



FLOOD RISK ASSESSMENT August 2023

**APPLICATION FOR PROPOSED EXTENSION
TO REAR OF EXISTING DWELLING TO PROVIDE
ADDITIONAL LIVING ACCOMMODATION**

AT

**FERNDALE, OLD WOOD ROAD
SKELLINGTHORPE**

by Framework Architecture and Urban Design Ltd

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**FLOOD RISK ASSESSMENT:
APPLICATION FOR PROPOSED EXTENSION TO EXISTING DWELLING AT FERNDALE, OLD WOOD ROAD,
SKELLINGTHORPE**

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1.0 Introduction

- 1.1 The applicant is applying for planning permission to construct a one-story rear extension for an already existing residential property in Skellingthorpe. The aim is to enhance the living space and make minor adjustments to the internal layout. The extension intends to integrate an open-plan kitchen and dining area, designed to offer the family a more enjoyable and functional space.
- 1.2 The location of the site has been determined to fall within **Flood Zone 2**, as depicted within the Environment Agency's Flood Zone Maps. Therefore, a Flood Risk Assessment is required to form part of the planning application for this development.
- 1.3 Flood Risk assessments comprehensively address the potential dangers stemming from flooding at every phase of the development process. These assessments aim to mitigate prospective property damage and threats to human life caused by flood incidents, all while adhering to governmental directives that outline the handling of flooding concerns in the formulation of planning policies and the evaluation of planning requests.



Figure 1: White Dot indicates location of the dwelling relative to the site

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2.0 Site Location

- 2.1 Situated to the North-West of Skellingthorpe along The Old Wood road, the site is enveloped by dense woodland and showcases a predominantly even terrain with minimal geological attributes. The application site rests at an elevation of approximately 8 meters above sea level.
- 2.2 The existing dwelling is a traditional masonry-built bungalow with render finish and is situated to the East of the site towards the road. A large expansive garden stretches out far to the West. There is currently an approximate 225mm step up from the ground level immediately adjacent to the dwelling up to the main door threshold. All the living accommodation is situated on the ground floor.
- 2.3 A covered land drain bisects the site running North-South and is located to the West far from the main dwelling house. An open swale runs parallel with the road, with numerous other open land drains criss-crossing the wider area.



Figure 2: OS image of the site, depicting the land drain and extent of the site

FLOOD RISK ASSESSMENT:**APPLICATION FOR PROPOSED EXTENSION TO EXISTING DWELLING AT FERNDALE, OLD WOOD ROAD, SKELLINGTHORPE****3.0 The Development**

- 3.1 The plans involve a Minor Development, which entails extending a well-established bungalow that already exists. This extension, located at the rear of the dwelling, is designed to align its Finished Floor Level with that of the existing property. As a result, this development does not exacerbate the current conditions.
- 3.2 Flood resistant materials are to be used to at least 300mm above the estimated flood level.
- 3.3 The extension will be built using traditional masonry cavity wall construction and will feature a finish of thorough render. It is anticipated that the ground floor will be constructed using Beam & Block construction. The doors selected for this project will be powder-coated aluminium, while the new front door will be crafted from composite material.

