Land at Mounton Road, Chepstow

Barwood Development Securities Ltd
Flood Consequence Assessment

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Contents

List of Figures and Tables

Appendices

1 Introduction

Background

1.1 The purpose of this Flood Consequence Assessment (FCA) is to assess the risk of flooding to the proposed development and where possible provide sufficient mitigation to demonstrate that the future users of the development would remain safe throughout its lifetime, that the development would not increase flood risk on site and elsewhere and, where practicable, that the development would reduce flood risk overall.

1.2 This report has been prepared with reference to the Monmouthshire Deposit Replacement Local Development Plan (RLDP) and the Technical Advice Note 15 (TAN 15) (updated 31/03/25)[1] which supplements Planning Policy Wales (PPW) Edition 12 (February 2024).

1.3 The general approach is to advise caution in respect of new developments in areas at high risk of flooding by setting out a precautionary framework to guide planning decisions. The overarching aim of the precautionary framework is, in order of preference, to:

a) Direct new development away from those areas which are at high risk of flooding.
b) Where development has to be considered in high risk areas (Zone 3) only those developments which can be justified on the basis of the tests outlined in TAN 15 are located within such areas.

1.4 The purpose of this report is to provide clear and pragmatic advice regarding the nature and potential significance of flood hazards which may be present at the site.

Site Proposals

1.5 The site is a proposed mixed-used development on land at Mounton Road, Chepstow.

1.6 The proposed Concept Plan outlines a development of up to 146 dwellings together with a hotel, residential care home, mobility hub (providing active and sustainable travel options and space for remote working) highway improvements and associated green infrastructure, open space and drainage attenuation. A single vehicular access is proposed vie the A466 Wye Valley Link Road to the east.

1.7 A copy of the concept plan is included within **Appendix A**.

Sources of Information

1.8 This FRA has been based on the following sources of information:

a) Monmouthshire County Council Strategic Flood Consequence Statement
b) Site Concept Plan
c) Site Topographical Survey
d) DEFRA Magic mapping
e) Web Based Soil Mapping
f) British Geological Survey Drift & Geology Maps

[1] https://www.gov.wales/sites/default/files/publications/2025-03/technical-advice-note-15-development-flooding-and-coastal-erosion.pdf

g) Ground Investigations undertaken by T&P Regeneration Ltd

2 Planning Policy Compliance

2.1 Planning Policy Wales (PPW) Edition 12 (February 2024) outlines the requirement for authorities to adopt a precautionary approach of positive avoidance of development in areas of flooding from the sea or rivers. Surface water flood risk is noted to be a required consideration in development location and layout. In order for development to be compliant with the PPW, it should aim to reduce and not increase flood risk from rivers and/or coastal flooding within and outside of the site. The PPW refers to TAN 15 (updated 31/03/25) to outline the planning approach to flood risk in further detail.

2.2 The TAN15 reflects the core principles of the National Strategy for Flood and Coastal Erosion Risk Management in Wales to adopt a risk-based approach in respect of new development in areas at risk of flooding and coastal erosion.

2.3 TAN 15 presents the following approach in managing flood risk through development with considerations of proposals to include:

a) Guiding development to locations at little or no risk from river, tidal or coastal flooding or from run off arising from development in any location;
b) Bearing in mind that government resources for flood and coastal defence are directed at reducing risks for existing development and are not available to provide defences in anticipation of future development;
c) Managing the consequences of flooding where development can be justified and the consequences are considered acceptable in reference to section 11 of TAN 15;
d) Making provision for future changes in flood risk, for example taking account of climate change, where they can be anticipated;
e) Bearing in mind measures within Catchment Flood Management Plans or Shoreline Management Plans to restore substantial functionality and/or natural heritage benefits of flood plains through the removal of inappropriate existing built development.

2.4 When considering the risk associated with flooding and coastal erosion the term ‘risk encompasses two things:

a) The likelihood of an event happening
b) The impact that will result if flooding or coastal erosion occurs

2.5 The National Strategy recognises the varying degrees of flood risk now and in the future. The overarching aim when considering new development is to prevent exposure to risk, by making locational choices in the following order of preference:

a) Direct new development areas at minimal risk of flooding – areas **Zone 1**;

b) New development on Greenfield sites is not appropriate in Defenced Zones unless allocated in development Plans. Enable resilient development of brownfield sites in areas served by formal risk management defences that reduce the risk and consequences of flooding over the lifetime of a development – areas in the **Tan 15 Defended Zones**

c) Allow carefully considered development consistent with acceptability considerations set out in Section 11. Proposals for new highly vulnerable development on greenfield land are only appropriate where the site has been allocated in adopted Development Plans – areas in **Zone 2**

d) Only permit water compatible development, essential infrastructure, and less vulnerable developments by exception in areas of higher risk – areas in **Zone 3**

2.6 **Table 2.1** sets out the definition of the main zones.

