



Monmouthshire Strategic Flood Consequences Assessment - Land to the East of Caldicot / North of Portskewett (HA2 and EA1m)

Final

Prepared for
Monmouthshire County
Council
County Hall
The Rhadyr
Usk
NP15 1GA

Date
October 2025

Document Status

Issue date	October 2025
Issued to	Monmouthshire County Council
BIM reference	QEW-JBA-XX-XX-RP-Z-0003- Land_East_of_Caldicot_North_of_Portskeuett
Revision	Final
Prepared by	George Williams Analyst
Reviewed by	Peter Rook BSc MSc MCIWEM C.WEM FGS Principal Analyst
Authorised by	Peter Rook BSc MSc MCIWEM C.WEM FGS Principal Analyst

Carbon Footprint

The format of this report is optimised for reading digitally in pdf format. Paper consumption produces substantial carbon emissions and other environmental impacts through the extraction, production and transportation of paper. Printing also generates emissions and impacts from the manufacture of printers and inks and from the energy used to power a printer. Please consider the environment before printing.

Accessibility

JBA aims to align with [governmental guidelines on accessible documents](#) and [WGAG 2.2](#) AA standards, so that most people can read this document without having to employ special adaptation measures. This document is also optimised for use with assistive technology, such as screen reading software.

Contract

JBA Project Manager	Peter Rook
Address	35 Perrymount Road, Haywards Heath, West Sussex, RH16 3BW
JBA Project Code	2025s0844

This report describes work commissioned by Monmouthshire County Council by an instruction dated 08 August 2025. George Williams of JBA Consulting carried out this work.

Purpose and Disclaimer

Jeremy Benn Associates Limited (“JBA”) has prepared this Report for the sole use of Monmouthshire County Council and its appointed agents in accordance with the Agreement under which our services were performed.

JBA has no liability for any use that is made of this Report except to Monmouthshire County Council for the purposes for which it was originally commissioned and prepared.

No other warranty, expressed or implied, is made as to the professional advice included in this Report or any other services provided by JBA. This Report cannot be relied upon by any other party without the prior and express written agreement of JBA.

JBA disclaims any undertaking or obligation to advise any person of any change in any matter affecting the Report, which may come or be brought to JBA’s attention after the date of the Report.

The methodology adopted and the sources of information used by JBA in providing its services are outlined in this Report. The work described in this Report was undertaken between August 2025 and September 2025 and is based on the conditions encountered and the information available during the said period. The scope of this Report and the services are accordingly factually limited by these circumstances.

The conclusions and recommendations contained in this Report are based upon information provided by others and upon the assumption that all relevant information has been provided by those parties from whom it has been requested and that such information is accurate. Information obtained by JBA has not been independently verified by JBA, unless otherwise stated in the Report.

Copyright

© Jeremy Benn Associates Limited 2025

Contents

1	Introduction	1
2	Site Description	1
2.1	Site Overview	1
2.2	Development proposals	2
2.3	Watercourses and Flood Defences	3
2.4	Topography	4
3	Planning Policy and Flood Risk	6
4	Assessment of Flood Risk	9
5	Application of Flood Zones to Development Management Decisions	18
5.1	Flood Risk from Rivers and the Sea	18
5.2	Flood Risk from Surface Water and Small Watercourses	19
6	Summary and recommendations	20

List of Figures

Figure 2-1	Proposed development site	2
Figure 2-2	Watercourse and Flood Defences	3
Figure 2-3	Water Courses and Flood Defences, Extended View	4
Figure 2-4	1m LiDAR	5
Figure 3-1	Flood Map for Planning- Flood Risk from Rivers	7
Figure 3-2	Flood Map for Planning - Flood Risk from the Sea	7
Figure 3-3	Flood Map for Planning - Flood Risk from Surface Water and Small Watercourses	8
Figure 4-1	NFHM Fluvial 1% AEP (medium) + Climate Change Event	11
Figure 4-2	NFHM Fluvial 0.1% AEP (low) + Climate Change Event.	12
Figure 4-3	NFHM Tidal 0.5% AEP (medium) + Climate Change Event.	13
Figure 4-4	NFHM Tidal 0.1% AEP (low) + Climate Change Event.	14

Figure 4-5 Flood Risk from Surface Water and Small Watercourses- 1% AEP + Climate Change - Flood depths	16
Figure 4-6 Flood Risk from Surface Water and Small Watercourses- 0.1% AEP + Climate Change - Flood depths	16

List of Tables

Table 2-1 Site Summary	2
Table 3-1 TAN-15 Development classification summary	6
Table 4-1 Summary of flood risk	9

1 Introduction

JBA Consulting has been commissioned by Monmouthshire County Council to prepare an independent Flood Risk Appraisal as part of a Stage 2 Strategic Flood Consequences Assessment (SFCA) for sites considered for allocation in its Replacement Local Development Plan.

This assessment will evaluate the risk of flooding from all sources to the proposed development at Land to the East of Caldicot/North of Portskewett, the proposed development site, as well as the appropriateness of development at the site in accordance with Welsh Government policy, as outlined in Technical Advice Note 15 (TAN-15). Furthermore, recommendations will be provided, where appropriate, to mitigate the risk of flooding at the proposed development site, as well as recommendations for further works.

2 Site Description

2.1 Site Overview

The 64 ha site is located south of the M48, to the east of Caldicot and to the north of Portskewett, Monmouthshire. The site can be split into two main parcels of land: 'west of Crick Road' and 'east of Crick Road'. A disused railway line bisects the 'west of Crick Road' area. The two land parcels, whilst forming the one site for assessment, are currently under different land ownership.

The 'east of Crick Road' area is greenfield and surrounded by agricultural land in all directions. The southwestern boundary is bound by Crick Road.

The 'west of Crick Road' area is a mixture of Previously Developed Land (PDL) and greenfield land. East of the disused railway which bisects the area is predominantly comprised of equestrian stables, eventing arenas and associated carparking and storage space, whilst the land to the west of the disused railway is greenfield land. The land parcel is predominantly located in an agricultural setting, with existing residential areas of Caldicot and Portskewett to the west and south, respectively.

Access to both land parcels is proposed via Crick Road.

The key characteristics of the site are summarised in Table 2-1, and the location and site boundary are shown in Figure 2-1, below.

Table 2-1 Site Summary

Site Name	Land to the East of Caldicot/North of Portskewett
Site ID	HA2 and EA1m
Site area	64 ha
Existing land use	Greenfield and Equestrian Centre.
Purpose of development	Residential-led, mixed use development
OS NGR	ST 49005 89086
Access location	Access via Crick Road

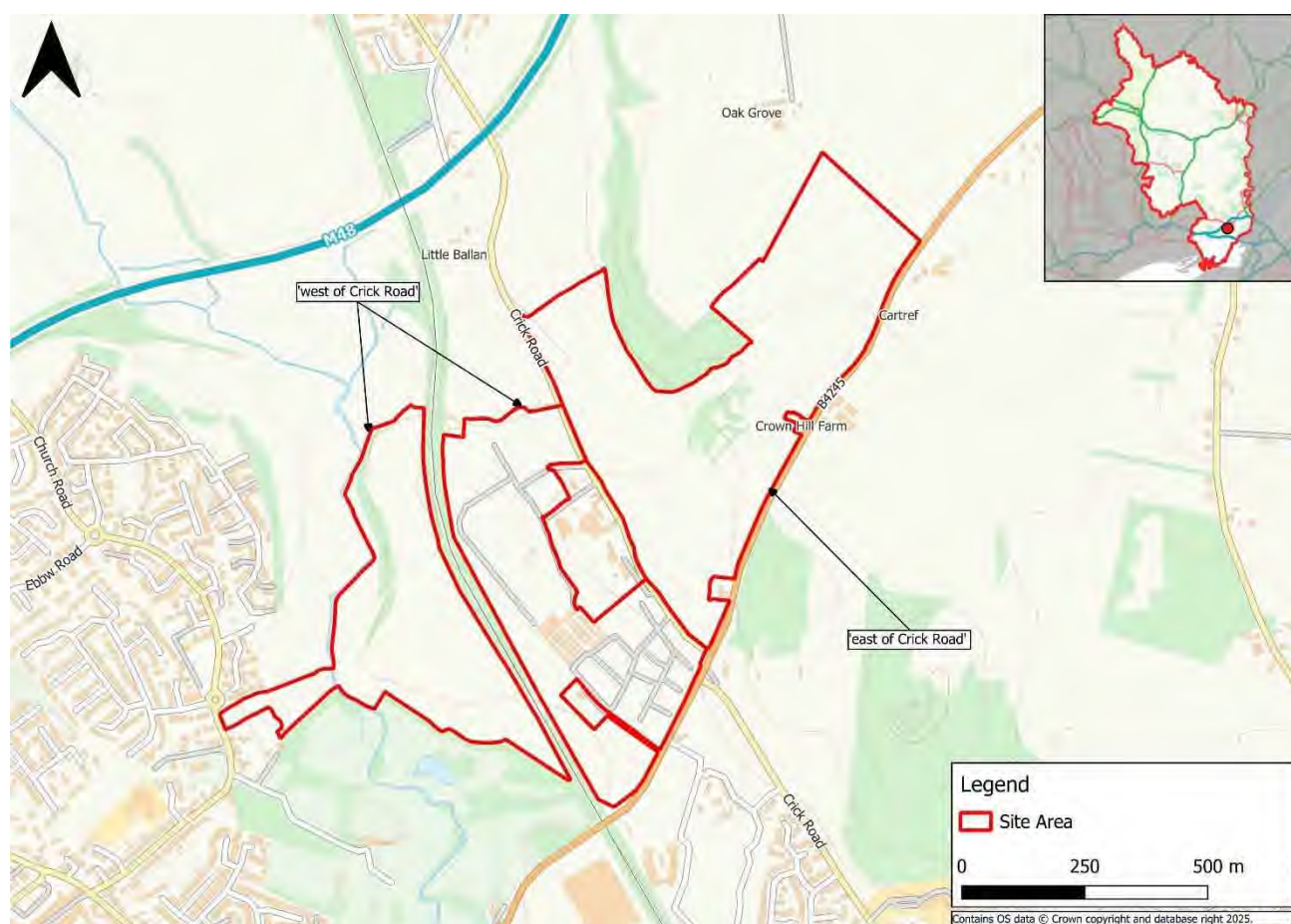


Figure 2-1 Proposed development site

2.2 Development proposals

The proposed development at this site is for a residential-led, mixed use development, comprising a primary school, neighbourhood centre and employment class use B1. The land located to the west of the disused railway line is proposed for strategic public open space provision.

2.3 Watercourses and Flood Defences

Figure 2-2 shows the locations of the nearest NRW Main Rivers and ordinary watercourses.

The Nedern Brook, an NRW designated Main River, transgresses the 'west of Crick Road' land parcel, west of the disused railway. The River Nedern runs in a north to south direction towards its outfall into the Severn Estuary, south of the M4. There are no NRW fluvial defences located along the Nedern Brook, close to the proposed development site.

There are no ordinary or small watercourses that cross the proposed development site. However, a small unnamed watercourse is located to the west of Crick Road, flowing in a northerly direction prior to turning west. This watercourse is located towards the northern boundary of the 'west of Crick Road' land parcel.

The site is located approximately 1.6km north of the Severn Estuary and the South Wales coastline, as shown in Figure 2-3. NRW coastal flood defences are located along the coastline, providing flood protection to the Caldicot levels. Defences are in the form of earth embankments. However, the site does not benefit from the presence of these defences.

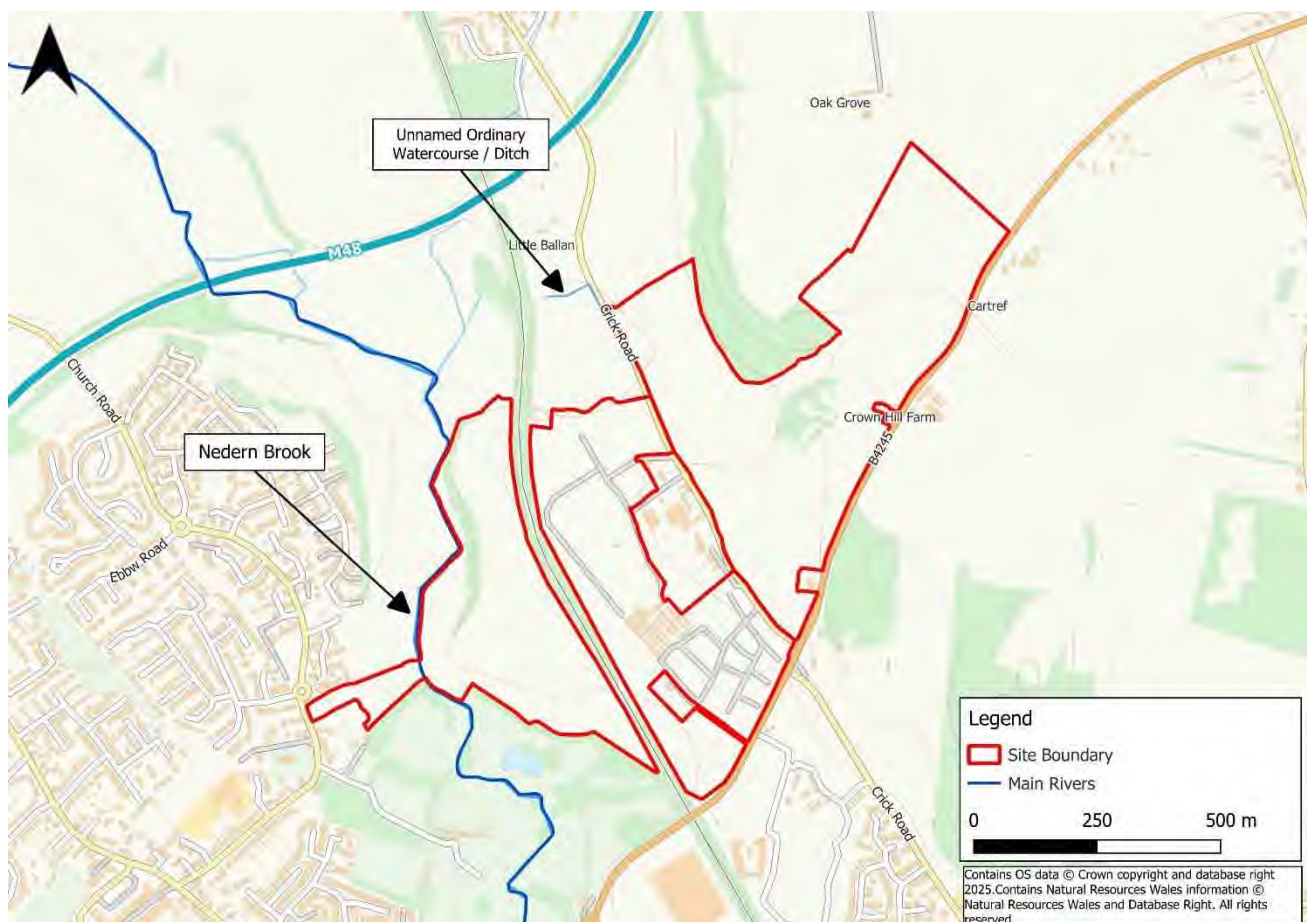


Figure 2-2 Watercourses



Figure 2-3 Watercourses and Flood Defences, Extended View

2.4 Topography

The Natural Resources Wales (NRW) Open Source 1m Light Detection and Ranging (LiDAR) data¹ across the site has been reviewed and is shown in Figure 2-4.

Levels across the 'east of Crick Road' area generally fall in a northeast to south-westerly direction, with level in the far north - eastern corner at 47.7mAOD, and levels at the north western boundary of this land parcel, close to Crick Road, being 8.24mAOD.

Levels across the 'west of Crick Road' area have the same general fall direction, with the disused railway forming a noticeable embankment bisecting the area. The lowest identified ground level is 7.76mAOD located in the far south/southeast of the land parcel, east of the disused railway. The area to the west of the disused railway falls towards the Nedern Brook in the same northeast to south westerly direction, with the lowest elevation adjacent to the Nedern brook at 5.66mAOD.

Within the southern extent of land 'west of Crick Road' there is a natural topographic depression. This depression is bounded by the disused railway embankment to the west and the B4245 to the east. As the ground levels around this area are higher, there is a

¹ LLE Geoportal for Wales: <http://lle.gov.wales/catalogue/item/LidarCompositeDataset/?lang=en>

potential for flows to be become trapped and pond in this area. This could increase the duration and frequency of any flooding to this area.