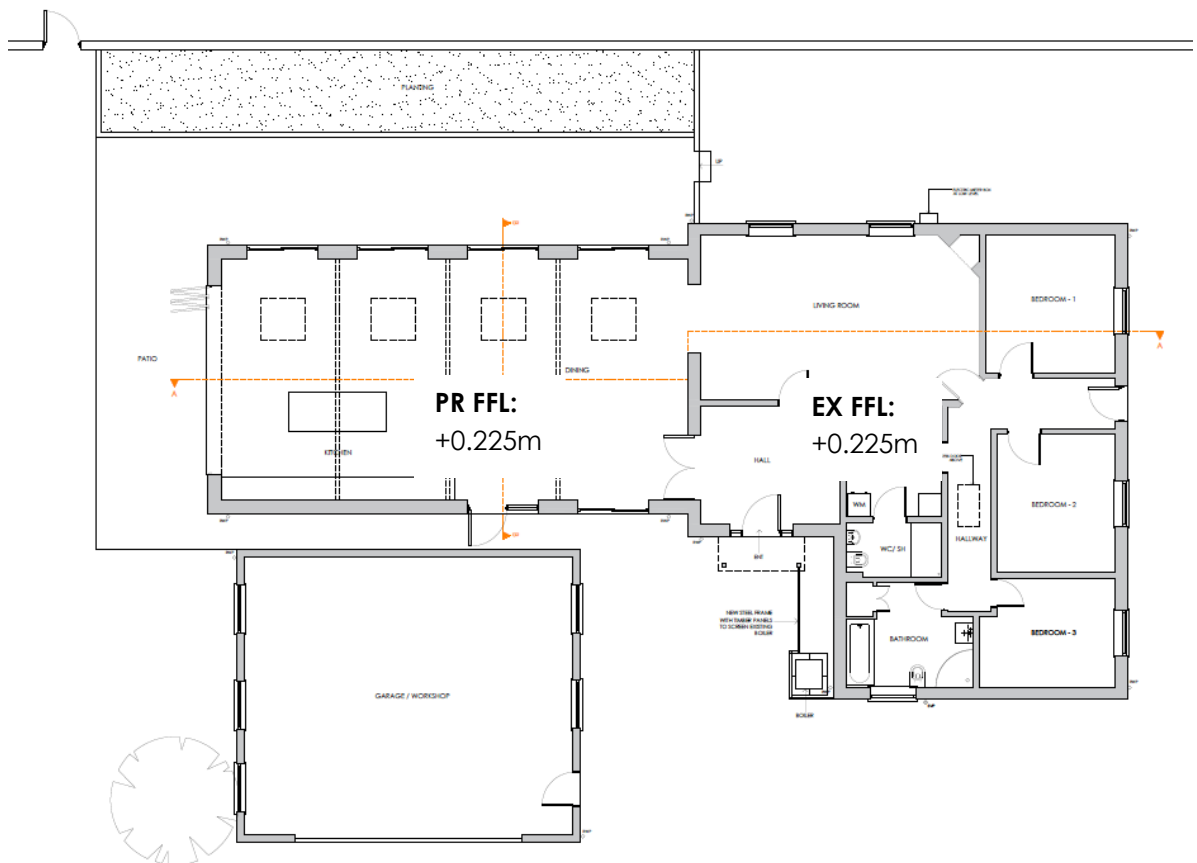


Figure 3: A Floor Plan illustrating the estimated existing and proposed height levels taken from the site.

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4.0 Flooding Risk

- 4.1 The majority of the application site is located within an area designated as at risk from flooding (Flood Zone 2), by the Environment Agency (EA). Locations in flood zone 2 have a medium probability of flooding. This means in any year land has between a 1% and 0.1% chance of flooding from rivers and between a 0.5% and 0.1% chance of flooding from the sea.

