FLOOD RISK ASSESSMENT

21 COSTER VIEW, GREAT BEDWYN,
MARLBOROUGH SN8 3NS

October 2023

Job Number: 23.003

BL
design studio

1.0 BRIEF

1.1 Scope and Limitation

This is a Flood Risk Assessment Report limited in its scope to the task as noted below. We have not investigated areas or problems which are not relevant to the task unless noted in the report. The report has been prepared in accordance with the Client's request and therefore any liabilities which may arise are restricted to the Client.

1.2 Orientation

For the purposes of this report, unless otherwise stated, all references (including maps, drawings etc.) are oriented North at the top of the page.

1.3 Site Address:

21 Coster View
Great Bedwyn
Marlborough
SN8 3NS

1.4 Brief

The proposal for this site is the erection of a single storey rear extension to the rear of an existing mid-terrace dwelling. The site lies in Flood Zone 3, as indicated by EA mapping for the area.

1.5 Information sources

Association of British Insurers - Flood Resilient Homes What homeowners can do Flood Resilient Homes What homeowners can do to reduce flood damage

British Geological Survey Mapping - http://mapapps.bgs.ac.uk/geologyofbritain/home.html

Department for Communities and Local Government - Planning Policy Statement 25: Development and Flood Risk - Practice Guide

Strategic Flood Risk Assessment - Wiltshire Council. May 2019

Where applicable and identified, this report, “Contains Environment Agency information © Environment Agency and database right.

Ministry of Housing, Communities & Local - Government National Planning Policy Framework. March 2012.

Great Bedwyn Flood Plan, January 2014.

2.0 BACKGROUND INFORMATION

2.1 Development Proposal

The proposal is for the erection of a single storey rear extension to the rear of an existing mid-terrace house.

2.2 Site's vulnerability Classification

An inspection of the planning practice guidance confirmed that the development would fall into the 'More Vulnerable' classification due to the proposed use of the site for a dwelling house.

2.3. Consistency with Local Plan for Area

No information has been provided to indicate that the erection of an extension will be contrary to the Local Plan and as such, it is assumed that this is not an issue for the site.

2.4. Selection of Site

The standard requirement for site selection is the provision of suitable evidence to show that the Sequential Test or Exception Test have been applied in the selection of the site, relevant to its development types.

The National Planning Policy Framework defines the aims of the Sequential Test as steering new developments to prioritise the selection of sites to be those with the lowest probability of flooding. However, it should be noted that for a minor development (in this case an extension with a footprint less than 250 square metres) there is no requirement to provide undertake a sequential test. As an exception test is only required following on from a sequential test, the 1 lack of a requirement for an exception test by implication means that a sequential test is not required for a minor development.

This site is located within the Flood Risk Zone 3, which is suitable for the applicable development, with the exception that an Exception Test is completed, as per Table 1: Flood Risk Vulnerability and Flood Zone Compatibility.

	Essential infrastructure	Water compatible	Highly vulnerable	More vulnerable	Less vulnerable
Zone 1	✓	✓	✓	✓	✓
Zone 2	✓	✓	Exception Test required	✓	✓
Zone 3a	Exception Test required	✓	✘	Exception Test required	✓
Zone 3b functional floodplain	Exception Test required	✓	✘	✘	✘

Key ✓ Development is appropriate ✘ Development should not be permitted

Fig. 1 Flood Risk Vulnerability Classification

2.5 Geology

An inspection of the British Geological Survey Information for the area indicates the following:

Bedrock geology - Newhaven Chalk Formation - Chalk. Sedimentary bedrock formed between 86.3 and 72.1 million years ago during the Cretaceous period.

Superficial deposits - Head - Clay, silt, sand and gravel. Sedimentary superficial deposit formed between 2.588 million years ago and the present during the Quaternary period.

2.6 Consultation

A consultation was undertaken with the Local Authority and also with the Environment Agency.

A request for flood risk assessment data (product 4) to the EA and the receipt of this information is pending.

The Local Authority for the area, Wiltshire Council, could not provide any information on levels and the potential sources of flooding other than suggesting that the local strategic flood risk assessment could be of some use.

