

A MEETING OF THE BROADS (2006) INTERNAL DRAINAGE BOARD WAS HELD AT HICKLING BARN, HICKLING, NORFOLK ON MONDAY 23 JANUARY 2017 AT 10.00 AM.

Elected Members	Appointed Members
* H J Alston	Broadland D C
* L E Baugh	* Mrs L Hempsall
* J Burton	* A Mallett
* R Buxton	G Nurden
H G Cator OBE	F O'Neil
J W Chapman	* V Tapp
S G Daniels	D Ward
* G D Gay	North Norfolk D C
* M Harris	Mrs H Cox
* K Hart	Mrs A M Fitch-Tillett
* I Robinson	* Mrs P Grove-Jones
* D Roll	* W Northam
F Sharman	R C Price
* M Smart	* P Rice
T P Strudwick	Mrs L Walker
* J G Tallwin	Vacancy
* E Wharton	
* J W K Withers	
* S D Wright	Great Yarmouth B C
	T Andrews
	* Mrs M Coleman
	* J Shrimplin
	* H Thirtle
	C Walch
	* Mrs S Weymouth
	 Present (62%)

Mr R Buxton in the Chair

In attendance:

Mr G Bloomfield (Catchment Engineer), Mr P J Camamile (Chief Executive),
Mr P George (Operations Engineer), Mr A Goose (Operations Manager),
Miss H Mandley (Technical and Environmental Assistant), Mr M Philpot (Project Engineer)
and Mrs M Creasy (minutes)

ID	Broads (2006) IDB, Minute	Action
	APOLOGIES	
01/17/01	Apologies for absence were received on behalf of Messrs T Andrews, H G Cator, J W Chapman, S G Daniels, G Nurden, F O'Neill, R Price, F Sharman, T P Strudwick, D Ward, C Walch, Mrs H Cox, Mrs A Fitch-Tillett and Mrs L Walker.	
01/17/02	Mr R Buxton, Vice-Chairman chaired the meeting in the absence of the Chairman.	
	APPOINTED MEMBERSHIP CHANGES	
02/17/01	North Norfolk District Council had notified officers on 17 January 2017 of Mrs Hilary Cox's appointment and of Mr Ben Jarvis' termination of appointment to the Broads (2006) IDB. RESOLVED that this be noted.	
	DECLARATIONS OF INTEREST	
03/17/01	Mr A Goose declared an interest in respect of the payments recorded in the Schedule of Paid Accounts made to Account ID GO0744, due to his family relationship with the account holder. RESOLVED that this be noted.	
03/17/02	Mr M Harris declared an interest in respect of the payment made to him for pump attendant duties and works associated with the Hempstead Marshes study as recorded in the Schedule of Paid Accounts. RESOLVED that this be noted.	
03/17/03	Mr S D Wright declared an interest in respect of the payment for pump attendant duties made to him as recorded in the Schedule of Paid Accounts. RESOLVED that this be noted.	
	MINUTES OF THE LAST BOARD MEETING	
04/17/01	The minutes of the last Board meeting held on 24 October 2016 were approved and signed as a true record.	
	MATTERS ARISING FROM THE MINUTES	
05/17/01	Acle Pumping Station – EA and Acle Land Spring (74/16/05)	
	The Catchment Engineer reported that BESL have responsibility for maintenance of the Acle Land Spring until 2021 although the Board is having to take water into its system because of ongoing water management issues here. One option may be that the IDB undertakes some maintenance works on the Acle Land Spring under a PSCA and Mr S D Wright recorded that he would like to see an annual maintenance programme reinstated for the Acle	

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	Land Spring. RESOLVED that this be noted.	
05/17/02	Financial Report – Precept (78/16/03)	
	The Chief Executive reported that the Anglian Eastern RFCC had agreed EA funding to £350k per year for IDB works on EA main river and the IDB had been asked to put together a works programme. RESOLVED that this be noted.	
06/17	OPERATIONS REPORT	
06/17/01	The Operations Report was considered in detail and approved, (a copy of which is filed in the Report Book). Arising therefrom:	
06/17/02	Horsey Mill (2)	
	The Catchment Engineer reported that the emergency repair works at Horsey Mill were regularly monitored and were holding well. Officers had met with BESL in December 2016 to discuss design and cost for the main improvement works and the Catchment Officer was optimistic that detailed cost and design for this 100% grant aided work was imminent. RESOLVED that this be noted.	
06/17/03	Ludham Bridge Pump House (3)	
	The redundant pump house at Ludham Bridge was due to be demolished by BESL by the end of April 2017 in conjunction with their flood defence improvement works in that area. RESOLVED that this be noted.	
06/17/04	Plant (4)	
	(i) Members considered the detailed proposal, (a copy of which is filed in the Report Book), for the Board to purchase 4 x 8 inch mobile Selwood pumps with necessary hoses and connectors at a combined total cost of £130k, with Waveney District Council contributing 50% of this cost, rendering the Board's capital cost £65k. The pumps would be wholly owned by the Broads (2006) IDB but Waveney District Council's contribution required the Board to make the pumps available for deployment to Lowestoft if necessary, for a 4-year period post purchase, during which time Waveney District Council would contribute to the running costs of the pumps, based on how often the Local Authority used them. Should it be necessary to deploy the pumps to Waveney District Council during the 4-year period, the Board would also be able to recover both transportation and its costs for staff deploying the pumps. It was considered that ownership of mobile pumps would increase the Board's resilience for flood events in its own area and reduce costs compared with the cost of hiring in pumps.	
06/17/05	It was proposed by Mrs S Weymouth, seconded by Mr M Smart and carried unanimously to approve the purchase of 4 x 8 inch	

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	<p>mobile Selwood pumps and associated hoses/connectors at a capital cost to the Board of £65k.</p>	
<p>06/17/06 Capital Works: Repps Pumping Station Weedscreen (5)</p>	<p>There had been no update from Norfolk County Council during this reporting period on its options for the access bridge but the IDB had undertaken maintenance on the main drain to facilitate the flow of water as best as possible. RESOLVED that this be noted.</p>	
<p>06/17/07 Capital Works: Muckfleet (5)</p>	<p>Mr G Gay recorded his concern with the planned design for the Muckfleet Main Drain in that he did not think there would be sufficient capacity in the new channel. The Catchment Engineer recorded that the design had been approved by the Board as the best costed option almost a year previously and it was agreed that the Catchment Engineer and Mr Gay would discuss the plans outside this meeting. RESOLVED that this be noted.</p>	
<p>06/17/08 Capital Works: Halvergate WLMP (5)</p>	<p>A Steering Group meeting and environmental mitigation works were scheduled for February 2017 ready for construction works starting in the second quarter 2017.</p>	
<p>06/17/09 Brograve WLMP – Hempstead Marshes Trial (5)</p>	<p>Members considered the Catchment Engineer's report on the data obtained from the Hempstead Marshes trial looking at ochre and salinity in the Brograve catchment and the support from Hempstead landowners for a further sub-study looking at reduction of salinity by the introduction of a tilting gate on the main drain, with students from Cranfield University undertaking the land surveys and data assessment to facilitate this study subject to the university receiving a £5k contribution to the students' subsistence costs on site.</p>	<p>MP</p>
<p>06/17/10</p>	<p>It was proposed by Mr L Baugh, seconded by Mr M Harris and carried unanimously to approve the Board funding £5k to Cranfield University to enable its students to assess data as set out in minute 06/17/09 to inform an additional study using the tilting gate. RESOLVED that this be noted.</p>	<p>GB</p>
<p>06/17/11 Operations: Proposed Drain Adoption (6)</p>	<p>Members considered the proposal to adopt an overgrown and heavily silted 400m section of drain as indicated on the plan provided by the Operations Engineer, (a copy of which is filed in the Report Book), located upstream of the A149, (isolated from the Board's drainage system), and draining a significant upstream catchment including Stalham Green where flooding in the Moors Lane area had been reported.</p>	

ID	Broads (2006) IDB, Minute	Action
06/17/12	<p>It was proposed by Mrs P Grove-Jones, seconded by Mr I Robinson and carried unanimously to approve the adoption of this 400m section of drain subject to:</p> <ul style="list-style-type: none"> • The landowner paying the Board's costs to bring the drain into good condition prior to it being adopted by the Board. • The Local Authority Highways are made aware of the requirement for it to check and maintain the culvert under the A149. 	
06/17/13	<p>It was agreed and thereby RESOLVED that the Board's adoption of this section of drain was a 'one off' occurrence and did not set any precedent for the future.</p>	
06/17/14	<p>Hydrology (8)</p> <p>On behalf of the Chairman, Mr R Buxton recorded thanks to the Board's officers and employees for their efforts in dealing with the recent tidal surge. RESOLVED that this be noted.</p>	
06/17/15	<p>Health and Safety (9)</p> <p>(i) There were no reportable incidents to record during this reporting period. RESOLVED that this be noted.</p> <p>(ii) All WMA (Eastern) employees and contractors attended a Health and Safety and Environmental Awareness Training Day on 9 January 2017. RESOLVED that this be noted.</p>	
07/17	<p>PLANNING REPORT</p>	
07/17/01	<p>The Planning Report was considered in detail and approved, a copy of which is filed in the Report Book), Arising therefrom:</p>	
07/17/02	<p>18/11/16 – Great Yarmouth BC Planning Application 06/16/0576/CD – Main Road, Filby</p> <p>Members considered the comments submitted by the Project Engineer on behalf of the Board in respect of Great Yarmouth BC planning application 06/16/0576/CD regarding the updated proposals for surface water drainage for the proposed development at Filby. The discharge of surface water into the Board's IDD requires the applicant to apply for Byelaw consent and if appropriate, pay a surface water development contribution, details of which had been included in the Project Engineer's comments. RESOLVED that this be noted.</p>	
07/17/03	<p>18/11/16 – Great Yarmouth BC Planning Application 06/16/0583/O for 96 dwellings at Hemsby</p> <p>Members considered the Project Engineer's comments submitted</p>	

ID	Action
<p>on behalf of the Board in respect of Great Yarmouth BC planning application 06/16/0583/O for housing development in Hemsby. More information had been required to ascertain if surface water arising from the development would discharge into the Board's district and therefore require Byelaw consent and attract a surface water development contribution. RESOLVED that this be noted.</p>	
<p>07/17/04 SUDS Adoption and Charging Policy</p>	
<p>The SUDS Adoption and Charging Policy, (a copy of which is filed in the Report Book), was considered in detail and approved.</p>	
<p>07/17/05 Lowestoft Temporary Flood Barriers</p>	
<p>Members were apprised of the PSCA between Waveney District Council and WMA (Eastern) for WMA (Eastern) employees to support the preparation, deployment and maintenance of the Lowestoft temporary flood barriers whereby WMA (Eastern) will maintain an out of hours 24/7 duty rota and response resource from October to March each year to 2021. The Lowestoft flood barrier had been deployed the weekend prior to this meeting in response to a tidal surge and thanks were recorded to all employees involved. RESOLVED that this be noted.</p>	
<p>07/17/06 Mrs S Weymouth left the meeting at this point.</p>	
<p>08/17 ENVIRONMENTAL REPORT</p>	
<p>08/17/01 The Environmental Report, (a copy of which is filed in the Report Book), was considered in detail and approved. Arising therefrom.</p>	
<p>08/17/02 Stokesby Eel Pass: Silver Eel Passage – Project Update</p>	
<p>The Catchment Engineer reported that the collaborative project between the EA, the Zoological Society and the Broads (2006) IDB looking at silver eel migration, had taken place as planned in Autumn 2016 but due to the dry weather conditions lower than expected number of silver eels were caught for tagging and monitoring, as reported in the project overview provided by Adam Piper, Zoological Society, (a copy of which is filed in the Report Book). It was anticipated that more data would be collected in Autumn 2017 and the equipment to facilitate this would remain in situ at Stokesby pump to save costs on removal and reinstallation. RESOLVED that this be noted.</p>	
<p>08/17/03 Training</p>	
<p>Members were advised that both the Technical and Environmental Officer and the Technical and Environmental Assistant, together with a number of WMA (Eastern) operatives were now trained in the Safe Use of Pesticides (PA1) and the Spraying of Herbicides in or near a watercourse (PA6W). WMA (Eastern) employees and</p>	

ID	Action
<p>contractors had also received a presentation from the Non-Native Invasive Initiative on the importance of the awareness of non-native species and how to deal with these if found. RESOLVED that this be noted.</p>	
<p>09/17 SCHEDULE OF PAID ACCOUNTS</p>	
<p>09/17/01 The Schedule of Paid Accounts for the period 1 October 2016 to 31 December 2016, totalling £285,421.95, (a copy of which is filed in the Report Book), was considered in detail and approved. There were no matters arising.</p>	
<p>10/17 ESTIMATES 2017/18</p>	
<p>10/17/01 The detailed estimates for 2017/18 were considered in detail and approved, (a copy of which is filed in the Report Book). Arising therefrom:</p>	
<p>10/17/02 Capital Programme 2017/18</p>	
<p>The Capital Works Estimate for 2017/18 prepared by the Catchment and Project Engineers, totalling £1,427,420, (of which £1,404,420 was for environmental and flood risk management improvement schemes that should attract 100% grant aid), was considered in detail and approved.</p>	
<p>10/17/03 Maintenance Programme 2017/18</p>	
<p>The Maintenance Works Estimate for 2017/18 prepared by the Project Engineer and Operations Manager, totalling £784,591 was considered in detail and approved.</p>	
<p>10/17/04 Consortium Charges 2017/18</p>	
<p>The Administration and Technical Support Costs Estimate for 2017/18 as recommended by the Consortium Management Committee on 9 December 2016 was considered in detail and approved. Arising therefrom:</p>	
<p>10/17/05 It was agreed and thereby RESOLVED to approve the net Administrative Support Consortium Charge of £131,401 and include the same in the Board's Rate Estimates for 2017/18.</p>	
<p>10/17/06 It was agreed and thereby RESOLVED to approve the Technical Support Consortium Charge of £201,699 and include the same in the Board's Rate Estimates for 2016/17.a</p>	
<p>11/17 FINANCIAL YEAR 2017/18 LAY AND SEAL DRAINAGE RATE AND SPECIAL LEVIES</p>	