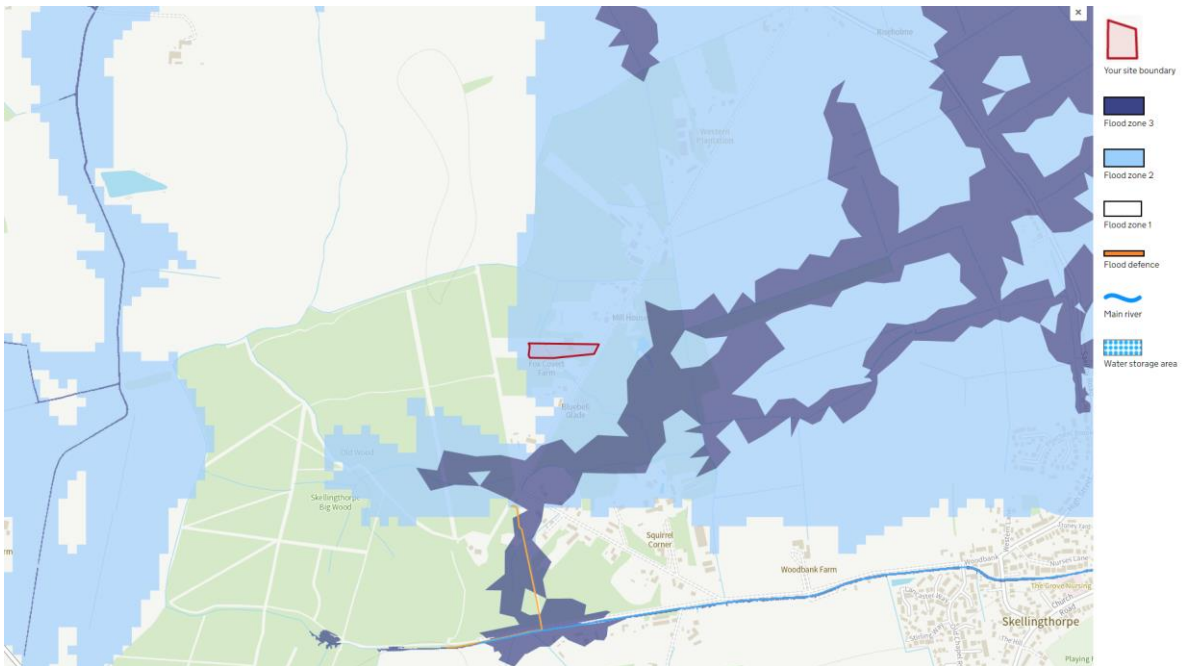


Figure 4: Flood Risk Map taken from the Environmental Agency Website indicating Flood Zones

- 4.2 Paragraph 168 of the National Planning Policy Framework (NPPF) states that applications for Minor Development and Changes of Use should not be subject to the sequential or exception tests but should still meet the requirements for site-specific flood risk assessments.
- 4.3 The Environment Agency typically considers several types of flooding when assessing flood risk, the following are believed to be relevant to the application site:

River Flooding: This type of flooding occurs when rivers overflow their banks due to heavy rainfall, rapid snowmelt, or other factors. The agency evaluates river levels and flow rates to assess the potential for river flooding.

Surface Water Flooding: This type of flooding happens when heavy rainfall overwhelms drainage systems, causing water to accumulate on roads, streets, and other surfaces. The agency examines the effectiveness of drainage systems and the potential for surface water flooding.

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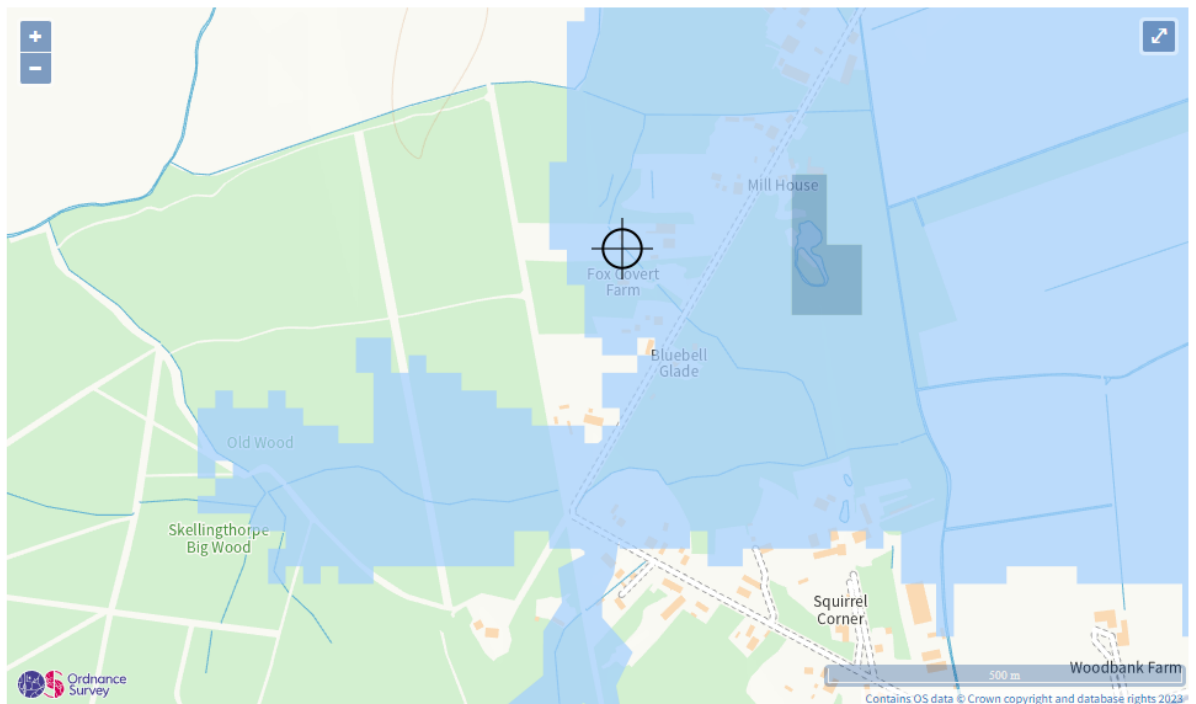
Groundwater Flooding: Groundwater levels can rise during periods of prolonged rainfall, leading to flooding in areas with poor drainage or impermeable soils. The agency assesses groundwater levels and their potential impact on communities.

