

**Broadland Flood Alleviation Project:
Planning Application for Flood Alleviation Improvements in Compartment 25
(Gillingham Marshes, River Waveney)**
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 flood defence improvement works at the extreme downstream end of Compartment 25 which is situated at Gillingham Marshes between the A146 road bridge and Hill Farm, Boathouse Hill on the true left bank of the River Waveney near Beccles.

1 Background

- 1.1 Compartment 25 is situated on the true left bank of the River Waveney between Dunburgh and Boathouse Hill, Gillingham. The flood defences protect agricultural marshland which is predominantly used for grazing livestock. Planning permission for a comprehensive flood defence scheme for the compartment was granted by the Broads Authority in 2010 and flood defence works were carried out by BESL in the section of the compartment which is upstream of the A146 Beccles Bypass road bridge in 2010-11. At that time it was not possible for BESL to complete the defences on the section of bank between the A146 Road Bridge and Hill Farm due to problems with material sourcing.
- 1.2 Since then BESL has re-evaluated the options for the defences in this section of the Compartment and agreed how the necessary material will be sourced with the landowner. The planning application which has been submitted therefore only deals with approximately 825m of floodbank out of the 4,820m in the entire Compartment. The location of the proposed works is shown on the detailed drawings at Appendix 1 to this report.

2 Need for Flood Defence works

- 2..1 As mentioned in paragraph 1.1 above the majority of the flood defence works in Compartment 25 were completed some years ago and the fact that BESL was not able to carry out works on the section of bank that is the subject of this application left the Compartment with uncompleted defences. The profile condition of the remaining section of floodbank was assessed as being fair in 2012 but it will, in all likelihood, have deteriorated further since then. The bank has also suffered from settlement, which is an ongoing process affecting all the earth floodbanks in the Broads, and is now estimated to be approximately 200mm below flood defence service level in places.

- 2.2 The majority of the erosion protection for the floodbank is provided by horizontal timber piling. BESL has assessed that the piling is in poor condition and provides little erosion protection for the earth floodbank behind it. Of more concern for navigation is the fact that the piling is failing in places and is now causing a hazard to navigation.
- 2.3 This scheme is therefore required to complete the defences in the compartment, bring the bank up to the required height and deal with the hazardous piling.

3 BESL's Planning Application for Compartment 25

- 3.1 The proposed scheme for the earth defences comprises a mixture of floodbank rollback and online strengthening of the existing bank. Additionally BESL is proposing to remove the failing piling and replace it with erosion protection matting and install new steel sheet piling. Table 1 sets out the solutions proposed in the application in detail.

Table 1

Flood Defence Solution	Length (m)
Floodbank rollback	150
Online strengthening of existing bank	670
Piling removal and installation of erosion protection matting	566
Installation of new steel sheet piling (to be installed under the EA's permitted development rights)	268
Retain piling	186

- 3.2 The rollback and online strengthening proposals will be undertaken using material sourced from the excavation of a large pond near Hill Farm and from material gained from the reprofiling of the existing bank after piling removal takes place. These works are in accordance with BESL's standard procedures and give no cause for concern.
- 3.3 The application indicates that 566m of piling will be removed at the same time as the bank is reprofiled. The normal approach for dealing with the removal of piling is to extract the piles from the river bed and to reprofile the bank from the toe of the pile line. In this case, however, as with other recent applications, BESL is proposing to undertake the piling removal by removing the timber horizontal members and then driving the steel uprights that support them into the river bed. As mentioned at paragraph 2.2 the piling has deteriorated to the extent that it is causing a hazard to navigation and failing to provide erosion protection to the bank and officers accept that removal is

the best option for the piling. Should the piles fail to drive successfully they will be extracted from the bed in line with BESLs usual methodology for piling removal. The depth the piles will be driven to will need to be agreed with the Broads Authority but will need to be below the dredge profile for the River Waveney and it will be necessary for BESL to undertake a sonar survey after the works are completed to ensure that no remnant piles or other hazards remain on the bed of the river.

- 3.4 In this application BESL is also proposing to install erosion protection in the form of a coir (coconut fibre) blanket along a 566m length of the bank after it has been reprofiled. This design is shown in detail on the plans at Appendix 1. This reach of the river can be very busy with motorboat traffic having to navigate through racing sailing vessels from the Beccles Amateur Sailing Club (BASC) which is situated opposite the section of bank in question. The installation of coir matting therefore gives rise to some concerns regarding the potential for vessels to hit the bank and damage the matting by getting it fouled in their propellers.
- 3.5 The application also states that 268m of new steel sheet piling will be installed on the frontage near Hill Farm under the Environment Agency's permitted development rights for the installation of piling. As this proposal is on the river frontage officers consider that a detailed specification for these works should nonetheless still be agreed with the Broads Authority, and include safety features such as safety chains and ladders.

