



**FLOOD RISK ASSESSMENT
FOR PROPOSED
RESIDENTIAL DEVELOPMENT
AT MARSH ROAD, OUTWELL, NORFOLK**

FINAL REPORT

GEOFF BEEL CONSULTANCY

MARCH 2019

GCB/NPS

DISCLAIMER

This document has been prepared solely as a Flood Risk Assessment in support of a planning application for proposed Residential Development at South Barn, Moor Lodge Farm, Marsh Road, Outwell, Norfolk. "Geoff Beel Consultancy" accepts no responsibility or liability whatsoever for any use made of this document other than by the client "Norfolk County Council" for the purposes it was originally commissioned and prepared. All comments and opinions made are based upon information available to "Geoff Beel Consultancy" during the necessary investigative process, and the conclusions and recommendations could therefore, differ in the event of material subsequently being found erroneous, incomplete or misleading. "Geoff Beel Consultancy" therefore, accepts no liability should this prove to be the case.

CONTENTS

- 1.0 INTRODUCTION
- 2.0 LOCATION
- 3.0 THE SITE AND SEQUENTIAL TEST
- 4.0 EXISTING FLOOD ALLEVIATION MEASURES
- 5.0 POTENTIAL SOURCE OF FLOODING
- 6.0 EXTENT OF KNOWN FLOODING
- 7.0 PROBABILITIES AND TRENDS OF FLOODING
- 8.0 IMPACTS OF FLOODING
- 9.0 RESIDUAL RISKS – EXTREME EVENTS
- 10.0 CONCLUSIONS AND RECOMMENDATIONS

- Fig 1 - Location Plan – NPS Group
- Fig 2 - Proposed Plans – NPS Group drg. no. 01-02-18-2-1425-(01)
- Fig 3 - Topographical Survey – NPS Group drg. no. VES1649TP
- Fig 4 - Photographs of Existing Barns
- Fig 5 - Environment Agency Flood Map for Planning
- Fig 6 - Kings Lynn & West Norfolk Borough Council Level 1 Strategic Flood Risk Assessment Flood Zone Map KL_ 65(2018)
- Fig 7 - Environment Agency Hazard Mapping – Ref: 14156
- Fig 8 - Kings Lynn Internal Drainage Board District Plan

1.0 INTRODUCTION

- 1.1 A full planning application is to be submitted by NPS Group on behalf of Norfolk County Council for proposed residential development at South Barn, Moor Lodge Farm, Marsh Road, Outwell, Norfolk.
- 1.2 Planning approval requires a Flood Risk Assessment to be submitted to the Environment Agency to meet the requirements and general principles contained in the Planning Practice Guidance to the National Planning Policy Framework (NPPF).

The site is located within Flood Zone 3 of the Environment Agency Flood Map for Planning and is situated approximately 8.00kms from the River Great Ouse defences. It is also located 7.00kms from the River Nene tidal defences.

The latest Agency Maps have been created to raise awareness of flood risk with the public and partner organisations such as Local Authorities, Emergency Services and Drainage Authorities. The Maps do not take into account any existing flood defences.

The site is within the Kings Lynn Internal Drainage Board's area and shown outside the boundary of Flood Zone 3 of the Kings Lynn & West Norfolk Borough Council's Level 1 Strategic Flood Risk Assessment Map KL-65 (2018).

- 1.3 Geoff Beel Consultancy was appointed on 22nd February 2019 to undertake a Flood Risk Assessment.

2.0 LOCATION

- 2.1 The development site is located at Moor Lodge Farm, Marsh Road, Outwell. The National Grid Reference of the central point of the site is TF 51910561.
- 2.2 The position and extent of the site are shown on Fig 1 – Location Plan at the end of the document.
- 2.3 The site, located within the Kings Lynn Internal Drainage Board district is shown within Flood Zone 3 as detailed on the Environment Agency Flood Map for Planning and outside the boundary of Flood Zone 3 of the Council's Strategic Flood Risk Assessment Maps (2018).

3.0 THE SITE AND SEQUENTIAL TEST

- 3.1 The site is currently a redundant agricultural holding.
- 3.2 The area of development is approximately 0.10 hectare with existing vehicular access to Marsh Road.
- 3.3 The proposed site layout consists the conversion of the redundant agricultural building to a single storey dwelling.

3.4 The site is within the agricultural area of Outwell as designated by the Borough Council of Kings Lynn & West Norfolk and as such is exempt from the Sequential Test and Exception Test. However, due consideration has been given to the Sequential Test as follows:

3.5 **Sequential Test.**

Initially it is required that other sites for development must be considered in the area that may offer a reduced flood risk, however, it is noted that no sites within a 5.0km radius of the River Great Ouse defences were outside the Zone 3 category and the Sequential Test was therefore passed.

However to ensure compliance these further consideration has been applied as under the requirements of the National Planning Policy Framework. From the Environment Agency Flood Map for Planning it shows that the site is within Flood Zone 3 and Flood Zone 1 as detailed on the BCKLWN Level 1 SFRA maps and an area protected to 1 in 100 years for fluvial events and 1 in 200 years for tidal event; the area as it is protected to this degree can be considered to be a passive flood plain. The development therefore complies with the Appropriate Uses required in the National Planning Policy Framework but is required to pass the Exception Test.

Exception Test.

Therefore applying the Exception Test shows that:

- a) the development provides wider sustainable economic benefits by utilising an existing redundant agricultural building
- b) the FRA demonstrates that the development will be safe and will not increase flood risk elsewhere nor detrimentally affect any other property

The site is compliant with a) and b).

4.0 EXISTING FLOOD ALLEVIATION MEASURES

4.1 The site is within a defended floodplain, as defined in Appendix 1 of the Environment Agency's 'Policy and Practice for the Protection of Floodplains' and is considered to be passive until such time as a flood greater than that for which the defences were designed occurs. The likelihood of flooding due to overtopping or failure of a flood defence embankments is considered to be small.

4.2 The site is located within the Kings Lynn Internal Drainage Board district which is protected by the Great Ouse Tidal and Sea Defences against a minimum flood return period of up to 1 in 200 years. The nearest 'main drain' is located immediately on the northern boundary of the development site with existing land levels at the site generally at 1.50m aOD.

- 4.3 The Kings Lynn IDB drainage system at present achieves a target standard of protection to residential properties of 1 in 100 years return period with a minimum freeboard of 900mm elsewhere in the district to lowest agricultural land levels.

