

FLOOD RISK ASSESSMENT FOR PROPOSED HOUSE ADJACENT TO 109 ALBION STREET SPALDING PE11 2BA



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This flood risk assessment has been prepared solely to support the planning application for the proposed new dwelling adjacent to 109 Albion Street, Spalding. The author has made every effort to provide an accurate assessment of the flood risk but accepts no liability should the information be found to be incorrect or incomplete.

FLOOD RISK ASSESSMENT FOR PROPOSED HOUSE ADJACENT TO

109 ALBION STREET SPALDING PE11 2BA

Introduction

It is proposed that an application should be made for Planning Permission to build a house adjacent to 109, Albion Street, Spalding.

The site is within Flood Zone 3 as shown on the Environment Agency's Flood Zone Map. These maps do not take into account existing flood defences.

The Technical Guidance to the National Planning Policy Framework Development and Flood Risk states that if a development lies within Flood Zone 3 a Flood Risk Assessment should be carried out to accompany any Planning Application.

The site is shown within the defended area of the South Holland District Council's Strategic Flood Risk Assessment (SHDC SFRA) map and is located in the Welland and Deepings Internal Drainage Board district.

Application Site

The development is located on the western side of the River Welland. The National Grid Reference of the site is 525340 323365

The position and extent of the site is shown on the plan at the end of this document.

The proposed development is within Flood Zone 3(a) "High Probability" as detailed on the Environment Agency's flood zone maps without defences, as defined in Table 1 of the Technical Guidance.

Applying the flood risk vulnerability classification in Table 2 of the Guidance, the development is classified as "more vulnerable", and the statement states that residential use is only permitted after the exception test is followed. However, the exception test does not need to be followed for minor developments, which this application is.

Strategic Flood Risk Assessment

The following information about the flood risk to the proposed development has been gained from the maps produced for the South Holland District Council Strategic Flood Risk Assessment:

1. Report Maps

- Map 5 indicates the site to be low or medium risk and protected by flood defences.

- Map 6 indicates the peak depth is zero for the present day 1% / 0.5% tidal event probability.
- Map 7 indicates the peak velocity is zero for the present day 1% fluvial / 0.5% tidal event probability.
- Map 8 indicates the risk extent is zero for the present day 1% fluvial / 0.5% tidal event probability.
- Map 10 indicates the actual risk extent for the 0.1% event probability is low but reliant upon protection by flood defences.
- Map 12 indicates the actual risk extent is low or medium risk for the year 2055 for the 1% fluvial / 0.5% tidal event probability.
- Map 13 indicates the site is within the high probability band for 2115 for the 1% fluvial / 0.5% tidal event probability.
- Map 14 indicates the actual risk extent for the year 2115 for the 0.1% event probability is low but reliant upon protection by flood defences.
- Map 16 indicates the site is not within a rapid inundation zone.

2. Flood Maps Table D1

- The maps illustrate the actual flood hazard which is as follows:

For the present day	Depth of flooding ... zero
	Extent of flooding .. zero
	Hazard Nil
	Velocity ... Nil
For year 2115	Depth of flooding ... zero
	Extent of flooding.....Low or medium flood probability
	Hazard ... Nil
	Velocity .. Nil

- The maps illustrate the actual flood hazard which is as follows:

For the present day	Depth of flooding ... zero
	Extent of flooding .. Low or medium flood probability
	Hazard ... Nil
	Velocity .. Nil
• For the year 2115	Depth of flooding ... zero
	Extent of flooding .. Low or medium flood probability
	Hazard ... Nil
	Velocity .. Nil

3. The maximum flood level in the fluvial section of the River Welland is shown in the reports as follows:

	Present	Present + Climate Change
1 in 100 year	4.32	4.69
1 in 1,000 year	4.34	4.69

4. The extreme tide levels in the section of the River Welland north of Fulney Lock is shown in the report as follows:

	2007	2055	2115
1 in 100 year	5.98	6.31	7.12
1 in 1,000 year	6.32	6.65	7.46

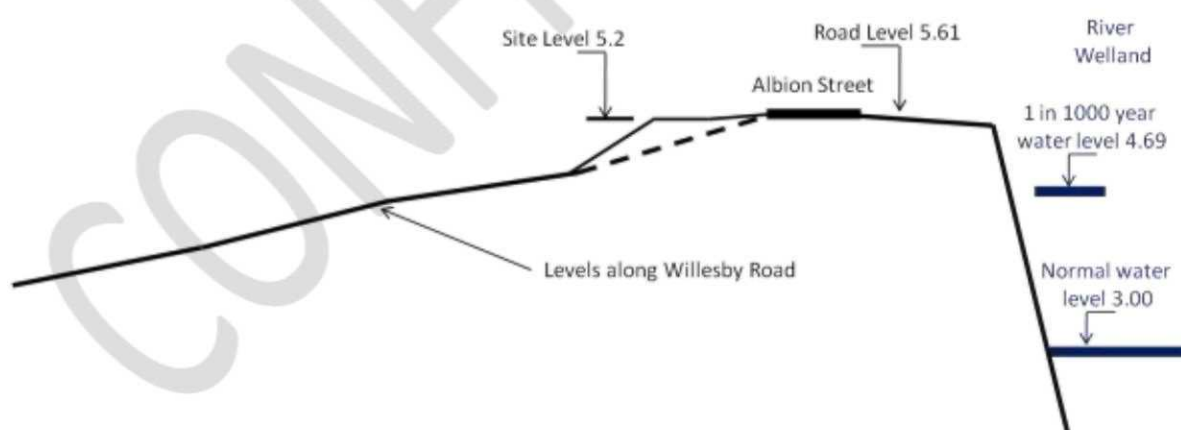
The lowest bank level occurs 200 metres north of Fulney Lock, where a section 300 metres long has a minimum level of 6.98m OD.

