

**Broadland Flood Alleviation Project:
Planning Application for Piling Removal and Floodbank Crest Piling
in Compartments 23, 29 and 30 (Burgh St. Peter, Oulton
and Blundeston Marshes)**

Report by Senior Waterways and Recreation Officer

Summary: This report provides Members with a summary of Broadland Environmental Services Ltd (BESL's) planning application proposals for Compartment 23 (Burgh St. Peter Marshes), 29 (Oulton Marshes) and 30 (Blundeston Marshes) on the River Waveney. The report also outlines officers' comments on the planning application upon which members' comments are welcomed.

1 Background

- 1.1 Major flood defence schemes were undertaken by the Broadland Flood Alleviation Project (BFAP) in compartment 23, Burgh St. Peter Marshes on the true left bank of the River Waveney and compartments 29 and 30 on the true right bank of the River Waveney and Oulton Dyke between 2006 and 2010. The works carried out were a combination of floodbank strengthening, floodbank rollback and floodbank setback. These earthworks, which are the standard flood defence solutions used by the BFAP, did not affect the existing piled edge of the riverbank in any of the compartments involved in this planning application, however, various sections of steel piling were identified at that stage for future removal as they were deteriorating in condition and would no longer be required to provide erosion protection for the new floodbanks.
- 1.2 Piling removal can only take place once the newly constructed rollback and setback banks have settled and consolidated. As the banks in Compartment 23 were completed in 2007 and the banks in Compartment 29 and 30 in 2010 BESL is now confident, following stability monitoring, that in some locations the piling can be removed and the original floodbank regarded to provide a natural river edge.
- 1.3 In areas where floodbank strengthening was selected as the preferred flood defence solution the planning application indicates that crest raising works may be required over the next three years in order to maintain the required level of flood defence as the floodbanks in Broadland naturally settle over time.

2 Proposed works in BESL's planning application

- 2.1 As indicated above the planning application submitted to the Broads Authority by BESL identifies that a combination of piling removal and crest raising is

proposed in all three compartments. The crest raising will either be carried out by sourcing material locally from widened soke dykes and folding areas behind the floodbanks or, where such material is not readily available, by installing crest piling to achieve the required service level for the floodbanks.

- 2.2 BESL's proposals for Compartments 23, 29 and 30 are summarised in table 1 and shown in detail on the plans at appendix 1 to this report.

Table 1

Proposed Works	Length (m)
Compartment 23	
Piling removal	327
Crest raising	1000
Compartment 29	
Piling removal	394
Crest raising and/or crest piling	1100
Compartment 30	
Crest raising and/or crest piling	700

3 Broads Authority Officer Comments on the Planning Application

- 3.1 The crest raising works proposed in each compartment will have no effect on the navigation area regardless of whether they are carried out by installing crest piling or building up the banks with locally sourced material. Crest piling has already been used successfully elsewhere on the River Waveney by BESL, notably in Compartment 26 at Beccles and in compartments 33 and 34 at Fritton and Belton Marshes, as opportunities for sourcing material locally for building up floodbank levels are scarce in some areas. The technique is a proven method of providing the required level of flood defence and officers have no concerns regarding its use in these compartments should it prove to be necessary. There are no public rights of way on the floodbanks affected although there is a permissive path on the setback bank in Compartment 29 on Suffolk Wildlife Trust's reserve at Oulton Marshes which will have to be closed while the works are undertaken.
- 3.2 The areas of piling which BESL intends to remove as part of this planning application are not used for mooring purposes. In fact the majority of the piling to be removed is not in a suitable condition to be used for mooring as it is in poor condition or overtops at various states of the tide.
- 3.3 The proposals for piling removal set out in the planning application follow the methodology that BESL has successfully used for piling removal in other compartments in the BFAP area. This involves regrading the old floodbank which sits immediately behind the pile line prior to drawing the piles in order to

establish a low rond, in the case of a rollback bank, or a slightly higher cadge bank in the case of a full setback which will then grow reed to provide natural erosion protection for the new floodbanks. This method for creating a natural river edge after piling removal has worked well throughout the project area. In particular in Compartment 22 on the River Waveney at Black Mill a mature reed rond has now established after piling removal.

- 3.4 Officers consider that the technique is likely to work well in the areas where piling removal is indicated in the planning application as there is a local abundance of reed rhizome. Further, in compartment 29 the setback area behind the pile line that is now to be removed has already been used by the Broads Authority to deposit dredgings in order to establish a reed swamp in front of the new setback bank and this has established well. The application indicates that temporary channel markers will be installed while vegetation establishes and officers will agree the detail of this with BESL.
- 3.5 As with any application for piling removal there is a concern that the natural banks that are established after piling removal may be subject to erosion. BESL is therefore proposing to carry out erosion monitoring after piling removal in accordance with a methodology that has been agreed with officers and the Navigation Committee. This methodology which is being used in other compartments, includes carrying out baseline hydrographic surveys to establish the current bed profile, follow up hydrographic surveys for comparative purposes and visual surveys of the banks using marker posts. Officers are content that the monitoring proposals set out in the planning application accord with the previously agreed methodology.
- 3.6 As mentioned in paragraph 3.1 the proposed crest raising works will not affect the navigation area. Piling removal has the potential to impact on navigation but BESL is proposing to carry out this work in the winter months starting in January 2014 and due to the relatively short lengths of piling removal involved in the application it is anticipated that this work will be completed by March 2014. Officers therefore consider that there should be minimal disturbance to users of the navigation as a result of the proposed works. Further, given that much of the piling identified for removal is potentially hazardous and deteriorating in condition there should be improvements to navigation safety as a result of the scheme.

4 Conclusions

- 4.1 Provided that appropriate conditions relating to piling removal and erosion monitoring methodology, channel marking and the timing of the works, are attached to any planning permission granted for the proposed scheme, officers consider that the flood defence works proposed in the planning application will have a limited impact on the navigation and propose to support the application. Members' comments are welcomed.