ID Broads (2006) IDB, Minute		Action																				
11/17/01	It was agreed and thereby RESOLVED to approve the net requirement of £962,577 for 2017/18 as presented (a copy of which is filed in the Report Book). Arising therefrom:																					
11/17/02	<p>Annual Values</p> <p>It was agreed and thereby RESOLVED to approve the aggregate annual values as at 31 December 2016, used for the purposes of raising and apportioning expenses from drainage rates and special levies for 2017/18.</p>																					
11/17/03	Members considered the proposal to increase the rate and special levy for 2017/18 by 1.8%, compared to the actual requirement of 9.9% and the previous year's indicative requirement of 1.3%. Arising therefrom:																					
11/17/04	Mr V Tapp queried the proposed increase in the drainage rate/special levy given the level of reserves retained by the Board. The Chief Executive reported that the Board was using some of its reserves to provide the net requirement but should not exhaust its reserves completely as this would result in huge increases for future years' rate and special levy. He reiterated the need to maintain a steady rate/special levy profile and the importance of adequate reserves to cope with higher expenditure arising from severe weather events and to maintain a regular programme of asset improvement to cope with such events.																					
11/17/05	Mr W Northam recorded that whilst he felt the £5k increase in special levy due from North Norfolk DC arising from a 1.8% increase was acceptable for 2017/18, he was concerned about future increases and that it would be helpful if the Chief Executive could liaise with him to apprise North Norfolk District Council where these monies would be spent.	PJC/WN																				
11/17/06	<p>It was proposed by Mr L Baugh, seconded by Mr M Harris and carried unanimously save for one abstention from Mr V Tapp, to approve Option 3, which equated to a Drainage Rate increase of 1.8%, and the same increase in Special Levies due from constituent Billing Authorities:</p> <table><tr><td colspan="2">Option 3</td></tr><tr><td>Drainage Rate in the Pound:</td><td>24.492p</td></tr><tr><td colspan="2">Financed by:</td></tr><tr><td>Agricultural Drainage Rates</td><td>£269,877</td></tr><tr><td>Broadland District Council</td><td>£159,062</td></tr><tr><td>Great Yarmouth Borough Council</td><td>£179,887</td></tr><tr><td>North Norfolk District Council</td><td>£280,337</td></tr><tr><td>South Norfolk District Council</td><td>£2,480</td></tr><tr><td>Reserves</td><td>£70,934</td></tr><tr><td></td><td>£962,577</td></tr></table>	Option 3		Drainage Rate in the Pound:	24.492p	Financed by:		Agricultural Drainage Rates	£269,877	Broadland District Council	£159,062	Great Yarmouth Borough Council	£179,887	North Norfolk District Council	£280,337	South Norfolk District Council	£2,480	Reserves	£70,934		£962,577	
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12/17	INDICATIVE FIVE YEAR FORECAST	
12/17/01	The indicative five year forecast was considered in detail and approved, (a copy of which is filed in the Report Book). Arising therefrom:	
12/17/02	Members' attention was drawn to the reduction in Reserves over the five year period, due to monies being taken from Reserves to contribute to the Board's Net Requirement each year rather than implement huge Rate/Special Levy increases on ratepayers and billing authorities.	
13/17	REVIEW OF OBJECTIVES 2016/17	
13/17/01	Members considered the review of the Board's objectives for 2016/17, (a copy of which is filed in the Report Book). Arising therefrom:	
13/17/02	It was agreed that the objectives for 2016/17 had been substantively achieved, with the two following objectives rolling over to 2017/18: <ul style="list-style-type: none"> To participate in the development of a sustainable investment programme for sea defences protecting the Board's area that are considered by the EA to be uneconomic; To complete the refurbishment of the Martham Depot. 	
14/17	OBJECTIVES 2017/18	
14/17/01	It was agreed and thereby RESOLVED to approve the objectives for 2017/18 as follows: <ul style="list-style-type: none"> (i) Ensure that total expenditure does not exceed the expenditure budget for 2017/18 and plan for subsequent years' rate increases to equate to no more than an inflationary increase. (ii) Ensure that the EA's annual precept charge on the Board is fair and that it is spent on work that benefits the Internal Drainage District. (iii) Complete the refurbishment of the Martham Depot. (iv) Assist the EA and partners to develop a plan to maintain the river banks after the BESL project ends in 2021. (v) Continue to work with the EA, NNDC, NCC, NE, BA and other partners to introduce a sustainable investment programme for the sea defences that protect the Board's area that are considered by the EA to be uneconomic. 	

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	15/17 RISK REGISTER	
15/17/01	The Board's Risk Register, (a copy of which is filed in the Report Book), that had been updated in line with the Governance and Accountability for Smaller Authorities in England Practitioners' Guide to Proper Practices 2016, was considered in detail and approved. There were no matters arising.	
	16/17 CORRESPONDENCE	
16/17/01	There was no correspondence requiring the Board's consideration during this reporting period.	
	17/17 NEXT MEETING	
17/17/01	The next Board meeting was scheduled for 22 May 2017 at 10.00 am in Hickling Barn.	
	18/17 ANY OTHER BUSINESS	
18/17/01	There was no other business to discuss.	
	19/17 OPEN FORUM: TO HEAR FROM ANY MEMBER OF THE PUBLIC, WITH LEAVE OF THE CHAIRMAN	
19/17/01	There were no Members of the Public present at today's meeting.	
	20/17 CONSORTIUM MATTERS	
20/17/01	The unconfirmed minutes of the last Consortium Management Committee meeting held on 9 December 2016 were considered in detail and approved. Arising therefrom	
20/17/02	Financial Report (34/16/02) It was agreed and thereby RESOLVED to approve the WMA CMC recommendation to pass on the surplus at 31 March 2017 back to the individual WMA Member Boards per the split as set out in the WMA Income and Expenditure Account. RESOLVED that this be noted.	
20/17/03	WMA Estimates 2017/18 (35/16/02) The detailed Consortium Budget and Basis of Apportionment for the financial year 2017/18, as approved at the Consortium Management Committee meeting on 9 December 2016, was considered in detail and approved by the Board. There were no	

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	<p>matters arising.</p> <p>20/17/04 It was agreed and thereby RESOLVED to approve the recommendation for the WMA (Eastern) Boards to complete the implementation of its new management structure in order to meet the needs of the core business.</p> <p>20/17/05 Schedule of Paid Accounts</p> <p>The WMA Schedule of Paid Accounts for the period 1 April 2016 to 30 November 2016 totalling £734,844.17 as approved at the Consortium Management Committee meeting on 9 December 2016, was considered in detail and adopted. There were no matters arising.</p> <p>20/17/06 Financial Report</p> <p>The WMA Financial Report for the period 1 April 2016 to 30 November 2016, as approved at the Consortium Management Committee meeting on 9 December 2016 was considered in detail and adopted by the Board. There were no matters arising.</p> <p>20/17/07 Issues for discussion at next CMC meeting</p> <p>There were no specific issues raised by Members requiring discussion at the next Consortium Management Committee meeting on 31 March 2017.</p> <p>21/17 CONFIDENTIAL BUSINESS</p> <p>21/17/01 There was no confidential business to discuss.</p>	

BROADS (2006) INTERNAL DRAINAGE BOARD

OPERATIONS REPORT FOR THE PERIOD OCTOBER 2016 – JANUARY 2017

A: OPERATIONAL INFORMATION FOR THE BOARD:

1. REVENUE MAINTENANCE WORKS

Works have been undertaken on Board main drains in these catchments: Heigham Holmes, Martham Ferry, Potter Heigham, Sutton, Hickling, Brograve, Stokesby, Horsey, South Walsham, Upton and Mautby.

2. PUMPING STATIONS

Major Incident Horsey Mill

BESL are developing the bid for funding for the main improvement works. A meeting was held in December 2016 when options were reviewed and discussed. Mr Robin Buxton attended this meeting.

Detailed costings for the replacement works are now well underway and will facilitate completion of a full benefit cost appraisal. A further meeting will be arranged to discuss these costs when they are available.

HAPPISBURGH TO WINTERTON DISTRICT

1. Brograve: (3 No. Pumps)
No major problems reported
2. Horsey: (1 No. Pump)
Pump stripped out and downsized as a consequence of the culvert failure. Exchanged for the pump at Five mile
3. Somerton South: (2 No. Pumps)
No major problems reported.
4. Somerton North: (1 No. Pump)
No major problems reported.
5. Somerton Auxiliary: (1 No. Submersible)
No major problems reported.

LOWER BURE FLEET & ACLE MARSHES DISTRICT

1. Tunstall Pump: (2 No. Pumps)
No major problems reported.
2. Five Mile Pumping Station: (1 No. Pump)
No major problems reported.
3. Ashtree Pumping Station: (1 No. Pump)

Tidal flap requires maintenance.

4. Breydon Pumping Station: (2 No. Pumps)
No major problems reported.
5. Berney Pumping Station: (1 No. Pump)
No major problems reported.
6. Seven Mile Pumping Station: (2 No. Pumps)
Pump outfalls have been improved. Works complete.
7. Stracey Arms Freshwater Intake Works: (Automatic inlet penstock)
No problems reported.

LOWER YARE FIRST DISTRICT

1. Buckenham Pumping Station: (1 No. Pump)
No major problems reported.
2. Postwick Pumping Station: (1 No. Pump)
No major problems reported.

LOWER YARE FOURTH DISTRICT

1. Cantley Pumping Station: (1 No. Pump)
No major problems reported.

MIDDLE BURE DISTRICT

1. The Doles Pumping Station: (3 No. Pumps)
No major problems reported.
2. Hermitage Pumping Station: (1 No. Pump)
No major problems reported.

MUCKFLEET & SOUTH FLEGG DISTRICT

1. Stokesby Pumping Station: (2 No. Pumps - Archimedes Screw Pumps)
No major problems reported.
2. Mautby Pumping Station: (2 No. Pumps - Archimedes Screw Pumps)
No major problems reported.

REPPS MARTHAM & THURNE DISTRICT

1. Martham Pumping Station: (1 No. Pump)
No major problems reported.
2. Repps Pumping Station: (1 No. Pump)
No major problems reported.
3. Thurne Pumping Station: (1 No. Pump)
No major problems reported.

SMALLBURGH DISTRICT

1. Hickling

a) Stubb Pumping Station: (1 No. Pump)

Break in occurred in July – No major damage or loss

b) Eastfield Pumping Station: (1 No. Pump)

No major problems reported.

Catfield Pumping Station: (1 No. Pump)

No major problems reported.

Martham Heigham Holmes Pumping Station: (1 No. Pump)

Cavitation reported and is under investigation

Potter Heigham Pumping Station: (2 No. Pumps)

No major problems reported.

Horsefen Pumping Station: (1 No. Pump)

No major problems reported.

Ludham Bridge North Pumping Station: (1 No. Pump)

No major problems reported.

Ludham Bridge South Pumping Station: (1 No. Pump)

No major problems reported.

St Benet's Pumping Station: (1 No. Pump)

Cavitation reported and is under investigation

Horning Grove Pumping Station: (1 No. Pump)

No major problems reported.

Irstead Pumping Station: (1 No. Pump)

No major problems reported.

Sutton Pumping Station: (1 No. Pump)

No major problems reported.

Chapelfield Pumping Station: (1 No. Pump)

No major problems reported.

Wayford Bridge Pumping Station: (1 No. Pump)

No major problems reported.

East Ruston: (Tonnage Bridge Pumping Station – 1 No. Pump)

No major problems reported.

3. CONSTRUCTION WORKS

Wayford Mill Cross Wall.

The cross wall at Wayford bridge pumping station has been improved in order to reduce leakage into the main drain from the pond/depression area in front of the mill.

Ludham Bridge pump house (Redundant)

The old pump house will be demolished as it no longer has any use to the board following the separation of the drainage levels. An asbestos survey has been undertaken with demolition planned to be completed by April 2017. BESL are due to improve the flood defence behind the pump in Spring/summer 2017.

4. PLANT

Please refer to Appendix 1 for the detailed proposal prepared by the Chief Executive for the procurement of four mobile pumps for the Board's consideration.

5. CAPITAL WORKS

Repps Pumping Station Automatic Weedscreen

No further update from Norfolk County Council on options for the access bridge. We have undertaken maintenance on the main drain to ensure water can flow as well as possible.

Muckfleet Main Drain

PAR is with the EA National Approval Board for final approval.

Halvergate

Enabling works to install nineteen temporary earth bunds into drains adjacent to the working area are underway. This will minimise the impact of the construction works by allowing the control of water levels throughout the construction phase.

Detailed designs and programme of works are being finalised. Environmental mitigation work is due to start mid-February 2017 with construction due to start in the Spring. A steering group meeting will be arranged for February 2017.

Brograve - Hempstead Marshes Trail

Please see Appendix 2 for detailed Power Point presentation. Summary below:

Headlines both option 1 of infilling the existing drain and option 2 installing simple timber damboard water control structure (WCS) within existing ditch provided improvement at c.20% and 10% respectively for reducing salt inputs within the system. No improvement was realised regarding ochre from either option however.

It is unlikely option1 would be feasible at catchment scale due to the capital cost of infilling all the drains.

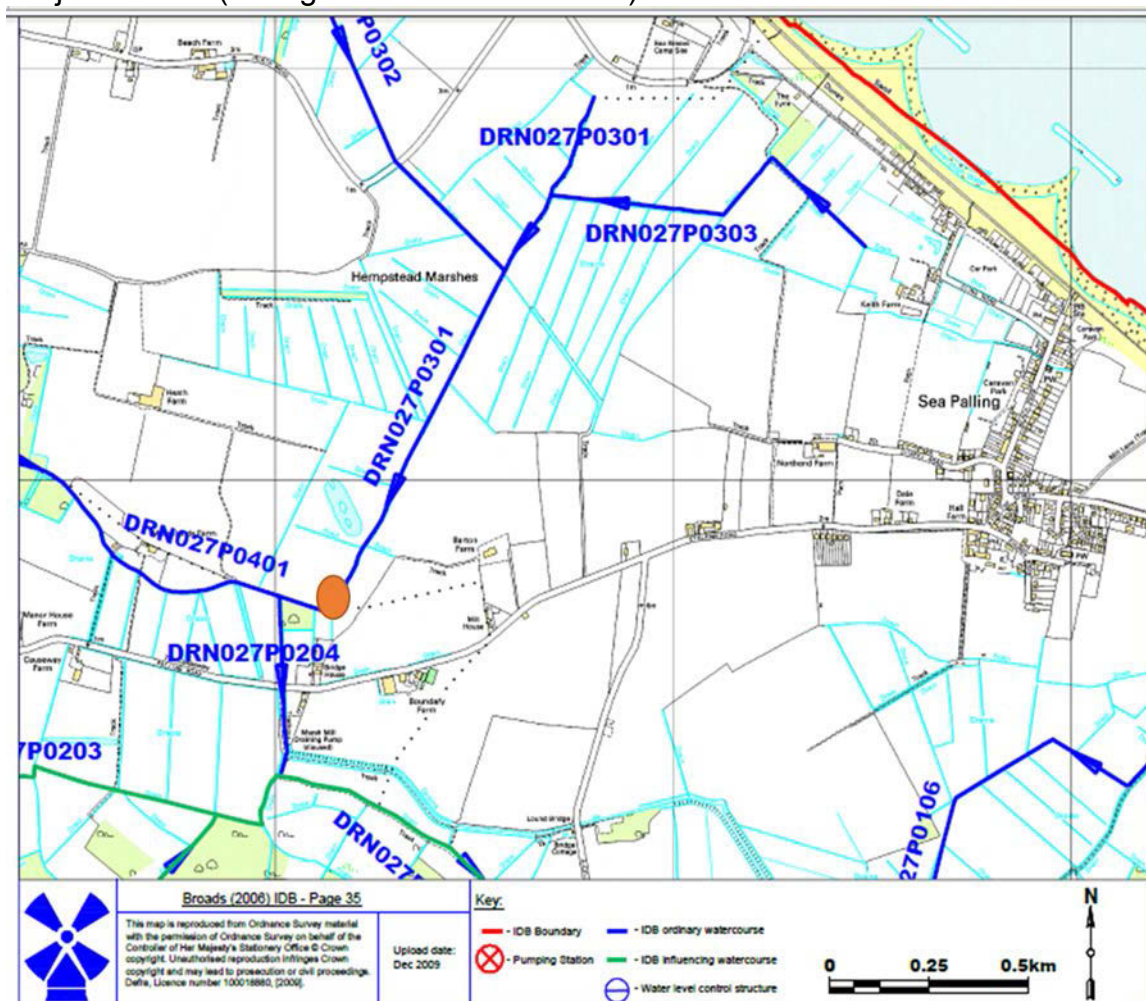
It is felt with the improvements in WCS designs with battery powered tilting gates an improved solution could be installed reducing salt loading further from the current 10% recorded. Post the Brograve Partnership meeting the Catchment & Operation Engineers and Operations Manager met with the Hempstead Landowners to canvas their views and support to undertake a Hempstead Marsh sub-catchment trial of installing WCS on main drain (Slide 13).

