



Engineering Support Practice Ltd

www.esp.me.uk

Engineering for life

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ADDENDUM DATED 5th May 2016 TO

FLOOD RISK ASSESSMENT

FOR A PROPOSED DEVELOPMENT SITE NORTH

OF "TEAVILLE", LUTTON GOWTS, LUTTON,

SPALDING, PE12 9LQ.

(MAP REFERENCE, TF42SW 543646, 324276)

THE DEVELOPMENT IS THAT OF CONSTRUCTING

2 No. SEMI - DETACHED AND 4 No. DETACHED TWO - STOREY

DWELLINGS WITH FIRST FLOOR SLEEPING ACCOMODATION.

(A REVISION IN DESCRIPTION FROM THE ORIGINAL FRA doc)

Report prepared by:

B.W. Hornigold, C Env. MCIWEM. CMIM.

Engineering Support Practice Ltd.,

The Cottage, Brow of the Hill,

Leziate, Kings Lynn.

PE32 1EN

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Principal Director: Ben W Hornigold

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1.0 INTRODUCTION.

1.1The Flood Risk Assessment for the proposed development provided details of mitigation that would provide a safe development for the 100year threshold period to year 2116. However the Environment Agency (EA) have indicated an objection (letter dated 29th April 2016) on the grounds that the maximum indicated theoretical flood depth as predicted by the Tidal Hazard Mapping data should be fully accommodated in the proposed mitigation, this requiring that the Finished Ground Floor Level (FGFL) should be raised 1.0m. above the adjacent ground level with 300mm. of flood resistance measures incorporated into the dwellings design.

2.0 DISCUSSION.

2.1 The matter of degree of FFGL. raising was discussed with the author of the "Objection Letter", Mr. Rob Millbank, (Appendix 1) and it was agreed that the recommendations of the EA. letter would be adopted into the dwellings design.

3.0 CONCLUSION AND RECOMMENDATIONS.

3.1 It is therefore concluded that the Environment Agency advice relating the raising of the FGFL. be adopted.

3.2 It is recommended that the FGFL. Is raised 1.0m. above the adjacent ground level and 300mm. of flood resistance and resilience measures are incorporated into the dwellings design.

**Engineering Support Practice Ltd.,
Ben Hornigold C Env. CMIWEM. CMIM.
5th May 2016.**

APPENDIX 1

South Holland District Council
Planning & Development
Council Offices Priory Road
Spalding
Lincolnshire
PE11 2XE

Our ref: AN/2016/123537/01-L01
Your ref: H12-0341-16
Date: 29 April 2016

Dear Sir/Madam

Residential development - comprising 4 two-storey detached dwellings and 2 two-storey semi-detached affordable dwellings
Adjacent: Norton Lodge, Lutton Gowts, Lutton, Spalding, PE12 9LQ

Thank you for consulting us on the application above, on 14 April 2016.

Environment Agency position

We can confirm that in the absence of an acceptable Flood Risk Assessment (FRA) we **object** to the proposal as submitted and recommend refusal on this basis for the following reasons:

Reason

The FRA submitted with this application does not comply with the requirements set out in the National Planning Practice Guidance (NPPG) (Paragraph 30). The submitted FRA does not therefore provide a suitable basis for assessment to be made of the flood risks arising from the proposed development.

In particular, the Environment Agency's Coastal Hazard Mapping affects the proposed site. Our Hazard Mapping shows the consequences should a breach or overtopping of our existing sea defences occur. This mapping shows that **flood depths of 0.5-1.0m impact the application site** when considering the 2115 0.5% breach scenario. The finished floor levels (FFL) of any new 'more vulnerable' residential development should be informed by these flood depths, and set as required below:

- For areas where flood depths are 0.5-1.0m:
FFL should be set a minimum of 1.0m above existing ground level, with flood resilient construction incorporated to a minimum height of 300mm above the maximum flood depth.

The FFL currently proposed in the supporting FRA would fail to elevate the dwellings above the predicted future flood depths. The proposed FFL would therefore leave a depth of flood water that could inundate the dwellings during the identified flood event. Floor levels commensurate to the expected future depths should therefore be proposed

to ensure that the development and its future occupants will be 'safe' from this identified flood risk.

Overcoming our objection

The applicant can overcome our objection by submitting an amended FRA which covers the deficiencies highlighted above and demonstrates the development will be safe from flooding, without increasing flood risk elsewhere.