Background papers:	Nil
Author:	Adrian Clarke
Date of report:	8 October 2013
Broads Plan Objectives:	NA1 and CC3
Appendices:	APPENDIX 1 – Compartments 23, 29 and 30 detailed drawings

Key:

ACCESS ROUTES

Rev	By	Child	Apprvd	Date	Description
-----	----	-------	--------	------	-------------

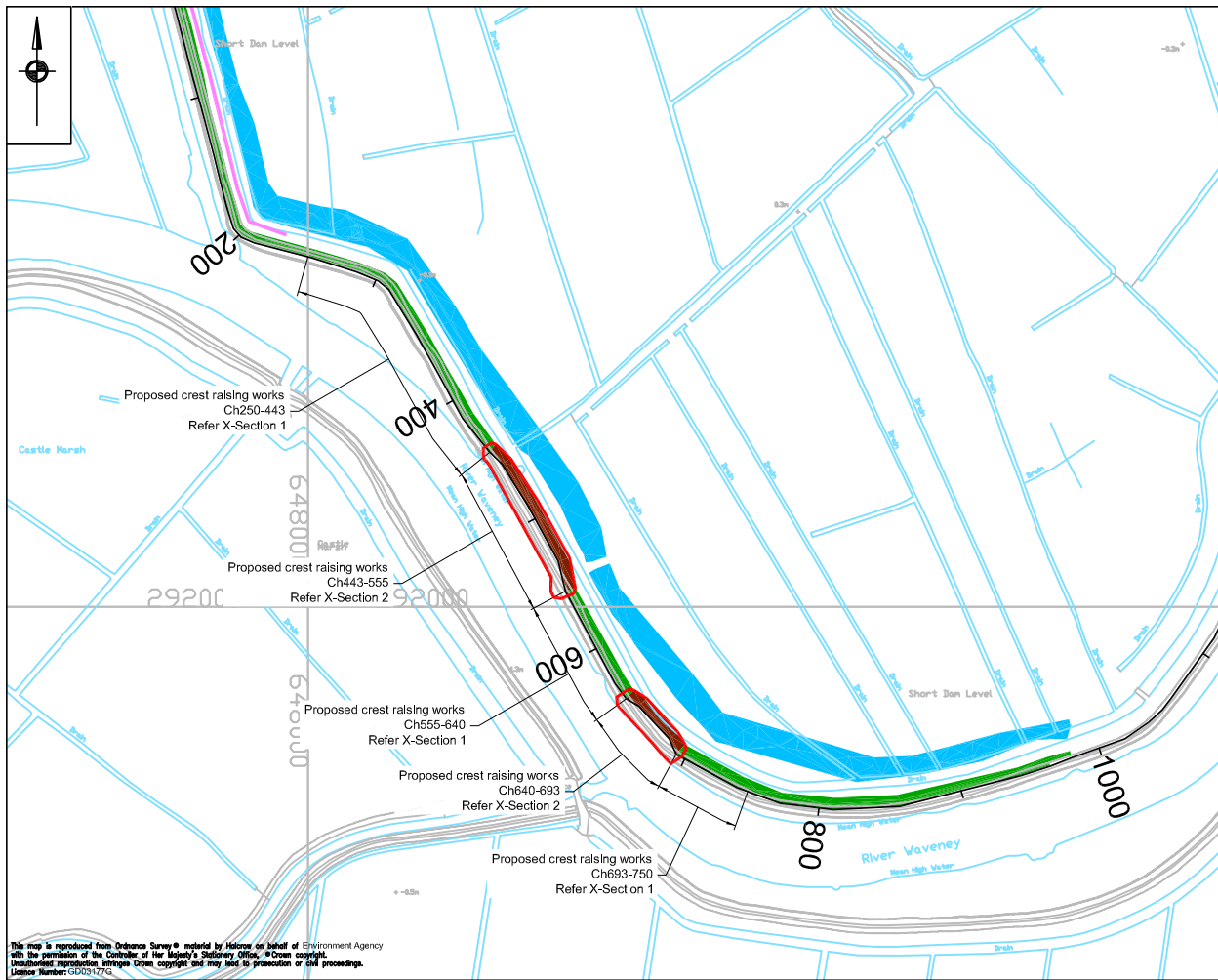


Halcrow
A CH2M HILL COMPANY

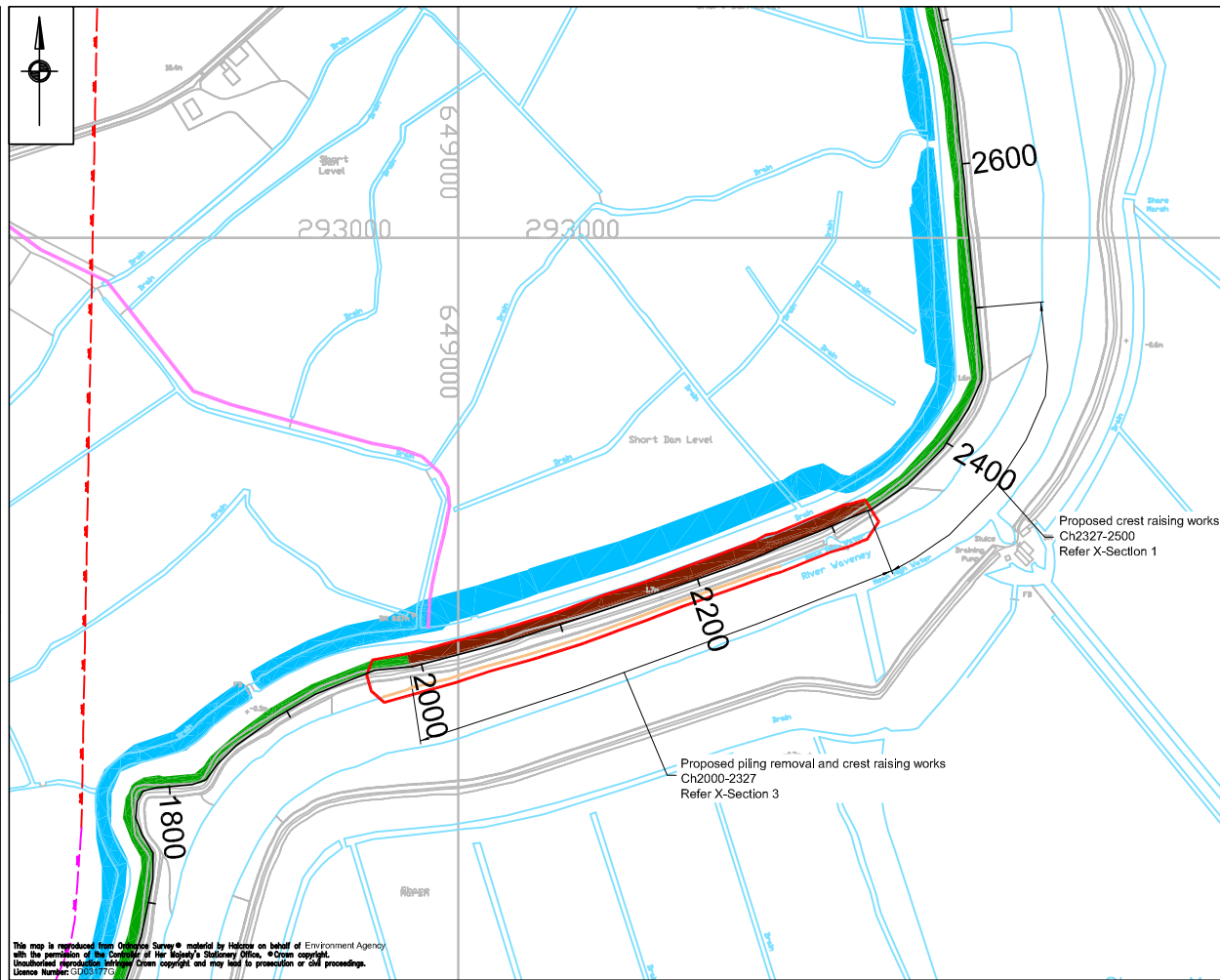
Printing Cost: 1.200000 AT AT

This map is reproduced from Database Survey® published by Helicon on behalf of Environment Agency with the permission of the Controller of Her Majesty's Stationery Office. © Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. Licence Number: GD03177G

User and Plot Date : 4/9/2013 - 11:8 am
Reference file path : G:\Broadland\Haveray Park\mstest1_7000_broadl
Drawing file path & name : G:\Broadland\Haveray Park\mstest1_7000_broadl



PLAN OF WORKS
SCALE 1:2500



PLAN OF WORKS
SCALE 1:2500

Key:

- ESTABLISHED STRENGTHENED BANK
- ESTABLISHED ROLLBACK BANK
- ESTABLISHED SOKE DYKE
- PLANNING BOUNDARY
- ACCESS ROUTE
- OVERHEAD ELECTRICITY CABLES
- UNDERGROUND ELECTRICITY CABLES

Notes:

- NO DIMENSIONS TO BE SCALED FROM THIS DRAWING.