The landowners were agreeable on the understanding their day to day operations were not adversely impacted and they could stop the trial if necessary. Catchment Engineer is seeking support from EA regarding a study grant to proceed on this basis.

A cost effective way of undertaking the necessary land surveys, GPS data assessment, flow surveys is to work with university students. The Catchment Engineer has approached Cranfield University (Ian Holman) regarding this. Student projects commence early February and he felt it would make a strong Msc team project for 4-6 pupils. He would need commitment to a subsistence payment of £5k for accommodation, food and survey kit hire & tools could be very productive use of resource. The remainder of processing and staff time will be covered by the University.

Decision by the Board: Recommendation by the Catchment Engineer to fund the £5k to enable commitment to student project. Outputs of their work will support FDGiA bid to install battery powered automated tilting gate Water Control Structure (WCS) and telemetry at an estimated cost of £50k.

Project Area – (Orange dot location of WCS)



Upper Thurne Pumping Station Review Project

There are six pumps in the Upper Thurne that manage this area, these being at Somerton North, Somerton South, Horsey, Stubb, Brograve and Eastfield. All of these pumps are due to have government money spent on them over the next 5-10 years for either upgrading or replacing.

As many will be aware there are a number of challenges arising from ochre, salinity and efficiency with the current pumping arrangements. The current pump locations are historic and with the upcoming infrastructure spends required, along with the

challenges the area faces in terms of climate change and increased salinity, we have the opportunity to review the system with these unique challenges in mind.

We will therefore be undertaking a study to review what possibilities are available in the area through reviewing the current pump sizes, locations and arrangements. This review will be starting this year and will be run with stakeholders and other interested parties included throughout with the aim of understanding better how feasible changes to the pumping arrangements could be for the region.

6. OPERATIONAL MATTERS

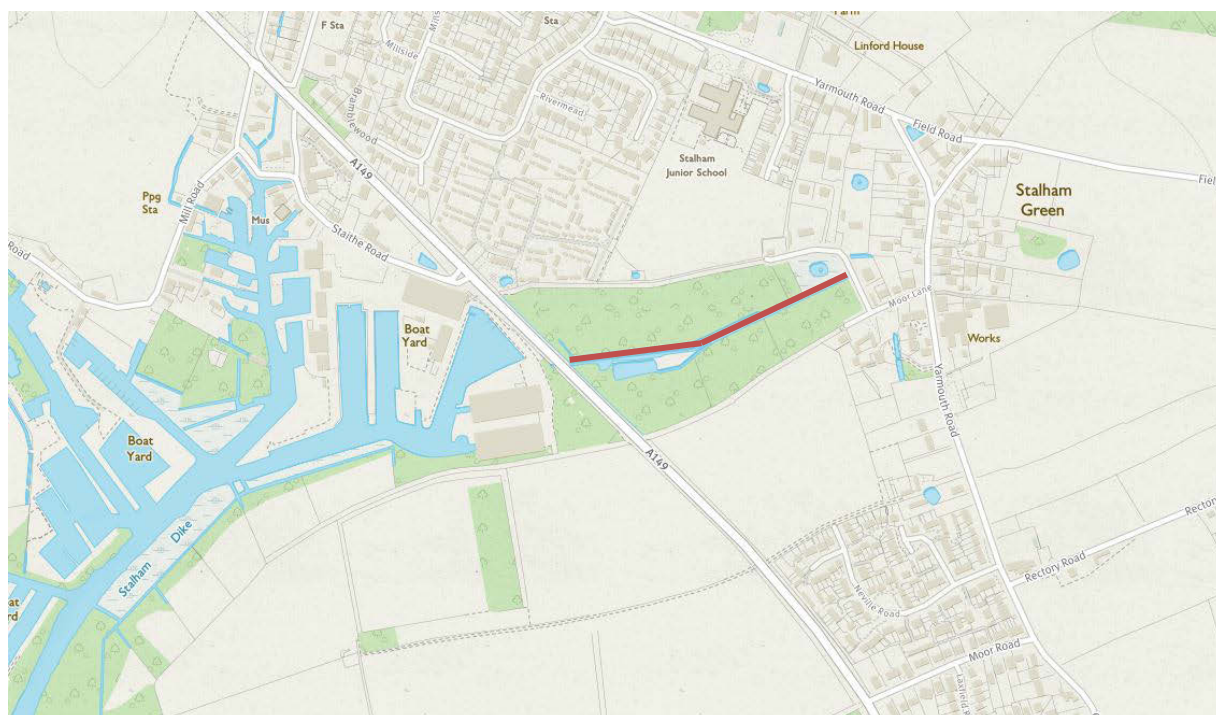
Proposed Drain Adoption

Stalham Green Flood Alleviation Plan

In line with the BIDB Adoption and abandonment the Operations Engineer proposes the adoption of 400m of drain upstream of the A149 as highlighted by the red line below. This watercourse is extremely overgrown and full of silt. It has not been properly maintained for 30 years. This watercourse drains a significant catchment upstream, including Stalham Green where flooding has been reported in the Moors Lane area. Pioneer clearance and desilting works along with regular maintenance will help alleviate flood risk.

Decision by the Board

The Landowner has agreed to pay the BIDB to undertake pioneer clearance works to ensure the watercourse is in a satisfactory condition prior to adoption. The proposed adoption has also been agreed with the landowner pending the Boards approval. Estimated maintenance costs of £1000 every two years are envisaged.



Proposed drain to be adopted



Current drain condition

7. TELEMETRY

Nothing to report this period.

8. HYDROLOGY

UK Overview (extracts from <http://www.metoffice.gov.uk/climate/uk/summaries/2016>)

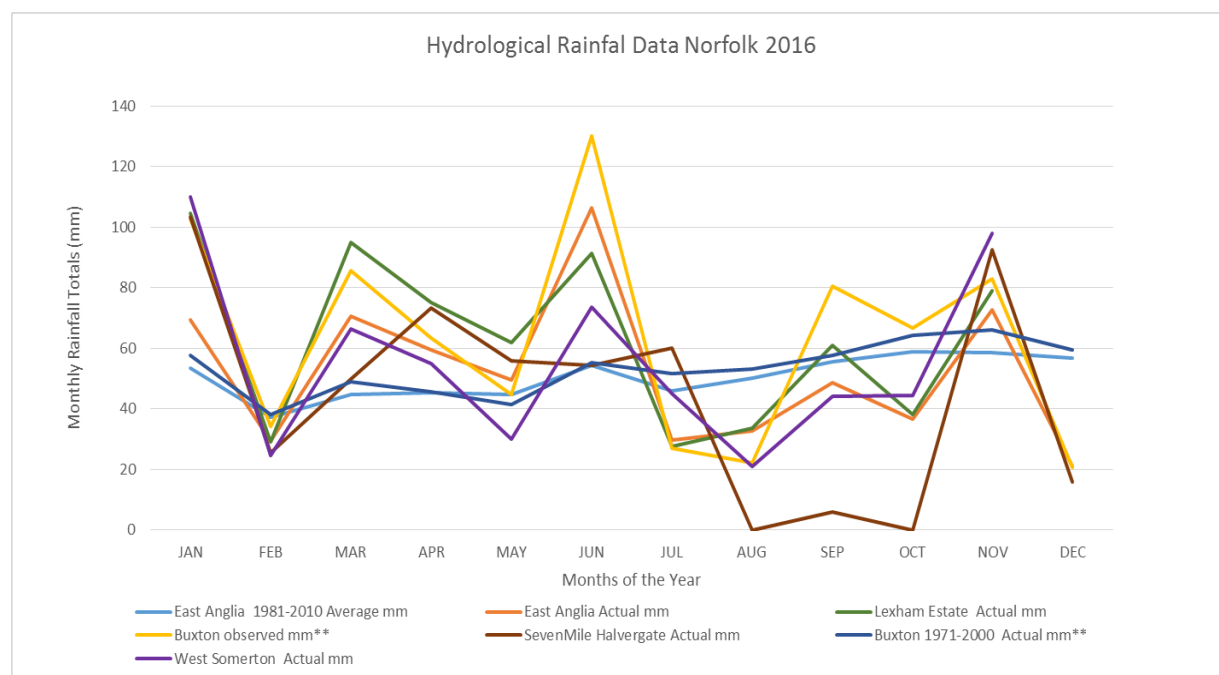
October began wet in the south with low pressure moving across the country, but an easterly type became established by the 3rd, and the rest of the month had mostly easterly winds, which brought showers into many eastern coastal areas, but plenty of sunshine for the west and especially the south-west. The weather turned more unsettled between the 15th and 19th. For most of the month temperatures were mostly near or a little below normal, but it was warm at the end of the month.

November began quiet and mild in the south, but colder air quickly spread southwards via a slack northerly airflow. Northerly winds were frequent in the first third of the month, and there was some snow in the north on the 9th. The weather turned more unsettled around mid-month. Storm Angus brought wet and windy weather and flooding especially to the south-west on the 19th/20th, and another system on the 21st brought rain and flooding further north. The month ended with high pressure in charge, and it was mostly dry and sunny and increasingly cold.

December began settled with high pressure in charge, and cold and frosty in the south but with temperatures nearer average in the north. From the 6th to the 20th, southerly winds brought generally mild and often quiet weather, though with some

rain or drizzle at times. The 21st to 26th was unsettled and windy, especially in the north, but the month ended quiet, with widespread frost and fog especially in the south.

Rainfall:



	East Anglia 1981-2010 Average mm	East Anglia Actual mm	Lexham Estate Actual mm	Buxton observed mm**	SevenMile Halvergate Actual mm	Buxton 1971-2000 Actual mm**	West Somerton Actual mm
JAN	53.4	69.5	104.5	102.9	103.4	57.8	110
FEB	37.2	29.3	29	34.1	25.4	38	24.5
MAR	44.8	70.5	95	85.6	50	49	66.5
APR	45.3	59.6	75	63.5	73.4	45.8	55
MAY	44.8	49.7	62	44.7	56	41.4	30
JUN	54.3	106.5	91.5	130.2	54.3	55.2	73.5
JUL	46	29.7	27.5	27.1	60	51.6	45
AUG	50.1	32.8	33.5	22.3	0	53.2	21
SEP	55.6	48.8	61	80.4	6	57.8	44
OCT	59	36.5	38	66.6	0	64.3	44.5
NOV	58.5	72.7	79	83	92.6	66.1	98
DEC	56.8	21.1		20.8	16	59.5	

* <http://www.metoffice.gov.uk/climate/uk/summaries/2016>

** <http://www.buxton-weather.co.uk/weather.htm#daily>

9. HEALTH AND SAFETY

No reportable incidents during this reporting period.

10. COMPLAINTS

Nothing to report this period.

11. STAFF/WORKFORCE – MEETINGS - TRAINING/EDUCATION

Catchment Engineer attended the following meetings:

3 November 2016

Brograve data discussions with Cranfield University at Broads Authority Offices

10 November 2016

Horsey Culvert Scoping meeting with CH2M Hill (Halcrow) Besl Offices

11 November 2016

RFCC/IDB liaison meeting

17 November 2016

ADA Conference (London)

21 November 2016

Brograve Partnership Meeting

8 December 2016

Upper Thurne Working Group meeting

13 December 2016

Brograve Landowner Meeting

14 December 2016

FCRM Programme Workshop

15 December 2016

Horsey Culvert Options appraisal at CH2M Hill with landowner

Project Engineer attended the following meetings:

3 November 2016

Brograve data discussions with Cranfield University at Broads Authority Offices

10 November 2016

Horsey Culvert Scoping meeting with CH2M Hill (Halcrow) Besl Offices

11 November 2016

RFCC/IDB liaison meeting

17 November 2016

ADA Conference (London)

14 December 2016

FCRM Programme Workshop

15 December 2016

Horsey Culvert Options appraisal at CH2M Hill with landowner

Operations Engineer attended the following meetings:

3 November 2016

Brograve data discussions with Cranfield at Broads Authority Offices

4 November 2016

Meeting with Stalham Staithe Residents

4 November 2016

Meeting with the owner of Richardson's Boat Yard

9 November 2016

Halvergate Meeting with RSPB

9 November 2016

Landowner Meeting at Horning

16 November 2016

Brograve site visit in relation to Hempstead Marshes Trial

21 November 2016

Brograve Partnership Meeting

28 November 2016

Institute of Civil Engineers Meeting

29 November 2016

Lowestoft Temporary Flood Barrier Training

8 December 2016

Upper Thurne Working Group meeting

12 December 2016

Sensitive Ditch Management Workshop – presenting

13 December 2016

Brograve Landowner Meeting

14 December 2016

FCRM Programme Workshop

21 December 2016

Broads Climate Partnership Meeting

22 December 2016

Brograve Landowner Meeting

22 December 2016

Brograve wall site visit

9 January 2017

IDB Health and Safety Day

10 January 2017
Halvergate design visit

10 January 2017
Potter Heigham visit

Workforce

28 & 29 November 2016
Confined Space training (City and Guilds Medium risk)
Barry Harding, Ricky Grimmer, Stewart Hunt & James Armstrong.

1 December 2016
CITB Site Safety Plus Training
All IDB Eastern operatives along with close working contractors.

9 January 2017
1st Annual IDB Eastern Health and Safety Day
All IDB Eastern operatives along with close working contractors

12. PLANNING

18/11/16, Great Yarmouth BC, Ref: 06/16/0576/CD, Main Road Filby

Thank you for your letter of 19 October 2016 regarding the updated proposals for the drainage arrangements at the aforementioned site. The plan states that a 'Land Drain' will be used to take this water to the outfall. The following details are required:

1. I assume by Land drain the designers mean an open ditch. Please can we have details of the profile/dimensions of this ditch and calculations proving its ability to take the flows required?
2. Given the topography of the land on the route of the proposed land drain it is likely to need to be of significant depth, particularly on the NE corner, where it turns through 90 degrees. Our experience of very deep drains such as this relate to the stability of the ditch sides, which will need to be very shallow (particularly given the possible adjacent loadings by farm machinery). This combination of depth and shallow profile may mean a substantial ditch is required. Please can you confirm the soils in this area and the proposed profile will be stable, including any fencing/exclusion zones which may be required.
3. The proposed ditch passes through land outside of the site. Does the applicant have permission/purchased the land on which the new ditch will run? (Note: If this is not a new ditch, then does the applicant have agreement from the landowner to pass these additional flows through it? We would require this in writing)
4. Has the designer considered the water level in the broad, in relation to the proposed outlet level and the possibility of this surcharging the new drain and preventing flow? The broads water level is managed by Northumbrian water who use it for Ormesby water works. The applicant should talk to John Burton regarding the proposals and these levels. Confirmation from John on the acceptability to discharge to the broad should be sought (John.burton@nwl.co.uk)
5. What management regime is proposed for the ditch? Given its discharge in to the broad and passing alongside woodland, monitoring of this open area for blockages

and clearing will be very important and also more specialist than typical pipework and pond systems.

6. Have the broads authority been asked to comment on the application, with this being in the broads management area?
7. Because the discharge is into the Broad's IDB district, Land Drainage consent will be required (http://www.wlma.org.uk/uploads/BIDB_Application_for_Direct_Discharge_of_Surface_Water.pdf) along with a Surface Water Discharge Contribution (http://www.wlma.org.uk/uploads/WMA_Table_of_Charges_and_Fees.pdf) . Details of this can be found on our website and should be completed by the applicant.