As a result of the Strategic Drainage Study recently carried out by the Boards Consulting Engineers with hydraulic modelling of the Islington Pump and West Lynn outfall catchments to include allowances for future development and climate change, the following conclusions have been reached:-

- the freeboard criteria of 900mm is not achieved for all studied return periods with overtopping at isolated locations along the lengths of the Islington Pump, Smeeth Lode and West Lynn main drains and tributary drains, giving rise to reducing standards of service over the next 50 years.
- the Board has resolved to continue its policy regarding the connection of future developments to the arterial system which enables a flexible approach to be adopted and meet the criteria for “sustainable urban drainage”. The Board has adopted a target level of service for all urban properties of 1 in 100 years plus freeboard.
- the Board has resolved to carry out improvements to the Islington Pump and West Lynn Outfall Sluice districts by way of seeking developers contribution to provide a level of protection of a future 1 in 100 years return period event with 900mm freeboard.

- 4.4 The site and surrounding land drains by gravity in a generally easterly direction to outfall into the tidal River Great Ouse at the Islington Pumping Station operated and maintained by the Kings Lynn Internal Drainage Board.
- 4.5 The site is also protected by the Middle Level Main Drain, a highland water embanked channel located 2.00kms south east which flows to St. Germans Pumping Station to discharge into the tidal River Great Ouse.

The Middle Level Commissioners have completed a Strategic Drainage Study in recent years to safeguard against the 1 in 100 year fluvial return period event and the St. German’s Pumping Station has been replaced in the last 8 years with a new construction to meet the required standards.

- 4.6 Current maintenance standards within the Kings Lynn Internal Drainage Board and of the Environment Agency tidal defences are generally good.

During the operation and maintenance of its pumping stations, associated structures and channel systems, particularly those that could affect property, the Board seeks to maintain a general standard capable of providing flood protection to its district. A routine maintenance programme is in place to ensure that the Boards assets are commensurate with the standard of protection that is sought. However, bank slips, blocked culverts etc. may occur from time to time and these matters are usually dealt with promptly.

5.0 POTENTIAL SOURCES OF FLOODING

5.1 Five potential sources of flooding have been identified as a result of this assessment:

- a) local blockages to existing IDB main drain system
- b) storm return period of 1 in 100 years being exceeded
- c) failure of the Islington Pumping Station
- d) overtopping and breaching of the River Great Ouse tidal defences
- e) overtopping and breaching of the Middle Level Main Drain

5.2 The probability of flooding from source a) is low due to the maintenance standards already achieved and managed by the IDB.

The probability of flooding from b) is also low due to the Kings Lynn IDB main drain design standard incorporating a minimum 900mm freeboard to the lowest land level which provides adequate storage in events greater than 1 in 100 years. Flooding of some agricultural land would occur but no properties.

5.3 Failure of the Islington Pumping Station may occur due to long term mechanical breakdown or power supply being disrupted. However, in these circumstances, if conditions were such to put properties and land at risk of flooding, the Kings Lynn IDB would take emergency action to maintain the drainage level of service by utilising temporary pumping equipment. The probability of such an occurrence is also considered to be low.

5.4 The site is shown to be within Flood Zone 3 of the River Great Ouse as detailed on the Environment Agency Flood Map for Planning. However the maps have been prepared irrespective of existing defences which in this location are the tidal defences to the west embankment of the River Great Ouse improved after the 1978 tidal surge event.

5.5 The recorded tide level at Kings Lynn was 5.92m aOD in 1978 since which improvements to 6.30m aOD for hard defences and 7.00m aOD for soft defences have been carried out. The Kings Lynn defences were designed to a 1 in 100 year return period plus freeboard of 1.1 metres. The more recent tidal surge of December 2013 reached a level of 6.17m aOD and the town and surrounding areas were protected by the improved defences.

A more recent report prepared by Consulting Engineers for the Environment Agency has confirmed that the defences would withstand a 1 in 200 year return period still water level of 6.14m aOD (estimated). NPPF states that development should be safe from flooding for its lifetime of 100 years; after taking into account sea level rise due to climate change the predicted 1 in 200 year tide level at Kings Lynn would be 7.16m aOD. This would overtop existing hard defences by 0.86 metre and 0.16 metre above soft defence level.

Any overtopping of existing defences between Kings Lynn and Downham Market would not affect the development site.

- 5.6 The Middle Level Main Drain and St. Germans Pumping Station offer protection against the 1 in 100 year fluvial return period flood with allowance for climate change during the next 100 years. The likelihood of overtopping and/or breaching of the Middle Level Main Drain embankments is considered remote.
- 5.7 More recent Hazard Mapping produced by the Environment Agency shows the site to be unaffected by any floodwaters as a result of a breach to the River Great Ouse tidal defences.

6.0 EXTENT OF KNOWN FLOODING

- 6.1 During the preparation of this assessment, no evidence was discovered of the site being flooded or of any adjoining properties within the last 100 years.

7.0 PROBABILITIES AND TRENDS OF FLOODING

- 7.1 The probability of this development flooding from localised drainage systems is very low. The nearby main drain provides adequate standard of protection for up to 1 in 50 years return period plus freeboard to lowest land levels.
- 7.2 The probability of the site flooding with water from the tidal River Great Ouse main river is between 0.5% and 1%. If the trend of climate change anticipated to occur continues over the next 100 years, without any further improvements to the main river tidal defences, there is a small risk of overtopping at the 1 in 200 year return period event.
- 7.3 If under very extreme events, levels of floodwater from main river or arterial systems rose to such an extent that the site was affected, the situation would not be sudden. It is very probable that sufficient time would be available to take precautionary actions to limit the extent and potential impact of flooding.
- 7.4 The water levels in the drainage channels will also tend to rise as a result of the impacts of climate change. However the existing systems and defences together with the proposed development of the site with floor level 300mm above adjoining existing land level will be appropriate for the design life of the development (i.e. 100 years).

8.0 IMPACTS OF FLOODING

- 8.1 No significant impacts of flooding are anticipated due to the existing standards of tidal defence, however a precautionary approach has been adopted to protect against the possibility of overtopping or a tidal breach occurring to the tidal defences.
- 8.2 The developer should ensure that the occupiers of the barn conversion are sufficiently aware of the risk of flooding, and the standard of the existing defences. The Environment Agency provides a Flood Warning Service which includes Flood Warning Codes and uses direct warning methods where the risks and impacts of flooding are high. Indirect warnings are provided to all flood risk areas, even those at low risk of flooding. The main method is media broadcasts via local radio and also by television.