4 Summary of Officers' Comments on the Application

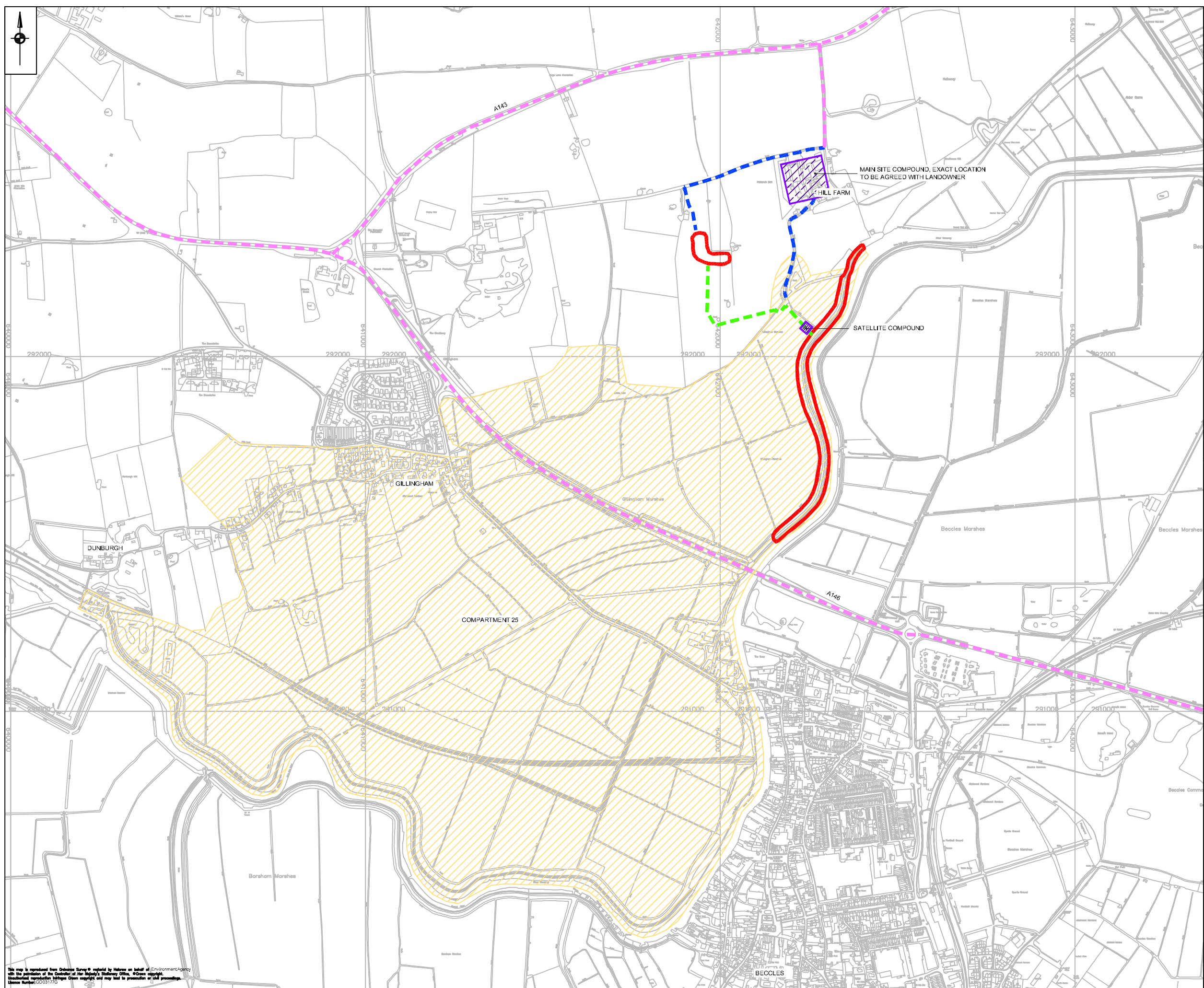
- 4.1 While the submission of this application is to be welcomed as it will allow for the completion of the flood defences in the Compartment and result in the removal of piling which is already causing a hazard to navigation, there are some concerns about the ability of the erosion protection proposed in the application to withstand boat impacts. Experience from some of the other compartments where BESL has installed bitumen matting erosion protection is that boats can get caught on the matting and unravel sometimes long lengths of it from the reprofiled bank that it is protecting. Indeed, on the Waveney itself there have been a number of incidents of vessels getting caught on matting installed on the true right bank between the BASC and Stanley Carr reach. Coir matting of the type shown in the application is less robust than bitumen matting and as this section of bank has a history of being hit by motor boats officers consider there is a real risk that the matting will be damaged by boat impact.
- 4.2 The piling removal element of the application has also concerned the BASC as its members currently use the existing piled edge to moor against during races. BESL has indicated in the application that it is proposing to provide the club with buoys and sinkers to use as temporary mooring points during races after the piling has been removed and the bank reprofiled. This proposal is not considered to be acceptable. Buoys require sufficient slack on their lines to allow for tidal rise and fall as well as further slack to avoid the sinkers they are attached to dragging at high water. The use of buoys as proposed by