18/11/16 Great Yarmouth BC, Comment PA Ref 06/16/0583/O, Hemsby 96 Houses

The applicant states that the water drains off site into the existing ditch network. We would ask that the developer confirms that the receiving ditch is suitable for receiving the flows proposed and the drainage route/direction that this water will take. Should the Water enter the Broad's IDB drainage district, then Land drainage consent will be required and a surface water discharge contribution will be required.

SUDS Adoption Policy and Adoption Charge

The Board is asked to consider adopting the WMA (Eastern) SUDs Adoption and Charging Policy, see Appendix 3.

13. INFORMATION FOR THE BOARD

Lowestoft Temporary Flood Barriers

In later Autumn Public Sector Cooperation Agreement (PSCA) derived piece of work with Waveney District Council to support the preparation, deployment and maintenance of the Lowestoft Temporary Flood Barriers (LTFB) was initiated.

Waveney DC are working towards a bigger flood defence project for Lowestoft using Capital FDGiA to deliver a permanent solution to flood risk within Lowestoft as a result of the devastating Dec 2013 tidal surge. This is planned to come on-line in 2021. The temporary flood barriers are an interim solution, offering a fixed level of protection to key parts of Lowestoft.

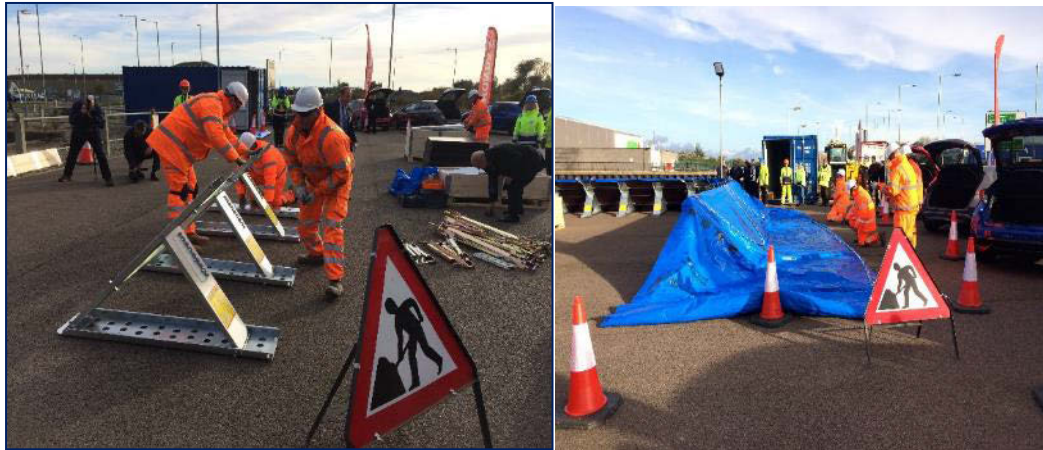
LTFB offers a level of protection to 3.20mAODN. This protection level was derived by WDC and their larger capital project consultant CH2M. Approximately 1400m of special light-weight aluminium demountable flood barriers have been bought from a specialist Swedish company called GeoDesign.

WMA (Eastern)- staff from Broad's, Norfolk Rivers and East Suffolk IDB working with partners Waveney Norse undertook two days of training over the 28-29th November 2016 to ensure as many people that were available at the time received training direct from the manufacturer.

A Deployment Plan document exists that will aid the installation, management and demobilisation of the flood barriers during a tidal surge of sufficient level to require the barriers to be installed.

WMA(Eastern) are the lead Contractor for delivering the installation, manning and demobilisation of the LTFB once trigger levels have been met and activation calls received from the Suffolk Resilience Forum (SRF) via Waveney DC. Working in partnership with Waveney Norse we will coordinate the initial response and onward deployment management.

From the beginning of October to end of March each year up until 2021 WMA (Eastern) will maintain an out of hours 24/7 dedicated duty roster and response resource capable of mobilising to install the barriers at 36hours notice from Waveney DC.



BROADS IDB**PROPOSAL TO PURCHASE 4 MOBILE PUMPS**

- 1 An opportunity has arisen to purchase 4 x 8 inch mobile pumps and the necessary hoses and connectors, with 50% of the capital cost being paid for by Waveney District Council (WDC). In return, the Board would need to make the pumps available to WDC for a 4-year period. The pumps etc. would be exclusively/wholly owned by the Board. WDC have also agreed to pay a proportion of the running costs, depending on the number of times that they use the pumps (depreciation, diesel and servicing/repair costs).
- 2 If WDC required the pumps to be deployed, the Board would also be able to recover its staff costs and transportation costs (lorry, trailer, tele-handler hire charges etc.).
- 3 We are proposing to purchase 4 x 8 inch mobile pumps made by Selwood (please see the attached specification). Selwood have a depot in Great Yarmouth, which should therefore be convenient for servicing etc. The pumps, hoses and connectors come with a 1 year warranty period. They will be stored at the Board's Martham Depot when they are not being used.
- 4 The new mobile pumps, hoses and connectors will cost approx. £130k in total to purchase after applying the bulk discount of 28%. The Board's share of the capital cost would be £65k after receiving 50% of the purchase cost from WDC.
- 5 To hire one of the very same pumps would cost us £107/day (£535/week) and there are no guarantees that the pumps would be available to us, if they had already been hired out or otherwise committed. We estimate that our internal charge out rate would be £65/day (£325/week), which represents a considerable saving. This has been based on each pump working 4 weeks a year with annual running costs of £5k per pump. We would look to fully depreciate the pumps over a 6 year period, however they are likely to last at least 15 years before they would need replacing.
- 6 Over the last 5 years the Board has spent £30k on average every year on hiring in pumps. If we were to buy our own, the equivalent cost would be £25k pa which represents a considerable saving on existing levels of activity, together with the peace of mind that they are available to us to use unless they are otherwise deployed in Lowestoft.
- 7 It is recommended that we purchase the 4 x 8 inch Selwood pumps, to add resilience locally and reduce operating costs.

P J CAMAMILE**CHIEF EXECUTIVE****15 JANUARY 2017**

Selwood Drainer 'D' Pump



D200



Specification

Capacity	m ³ /h	600
Total Head	m	37.5
Max. Solids Size	mm	55
Self Priming Lift	m	8.8
Air Handling	l/s	24
Selprime, Absorbs	kW	2.2
Power Required	kW	42
Pump Speed Max.	rpm	1500
Pump Speed Min.	rpm	1000
Impeller Type	Drainer	
Impeller Blades	3	
Impeller Dia.	mm	328
Inlet Port	mm	DN 200 PN6
Outlet Port	mm	DN 200 PN6
Fuel Tank Capacity*	ltrs	322
Fuel Consumption BEP	lt/hr	9.5

*Fuel tank capacity can be increased with the addition of an auxiliary fuel tank.

TBA - To be advised.

Priming Method



The unique original Selwood self priming system utilising a water tolerant diaphragm air pump. An environmentally friendly design that has none of the problems of oil vapour emissions and oil emulsification associated with other priming systems.

Pump Materials

Pump Casing	Grey Iron BSEN 1561 Grade EN-GJL-250
Impeller	Cast Iron BSEN 1563 Grade EN-GJS-450-10
Wear Plates	Cast Iron BSEN 1563 Grade EN-GJS-450-10
Shaft	Steel BS10277 Grade C40+C
NRV Body	Grey Iron BSEN 1561 Grade EN-GJS-250
Mechanical Seal	Silicon Carbide v Silicon Carbide
Pump End Bearing	Taper Roller
Drive End Bearing	Taper Roller

Prime Movers

Diesel Engine Perkins 1104D-44T

Electric motors available

Standard Weights & Measures

Site*	Length	257 cm
	Width	138 cm
	Height	210 cm
	Dry Weight	1690 kg
	LWA	TBA
(Pt No. 2010212S20)		
Super Silent	Length	298 cm
	Width	175 cm
	Height	210 cm
	Dry Weight	2390 kg
	LWA	91
(Pt No. 2010212S40)	db(A)@ 7m	62

* Open sets exclude fittings

Optional Extras

- Auto stop-start controls
- Telemetry system
- Oil drain service kit
- Auxiliary fuel tank connectors
- Chalwyn valve spark arrester

Selwood Limited, Bournemouth Road,
Chandler's Ford, Eastleigh, Hampshire, SO53 3ZL. UK
Tel: +44(0) 23 8025 0137 **Fax:** +44(0) 23 8027 1012
E-mail: pumpsales@selwoodpumps.com
Web: www.selwoodpumps.com

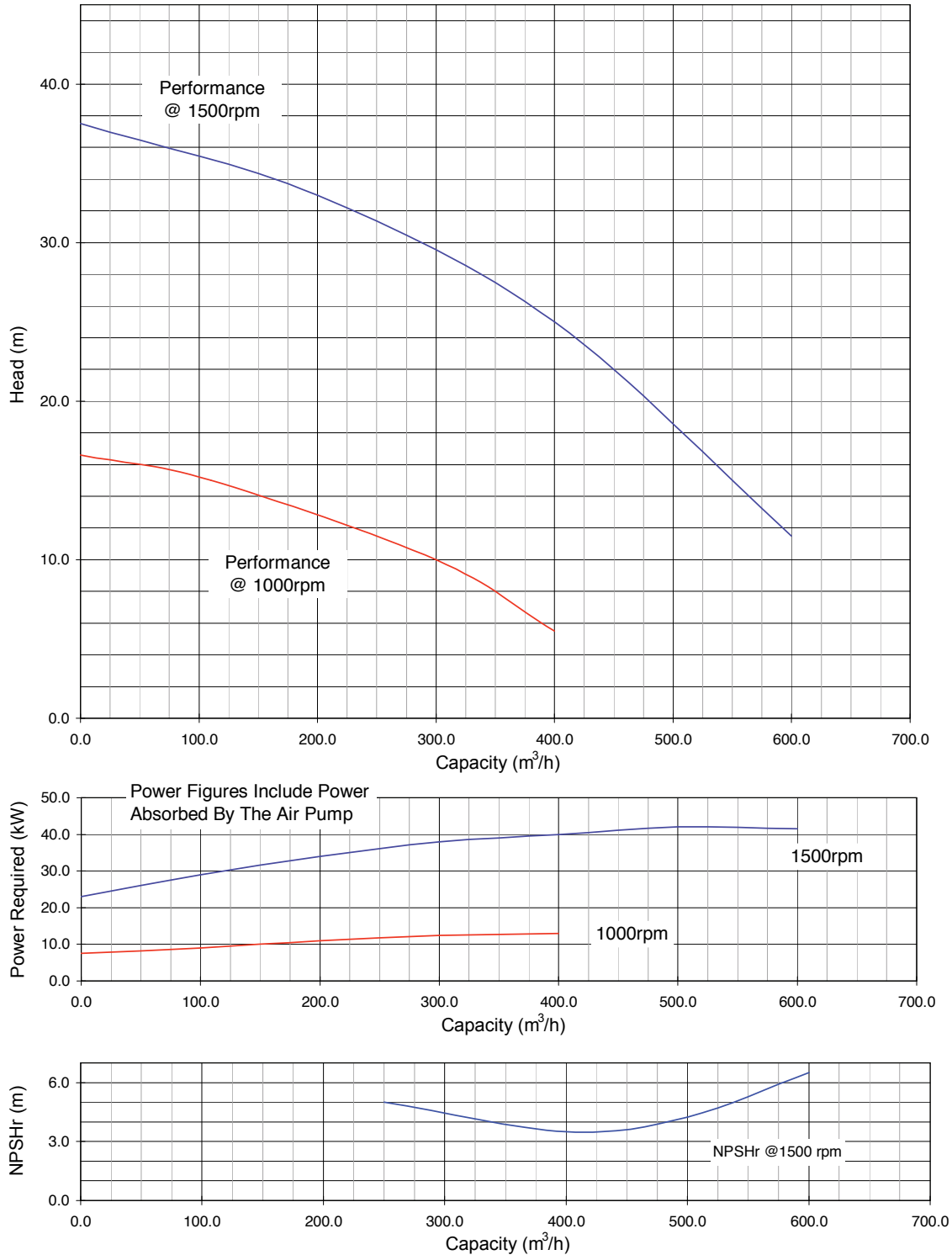


Selwood Drainer 'D' Pump



Performance Curve

D200



Selwood Limited, Bournemouth Road,
Chandler's Ford, Eastleigh, Hampshire, SO53 3ZL. UK
Tel: +44(0) 23 8025 0137 **Fax:** +44(0) 23 8027 1012
E-mail: pumpsales@selwoodpumps.com
Web: www.selwoodpumps.com





