

**FLOOD RISK ASSESSMENT FOR
PROPOSED CHANGE OF USE OF
AGRICULTURAL BUILDING AND YARD
TO OFFICE AND LIGHT INDUSTRIAL**

INTRODUCTION

A full planning application for a change of use is being made for Rollins Electrical

A Flood Risk Assessment is required to accompany the planning application and meet the requirements and general principles contained in Paragraph 9 of the Technical Guidance to the National Planning Policy Framework (NPPF).

The site, as situated, is located within Flood Zone 3, of the Environment Agency's Flood Zone Maps. The latest Agency Flood Maps have been created as a tool to raise awareness of flood risk with the public and our partner organisations, such as Local Authorities, Emergency Services and Drainage Authorities. The Maps do not take into account any flood defences.

The site is also located in the South Holland IDB drainage district.

LOCATION

The development site is located at Homefields Jarvis Gate Sutton St James
TF Ref: 95539649

The position and extent of the site is shown on Site Plans

The site, located within the South Holland Internal Drainage Board district is shown within Flood Zone 3 as detailed on the Environment Agency Flood Zone Maps and in Flood Zone 1 of the Council's Strategic Flood Risk Assessment Maps

EXISTING FLOOD ALLEVIATION MEASURES

The site is within a defended floodplain, as defined in Appendix 1 of the Environment Agency's 'Policy 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 embankment is considered to be small.

The development site within the South Holland Internal Drainage Board is protected by the River Welland and Wash tidal defences to the Holbeach Marsh frontage with embankment levels of a minimum of 7.00m aOD.

The site and the surrounding land drains by gravity to IDB main drains hence via other drains in the Fleet Fen catchment to discharge into South Holland Main Drain at the Fleet Fen Pumping Station.

The existing standard of drainage for the South Holland Internal Drainage Board is 1 in 50 years return period, compatible with the Department of the Environment, Food and Rural Affairs target level of service for rural drainage and flood defence works. Freeboard of 900mm is provided to the lowest land levels.

Current maintenance standards within the South Holland Internal Drainage Board and of the Environment Agency defences are generally very 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.

POTENTIAL SOURCES OF FLOODING

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

- a) local blockages to IDB main drain system.
- b) storm return period of 1 in 50 years being exceeded
- c) failure of Fleet Fen Pumping Station
- d) overtopping and breaching of the Wash and River Welland tidal defences

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 South Holland 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 50 years.

The flood embankments to the Wash and River Welland tidal defences provide a 1 in 200 year return period level of protection.

The 1 in 200 year tidal event to the tidal River Welland and the Holbeach Marsh frontage inclusive of climate change to 2115 is estimated to be 7.20m aOD as against existing embankment levels of a minimum of 7.00m aOD.

There is a low risk during such an event for wave and wind action to cause overtopping and/or breaching of the first line defences. However, the site is further protected by second line defences with embankment levels of 6.00m aOD. Any overtopping/breaching would therefore not reach the development site as shown on the South Holland Strategic Flood Risk Assessment Flood Zone Residual Extent Maps (2010).

Finished floor level has been raised 350mm above surrounding site levels

Flood resilient construction will be incorporated into the development wherever applicable with no sleeping accommodation at ground floor and safe refuge at first floor level.

The Environment Agency has recently published The Wash Shoreline Management Plan 2 from Gibraltar Point to Old Hunstanton. The summary of the plan between Gibraltar Point and Wolferton Creek is as follows:-

The intent of management for this Policy Development Zone (PDZ) is to sustain flood defence for the communities and their hinterland on the low-lying areas around The Wash. This includes an increase of management as needed to sustain the current level of flood risk in the face of climate change.

Surface water drainage from the development site will be to soakaways designed to BRE365 requirements and Building Regulations approval.

EXTENT OF KNOWN FLOODING

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

PROBABILITIES AND TRENDS OF FLOODING

The probability of this development flooding from localised drainage systems is very low.

The probability of the site flooding with water from any South Holland IDB main drain is less than 1% because of the standards of the existing flood defence systems, storage within existing drainage channels and the location of the site.

The probability of the site flooding with tidal waters from any main river system is less than 1% because of the standards of the existing flood defences and the location of the site.

If under very extreme events, levels of floodwater from the South Holland IDB main drains 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.

The water levels in the drainage channels will tend to rise as a result of the impacts of climate change. However the existing systems and defences together with the proposed floor levels at a minimum of 300mm above Station Road carriageway level will be appropriate for the design life of the development (i.e. 100 years).

IMPACTS OF FLOODING

No significant impacts of flooding are anticipated.

Floor levels of the development will be a minimum of 350mm above Surrounding site level, which together with the flood resilient construction and proposed soakaway drainage system will offer additional protection against impacts arising from any extreme short duration, localised events.

The general location of the site within the catchment is such that if flooding occurred from any of the South Holland IDB main drain systems, then probably 2 to 3 days warning time would be available.

No displacement of water from the site will affect any adjoining properties as existing soakaway drainage system will be utilised.

The developer should ensure that the eventual occupiers of the property 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: 0845 988 1188.

RESIDUAL RISK – EXTREME EVENTS

The residual risk from extreme events is very low on this site, because of its location, within the South Holland IDB area and its location 12.00 kms from The Wash and River Welland tidal defences with secondary defences between the marsh frontage and the site.

Although within either fluvial Flood Zone 1 or Flood Zone 3 according to NPPF classification, the site actually has a very 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 Zone Maps have been produced irrespective of existing flood defences and standards of protection.

CONCLUSIONS AND RECOMMENDATIONS

As a result of the assessment, the following conclusions have been reached:-

The proposed development is in a Defended Floodplain. It is located in the Passive Floodplain of The Wash and tidal River Welland and the South Holland IDB protected by defences to a 1 in 200 year return period (1.0%).

Although the site is in either Flood Zone 1 or Flood Zone 3, the actual risk of site flooding from any Environment Agency river system is very low (less than 0.5%).

Although the site is located within an 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 providing further storage within the drainage channels.

On site rainwater from the development will be discharged via a drainage ditch

Floor level of the building will be at a minimum of 350mm above ground level. Flood resilient construction will be incorporated wherever applicable.