

Flood risk assessment

for Proposed Development

at

Land off Horsepit lane

Pinchbeck, Spalding

for M. Coulam

Date: December 2021

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1.0 INTRODUCTION

This Flood Risk Assessment has been prepared in accordance with the National Planning Policy Framework [NPPF] and supporting planning practice guidance [PPG] on Flood Risk and Coastal Change.

Within areas at risk of flooding or for sites of 1 hectare or more, developers are required to undertake a site specific Flood Risk Assessment to accompany an application for Planning permission.

This Flood Risk Assessment has been compiled on behalf of M. Coulam with regards to the proposed development of two residential bungalows on land off Horsepit Lane, Pinchbeck.

A Planning Application already submitted by M. Coulam.

2.0 SITE LOCATION AND DESCRIPTION

2.1 Site Location

The site is located on land adjacent to 1 Catherins Way off Horsepit Lane, Pinchbeck, Spalding.

Site Location Plan within attachments.

2.2 Existing Site

The south elevation of the site forms part of the Local Settlement Boundary at that intersection point.

The proposed site is surrounded by residential dwellings and has access off Horsepit Lane.

The site is in the Welland and Deepings Internal Drainage Board District.

Surface water at the site would have access to the Local network along with the existing foul main drainage system situated off Horsepit Lane.

The land is classified as Grade 1 by the former DEFRA Agricultural Land Classification with the soil type explained by the Soil Survey of England and Wales, part of the Wisbech Association of Soils which is described as “deep stoneless calcareous course silty soils”.

2.3 Proposed Development

The proposed development consists of two similar residential bungalows with integral garage, details already submitted.

2.4 Local Development Documents

The South East Lincolnshire Plan 2011-2036, adopted in March 2019 is the Local Plan for the District. Policy 4: Approach to Flood Risk states the requirements for flood risk reduction.

The South East Lincolnshire Level 1 and Level 2 Strategic Flood Risk Assessment [SFRA] was prepared in June 2017.

The Joint Lincolnshire Flood Risk and Drainage Management Strategy has been prepared by Lincolnshire County Council as the Lead Local Flood Authority.

The purpose of the Strategy being to increase the safety of people across Lincolnshire by reducing the risk and impact of flooding.

2.5 Available Flood Risk Information

The proposed site is located in Flood Zone 2 with a probability of river flooding but not Coastal flooding.

There is a negligible risk of groundwater flooding in this area and any groundwater flooding incidence has a chance of less than 1% annual probability of occurrence.

River and Coastal Flooding, Map attached Section 2a and 2b.

Surface Water Flooding, Map attached Section 2c.

The site is not within an area at risk of reservoir flooding.

3.0 Flood Risk Vulnerability

3.1 The Sequential and Exception Test

The NPPF requires the application to a Sequential Test to ensure that new development is in areas with the lowest probability of flooding.

The Exception Test is a method to demonstrate and help ensure that flood risk to people and property will be managed while allowing necessary development works to proceed in situations where suitable sites are at lower risk of flooding but not available.

3.2 Vulnerability Classification

Table 2 of the PPG Flood Risk and Coastal Change categorises different types of uses and development according to their vulnerability to flood risk.

The proposed development is covered by the description of buildings used for dwellings and classified as more vulnerable.

Table 3 of the PPG Flood Risk and Coastal Change sets out Flood Risk Vulnerability and Flood Zone compatibility, as the site is in Flood Zone 2 and the development is classified as vulnerable it is necessary to complete the Exception Test.

PPG Flood Risk and Coastal Change defines that the lifetime of the development in terms of flood risk and coastal change is a 100 years.

3.3 Application of the Sequential and Exception Test

It is for the Local Planning Authority taking advice from the Environment Agency as appropriate to consider the Sequential Test.

Various parts of the South Holland District between the River Welland and river Glen lie within Flood Zone 2 and therefore, opportunities to undertake the development to an alternative site with a lower flood risk are limited, with no known sites available for development in in areas of lower flood risk.

At this site location it is not possible to position the development on higher ground within, it is proposed therefore, that the bungalows are constructed with traditional block and beam foundations enabling the internal finished floor level to be a minimum of 0.5m above the lowest external ground level.

The River Welland has defences which provide protection during the 1% annual probability [1 in 100 chance each year] fluvial event including climate change, the site as a consequence has a low probability of flooding and is considered to pass the Sequential Test.

The Exception Test requires consideration of the wider sustainability benefits of a development which would be safe and residual risks managed.

With reference to the Local Plan which has a net target increase in access of 11,500 dwellings in South Holland over a 25 year Local Plan period.

The Plan considers this new housing to be required to ensure the sustainability of the Local Plan Area, this proposed development will contribute to this target plan.

Section 5 of this Flood Risk Assessment describes the flood mitigation measures coupled with the management of the residual risks, demonstrating that this development will be safe and not increase the flood risk elsewhere.

The development is considered to pass the Exception Test.