Brograve Catchment Hempstead Marshes

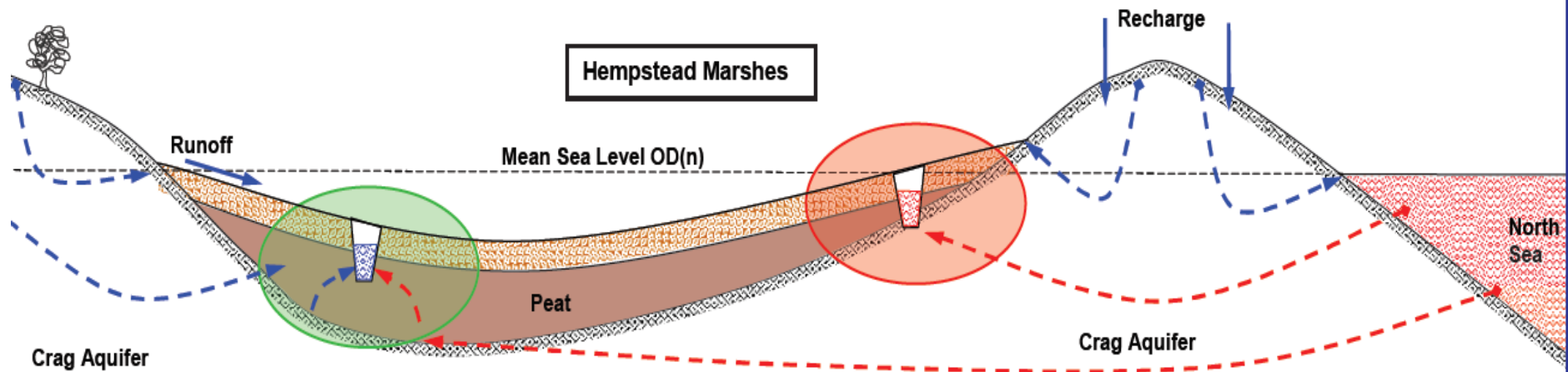
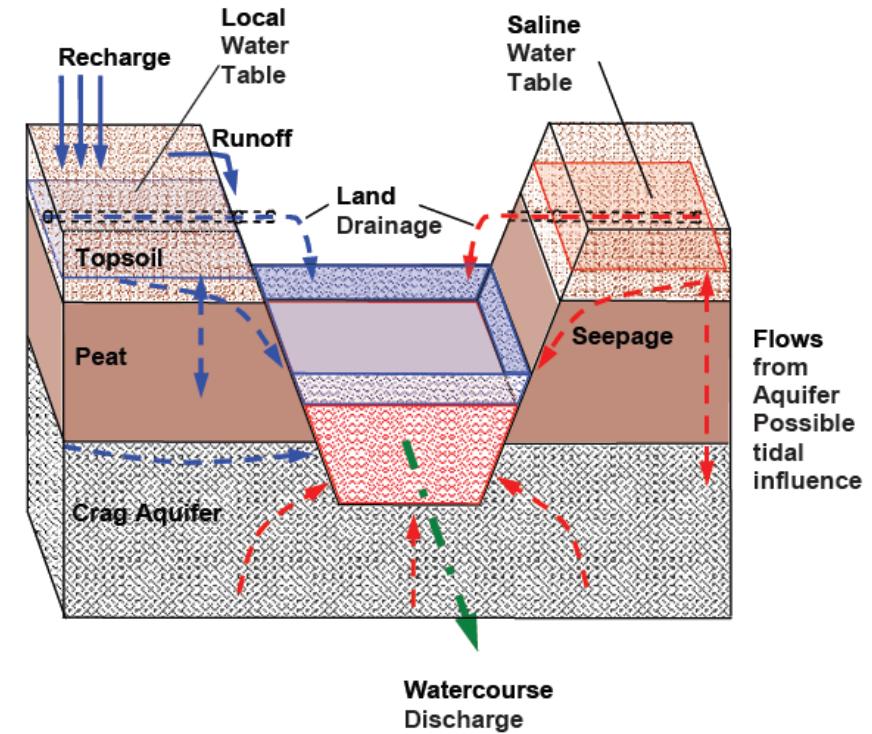
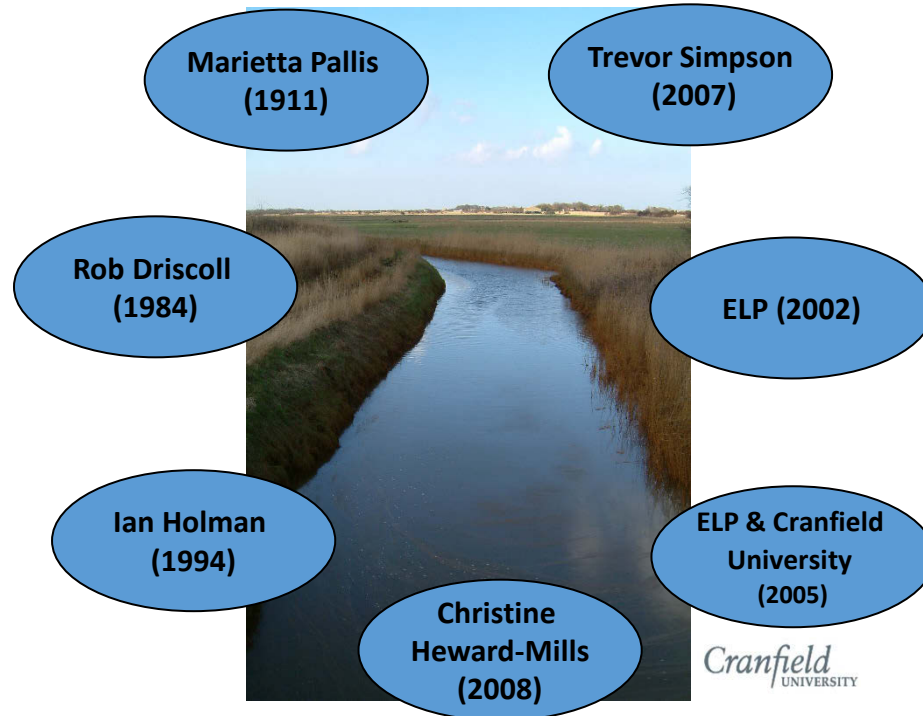
Name **Giles Bloomfield**

Job title **Catchment Engineer Broads IDB**

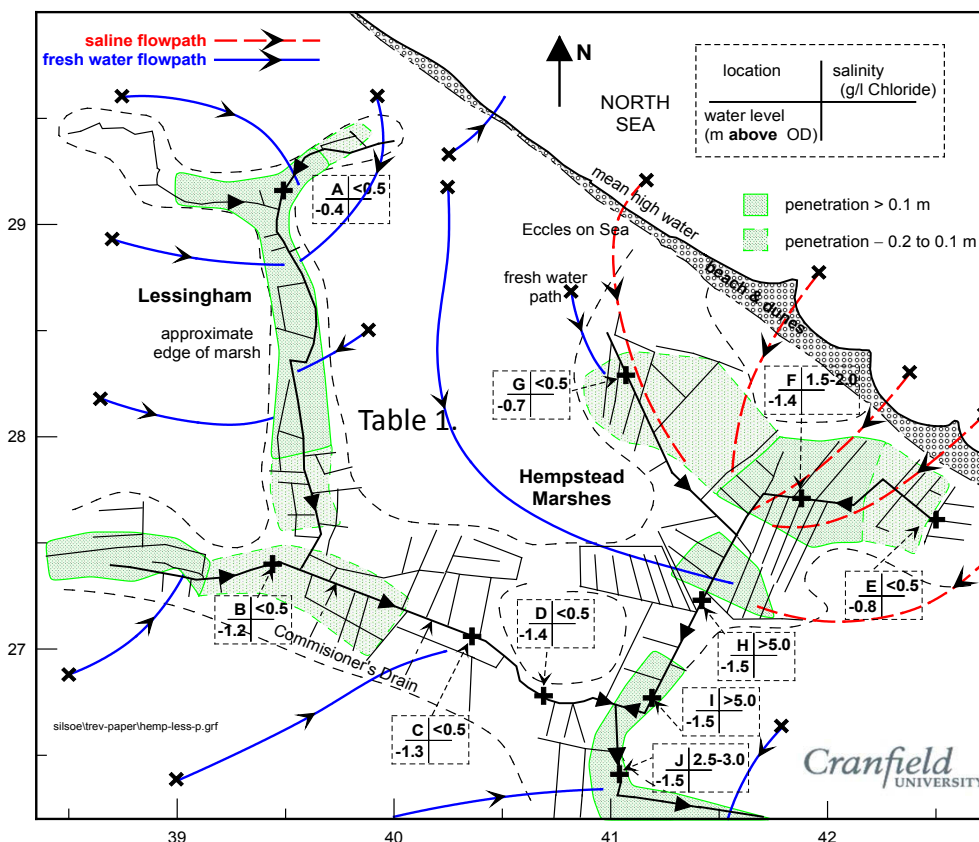
Date **08 December 2016**



Salinity & ochre in the Brograve system



Groundwater modelling



RESULTS

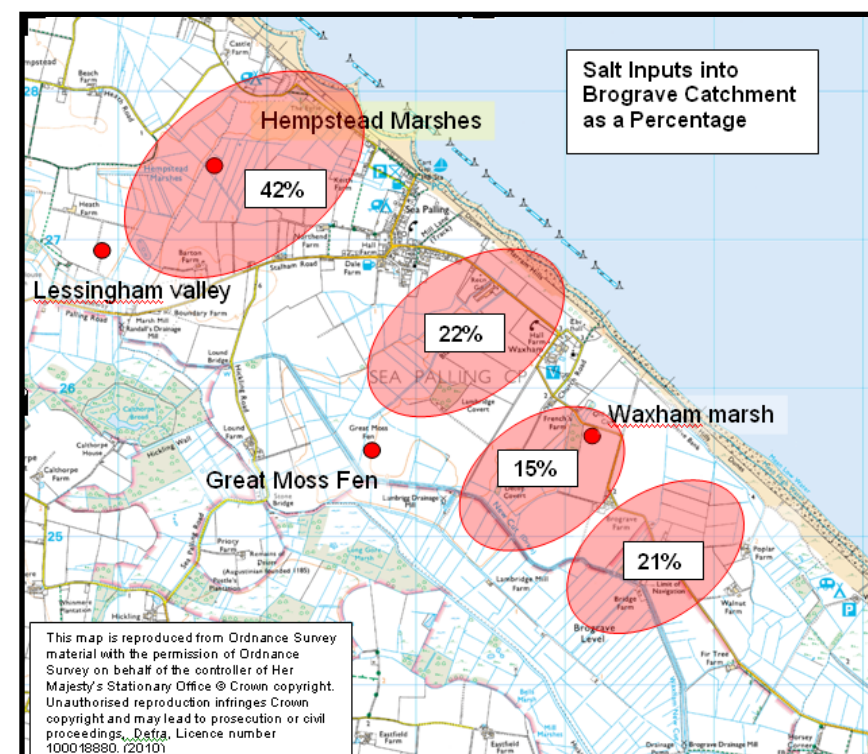
1) Raising water levels in the ditches, though still maintaining them below sea level, reduces the amount of salt entering the Brograve drains by around **15%**

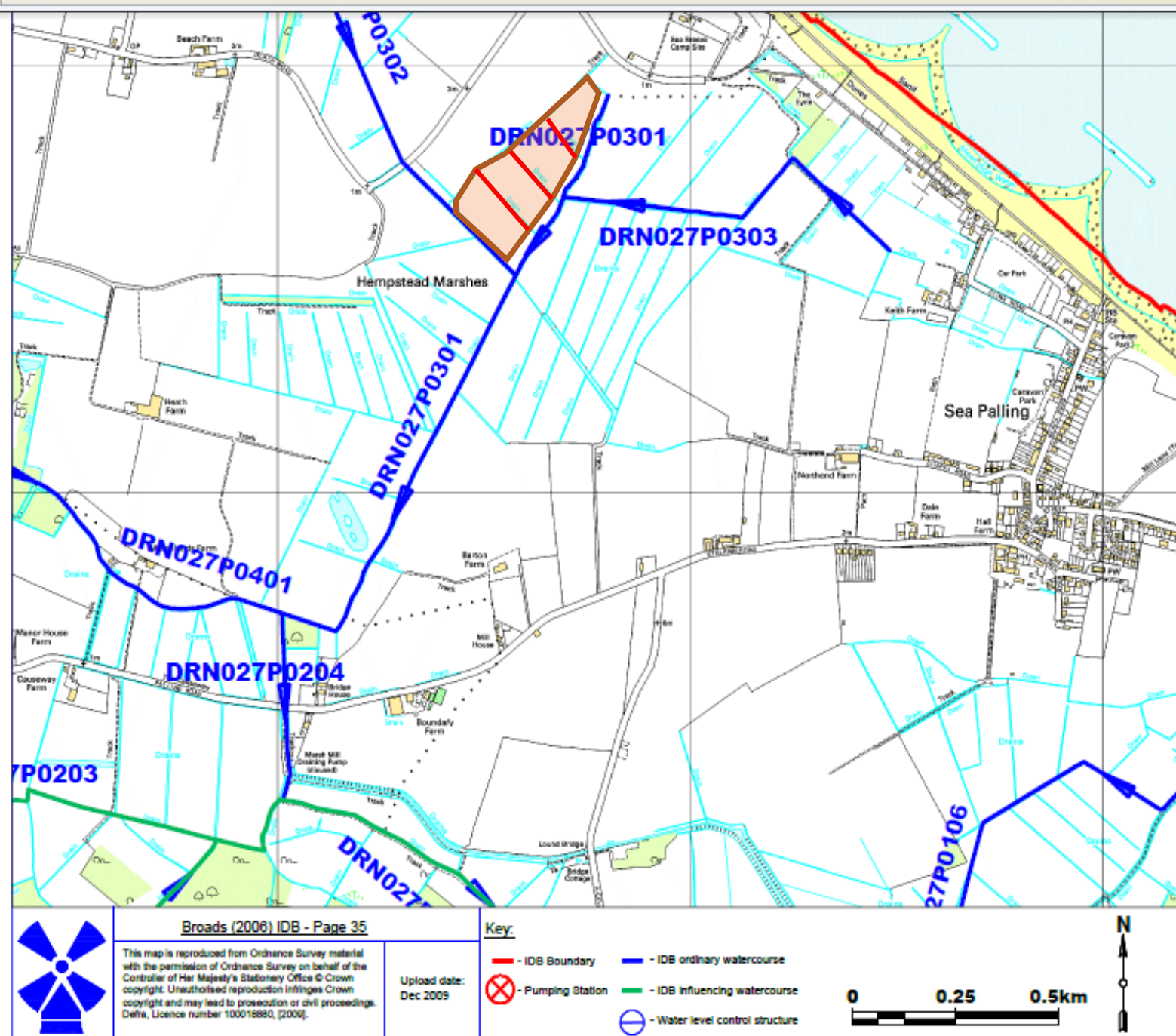
2) In-filling of over-deepened drains and the cutting of new shallower drains, reduces the amount of salt entering the Brograve catchment by around **7%**,
35% in Hempstead Marshes;

Assess feasibility of practical remediation options to **reduce** salinity (and ochre)

To assess the potential effectiveness of options

To assess the potential for localized solutions







Hempstead Marsh Trials

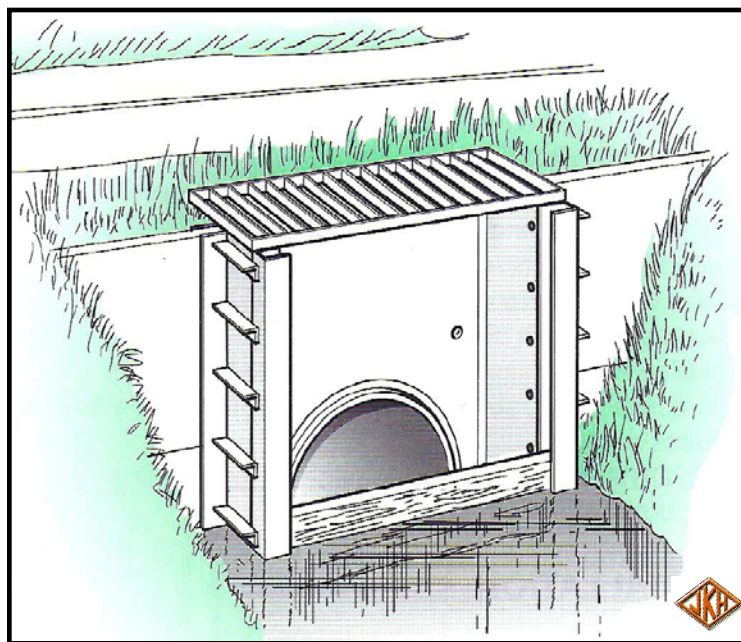
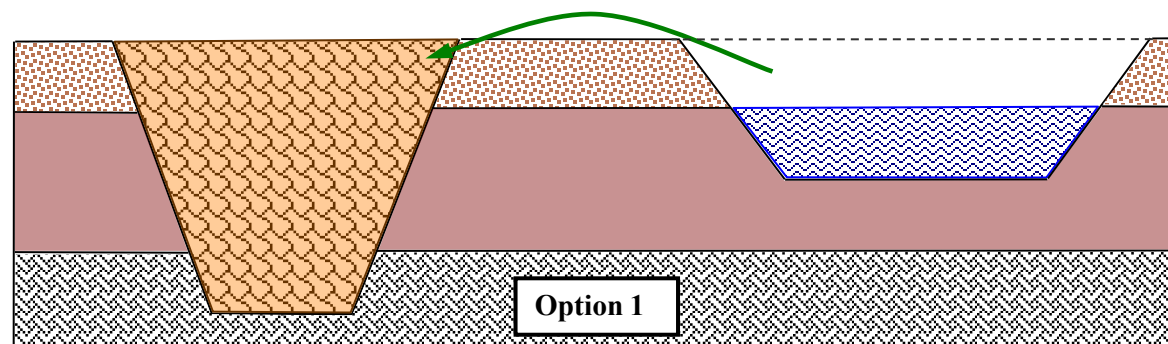
Phase 1

Install 3 sets of salinity monitoring points and dipping wells. monitoring before/ after effects of phase 2 engineering works.

