

Howard J Wroot

Chartered Surveyor

240 Wharf Road
Ealand
Scunthorpe
North Lincolnshire
DN17 4JN

North Lincolnshire Council
Development Control
Church Square House
30-40 High Street
Scunthorpe
DN15 6NL

Tel 01724 711068
Fax 01724 711068
Mob 07947 226577
Email howard@howardjwroot.com

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Your ref
Our ref

Proposal: Outline Planning Application for erection of 5 dwellings plus garages and associated works, Layout and Access to be considered.
Site Location: Land R/O The White House, High Street, Garthorpe, DN17 4RP.
Application ref: **Re-submission of PA/2021/824**
Applicant : Wroot Homes Ltd

FLOOD RISK ASSESSMENT & EXCEPTION TEST

1. National Guidance

1.1 The National Planning Policy Framework and Planning Policy Guidance set out the requirements for applications/developments to meet climate change flooding and coastal change.

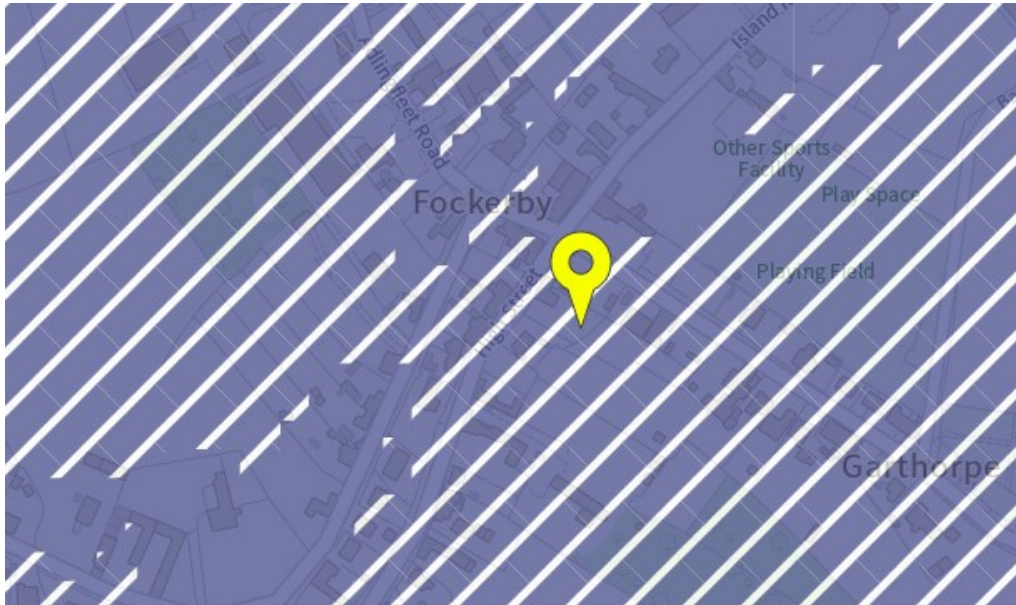
1.2 This guidance directs LPA's that inappropriate developments in areas at risk of flooding should be avoided by directing development away from areas at highest risk, but where development is necessary making it safe without increasing flood risk elsewhere.