2.7 This approach is based on:

a) A Flood Map for Planning showing flood zones which trigger justification and acceptability tests;
b) Defining development types by their vulnerability in flood events;
c) Advice on permissible uses in relation to the location of development and the consequences of flooding;
d) Planning authorities incorporating local flood risk considerations into their planning policies and decisions.

Zone	Flooding from rivers	Flooding from the sea	Flooding from surface water and small watercourses
1	Less than 1 in 1000 (0.1%) (plus climate change) chance of flooding in a given year.		
2	Less than 1 in 100 (1%) but greater than 1 in 1000 (0.1%) chance of flooding in a given year, including climate change.	Less than 1 in 200 (0.5%) but greater than 1 in 1000 (0.1%) chance of flooding in a given year, including climate change.	Less than 1 in 100 (1%) but greater than 1 in 1000 (0.1%) chance of flooding in a given year, including climate change.
3	A greater than 1 in 100 (1%) chance of flooding in a given year, including climate change	A greater than 1 in 200 (0.5%) chance of flooding in a given year, including climate change.	A greater than 1 in 100 (1%) chance of flooding in a given year, including climate change
TAN15 Defended Zones	Areas where flood risk management infrastructure provides a minimum standard of protection against flooding from rivers of 1:100 (plus climate change and freeboard)	Areas where flood risk management infrastructure provides a minimum standard of protection against flooding from the sea of 1:200 (plus climate change and freeboard).	Not applicable

(Source: Planning Policy Wales)

Table 2.1 Definition of Flood Map for Planning flood zones

2.8 For sites identified to be within Flood Zones 2 and 3 Strategic Flood Consequence Assessments (SFCA) must be applied as per section 6 of TAN 15. These assessments consider the suitability and value of the development and what the consequences of the development would be in terms of flood risk. The prime objective of a SFCA is to develop full appreciation of:

a) The risk and consequences of flooding on the development; and
b) The risk and consequence (i.e. the overall impacts) of the development on flood risk elsewhere.

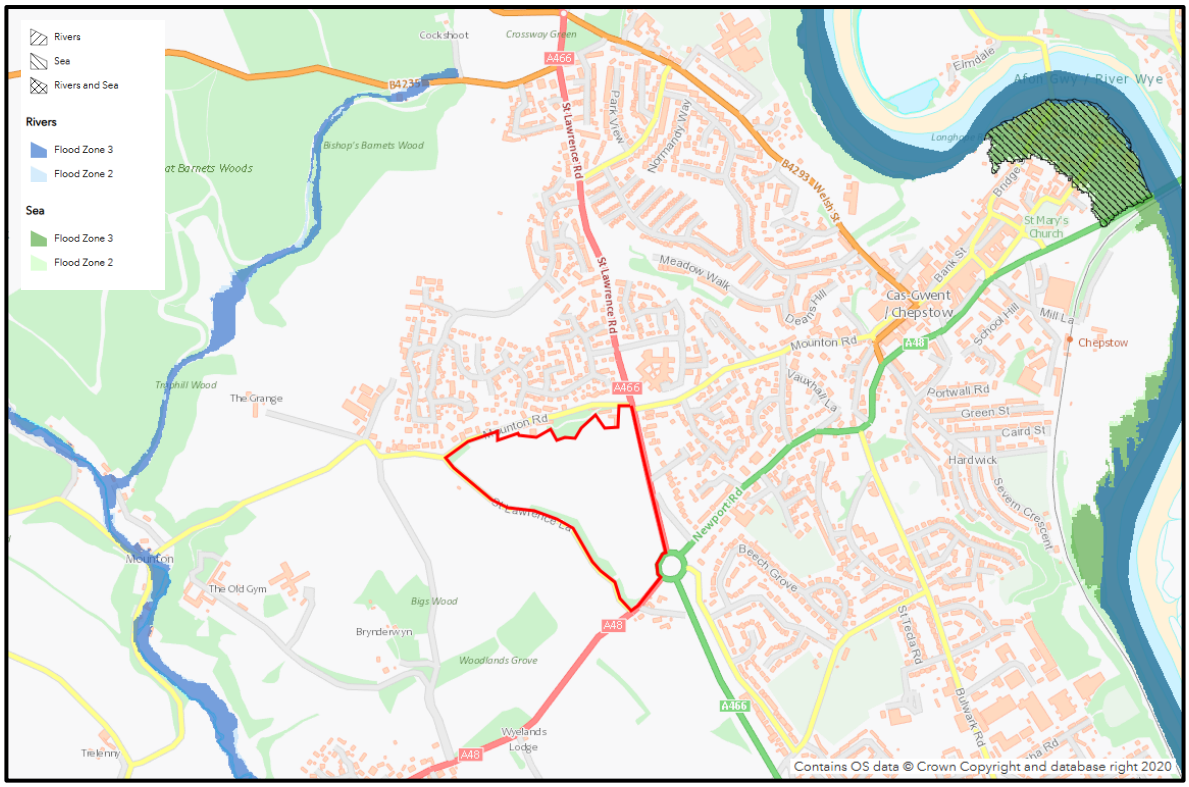
2.9 The assessment must allow for a range of potential flooding scenarios up to and including that flood having a probability of 0.1% in any year. An allowance for climate change must be made in line with current Welsh Government guidance.