We ask to be formally re-consulted once an amended FRA has been submitted, and we will then provide further comments within 21 days. Please note our objection will be maintained until an adequate FRA has been submitted and approved.

Should you require any additional information, or wish to discuss any of these matters further, please do not hesitate to contact me on the number below.

Yours faithfully

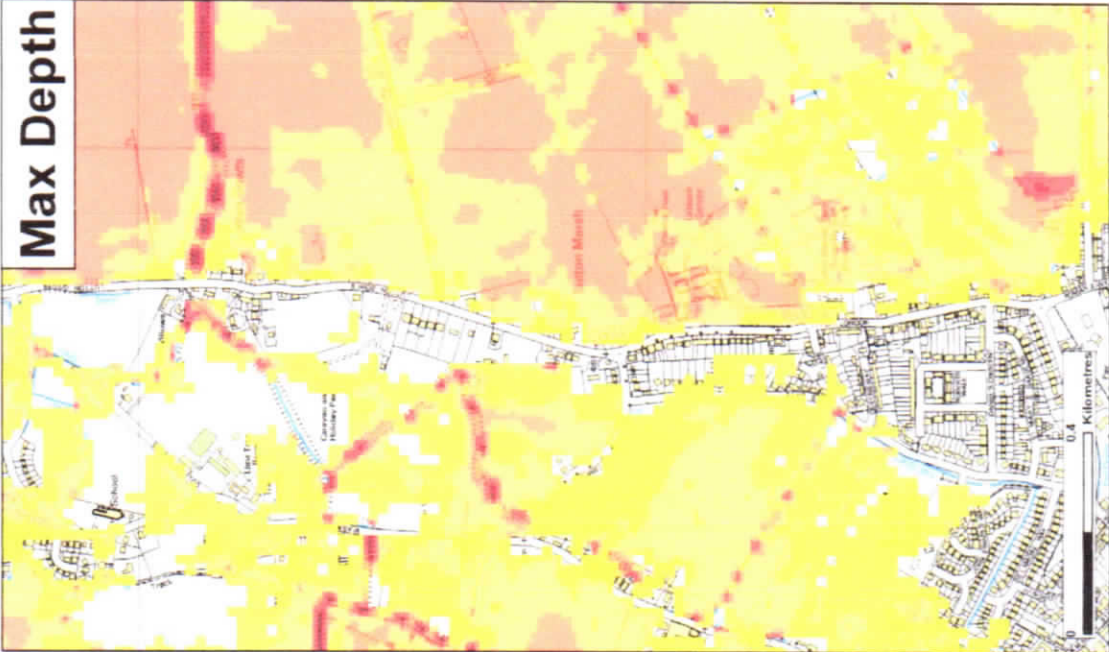
Mr Rob Millbank
Sustainable Places - Planning Adviser

Direct dial 02030 255036

Direct e-mail rob.millbank@environment-agency.gov.uk

End

APPENDIX 2



★ Modelled Breach Locations see also the accompanying plan "Location of Modelled Breaches"				
Date Printed	Scenario year	Scenario Annual Chance	CCN Number	CCN-2016-3447
February 2016	2006	0.1% (1 in 1000)		