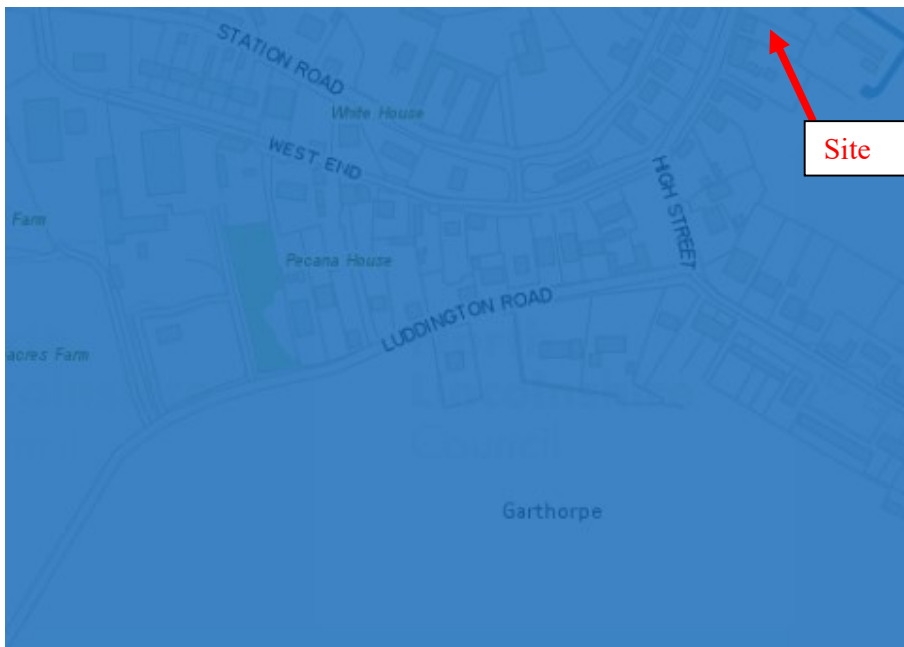
2. Flood Zones

2.1 The Environment Agency assess this site as being within Flood Zone 2/3a see flood zone map below.

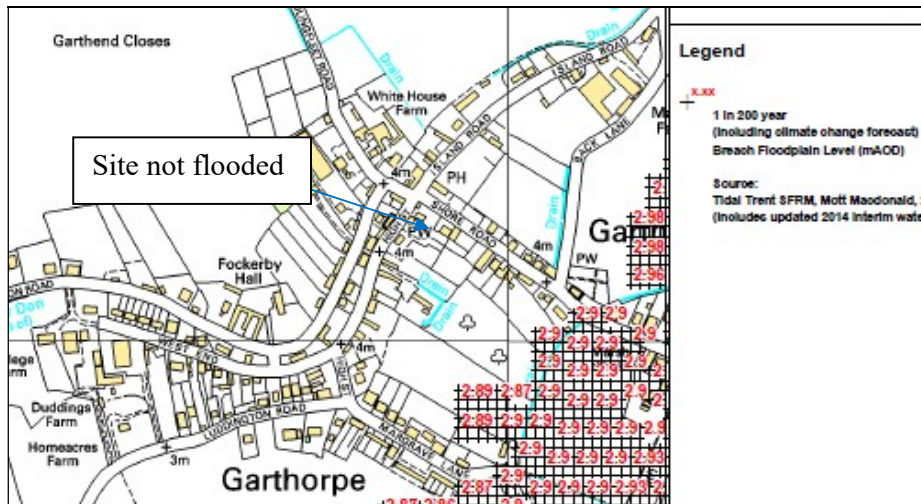
Environment Agency Flood Risk Map (area benefiting from flood defences)



SFRA 2011 Map (2/3a Tidal)



Updated Environment Agency Modelled Data Map 1 in 200 + CC



3.0 Proposed Use

3.1 The proposed use of the development is residential which is classified in the NPPF Technical Guide Table 2 as a “more vulnerable use”.

4. Compatible Use

4.1 The technical guidance to the NPPF then directs which uses are compatible within each classification of flood zone. In Table 1 of that document it advises that within a Flood Risk Zone 3a area a more vulnerable use is appropriate if the Exception Test is passed. See Table 3 below.

Table 3: Flood risk vulnerability and flood zone ‘compatibility’

Flood risk vulnerability classification (see table 2)		Essential infrastructure	Water compatible	Highly vulnerable	More vulnerable	Less vulnerable
Flood zone (see table 1)	Zone 1	✓	✓	✓	✓	✓
	Zone 2	✓	✓	Exception Test required	✓	✓
	Zone 3a	Exception Test required	✓	x	Exception Test required	✓
	Zone 3b functional floodplain	Exception Test required	✓	x	x	x



5. Exception Test

5.1 The Exceptions Test requires the following criteria to be met before it can be safely assessed as being passed:-

- i) The development must be shown to be safe from flood
- ii) The development provides wider sustainability benefits to the community that outweigh flood risk.