- ALL DIMENSIONS IN MILLIMETRES UNLESS NOTED OTHERWISE.
- ALL LEVELS IN METRES ABOVE ORDNANCE DATUM.

FOR
PLANNING
PURPOSES
ONLY

Rev	By	Chkd	Apprd	Date	Description
-----	----	------	-------	------	-------------

Client
Broadland Environmental Services Limited
A Joint Venture Company of
Bam Nutall Ltd and Halcrow
Halcrow is a CH2M HILL company
3rd Floor Grosvenor House, 112-114 Prince of Wales Road, Norwich, NR1 1NS
Tel 01603 226161

Halcrow Group Limited
Third Floor, Grosvenor House, 112-114 Prince of Wales Road, Norwich, Norfolk, NR1 1NS
Tel. 44 (0)1603 226161
halcrow@bannutall.co.uk
www.halcrow.com

Halcrow
A CH2M HILL COMPANY

Project

BROADLAND FLOOD ALLEVIATION PROJECT

Drawing
**RIVER WAVENEY
COMPARTMENT 23
PROPOSED PILING REMOVAL
AND CREST RAISING
SHEET 1 OF 4**

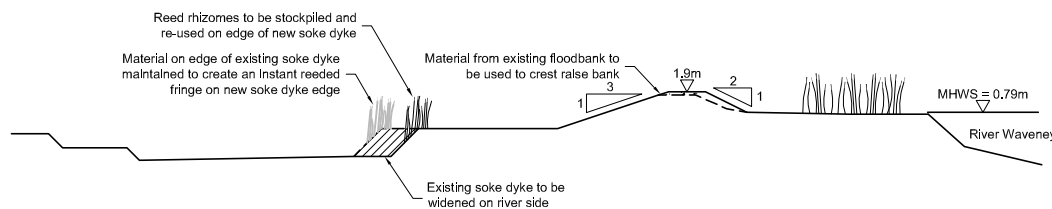
Drawn by: L MERSEY Date: 04/09/13
Checked by: A RICHARDSON Date: 04/09/13
Approved by: K MARSH Date: 04/09/13

Drawing No. **WAVENEY/400/003** Revision **0**

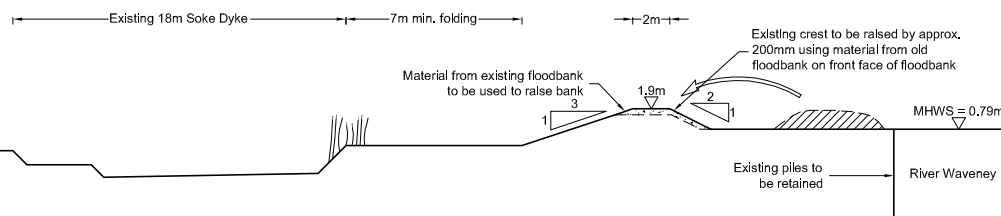
Drawing Scale: AS SHOWN AT A1

Drawing file path & name: C:\Broadland\Waveney\Permitting\WAVENEY_400_003.dwg
User and Plot Date: J. Mersey: 4/9/2013 11:19 am