2.10 The proposed development is classified as 'highly vulnerable' in Flood Zone 1 and therefore a FCA is not required, and it is deemed acceptable development in accordance with the RLDP, PPW and TAN 15.

3 Development Vulnerability & Flood Zone Classification

3.1 The flood zones classified in section 2 are reflected in the flood map for planning which is based on Natural Resources Wales Flood and Coastal Erosion Risk Maps supplemented by sediment data, held by the British Geographic Society (BGS), of historical flooding. The maps adopt the precautionary principle and are based on the best-known information available at the time; however, a detailed examination of a site can refine an area's risk of flooding.

3.2 The proposed development is 'highly vulnerable' in terms of its land use type flood risk vulnerability as shown in TAN 15 and entirely located in Zone 1 as shown by the Flood Map for Planning **(Figure 3.1)**. Therefore, following the principles of TAN 15 the proposed development vulnerability is considered appropriate for the associated flood risk.



(Source: Natural Resources Wales/Bing Maps)

Figure 3.1 Flood Map for Planning – Rivers and Sea

4 Site Specific Flooding

Historic Flooding

4.1 Natural Resources Wales mapping of historic flood extents does not indicate that the site has been previously impacted by any recent prior flooding incidents.

4.2 According to the Strategic Flood Consequence Assessment (2022) no specific information pertaining to any previous instances of flooding at or within the nearby vicinity of the site is held.

Tidal Flooding

4.3 Inundation of low-lying coastal areas by the sea may be caused by seasonal high tides, storm surges and storm driven wave action. Tidal flooding is most commonly a result of a combination of two or more of these mechanisms, which can result in the overtopping or breaching of sea defences. River systems may also be subject to tidal influences.

4.4 The Flood Map for Mapping **(Figure 3.1)** indicates that the entirety of the site is not shown to be within an area at risk of tidal flooding.

Fluvial Flooding

4.5 Flooding from watercourses occurs when flows exceed the capacity of the channel, or where a restrictive structure is encountered, which leads to water overtopping the banks into the floodplain. This process can be exacerbated when debris is mobilised by high flows and accumulates at structures.

4.6 The site is shown to be located in Flood Zone 1 outside of the high, medium, and low risk river flood zones on the Flood Map for Planning (**Figure 3.1**). As a result, the development of the site will result in no loss of fluvial floodplain and fluvial flood risk for the proposed development is low.