3.0 FLOOD RISK ZONE/ ENVIRONMENT AGENCY INFORMATION

3.1 Flood Zone Definitions

The following flood zone definitions are normally adopted:
Flood Zone 1 is defined as having a 'Low Probability' of flooding and incorporates areas where the annual probability of flooding is lower than 0.1 %. Planning Policy Statement 25 (PPS25) imposes no constraints on the type of development within Flood Zone 1.

Flood Zone 2 is defined as 'Medium Probability' with an annual probability of flooding between 0.1 and 1.0% for fluvial and 0.1 and 0.5% for tidal and coastal flooding. PPS25 recommends that Flood Zone 2 is suitable for most types of development except for 'Highly Vulnerable' land uses.

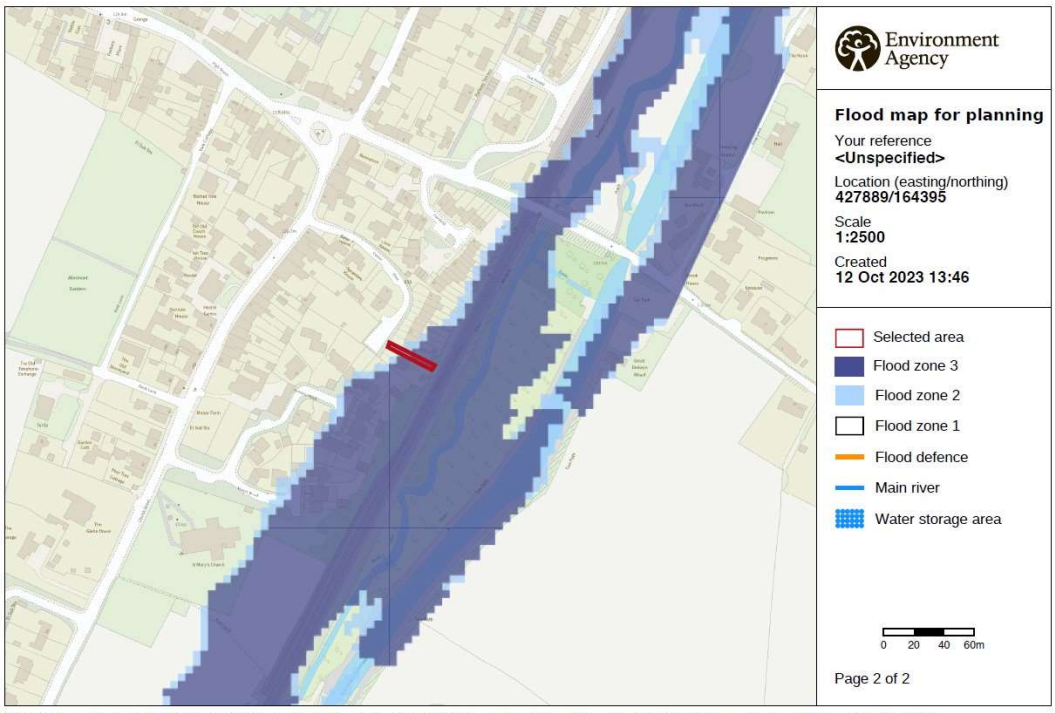
Flood Zone 3 is defined as 'High Probability' with an annual probability of flooding of 1.0% or greater for fluvial and 0.5% and greater for tidal or coastal. PPS25 recommends that appropriate development is based upon a further classification of Flood Zone 3 into 3a High Probability and 3b Functional Floodplain (where water has to flow or be stored in times of flood).

3.2 Historic Flood Levels

The Environment Agency has been contacted and this information is yet to be provided. The ground level of the site itself reduces in height by 0.85m from front to back. The site backs onto the main railway line to London Paddington which itself sits 1m lower than the garden. The land continues to drop down to the River Dun and the Kennet & Avon Canal.

3.3 Risk from rivers

Information from the Environment Agency mapping indicates that the site is at a medium risk of flooding from rivers with a 1% to 3.3% chance of flooding each year. This is due to its proximity to the River Dun which is approximately 50m to the southeast of the property. That said in the 34 years since the property was constructed, the owner has not experienced any flooding.