Soke Dyke widened to 20m max. 7m min. folding 2m

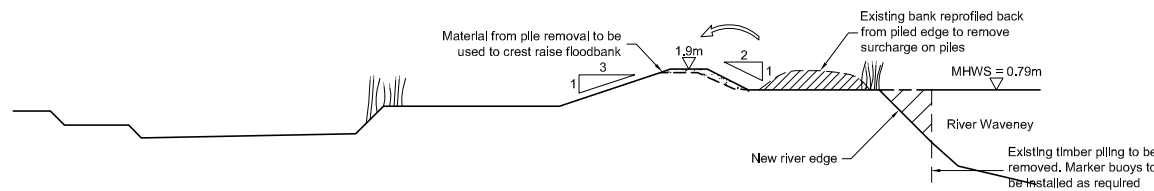


TYPICAL X-SECTION 1
PROPOSED CREST RAISING WORKS
Ch250 - 443m, Ch550 - 640m, Ch693 - 750m & Ch2327 - 2500m
SCALE 1:200

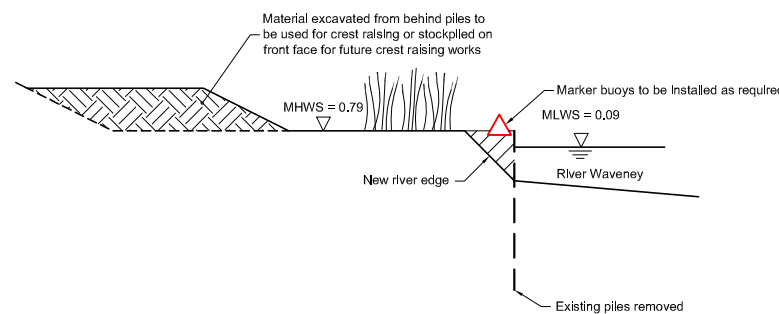


TYPICAL X-SECTION 2
PROPOSED CREST RAISING WORKS
Ch443 - 555m & Ch640 - 693m
SCALE 1:200

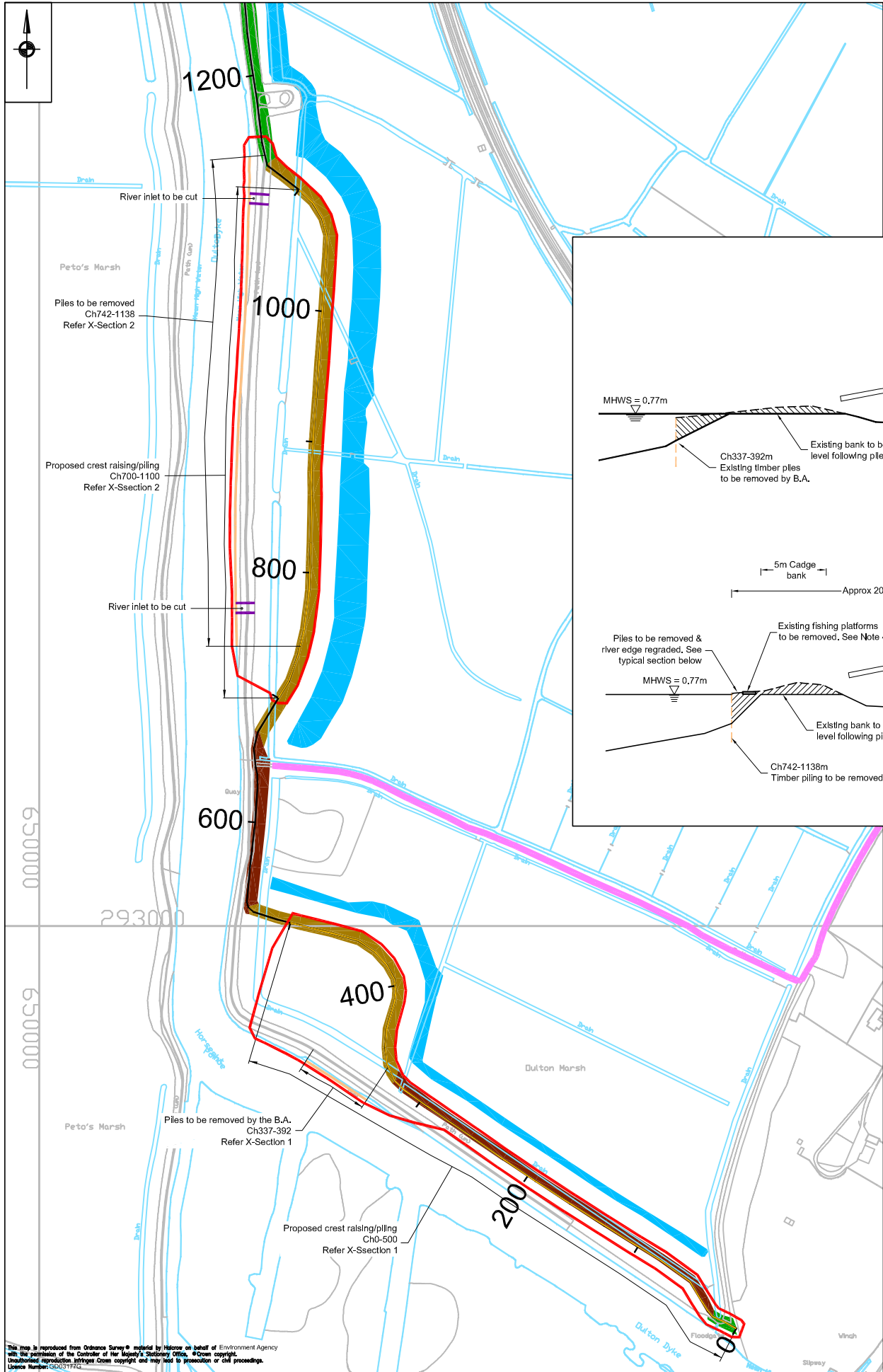
Existing 18m Soke Dyke 7m min. folding 2m