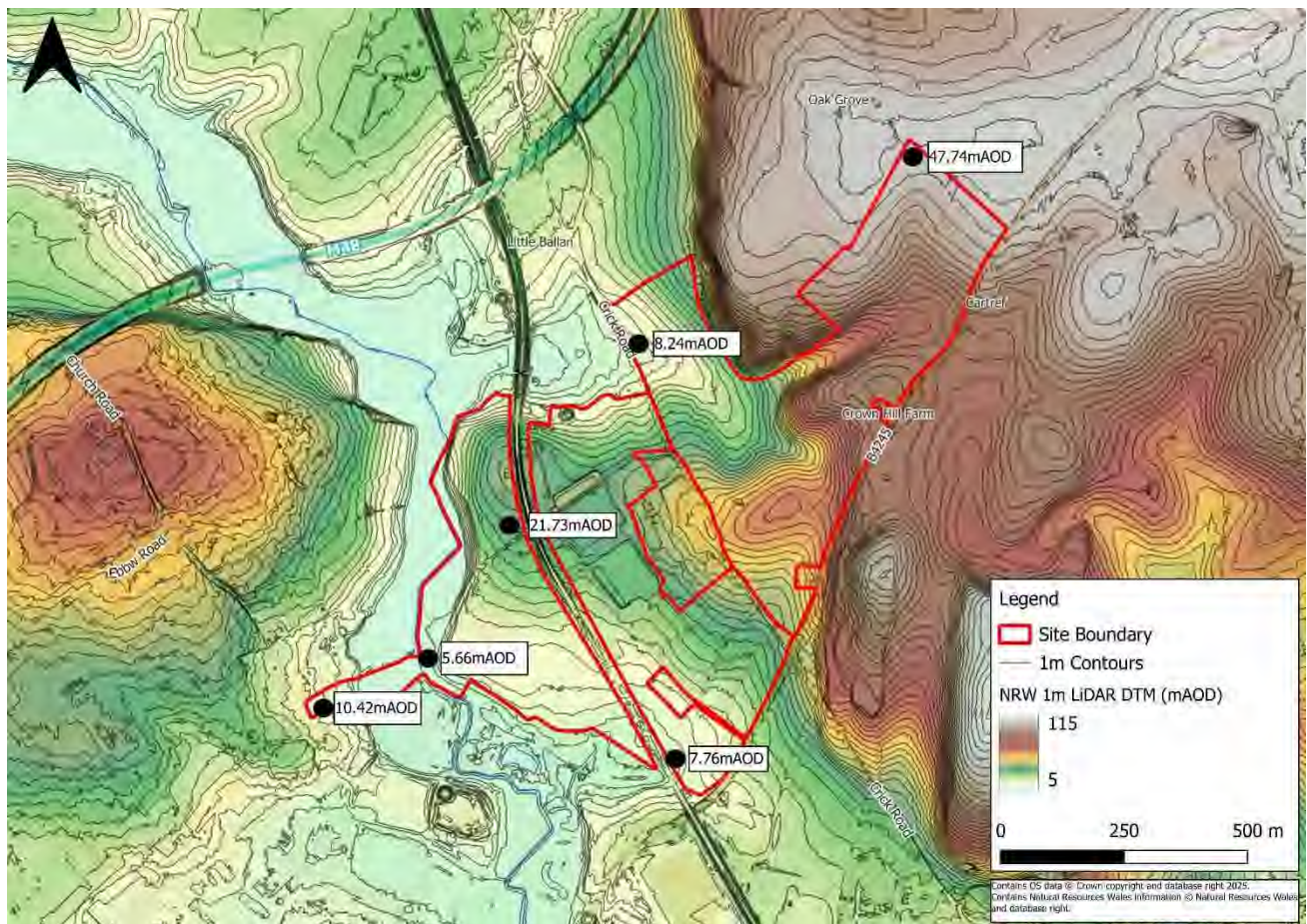


Figure 2-4 1m LiDAR

3 Planning Policy and Flood Risk

TAN-15 provides a framework within which flood risks arising from rivers, the sea, and surface water, as well as the risk of coastal erosion, can be assessed. TAN-15 adopts a risk-based approach, which emphasises the ability to avoid or minimise risk depending on the type of development proposed.

The following table identifies the form of development, vulnerability classification and Flood Map for Planning classification (as defined in TAN-15) for the proposed development site.

Table 3-1 TAN-15 Development classification summary

TAN-15 Classification	Highly Vulnerable
Development Proposal	Residential, Primary School, Neighbourhood Centre, B1 Use Class Employment uses, Public Open Space
Form of Development	New Development / Redevelopment
Vulnerability Classification	Highly Vulnerable Development, Less Vulnerable and Water Compatible
Flood Map for Planning- Rivers	Predominantly located within Flood Zone 1, with some areas of Flood Zones 2 and 3 - See Figure 3-1
Flood Map for Planning- Sea	Predominantly located within Flood Zone 1, with some areas of Flood Zones 2 and 3 - See Figure 3-2
Flood Map for Planning- Surface Water and Small Watercourses	Predominantly located within Flood Zone 1, with some areas of Flood Zones 2 and 3 - See Figure 3-3

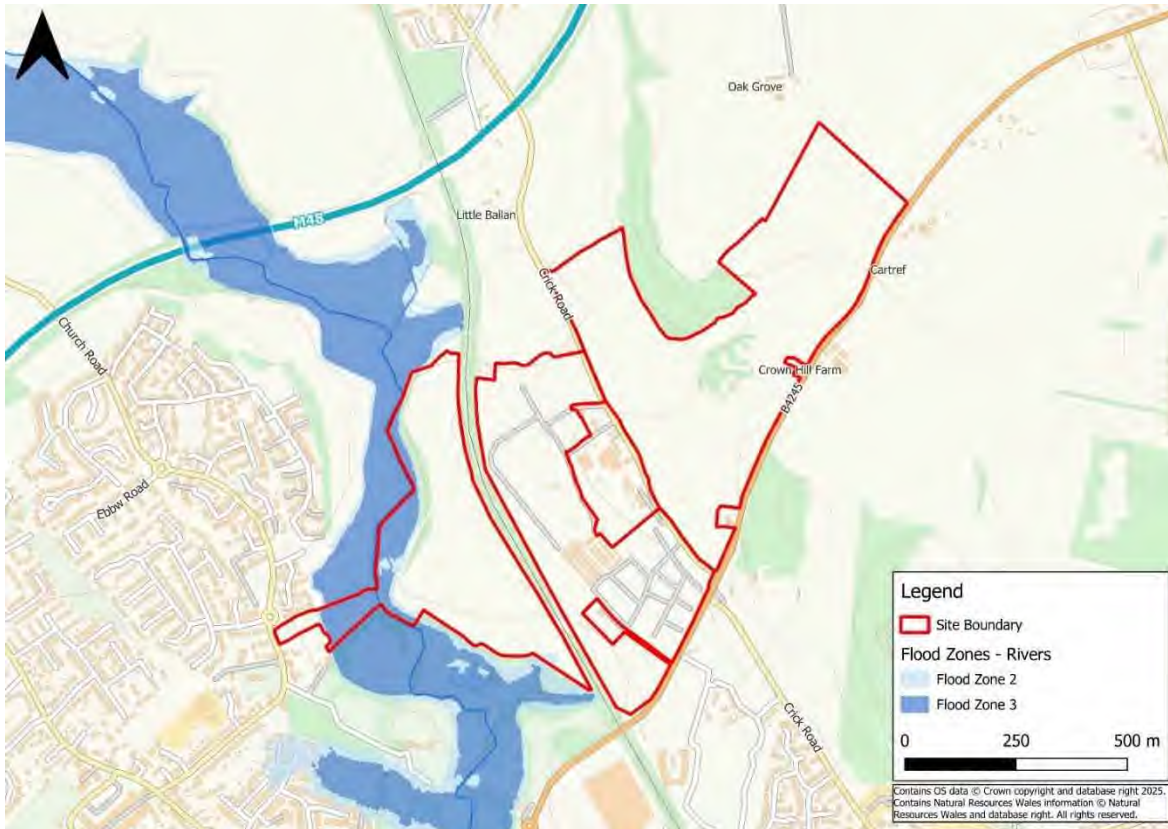


Figure 3-1 Flood Map for Planning- Flood Risk from Rivers

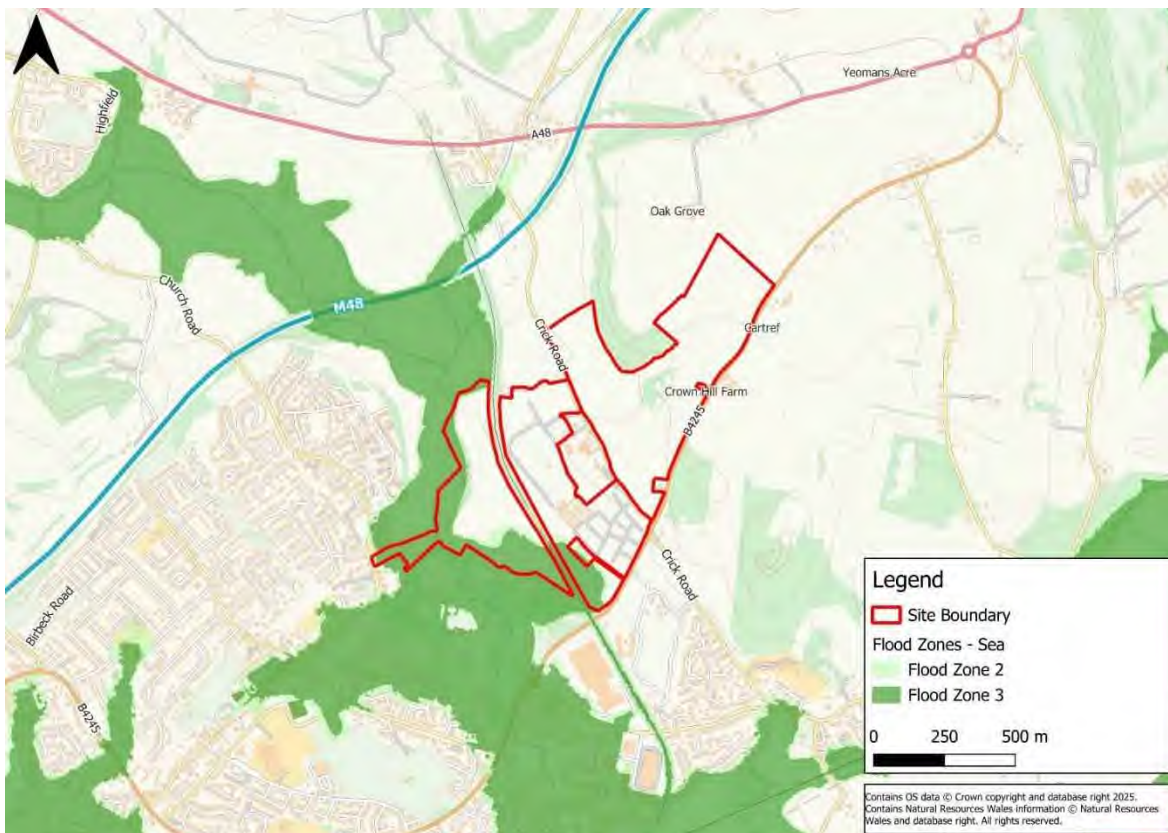


Figure 3-2 Flood Map for Planning - Flood Risk from the Sea

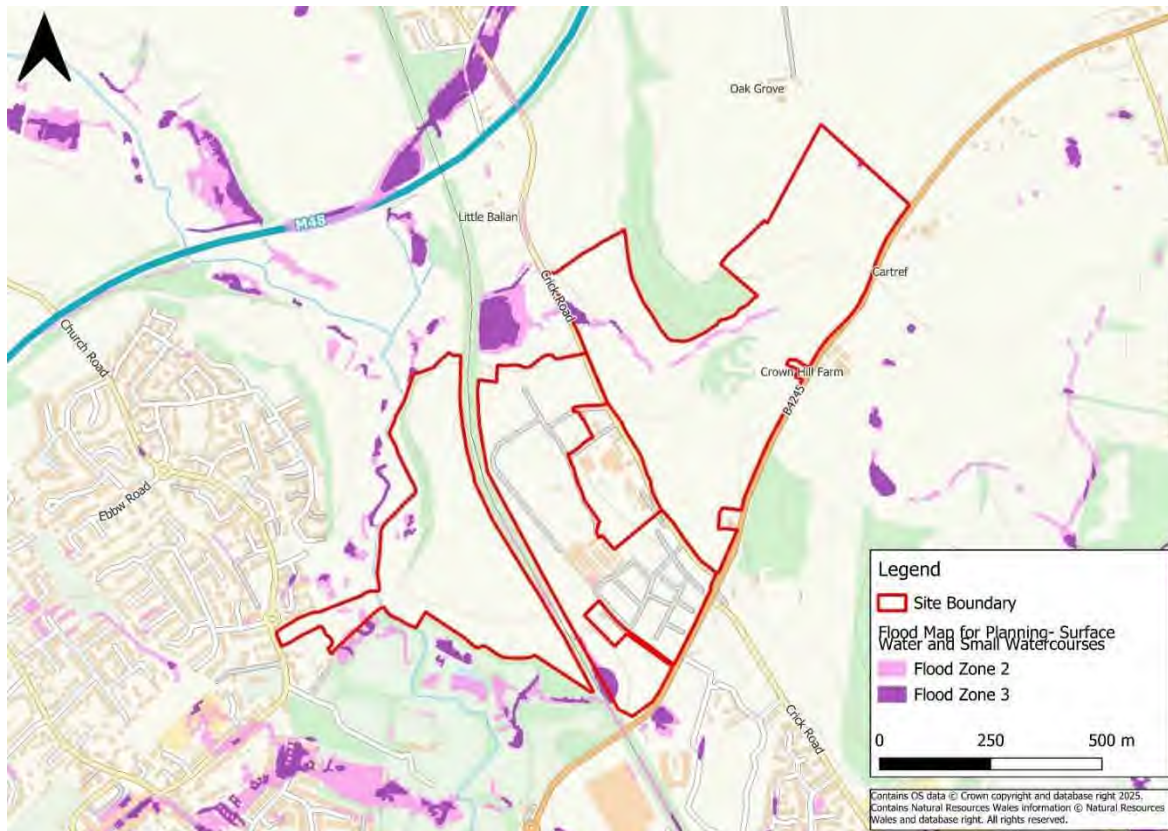


Figure 3-3 Flood Map for Planning - Flood Risk from Surface Water and Small Watercourses

4 Assessment of Flood Risk

The latest available information on flood risk at the site, published by Natural Resources Wales (NRW) and datasets used in the SFCA is summarised in Table 4-1 below.

Table 4-1 Summary of flood risk

Source of Flooding	Onsite Presence	Description
Flood Risk from Rivers	✓	The site is predominantly located within Flood Zone 1, with some areas of Flood Zones 2 and 3 indicating a high - very low risk of fluvial flooding. Further assessment is carried out in Section 4.1.1
Flood Risk from the Sea	✓	The site is predominantly located within Flood Zone 1, with some areas within Flood Zones 2 and 3 indicating a high - very low risk of tidal flooding. Further assessment is carried out in Section 4.1.2
Flood Risk from Surface Water and Small Watercourses	✓	The site is predominantly located within Flood Zone 1, with isolated areas of Flood Zones 2 and 3, indicating a Very Low to Moderate risk of surface water flooding. Further assessment is carried out in Section 4.1.3
Flood Risk from Groundwater	✓	The South East Wales Stage 1 SFCA includes JBAs Groundwater Risk of Emergence map as part of the assessment. This data set indicated areas of the site to be at ' high ' risk of groundwater emergence.
Flood Risk from Reservoirs	✗	The NRW FMfP shows that the site is located in an area at risk of reservoir flooding. However, it is worth noting that reservoir flooding is extremely unlikely to occur, as all large reservoirs must be inspected and supervised by reservoir panel engineers under the Reservoirs Act 1975. In Wales, NRW ensure that reservoirs are inspected regularly, and essential safety work is carried out. Therefore, the risk of flooding from reservoir failure has been assessed to be low .

Source of Flooding	Onsite Presence	Description
Flood Risk from Sewers	✖	The South East Wales Stage 1 SFCA has not identified any historic flood incidents within Caldicot. However, a Section 19 flood investigation report produced following Storm Dennis in February 2020 provided some details of surface water sewer surcharging in Castle Lea, approximately 500m to the south-west of the site. There are no known public sewerage assets crossing the proposed development site. Therefore, it is concluded that the risk of flooding is low. Any future drainage strategy should ensure that surface water generated on site is adequately managed to mitigate the impact to both the proposed development, and third parties.

4.1.1 Flood Risk from Rivers

Natural Resources Wales' Flood Map for Planning shows that the site, including its access and egress route, is predominantly located within Flood Zone 1.

An area of the site west of the disused railway, within the 'west of Crick Road' area, is partially located within Flood Zone 3.

No detailed fluvial hydraulic model of the Nedern Brook is available to inform this assessment. To better understand the risk of fluvial flooding to the site the NRW National Flood Hazard Mapping (NFHM) dataset has been consulted. This dataset contains predicted flood extents, depths and velocities for both the present day and climate change scenarios and has been used to identify the predicted flood extents and depths for both the 1% AEP plus climate change and 0.1% AEP plus climate change flood events at the proposed development site.

During the 1% AEP event plus climate change, as shown in Figure 4-1, the Nedern Brook is predicted to flood. The predicted flood extent encroaches into the site along its western boundary, within the area west of the disused railway. Predicted flood depths are typically between 0.6-0.8m across the impacted area, with a maximum depth of 1.07m identified.

During the 0.1% AEP event plus climate change, the flood extent closely matches that of the 1% AEP plus climate change event, as shown in Figure 4-2. Flood depths across the impacted area are typically between 1.6-1.8m, with a maximum depth of 2m identified.

Areas within the predicted flood extent are proposed for Public Open Space, with all built form development located within areas of Flood Zone 1.

There is a known flood history associated with the Nedern Brook and the hydraulic locking of surface water systems impacting residential properties downstream of the proposed development site. Consequently, the watercourse is considered to be sensitive to any changes in flow regime. Any such works which impact flow and capacity of the watercourse shall need to be evidenced by full hydraulic calculations to demonstrate that proposals shall not have an impact on third parties.