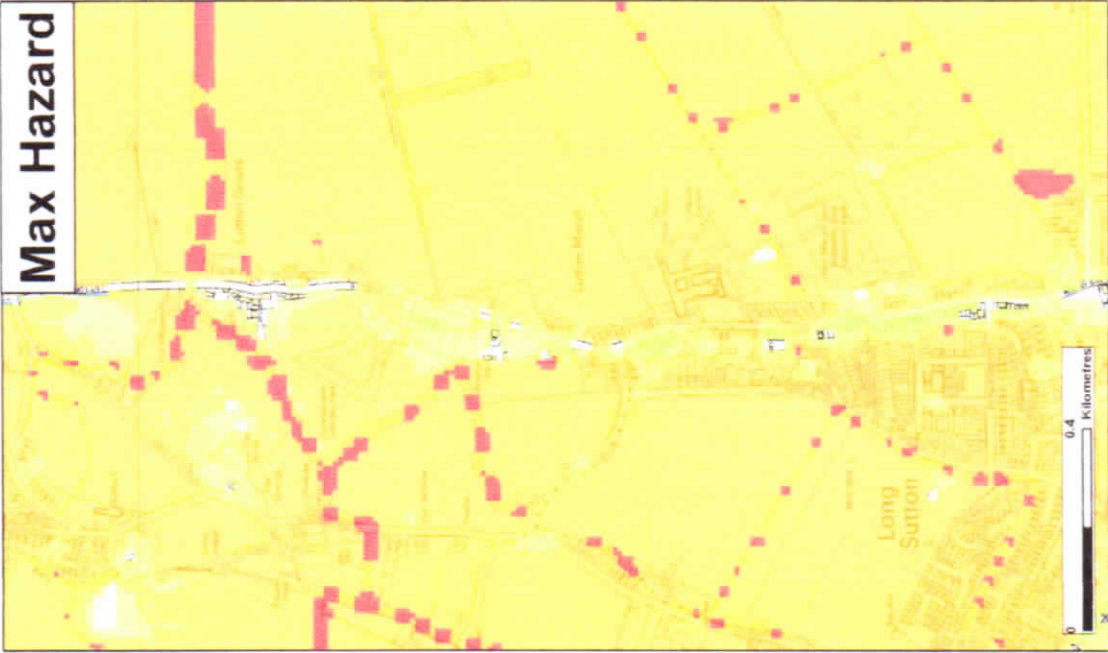
This map shows the level of flood hazard to people (called a hazard rating) if our flood defences are breached at certain locations, for a range of scenarios. The hazard rating depends on the depth and velocity of floodwater, and maximum values of these are also mapped.

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.

The map only considers the consequences of a breach, it does not make any assumption about the likelihood of a breach occurring. The likelihood of a breach occurring will depend on a number of different factors, including the construction and condition of the defences in the area. A breach is less likely where defences are of a good standard, but a risk of breaching remains.

General Enquiries No: 03708 506 506 Working Daytime calls cost 5p plus up to 10p per minute from BT Weekend Unlimited. Mobile and other providers' charges may vary.

Max Hazard



Max Depth



Max Velocity



★ Modelled Breach Locations - see also the accompanying plan "Location of Modelled Breaches"

Date Printed	Scenario year	Scenario Annual Chance	CCN Number	CCN-2016-3447
February 2016	2115	0.5% (1 in 200)		

Max Hazard

(Flood Risk to People - FD2320)

Less than 0.75 (Low Hazard)

Between 0.75 and 1.25 (Danger for Some)

Between 1.25 and 2.0 (Danger for Most)

Greater than 2.0 (Danger for All)

Max Depth (m)

0 - 0.25

0.25 - 0.50

0.50 - 1.0

1.0 - 2.0

2.0 +

Max Velocity (m/s)

0 - 0.3

0.3 - 1.0

1.0 - 1.5

1.5 - 2.5

2.5 +

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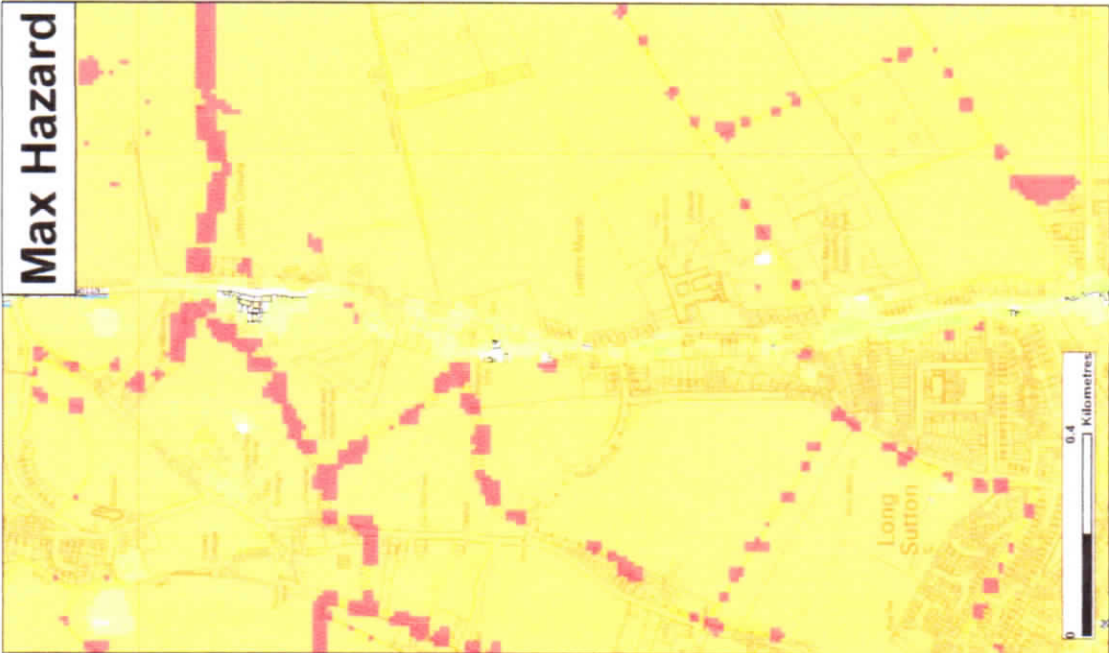


