

Flood Risk Assessment

**Proposed change of use/conversion of a former Methodist Chapel to form 1 no
dwelling.**

Former Methodist Chapel, Lowgate Road, Conisholme.

Document reference- LDC3964FRA

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- A Environment Agency flood data
- B Planning Drawings

Document History

ISSUE NO	COMMENTS	DATE
1	Client Issue	23.09.2022

1 Introduction

- 1.1 This Assessment has been prepared to accompany a full planning submission for the proposed change of use/conversion of a former Methodist Chapel in Conisholme.
- 1.2 The Government has placed increasing priority on the need to take full account of the risks associated with flooding at all stages of the planning and development process. This course of action seeks to reduce the future damage to property and risk to life resulting from incidents of flooding. National Planning Policy does not prevent all development in flood risk areas and this would be unsustainable and result in economic stagnation, depriving existing communities of much needed homes, services, employment opportunities etc. It is in the essential interests of the vitality of settlements and for the wider economic and social wellbeing of the community, that development opportunities are not unnecessarily constrained. Accordingly, the aims of this site specific FRA will be as follows:
- Identify and address flood risk issues associated with the development.
 - Assess if the project is likely to be affected by flooding from all relevant sources both now and in the future.
 - Assess whether the project will increase the flood risk elsewhere.
 - Demonstrate that the project is safe and where possible, reduces flood risk.
 - Propose measures to deal with the identified effects and risks.

2 Existing Site

- 2.1 The application site is located in the village of Conisholme at the junction of Lowgate Road and the A1031. The site is approximately 0.05 hectares and the grid reference is TF 53012 76283 (See Figure 1).



Figure 1- Aerial photograph showing the location of the site (site shown by red dot)

- 2.2 The site currently comprises a former Methodist Chapel and associated areas of grass and hard standing. The former chapel has a traditional linear form with a central apex ridge, hipped roof and detailing to the principal elevations with buttresses, corbelling and arched window heads. The chapel has a more recent extension to the south elevation.



Figure 2- Photograph of existing chapel taken from Lowgate Road

- 2.3 The Environment Agency flood map for planning identifies the site as being within Flood Zone 3 meaning that the site could theoretically be flooded from the sea by a flood that has a 0.5% (1 in 200) or greater chance of happening each year or from a river by a flood that has a 1% (1 in 100) or greater chance of happening each year.