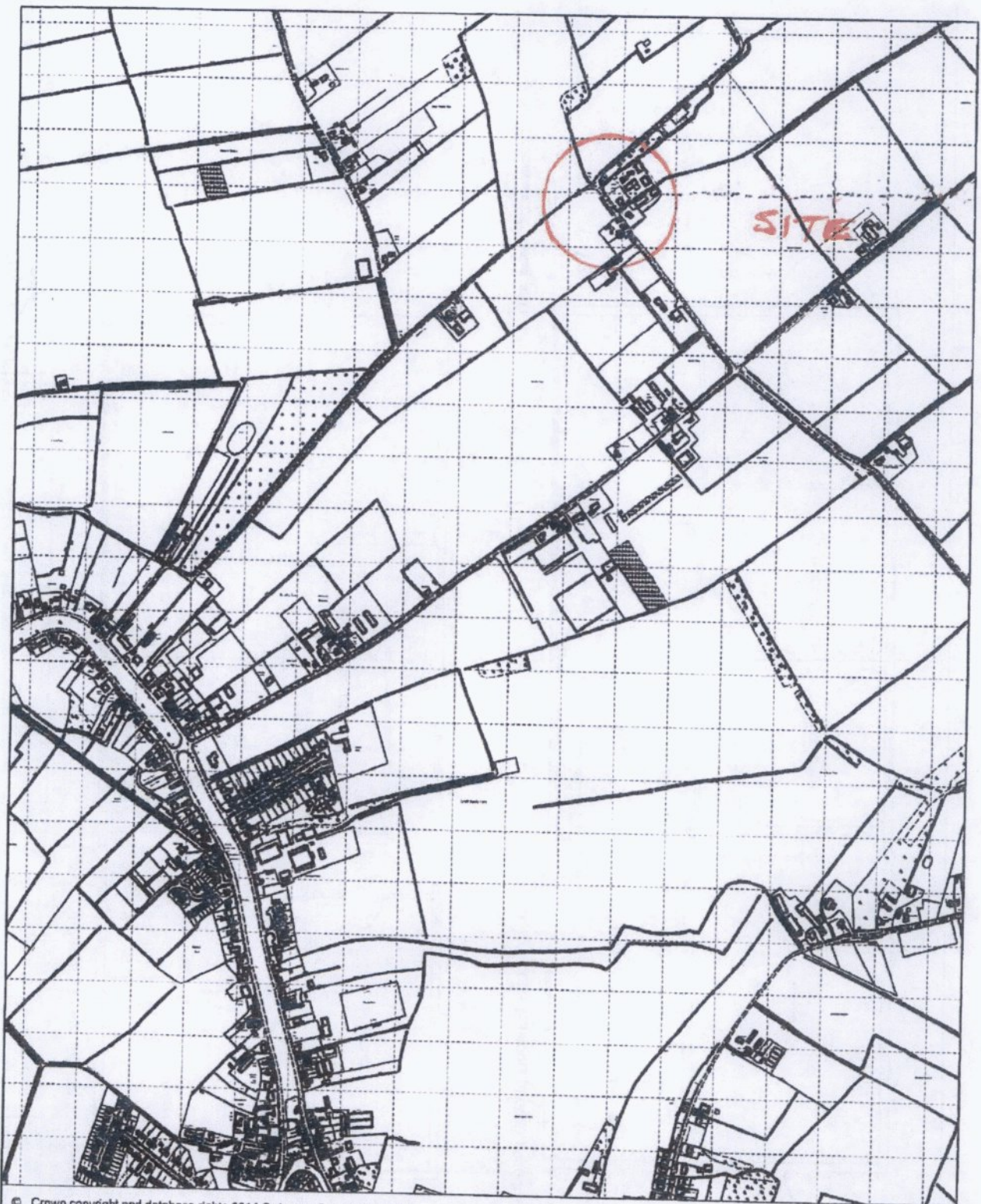
In addition to direct and indirect flood warnings, the Environment Agency operates a 24 hour a day Floodline Service providing advice and information on flooding, contact tel no: 0345 988 1188 and the occupiers of the barn conversion should register with the Floodline Direct Warnings Service to receive any future flood warnings.

9.0 RESIDUAL RISK – EXTREME EVENTS



- 9.1 The residual risk from extreme fluvial events is low on this site, because of the existing standard of drainage provided by the Kings Lynn IDB. The discharge of surface water from the development will be to soakaway designed to BRE365 requirements and approved as part of Building Regulations.
- 9.2 The site is within Flood Zone 1 of the Council's Level 1 Strategic Flood Risk Assessment with a low risk of flooding due to the current standards of drainage and flood defence and land levels. The site is not located within a Functional Flood Plain of any 'main river' or 'main drain'. The Environment Agency Flood Map for Planning has been produced irrespective of existing flood defences and standards of protection.

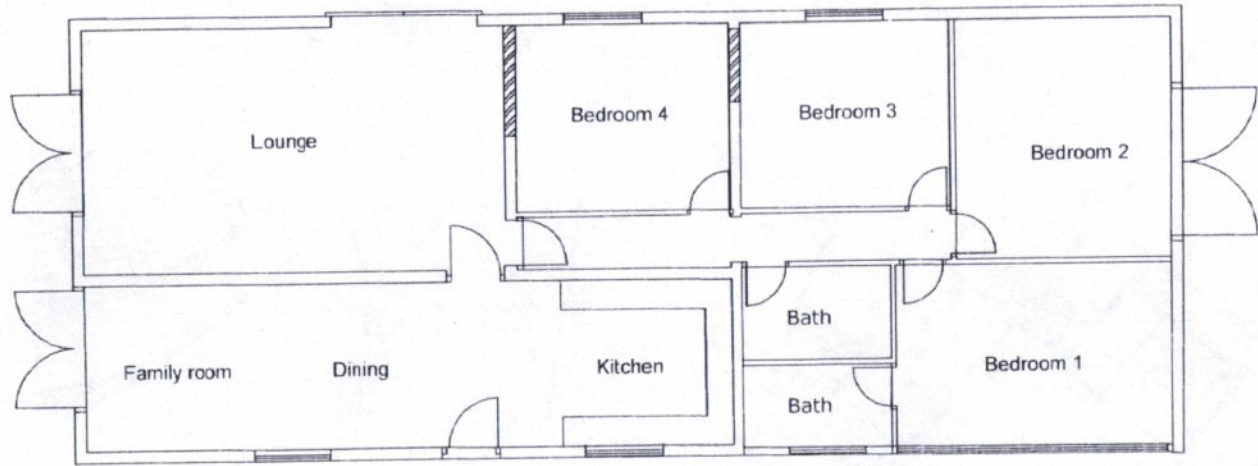
10.0 CONCLUSIONS AND RECOMMENDATIONS

- 10.1 As a result of the assessment, the following conclusions have been reached:-
- The proposed development is not in a Functional Floodplain, it is in a Passive Floodplain of the tidal River Great Ouse and the Kings Lynn IDB.
 - The site is in Flood Zone 1 the actual risk of the site flooding from main river is very low at less than 0.5%.
 - Although the site is located within Kings Lynn Internal Drainage District with a minimum standard of drainage of 1 in 50 years, this accords with Defra guidelines for rural development. Freeboard to design water level of 900mm to lowest land level is available for events greater than 1 in 50 years.
 - Land level at the site is at 1.50m aOD and safeguards against the risk of defences being overtopped or breached. Finished floor level of the barn conversion will be a minimum of 300mm above existing land level.
 - All surface water drainage from the development will be to soakaway to BRE365 design requirements and Building Control Regulations approval.
 - Any works within 9.00m of the IDB main drain on the northern boundary of the site will require Land Drainage Byelaw Consent from the Kings Lynn Internal drainage Board.