Lincolnshire and Northamptonshire Tidal Breaching Hazard Mapping

Map Centred on TF 43650 24177

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Max Hazard



Max Depth



Max Velocity



★ Modelled Breach Locations

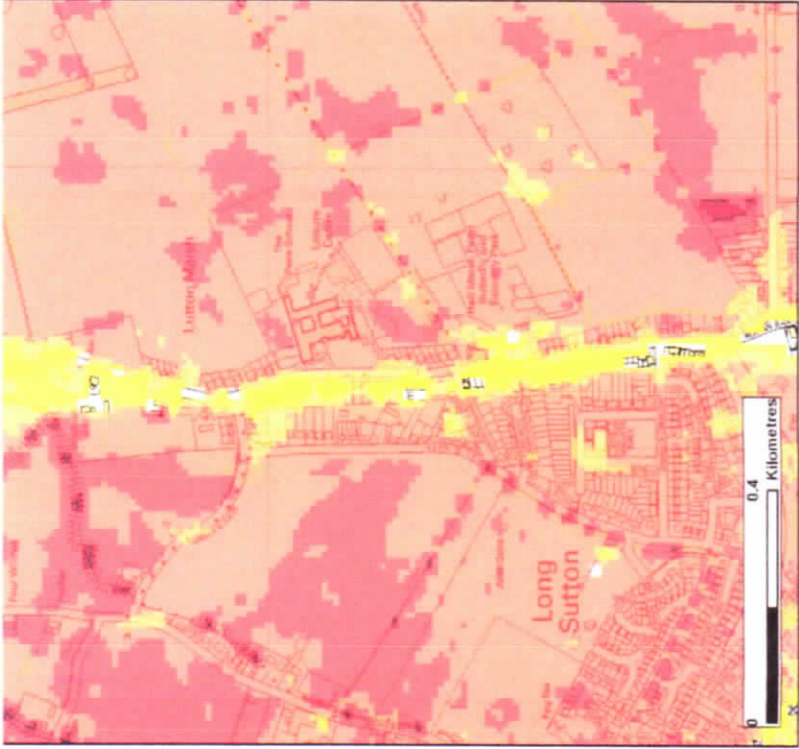
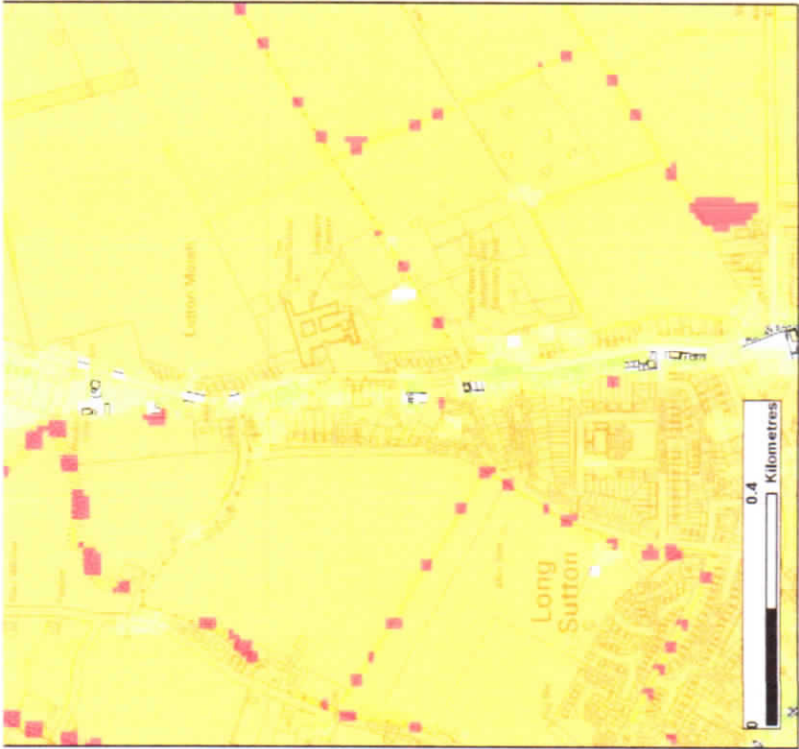
		Lincolnshire and Northamptonshire Tidal Breaching Hazard Mapping	Map Centred on TF 49550 24 177	This map is required for the publication of Coastal and Estuarine Surveys and is available under the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License (CC BY-NC-SA 4.0). All rights reserved. Environment Agency 1000206180, 2016. Broad-based coastal protection and flood prevention. Copyright and may be used for personal or non-commercial purposes.
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. 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. The map only considers the consequences of a breach, it does not make any assumption about the likelihood of a breach occurring. The likelihood of a breach occurring will depend on a number of different factors, including the construction and condition of the defences in the area. A breach is less likely where defences are of a good standard, but a risk of breaching remains. General Enquiries No: 01308 506 506. Weekday Daytime calls cost 4p plus up to 4p per minute from BT Weekend Unlimited. Mobile and other providers' charges may vary.				