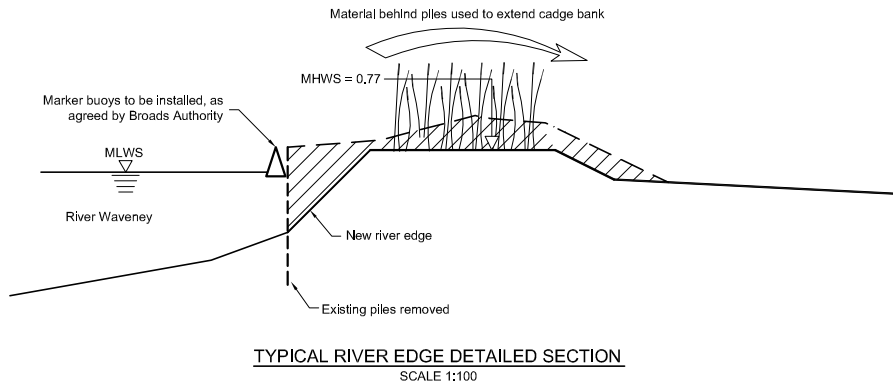
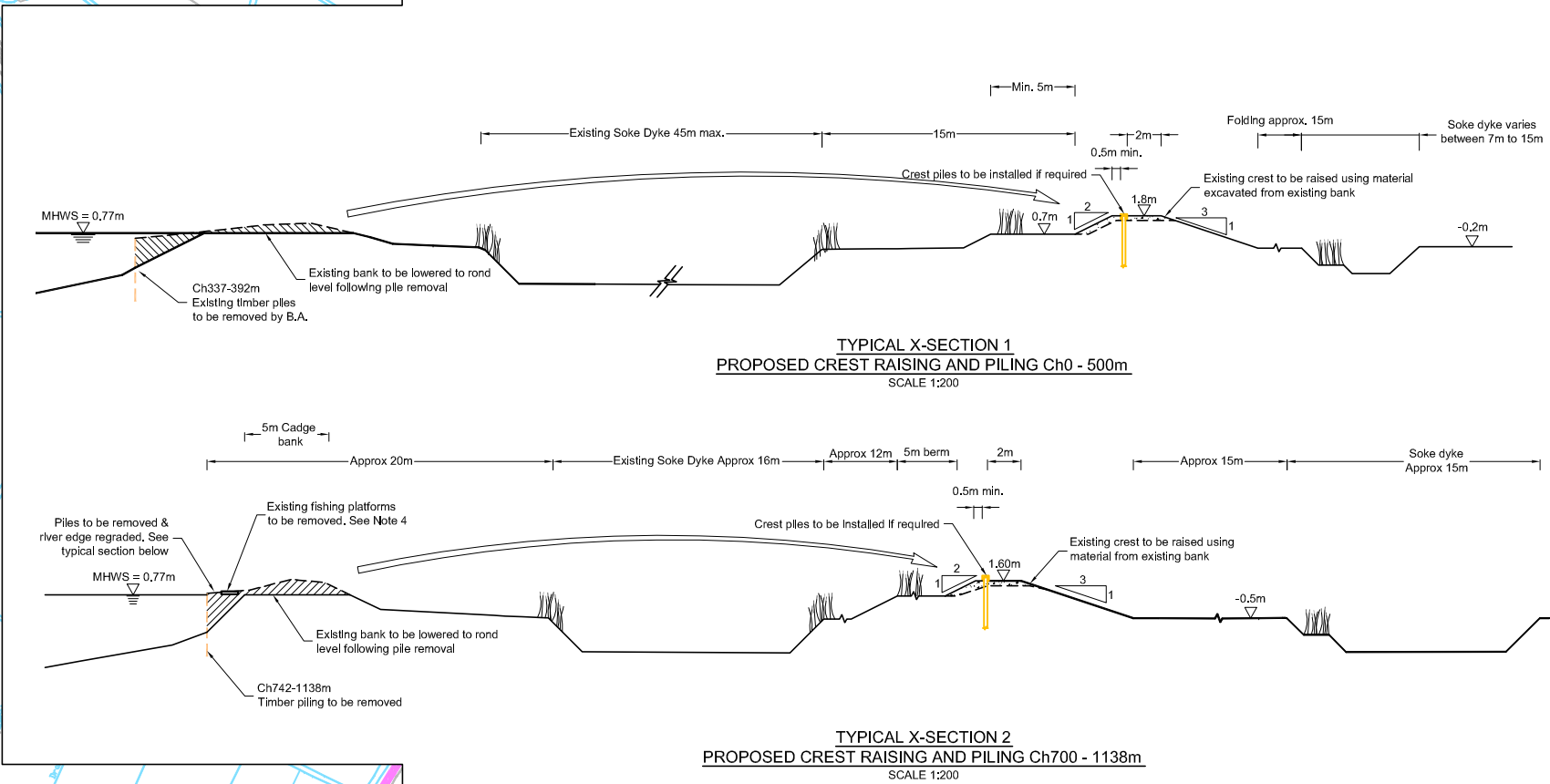
TYPICAL X-SECTION 3
PROPOSED PILE REMOVAL & CREST RAISING WORKS
Ch2000 - 2327m
SCALE 1:200



TYPICAL RIVER EDGE DETAILED SECTION
SCALE 1:100



PLAN OF WORKS
SCALE 1:2000



Key:

- ESTABLISHED STRENGTHENED BANK
- ESTABLISHED ROLLBACK BANK
- ESTABLISHED SETBACK BANK
- ESTABLISHED SOKE DYKE
- PLANNING BOUNDARY
- ACCESS ROUTE

Notes:

- NO DIMENSIONS TO BE SCALED FROM THIS DRAWING.
- ALL DIMENSIONS IN MILLIMETRES UNLESS NOTED OTHERWISE.
- ALL LEVELS IN METRES ABOVE ORDNANCE DATUM.
- UP TO 8 NEW FISHING PLATFORMS TO BE INSTALLED DOWNSTREAM OF THE EXISTING PLATFORMS.