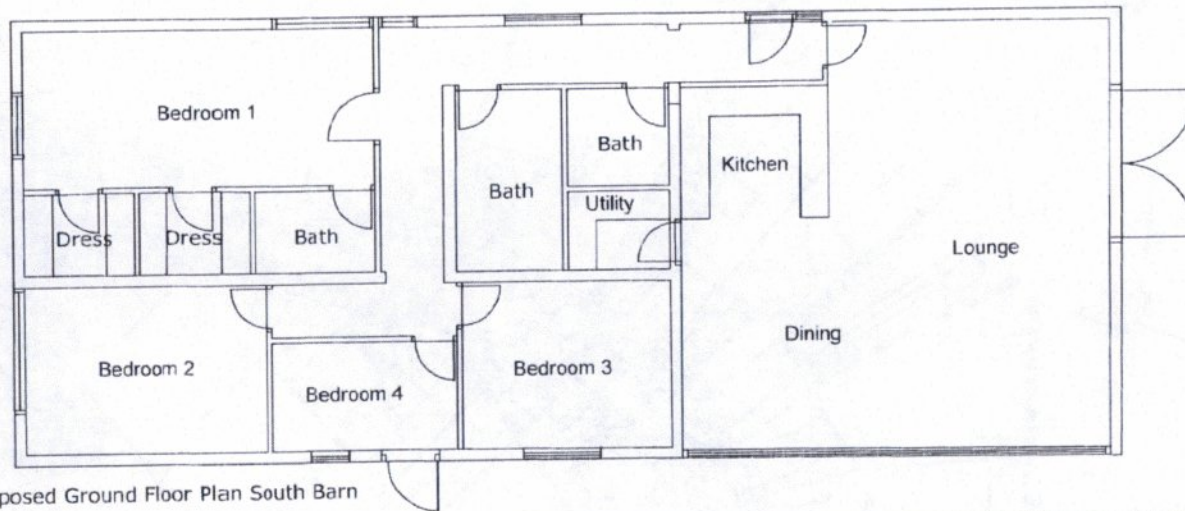


© Crown copyright and database rights 2014 Ordnance Survey 100019340.

	Outwell
	Moor Lodge Farm, Marsh Road
Scale : 1:10000	This map is taken from Ordnance Survey Digital Data. Nat Grid Reference: 551664.607 304569.020
Date : 13 Feb 2019	 Norfolk County Council <small>NPS Property Consultants Ltd on behalf of Norfolk County Council</small>
Produced by: [unclear]	



Proposed Ground Floor Plan North Barn



Proposed Ground Floor Plan South Barn

DRAWING IS PRODUCED FOR USE IN THIS PROJECT ONLY AND NOT BE USED FOR ANY OTHER PURPOSE. NPS PROPERTY CONSULTANTS LTD ACCEPT NO LIABILITY FOR THE USE OF THIS DRAWING OTHER THAN THE PURPOSE FOR WHICH IT WAS INTENDED IN CONNECTION WITH THIS PROJECT AS RECORDED IN THE 'PURPOSE OF ISSUE' AND 'FILE STATUS CODE'.

DRAWING MAY NOT BE REPRODUCED IN ANY FORM WITHOUT PRIOR WRITTEN AGREEMENT OF PROPERTY CONSULTANTS LTD.