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General Enquiries No: 01708 596 596. Weekday Daytime calls cost 5p plus up to 6p per minute from BT Weekend Unlimited. Mobile and other providers' charges may vary.



★ Modelled Breach Locations							see also the accompanying plan "Location of Modelled Breaches"	
Date Printed	February 2016	Scenario year	2115	Scenario Annual Chance	0.5% (1 in 200)	CCN Number	CCN-2016-3447	
Max Hazard (Flood Risk to People - FD320)		Max Depth (m)		Max Velocity (m/s)				
	Less than 0.75 (Low Hazard)		0 - 0.25		0 - 0.3			
	Between 0.75 and 1.25 (Danger for Some)		0.25 - 0.50		0.3 - 1.0			
	Between 1.25 and 2.0 (Danger for Most)		0.50 - 1.0		1.0 - 1.5			
	Greater than 2.0 (Danger for All)		1.0 - 2.0		1.5 - 2.5			
			2.0 +		2.5 +			

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.

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General Enquiries No. 03708 5067 506. Weekday Daytime calls cost 5p plus up to 5p per minute from BT. Weekends Unlimited. Mobile and other providers' charges may vary.



Lincolnshire and
Tidal Breach
Map

Map Centred on

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Environment Agency 1000261080, 2016
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★ Modelled Breach Locations – see also the accompanying plan ‘Location of Modelled Breaches’

Date Printed	February 2016	Scenario year	2115	Scenario Annual Chance	0.1% (1 in 1000)	CCN Number	CCN-2016-3447
Max Hazard (Flood Risk to People: FD2320)	Max Depth (m)	Max Velocity (m/s)					
Less than 0.75 (Low Hazard)	0 - 0.25	0 - 0.3					
Between 0.75 and 1.25 (Danger for Some)	0.25 - 0.50	0.3 - 1.0					
Between 1.25 and 2.0 (Danger for Most)	0.50 - 1.0	1.0 - 1.5					
Greater than 2.0 (Danger for All)	1.0 - 2.0	1.5 - 2.5					
	2.0 +	2.5 +					

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**Lincolnshire and
Tidal Breach
Map**

Map Centred on

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APPENDIX 3



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DISCLAIMER

While Engineering Support Practice Ltd., considers that the information and opinions given in this report are sound, the report is based on assumptions and information (some of which has been provided by the Environment Agency) that are subject to uncertainties. Due to such uncertainties and because events may not occur as expected, there is the possibility that the results of the risk assessment presented in this report will be different from situations which occur in the future. As a consequence, ESP Ltd., will not assume any liability for any loss or damage arising out of the provision of this report.

Ben Hornigold.

C. Env. C.WEM. CMIWEM. MCIM.

Principal Director: Ben W Hornigold



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