FOR
PLANNING
PURPOSES
ONLY

Rev	By	Chkd	Apprd	Date	Description
-----	----	------	-------	------	-------------

Client
Broadland Environmental Services Limited
A Joint Venture Company of
Bam Nuttall Ltd and Halcrow
Halcrow is a CH2M HILL company
3rd Floor Grosvenor House, 112-114 Prince of Wales Road, Norwich, NR1 1NS
Tel 01603 226161

Halcrow Group Limited
Third Floor, Grosvenor House, 112-114 Prince of Wales Road, Norwich, Norfolk, NR1 1NS
Tel. 44 (0)1603 226161
halcrow@bannutts.co.uk
www.halcrow.com

Halcrow
A CH2M HILL COMPANY

Project
BROADLAND FLOOD ALLEVIATION PROJECT

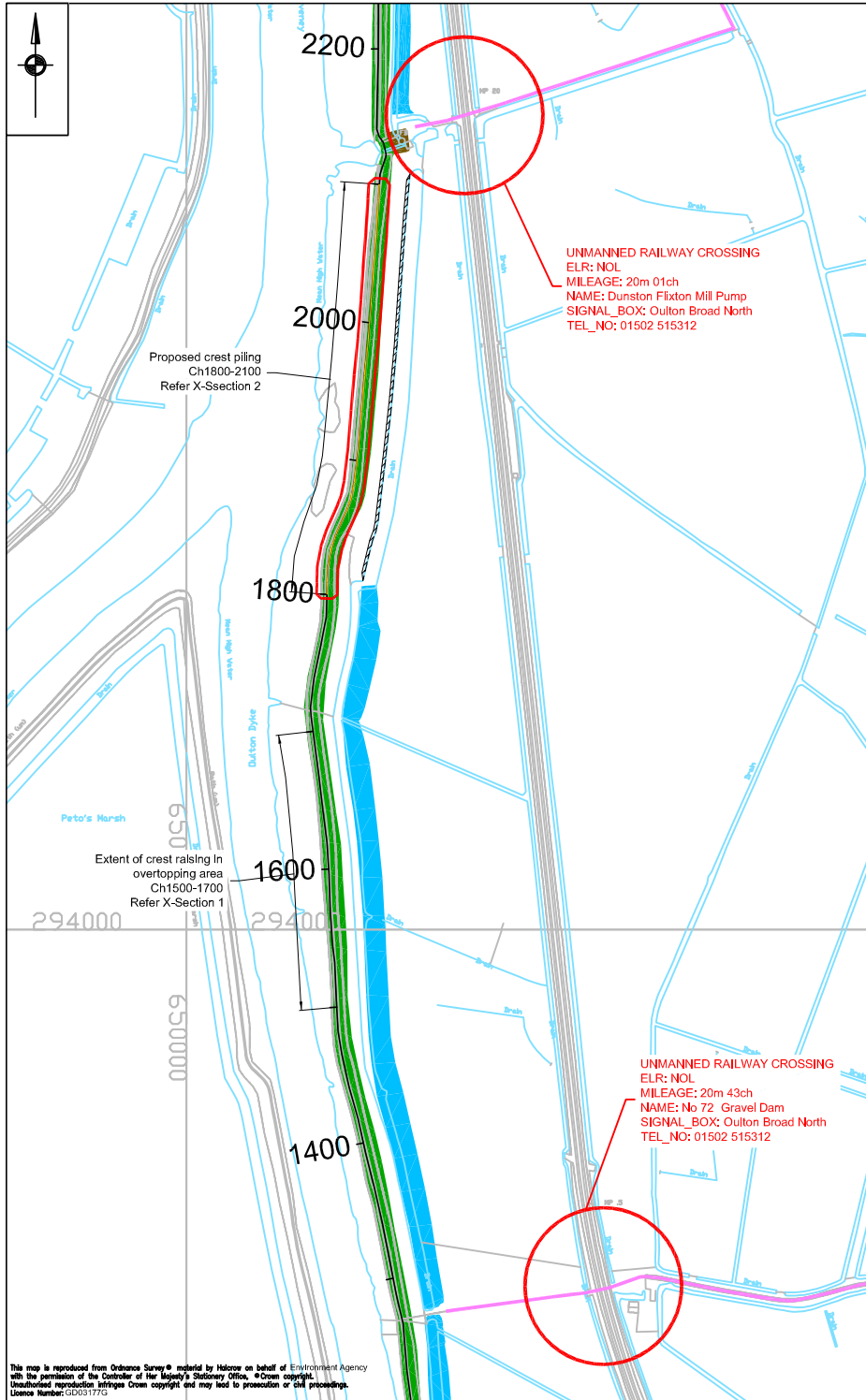
Drawing
**RIVER WAVENEY
COMPARTMENT 29
PROPOSED PILING REMOVAL,
CREST RAISING & PILING
SHEET 2 OF 4**

Drawn by: L. MERSEY Date: 04/09/13
Checked by: A. RICHARDSON Date: 04/09/13
Approved by: K. MARSH Date: 04/09/13