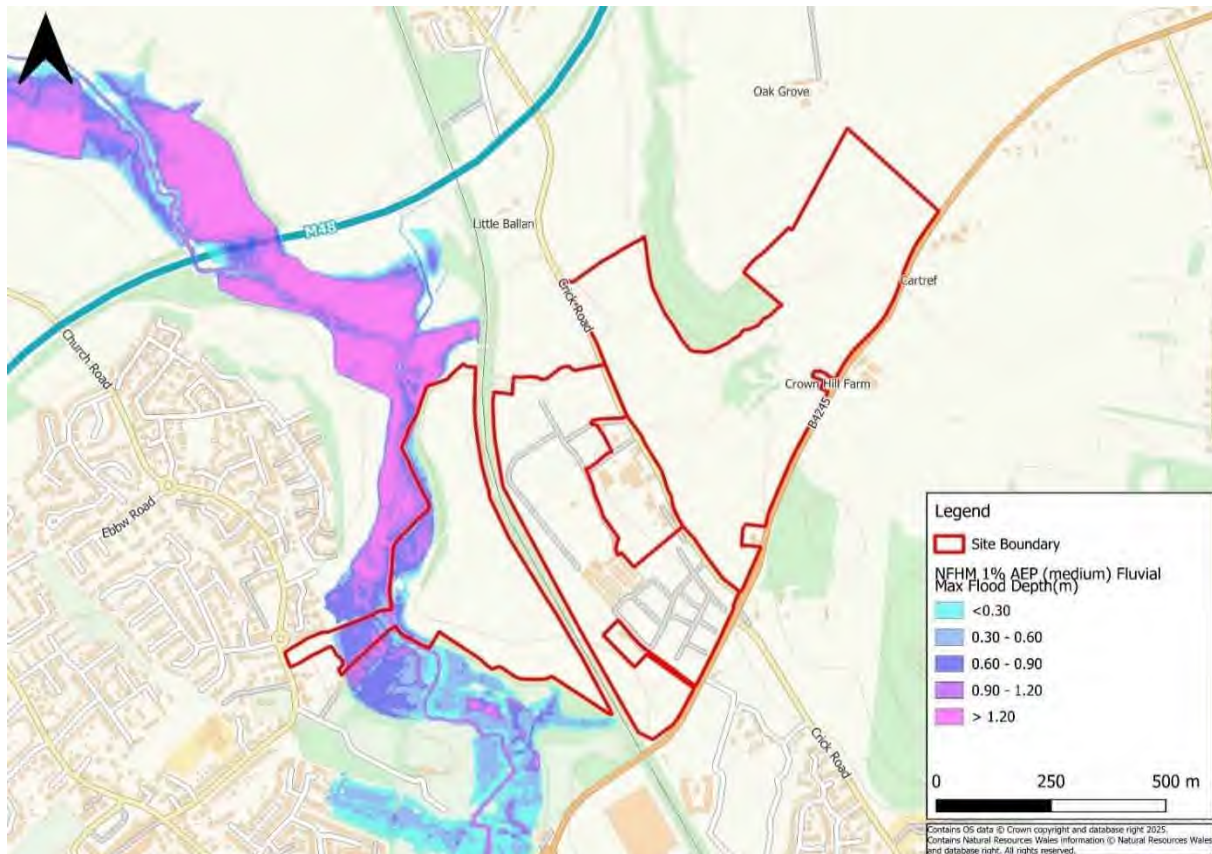


Figure 4-1 Flood Risk from Rivers - 1% AEP + Climate Change - Flood depths

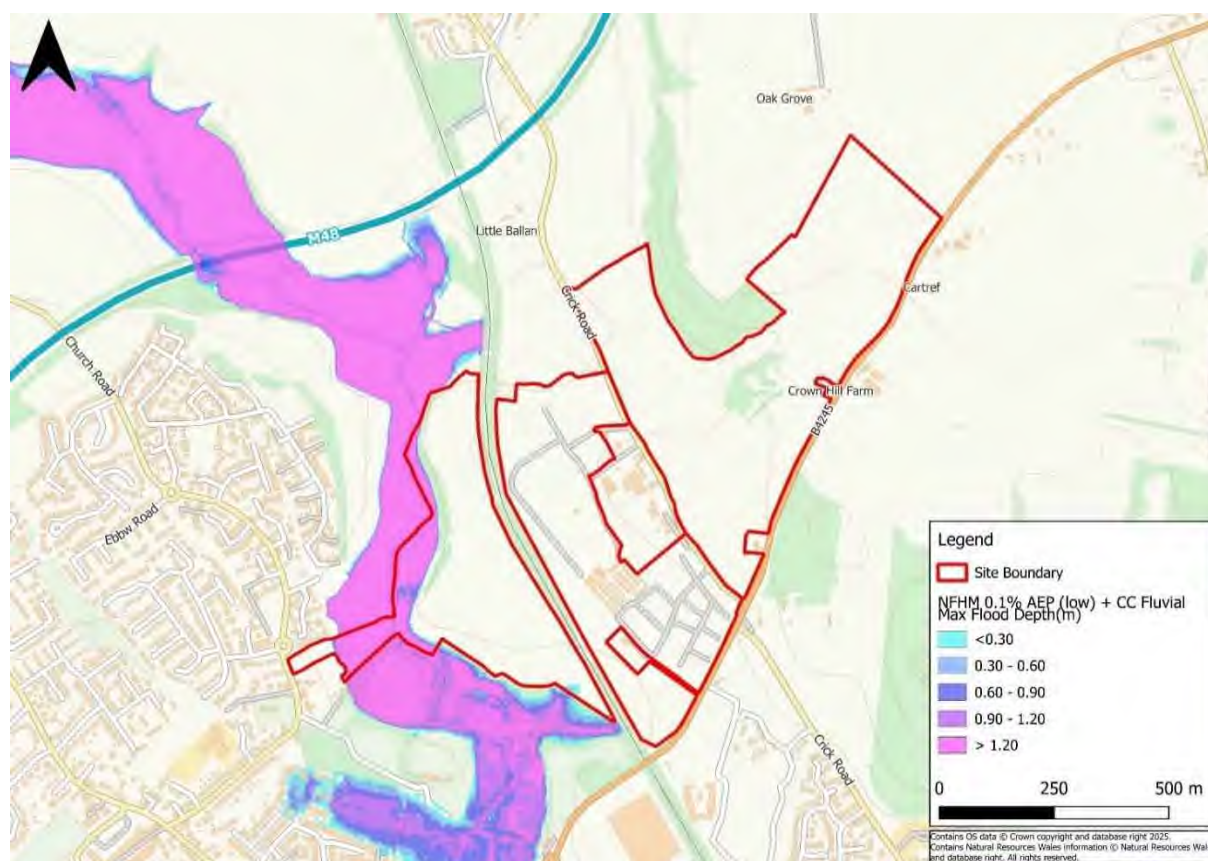


Figure 4-2 Flood Risk from Rivers - 0.1% AEP + Climate Change - Flood depths

4.1.2 Flood Risk from the Sea

Natural Resources Wales' Flood Map for Planning shows that the site, including its access and egress route, is predominantly located within Flood Zone 1.

West of the disused railway, within the 'west of Crick Road' area, is partially located within Flood Zone 3. Flood Zone 3 also encroaches into the southern extent of the 'west of Crick Road' area, east of the disused railway.

No detailed tidal flood model is available for use in this study. Consequently, to better understand the risk coastal flooding at the site and the potential implications of climate change, the NRW National Flood Hazard Mapping (NFHM) dataset has been used to provide a further assessment of flooding. It should be noted that this dataset presents the undefended scenario and therefore does not include the NRW defences located along the Severn Estuary. However, it is also noted that the proposed development site is not shown to benefit from these defences.

The NFHM dataset includes an allowance for climate change over a period of 100 years. All areas of residential development are considered to have a lifetime of development of 100 years. Areas proposed for other land uses may be considered to have a lifetime of development of 75 years. The NFHM dataset is therefore likely to overestimate flood risk to these areas of the site.

During the 0.5% AEP event, with an allowance for climate change, the site is predominantly flood free. The predicted flood extent is predominantly retained within areas of proposed public open space, west of the disused railway within the 'west of Crick Road' area, as shown in Figure 4-3. The flood extent also encroaches into the 'west of Crick Road' area, east of disused railway, in its southern extent. Flood depths typically exceeded 4m in this event with the maximum predicted flood depth identified at 5m. East of the disused railway, flood depths are less, with a maximum predicted flood depth of 2m.

During the 0.1% AEP event, with an allowance for climate change, the flood extent largely matches that of the 0.5% AEP plus climate change event, though there is some increase in extent identified west of the disused railway, as shown in Figure 4-4. West of the disused railway, flood depths are typically in excess of 4.5m, with the greatest depth of 5.5m found to the southwest of the site. East of the disused railway, a maximum flood depth of 2.5m is identified.

Areas within the predicted flood extent are proposed for areas of Public Open Space, with all built form development located within areas of Flood Zone 1.

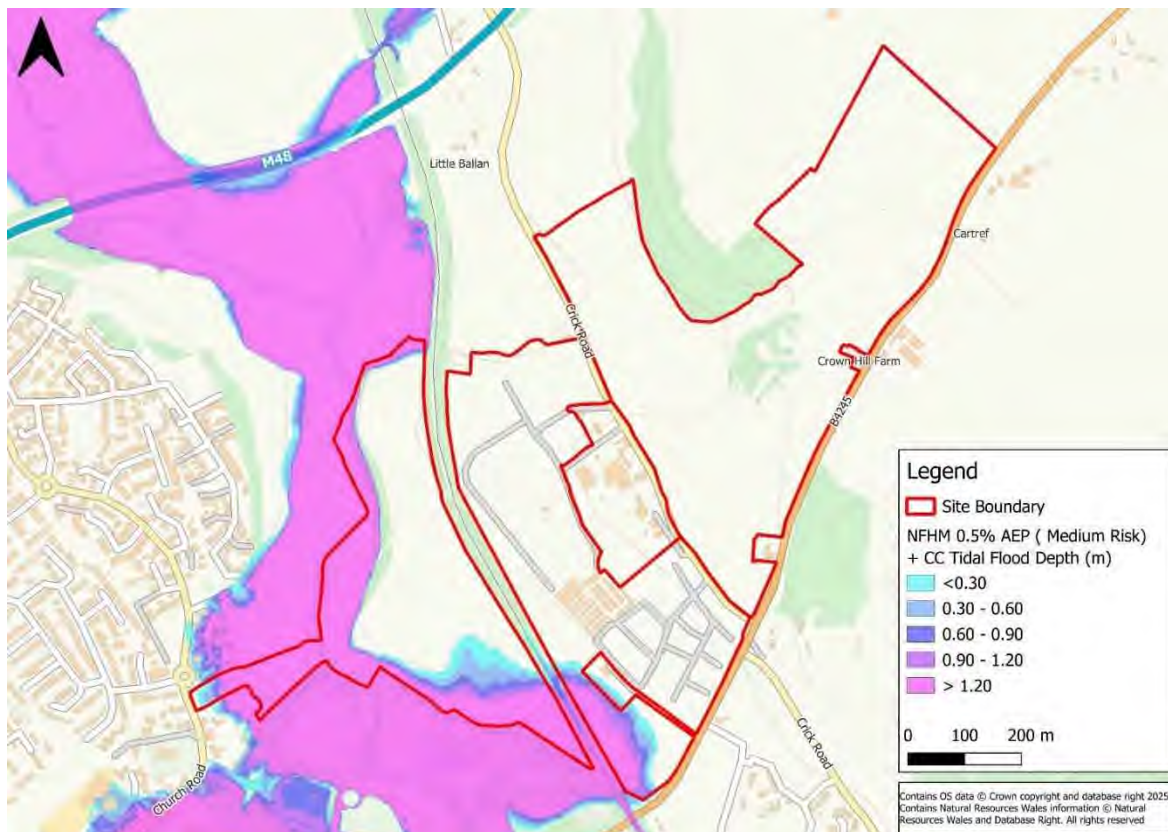


Figure 4-3 Flood Risk from Sea - 1% AEP + Climate Change - Flood depths

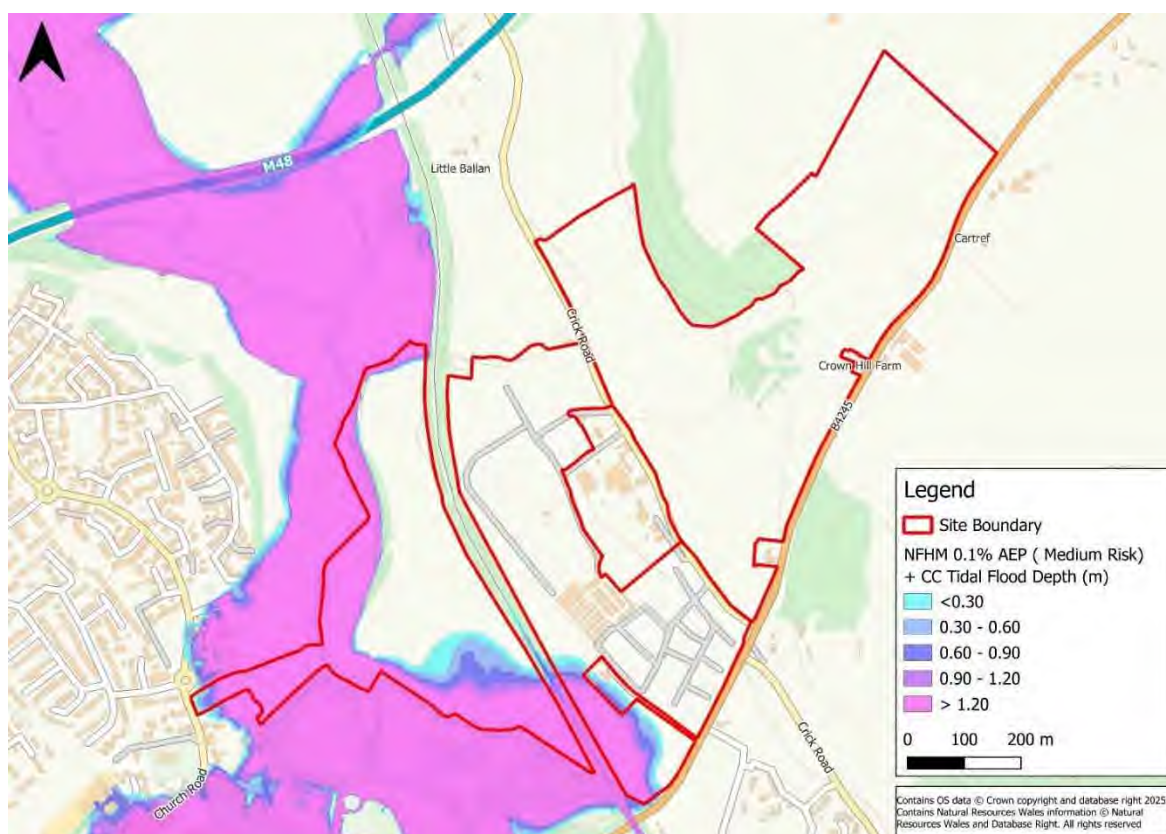


Figure 4-4 Flood Risk from Sea - 0.1% AEP + Climate Change - Flood depths

4.1.3 Flood Risk from Surface Water and Small Watercourses

Surface water flooding occurs when rain falling on saturated ground flows overland, following the local topography. Surface water flooding and subsequent overland flow can therefore pose a risk to both the development site and the surrounding land. The overland flow may originate from the site itself or adjoining land at a higher elevation, from which the flow migrates onto the development.

The Flood Map for Planning - Surface Water and Small Watercourses indicates a small number of localised areas across the site which are predicted to flood as a result of ponding in areas of topographic depressions. In the 'east of Crick Road' area, an overland flow path is identified. The flow path appears to be a channelised flow path when cross referenced with the LiDAR, with no obvious channel or ditch present across the site. The flow path runs in a north-westerly direction within the northern extent of the land parcel. Currently, there is no known drainage system across the site to manage surface water, and it is unknown as to how the former equestrian centre drains.

The NRW NFHM dataset has been used to provide a further assessment of surface water flood risk. During the 1% AEP plus climate change event, flood depths of up to 450mm are identified along the boundary with Crick Road in the 'east of Crick Road' area, as shown in Figure 4-5. This ponding is associated with a topographic depression, where surface water is unable to flow in a westerly direction towards the Nedern Brook due to local ground levels being lower than the highway, trapping surface water flows on site. In the 'west of Crick

Road' area, an area of ponding is observed east of the disused railway, where surface water ponds against the raised embankment forming the railway. The maximum flood depth observed at this location is approximately 1.2m. West of the disused railway, a small, isolated area of ponding is predicted, with a maximum depth of 270mm. This area is associated with a localised topographic depression.

In the 0.1% AEP plus climate change event, in the 'east of Crick Road' area, the previously identified surface water flow path is observed, as shown in Figure 4-6. Depths within the flow path are shallow, and generally do not exceed 100mm, though there are some small exceedances of this. At the western boundary of this land parcel, adjacent to Crick Road, flood depths of up to 520mm are predicted. Within the 'west of Crick Road' area, flood depths of up to 1300mm are predicted east of the disused railway. West of the disused railway predicted flood depths remain shallow and generally do not exceed 275mm. Flood mechanisms are as per those observed in the 1% AEP plus climate change event.

It is envisaged that this source of flooding shall be easily managed by the use of SuDS techniques associated with a comprehensive surface water drainage strategy for the site. However, the ultimate discharge location of any surface water strategy for the sites needs to be considered carefully, with consideration given to the impact of the sites surface water regime on third parties. Whilst the site flows in a general westerly direction, limited surface water flows currently reach the Nedern Brook due to a lack of existing drainage infrastructure to convey flows, resulting in ponding upstream of barriers such as the disused railway and Crick Road. Should the drainage strategy for the site propose to discharge surface water to the Nedern Brook, hydraulic calculations shall be required to demonstrate the change in surface water regime and possible increase in flow to the Nedern Brook does not negatively impact third parties in terms of flood risk.

