort and vessel usage between rangers, operations and volunteers is a key target this winter. The approach to ensure this ambition has been through early programming of work sites and the location of vessels, flexible deployment of staff across all areas, and clear specification for the work to be carried out. For more information on the process and specification to be achieved, please see the separate report in this agenda.
- 3.2 In Hickling Broad the methodology of cutting 20 x 20 m trial plots in the dense stonewort beds with an intensive monitoring programme has been started. The first challenge was the actual cutting with the weedharvester, but the new Berky vessels have a far more effective cutting action than the old Miller vessel, so the cuts were clean and no uprooting was observed. This trial aims to provide some evidence of the impacts of cutting stoneworts and their subsequent growth, as this evidence does not currently exist in the Broads or elsewhere. Environment officers are engaged through the autumn in monitoring the regrowth and the response of the plants to this type of intervention.

### **4 CANAPE project**

- 4.1 On June 8th the Interreg North Sea Region steering committee approved 15 new projects that will foster innovation, sustainable growth, climate change adaptation, eco-innovation, and green transport in the North Sea Region. The CANAPE bid, with the Broads Authority acting as Lead Partner has attracted a total project value across all partners of €5,545,105 over four years. The amount of grant approved to the Authority is €2,772,554. Our partners are based in the Netherlands, Denmark, Germany and Belgium.
- 4.2 In summary CANAPE or Creating A New Approach to Peatland Ecosystems is focussed on the principle that healthy peatlands help regulate global climate by actively removing CO<sub>2</sub> from the atmosphere, but damaged peatlands increase emissions. CANAPE combines North Sea Region (NSR) local authorities, NGOs & academic bodies to address challenges & manage sustainable, integrated peat landscapes that are resilient to climate change & contribute to the reduction in global CO<sub>2</sub> emissions. CANAPE will
- bring economic and environmental benefits in the NSR: reducing CO<sub>2</sub> emissions, increasing flood resilience, developing new wetland products & restoring unique ecosystems;
  - improve management of peatlands to reduce their contribution to climate change & improve resilience to its effects. CANAPE develops ecosystems governance and generates scientifically proven results;
  - involve key stakeholders in a transnational approach to avoid duplication, multiply the number of methods tested in similar landscapes with differing conditions, pool expertise & evaluate on a significant scale, establishing best practice which can be replicated elsewhere;

- transfer the innovative new methods & approaches to a wider range
- 4.3 The Kick-Off meeting is the 10 & 11 October 2017 in The Broads, and it is our first opportunity to meet all partners as a fully approved North Sea Region project. The Authority's project team have been busy preparing for the Kick-Off meeting and we have employed a Consultant who has specialist knowledge of North Sea Region projects to assist us in getting the content and governance of our first meeting correct. Two representatives from the NSR joint secretariat will be in attendance and will present to the partnership on the programme rules and communication routes between partners and the secretariat, as well as answering questions.
- 4.4 The Canape project will on nine sites demonstrate eight methods to restore and maintain peat-lands, improving their ecosystem services, and simultaneously test, demonstrate and scale up best practice, practical measures providing market potential for six peat derived products, through what is known as paludiculture.
- 4.5 The Broads based pilot for the lake restoration element of CANAPE will be focussed on Hickling Broad. This project will 'build with nature' and adapt traditional engineered lake edge protection measures to test alternative soft engineering approaches. The investments include creating new reed bed areas. This will be done using new geotextile membrane materials and locally sourced silt, with vegetation colonisation supported with planted wetland vegetation. The preferred option is a similar reedswamp creation project to that carried out last winter at Churchill's Bay, but further to the south. This project will need to explore different engineering solutions and offer the potential for more sediment to be managed sustainably from the marked channel of Hickling Broad.

Background papers: Nil

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Appendices: APPENDIX 1 – Dredging Progress 2017/18  
APPENDIX 2 – Dredging Year End Summary 2016/17

Dredging Progress 2017/18 (April 2017 to end July 2017)