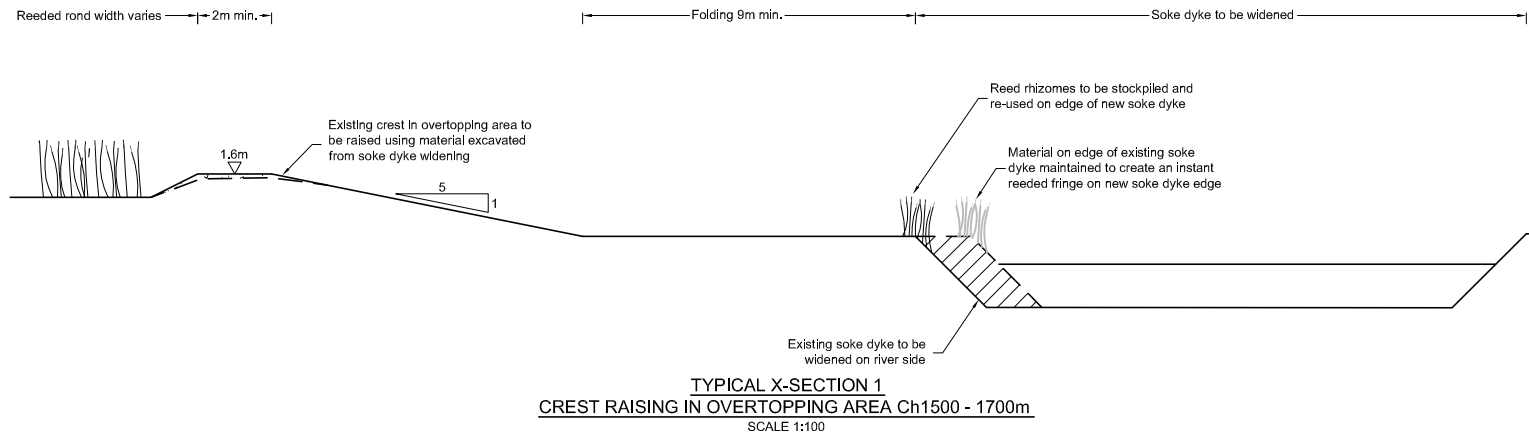
Drawing No. Revision
WAVENEY/400/004 0

Drawing Scale: AS SHOWN AT A1

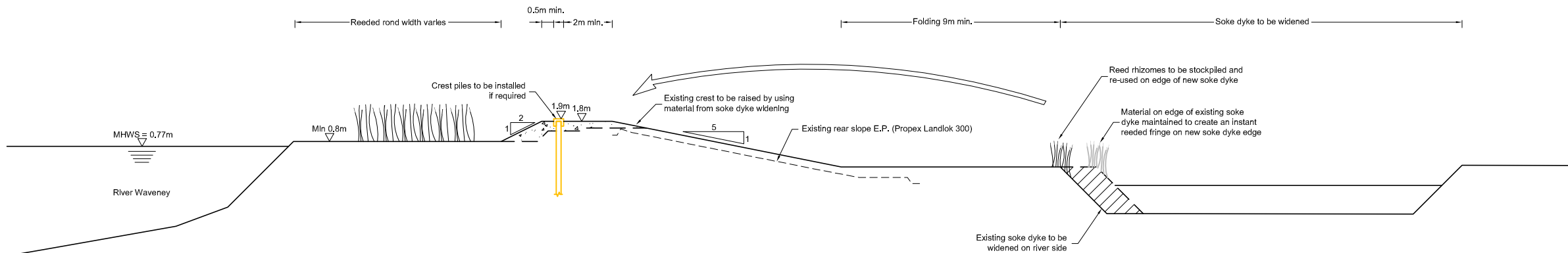
Drawing file path & name: C:\Broadland\Waveney\Waveney_400_004.dwg
User and Plot Date: L. Mersey: 4/9/2013 11:19 am



PLAN OF WORKS
SCALE 1:2500



TYPICAL X-SECTION 1
CREST RAISING IN OVERTOPPING AREA Ch1500 - 1700m
SCALE 1:100



TYPICAL X-SECTION 2
PROPOSED CREST PILING Ch1800 - 2100m
SCALE 1:100

Key:

- ESTABLISHED STRENGTHENED BANK
- ESTABLISHED SOKE DYKE
- PLANNING BOUNDARY
- ACCESS ROUTE

Notes:

- NO DIMENSIONS TO BE SCALED FROM THIS DRAWING.
- ALL DIMENSIONS IN MILLIMETRES UNLESS NOTED OTHERWISE.
- ALL LEVELS IN METRES ABOVE ORDNANCE DATUM.

FOR
PLANNING
PURPOSES
ONLY

Rev	By	Chkd	Apprd	Date	Description
-----	----	------	-------	------	-------------

Client
Broadland Environmental Services Limited
A Joint Venture Company of
Bam Nuttal Ltd and Halcrow
Halcrow is a CH2M HILL company
3rd Floor Grosvenor House, 112-114 Prince of Wales Road, Norwich, NR1 1NS
Tel 01603 226161

Halcrow Group Limited
Third Floor, Grosvenor House, 112-114 Prince of Wales Road, Norwich, Norfolk, NR1 1NS
Tel. 44 (0)1603 226161
halcrow@bannuttall.co.uk
www.halcrow.com