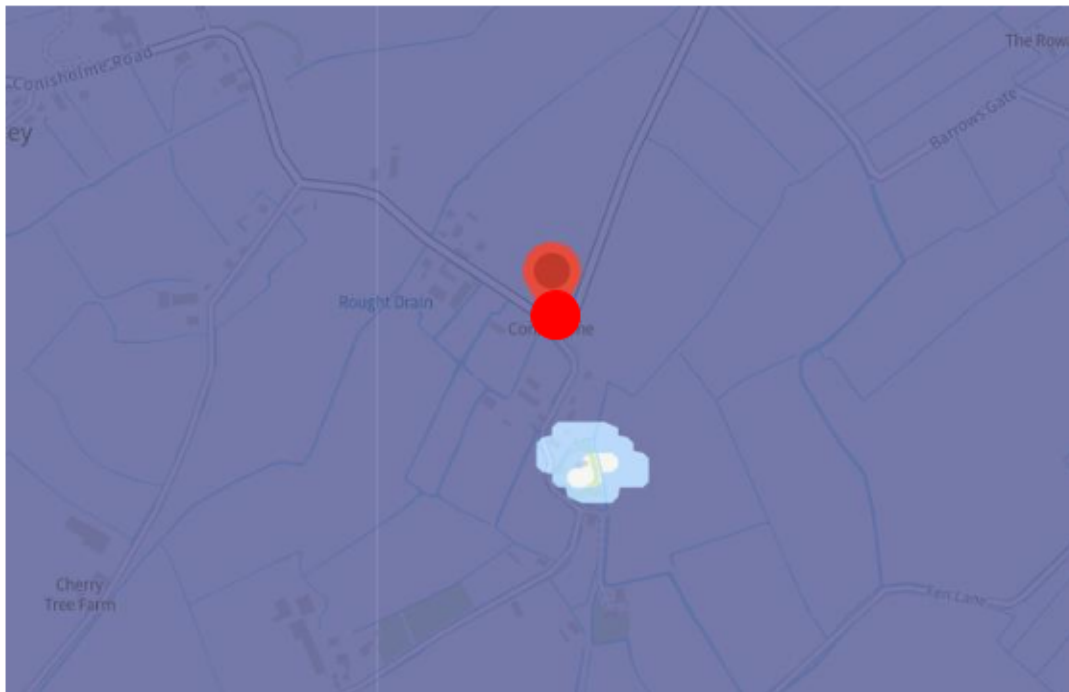


Figure 3- Extract from the Environment Agencies Flood Map for Planning (site shown by red dot)

3 Proposed Scheme

- 3.1 The proposed application seeks full planning approval for the change of use/conversion of the former chapel to form 1 no dwelling.

4 Sequential and Exceptions Tests

- 4.1 The National Planning Policy Framework (NPPF) states at paragraph 168 that applications for change of use should not be subject to the sequential or exceptions tests.

5 Historic Flooding

- 5.1 The Environment Agency have advised that do not have any records of flooding in this area.

6 Assessment of potential sources of flooding and possible impact

- 6.0 This section presents an assessment of Flood Risk to the development from
- a) external sources; and
 - b) potential of the proposed development to cause flood risk elsewhere

TABLE 1: POSSIBLE FLOODING MECHANISMS

Source	Significant?	Comment
Fluvial	No	Distance from watercourse
Tidal/Coastal	Yes	If a breach or over topping of the defences occurred
Pluvial (drainage)	Low	On site run off.
Groundwater	No	Unlikely due to local drainage network
Overland flow	No	No higher ground adjacent to the site
Blockage	No	No culverts or bridges close to the site
Infrastructure failure	No	No major infrastructure has been identified
Rainfall ponding	No	No depressed areas which could encourage ponding.

a) Assessment of Flood Risk to Development from External Sources

6.1 Assessment of Flood Risk from Fluvial/Tidal Sources

- 6.1.1 The North Sea is located approximately 3.2 miles to east of the site therefore tidal flooding is considered to be the main source of flood risk. The Hazard Maps provided by the Environment Agency (see Appendix A) show the hazard rating, depth and velocity of water for present day and future scenarios for either a breach or overtopping of the sea defences. These maps show that the site could be affected by tidal flooding from the North Sea if a breach or overtopping of the sea defences occurred. A summary of the risks shown by the Hazard Maps is shown in Table 2, below. The existing tidal defences protecting this site consist of concrete floodwalls, and natural sand dune, which are supplemented by beach nourishment to maintain foreshore levels. They are in fair condition and reduce the risk of flooding (at the defence) to a 0.5% (1 in 200) chance of occurring in any year. The Environment Agency inspect these defences routinely to ensure potential defects are identified.

Table 2: Summary of tidal hazard maps			
Breach Scenario	Hazard Rating	Max Depth (m)	Max Velocity (m/s)
Year 2006, 1 in 200 (0.5%)	'Low Hazard'	0.00 – 0.25	0 – 0.3
Year 2006, 1 in 1000 (0.1%)	'Danger for Some'	0.25 – 0.50	0 – 0.3
Year 2115, 1 in 200 (0.5%)	'Danger for Most'	0.5 – 1.0	0.3 – 1.0
Year 2115, 1 in 1000 (0.1%)	'Danger for Most'	0.5 – 1.0	0.3 – 1.0
Overtopping Scenario	Hazard Rating	Max Depth (m)	Max Velocity (m/s)
Year 2115, 1 in 200 (0.5%)	'Danger for Most'	0.50 – 1.0	0 – 0.3
Year 2115, 1 in 1000 (0.1%)	'Danger for Most'	0.50 - 1.00	0.3 – 1.0

6.2.1 The Environment Agency advise that for 2 storey residential properties the 0.5% 1 in 200 year breach scenario should be used which shows a potential flood height of up to 1m.