BESL will result in sailing vessels raising or lowering sails or waiting for race starts encroaching further into the river. The River Waveney is quite narrow at this point and can have significant boating traffic during the summer season. Officers consider that this proposal will result in a further navigation width restriction and cause problems for other vessels navigating. There is also an additional risk that motor boats will get fouled on the buoys and lines.

5 Conclusions

- 5.1 There is an accepted suite of planning conditions that are attached to planning permissions granted by the Authority for flood defence works involving piling removal. These cover things like the timing of works, installation of the channel marking required for marking reprofiled banks while vegetation establishes, erosion monitoring, dredging, the methodology used for removing piling, remedial actions if pile driving is unsuccessful and post piling removal sonar surveys. In this case officers would recommend that, aside from the usual conditions that would be applied to an application of this nature, it would be sensible to have further safeguards in place to take account of the impacts of boating behaviour.
- 5.2 Members' comments are therefore welcomed as to whether it would be appropriate to require an additional pre-commencement condition dealing with the future management of the navigation. For example a requirement for the submission and agreement of a mitigation plan dealing with any problems with the erosion protection, failure of the reprofiled edge, poor vegetation establishment and installation and removal of appropriate channel marking. Members' comments are also sought on the issue of the use of buoys for mooring by the BASC.

Background papers:	Nil
Author:	Adrian Clarke
Date of report:	15 February 2016
Broads Plan Objectives:	CC3.4
Appendices:	APPENDIX 1 – Compartment 25 detailed maps.



- Key:**
- COMPARTMENT 25
 - PLANNING APPLICATION BOUNDARY
 - SITE COMPOUNDS/WELFARE UNITS
 - MAIN ACCESS ROUTE
 - PRIVATE ACCESS TRACKS
 - MATERIAL HAULAGE ROUTE

- List of Drawings:**
- 001 - SITE LOCATION & ACCESS ROUTES
 - 002 - KEY PLAN
 - 003 - DETAILED PLAN & SECTIONS 1 OF 3
 - 004 - DETAILED PLAN & SECTION 2 OF 3
 - 005 - DETAILED PLAN & SECTION 3 OF 3
 - 006 - MATERIAL SOURCING LOCATION
 - 007 - PROPOSED EROSION PROTECTION DETAILS
 - 008 - PROPOSED FENCING & CULVERTED DITCHES

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Rev	By	Chkd	Appvd	Date	Description
A					ACCESS ROUTES AND BOUNDARY LOCATIONS ADDED

Client: Broadland Environmental Services Limited
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Project: BROADLAND FLOOD ALLEVIATION PROJECT