Halcrow
A CH2M HILL COMPANY

Project

BROADLAND FLOOD ALLEVIATION PROJECT

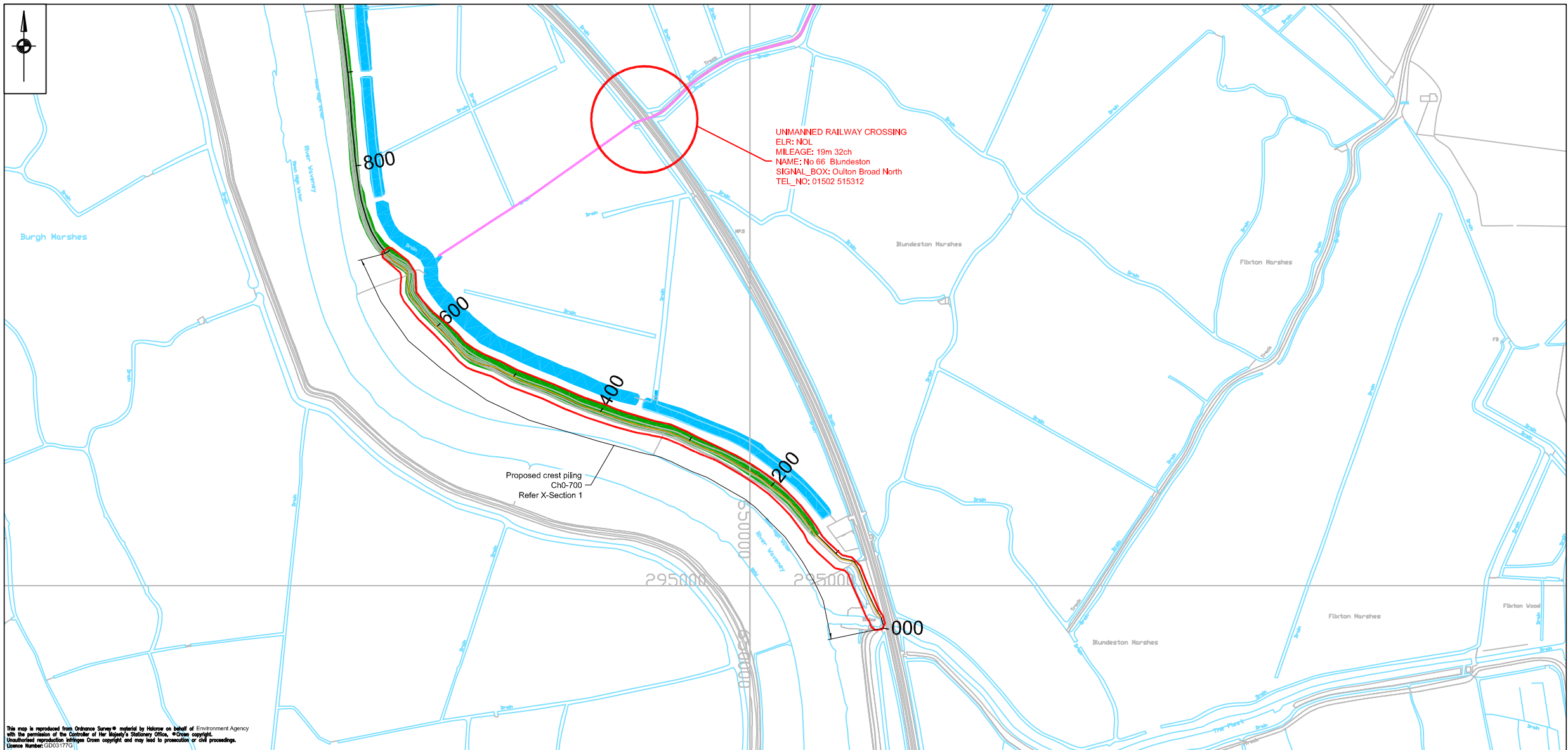
Drawing
**RIVER WAVENEY
COMPARTMENT 29
PROPOSED CREST RAISING
AND PILING
SHEET 3 OF 4**

Drawn by: L. MERSEY Date: 03/09/13
Checked by: A. RICHARDSON Date: 04/09/13
Approved by: K. MARSH Date: 04/09/13

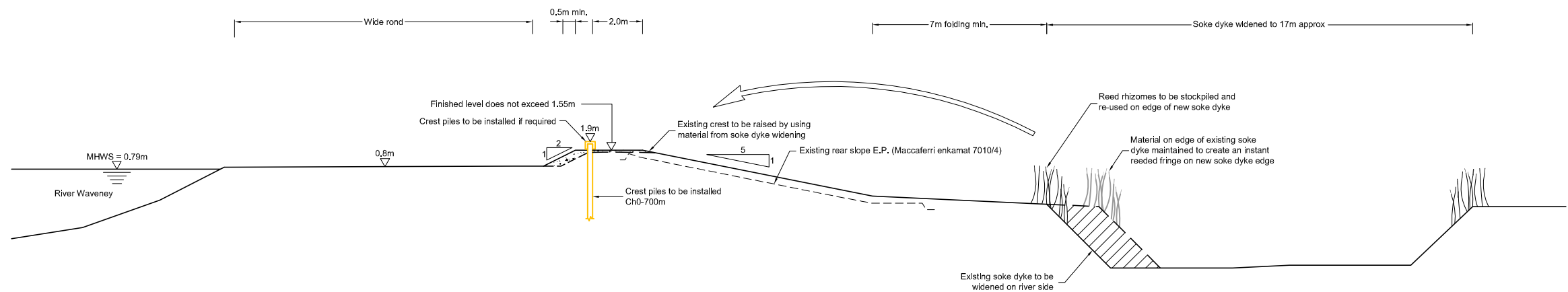
Drawing No. Revision
WAVENEY/400/005 0

Drawing Scale: AS SHOWN AT A1

Drawing file path & name: C:\Broadland\Waveney\Permitting\WAVENEY_400_005.dwg
User and Plot Date: j.mersey: 4/9/2013 11:19 am



PLAN OF WORKS
SCALE 1:2500



TYPICAL X-SECTION 1
PROPOSED CREST PILING Ch0-700m
SCALE 1:100

Key:

- ESTABLISHED STRENGTHENED BANK
- ESTABLISHED SOKE DYKE
- PLANNING BOUNDARY
- ACCESS ROUTE

Notes:

- NO DIMENSIONS TO BE SCALED FROM THIS DRAWING.
- ALL DIMENSIONS IN MILLIMETRES UNLESS NOTED OTHERWISE.
- ALL LEVELS IN METRES ABOVE ORDNANCE DATUM.

FOR
PLANNING
PURPOSES
ONLY

Rev	By	Chkd	Apprd	Date	Description
-----	----	------	-------	------	-------------

Client
Broadland Environmental Services Limited
A Joint Venture Company of
Bam Nuttall Ltd and Halcrow
Halcrow is a CH2M HILL company
3rd Floor Grosvenor House, 112-114 Prince of Wales Road, Norwich, NR1 1NS
Tel 01603 226161

Halcrow Group Limited
Third Floor, Grosvenor House, 112-114 Prince of Wales Road, Norwich, Norfolk, NR1 1NS
Tel. 44 (0)1603 226161
halcrow@bannuttall.co.uk
www.halcrow.com

Halcrow
A CH2M HILL COMPANY

Project

BROADLAND FLOOD ALLEVIATION PROJECT

Drawing
**RIVER WAVENEY
COMPARTMENT 30
PROPOSED CREST RAISING
AND PILING
SHEET 4 OF 4**

Drawn by: L. MERSEY Date: 04/09/13
Checked by: A. RICHARDSON Date: 04/09/13
Approved by: K. MARSH Date: 04/09/13

Drawing No. **WAVENEY/400/006** Revision **0**

Drawing Scale: AS SHOWN AT A1

Drawing file path & name: C:\Broadland\Waveney\Permitting\WAVENEY_400_006.dwg
User and Plot Date: J. Yellenssey - 4/9/2013 - 11:19 am