Criteria 1 – the development must be safe from flood.

5.2 The North Lincolnshire SFRA contains critical flood levels for this area and site in particular therefore, this critical flood level which is a fluvial 1 in 100 return period and a tidal 1 in 200 return period with allowances for climate change. Refer Table 1 below.

Table 1 - Critical Flood Level (mAOD)

Water Level	Ground Level
4.10	4.00 – 4.60

This table shows the critical flood level for the area is 4.1m AOD. This means that during a 1:100 year event with allowance for climate change water level at the site could be expected to reach 4.1m AOD.

5.3 This site is at a height above ordnance datum of 3.9m this means that in the event of the failure of the Keadby Pumping Station, as envisaged by the calculation of the CFL, then flood waters could reach a depth of 4.1m AOD.

5.4 Ideally then the FFL of new proposed dwellings would be raised to a height of 4.4m AOD giving a freeboard of 300mm above any inundation level. However where this is not practical due to difficulties of the site then the EA have relaxed this requirement.

5.5 This FRA therefore proposes that the FFL of the completed properties will be set at 4.4m AOD.

5.6 This reflects a 1:200 year event plus Climate Change refer EA Map above.

5.7 In addition to the FFL being set at 300mm above any possible inundation level in accordance with good flood management then a suite of Flood Resilience measures will be employed in the construction of the properties. These works will be set at no lower than 1200mm above FFL.






Flood Resilience in construction

Feature	Considerations To Improve Flood Proofing
External Walls	Careful consideration of materials: use low permeability materials to limit water penetration if dry proofing required. Avoid using timber frame and cavity walls. Consider applying a water resistant coating. Provide fitting for flood boards or other temporary barriers across openings in the walls.
Internal Walls	Avoid use of gypsum plaster and plasterboards; use more flood resistant linings (e.g. hydraulic lime, ceramic tiles). Avoid use of stud partition walls.
Floors	Avoid use of chipboard floors. Use concrete floors with integrated and continuous damp proof membrane and damp proof course. Solid concrete floors are preferable; if a suspended floor is to be used, provide facility for drainage of sub-floor void. Use solid insulation materials.
Fitting, Fixtures and Services	If possible, locate all fittings, fixtures and services above design floor level. Avoid chipboard and MDF. Consider use of removable plastic fittings. Use solid doors treated with waterproof coatings. Avoid using double-glazed window units that may fill with flood water. Use solid wood staircases. Avoid fitted carpets. Locate electrical, gas and telephone equipment and systems above flood level. Fit anti-flooding devices to drainage systems.

Flood Warning

5.8 The Environment Agency have a range of Flood Warnings available and my clients will subscribe to them, please refer below.

Appendix 1 – Environment Agency Flood Warnings

 <p>FLOOD ALERT <small>EL VIBALU-KYPOODI-KENKALITE</small></p>	<p>Flooding is possible. Be alert. Used two hours to two days in advance of flooding.</p> <ul style="list-style-type: none"> • Be prepared to act on your flood plan • Prepare a flood kit of essential items • Monitor local water levels and the flood forecast on the EA website
	<p>Flooding is expected. Immediate action required. Used half an hour to one day in advance of flooding.</p> <ul style="list-style-type: none"> • Move family, pets and valuables to a safe place. Turn off gas, electricity and water supplies if safe to do so. • Put flood protection equipment in place.
 <p>SEVERE FLOOD WARNING</p>	<p>Severe Flooding. Danger to life. Used When flooding poses a significant threat to life.</p> <ul style="list-style-type: none"> • Stay in a safe place with a means of escape. • Be ready should you need to evacuate from your home. • Co-operate with the emergency services. • Call 999 if you are in immediate danger.
<p>Warnings no longer in force</p>	<p>No further flooding is currently expected in your area. Used when river or sea conditions begin to return to normal.</p> <ul style="list-style-type: none"> • Be careful. Flood water may still be around for several days. • If you've been flooded, ring your insurance company as soon as possible.