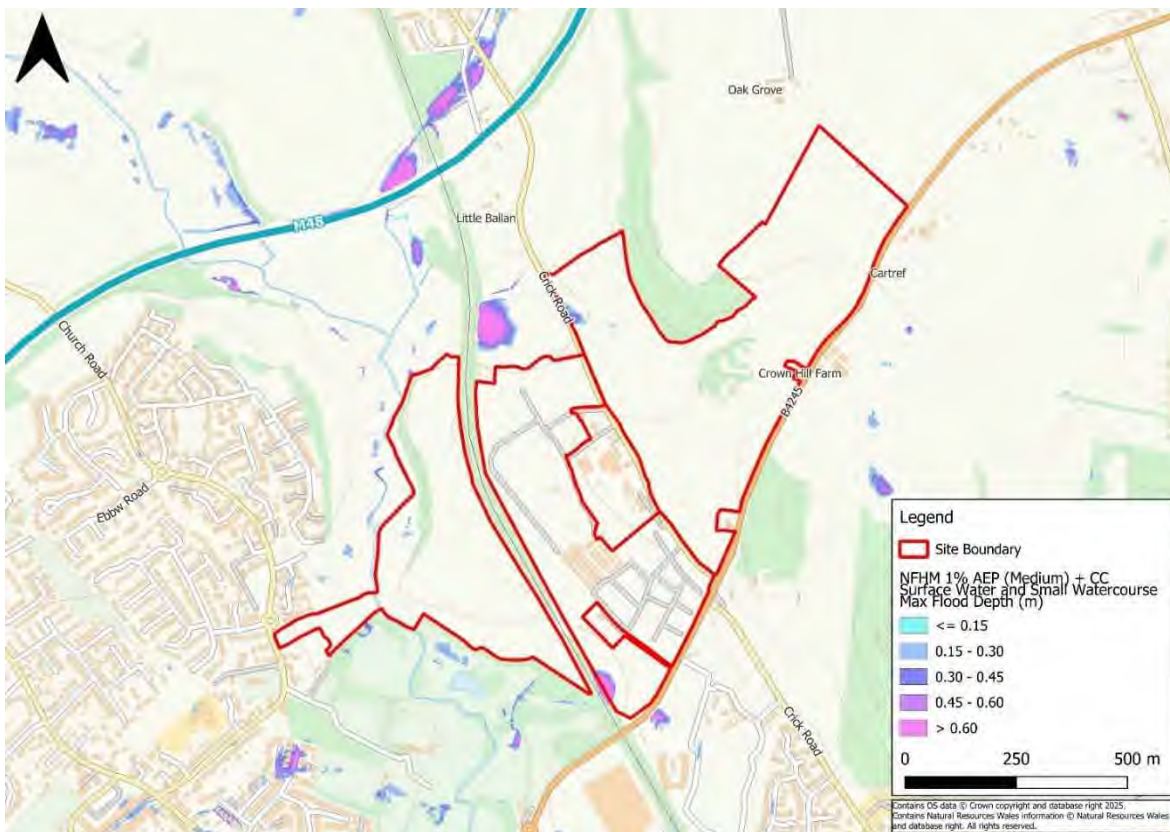


Figure 4-5 - 1% AEP + Climate Change - Flood depths

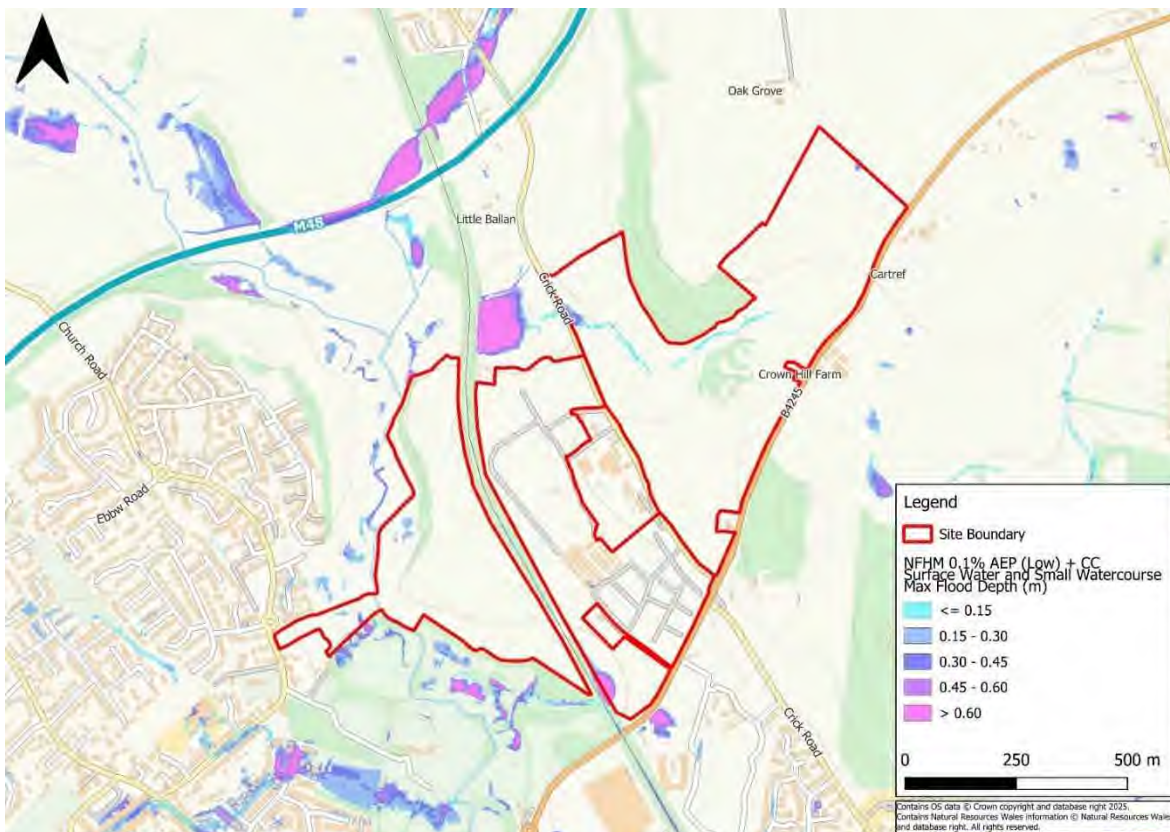


Figure 4-6 0.1% AEP + Climate Change - Flood depths

4.1.4 Flood Risk from Groundwater

Groundwater flooding is caused by unusually high groundwater levels. It occurs as excess water emerges at the ground surface or within manmade structures such as basements. Groundwater flooding tends to be more persistent than surface water flooding, in some cases lasting for weeks or months, and can result in damage to property. This risk of groundwater flooding depends on the nature of the geological strata underlying the site and the local topography.

The British Geological Survey (BGS) Geoindex² shows that areas of the Site have high vulnerability to groundwater flooding based on the underlying geology and superficial deposits. The BGS data indicates that the site is underlain by the Mercia Mudstone Group with mudstone and sandstone. Mudstone tends to have low porosity and permeability, whilst sandstone is regarded as more permeable and allows for the storage and movement of groundwater. As a result, upward percolation of groundwater and subsequent flooding should be considered.

The JBA Groundwater Risk of Emergence Map contained within the South East Wales Stage 1 SFCA shows that the site has areas that are at high risk of groundwater flooding, with levels either at or very near (within 0.025m of) the ground surface. There are also areas shown to indicate that groundwater levels are between 0.025m and 0.5m. It can therefore be concluded that the risk of groundwater flooding at the Site is moderate.

It is recommended that any site-specific assessment consider the potential for groundwater emergence across the site. This assessment should be informed by a programme of groundwater monitoring, ideally conducted over a 12-month period to capture seasonal variations, as well as detailed site-specific ground investigations. It is also advised that the development proposals do not include groundwater-sensitive elements, such as the construction of basements.

² The British Geological Survey (BGS) Geoindex [GeoIndex \(onshore\) - British Geological Survey](#)

5 Application of Flood Zones to Development Management Decisions

5.1 Flood Risk from Rivers and the Sea

The proposed development is located on both greenfield land and previously developed land and comprises of a mix of highly vulnerable, less vulnerable and water compatible development.

The site is predominantly located within Flood Zone 1 of the Flood Map for Planning for Rivers and the Sea. All forms of development are acceptable in principle within Flood Zone 1.

West of the disused railway, in the 'west of Crick Road' area, Flood Zones 2 and 3 are present. A small area east of the disused railway, to the southern extent of this land parcel is also located within these flood zones. This triggers the requirement for an FCA.

It is recommended that a sequential approach to masterplanning is adopted, locating all built development within Flood Zone 1, and water compatible uses such as open space located within the flood zones. It is understood that current proposals for the site follow this recommended approach. This sequential approach to development is supported within Section 15.5 of TAN-15:

"Where a site falls into two or more flood zones the planning authority must make an assessment of the proposal, taking into account each of its proposed land uses, against each of the flood zones to which it applies, in accordance with the criteria requirements of this TAN".

Areas of the proposed development site comprising 'less vulnerable' development are permissible within Flood Zone 2 where it is considered essential to support the aims and objectives of the Local Development Plan. Areas within Flood Zone 3 are considered suitable for water compatible uses, including areas of open space. SuDS should not be located within Flood Zones 2 and 3.

Proposals in both Flood Zones 2 and 3 must also be consistent with the acceptability considerations as outlined in Section 11 of TAN-15.

Access and egress will be possible during all design events via Crick Road, which is predicted to be flood free in all design events.

It is recognised that the Welsh Government notification direction requires applications for Highly Vulnerable Development where the whole or part of the site is within Flood Zone 3 on a Greenfield site to be referred to the Welsh Ministers. Any development proposals for this site which include residential use are therefore likely to be required to be notified to Welsh Government. However, it is understood that should development proposals take a sequential approach to site master planning to manage flood risk in line with the

requirements and principles set out within TAN-15, Ministers are unlikely to refuse such an application.

5.2 Flood Risk from Surface Water and Small Watercourses

It is understood that Sections 10 and 11 of TAN-15 do not strictly apply to the surface water and small watercourse zone, which is present at the proposed development site. However, the principles of the TAN should be considered, if not strictly applied.

When a site is developed in areas at risk or near a risk, it will potentially change the expected flow of water during a flood. It is important that planning authorities are provided with a clear assessment of how a development will affect surface water risks, and these sources can be managed or mitigated. These measures must not increase the flood risk elsewhere. Any planning application associated with the proposed development should be accompanied by hydraulic calculations should the proposed discharge location for the proposed surface water drainage strategy discharge flows to the Nedern Brook. Given barriers within the catchment obstructing flow to the watercourse, concentrated discharge to the waterbody may result in an increase in flood risk. Consequently, an FCA shall be required to demonstrate how the proposed development shall not impact flood risk to third parties.

Generally, surface water flood risk across the site is as a result of a localised depressions in ground levels and natural flow paths. Consequently, a comprehensive drainage strategy incorporating SuDS techniques should be implemented to manage surface water flood risk on site. It is recommended that existing flow paths are retained onsite and, where possible, enhanced through the use of Blue Green Infrastructure. Any change to the existing flow path should be evidenced through supporting hydraulic calculations.

Areas within Flood Zones 2 and 3 are considered suitable for water compatible uses, including areas of open space. SuDS are generally not considered appropriate within areas of Flood Zones 2 and 3.

The proposed surface water drainage strategy should be evidenced through the provision of a Drainage Statement which demonstrates how surface water will be managed in accordance with the Statutory Standards for SuDS in Wales and meets the requirements of TAN-15.

6 Summary and recommendations

The site is located within Flood Zones 2 and 3 of the FMfP for all sources of risk, consequently triggering the requirement for an FCA to be undertaken. The extent and severity of flooding within the site are variable depending on location and the flooding mechanism.

It is recommended that a sequential approach to masterplanning is applied, with land in Flood Zone 3 proposed only for water compatible development, such as open space. All built development should be retained within Flood Zone 1 where possible, with any development within Flood Zone 2 afforded the appropriate flood-resilient design measures.

Surface water flood risk should be adequately managed through the use of SuDS techniques, with supporting hydraulic calculations should the strategy propose to change the existing surface water regime within the catchment.

It is therefore considered that this site is likely to satisfy the requirements of TAN-15, subject to the following recommendations:

- Any planning application should be accompanied by an FCA which demonstrates how the proposals meet the requirements of TAN-15. The FCA should be accompanied by detailed hydraulic modelling to assist in the assessment of the acceptability of consequences. The model should assess both fluvial and tidal-dominated events.
- A sequential approach to masterplanning should be adopted to locate built form development in Flood Zone 1, and water compatible development within areas of Flood Zone 3.
- Surface water flood risk should be adequately managed through the use of SuDS techniques. Should the proposed drainage strategy discharge surface to the Nedern Brook, a full hydraulic assessment shall be required demonstrating the impact of the change in surface water regime within the catchment and on flood risk to third parties, in the form of an FCA.
- Any planning application for the site should be accompanied by a Drainage Statement which demonstrates how SuDS are proposed to be integrated into the scheme in line with the Statutory Standards for SuDS in Wales and TAN-15.
- The risk of groundwater emergence on the Site should be managed by a programme of groundwater monitoring, ideally conducted over a 12-month period to capture seasonal variations, as well as detailed site-specific ground investigations.

Our Offices

Bristol
Coleshill
Cork
Doncaster
Dublin
Edinburgh
Exeter
Glasgow
Haywards Heath
Leeds
Limerick

Newcastle
Newport
Peterborough
Portsmouth
Saltaire
Skipton
Tadcaster
Thirsk
Wallingford
Warrington



Registered Office

1 Broughton Park
Old Lane North
Broughton
SKIPTON
North Yorkshire
BD23 3FD
United Kingdom

+44(0) 1756 799919
info@jbaconsulting.com
www.jbaconsulting.com

Follow us on  

Jeremy Benn
Associates Limited
Registered in
England
3246693

JBA Group Ltd is
certified to
ISO 9001:2015
ISO 14001:2015
ISO 27001:2022
ISO 45001:2018





Monmouthshire Strategic Flood Consequences Assessment - Land at Leasbrook, Monmouth (HA4)

Final

Prepared for
Monmouthshire County
Council
County Hall
The Rhadyr
Usk
NP15 1GA

Date
October 2025

Document Status

Issue date	October 2025
Issued to	Monmouthshire County Council
BIM reference	QEW-JBA-XX-XX-RP-Z-0008-D3- C02_Land_at_Leasbrook_Monmouth_tracked
Revision	Final
Prepared by	Polly Stradling BSc (Hons) Assistant Analyst
Reviewed by	Peter Rook BSc MSc MCIWEM C.WEM FGS Project Manager
Authorised by	Peter Rook BSc MSc MCIWEM C.WEM FGS Project Manager

Carbon Footprint

The format of this report is optimised for reading digitally in pdf format. Paper consumption produces substantial carbon emissions and other environmental impacts through the extraction, production and transportation of paper. Printing also generates emissions and impacts from the manufacture of printers and inks and from the energy used to power a printer. Please consider the environment before printing.

Accessibility

JBA aims to align with [governmental guidelines on accessible documents](#) and [WGAG 2.2](#) AA standards, so that most people can read this document without having to employ special adaptation measures. This document is also optimised for use with assistive technology, such as screen reading software.

Contract

JBA Project Manager	Peter Rook
Address	35 Perrymount Road, Haywards Heath, West Sussex, RH16 3BW
JBA Project Code	2025s0977

This report describes work commissioned by Monmouthshire County Council by an instruction dated 8th August 2025. Polly Stradling of JBA Consulting carried out this work.

Purpose and Disclaimer

Jeremy Benn Associates Limited (“JBA”) has prepared this Report for the sole use of Monmouthshire County Council and its appointed agents in accordance with the Agreement under which our services were performed.

JBA has no liability for any use that is made of this Report except to Monmouthshire County Council for the purposes for which it was originally commissioned and prepared.

No other warranty, expressed or implied, is made as to the professional advice included in this Report or any other services provided by JBA. This Report cannot be relied upon by any other party without the prior and express written agreement of JBA.

JBA disclaims any undertaking or obligation to advise any person of any change in any matter affecting the Report, which may come or be brought to JBA’s attention after the date of the Report.

The methodology adopted and the sources of information used by JBA in providing its services are outlined in this Report. The work described in this Report was undertaken between August and October 2025 and is based on the conditions encountered and the information available during the said period. The scope of this Report and the services are accordingly factually limited by these circumstances.

The conclusions and recommendations contained in this Report are based upon information provided by others and upon the assumption that all relevant information has been provided by those parties from whom it has been requested and that such information is accurate. Information obtained by JBA has not been independently verified by JBA, unless otherwise stated in the Report.

Copyright

© Jeremy Benn Associates Limited 2025

Contents

1	Introduction	1
2	Site Description	1
2.1	Development proposals	2
2.2	Watercourses and Flood Defences	2
2.3	Topography	3
3	Planning Policy and Flood Risk	5
4	Assessment of Flood Risk	7
5	Application of Flood Zones to Development Management Decisions	12
5.1	Flood Risk from Rivers	12
5.2	Flood Risk from Surface Water	13
6	Summary and recommendations	14

List of Figures

Figure 2-1 Proposed development site	2
Figure 2-2 Watercourses and Defences	3
Figure 2-3 1m LiDAR	4
Figure 3-1 FMfP - Flood Risk from Rivers	6
Figure 3-2 Flood Map for Planning - Surface Water and Small Watercourses	6
Figure 4-1 Flood Risk from Rivers - 1% AEP + Climate Change Flood Depths	8
Figure 4-2 Flood Risk from Rivers - 0.1% AEP + Climate Change - Flood depths (m)	9
Figure 4-3 Flood Risk from Surface Water - 1% AEP + Climate Change - Flood depths	10
Figure 4-4 Flood Risk from Surface Water - 0.1% AEP + Climate Change - Flood depths	11

List of Tables

Table 2-1 Site Summary	1
Table 3-1 TAN-15 Development classification summary	5

Table 4-1 Summary of flood risk

7

1 Introduction

JBA Consulting has been commissioned by Monmouthshire County Council to prepare an independent Flood Risk Appraisal as part of a Stage 2 Strategic Flood Consequences Assessment (SFCA) for sites considered for allocation in its Replacement Local Development Plan.