Drawing: COMPARTMENT 25 - PHASE 3
 RIVER WAVENEY
 GILLINGHAM MARSHES
 SITE LOCATION &
 ACCESS ROUTES

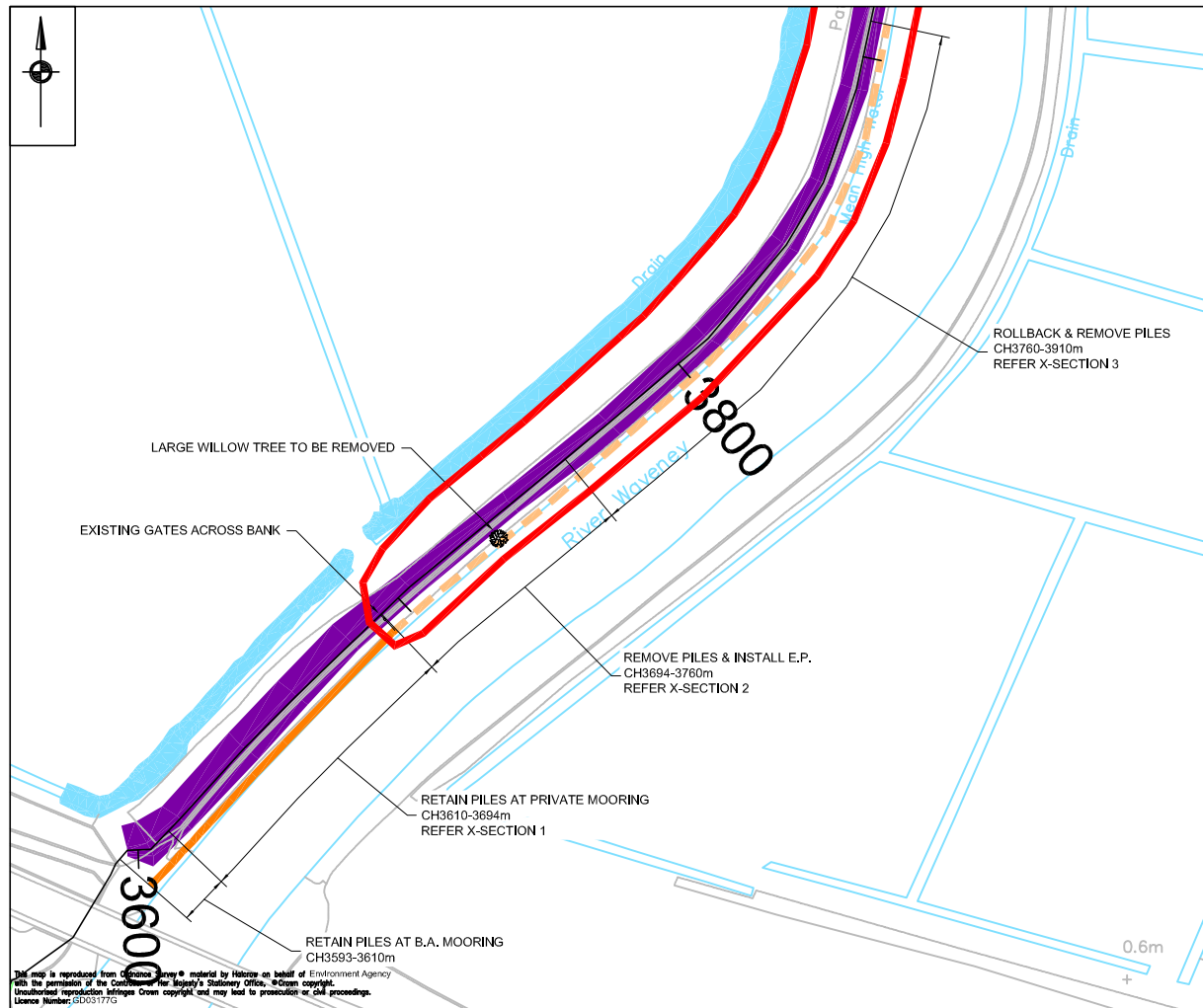
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 Checked by: J NORRIS Date: 27/10/15
 Approved by: K MARSH Date: 27/10/15

Drawing No. **WNCGL/450/001** Revision **A**

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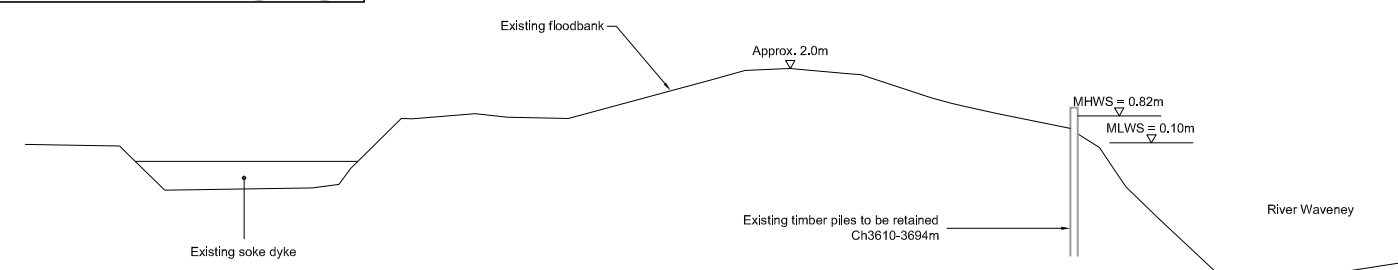


PLAN OF WORKS
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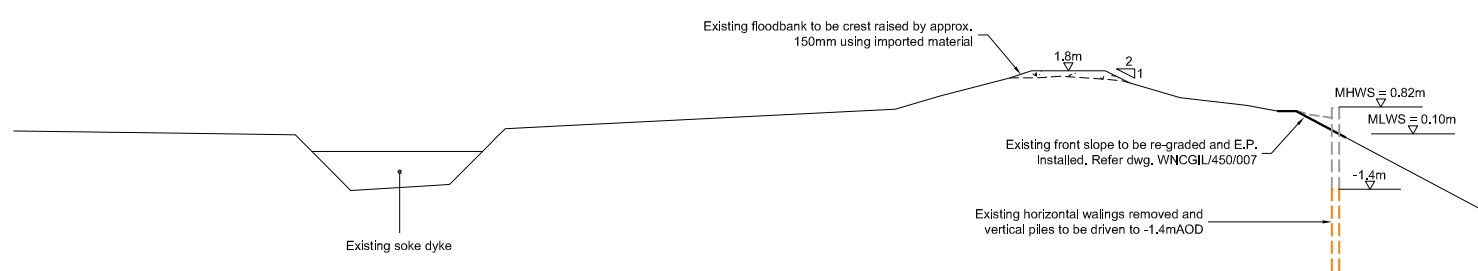
- Key:
- EXISTING FLOODBANK
 - PROPOSED PILING REMOVAL
 - PILES TO BE RETAINED
 - PLANNING APPLICATION BOUNDARY