Evacuation Plan

5.9 Due to the site's distance from the River Trent 2km and that it has been shown by the modelled data map that the site will not flood in the event of a breach or over topping then any flood event will occur as a result of a failure of the Keadby Pumping Station. Thus any flood waters would take some time to reach the property and an Evacuation Plan will have more than sufficient time to be put into operation. is not required.

5.10 To this effect the occupants of the property will adhere to the Evacuation Self Assessment tool set out below.

SELF ASSESSMNT TOOL TO CHECK THE CONTENTS OF FLOOD/EMERGANCY EVACUATION PLAN

Detail	Evidenced in Plan?			Evidence / Comments
	Yes	Partially	No	
<p>The flood evacuation / emergency plan is based on an assessment of the flooding risk, which identifies:</p> <ul style="list-style-type: none"> the type of flood risk present (e.g. the extent, depth and velocities of flooding, the routes of flooding, the duration of flood, the worst case flood risk, the potential for a no-notice flood – e.g. breach of flood defences) the availability of the Environment Agency flood warnings for that property / site. a description of the warnings (see appendix 1) and the extent of the advance warning can be given the method of delivery of the EA warnings (phone, text, email or fax) The availability of any flood defences for the property (e.g. door flood barriers)) and how deployment may affect evacuation routes. 		Y		Indicates three different flooding scenarios, but no specific information about the likely impact and potential hazards (e.g. danger of fast flowing water, displaced manhole covers, contamination etc) .
		Y		It mentions that flood warnings are available, but not that the household will be signed up to them.
			N	Description of the EA warnings are not included (see Appendix 1).
			N	
			N	

Detail	Evidenced in Plan?			Evidence / Comments
	Yes	Partially	No	
The flood emergency / evacuation plan allows all residents of a property / site to evacuate to a place of safety before a flood happens, or allows all residents of a property / site to shelter in a refuge on site for the duration of a flood	Y			Scenario A allows for an evacuation to a place of safety, and scenario C allows for a shelter on site.
Where the decision to evacuate is taken by the occupants, the plan is not reliant on rescue from the emergency services.		Y		Scenarios 2 relies on support from the emergency services.
The flood emergency / evacuation plan includes information on how to switch off services (water, gas and electricity) prior to evacuation.			N	Add prompt with the location of the cut-off valves/switches
Off-site places of safety have been assessed and are not at risk of flooding.		Y		Assume that 14m AOD is safe from flooding, but not explicitly stated.
If the occupants take the decision to evacuate the building the plan documents the shelter arrangements.			N	If Humberside Police recommend evacuation, North Lincolnshire Council will normally assist them in providing temporary shelter for evacuees. However, the plan should, ideally, identify shelter arrangements. For example, relocate to [relatives/hotel/village hall] etc.



Detail	Evidenced in Plan?			Evidence / Comments
	Yes	Partially	No	
Suitable refuges are provided if there is a risk of a no-notice flood event (e.g. breach of defences)		Y		Lack of information on the suitability of refuge – see below*
On-site refuges have been risk assessed and would be free from flooding during a worst case flooding scenario and would provide a suitable shelter for the duration of the flooding event.			N	No indication given of likely flood depths, duration of flood, or how long residents could remain in refuge. Assumption is await rescue.
On-site refuges are provided with appropriate facilities proportionate to the likely duration of the flood (e.g. warmth, provisions, medications, communications)			N	Residents are required to take resources with them, rather than store them in the refuge. Will there be time and presence of mind to gather during an inundation event? No indication of heat, light etc.
The flood emergency / evacuation plan will operate during all times of the day (e.g. in the middle of the day and the middle of the night), in all weather conditions (rain and cold are usually associated with flooding) and at all times of the year (e.g. in the middle of winter and the middle of summer).			N	Not referenced, but Scenario 2 does not seem suited for all times / all weathers, or for a Scenario 2 leading to a scenario 3. Not sure about heat in refuge.
Evacuation routes should be clearly stated.	Y			