IN COPYRIGHT AND DATABASE RIGHTS 2019 NPS PROPERTY CONSULTANTS LTD. SURVEY LICENCE NUMBER -

ORIGINAL SHEET SIZE
A3

FIRST ISSUE						
PD	REV	DRWN	DATE	CHECKED	DATE	APPROVED

CLIENT	County Farms	TITLE	Proposed Plans
PROJECT	Outwell Moors Lodge Farm		

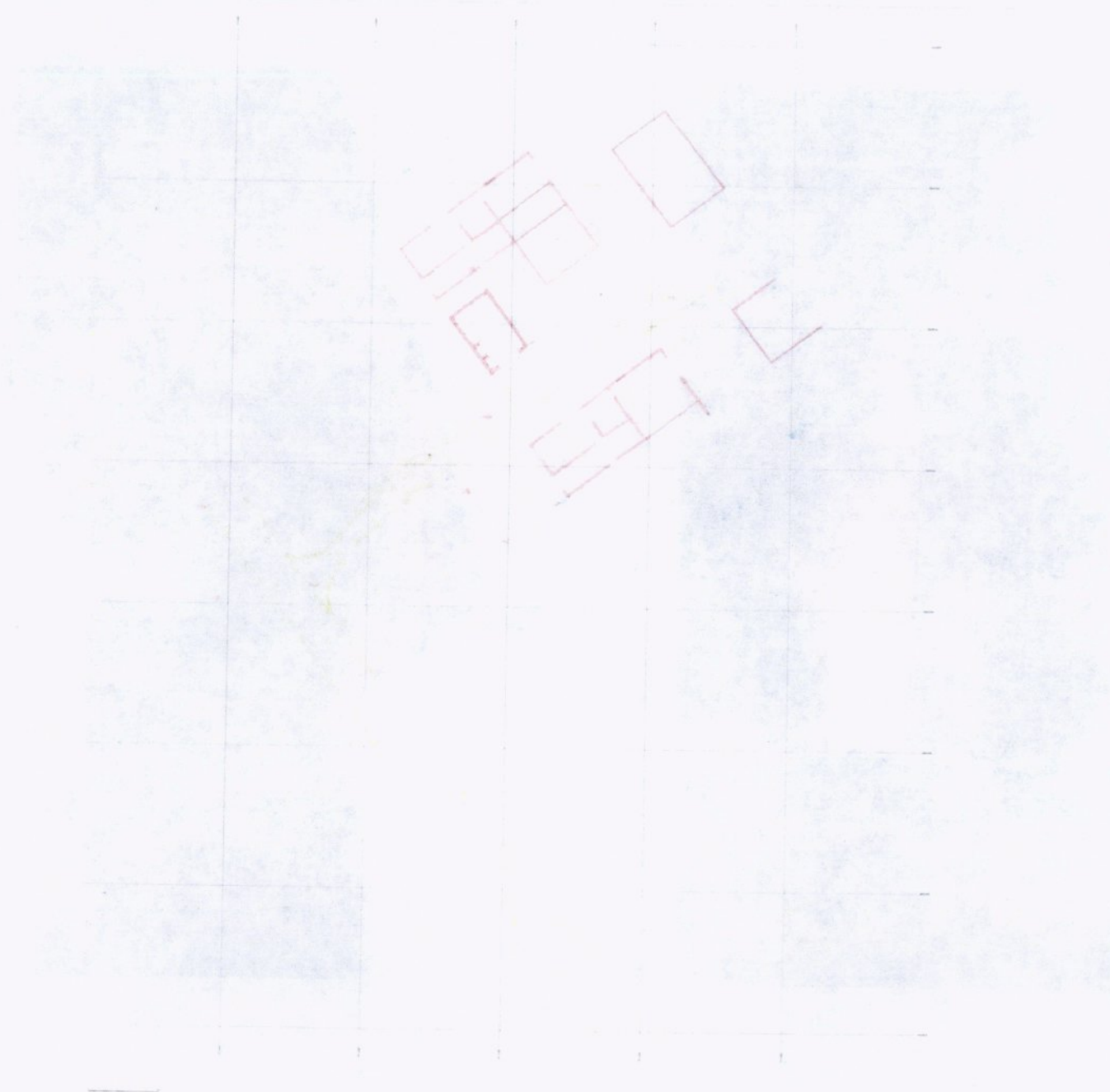
nps group

NPS Property Consultants Ltd
 10, Lymington Avenue, 10, Lymington Avenue, Lymington, Hampshire, UK
 Phone: 01794 344 344 Fax: 01794 344 344
 Email: nps@npsgroup.co.uk www.npsgroup.co.uk

Date Printed: 21 February 2019 16:20:27

SCALE	DISCIPLINE	PROJECT NUMBER
1:100		01-02-18-2-1425
DRAWING NUMBER		REV. 0001
- - - - (01) -		
STATUS CODE	PURPOSE OF ISSUE	DRAWN
	Planning	

© COPYRIGHT NPS GROUP 2019



Page No.
 N

This is a reproduction of the original drawing. It is not to be used for any other purpose without the written consent of the original author. The original author is not responsible for any errors or omissions in this reproduction. The original author is not responsible for any damage or loss of any kind resulting from the use of this reproduction. The original author is not responsible for any liability of any kind resulting from the use of this reproduction.

Legend

1	Room	2	Room
3	Room	4	Room
5	Room	6	Room
7	Room	8	Room
9	Room	10	Room
11	Room	12	Room
13	Room	14	Room
15	Room	16	Room
17	Room	18	Room
19	Room	20	Room
21	Room	22	Room
23	Room	24	Room
25	Room	26	Room
27	Room	28	Room
29	Room	30	Room
31	Room	32	Room
33	Room	34	Room
35	Room	36	Room
37	Room	38	Room
39	Room	40	Room
41	Room	42	Room
43	Room	44	Room
45	Room	46	Room
47	Room	48	Room
49	Room	50	Room
51	Room	52	Room
53	Room	54	Room
55	Room	56	Room
57	Room	58	Room
59	Room	60	Room
61	Room	62	Room
63	Room	64	Room
65	Room	66	Room
67	Room	68	Room
69	Room	70	Room
71	Room	72	Room
73	Room	74	Room
75	Room	76	Room
77	Room	78	Room
79	Room	80	Room
81	Room	82	Room
83	Room	84	Room
85	Room	86	Room
87	Room	88	Room
89	Room	90	Room
91	Room	92	Room
93	Room	94	Room
95	Room	96	Room
97	Room	98	Room
99	Room	100	Room

Notes

1	Room	2	Room
3	Room	4	Room
5	Room	6	Room
7	Room	8	Room
9	Room	10	Room
11	Room	12	Room
13	Room	14	Room
15	Room	16	Room
17	Room	18	Room
19	Room	20	Room
21	Room	22	Room
23	Room	24	Room
25	Room	26	Room
27	Room	28	Room
29	Room	30	Room
31	Room	32	Room
33	Room	34	Room
35	Room	36	Room
37	Room	38	Room
39	Room	40	Room
41	Room	42	Room
43	Room	44	Room
45	Room	46	Room
47	Room	48	Room
49	Room	50	Room
51	Room	52	Room
53	Room	54	Room
55	Room	56	Room
57	Room	58	Room
59	Room	60	Room
61	Room	62	Room
63	Room	64	Room
65	Room	66	Room
67	Room	68	Room
69	Room	70	Room
71	Room	72	Room
73	Room	74	Room
75	Room	76	Room
77	Room	78	Room
79	Room	80	Room
81	Room	82	Room
83	Room	84	Room
85	Room	86	Room
87	Room	88	Room
89	Room	90	Room
91	Room	92	Room
93	Room	94	Room
95	Room	96	Room
97	Room	98	Room
99	Room	100	Room

Scale: 1:1000

Date: 10/10/2010

Project Name: **WESHEADP**

Project Number: **WESHEADP-01**

Project Location: **WESHEADP**

Project Status: **WESHEADP**

Project Manager: **WESHEADP**

Project Engineer: **WESHEADP**

Project Designer: **WESHEADP**

Project Checker: **WESHEADP**

Project Approver: **WESHEADP**

Project Name: **WESHEADP**

Project Number: **WESHEADP-01**

Project Location: **WESHEADP**

Project Status: **WESHEADP**

Project Manager: **WESHEADP**

Project Engineer: **WESHEADP**

Project Designer: **WESHEADP**

Project Checker: **WESHEADP**

Project Approver: **WESHEADP**



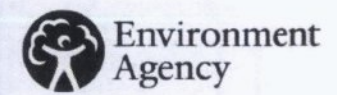
OUTWELL – MOOR LODGE FARM, MARSH ROAD



Barn 2003 (Moors Lodge Farm North)











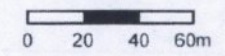
Barn 2001 (Moors Lodge Farm South)



Flood map for planning

Your reference
PE14 8PW
 Location (easting/northing)
551910/305608
 Scale
1:2500
 Created
14 Feb 2019 12:21

-  Selected point
-  Flood zone 3
-  Flood zone 3: areas benefitting from flood defences
-  Flood zone 2
-  Flood zone 1
-  Flood defence
-  Main river
-  Flood storage area



**KING'S LYNN AND WEST NORFOLK
STRATEGIC FLOOD RISK ASSESSMENT**

**APPENDIX A: FLOOD RISK MAPPING
INDEX GRID: KL_65**



LEGEND

Note: All layers are turned off by default. Click the box next to the layer of interest to turn on.