Reservoir Flooding: Large reservoirs and dams can pose a flooding risk if they breach or overflow. The agency evaluates the structural integrity of these reservoirs and the potential consequences of a failure.

Sewer Flooding: Flooding can occur when sewage systems become overwhelmed by heavy rainfall, causing sewage to back up into homes and streets. The agency assesses the capacity of sewage systems and the risk of sewer flooding.

Coastal Flooding: Coastal areas can experience flooding due to storm surges, high tides, or other ocean-related events. The agency assesses the vulnerability of coastal regions to these factors and the potential impact on communities.

- 4.4 The image below depicts the sites probability of flooding from Rivers or The Sea. As illustrated the risk of the site flooding from rivers and seas is classified as '**low**' by the EA.



Extent of flooding from rivers or the sea
● High ● Medium ● Low ● Very low ⊕ Location you selected

Figure 5: Flood Risk Map illustrating probability of Flooding from River or Sea sources

- 4.5 Floods are a part of the natural cycle and can originate from various sources beyond just watercourses and oceans. Inland flooding can emerge due to heavy rainfall,

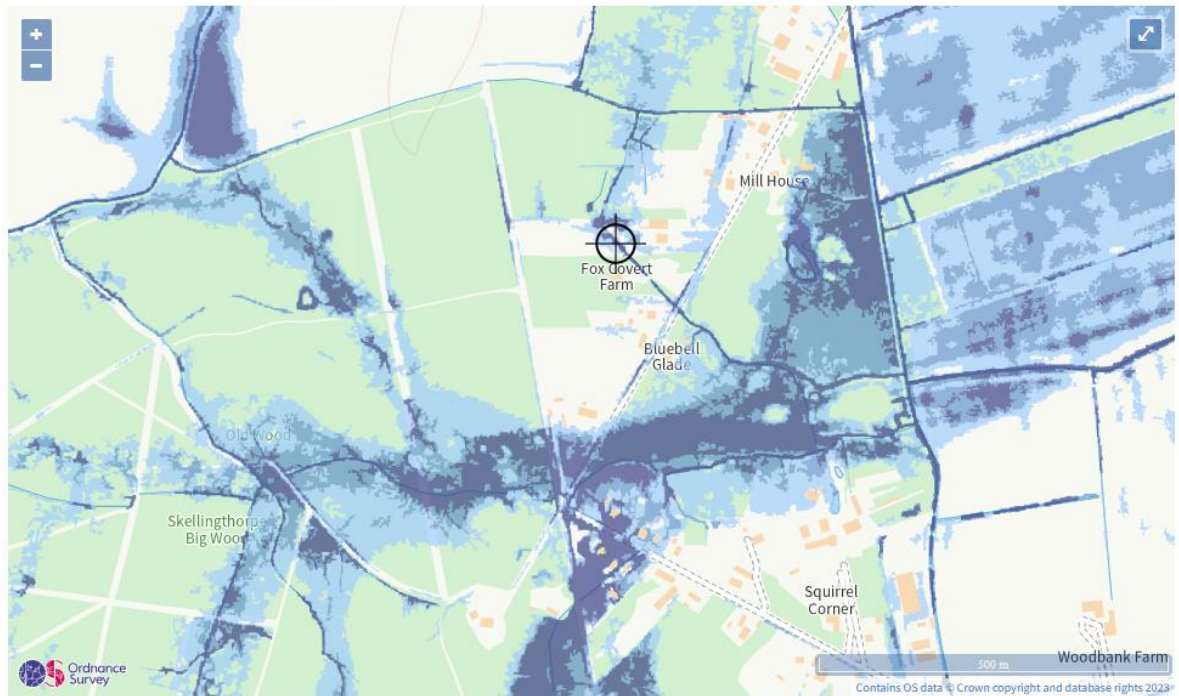


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typically over a brief period, which cannot be absorbed by the soil or drained properly (Surface Water).

- 4.6 The second Image depicts the application sites probability of flooding from Surface Water. There is a High, Medium and Low risk of flooding on the site, however these risks are located on and around the existing covered land drain, with the existing bungalow situated to the East in a **'very low'** risk zone. Due to the natural topography of the area diverting water away from the site, there is no immediate risk of extensive flooding on the premises. Instead, there might be minor localized pooling of water with shallow depth. Given that the property's floor level is higher than the nearby ground level, it's improbable that the property will be impacted.



Extent of flooding from surface water

● High ● Medium ● Low ○ Very low ⊕ Location you selected

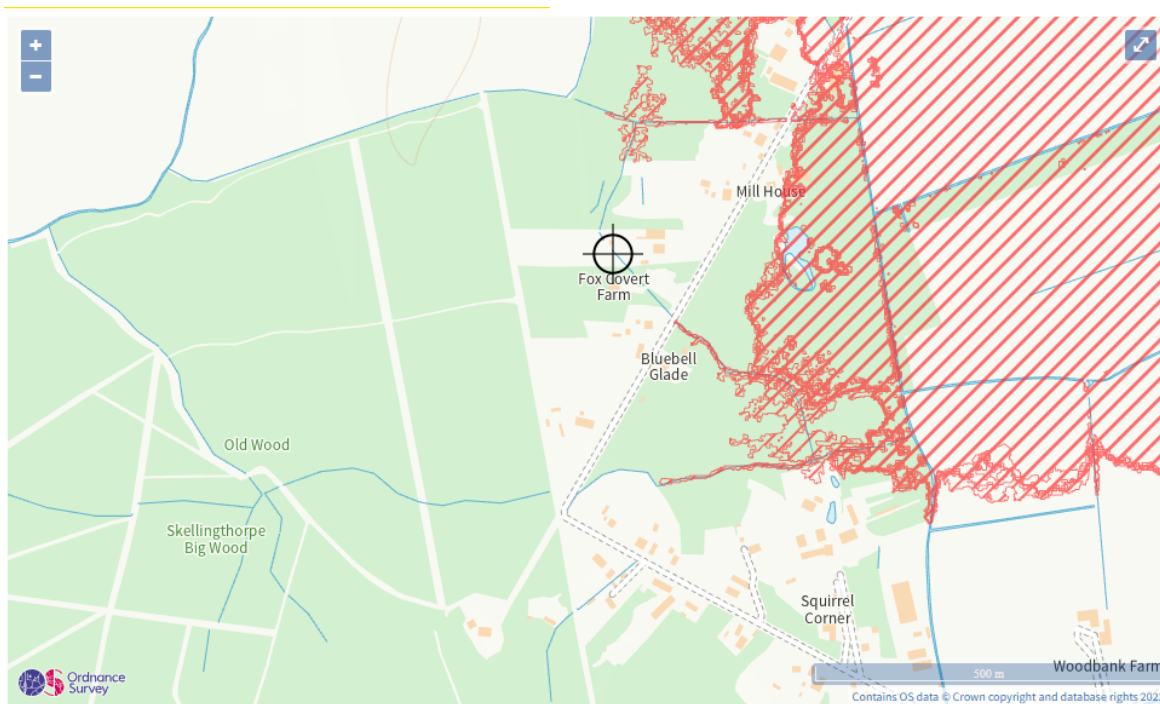
Figure 5: Flood Risk Map illustrating probability of Flooding from Surface Water