Detail	Evidenced in Plan?			Evidence / Comments
	Yes	Partially	No	
The plan contains clear actions to follow in the event of a flood warning being issued. If flood warnings are not available for that area then the plan has identified another clear trigger / alert.		Y		There are actions to take, not clear about flood warning issue / receipt. (see Appendix 1)
The actions / procedures outlined in the flood emergency / evacuation plans can be followed by people of all abilities (e.g. wheel chairs users, the visually impaired)			N	
If pets are allowed in the property / on site, then they are catered for in the flood emergency / evacuation plan			N	
The plan is adequate for visitors to the site / property without local knowledge to find the safe route to the designated refuge(s)		Y		Use of the term 'to the north' and 'travelling north along...' may be better written as 'turn left out of the front door' etc.

Detail	Evidenced in Plan?			Evidence / Comments
	Yes	Partially	No	
<u>Plan review</u> To be fit for purpose, the whole of the contents of the plan must be reviewed annually and the date of the next review clearly stated. Additionally, the plan should document the date the plan owner contacted the Environment Agency Floodline Service on 08459881188 or http://environment-agency.gov.uk to check on any changes to the flood risk to the property			N	No indication in the plan
<u>Plan awareness</u> All people in the premises must be made aware of the plan and the actions they should take on receipt of flood warnings or should flooding occur.			N	No indication in the plan (See Appendix 1)
<u>Plan testing</u> The plan should be tested periodically and a record kept of the date of the test.			N	No indication in the plan



Exception Test Part 2

2 - The development provides wider sustainability benefits to the community that outweigh flood risk.

a) *Social*

1. The construction of the new dwellings will provide employment for local tradesmen of all ages thus local skills will be enhanced, local employment created, increased opportunities for the employment of apprentices thus improving chances of longer term employability.
2. The dwellings will be designed in accordance with Police guidelines to minimise possible burglaries and thus reduce crime in the area.
3. This will also accord to the NPPF in promoting rural business to provide thriving rural communities.
4. It will make the best use of this redundant agricultural building and accord to both Local and National Planning Policies.

b) *-Environmental*

1. The development of the proposed dwellings will make the best use of this site as it has no specific use at present.
2. The new proposed dwellings will be carbon efficient and have lower than average emissions thus making a contribution to the improvement of air quality
3. The site will be bounded to the west by hedgerows which will be retained thus promoting and encouraging wildlife habitat which will enhance biodiversity.
4. All additional housing within rural villages will contribute to the use of public transport and thus additional demand will enhance it's long term provision.
5. The dwellings will be built to Code 3 level Sustainable Housing which is above the required level of energy efficiency required by the Building Regulations and thus further contribute to a reduction in the carbon footprint of new housing provision..
6. All materials used in the construction of the building will be sourced locally thus promoting sustainability in the construction process.

c) *Economic*

1. Construction of this dwelling will provide much needed new jobs and play a part in small degree in the governments stated intention to build the country out of recession.
2. All local rural villages need vibrant centers and the construction of a new family dwelling will bring additional children into the area which will promote use of the local school, shops, etc.
3. The construction of this new dwelling will not only bring jobs to the local tradesmen but also have the spinoff of increased orders for building materials, Kitchen fittings, iron mongery, glazing etc, thus securing employment in jobs not immediately related to the site.



6.0 Conclusion

6.1 I therefore conclude that:-

1. The proposed development is a compatible use within a flood zone 2/3a area.
2. That the proposed development is safe in terms of flood risk and

6.2 The Exception Test is passed and the development therefore complies with the NPPF Technical Guidance and should not be refused permission on flood risk grounds.

6.3 I would also refer to PA/2021/37 a development of 3 dwellings on Shore Road Garthorpe some 50 or metres away where it was confirmed that the site passed the Exception and Sequential Tests and that the proposed development would have social and economic benefits by providing up to 3 new dwellings.