APPENDIX 1

Project Title	Project Element	Active BA dredging weeks Completed (to end July / Planned)	Volume Removed m <sup>3</sup>		Annual project Cost <sup>a</sup>	Actual project cost (Apr-Jul)
			Planned	Actual	Planned	Actual
<b>Haddiscoe Cut</b>	Reedham End (Mar)	1 / 1	500	670	5,600	3,870
<i>Sediment into setback areas on the River Yare upstream of Reedham</i>						
<b>Lower Bure</b>	Phase 1. Stokesby to Three Mile House (Apr-Sep); Phase 2. Three Mile House to Marina Quay (Sep-Dec)	15 / 36	18,000	8,780	222,400	71,500
<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>						
<b>Oulton Broad</b>	Phase 1 - North Bay (Apr-Aug); Phase 2 - North Bay (Sep-Oct)	14 / 22	16,000	12,750	104,800	56,060
<i>Suffolk Wildlife Trust setback area and Authority's own sediment lagoon being filled at Horseshoe Point</i>						
<b>Bure Mouth</b>	Use of plough dredging to clear bars (Oct)	Contractor	2,000	-	15,000	120
<i>Subject to consent decision from Natural England for the submitted 10 year plan for navigation channel management in Breydon Water SSSI</i>						
<b>Hickling Broad</b>	Mudpumping marked channel in North Bay (Nov-Feb)	Contractor	6,000	-	69,300	13,440
<i>Use of sediment for arable benefit. Awaiting issue of the Environmental Permit from the Environment Agency. £30k from NPG.</i>						
<b>Limekiln Dyke</b>	Gaye's Staithe to Neatishead Staithe (Nov-Jan)	0 / 12	3,500	-	33,300	0
<i>Sidecasting material to the bank clear of trees last year</i>						
<b>River Chet</b>	Shoals near Hardley Flood (Jan-Mar)	0 / 12	4,000	-	22,300	90
<i>Sidecasting to provide additional material onto the weak/low sections of riverbank</i>						
<b>Mid Bure</b>	Thurne Mouth (Mar)	0 / 4	3,000	-	28,400	0
<i>Priority shoals in Thurne Mouth area</i>						
<b>Site restoration</b>	Rockland, Acle, Hickling	-	-	-	21,190	16,660
<i>Restoration of dredge sites from work in 2016/17</i>						
<b>TOTAL</b>		<b>30 / 87</b>	<b>53,000</b>	<b>22,200</b>	<b>522,290</b>	<b>161,740</b>

<sup>a</sup> –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.

**Dredging Progress 2016/17 (April 2016 to end March 2017)**

**APPENDIX 2**

Project Title	Project Element	Active BA dredging weeks Completed (to end Mar / Planned)	Volume Removed m <sup>3</sup>		Annual project Cost <sup>a</sup>	Actual project cost (Apr-Mar)
			Planned	Actual	Planned	Actual
<b>Mid Bure</b>	Horning Church to Ranworth Dyke (Apr-mid Jun)	11/10	5,000	5,820	57,480	64,020
<i>Completed setback areas at Horning Hall</i>						
<b>Bure Mouth</b>	Contractor (April)	-	500	500	3,700	3,730
<i>Contractor completed plough/agitation dredging to clear the bar downstream of Bure Mouth</i>						
<b>Lower Waveney</b>	Burgh Castle (Apr-May)	6/8	4,000	4,140	43,430	39,020
<i>Dredging completed upstream of and including Burgh Castle 24 hr moorings.</i>						
<b>Lower Yare</b>	Seven Mile House to Berney Arms (June)	5/6	4,000	4,290	33,060	22,210
<i>All shoals planned for dredging were completed</i>						
<b>Haddiscoe Cut</b>	Haddiscoe and Reedham ends (End Jul–mid Nov)	18/16	14,000	10,620	94,790	126,510
<i>Completed the priority dredging at St Olaves, Reedham &amp; all along the island side of the Cut.</i>						
<b>Yare - Whitlingham</b>	Bends downstream of Whitlingham Broad (Aug-Oct)	9/12	5,000	6,200	61,100	19,950
<i>Completed the priority bends identified near Whitlingham. All material brought to Postwick Tip</i>						
<b>Hickling</b>	Priority <u>M</u> arked channel (Nov-Jan)	13/15	6,000	5,180	129,250	157,390
<i>Marked channel dredged near Deep Dyke and two reedswamp restoration areas completed</i>						
<b>Rockland Boat Dyke</b>	Rockland and bar at Langley Dyke (Dec-Jan)	14/8	2,900	6,210	29,630	80,910
<i>Rockland Staithe, Boat Dyke and the entrance to the Broad all dredged to specification. Langley Dyke entrance also dredged</i>						
<b>Limekiln Dyke</b>	Gayes Staithe to Neatishead Staithe (Feb-Mar)	-/8	3,600		18,960	0
<i>Deferred to 2017/18 – Replacement equipment for decommissioned Grab 7 and old Linkflotes not be available before April 2017</i>						
<b>Lower Bure</b>	Bure Loop (Feb-Mar)	-/6	5,000	0	34,940	460
<i>Deferred and moved to Stokesby starting in April 2017, as Lower Bure landowner issues couldn't be resolved in time</i>						
<b>TOTAL</b>		<b>76/89</b>	<b>50,000</b>	<b>42,960</b>	<b>506,430</b>	<b>514,200</b>

<sup>a</sup> –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.