This assessment will evaluate the risk of flooding from all sources to the Land at Leasbrook, Monmouth, the proposed development site, as well as the appropriateness of development at the site in accordance with Welsh Government policy, as outlined in Technical Advice Note 15 (TAN15). Furthermore, recommendations will be provided, where appropriate, to mitigate the risk of flooding at the proposed development site as well as recommendations for further works.

2 Site Description

The key characteristics of the site are summarised in Table 2-1 and the location and site boundary are shown in Figure 2-1 below.

Table 2-1 Site Summary

Site name	Land at Leasbrook, Monmouth
Site ID	HA4
Site area	11.02 ha
Existing land use	Greenfield land
Purpose of development	Residential development
OS NGR	SO 51638 12900
Access location	Access from Dixon Road, with emergency vehicular access onto the A466 Hereford Road



Figure 2-1 Proposed development site

2.1 Development proposals

The site is proposed for residential development. The site is greenfield land and development proposals are classified as a 'highly vulnerable' development. Primary access to the site is via Dixon Road, with emergency vehicular access via the A466 Hereford Road.

This appraisal is based on a high level assessment and has not been informed by any indicative site layouts.

2.2 Watercourses and Flood Defences

Figure 2-2 shows the locations of the nearest NRW Main Rivers and ordinary watercourses.

The River Wye, is located 300m southeast of the site, with the River Monnow located 500m west of the site. Both of these watercourses are NRW designated Main Rivers.

An ordinary watercourse, the Mally Brook, is located 700m east of the site. This watercourse flows in a south-easterly direction towards the River Wye.

Several unnamed ordinary watercourses are present, immediately south of the site. It is understood that there is a culvert located to the south-eastern corner of the site, conveying

flows south towards this network. The ordinary watercourse network, evidenced through LiDAR data, discharges to the River Wye.

NRW flood defences are present approximately 600m south-west of the proposed development site, in the form of an 8m flood gate, and 48m earth embankment. The southern extent of the proposed development site is shown to benefit from these defences. A small area to the south of the site benefits from Flood Defences for Rivers.

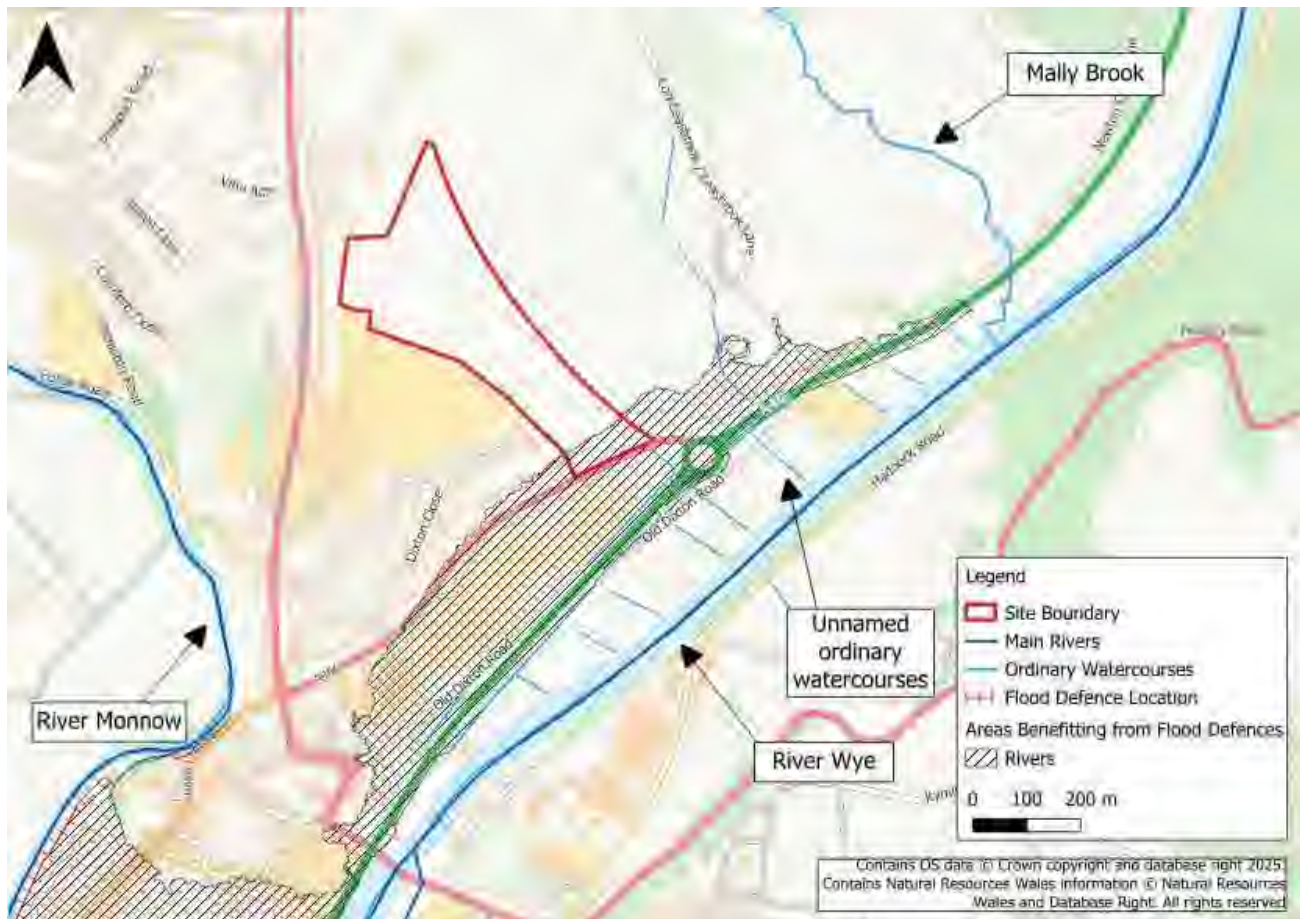


Figure 2-2 Watercourses and Defences

2.3 Topography

The Natural Resources Wales (NRW) Open Source 1m Light Detection and Ranging (LiDAR) data¹ across the site has been reviewed and is shown in Figure 2-3.

Levels across the site generally fall in a south easterly direction with levels in the northwestern corner the highest at 60.26 mAOD and falling to 18.21 mAOD at the southeastern edge of the site.

Externally, and along the southern edge of the site redline boundary, the levels rise slightly to a maximum of 19.4 mAOD in the southeastern corner. This results in areas external to the site being elevated.

¹ <https://datamap.gov.wales/maps/lidar-data-download/>

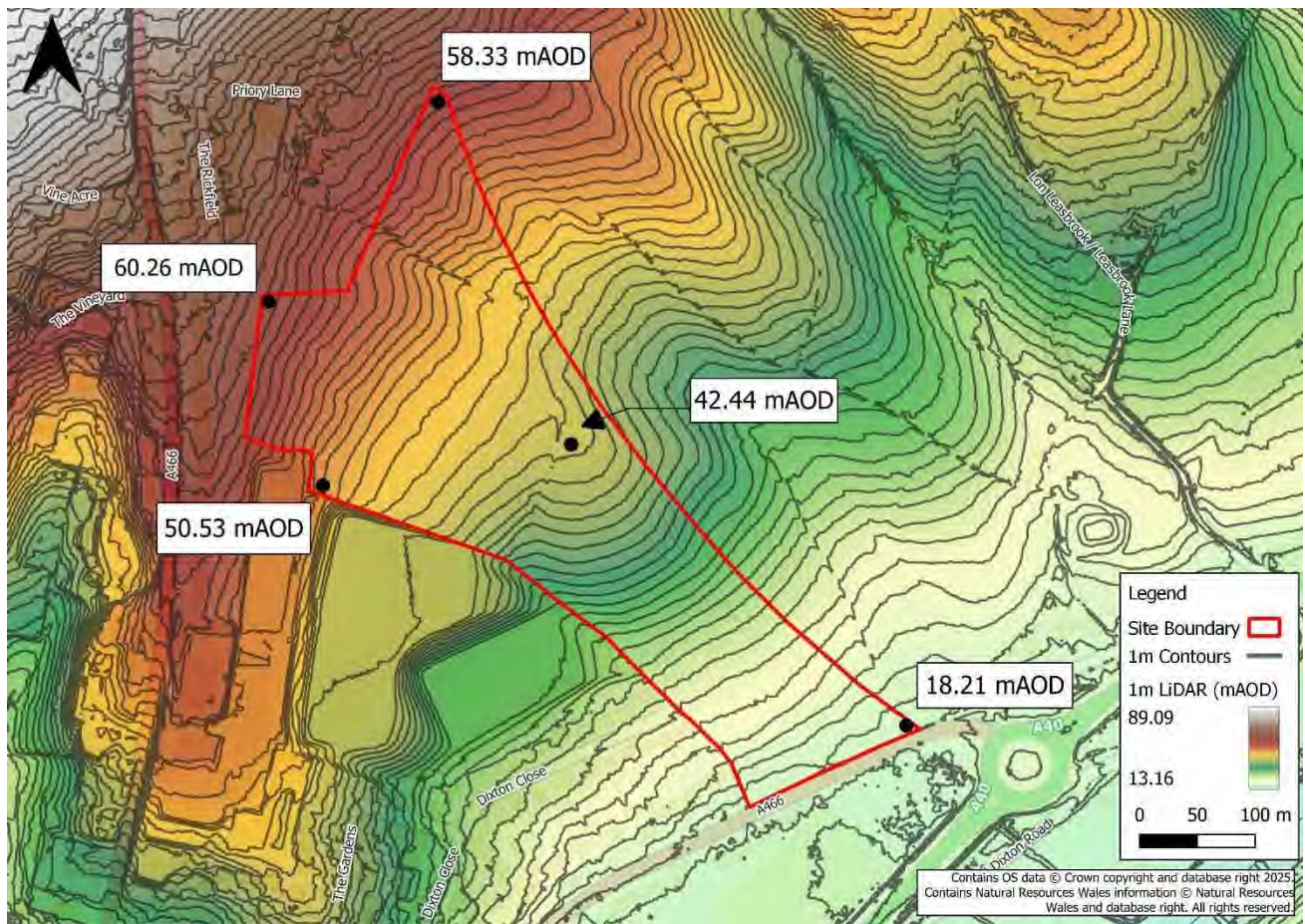


Figure 2-3 1m LiDAR

3 Planning Policy and Flood Risk

TAN-15 provides a framework within which flood risks arising from rivers, the sea, and surface water, as well as the risk of coastal erosion, can be assessed. TAN-15 adopts a risk-based approach, which emphasises the ability to avoid or minimise risk depending on the type of development proposed.

The following table identifies the form of development, vulnerability classification and Flood Map for Planning classification (as defined in TAN-15) for the proposed development site.

Table 3-1 TAN-15 Development classification summary

TAN-15 classification	Classification
Development Proposal	Residential
Form of Development	New Development
Vulnerability Classification	Highly Vulnerable Development
Flood Map for Planning - Rivers	Predominantly Flood Zone 1, with an area of Flood Zones 2 and 3 to the southern extent- See Figure 3-1
Flood Map for Planning - Sea	Flood Zone 1
Flood Map for Planning - Surface Water and Small Watercourses	Predominantly Flood Zones 1 with an area of Flood Zone 3 to the south-eastern corner - See Figure 3-2



Figure 3-1 FMfP - Flood Risk from Rivers

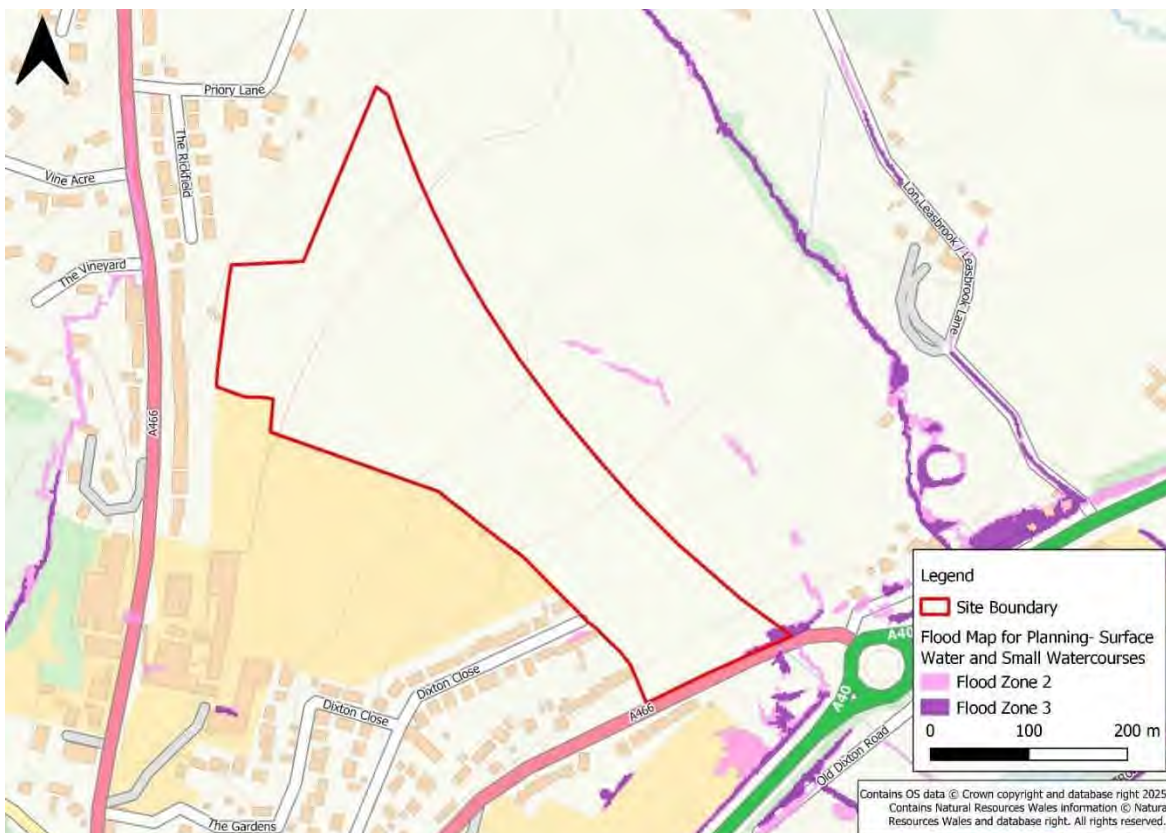


Figure 3-2 Flood Map for Planning - Surface Water and Small Watercourses

4 Assessment of Flood Risk

The latest available information on flood risk at the site, published by Natural Resources Wales (NRW) and datasets used in the SFCA is summarised in Table 4-1 below.

Table 4-1 Summary of flood risk

Source of Flooding	Onsite Presence	Description
Flood Risk from Rivers	✓	The site's location within Flood Zones 1, 2 and 3 of the FMfP for Rivers indicates that the site is at low to moderate risk of fluvial flooding. Further assessed in Section 4.1.1
Flood Risk from the Sea	✗	The site's location within Flood Zone 1 of the FMfP for the Sea indicates that the site is at very low risk of fluvial flooding.
Flood Risk from Surface Water and Small Watercourses	✓	The site is at low to moderate risk of surface water flooding. Further assessed in Section 4.1.2
Flood Risk from Groundwater	✓	The South East Wales SFCA includes JBAs Groundwater Risk of Emergence map as part of the assessment and shows the southern extent of the site to be in an area of 'low-medium' risk from groundwater emergence. Further assessed in Section 4.1.3.
Flood Risk from Reservoirs	✗	The NRW Flood Map for Planning shows that the site is not located in an area at risk of reservoir flooding. Therefore, it is concluded that the risk of flooding is very low .
Flood Risk from Sewers	✗	The Southeast Wales SFCA has identified there to be no historic sewer flood incidents within this area of Monmouthshire. The site is greenfield and is unlikely to have any sewerage infrastructure which could overflow and cause sewer flooding. Therefore, it is concluded that the risk of flooding is very low .

4.1.1 Flood Risk from Rivers

The Flood Map for Planning - Rivers indicates that the southern extent of the site, including the access route along Dixon Road is at risk of fluvial flooding, with the application of climate change. Fluvial risk to the site is associated with both the River Monnow and the River Wye, with the risk needing to be assessed from both fluvial sources.

This flood risk appraisal utilises the NRW National Flood Hazard Mapping (NFHM) in the absence of detailed hydraulic modelling that has all of the required design event under TAN-15.

During the 1% AEP plus climate change event the development site, the primary access route at Dixon Road, and the emergency vehicular access route along the A466 Hereford Road are predicted to be flood free, as shown in Figure 4-1.

During the 0.1% AEP plus climate change event, shown in Figure 4-2, the site predominantly remains flood-free, with the predicted flood extent retained within the southern extent of the site. Maximum flood depths of 2.4m are evidenced in the south-eastern corner of the site. The primary access route of Dixon Road is also predicted to flood in this event. However, the emergency vehicular access route along the A466 Hereford Road is predicted to remain flood free.