6.2 Assessment of Flood Risk from Overland Flow (Pluvial)

6.2.1 The Environment Agency Surface Water Flood Map shows that the site is not at risk of surface water flooding.

6.3 Assessment of Flood Risk from Ground Water

6.3.1 The area surrounding the site is not known to suffer from ground water problems.

6.4 Assessment of Flood Risk from Reservoirs

6.4.1 The Environment Agency reservoir flood map show that the site is at risk of reservoir flooding only when there is also flooding from rivers.

B) Potential of the Proposed Development to Cause Flood Risk Elsewhere

6.5 In order to mitigate flood risk posed from the site post development adequate control measures have been considered for the site. The proposed development will increase the area of impermeable area within the site. In accordance with recognised guidance there is a hierarchy of surface water from new development should be discharges. This should be as follows

- Infiltration
- Water course
- Public sewer

6.6 The proposed development will involve the conversion of an existing building and will not increase impermeable area. Therefore, the existing surface water system will be retained and utilised.

MITIGATION MEASURES

6.7 The NPPF requires that a precautionary approach is adopted to ensure that development is safe and not exposed unnecessarily to flooding. Previous advice from the Environment Agency for similar sites states that 2 storey dwellings should refer to the 0.5% (1 in 200) Breach Mapping. The following mitigation measures are therefore recommended.

- Finished Floor Level (FFL) of dwelling to be set 1m above existing ground level
- No ground floor sleeping
- Second storey to provide safe refuge
- Flood resilient construction should be incorporated to a minimum height of 300mm above the predicted flood level, and all of the electrical installation should be a similar height above finished floor level.
- Avoid the use of plasterboard and gypsum plaster and use water resistant cement render or lime mortar, or fix the plasterboard horizontally to the ground floor walls.
- Avoid the use of absorbent cavity insulation to the ground floor level.
- Treated and sealed timber skirting and architraves.
- Arrange for all service circuits to be routed at first floor level where practical socket outlets, boilers etc. to be a minimum of 0.5m above the raised ground floor level.
- It is recommended that the site is registered with the Environment Agency's 'Warnings Direct' flood warning system. The Agency provides this flood warning service in England and Wales and supports the public taking action to prepare and respond when these warnings are issued. The warnings are provided for flooding from rivers and the sea but not for localised flash flooding that cannot be predicted, for example from blocked or overloaded sewers or local groundwater flooding. The Agency issues warnings through media on TV and radio weather bulletins and on its website (www.environment-agency.gov.uk/floodline). In areas of particular risk, the Agency can send a warning message direct to people at home or at work by telephone, fax or pager using an Automatic Voice Messaging (AVM) system.

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7 Conclusion

7.1 The following conclusions, in relation to the questions posed at the start of this document, are as follows:

7.2 ***Identify and address flood risk issues associated with the proposed development;***

The potential sources of flood risk have been discussed within this report. It has been established that tidal flooding is the dominant source of flood risk in the area.

7.3 ***Assess if the project is likely to be affected by flooding from all relevant sources both now and in the future:***

The Flood Maps show that the site could be affected by a breach or overtopping of the sea defences in the future. The likelihood of a breach in the defences is considered low given their current good condition and the commitment by the Humber Estuary Coastal Authorities Group to maintain and raise the defences in the medium and long term future.

7.4 ***Assess whether the project will increase the flood risk elsewhere:***

The proposed development will involve the conversion of an existing building and will not increase impermeable area.

7.5 ***Demonstrate the project is safe and where possible reduces flood risk overall and proposes measures to deal with the identified effects and risks:***

To address the predicted flood risk depth the proposals will incorporate physical mitigation measures such as raising floor levels and the provision of a second storey.

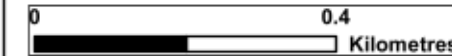
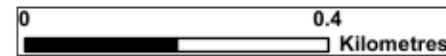
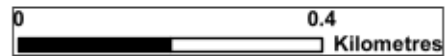
7.6 This report demonstrates the proposed development is compliant with the requirements of the National Planning Policy Framework, and it is considered that planning permission should not be refused on flood risk grounds.