Phase 2

Drain 1;

Fill in the deep cut drain and construct new shallower drain



Drain 3;

Install a water control structure to allow incremental raising of water levels.





New Drain1





Overview of the Hempstead trials

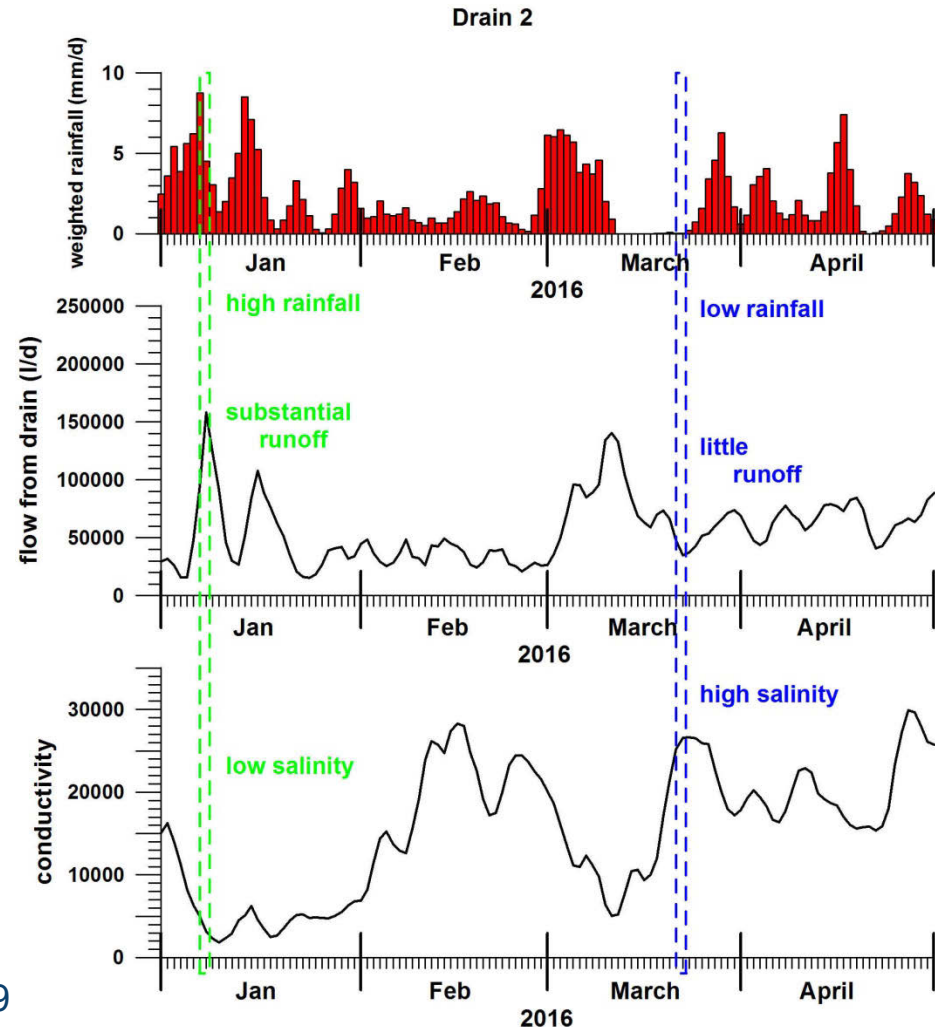
Prof Ian Holman & Prof Ken Rushton

www.cranfield.ac.uk

Observed behaviour #2

- The measured behaviour of the ditches (levels, flows, salinity etc) are highly complex

- However, they confirm our understanding of the important influence of:
 - Connectivity with aquifer
 - Proximity to coast
 - Rainfall (on marshes and higher land)



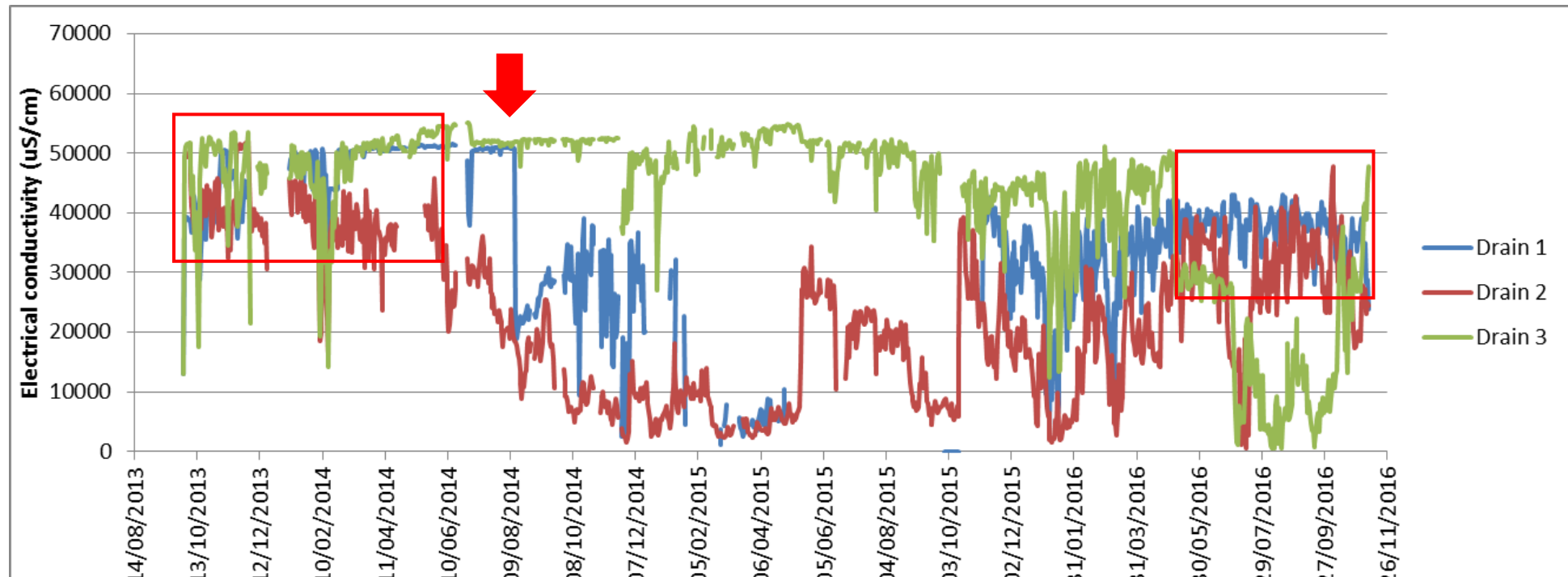


Intervention A (re-cutting of Drain 1)

1. 45-50,000 $\mu\text{S/cm}$
2. 35-45,000
3. 45-50,000

1. \downarrow 20,000 $\mu\text{S/cm}$
2. \sim 10,000
3. 50,000

1. 30-40,000 $\mu\text{S/cm}$
2. 30-40,000
3. 50,000

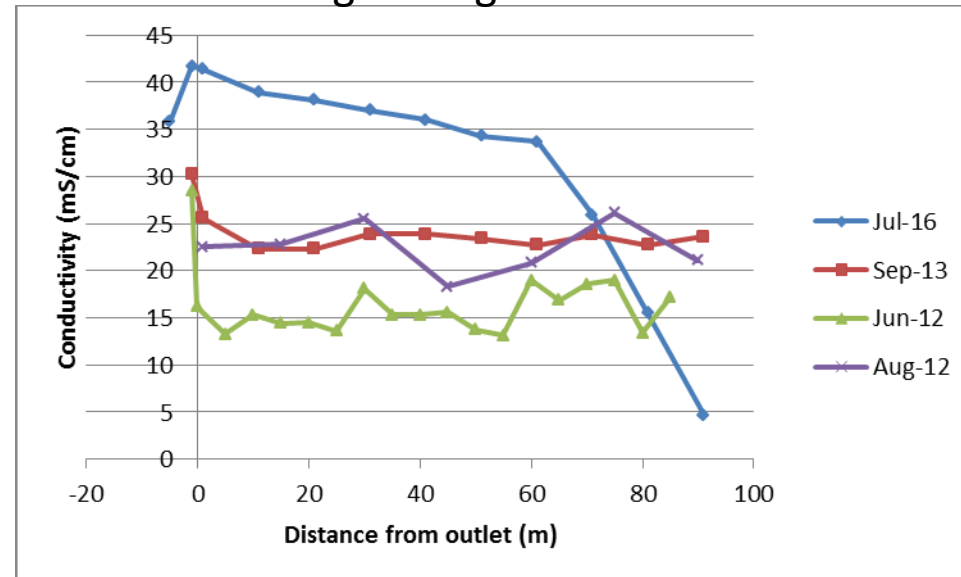




Intervention A (re-cutting of Drain 1)

- Evidence of some beneficial reduction
- Difficult to 'optimise' benefit because of variability in peat depth / digger accuracy
- Detailed peat surveys and laser levelling of the excavation needed

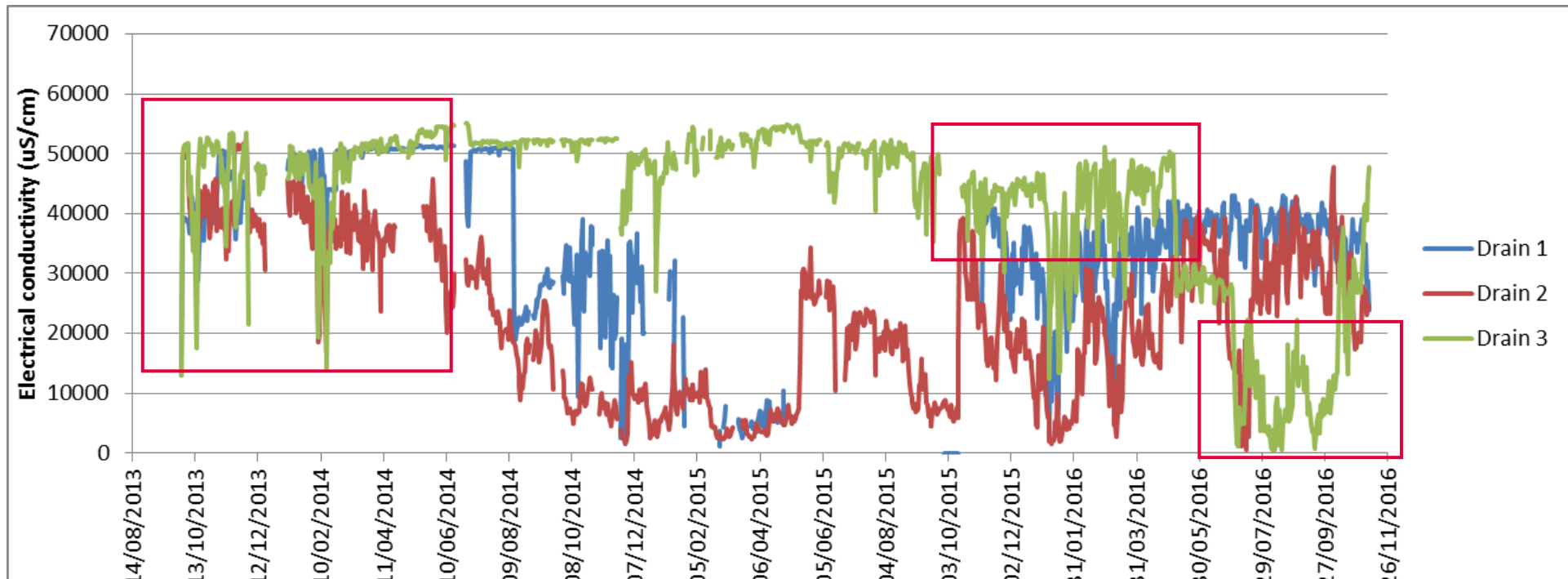
A change along the drain





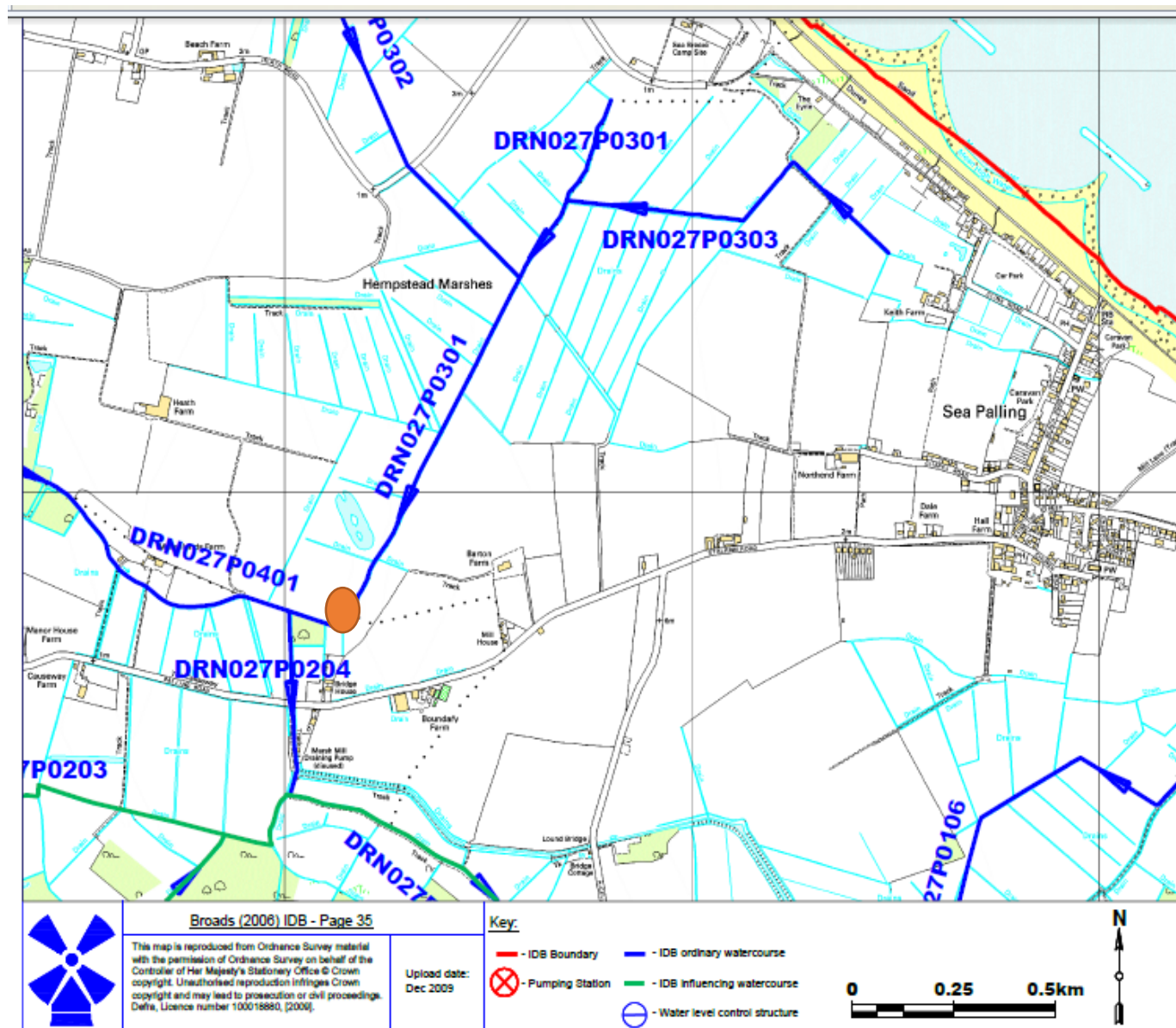
Intervention # B (Raising water levels in Drain 3)

- Drain flows are very low
- Water level (head) difference across water control structure is high
- Very difficult to be watertight and maintain high water levels
- Evidence of small reduction in salinity
- Can't realistically be implemented on a drain-by-drain basis





Next Steps ?