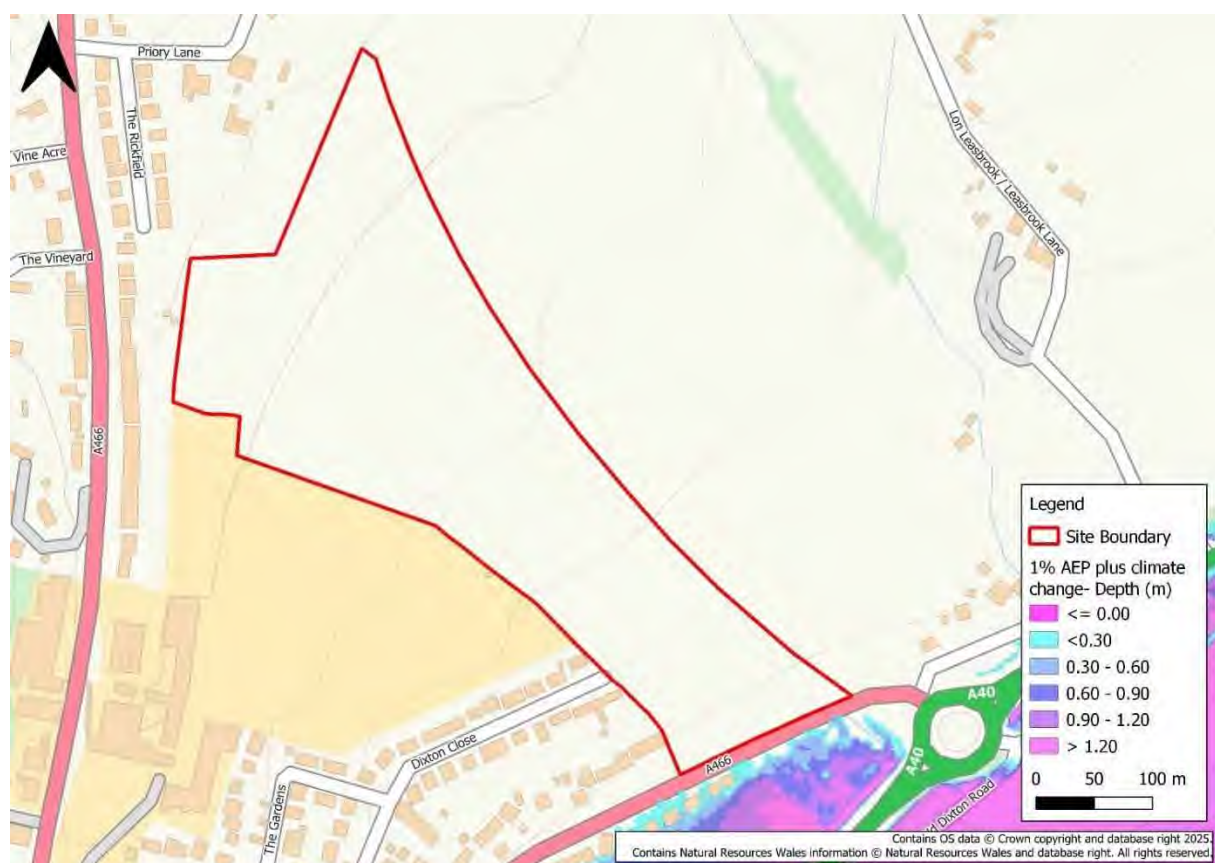


Figure 4-1 Flood Risk from Rivers - 1% AEP + Climate Change Flood Depths

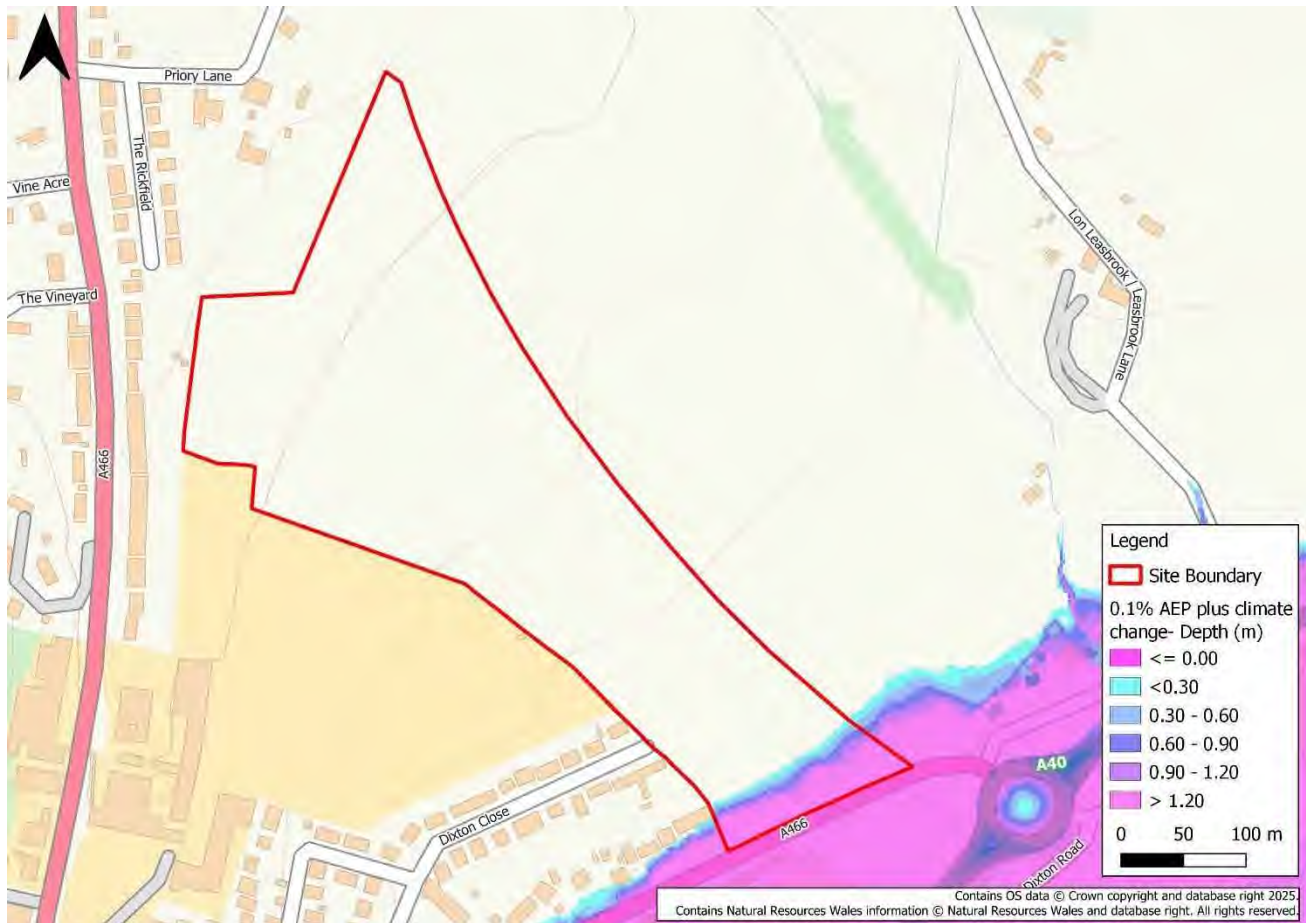


Figure 4-2 Flood Risk from Rivers - 0.1% AEP + Climate Change - Flood depths (m)

4.1.2 Flood Risk from Surface Water

Surface water flooding occurs when rain falling on saturated grounds flow overland, following the local topography. Surface water flooding and subsequent overland flow can therefore pose a risk to both the development site and the surrounding land. The overland flow may originate from the site itself or adjoining land at a higher elevation from which flow migrates onto the development.

The Flood Map for Planning - Surface Water and Small Watercourses indicates that the southeastern corner of the site is predicted to flood as a result of surface water ponding. The NRW National Flood Hazard Mapping (NFHM) has been used to provide a further assessment of surface water flooding. During the 1% AEP plus climate change event, flood depths of up to 450mm are predicted, as shown in Figure 4-3, and in the 0.1% AEP plus climate change event, flood depths are up to 480mm are predicted, as shown in Figure 4-4.

This location corresponds to the site's natural topography which slopes towards this area, creating a localised low point. Due to the adjacent road being situated at a higher elevation, there is limited opportunity for surface water to drain away, resulting in temporary accumulation during rainfall events. It is understood that there is a culvert conveying flows beneath Dixon Road, towards the ordinary watercourse to the south of the site, and

ultimately the River Wye which would convey flows during high rainfall events. However, the capacity of this structure is not known.

NRW's NFHM and FMfP mapping of this surface water and small watercourse flood risk is derived from generalised national scale modelling and LiDAR data. It therefore only includes generalised assumptions for surface water drainage features and limited representations of structures such as culverted watercourses. Where culverted watercourses are present in the modelling these features are often identified and/or assumed from OS and aerial mapping, and it is not unusual for key culverts to be entirely absent from the modelling. This can lead to significant overestimation of flooding in some locations, and underestimation in others. It is not known as to whether the culvert beneath Dixon Road is present in the broadscale model which informs the NFHM at this location, and surface water flood risk at this location has the potential to be overestimated as a result.

It is envisaged that this source of flooding shall be easily managed by the use of SuDS techniques associated with a comprehensive surface water drainage strategy for the site. A sequential approach to site masterplanning can also result in all built development located outside of the predicted flood extent. SuDS features may not be suitable within the shown flood zone without further hydraulic assessment.

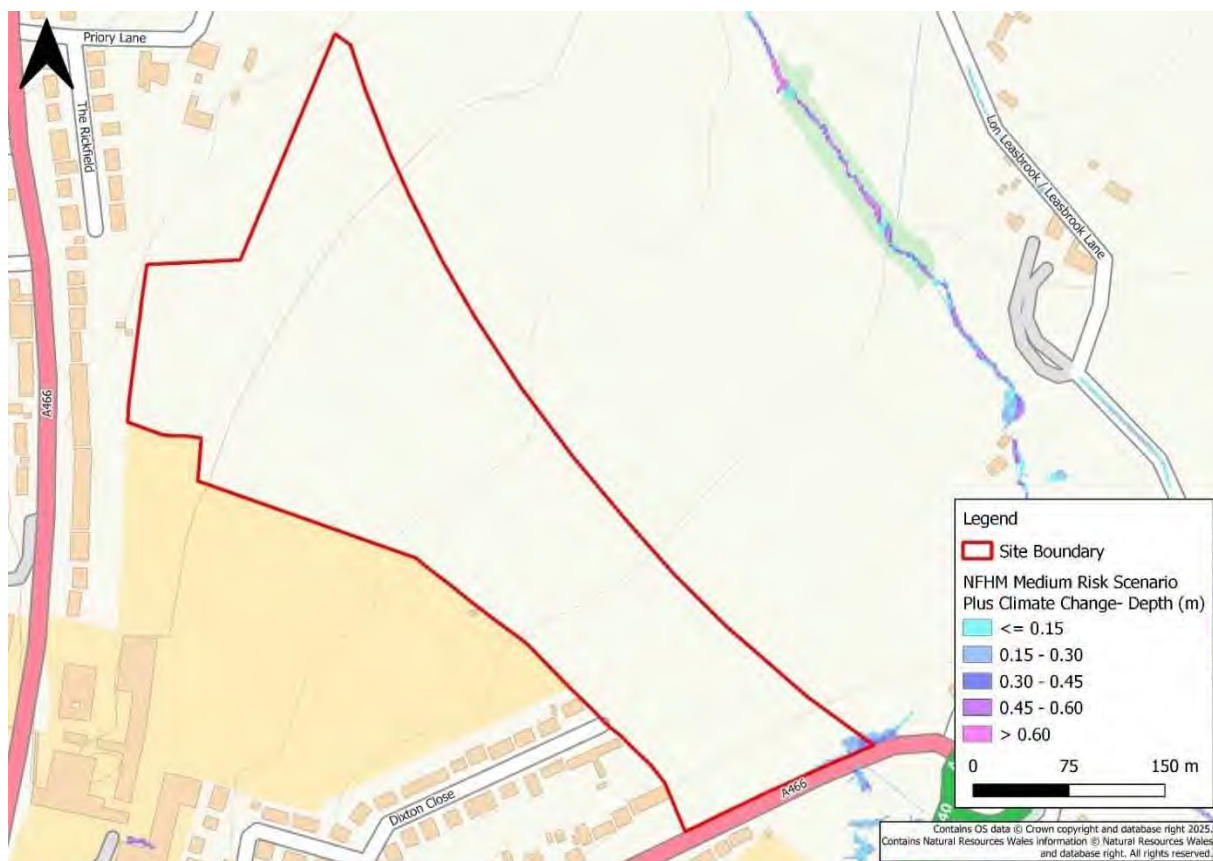


Figure 4-3 Flood Risk from Surface Water - 1% AEP + Climate Change - Flood depths

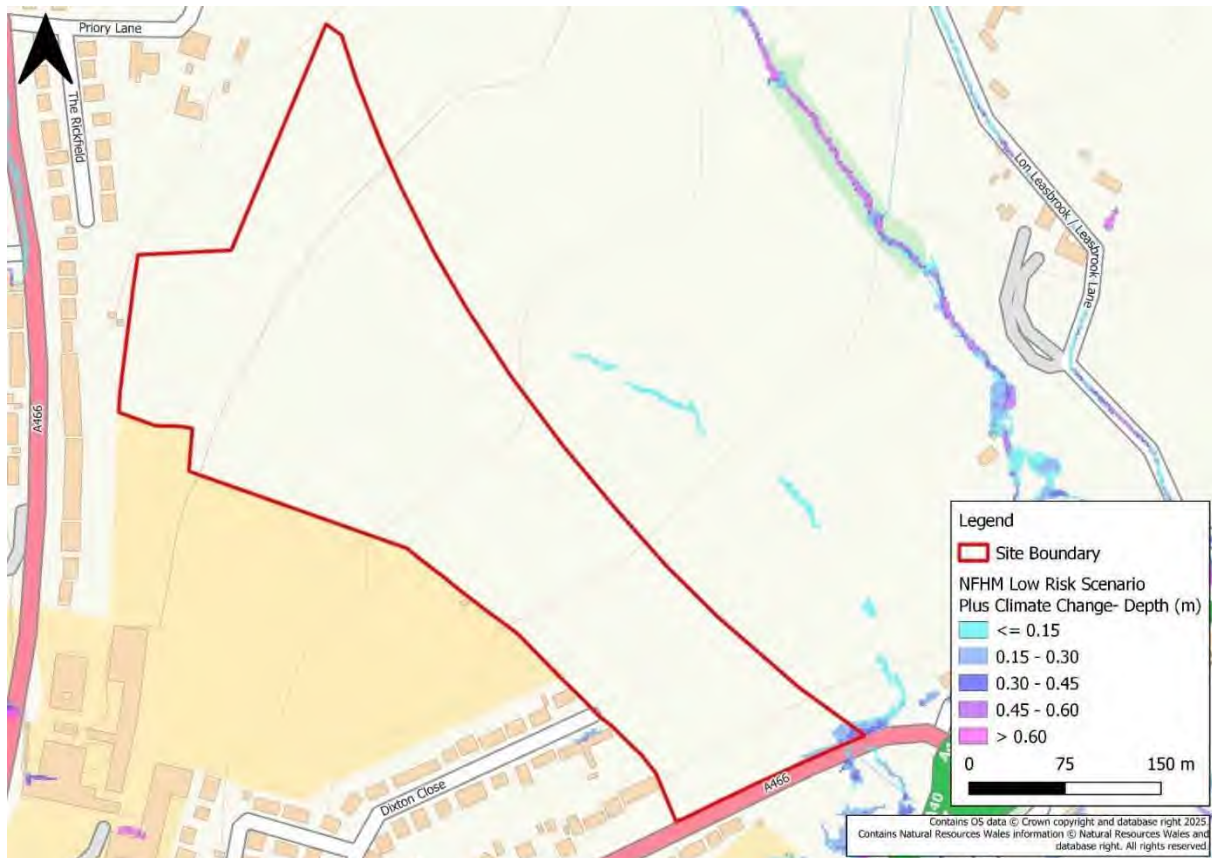


Figure 4-4 Flood Risk from Surface Water - 0.1% AEP + Climate Change - Flood depths

4.1.3 Flood Risk from Groundwater

The JBA groundwater risk of emergence mapping indicates the southern extent of the development site lies within an area that is at low to moderate risk of groundwater flooding during a 1% AEP) event. This equates to an area having groundwater levels that are near the ground surface (moderate) or are between 0.5 and 5m below the grounds surface (low).

It is recommended that any site-specific assessment considers the potential for groundwater emergence across the site. This assessment should be informed by a programme of groundwater monitoring, ideally conducted over a 12-month period to capture seasonal variations, as well as detailed site-specific ground investigations. Understanding the groundwater regime is particularly important where Sustainable Drainage Systems (SuDS) are proposed.

Infiltrating SuDS features, such as soakaways or infiltration basins, typically require a minimum 1-metre clearance between the base of the asset and the highest recorded groundwater level. Failure to meet this requirement could compromise the effectiveness of infiltration-based drainage and may necessitate alternative SuDS solutions.

5 Application of Flood Zones to Development Management Decisions

As the site is located in Flood Zone 2 and 3 of both the FMfP - Rivers and the FMfP - Surface Water and Small Watercourses, it will require a Flood Consequences Assessment (FCA) to assess the risk to the development proposals. It should be demonstrated that the development complies with the requirements of Section 11.4 of TAN-15.

5.1 Flood Risk from Rivers

When considering a site for development, Sections 10 and 11 of TAN-15 outline the requirements for the type of development permitted in any given flood zone.

The proposed development is located within predominantly within Flood Zone 1, with areas of Flood Zones 2 and 3 of the Flood Map for Planning Rivers across the southern extent of the site. The site is greenfield, and the proposals are classed as highly vulnerable development.

All forms of development are permissible in Flood Zone 1. It is possible to allocate sites within Flood Zone 2 where the proposals assist the implementation of the strategy of the LDP to regenerate or revitalise existing settlements or to achieve key economic or environmental objectives.

Across the site, a sequential approach to development can be applied, locating the majority of built form development within Flood Zone 1, and Flood Zone 2 where tolerable depths of flooding can be achieved in the extreme event. This sequential approach to development is supported within Section 15.5 of TAN-15:

Where a site falls into two or more flood zones the planning authority must make an assessment of the proposal, taking into account each of its proposed land uses, against each of the flood zones to which it applies, in accordance with the criteria requirements of this TAN.