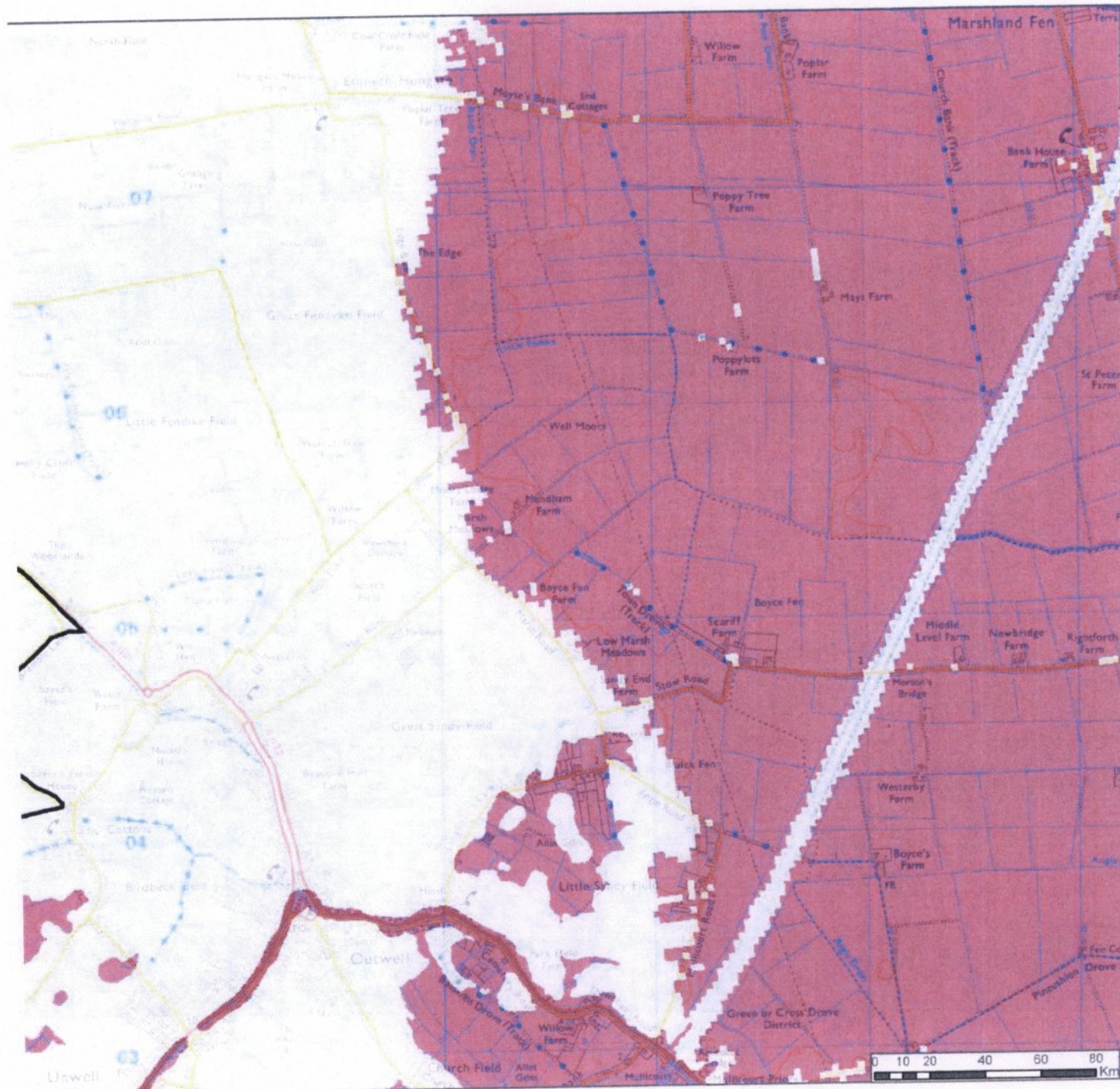
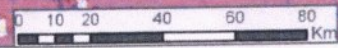
- | | | | |
|-------------------------------------|---------------------------|--|----------------------------------|
| Authority Information | | Fluvial Climate Change | |
| <input checked="" type="checkbox"/> | Administrative Area | <input type="checkbox"/> | 1% AEP with 35% Climate Change |
| <input checked="" type="checkbox"/> | Study Area | <input type="checkbox"/> | 1% AEP with 65% Climate Change |
| <input type="checkbox"/> | Main Rivers | <input type="checkbox"/> | 0.1% AEP with 25% Climate Change |
| <input type="checkbox"/> | Detailed River Network | Tidal Climate Change | |
| <input type="checkbox"/> | The Broads | <input type="checkbox"/> | 0.5% AEP Climate Change |
| Flood Zones | | <input type="checkbox"/> | 0.1% AEP Climate Change |
| <input type="checkbox"/> | Flood Zones 3b | Surface Water Climate Change | |
| <input type="checkbox"/> | Indicative Flood Zones 3b | <input type="checkbox"/> | 1% AEP with 40% Climate Change |
| <input checked="" type="checkbox"/> | Flood Zones 3a | Areas Susceptible to Groundwater Flooding | |
| <input type="checkbox"/> | Flood Zones 2 | <input type="checkbox"/> | >= 75% |
| Surface Water | | <input type="checkbox"/> | >= 50% < 75% |
| <input type="checkbox"/> | RoFISW 3.3% AEP | <input type="checkbox"/> | >= 25% < 50% |
| <input type="checkbox"/> | RoFISW 1% AEP | <input type="checkbox"/> | < 25% |
| <input type="checkbox"/> | RoFISW 0.1% AEP | Reservoir Flooding | |
| Breach | | <input type="checkbox"/> | Reservoir Flooding |
| <input type="checkbox"/> | Fluvial Breach | Other | |
| <input type="checkbox"/> | Tidal Breach | <input type="checkbox"/> | Dry Islands > 0.5Ha |