Thank you
Questions?

SuDS ADOPTION POLICY

Sustainable Drainage Systems (SuDS) adoption policy

1. **Adoption of SUDS within each IDB's respective Drainage District**

IDBs will consider the adoption of SUDS within their respective Drainage Districts where the SUDS cater for more than one property owner. The decision whether to adopt will be made:-

- On a site specific basis
- Dependent on the IDB having had input to the design from an early stage so that:
 - Adequate access and working space is allowed around the SUDS for future maintenance with machinery.
 - Landscaping designs consider the future maintenance and access to the SUDS.
 - Space is allowed within the site design for deposition of arisings from the SUDS, whether it be annual weed cutting material, or more infrequent mudding material, so that this did not have to be removed, but instead accommodated on site.

Generally, for guidance, IDBs may only consider adopting the type of SUDS which:-

- Are above ground and can be maintained using the equipment commonly used by IDBs, such as flails, basket cutters etc. for example storage ponds, swales, and flood storage areas (it is felt that other types of SUDS may better be suited for adoption by another authority).
- Have a maintenance regime similar to the rest of the IDB's infrastructure, e.g. cutting once or twice a year, (it is generally felt that SUDS infrastructure that needs maintaining much more frequently such as public open space or swales in front of properties may better be suited for adoption by another authority, but check first with the IDB concerned).

2. **Adoption of SUDS within each IDB's respective "extended area"**

Those IDBs with "extended areas" may also consider adopting SUDS outside of their Drainage District, but within their "extended area", if doing so will be of a benefit to their Drainage District, subject to the same conditions as shown above.

3. **Adoption charges for IDBs to adopt SUDS**

A one-off upfront Adoption Charge will be payable, by the developer, to the IDB as part of the IDB's adoption procedure. This charge is based on the present value of the total maintenance cost associated with the SUDS over the design life of the development (usually 100 years unless it can be demonstrated to be less). The annual maintenance costs used to calculate this charge will be based on a maintenance programme agreed as part of the SUDS consenting and adoption process.

The following information pertains to environmental work carried out for the Broads IDB involving the Technical and Environmental Officer (TEO) and/or the Technical and Environmental Assistant (TEA), from the 03 October 2016 – 11 January 2017

Information for the Board

Silver Eel Passage at Stokesby Pump– Project Update

The collaborative project between the Environment Agency, The Zoological Society London (ZSL) and the Broads IDB started in the Autumn 2016 as a test case to look any cheap modifications to pump installations which could be undertaken on the current system, to encourage silver eels to utilise simple pipeworkings.

Adam Piper (ZSL) started this project in November 2016 and has been tracking silver eels down toward and through the Stokesby pump during November and December 2016. The number of eels caught to tag this year were very low; only 17 were tagged and monitored.

He would like to continue this research next Autumn in order to gather more data. The equipment will remain in situ at Stokesby Pump to save on costs of removal and reinstallation.

A small summary overview of the project, provided by Adam Piper, has been appended (Appendix 1).

Halvergate Higher Level Water Carrier - Fleet Scheme

Initial steps have been undertaken in instigating the project for the extension of the Halvergate Higher Level Water Carrier, to improve fresh water ingress to the Halvergate marshes SSSI, SPA, SAC and RAMSAR site. Broads Officers have been working closely with RSPB and NE Officers and the first bunds were installed in the location of the Fleet on the 10 January 2017 in order that the RSPB should minimise their water loss from the marshes and minimise impact on overwintering and/or breeding birds during the pre-construction and construction phases of the project.

A mitigation strategy for the project area is currently under consideration and will be discussed with the RSPB and Natural England as soon as the first draft is complete. A Habitats Regulation Assessment and WFD Assessment will then be sent to Natural England for sign off prior to initiating the mitigation and construction phases.

Training in the Safe Use of Pesticides (PA1) and the Spraying of Herbicides in or Near a Watercourse (PA6W)

During this period and following a successful test on the Safe use of Pesticides in the last period, several Broads and Norfolk Rivers operatives, the TEA and the TEO passed the practical examination on the Spraying of Herbicides in or near water using a Knapsack sprayer (PA6W).

The following operatives are now trained to store, carry and apply herbicide by means of a knapsack sprayer to areas in or near water: Ricky Grimmer, Stuart Hunt, Barry Harding, Neil Marshal, Chris Sparrow, Aren Halls, Helen Mandley, Caroline Laburn.

It is hoped that this training will help the WMA Eastern group to tackle and improve the control of Non-Native Invasive Species in the Eastern area catchments where spraying will allow us to do so.

Health and Safety and Environmental Awareness Training – 09 January 2017

A joint training day was presented to all Operational Staff and Eastern Area Contrators by WMA Eastern Officers. The training day covered various aspects of Health and Safety awareness, the SMO and Hydromorphological Harm, Non-Native Invasive Species and Biosecurity. Dr Katy Owen from the Norfolk Non-Native Invasive Initiative also made a presenation illustrating the importance of awareness of these non-native species and what to do if they are found.

2. Statutory Duties towards Conservation

2.1 Pework Checks and Site Visits

The following information lists pre-works checks and site visits undertaken by the TEO and or the TEA during the period:

12 October 2016

A site visit was made by the TEA with Alan Goose, to Hemsby to assess and audit the work that had been carried out by the maintenance team on Hall Farm Fen SSSI (DRN098G0104).

13 October 2016

A site visit was arried out by the TEO and Alan Goose following water vole mitigation strimming at Stokesby Pumping station to monitor for signs of water vole activity prior to reprofiling.

28 October 2016

A site visit was carried out by the TEO and Alan Goose following water vole mitigation strimming at Stokesby Pumping station to monitor for signs of water vole activity prior to reprofiling.

31 October 2016

A site visit was carried out by the TEO and Pete Butler following water vole mitigation strimming at Stokesby Pumping station to monitor for signs of water vole activity prior to reprofiling. The TEO inspected spoil as the sections containing burrows, which were excavated prior to the process of reprofiling.

07 November 2017

A site visit to Stokesby was made with the TEO, Alan Goose and Adam Piper (ZSL) to discuss the logistics of the installation of the eel monitoring equipment.

08 December 2016

A site visit was made to the drains surrounding Sutton Garden Centre to determine the current extent of Parrots Feather, an aquatic non-native invasive species within the IDB drains.

14 December 2016

The TEA did water vole checks on the locations of the proposed bunds at Halvergate marshes (DRN124P0310) with Ricky Grimmer. The checks were done to ensure no water vole burrows were buried.

15 December 2016

The TEO carried out water vole checks on the locations of the proposed bunds at Halvergate Marshes with Alan Goose. The water vole checks were undertaken to ensure no water vole burrows would be impacted upon during the infilling/bunding process.

3. Meetings and Training attended:

05 October 2016

The TEA attended Norfolk Non-native species initiative meeting, Norfolk County Hall.

10 October 2016

The TEO attended and passed the CSCS Card Test for Professionals, on Health and Safety Awareness on Construction sites.

19 October 2016

A Team Meeting of the Eastern WMA was held at Kettlewell House, Kings Lynn.

02 November 2016

The TEA and other operational staff completed and passed the practical test; PA6W Herbicide Spraying with a Knapsack, in or near water.

15 November 2016

The TEO, Alan Goose and Matthew Philpot met Rory Sanderson, WFD Manager for Anglian Eastern Environment Agency, to discuss the WFD Assessment requirements for the Muckfleet Project.

16 November 2016

The TEO completed and passed the practical test; PA6W Herbicide Spraying with a Knapsack, in or near water.

01 December 2016

The TEA attended a safety awareness training day at Hickling Barn with the Operations team.

12 December 2016

The TEA and Paul George, Project Engineer attended and presented at the Sensitive Ditch Management event held at Blickling Hall. A practical demonstration by IDB trained contractors was carried out. This event was very well attended by contractors and the farming community.

19 December 2016

AM The TEA and the TEO attended a meeting/training session with Nik Berthold, NE SSSI Advisor to discuss Habitats Regulation Assessments. Natural England will likely be charging for advice in the future so ensuring the correct information is presented accurately within the assessment is key to ensuring we are not charged for the process of gaining assent.

PM The TEA and the TEO attended a meeting with Paul George, Project Engineer to discuss the process of mitigation for the Halvergate Project.

09 January 2017

WMA officers and Operatives met at Hickling Barn for the Health and Safety and Environmental Awareness Training.

4. Non - Compliance

Nothing to report within this period.

5. Complaints

Nothing to report within this period.

6. Assents Granted and/or Applied for:

Licence / Assent / Habitat Regulations Assessment	Applied	Granted
NE assent and Habs Regs Assessment - Bund Installation on Halvergate Marshes SSSI, SAC, SPA and RAMSAR site	20/12/16	21/12/16

7. Freedom of Information Act Requests

None during this period.

Project Overview: Eels and flow experiment, Stokesby Pumping station

Adult European eel are particularly susceptible to damage and mortality at pumping stations and mitigating for such impacts is a key focus of EU legislation (1100/2007/EC) aimed to restore declining eels stocks. Adult (silver) eel must migrate to sea to breed and diverting eels away from potentially harmful pumps and towards safe downstream routes such as bypasses presents an important challenge for water managers.

There are currently few effective guidance and passage solutions for adult eel, however, our increasing knowledge about how eels respond to changes in hydrodynamics suggests that there may be potential to divert eels using flow cues. This is being tested as part of a collaborative project between the Zoological Society of London, Environment Agency and Water Management Alliance. The aim is to determine whether small adjustments to flow have potential to provide a simple and low cost solution to facilitate eel passage at pumping stations.

A field experiment was conducted at Stokesby Pumping Station during November and December 2016. Adult eels were captured by fyke netting in the surrounding channels, tagged and released upstream of the Stokesby pumping station. During tests, a small amount of water was pumped from the adjacent tidal river Bure and delivered into the IDB channel via a 225 mm diameter test pipe. Acoustic positioning telemetry within the IDB channel and tidal Bure was used to track tagged eels on the approach to this flow input to assess their behaviour and determine if individuals 1) were attracted to enter the pipe, or 2) passed through the Archimedes pumps. An exceptionally dry autumn and low catches of eels meant that fewer study fish were available than expected, however data were successfully collected from 17 eels. Analysis is currently underway and with the continued support of our partners we hope to expand these studies in 2017.



Figure 1 Study set-up at Stokesby pumping station showing flow input source



Figure 2 Silver eel

Adam Piper (05/01/2017)

Broads (2006) IDB

Schedule of Paid Accounts

Payment Date From : 01/10/2016

Payment Date To : 31/12/2016

<u>Account ID</u>	<u>Name</u>	<u>Details</u>	<u>Amount Paid This Period</u>
AC0002	Acle Garden Machinery Centre	Strimmer parts	52.80
ADC001	ADC (East Anglia) Ltd	Jetting	2,220.00
AN0003	Anglia Spareline Ltd	Alloy Tube	28.20
AN0120	Anglia Farmers Ltd	Electricity/Materials	22,428.85
AU0001	Autoplant	Polaris ATV Repairs	429.40
BR0005	Britannia Safety & Training	Training	2,394.00
BSL001	Broadland Stainless Steel	Brackets	294.00
BT0001	BT Payment Services	Telephone/Broadband	320.04
CH0001	Chapman Farms Ltd	Rent/Electric	1,277.57
CI0001	City Electrical Factors	Spares & Repairs	2,675.34
CJ0340	C J Spares Ltd	Spares	1,283.83
CL0350	Clarke Hydraulics	Hydraulic Pipes	1,525.99
EA0002	East Suffolk IDB	Rechargeable Works	886.55
EE0001	EE	Telephone	30.36
ELE001	ELE International	Conductivity Meters	296.18
EN0501	Environment Agency	Precept	75,592.00
EO0550	E.On UK PLC	Electricity	81.19
FE0001	Fenton Insurance	Vehicle Insurance	556.97
GO0744	B G Goose & Partners	Plant Hire & Labour	2,906.40
GS0001	G & S Stores Ltd	Small Tools	486.68
HA0001	M P Harris	Pump Maintenance	11,876.40
HA0005	Jeremy Halls	Surveys/monitoring	1,618.25
HU0001	Hubble	Small Tools	221.11
IN0002	Independent Lifting Services	Hardware	821.90
IN0004	Industrial Training Services Ltd	Training	667.00
IN0950	Inland Revenue	Paye & NIC	20,511.54
JO0002	Roger Jones	Pump Attendant	2,174.64
LA0001	W Lanham & Son Ltd	Lowloader Move	3,150.00
LO0001	Robin Lofty	Plant Maintenance	400.00
LO003	Longwater Construction Supplies	Pipe	8,428.20
MA0002	Martham Boat Building &	Maintenance Parts	672.00
MA0007	Marshall Motor Group Ltd	New Vehicle	46,998.00
MO0003	Mole Valley Ltd	Gas Oil	2,249.39
NE0001	Newey & Eyre	Telemetry Upgrade	90.14
NI1450	Nicholsons	Hardware/Fuel	2,948.58
NI1451	J H & P E Nicholson Ltd	Pump Attendance	450.00
NO0002	Norfolk County Council	Mink Control	1,620.00
NO1470	Norfolk Pension Fund	Pension Contributions	16,839.72
NO1475	Norfolk Rivers IDB	Rechargeable Work	8,750.86
OD0001	Odd Bods Exterior Cleaning	Exterior Cleaners	1,830.00
OTT001	OTT Hydromet Ltd	Capital Works	3,168.00
PE0001	Peoplesafe	Lone Worker Unit	172.80

Broads (2006) IDB

Schedule of Paid Accounts

Payment Date From : 01/10/2016

Payment Date To : 31/12/2016

<u>Account ID</u>	<u>Name</u>	<u>Details</u>	<u>Amount Paid This Period</u>
PU0001	Pulsar Process Measurement	Pulsar Unit/Repairs	162.00
RE0002	Reedman Services Ltd	Weed Baskets	600.62
RO0002	Rollesby Primary School	Childcare Vouchers	972.00
RO0004	Mr M Rogers	Compensation	500.00
SE0001	Selwood Ltd	Pump Hire	7,355.41
SSAF01	SSAF Window Films Ltd	Signs/Number Plates	45.60
TR2010	Mr P Travis	Pump Attendant	1,493.60
VO0001	Vodafone	Mobile Phones	560.88
WA0001	Water Management Alliance	Rechargeable Work	13,979.16
WA0003	Watson Fuels	Gas Oil	4,896.57
WI0002	Wildlife Conservation Partnership	Barn Owl Recovery	2,000.40
WR0001	Stephen Wright	Pump Attendant	1,040.00
YA0001	Yarmouth Rewinds Ltd	Pump Maintenance	390.83

Please note that the amounts shown above include Vat £ 285,421.95

Broads (2006) Internal Drainage Board

Draft Objectives 2016/17 – Performance Review

	Objective	Responsible Officer	Status
1.	Ensure total expenditure does not exceed the expenditure budget for 2016/17 and plan for subsequent year's rate increases to equate to no more than an inflationary rise.	Chief Executive/ Budget Holders: Catchment Eng., Project Eng., Operations Manager	Achieved.
2.	Ensure the EA's annual precept charge on the Board is fair and is spent on work that benefits the Internal Drainage District.	Chief Executive/Board	Some progress has been made: the EA Precept charge increased by 5% from 2015/16 to 2016/17 and will increase again by another 5% for 2017/18 without any real idea of where this precept money will be spent. However the Board's Officers have now been requested by EA Officers to prepare a 3-year programme of works showing where and how we would like our precept money spending. EA officers have indicated that this work programme may then be delivered by the IDB and funded from the Board's precept payment/RFCC local levy, moving forward.
3.	To conclude the review of the arterial network and the Board's Infrastructure Adoption/Abandonment Policy.	Catchment Engineer/Project Engineer/Operations Manager	Achieved.
4.	To complete the indicative 5 year capital and maintenance programme.	Project Engineer/ Operations Manager	Achieved.
5.	To look to extending the Drainage District to the full watershed catchment.	Catchment Engineer/ Project Engineer/Chief Executive	Some progress has been made: Chief Executive is working with Defra and ADA to change primary legislation, which will give IDBs the mechanism to extend their areas. Chief Executive and Project

Broads (2006) Internal Drainage Board

Draft Objectives 2016/17 – Performance Review

			Engineer have suggested to the EA that extending the Drainage District would be one way of funding the maintenance work of the river banks, on completion of the BESL project in 2021.
6.	To help introduce a sustainable investment programme for the sea defences that protect the Board's area that are considered by the EA to be 'uneconomic', by continuing to work with the EA, NNDC, NCC, NE, BA and other partners.	Chief Executive/ Catchment Engineer/ Project Engineer	Work in progress.
7.	To invest in the Board's depot at Martham to provide a fully functional and cost effective base from which to service and maintain the Board's fixed plant.	Chief Executive/Catchment Engineer	Work in progress.