- Notes:
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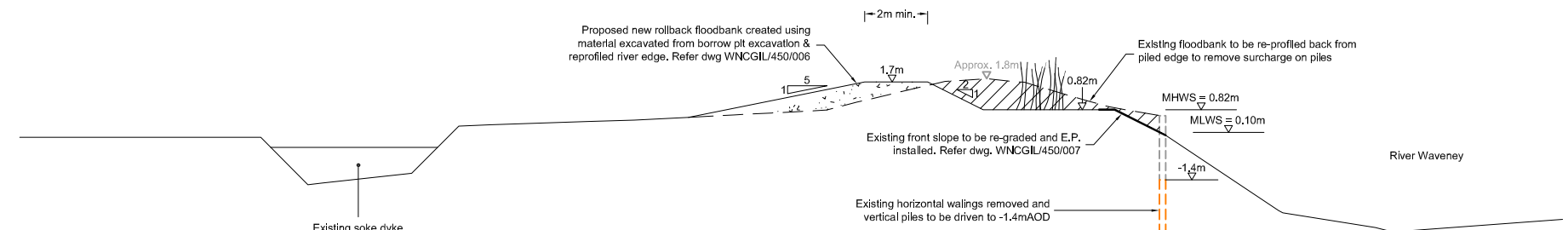
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TYPICAL X-SECTION 1
RETAINED PILING Ch3610 - 3694m
SCALE 1:100