4.0 Site Specific Flood Risk

4.1 Local Flood Assets

The proposed site is approximately 2.2km west of the River Welland downstream of Spalding.

The River Welland tidal defences which are downstream of the confluence of the Coronation Channel and River Welland, both providing protection to Pinchbeck.

The tidal defences are the responsibility of the Environment Agency.

There is a long- term strategy for the maintenance of the Environment Agency defences which are reviewed and updated periodically.

There is an extensive local drainage network managed by Welland and Deepings IDB, there being a number of maintained drains and watercourses including Captain's drain to the East of the site plus river Glen to the west of the site. The site lays within the Pinchbeck Marsh catchment and drain in an easterly direction towards Pinchbeck Marsh pumping station which discharges to Blue Gowt Drain and flows into the River Welland at Surfleet.

During the operation and maintenance of its pumping stations, associated structures and channel systems, the IDB seeks to maintain a general standard capable for providing flood protection to its district, coupled with routine maintenance ensuring a high level of protection is sought.

Current maintenance standards of the Welland and Deepings IDB and the Environment Agency are generally acceptable.

4.2 Sources of Flooding

Potential sources of flooding identified during this assessment consist.

- a) Local blockages to the Welland and Deepings IDB main drainage system.
- b) An event to the local drainage network which exceeds the standard of protection.
- c) Failure of Pinchbeck Marsh pumping station or breaching of the River Welland tidal defences.

Based upon the Environment Agency long term risk maps this site has a negative risk of surface water flooding and therefore, has not been given further assessment.

4.3 Probability of Flooding

Due to the high maintenance standards afforded to the Welland and Deepings IDB drainage systems, the probability of flooding is low. The standard of drainage provided by Welland and Deepings IDB is assessed at 2% annual probability [1 in 50 chance each year], compatible with the Department of the Environment, Food and Rural Affairs [DEFRA] target level of service for rural drainage and flood defence works. The risk associated with flooding due to events greater than 2% annual probability [1 in 50 chance each year] is lowered due to the Welland and Deepings IDB main drainage incorporating a freeboard which provides storage during events greater than 2% annual probability [1 in 50 chance each year]

The River Welland tidal defences provide protection during the 0.5% annual probability [1 in 200 chance each year] tidal event.

4.4 Historic Flooding

During the preparation of this assessment no evidence has been identified as to this site being flooded. Previous historic rainfall events during 1968 and 1978 estimated to be greater than 1% annual probability [1 in 100 chance each year] caused no flooding to any residential properties.

4.5 Climate Change

Climate Change is likely to impact the site through increased rainfall intensity and duration affecting the local drainage network and increased flood levels to the river Welland, it should be noted that the river Welland tidal defences have been designed to make allowance for this, therefore, in summary the existing systems and defences are adequate for the design life of this development [i.e. 100 years]

4.6 Residual Risk

There is a residual risk of flooding at the site should a breach of the tidal defences were to occur.

5.0 Flood Risk Mitigation

5.1 Summary of Risks

The probability of this development flooding from localised drainage systems is low, however failure of Pinchbeck Marsh Pumping Station could lead to an increased level of risk to this site.

The probability of the site flooding from any Environment Agency system is less than 1% [1 in 100 chance each year] because of the high standards of the existing flood defences.

Overtime there will be a gradual increase in risk to the site due to climate change, during the design life of the development it is not anticipated however that the site would flood.

The SFRA considers the residual risk associated with over topping and a breach in the defences in 2016 and could be a maximum flood depth between 0.3m and 0.5m

The development increases the impermeable area and therefore, will add the potential for an increase volume of surface water and flood risk.

5.2 Mitigation Measures

Based upon information available during the preparation of this flood risk assessment it would prudent to mitigate against the risk of flooding and therefore, recommended that the floor level of both dwellings is 0.5m above the lowest site ground levels, coupled with 0.3m of flood resilient construction above finished floor level.

The Developer should ensure the dwelling occupier is sufficiently aware of the risk from flooding along with the existing standard defences.

In addition to direct and indirect flood warnings, the Environmental Agency operates a 24 hour per day Floodline warning Service providing advice and information on flooding, the occupier being advised to register with the Floodline Service Direct, for future flood warnings.

Should there be a failure with Pinchbeck Marsh Pumping Station and conditions pointed towards properties and land be at risk of flooding, the IDB would as a matter of urgency implement emergency action to maintain the drainage level of service by utilising temporary pumping equipment.

It is recommended that surface water run off from Rwp's etc, be directed towards designed soakaways, together with the limiting of hard surfaces and use of gravel for access roads and parking areas, coupled with additional run off to soft landscaping containing existing mature trees and hedging.