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Fig. 2 Flood Map for 21 Coster View

3.4 Risk from surface Water

Information from the Environment Agency mapping indicates that the site is at a high risk of flooding from surface water. As part of the 2014 Great Bedwyn Flood Plan, 21 Coster View is identified as being at risk of surface water flooding only.

3.5 Risk from sea

Due to the distance and elevation from the sea, it is not considered likely that the site will be affected by flooding from the sea.

3.6 Risk from reservoirs

Information from the Environment Agency mapping indicates that the site is unlikely to be at risk of flooding from reservoirs.

3.7 Risk from groundwater

Information from the Environment Agency mapping indicates that the site is unlikely to be at risk of flooding from groundwater. It is also noted that Great Bedwyn is not an area listed under the Wilshire Council SFRA

4.0 CLIMATE CHANGE

4.1 The Effects of Climate Change on Proposed Development

The site sits with 50m of the River Dun. Information gathered from the Environment Agency Climate Change Guidance confirms that, *"In flood zone 3 the higher central climate change allowance is our minimum benchmark for flood risk mitigation. In sensitive locations it may be necessary to use the higher central (in flood zone 2) and the upper-end allowance (in flood zone 3)."*

Increased rainfall could have an impact on river levels and land as well as urban drainage systems. The increase in peak rainfall intensity poses a large threat of flooding as a result of climate change on the proposed development. Siting of the development, relative to the local watercourse, and the provision of suitable flood resilience provisions should be considered in the design of the property.

5.0 RISK

5.1 Flood Level

Information from the EA for the modelled flood level is pending. However, the current standing advice for a minor extension (household extensions or non-domestic extensions less than 250 square metres) in Flood Zone 2 or 3 is to *"Make sure that floor levels are either no lower than existing floor levels or 300 millimetres (mm) above the estimated flood level. If your floor levels aren't going to be 300mm above existing flood levels, you need to check with your local planning authority if you also need to take flood resistance and resilience measures."*

It is therefore considered that the proposed floor level is in alignment with the current standing advice and that any requirements for flood resistance and for flood resilience measures should be undertaken in relation to standing advice from the Local Planning Authority. The report below indicates typical measures which could be taken, subject to Local Authority approval.

5.2. Flood Defences

No flood defences have been identified to be in place for this area Great Bedwyn Flood Plan or the Local SFRA for Wiltshire.

5.3. Flood Prevention

It is a normal requirement of the Environment Agency that where a site is affected by either the 1 in 100 or the 1 in 1000 years storm event that there should be no physical flooding or inundation of water into the lower floor of the property. This is generally achieved by ensuring that the finished floor level is in excess of the 300 mm above flood level. Where this cannot be achieved a clear place of safety should be provided in a property (high-level accommodation away from the flood).

If the floor levels cannot be raised sufficiently, due to planning restrictions etc, flood resilience should be built into the development by implementing suitable floodproofing methods to a level of approximately 600 mm above finished floor level. Service ducts in or below this level should be sealed to prevent the ingress of flood water or provided with protection to prevent backflows from water outside.

5.4 Flood Resilience

As water ingress could occur, consideration should be given to making the property as flood resilient as possible as noted below.

The proposal has therefore been designed to consider resilience to the risk of surface water flooding in the following ways:

1. Solid ground floor construction
2. Water resistant materials
3. Services & electrical points well above likely flood level
4. One-way valves into drainage pipes to prevent sewage backing up into the house
5. Additional items which may be applied can be found in "Association of British Insurers – Flood Resilient Homes – What homeowners can do to reduce flood damage"

6.0 CONCLUSIONS

The available information for the site places its within Flood Zone 3 with the potential for flooding being mainly for surface water risk as identified in the Great Bedwyn Flood Plan.

The proposed works consist of a domestic extension which falls within the definition of a minor extension (household extensions or non-domestic extensions less than 250 square metres) in Flood Zone 2 or 3. The modelled flood levels for the area are above the current ground level of the house as such, the floor will be kept at a level consistent with the existing ground floor levels of the property.

The Ground floor to the existing house is set at 118.75m and has never been fallen victim to a flooding event in the 35 years since its construction. Therefore, the existing floor level will be maintained within the new extension. The existing area of garden consists of non-permeable hardstanding which runs off into the gravel area of the garden. The new extension will collect the rainwater and direct it into the existing surface water drainage system.