TYPICAL X-SECTION 2
PILING REMOVAL AND E.P. INSTALLATION Ch3694 - 3760m
SCALE 1:100



TYPICAL X-SECTION 3
ROLLBACK BANK AND PILING REMOVAL Ch3760 - 3910m
SCALE 1:100

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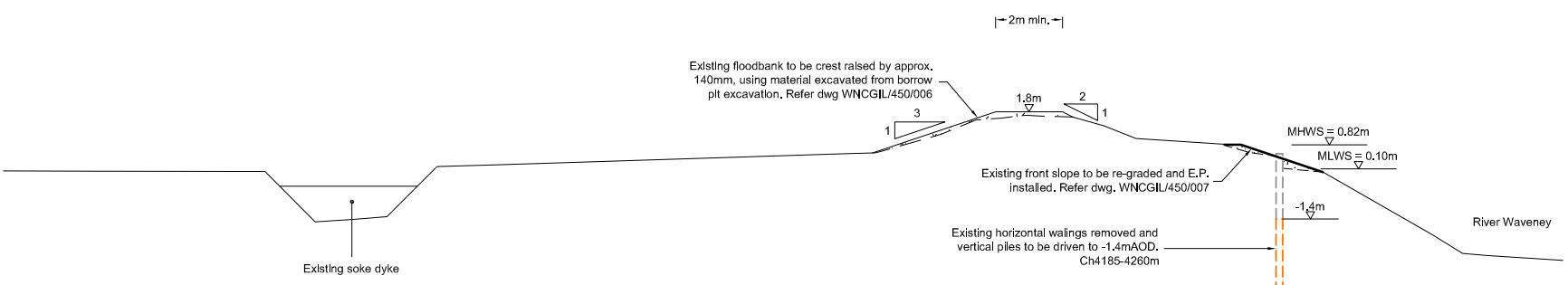
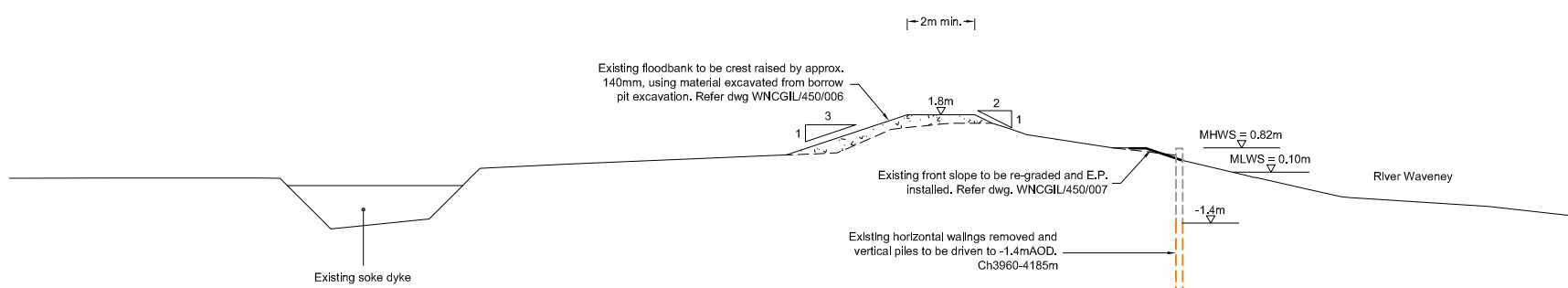
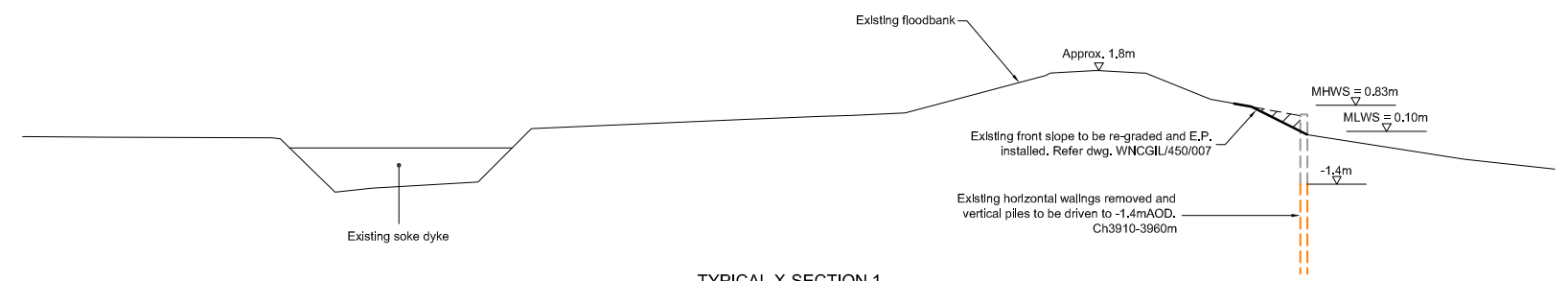
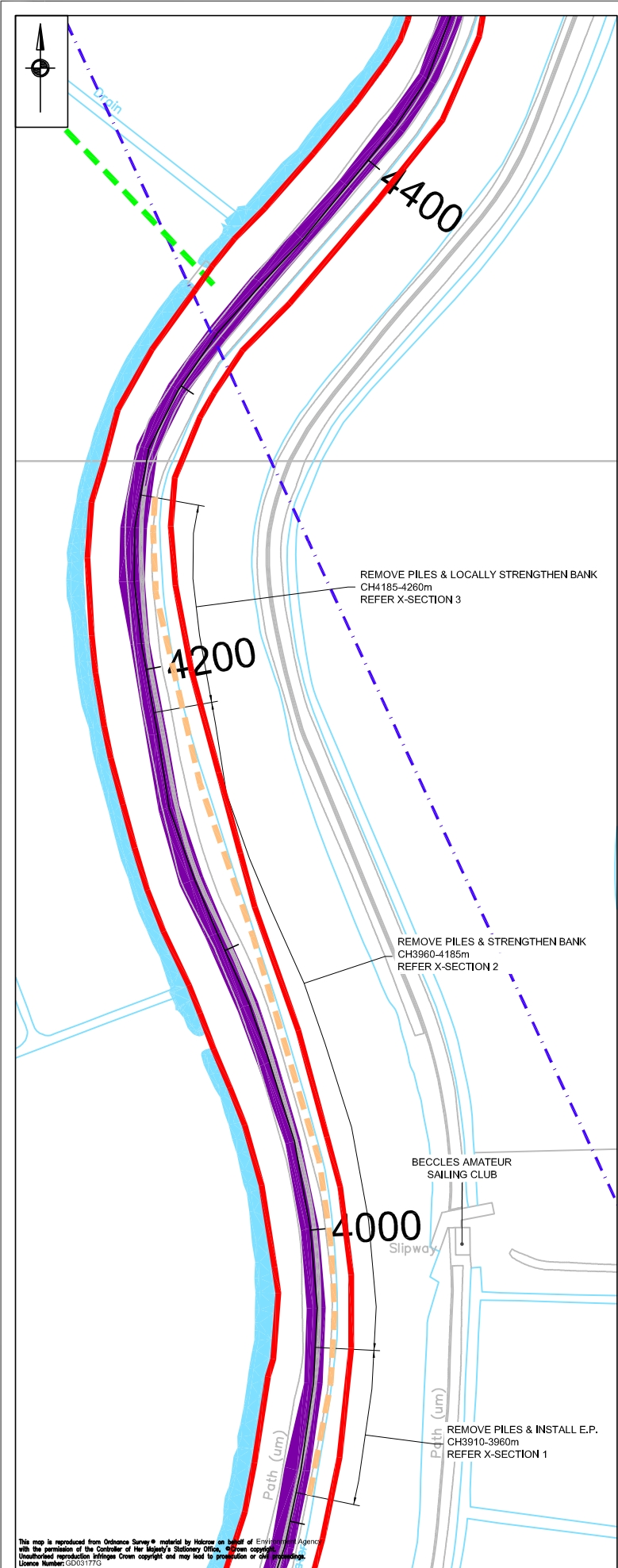
Project: **BROADLAND FLOOD ALLEVIATION PROJECT**