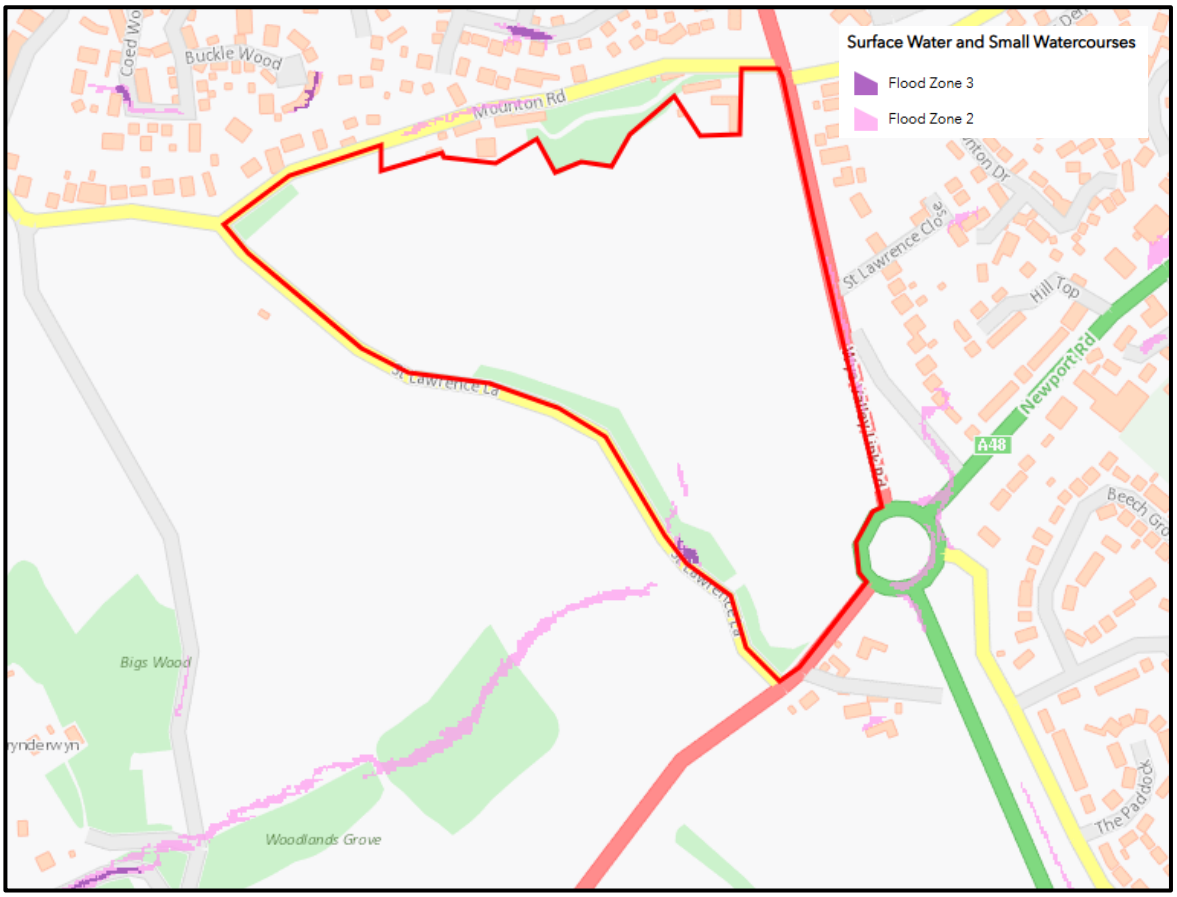
Pluvial and Small Watercourse Flooding

4.7 Pluvial flooding can occur during prolonged or intense storm events when the infiltration potential of soils, or the capacity of drainage infrastructure is overwhelmed leading to the accumulation of surface water and the generation of overland flow routes.

4.8 Risk of flooding from surface water and small watercourses mapping has been prepared, this shows the potential flooding which could occur when rainwater does not drain away through the normal drainage systems or soak into the ground but lies on or flows over the ground instead.

4.9 The surface water (pluvial) and small watercourses flood map produced by Natural Resources Wales **(Figure 4.1)** indicates the site to be predominantly in Surface Water Flood Zone 1 however, a small area of low and high risk pluvial flooding is projected on the south-western boundary. This is likely to be a result of a shallow topographical depression in this area of the site which allows for surface water to pool. This depression has not been picked up on the topographical survey due to the presence of woodland however, it is noted that this area of pooling lies outside of the proposed developable area and provides no

connectivity to the wider area. No small watercourses are indicated to be within nearby vicinity of the site which pose a risk.



(Source: Natural Resources Wales/Bing Maps)

Figure 4.2 Flood Map for Planning – Surface Water and Small Watercourse

Groundwater Flooding

4.10 Groundwater flooding occurs when the water table rises above ground elevations. It is most likely to happen in low lying areas underlain by permeable geology. This may be regional scale chalk or sandstone aquifers, or localised deposits of sands and gravels underlain by less permeable strata such as that in a river valley.