16 January 2017

P J CAMAMILE
CHIEF EXECUTIVE

Broads Internal Drainage Board Draft Objectives for 2017/18

1. To ensure that total expenditure does not exceed the expenditure budget for 2017/18 and plan for subsequent years' rate increases to equate to no more than an inflationary rise.
2. To ensure that the EA's annual precept charge on the Board is fair and that it is spent on work that benefits the Internal Drainage District.
3. To complete the refurbishment of the Martham Depot.
4. To help partners to develop a plan to maintain the river banks after the BESL project finishes in 2021.
5. To help introduce a sustainable investment programme for the sea defences that protect the Board's area which are considered by the EA to be 'uneconomic', by continuing to work with the EA, NNDC, NCC, NE, BA and our other partners.

**BROADS INTERNAL DRAINAGE BOARD
RISK REGISTER**

STRATEGIC OBJECTIVES	RISK	IMPACT	LIKELIHOOD SCORE (1 – 3)	IMPACT SCORE (1 – 3)	RISK RATING (HIGH, MEDIUM, LOW)	RESPONSE (ACTIONS PLANNED/TAKEN)
To reduce the flood risk to people, property, public infrastructure and the natural environment by providing and maintaining technically, environmentally and economically sustainable flood defences within the Internal Drainage District (IDD)	Reduction in, or insufficient finance, grant and income EA may cease to pay highland water contributions to IDBs	Erosion of Board's capital and general reserves Reduction in FCERM service the Board is able to provide Unable to replace assets as scheduled in asset management plan	3	3	High 9 →	Explore alternative funding streams
	Environment Agency (EA) is no longer willing or able to carry out work on sea defences that protects the Internal Drainage District, or continues to maintain these but to a reduced standard	Potential overtopping into IDD in severe weather events and cost implications of managing the increase in water	2	3	High 6 →	Develop Investment Plan with key stakeholders in each flood compartment
	EA is no longer willing or able to carry out work on Main	Will limit the Board's ability to fulfil its statutory function	2	3	High 6 →	Need to formally identify, record and advise EA of works required. Develop protocol to undertake works

**BROADS INTERNAL DRAINAGE BOARD
RISK REGISTER**

STRATEGIC OBJECTIVES	RISK	IMPACT	LIKELIHOOD SCORE (1 – 3)	IMPACT SCORE (1 – 3)	RISK RATING (HIGH, MEDIUM, LOW)	RESPONSE (ACTIONS PLANNED/TAKEN)
	Rivers,					on recharge basis Potential to implement PSCA to undertake works
	Access to skills and core competencies is reduced	Potential to limit delivery of a quality service and thereby weaken confidence of stakeholders in the IDB's capabilities	1	3	Medium 3 ↓	Board is an equal member of the WMA CMC, which strengthens the organisation and assures access to appropriate skills/competencies. Board is kept updated via member representation at CMC meetings Extensive staff training is recorded and documented Effective management, Employee handbook and compliant disciplinary and grievance procedures Key man insurance is in place for appropriate personnel
	Damage caused to third party property or individuals, as a result of carrying out works	Compensation claims made against the Board Loss of confidence in the Board's capabilities	2	2	Medium 4 ↓	Documented Staff training and Employee handbook in place to limit risk Internal controls provide for segregation of duties Use of approved suppliers Insurance, Financial Regulations, Health & Safety

**BROADS INTERNAL DRAINAGE BOARD
RISK REGISTER**

STRATEGIC OBJECTIVES	RISK	IMPACT	LIKELIHOOD SCORE (1 – 3)	IMPACT SCORE (1 – 3)	RISK RATING (HIGH, MEDIUM, LOW)	RESPONSE (ACTIONS PLANNED/TAKEN)
						<p>Policy, risk assessments and safe systems of work all in place</p> <p>ISO9001 accredited with external audit of QA systems</p> <p>Complaints register</p>
	Unable to respond to a major incident, due to lack of resources	Low – the IDB is not a first line responder	1	2	Low 2 →	<p>Additional resource in post and shared across WMA Eastern Boards</p> <p>Resources backed up by volunteers and equipment</p> <p>Board is a member of the Local Resilience Forum. Board's emergency plan integrates with County emergency plan</p>
	Claims and/or bad publicity against IDB in the event of failure to provide a 24 hour/365 day emergency response for the community	<p>Loss of public confidence in IDB</p> <p>Potentially damaging to IDB's relationship with other RMAs</p>	1	2	Low 2 →	<p>As a WMA member Board there is access to support from other member Boards and the WMA Staffing Plan and Duty Rota</p> <p>Emergency workforce and volunteers available</p> <p>Procedures for managing the media are set out in the Board's Reserved Matters</p>
	Public do not know who to contact in an	Delayed response	1	2	Low 2 →	<p>Contact information on website: http://www.wlma.org.uk/broa </p>

**BROADS INTERNAL DRAINAGE BOARD
RISK REGISTER**

STRATEGIC OBJECTIVES	RISK	IMPACT	LIKELIHOOD SCORE (1 – 3)	IMPACT SCORE (1 – 3)	RISK RATING (HIGH, MEDIUM, LOW)	RESPONSE (ACTIONS PLANNED/TAKEN)
	emergency					ds-idb/contact-us/ and in telephone directory Duty Officer emergency telephone line LRF/LLFA have contact details
	Loss or damage of assets through pilferage, theft or neglect	Reduces IDB capability of fulfilling its statutory function Cost implications for replacement, even with insurance	2	2	Medium 4 ↓	Asset management plan and maintenance programmes in place Regular stock control checks and current inventory of assets Insurance, including annual engineering inspection Standard Service Level Agreement for Pump Attendants
	Loss of income through error or fraud	Cost implication for external assistance that may be required to recover monies May need to implement further training and/or disciplinary procedure	1	2	Low 2 ↓	Board approved Financial Regulations, Anti-Fraud/Corruption Policy, Whistleblowing Policy Internal controls and segregation of duties Internal and external audit Insurance
	Loss of income from short term		2	1	Low 2 ↓	Board approved Investment Policy

**BROADS INTERNAL DRAINAGE BOARD
RISK REGISTER**

STRATEGIC OBJECTIVES	RISK	IMPACT	LIKELIHOOD SCORE (1 – 3)	IMPACT SCORE (1 – 3)	RISK RATING (HIGH, MEDIUM, LOW)	RESPONSE (ACTIONS PLANNED/TAKEN)
	investments following downgrading of the band by Moodies Credit Rating Agency.					Withdraw investments at maturity date.
	Failure to comply with all current U.K. and E.U. legislation/regulation and/or generally accepted accountancy practice	IDB would incur penalties/fines	1	3	Medium 3 →	<p>Employ competent staff through WMA. Training for staff and Board members</p> <p>Board approves Financial Accounts</p> <p>Internal audit</p> <p>Engage HR, Legal and Health and Safety specialists as and when required</p>
	<p>Operations works constrained by the Water Framework Directive legislation and Habitat Regulations Assessments</p> <p>Onus of proof sits with IDBs</p>	IDB could incur penalties/fines	2	3	High 6 ↓	<p>Work with EA, NE and voluntary sector orgs to meet WFD requirements.</p> <p>Agree interpretation of Habitat Regulations Assessments with NE.</p> <p>SMO regularly updated to remain WFD compliant</p> <p>Regular SMO update training for employees</p> <p>Ensure affected landowners are aware of agreed water levels.</p> <p>Pursue funding from all</p>

**BROADS INTERNAL DRAINAGE BOARD
RISK REGISTER**

STRATEGIC OBJECTIVES	RISK	IMPACT	LIKELIHOOD SCORE (1 – 3)	IMPACT SCORE (1 – 3)	RISK RATING (HIGH, MEDIUM, LOW)	RESPONSE (ACTIONS PLANNED/TAKEN)
						available sources.
To become the delivery partner of choice for the Lead Local Flood Authority (LLFA) and Environment Agency (EA) within the Board's hydraulic sub catchment	<p>LLFA and/or EA use contractors to carry out the work in areas outside the Internal Drainage District (IDD) and on Main Rivers/Tidal Defences both in and outside the IDD</p> <p>LLFA and EA take over the functions of the IDB</p>	<p>Would reduce the control the IDB has over quality of works undertaken, and if of a lower standard could affect the IDB's ability to fulfil its statutory function in the IDD</p> <p>If the LLFA/EA takes over the functions of the IDB, the IDB would cease to exist</p>	1	3	Medium 3 ↓	<p>Build and maintain trust and understanding with LLFA, EA and DEFRA</p> <p>Regular liaison meetings with EA</p> <p>Take on works where possible to demonstrate professionalism and VFM</p> <p>Monitor performance and review governance arrangements</p> <p>Availability of Public Sector Cooperation Agreement (PSCA)</p> <p>Back office functions are spread across the WMA Member Boards to reduce costs, strengthen organisation and increase influence</p> <p>Member of ADA</p> <p>Promote the IDB through the media</p>
	Unable to take on the extra work due to	Could reduce LLFA/EA confidence in the	2	2	Medium 4 ↓	Explore new funding sources locally with EA, LLFA and others

**BROADS INTERNAL DRAINAGE BOARD
RISK REGISTER**

STRATEGIC OBJECTIVES	RISK	IMPACT	LIKELIHOOD SCORE (1 – 3)	IMPACT SCORE (1 – 3)	RISK RATING (HIGH, MEDIUM, LOW)	RESPONSE (ACTIONS PLANNED/TAKEN)
	lack of resources	IDB's ability to deliver				<p>Review Rating and Electoral Sub Districts</p> <p>Arrangement with WMA Member Boards for support</p> <p>Introduction of new management structure for WMA (Eastern) Boards</p> <p>Additional Resource in post and shared across other WMA (Eastern) Boards to increase capacity and capability</p>
To enable and facilitate land use for residential, commercial, recreational and environmental purposes by guiding and regulating activities, which have the potential to increase flood risk	<p>Planning Authorities ignore advice provided by Board, which leads to increased flood risk</p> <p>Lack of staff resources results in turning a blind eye to Byelaw/Land Drainage Act infringements and contraventions or failure to collect development</p>	<p>Potential for increased flood risk</p> <p>Lost income from SWDCs and commuted sums</p>	2	3	High 6 ↑	<p>Get involved with each constituent Planning Authority to better integrate/ coordinate planning and flood risk management issues</p> <p>Board comments made on planning applications are available on each Planning Authority's website</p> <p>Planning/Enforcement issues reported at Board and Committee meetings</p> <p>Lobby LPAs to include IDBs as Statutory Consultees and to treat IDB watercourses as SUDs</p> <p>Promote IDB services for adoption of SUDs in planning</p>

**BROADS INTERNAL DRAINAGE BOARD
RISK REGISTER**

STRATEGIC OBJECTIVES	RISK	IMPACT	LIKELIHOOD SCORE (1 – 3)	IMPACT SCORE (1 – 3)	RISK RATING (HIGH, MEDIUM, LOW)	RESPONSE (ACTIONS PLANNED/TAKEN)
	contributions and commuted sums Potential for developers to hand over management of SUDs to private management companies, who may fail in their responsibility to maintain them in the long term	Inadequate or total lack of maintenance of SUDs could have an adverse impact on the IDB infrastructure and subsequently increase the risk of flooding				consents to ensure they are maintained in perpetuity Look to introduce a SUDs adoption and charging policy
To nurture, enhance and maintain the natural habitats and species, which exist in and alongside watercourses, wherever practical to ensure there is no net loss of biodiversity	Non-delivery/ non compliance of Biodiversity Action Plan (BAP) Implementation of BAP leads to increased flood risk and increased maintenance costs Increased levels of non-native species adversely affecting BAP delivery eg	Board does not meet its environmental targets. Potential to incur penalties/fines Failure to balance environmental needs with management of flood risk Failure to successfully control/eradicate invasive species	2	2	Medium 4 ↓	BAP approved by Board and submitted to DEFRA and EA Work to WFD compliant SMO Prioritise each watercourse according to flood risk, based on criterion agreed by the Board to identify opportunities for increasing environmental performance in lower priority infrastructure Prepare a programme of environmental survey work in and alongside Board watercourses Officers monitor and report environmental performance to Board

**BROADS INTERNAL DRAINAGE BOARD
RISK REGISTER**

STRATEGIC OBJECTIVES	RISK	IMPACT	LIKELIHOOD SCORE (1 – 3)	IMPACT SCORE (1 – 3)	RISK RATING (HIGH, MEDIUM, LOW)	RESPONSE (ACTIONS PLANNED/TAKEN)
	killer shrimp.					<p>Staff awareness training</p> <p>ISO 14001 accreditation and external audit of QA systems</p> <p>Actions monitored by EA, NE, Police, SWT and local population</p> <p>Complaints Register</p> <p>Adhere to risk assessment and protocol for management of works where non-native species are present</p>

Distributed to:**Broads (2006) IDB Members**

Andrews T
Alston H J
Baugh L E
Burton J
Buxton R
Cator H G
Chapman J W
Coleman M Mrs
Daniels S G
Fitch-Tillett A M Mrs
Gay G D
Grove-Jones P Mrs
Harris M
Hart K
Hempsall L Mrs
Jarvis B
Mallett A S
Northam W
Nurden G
O'Neill F
Price R C
Rice P
Robinson I
Roll D
Sharman F
Shrimplin J
Smart M
Strudwick T P
Tallowin J G
Tapp V
Thirtle H
Walch C
Walker L Mrs
Ward D C
Weymouth S Mrs
Wharton E
Withers J W K
Wright S D

Officers

Bloomfield G
Camamile P J
George P
Goose A
Laburn Ms C
Mandley Ms H
Philpot M
Thomas Mrs K