Return to Index Map

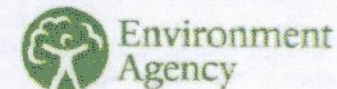
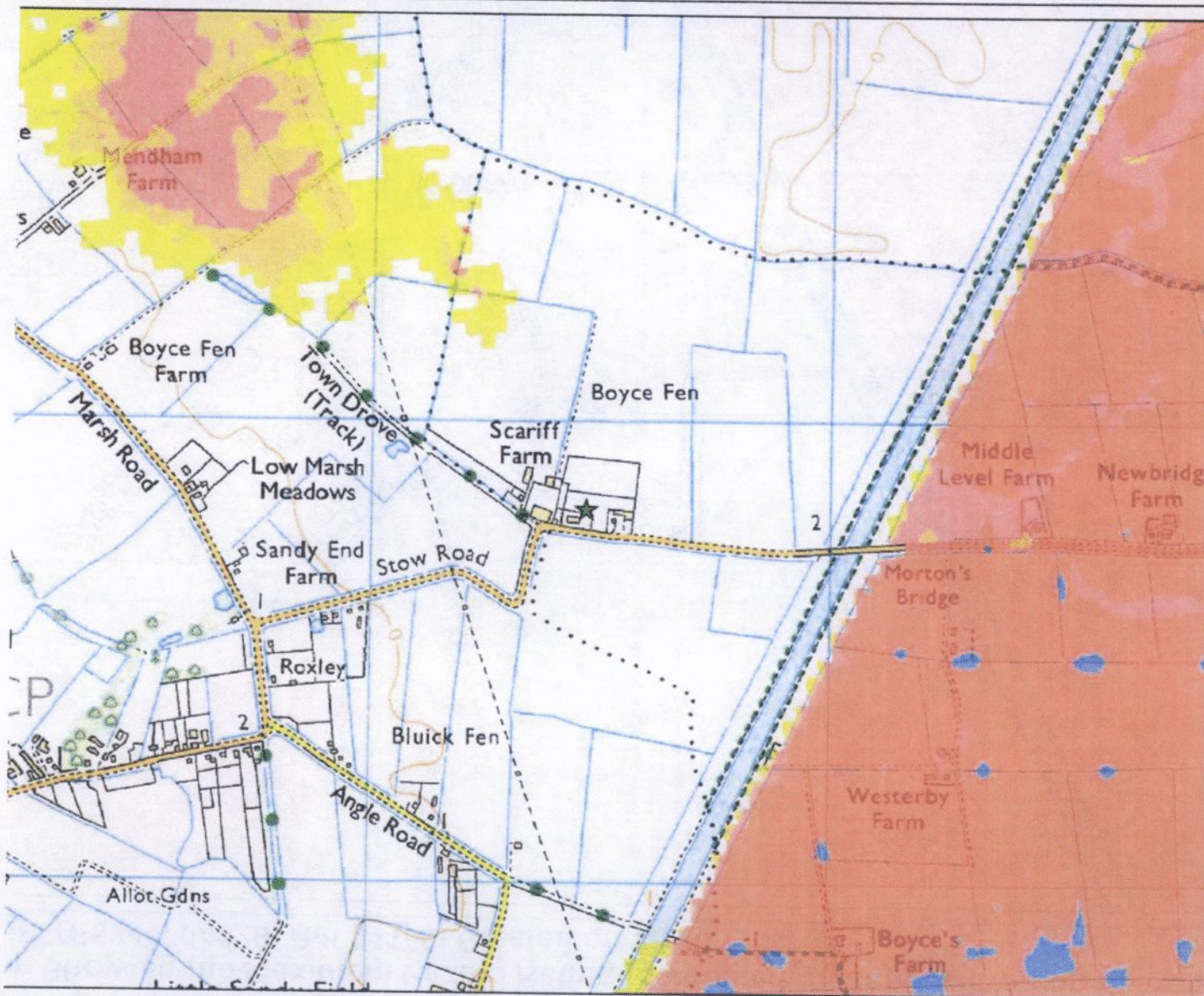
Mapping Supporting Information

Contains Ordnance Survey data © Crown copyright and database right 2018
© Crown copyright and database right 2019 Ordnance Survey 100019340 Use of this data is subject to terms and conditions
Contains Environment Agency information © Environment Agency and/or database right

This document is the property of Jeremy Benn Associates Ltd. It shall not be reproduced in whole or in part, not disclosed to a third party without the permission of Jeremy Benn Associates Ltd.



Showing the Maximum Flood Depth (combined breach) centred on Scarrif Farm, Stow Road, Outwell.
 R TF5346704820. Ref 14156. Created on 28 June 2016.



Scale 1:10,000

Legend

Max Depth 200CC

Metres

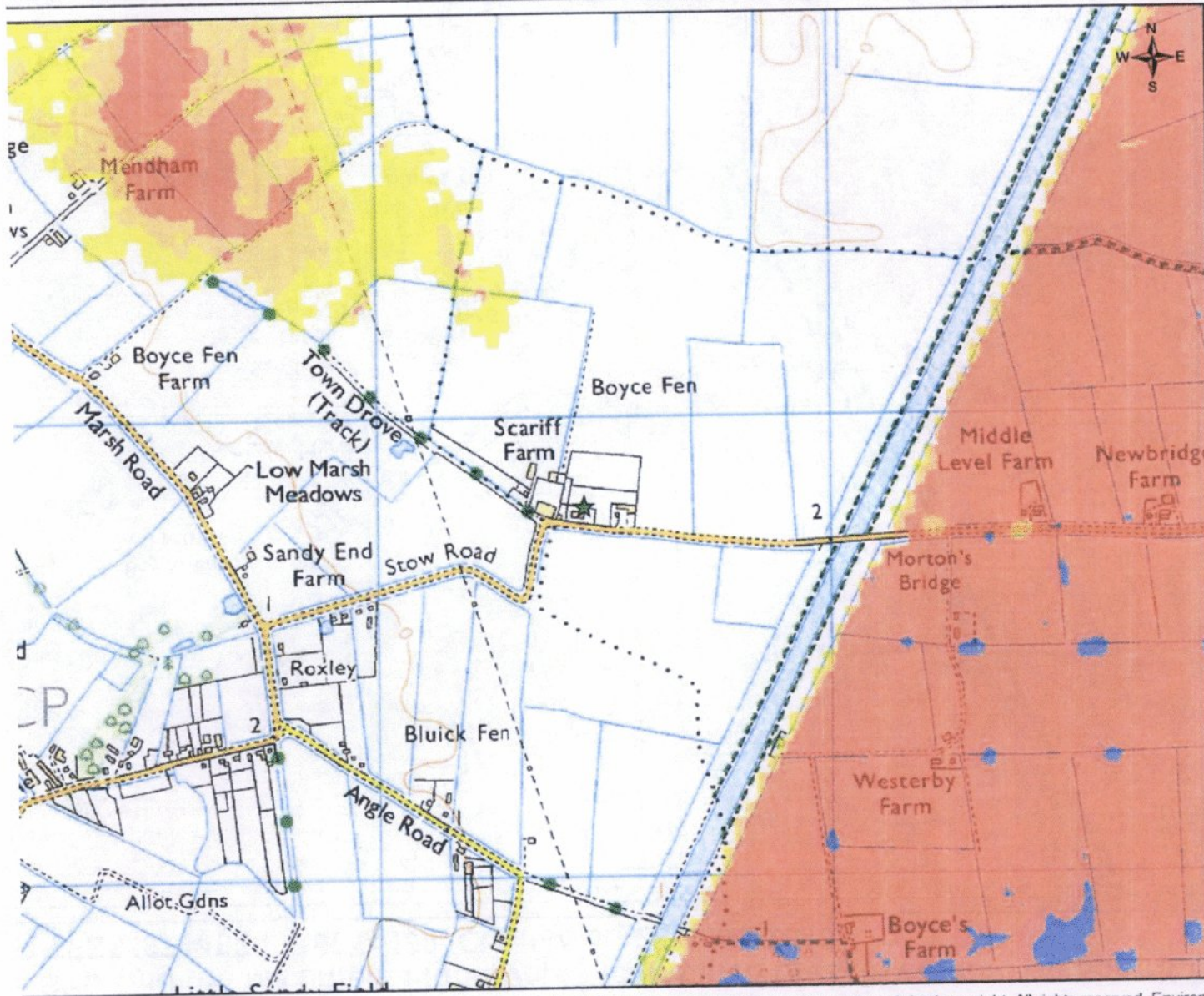
- 0 - 0.25
- 0.25 - 0.5
- 0.5 - 1
- 1 - 2
- >2