Site Levels

The level of the site is approximately 5.20m OD. A section across the site and along the centre line of Willesby Road is shown below, and this indicates how the land levels fall to the west of the site and Albion Street.

The floor level of the existing property

109 Albion Street is 5.61m OD, the same level as the centre line and footpath level in Albion Street.



Section across the development site

Existing Flood Alleviation Measures

The site is within a defended flood plain, as defined in Appendix 1 of the Environment Agency's "Policy and Practice for the Protection of Flood Plains" and is considered to be passive until such time that a flood greater than the defences can

withstand occurs. The likelihood of flooding due to overtopping or failures of the defences is considered to be very low.

The site is approximately 60 metres from the River Welland, which is main river and maintained by the Environment Agency.

This area west of the River Welland is drained by surface water sewers maintained by Anglian Water, which discharge either into the River Welland or into drainage channels maintained by Welland and Deepings Internal Drainage Board. The water levels in the IDB channels are controlled by the water level in Vernatts Drain which also is operated by Welland and Deepings IDB.

Potential Sources of Flooding

The following sources of flooding have been identified:

1. Failure or overtopping of the tidal defences.
2. Overtopping of the River Welland.
3. Blockages in local surface water sewers (highway or Anglian Water)

1. Failure or overtopping of tidal defences.

The River Welland is tidal north of Fulney Lock, which is approximately 750 metres north of the site. The SFRA states that the defences are adequate to withstand a 1 in 200 year (0.5%) probability event for present day. In the future in 2115 some of the banks would be overtopped with a 0.5% probability event. However, the development site would be on the edge of any flooding that is predicted to occur, which is shown on Map 14 of the SFRA.

It is also reasonable to expect that during the next 100 years the bank levels will be raised to continue to provide a 1 in 200 year standard of defence to this area of Spalding.

2. Overtopping of the River Welland.

The west bank of the River Welland has been shown to be at a level of 5.5m O.D. in front of the property. This is not a raised defence at this point. The land and the Road are at 5.61m OD and gradually falls away from the River. Therefore, there is no possibility of failure here. There is a freeboard of at least 800mm above the 1 in 1,000 year maximum design level in the River.

Therefore, this source of flooding can be discounted.

3. Blockages in local surface water sewers

Both Anglian Water and the Highways Authority maintain surface water drainage systems which discharge into IDB drainage channels and the River Welland. If there

is a blockage in an underground pipe surface water would flow to lower areas to the west of the site and the development site would not be affected.

Therefore flooding from this source can be discounted.

Extent of known Flooding

During the preparation of this assessment, no evidence was discovered of the site or any of the adjoining properties being flooded.

Probabilities and Trends of Flooding

The probability of this development flooding from Environment Agency main river is very low. In an extreme event any effect on this location would not be sudden and there would be time for residents to take precautionary measures to limit the impact of any flooding that may occur.

Residual Risk – Extreme Events

The residual risk from extreme events is very low on this site. The major risk to the site is from a breach or overtopping of the tidal defences

The risk of this happening in this case is low and the hazard from any flooding is also low.

Therefore although this site is within Flood Zone 3 according to the initial classification because of the current standards of drainage and flood risk in Spalding there is a very low risk of flooding to this site.

Summary of Risk of Flooding to the Site

There is a residual risk of flooding to the development site if an extremely high tide either overtops or causes a breach in the west bank of the River Welland. The water would flood into the area west of the river north of West Elloe Avenue. When the level reaches a level of 4.24m OD it will start to flow over the bank into Vernatt's Drain, and this will alleviate the situation for a short period of time. However it would need an extreme high tide, a greater than 1 in 1000 year event in 2115, and catastrophic failure of defences for the flood level to reach 5.61m OD, the proposed level of the property.

If the building is constructed with a floor level of 5.61m OD this will be 400mm above the existing ground level and provide a satisfactory factor of safety against flooding.

Conclusions

The following conclusions can be made:

- The proposed development is not in a functional flood plain as defined by the Technical Guidance.

- The site is only at risk from tidal flooding following a very high tide, with the continued ingress of water through a breach which would remain unrepaired. However the risk of this occurring is extremely low.
- Although the site is in flood zone 3, the actual risk of the site flooding from any Environment Agency watercourse is very low.
- All other sources of flooding can be discounted.

Recommendations

- It is recommended that the ground floor level of the proposed building should be at the same level as 109 Albion Street which is 5.61m OD.
- If the building is constructed with two stories and all bedrooms at first floor level it would provide a refuge for occupants if flooding were to occur.
- If any flooding started to occur residents could either shelter on the first floor or safely escape southwards along Albion Street and seek refuge in the higher central part of Spalding.
- Any flooding that did occur would happen slowly and residents would have adequate time to prepare themselves for the event.
- Occupiers of the property should register with the Environment Agency's Floodline Warnings Direct Service.
- On site surface water drainage will be discharged into soakaways and these should be designed to BRE Digest 365 and approved under Building regulations.
- In a flood risk area there is always a risk of an event occurring of greater magnitude than has been considered in this flood risk assessment.

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4th September 2013



SITE PLAN



LAND LEVELS

Porter, Karen

From: Remway Design - Jason Wilson <jason@remwaydesign.co.uk>
Sent: 30 April 2015 16:00
To: _planningadvice
Subject: Portal ref PP-04164543
Attachments: 2559 - Planning FRA.pdf

Please find attached FRA to accompany the above application uploaded via the Planning Portal.

Many thanks,

Best Regards,

Jason Wilson

Remway Design Ltd t: 01775 768 921 m: 07815 112 058

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