Drawing: **COMPARTMENT 25 - PHASE 3
RIVER WAVENEY
GILLINGHAM MARSHES
DETAILED PLAN & SECTIONS 1 OF 3**

Drawn by: L. MERSEY	Date: 26/10/15
Checked by: J. NORRIS	Date: 27/10/15
Approved by: K. MARSH	Date: 27/10/15
Drawing No. WNCGL/450/003	Revision 0

Drawing Scale: AS SHOWN AT A1

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- Key:**
- EXISTING FLOODBANK
 - PROPOSED PILING REMOVAL
 - APPROXIMATE LINE OF IRON AGE TIMBERS
 - MATERIAL HAUL ROUTE
 - PLANNING APPLICATION BOUNDARY

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BROADLAND FLOOD ALLEVIATION PROJECT

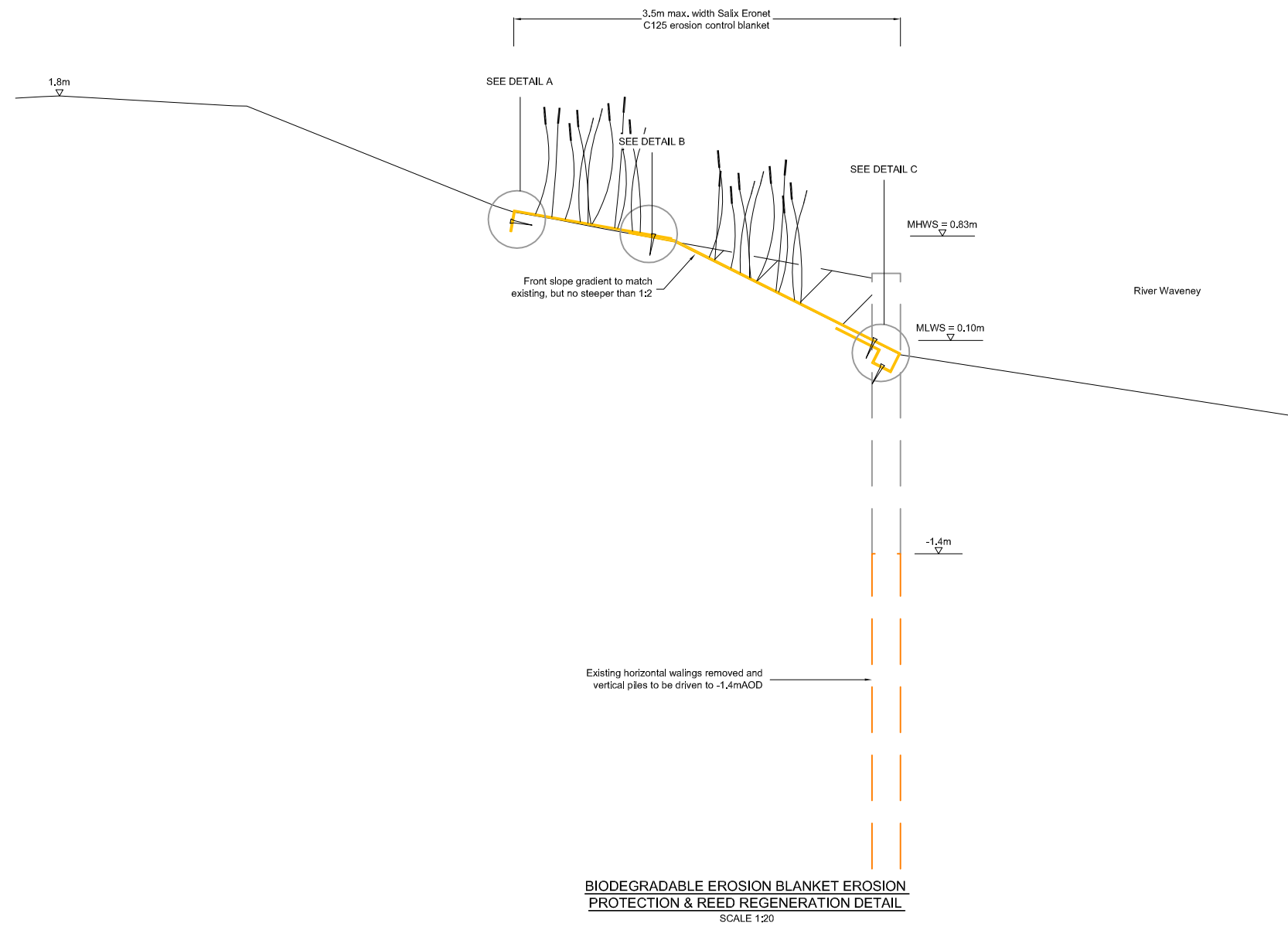
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RIVER WAVENEY
GILLINGHAM MARSHES
DETAILED PLAN & SECTIONS 2 OF 3**