★ Site location



1. The map is based on computer modelling of simulated breaches at specific locations. Each breach has been modelled individually and the results combined to create this map. Multiple breaches, other combinations of breaches, different sized tidal surges or flood flows may all give different results.
2. The map only considers the consequences of a breach, it does not make any assumption about the likelihood of a breach occurring.

Map Showing the Maximum Hazard Rating (combined breach) centred on Scarrif Farm, Stow Road, Outwell.
 ID: TF5346704820. Ref 14156. Created on 28 June 2016.



Scale 1:10,000

Legend

Max Hazard Rating 200cc

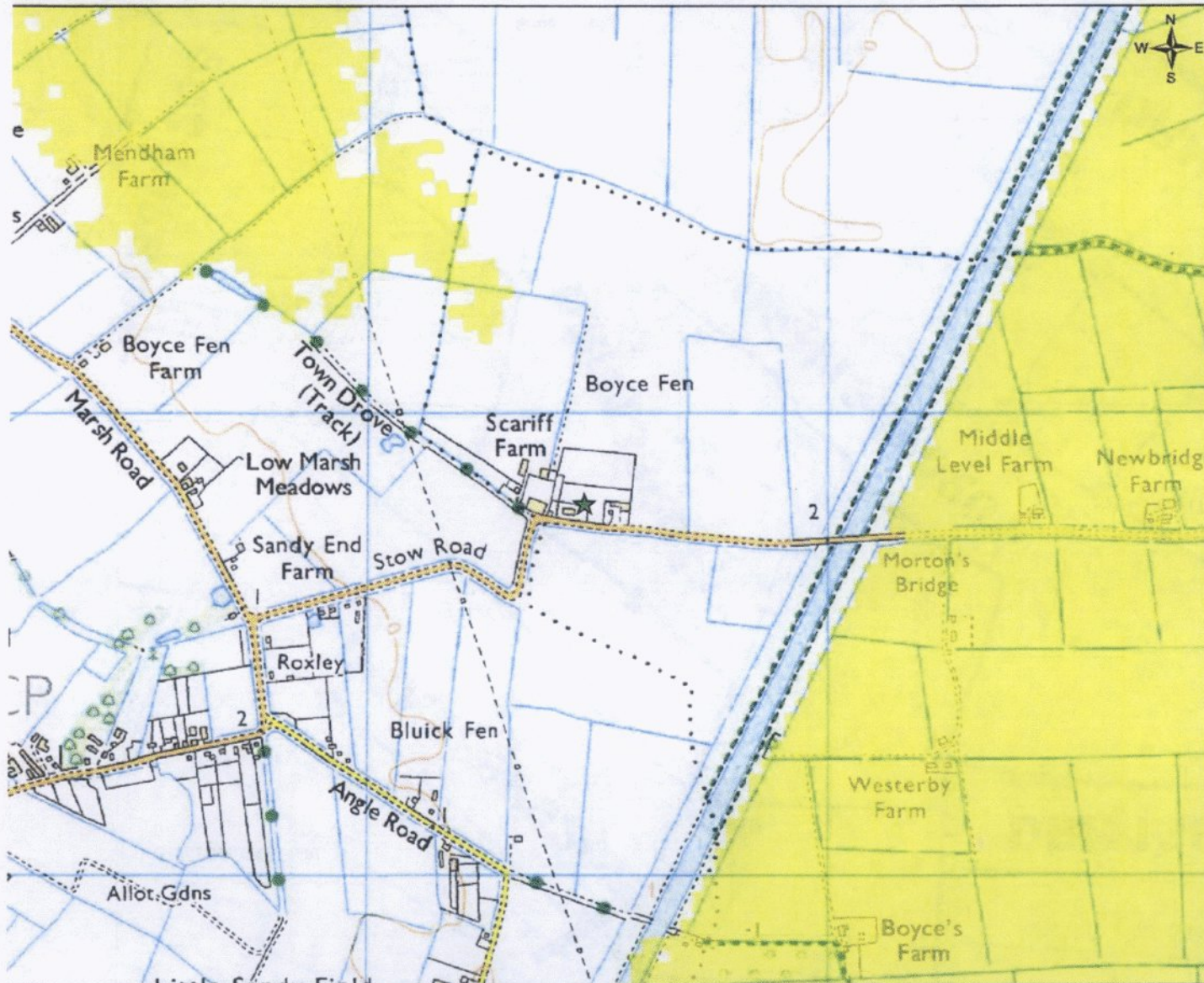
Haz Rating

- 0 - 0.75 - Very Low Hazard
- 0.75 - 1.25 - Danger to Some
- 1.25 - 2 - Danger to Most
- > 2 - Danger to All

★ Site

1. This map shows the level of flood hazard to people (called a hazard rating) if our flood defences are breached at certain locations, for a range of scenarios. The hazard rating depends on the depth and velocity of floodwater and maximum values of these are also mapped.
2. The map is based on computer modelling of simulated breaches at specific locations. Each breach has been modelled individually and the results combined to create this map. Multiple breaches, other combinations of breaches, different sized tidal surges or flood flows may all give different results.
3. The map only considers the consequences of a breach, it does not make any assumption about the likelihood of a breach occurring.

Showing the Maximum Water Velocity (combined breach) centred on Scarrif Farm, Stow Road, Outwell.
 R TF5346704820. Ref 14156. Created on 28 June 2016.



Scale 1:10,000

Legend

Max Velocity 200cc

m/s

0 - 0.3

0.3 - 1

1 - 1.5

1.5 - 2.5

★ Site

1. The map is based on computer modelling of simulated breaches at specific locations. Each breach has been modelled individually and the results combined to create this map. Multiple breaches, other combinations of breaches, different sized tidal surges or flood flows may all give different results.

2. The map only considers the consequences of a breach, it does not make any assumption about the likelihood of a breach occurring.