4.11 Groundwater was not encountered during the soakaway testing across the site apart from some 'slight seepage' identified at trial hole 6 at the lowest point of the site.

4.12 The risk of flooding from groundwater at this stage is low.

Sewer Flooding

4.13 Sewer flooding can occur when the capacity of the infrastructure is exceeded by excessive flows, or because of a reduction in capacity due to collapse or blockage, or if the downstream system becomes surcharged. This can lead to the sewers flooding onto the surrounding ground via manholes and gullies, which can generate overland flows.

4.14 Welsh Water sewer records **(Appendix D)** indicate there is a 300mm combined sewer running in a southerly direction along the Wye Valley Link Road.

4.15 Sewer flooding incidents recorded by Welsh Water are noted in the SFCA (2022), no instances of flooding are stated to have occurred at or within the nearby vicinity of the site.

4.16 The risk of sewer flooding to the site is therefore considered to be low.

Flooding from Artificial Sources

Reservoirs

4.17 Flooding can occur from large waterbodies or reservoirs if they are impounded above the surrounding ground levels or are used to retain water in times of flood. Although unlikely, reservoirs and large waterbodies could overtop or breach leading to rapid inundation of the downstream floodplain.

4.18 To help identify this risk, reservoir failure flood risk mapping has been prepared by Natural Resources Wales, and this mapping shows the entirety of the site to be outside of risk from this source.

5 Flood Mitigation Measures

Introduction

5.1 It is important to demonstrate that future users will not be at risk from flood hazards during the lifetime of the development, as well as ensuring that flood risk is not increased elsewhere.

Assessment Findings & Implications

5.2 The proposed development is located in an area with a history of flooding however, there is no history associated with the site itself and is considered, at this stage, to be at low to negligible risk of flooding from all sources.

Acceptability of Flood Consequences

5.3 The proposed 'highly vulnerable' development is located entirely within Zone 1 which, in accordance with the principles of TAN 15, is considered appropriate development for the identified risk from flooding. The site has also taken a risk based approach to the layout in terms of the surface water flood risk that is identified along the south western boundary.

Finished Floor Levels (FFLs)

5.4 It is recommended that FFLs be set a minimum of 150-300mm above the proposed ground levels to provide protection against flooding from surface water runoff and to adopt a design for exceedance approach.

Ground Levels

5.5 Ground levels should be profiled to remove hollows/depressions within the site topography.

5.6 Ground levels should be finished so that overland runoff is encouraged to flow away from the proposed new buildings and be directed to the nearest on site sustainable drainage system runoff collection point.

Access & Egress

5.7 The proposed access route is onto to the A446 (main access) which is free from surface water risk and is situated in Zone 1. Furthermore, pedestrian access is proposed onto Mounton Road, to the north of the site and the A48 to the south. Again, these are free from surface water risk and are situated in Zone 1. Therefore, based on both the pluvial and fluvial risk maps, safe pedestrian access/egress by both motorists and pedestrians is available to access the wider street network.

Drainage

5.8 The proposed drainage system will incorporate sustainable drainage managing and reducing the flood risk posed by surface water runoff from the site. The proposed drainage system will be outlined in a separate report.

6 Summary and Conclusions

Summary

6.1 This assessment has considered the risks of all types of flooding to the site including tidal, fluvial, surface, groundwater, sewer and artificial sources and provides mitigation measures to ensure that the flood risk to the site is minimised and that flood risk off-site is not increased.

Conclusions

6.2 The site is located within Zone 1 and indicated to be at low risk of flooding from all sources of flooding based on Flood Map for Planning.

6.3 The proposed development is 'highly vulnerable' which, sequentially, is deemed appropriate development within Zone 1.

6.4 All forms of flood risk assessed are identified to pose negligible or low risk of flooding to the development.

6.5 Surface water generated by the proposed development will be drained via infiltration SuDS.

6.6 Finished floor levels of the proposed dwellings will be set a nominal height above surrounding finished ground levels to mitigate the risk posed by overland runoff.

6.7 In compliance with the requirements of the TAN 15, and subject to the mitigation measures proposed, the development will not cause or be subject to significant flood risk issues.

Appendix A – Proposed Development Drawings

Appendix B – Topographical Survey

Appendix C – Infiltration Test Results

Appendix D – Sewer Records

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