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Drawing No. WNCGL/450/004	Revision 0

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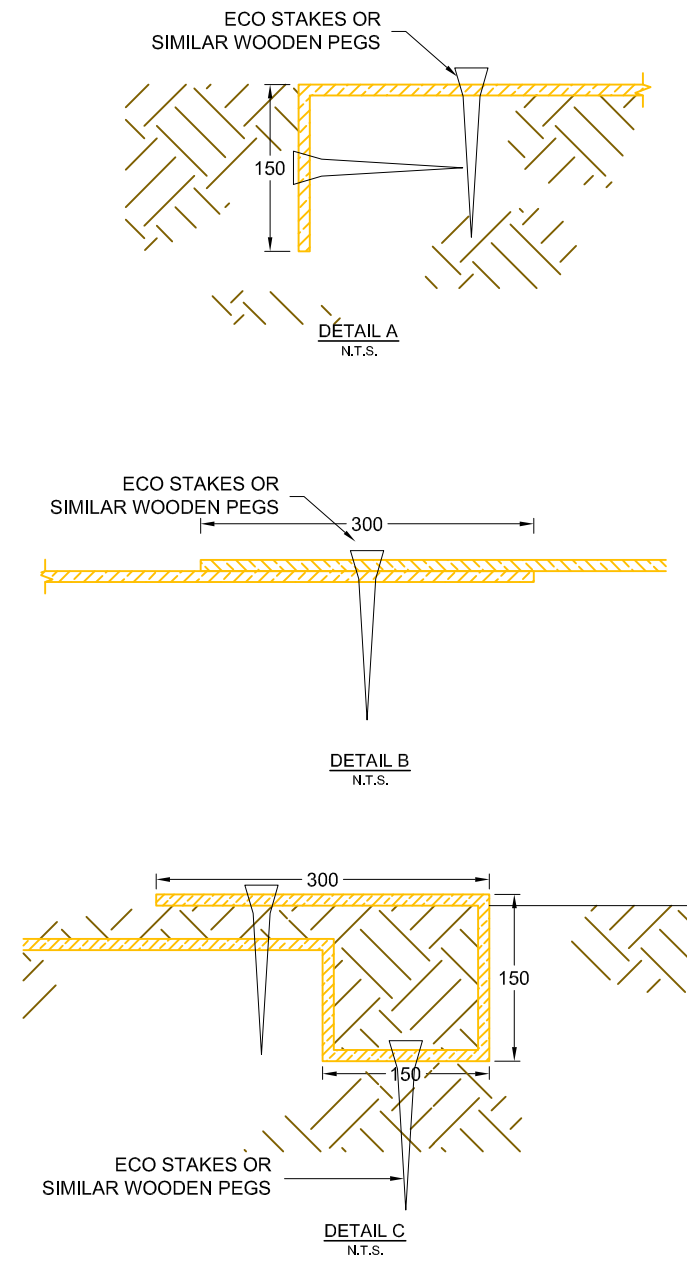
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PHOTOGRAPH OF ROND IMMEDIATELY AFTER INSTALLING EROSION PROTECTION



PHOTOGRAPH OF VEGETATED ROND



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Project: **BROADLAND FLOOD ALLEVIATION PROJECT**

Drawing: **COMPARTMENT 25 - PHASE 3
RIVER WAVENEY
GILLINGHAM MARSHES
PROPOSED E.P. INSTALLATION**

Drawn by: L. MERSEY Date: 26/10/15
 Checked by: J. NORRIS Date: 27/10/15
 Approved by: K. MARSH Date: 27/10/15

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WNCGIL/450/007	0

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