APPENDIX A-
ENVIRONMENT AGENCY DATA

Max Hazard

Max Depth

Max Velocity



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

Max Hazard (Flood Risk to People : FD2320)		Max Depth (m)	Max Velocity (m/s)
	Less than 0.75 (Low Hazard)		0 - 0.25
	Between 0.75 and 1.25 (Danger for Some)		0.25 - 0.50
	Between 1.25 and 2.0 (Danger for Most)		0.50 - 1.0
	Greater than 2.0 (Danger for All)		1.0 - 2.0
			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.

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.

Lincolnshire and Northamptonshire Tidal Breaching Hazard Mapping

Map Centred on TF 39997 95747

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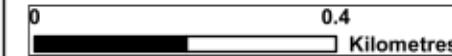
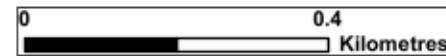
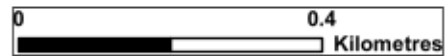
Date Printed	April 2015	Scenario year	2006	Scenario Annual Chance	0.5% (1 in 200)
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General Enquiries No: 03708 506 506. Weekday Daytime calls cost 5p plus up to 6p per minute from BT Weekend Unlimited. Mobile and other providers' charges may vary

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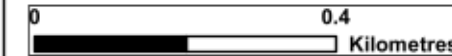
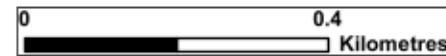
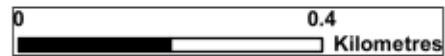
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			2.5 +

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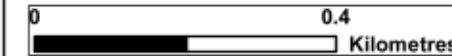
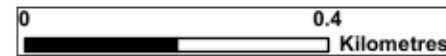
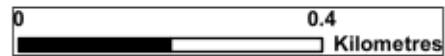
Date Printed	April 2015	Scenario year	2115	Scenario Annual Chance	0.5% (1 in 200)
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Lincolnshire and Northamptonshire Tidal Breaching Hazard Mapping

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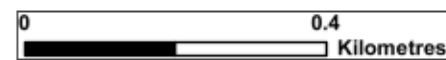
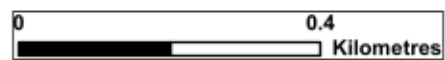
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Max Hazard

Max Depth

Max Velocity



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 +

The map is based on computer modelling of simulated overtopping of the main coastal defences for specific tidal scenarios. It does not include overtopping along the following tidal rivers which are currently being investigated: Witham Haven (upstream of Hobhole), and Welland (upstream of Fosdyke Bridge)

The map only considers the consequences of overtopping of the defences, and does not show the possible consequences of breaches of the tidal defences. Separate maps of the flood extent from just breaching of the defences are available.

For future climate change scenarios it is assumed that defences remain at 2006 heights.

These maps do not replace the flood zone maps used in the National Planning Policy Framework (NPPF)

Please contact the Environment Agency for information on how these maps are used in the management of flood risk.

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Lincolnshire and Northamptonshire Tidal Overtopping Hazard Mapping

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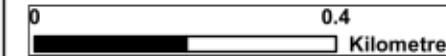
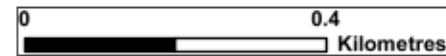
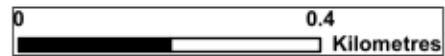
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Date Printed	April 2015	Scenario year	2115	Scenario Annual Chance	0.5% (1 in 200)
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Max Hazard

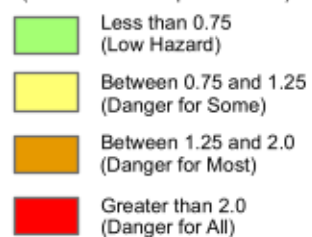
Max Depth

Max Velocity

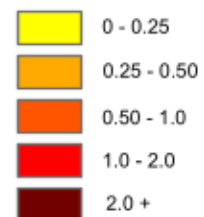


Max Hazard

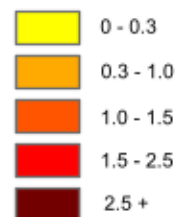
(Flood Risk to People : FD2320)



Max Depth (m)



Max Velocity (m/s)



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Lincolnshire and Northamptonshire Tidal Overtopping Hazard Mapping

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Date Printed April 2015

Scenario year 2115

Scenario Annual Chance 0.1% (1 in 1000)

APPENDIX B-
PLANNING DRAWINGS