- 4.7 The area is not known to suffer from any groundwater problems.
- 4.8 Flooding from sewers can occur from overloading from heavy rainfall caused by blockages or having inadequate capacity. There are no sewers in the vicinity of the development.
- 4.9 Flooding can occur from sources that are not naturally caused, like reservoirs, lakes, or canals where water is stored above the natural ground level. Such flooding might result from structural failures or overflow situations. As depicted in the image below,



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there are no identifiable facilities in close proximity to the site that could impact its flood risk.



Maximum extent of flooding from reservoirs:

● when river levels are normal ■ when there is also flooding from rivers ⊕ Location you selected

Figure 6: Flood Risk Map illustrating probability of Flooding from Reservoirs

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5.0 Flood Mitigation

5.1 There are two forms of flood protection works which can be accommodate in this type of proposal: -

Flood proofing works- *these try to reduce the amount of water actually entering a building*

Flood resilient works - *these reduce the amount of damage caused by water entering the building.*

5.2 Few measures can be added to the existing fabric of the building however the following measures will be incorporated in the extension works:

- The Environment Agencies Guidance notes state that consideration should be given to providing electrical services above possible flood levels. - It is proposed that all electrical services and power sockets will be placed a minimum of 450mm above finished floor level at ground level and be fed from the first floor.
- Stormguard flood barrier can be installed to all new doors that provide a high risk of flooding.
- Replacement doors to be of construction not susceptible to moisture.
- Avoid the use of absorbent materials at ground floor level.
- Treated and sealed any timber low level materials.
- The owners of the property will register the site with the Environment Agency to receive automated early warnings of potential flood events.
- The landscaping will all remain permeable construction.
- The Environment Agencies Guidance notes state that for domestic extensions within flood risk zones should, at a minimum, have floor levels no lower than the existing dwelling - It is Proposed that Floor levels will be set at the same level as the existing floor levels which elevate the internal ground floor level approximately 225mm above the external ground level.



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6.0 Conclusion

- 6.1 The site is shown to be located within **Flood Zone 2** as detailed on the Environment Agency's Flood Zone Maps and has been illustrated to have a '**low**' probability of flooding from rivers or the sea.
- 6.2 There is a 'High Risk' of flooding from Surface Water on the site, but this is situated away from the dwelling itself and is concentrated around the existing land drain that bisects the site far down the garden. Even under the 'Low Risk' scenario the probability of flooding around the dwelling itself from Surface Water is very low, being well below the 300mm threshold.
- 6.3 The risk from artificial sources of flooding such as reservoirs, lakes or canals is very low.
- 6.4 Flooding from other sources is very unlikely to affect the site.
- 6.5 The existing property is already an established bungalow with ground floor living and sleeping accommodation. Although the existing dwelling is located within a flood zone the proposals seek an extension to the current living arrangement and do not propose any new housing. There should be no increase in risk of flooding than the current situation.
- 6.6 The proposed extension will be constructed of suitable flood resistant materials which quickly recover after any flooding.
- 6.7 Any impact of damage to the property can be foreseen and mitigated against by relatively simple design and construction techniques as suggested in the report.