Areas within Flood Zone 3 are considered suitable for water-compatible uses, including areas of open space. The location of SuDS may be permissible within this location, dependent on flood frequencies and storage requirements within the required design events.

Should substantial works to amend ground levels be required to facilitate access to the site from Dixon Road, detailed hydraulic modelling may be required to demonstrate the impact of such works on both the development, and third parties. This is unlikely to be required should ground levels be retained as per existing, and all built development is retained outside of the flood zone.

Access and Egress is a key consideration for proposed developments under TAN-15. Access and egress are possible during the 1% AEP event from the primary access route of Dixon Road; however, the access road is predicted to flood up to 2.4m during the 0.1%

AEP event, with an allowance for climate change. Alternative emergency vehicular access onto the A466 (Hereford Road) will serve as a secondary means of access in the event of extreme flooding, with this route predicted to be flood free in all design events. Dixon Close is not suitable for vehicular access but is proposed to provide pedestrian connectivity. This route is also predicted to be flood free in all design events.

It is recognised that the Welsh Government notification direction requires applications for Highly Vulnerable Development where the whole or part of the site is within Flood Zone 3 on a Greenfield site to be referred to the Welsh Ministers. Any development proposals on this site are therefore likely to be required to be notified to Welsh Government. However, it is understood that should development proposals take a sequential approach to site masterplanning to manage flood risk, in line with the requirements and principles set out within TAN-15, Ministers are unlikely to refuse such an application.

5.2 Flood Risk from Surface Water

Sections 10 and 11 of TAN-15 do not strictly apply to the surface water zones in which this proposed development site lies. However, the principles of the TAN should be considered for proposed development.

The development site is predominantly located within Flood Zone 1 of the FMfP - Flood Risk from Surface Water and Small Watercourses, where all forms of development are permissible. A small area of the southeastern corner of the development site is located within Flood Zones 2 and 3 of the Flood Map for Planning - Flood Risk from Surface Water.

A sequential approach to site masterplanning to locate all built development outside of the areas identified to be at risk of flooding is likely to be viable across the site. Areas within Flood Zone 3 are considered suitable for water-compatible uses, including areas of open space. The location of SuDS may be permissible within this location, dependent on flood frequencies and storage requirements within the required design events. Any proposed drainage strategy shall need to demonstrate consideration of the existing surface water risk to the site, and how this shall be managed and mitigated to the proposed development, along with the potential impact of the development on third parties.

When a site is developed in areas at risk or near a risk, it will potentially change the expected flow of water during a flood. It is important that planning authorities are provided with a clear assessment of how a development will affect surface water risks and these sources can be managed or mitigated, these measures must not increase the flood risk elsewhere.

Given these conditions, it is considered that surface water flood risk can be adequately managed through the implementation of Sustainable Drainage Systems (SuDS). A Drainage Statement shall be submitted in support of the planning application, demonstrating how surface water will be managed in accordance with the Statutory Standards for SuDS in Wales, thereby ensuring compliance with TAN-15.

6 Summary and recommendations

The site is located in Flood Zone 2 and 3 of both the FMfP - Rivers and the FMfP -Surface Water and Small Watercourses. As the site is situated within Flood Zones 2 and 3, it triggers the requirements for an FCA to be undertaken. The extent and severity of flooding within the site is minimal and is likely to be manageable through further assessment and design.

Fluvial and Surface Water flood risk are confined to the southern extent of the development site. It is advisable that a sequential approach to master planning is applied, with areas of the site located within Flood Zone 3 forming open space, and therefore water compatible development. All built form development should be retained within Flood Zone 1, where possible, with any development within Flood Zone 2 afforded the appropriate flood-resilient design measures.

It is therefore considered that this site is likely to satisfy the requirements of TAN-15, subject to the following recommendations:

- Any planning application for the site should be accompanied by an FCA which demonstrates how the proposals meet the requirements of TAN-15.
- Utilise a sequential approach to masterplanning to locate the most vulnerable elements of the site within Flood Zone 1. Any built development within areas of Flood Zone 2 or 3 are likely to require a detailed hydraulic assessment demonstrating the impact of proposals on both the site, and third parties.
- Any FCA for the site should demonstrate considerations for appropriate access and egress to the site is all design events.
- Surface water flood risk on the site should be managed via SuDS techniques, which are implemented in line with the Statutory Standards for SuDS in Wales.
- A Drainage Statement shall be required demonstrating how surface water shall be managed on site, in line with the Statutory Standards for SuDS in Wales, and TAN-15.
- The risk of groundwater emergence on the site should be managed by a programme of groundwater monitoring, ideally conducted over a 12-month period to capture seasonal variations, as well as detailed site-specific ground investigations.

Our Offices

Bristol
Coleshill
Cork
Doncaster
Dublin
Edinburgh
Exeter
Glasgow
Haywards Heath
Leeds
Limerick

Newcastle
Newport
Peterborough
Portsmouth
Saltaire
Skipton
Tadcaster
Thirsk
Wallingford
Warrington



Registered Office

1 Broughton Park
Old Lane North
Broughton
SKIPTON
North Yorkshire
BD23 3FD
United Kingdom

+44(0) 1756 799919
info@jbaconsulting.com
www.jbaconsulting.com

Follow us on  

Jeremy Benn
Associates Limited
Registered in
England
3246693

JBA Group Ltd is
certified to
ISO 9001:2015
ISO 14001:2015
ISO 27001:2022
ISO 45001:2018





Monmouthshire Strategic Flood Consequences Assessment - Land at Drewen Farm, Monmouth (HA7)

Final

Prepared for
Monmouthshire County
Council
Monmouthshire County
Council
County Hall
The Rhadyr
Usk
NP15 1GA

Date
October 2025



Document Status

Issue date	October 2025
Issued to	Monmouthshire County Council
BIM reference	QEW-JBA-XX-XX-RP-Z-0007-D3- C02_Land_At_Drewen_Farm_Monmouth
Revision	Final
Prepared by	Polly Stradling BSc (Hons) Assistant Analyst
Reviewed by	Peter Rook BSc MSc MCIWEM C.WEM FGS Project Manager
Authorised by	Peter Rook BSc MSc MCIWEM C.WEM FGS Project Manager

Carbon Footprint

The format of this report is optimised for reading digitally in pdf format. Paper consumption produces substantial carbon emissions and other environmental impacts through the extraction, production and transportation of paper. Printing also generates emissions and impacts from the manufacture of printers and inks and from the energy used to power a printer. Please consider the environment before printing.

Accessibility

JBA aims to align with [governmental guidelines on accessible documents](#) and [WGAG 2.2](#) AA standards, so that most people can read this document without having to employ special adaptation measures. This document is also optimised for use with assistive technology, such as screen reading software.

Contract

JBA Project Manager	Peter Rook
Address	35 Perrymount Road, Haywards Heath, West Sussex, RH16 3BW
JBA Project Code	2025s0977

This report describes work commissioned by Monmouthshire County Council by an instruction dated 8th August 2025. Polly Stradling of JBA Consulting carried out this work.

Purpose and Disclaimer

Jeremy Benn Associates Limited (“JBA”) has prepared this Report for the sole use of Monmouthshire County Council and its appointed agents in accordance with the Agreement under which our services were performed.

JBA has no liability for any use that is made of this Report except to Monmouthshire County Council for the purposes for which it was originally commissioned and prepared.

No other warranty, expressed or implied, is made as to the professional advice included in this Report or any other services provided by JBA. This Report cannot be relied upon by any other party without the prior and express written agreement of JBA.

JBA disclaims any undertaking or obligation to advise any person of any change in any matter affecting the Report, which may come or be brought to JBA’s attention after the date of the Report.

The methodology adopted and the sources of information used by JBA in providing its services are outlined in this Report. The work described in this Report was undertaken between August 2025 and October 2025 and is based on the conditions encountered and the information available during the said period. The scope of this Report and the services are accordingly factually limited by these circumstances.

The conclusions and recommendations contained in this Report are based upon information provided by others and upon the assumption that all relevant information has been provided by those parties from whom it has been requested and that such information is accurate. Information obtained by JBA has not been independently verified by JBA, unless otherwise stated in the Report.

Copyright

© Jeremy Benn Associates Limited 2025

Contents

1	Introduction	1
2	Site Description	1
2.1	Development proposals	2
2.2	Watercourses and Flood Defences	2
2.3	Topography	3
3	Planning Policy and Flood Risk	5
4	Assessment of Flood Risk	6
5	Application of Flood Zones to Development Management Decisions	11
6	Summary and recommendations	12

List of Figures

Figure 2-1	Proposed development site	2
Figure 2-2	Watercourses and Flood Defences	3
Figure 2-3	1m LiDAR	4
Figure 3-1	Flood Map for Planning- Surface Water and Small Watercourses	5
Figure 4-1	Flood Risk from Surface Water and Small Watercourses- 1% AEP + Climate Change - Flood depths	7
Figure 4-2	Flood Risk from Surface Water and Small Watercourses- 0.1% AEP + Climate Change - Flood depths	8
Figure 4-3	Comparison of DTM LiDAR across drainage ditch	9
Figure 4-4	JBA Groundwater map	10

List of Tables

Table 2-1	Site Summary	1
Table 3-1	TAN-15 Development classification summary	5
Table 4-1	Summary of flood risk	6

1 Introduction

JBA Consulting has been commissioned by Monmouthshire County Council to prepare an independent Flood Risk Appraisal as part of a Stage 2 Strategic Flood Consequences Assessment (SFCA) for sites considered for allocation in its Replacement Local Development Plan.

This assessment will evaluate the risk of flooding from all sources to the land at Drewen Farm, Monmouth, the proposed development site, as well as the appropriateness of development at the site in accordance with Welsh Government policy, as outlined in Technical Advice Note 15 (TAN15). Furthermore, recommendations will be provided, where appropriate, to mitigate the risk of flooding at the proposed development site as well as recommendations for further works.

2 Site Description

The key characteristics of the site are summarised in Table 2-1 and the location and site boundary are shown in Figure 2-1 below.

Table 2-1 Site Summary

Site name	The land at Drewen Farm, Monmouth
Site ID	HA7
Site area	6.60 ha
Existing land use	Greenfield land
Purpose of development	Residential
OS NGR	SO 49306 12636
Access location	Site access is off Belle Etoile Drive and Kingfisher Way. Secondary/emergency access if off Watery Lane.



Figure 2-1 Proposed development site

2.1 Development proposals

The proposed development at this site is for residential purposes. It is located on greenfield land and classified as a highly vulnerable development.

No indicative site layout has been provided to inform this appraisal. However, it is noted that MCC Planning Committee at its meeting of 9th September 2025 resolved to approve planning application DM/2024/01295 for the site, subject to the signing of a S106 agreement. Consequently, this site appraisal is based on a high-level overview of flood risk based on publicly available data.

2.2 Watercourses and Flood Defences

Figure 2-2 shows the locations of the nearest NRW designated Main Rivers and ordinary watercourses. A small drainage ditch is located to the centre of the site, with additional drainage ditches along the southern, western and northern boundary.

An unnamed ordinary watercourse is located 0.25km east of the site.

The River Monnow is located 0.9km east of the site, with the River Wye, located 1.5km east of the site. Both of these watercourses are NRW designated Main Rivers. The Scud Brook and Town Ditch are tributaries of the River Monnow and are located 0.7km away from the site.

The site is located within the NRW Lower Wye Internal Drainage District.

Flood defences in the form of walls and embankments are located along the Scud Brook and River Monnow, however the site is not located within an area that benefits from the presence of these flood defences.

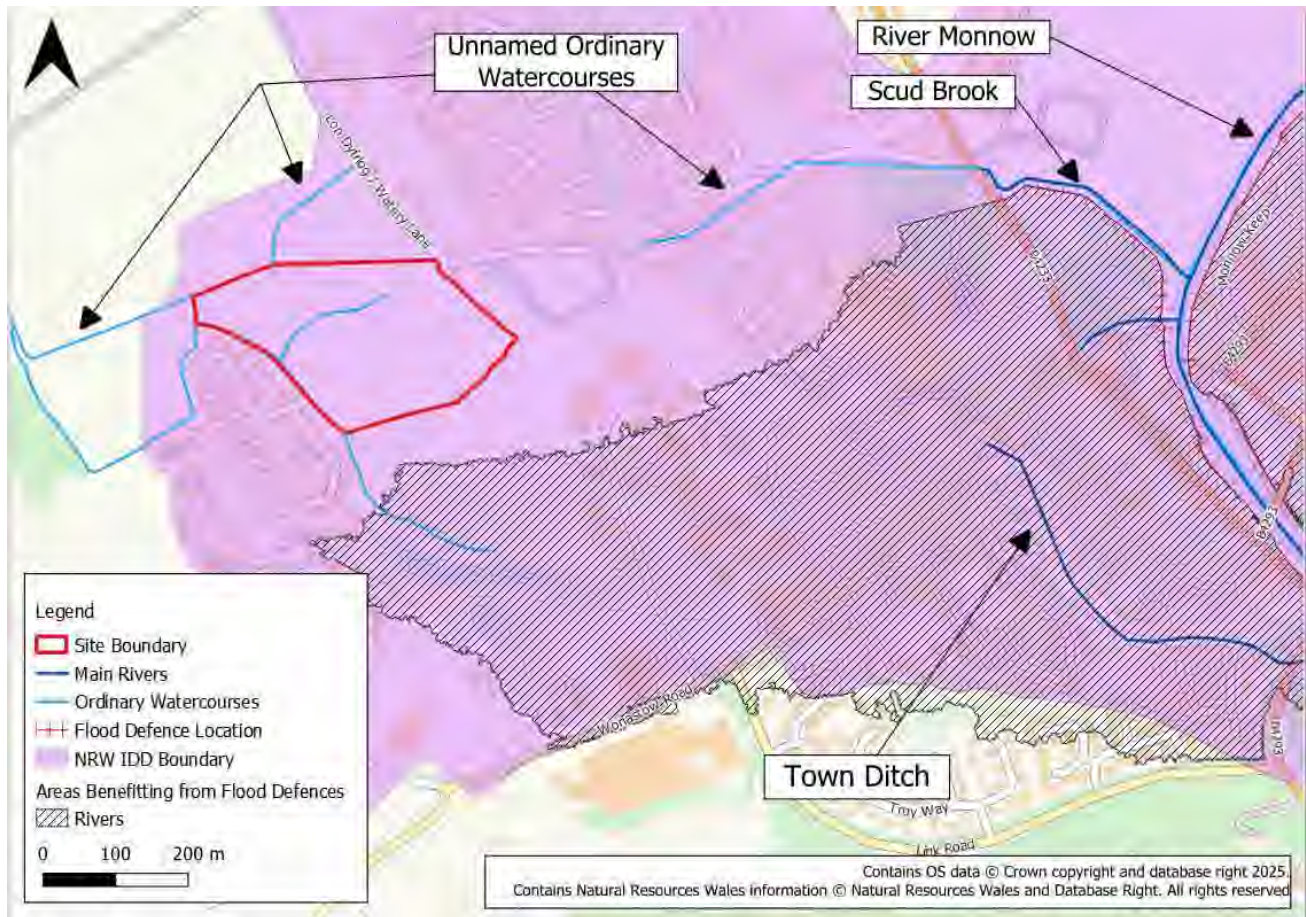


Figure 2-2 Watercourses and Flood Defences

2.3 Topography

The Natural Resources Wales (NRW) Open Source 1m Light Detection and Ranging (LiDAR) data¹ across the site has been reviewed and is shown in Figure 2-3.

Levels across the site range from approximately 20.91 mAOD to 23.58 mAOD, with the highest ground levels are in the northeast and the lowest in the southwest.

There is a topographic depression located throughout the centre of the site, where the two fields meet, creating a slight valley formation. It is at this location that a small unnamed drainage ditch is present. Within this drainage ditch the lowest identified ground level is 20.91 mAOD.