6.0 Conclusions

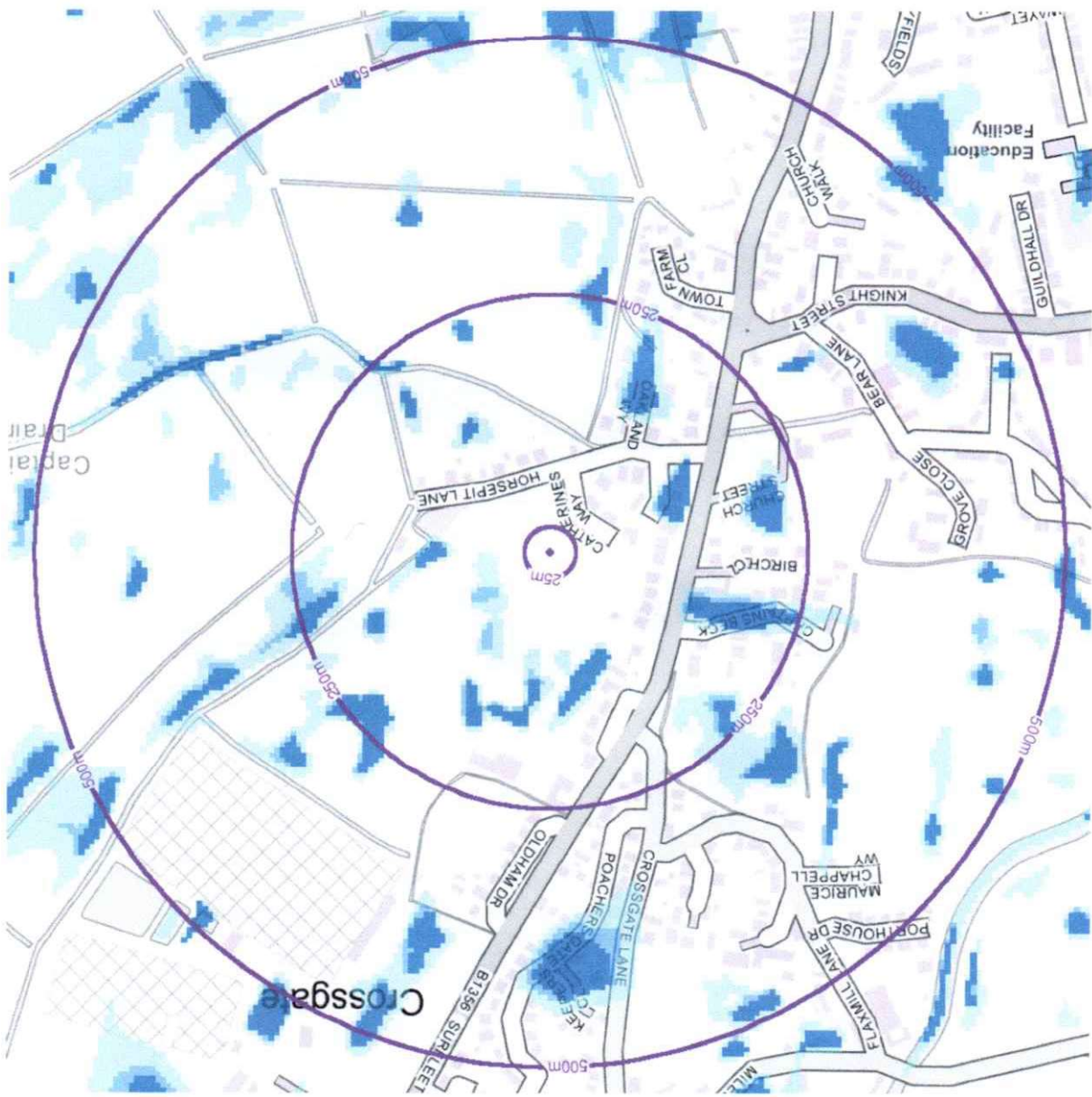
Resulting from the in depth assessment the following conclusions have been reached.

- a) The proposed development consisting of two similar 2 bedroom bungalows with integral garage on land off Horsepit Lane, Pinchbeck.
- b) This proposed development is protected during the 1% annual probability [1 in 100 chance each year] event including an allowance for climate change by defences on the tidal River Welland.
- c) The site which is located within an Internal Drainage Board catchment with a minimum standard of drainage of 2% annual probability [1 in 50 chance each year] which accords with DEFRA guidelines for rural development. The risk of flooding being lowered further due to the Welland and Deepings IDB main drains incorporating a significant freeboard, which provide storage during events greater than 2% annual probability [1 in 50 chance each year].
- d) It is recommended that the internal finished floor levels are 0.5m above the ground level with 0.3m of flood resilient construction above finished floor level to mitigate against the risk of flooding during the lifetime of the development.
- e) The development passes both the Sequential Test and Exception Test and is therefore, suitable for the proposed location.



Section 2c: Surface Water Flooding

The map below shows the location of potential surface water flood risk. The potential risk has been modelled on the basis of events with a 1 in 75, 200 or 1000 chance of occurring in any given year. Further details are shown on the following pages.



Surface Water Flooding

1 in 1000 year return
1 in 200 year return
1 in 75 year return

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details are shown on the following pages.