¹ <https://datamap.gov.wales/maps/lidar-data-download/>

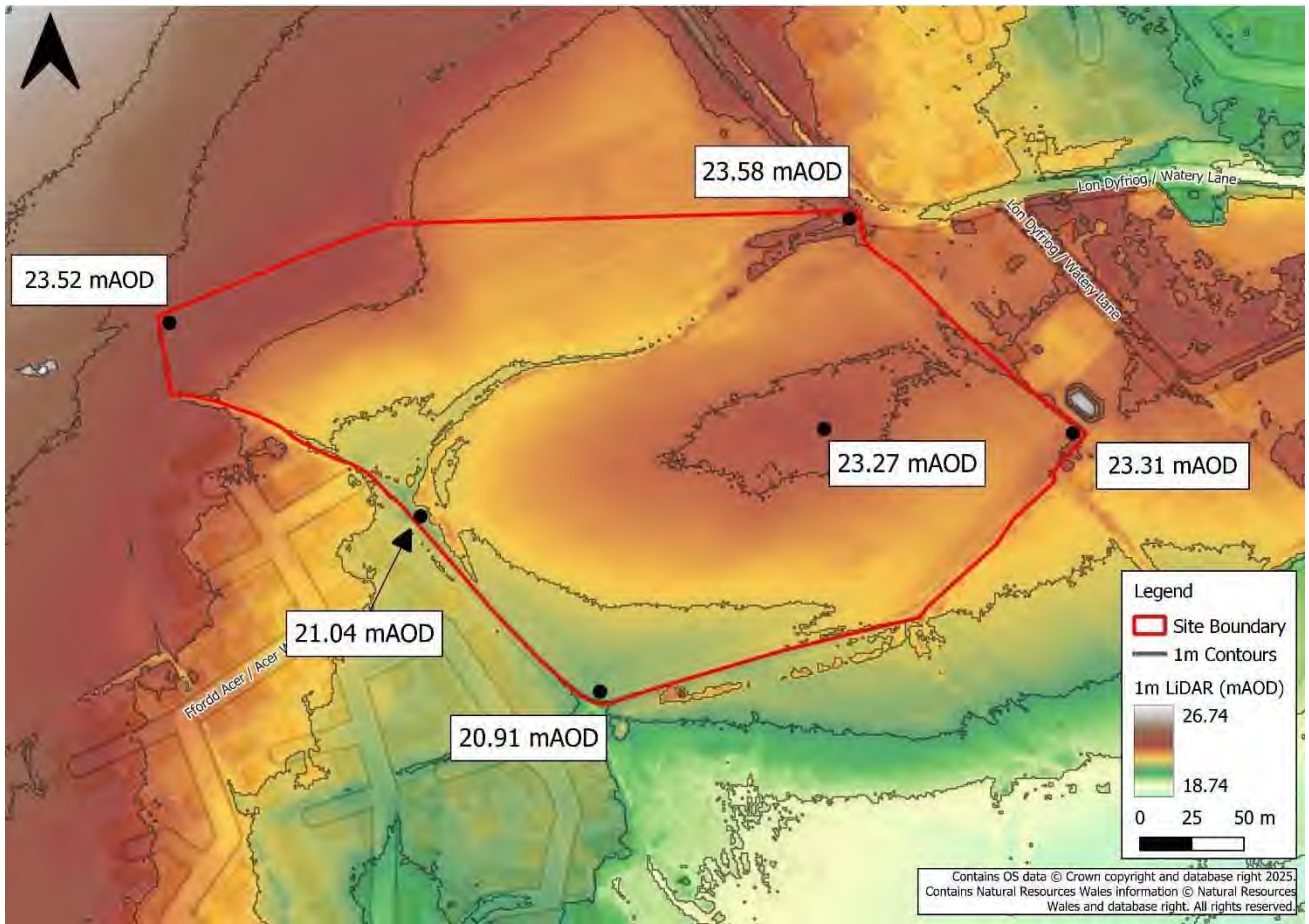


Figure 2-3 1m LiDAR

3 Planning Policy and Flood Risk

TAN-15 provides a framework within which flood risks arising from rivers, the sea, and surface water, as well as the risk of coastal erosion, can be assessed. TAN-15 adopts a risk-based approach, which emphasises the ability to avoid or minimise risk depending on the type of development proposed.

The following table identifies the form of development, vulnerability classification and Flood Map for Planning classification (as defined in TAN-15) for the proposed development site.

Table 3-1 TAN-15 Development classification summary

TAN-15 classification	Classification
Development Proposal	Residential
Form of Development	New Development
Vulnerability Classification	Highly Vulnerable Development
Flood Map for Planning - Rivers	Flood Zone 1
Flood Map for Planning - Sea	Flood Zone 1
Flood Map for Planning - Surface Water and Small Watercourses	Flood Zones 2 and 3 - See Figure 3-1 below

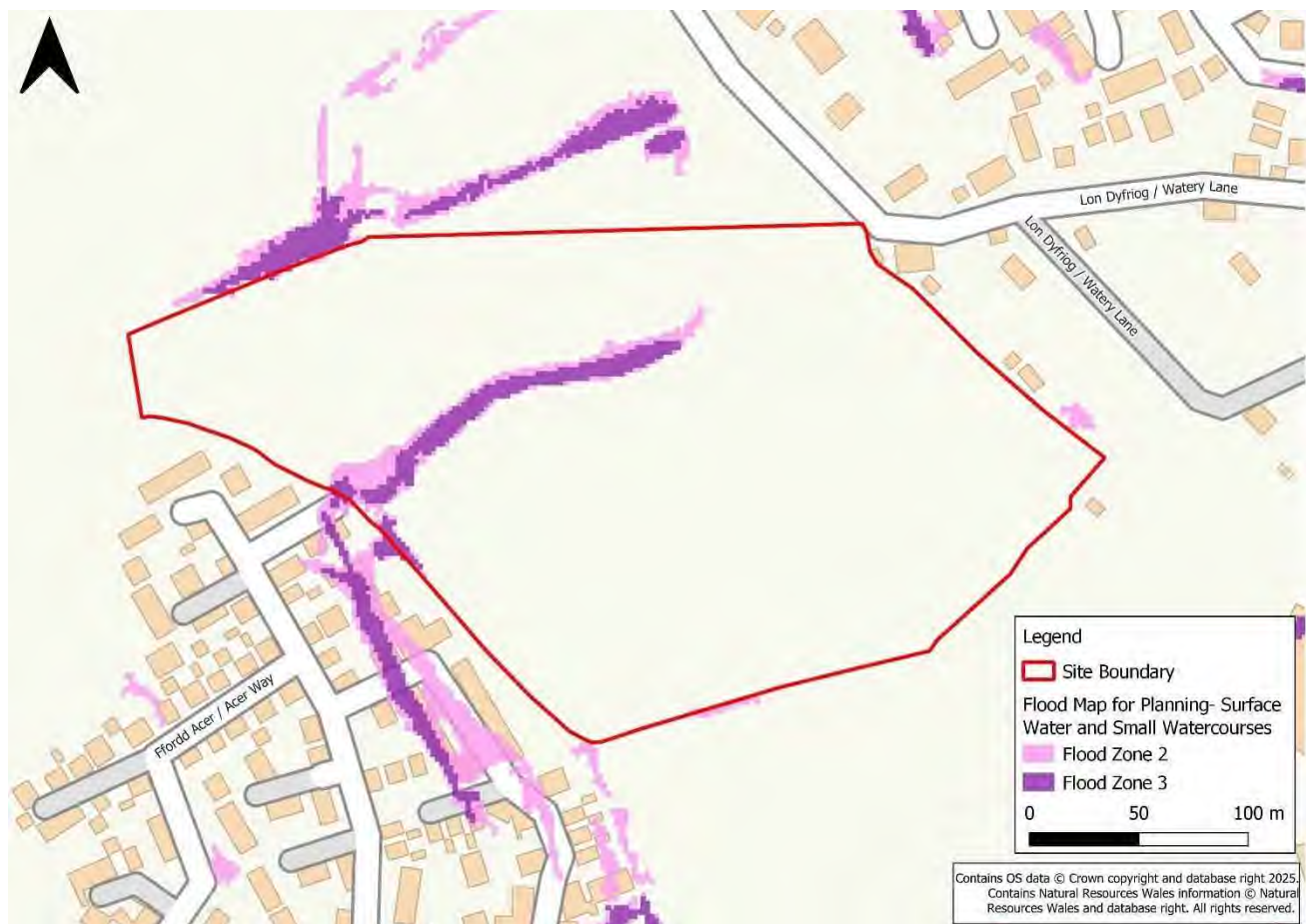


Figure 3-1 Flood Map for Planning- Surface Water and Small Watercourses

4 Assessment of Flood Risk

The latest available information on flood risk at the site, published by Natural Resources Wales (NRW) and datasets used in the SFCA is summarised in Table 4-1 below.

Table 4-1 Summary of flood risk

Source of Flooding	Onsite Presence	Description
Flood Risk from Rivers	✖	The site's location within Flood Zone 1 of the FMfP for Rivers indicates that the site is at very low risk of fluvial flooding.
Flood Risk from the Sea	✖	The site's location within Flood Zone 1 of the FMfP for the Sea indicates that the site is at very low risk of fluvial flooding.
Flood Risk from Surface Water and Small Watercourses	✓	The site is at low to moderate risk of surface water flooding Further assessed in Section 4.1.1.
Flood Risk from Groundwater	✓	The South East Wales SFCA includes JBAs Groundwater Risk of Emergence map as part of the assessment and shows the site to be in an area of ' high ' risk from groundwater emergence. Further assessed below in Section 4.1.2
Flood Risk from Reservoirs	✖	The NRW Flood Map for Planning shows that the site is not located in an area at risk of reservoir flooding. Therefore, it is concluded that the risk of flooding is very low .
Flood Risk from Sewers	✖	The South East Wales and Monmouthshire SFCA has identified there to be no historic sewer flood incidents within this area of Monmouthshire. The site is greenfield and is unlikely to have any sewerage infrastructure which could overflow and cause sewer flooding. Therefore, it is concluded that the risk of flooding is very low .

4.1.1 Flood Risk from Surface Water and Small Watercourses

Surface water flooding occurs when rain falling on saturated grounds flow overland, following the local topography. Surface water flooding and subsequent overland flow can therefore pose a risk to both the development site and the surrounding land. The overland

flow may originate from the site itself or adjoining land at a higher elevation from which flow migrates onto the development.

The Flood Map for Planning - Surface Water and Small Watercourses indicates that the primary access roads to the site, Belle Etoile Drive and Kingfisher Way are at risk of small watercourse flooding, with the application of climate change. The drainage ditch at the centre of the site is also shown to be at risk of flooding during the 1% AEP and 0.1% AEP events, both with the application of climate change.

There are two recorded historical incidents related to the development site, located along the western boundary of the site. These incidents show that in November 2024 and February 2020, residential properties and their gardens flooded because of the drainage ditches on site exceeding capacity during heavy rainfall.

The NRW National Flood Hazard Mapping (NFHM) has been used to provide a further assessment of flooding. During the 1% AEP plus climate change event, flood depths of up to 230mm are predicted within the unnamed drainage ditch located in the centre of the site, as shown in Figure 4-1.

In the 0.1% AEP plus climate change event, flood depths of up to 360mm are predicted within the unnamed drainage ditch located in the centre of the site, as shown in Figure 4-2.

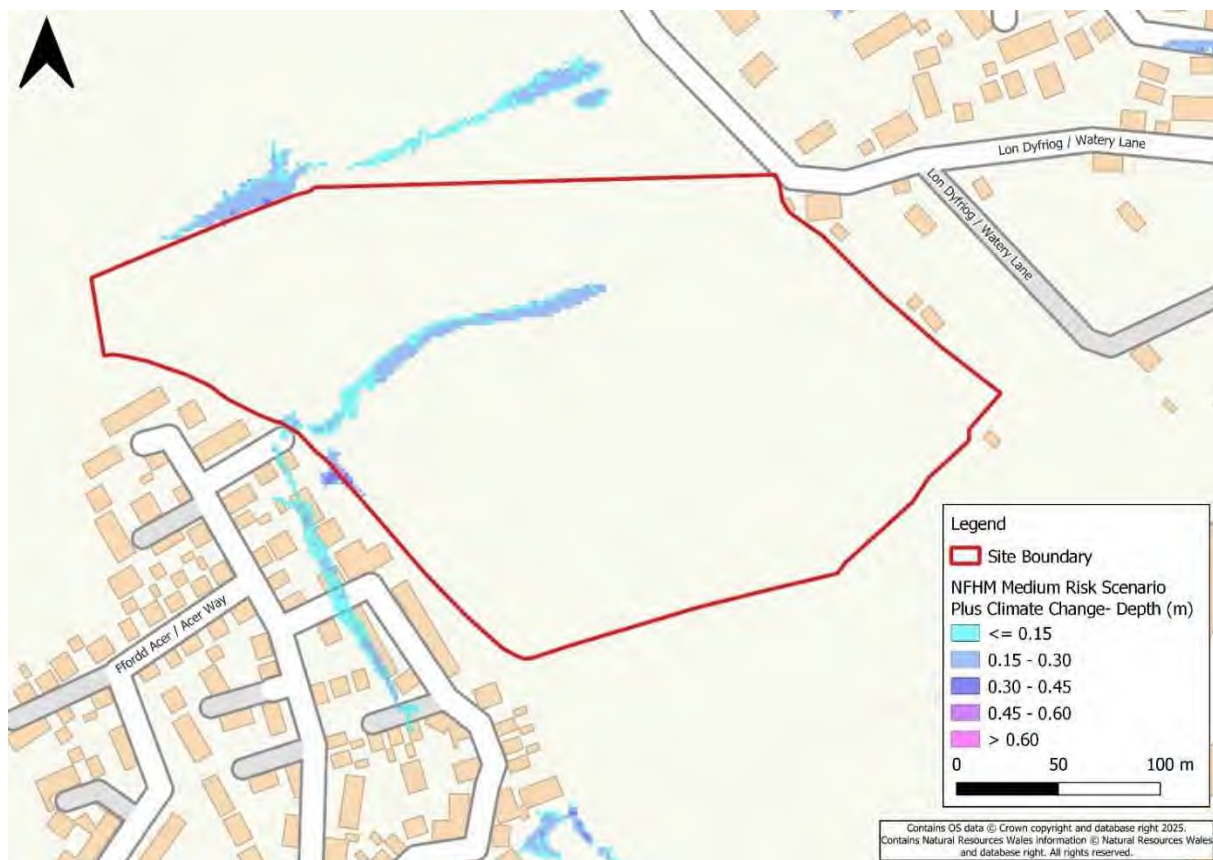


Figure 4-1 Flood Risk from Surface Water and Small Watercourses- 1% AEP + Climate Change - Flood depths

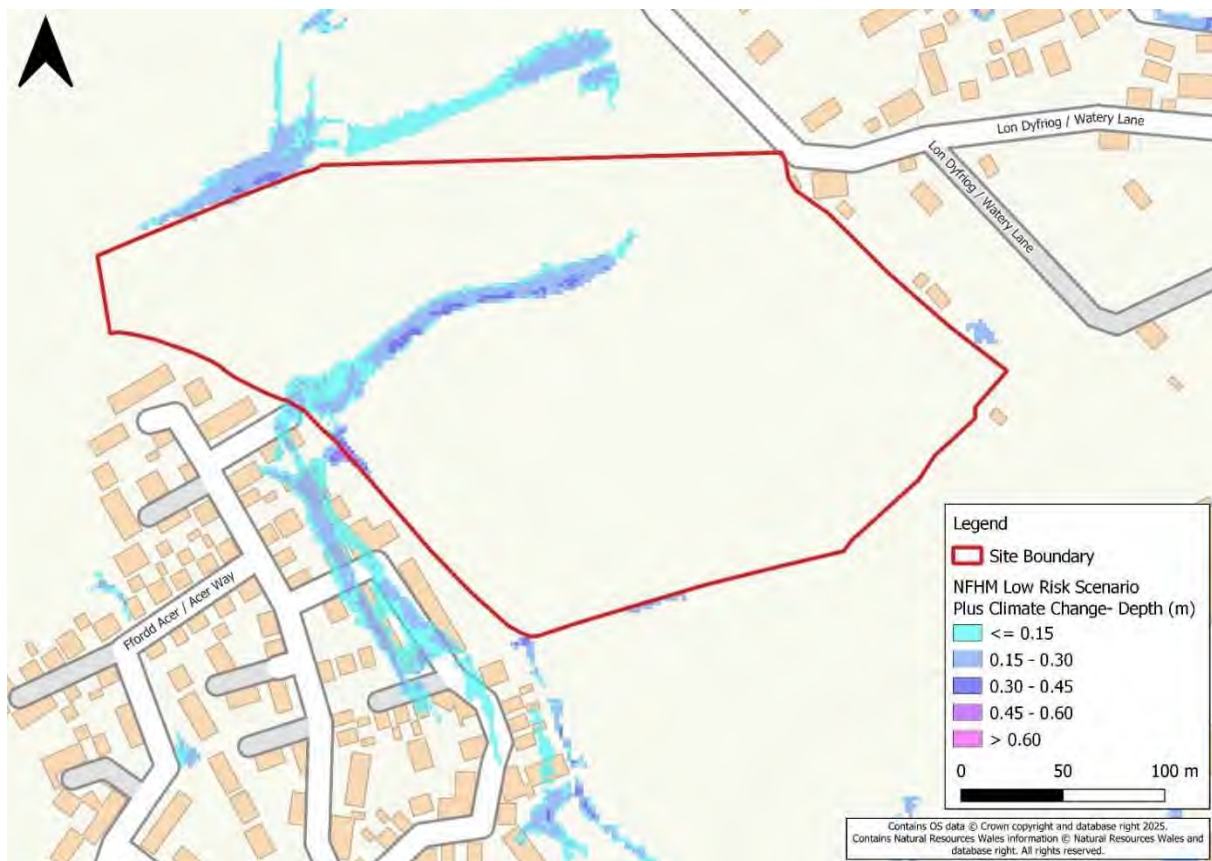


Figure 4-2 Flood Risk from Surface Water and Small Watercourses- 0.1% AEP + Climate Change - Flood depths

The NFHM is comprised of broadscale modelling informed by general LiDAR data from 2018. Since the preparation of the NFHM by NRW, the LiDAR dataset has been updated (2023). In some instances, the updated LiDAR provides a better resolution and provides a more informed picture of ground levels around small watercourses.

Comparison of the 2018 and 2023 DTM LiDAR data reveals that the 2023 dataset provides a clearer indication of the drainage ditch within the LiDAR, with a refined channel, lower invert and higher bank features.

Figure 4-3 provides a cross-section of the drainage ditch where overtopping occurs along the western boundary of the site. The 2023 cross-section profile of the ditch suggests that the watercourse may have greater capacity than is currently being modelled at this location through the NFHM, resulting in the potential for an over-estimation of flood risk and extent to the development site and the surrounding area.

Furthermore, where culverted watercourses are present in the modelling these features are often identified and/or assumed from OS and aerial mapping, and it is not unusual for key culverts to be entirely absent from the modelling. It is unknown as to whether any key culverts are present to manage surface water flows or are represented accurately in the broadscale modelling. Surface water depths may therefore be overestimated in this area.

Historical satellite imagery of the area indicates that the development to the southwest of the site was constructed after 2018, and the flight of the LiDAR on which the NFHM is

based. This suggests that possible culvert locations have since been updated in this location south of the site next to the drainage ditch, or ground alterations may have been undertaken in order to manage flood risk. Further hydraulic assessment is therefore considered necessary to determine actual risk to both the development site and the surrounding area.

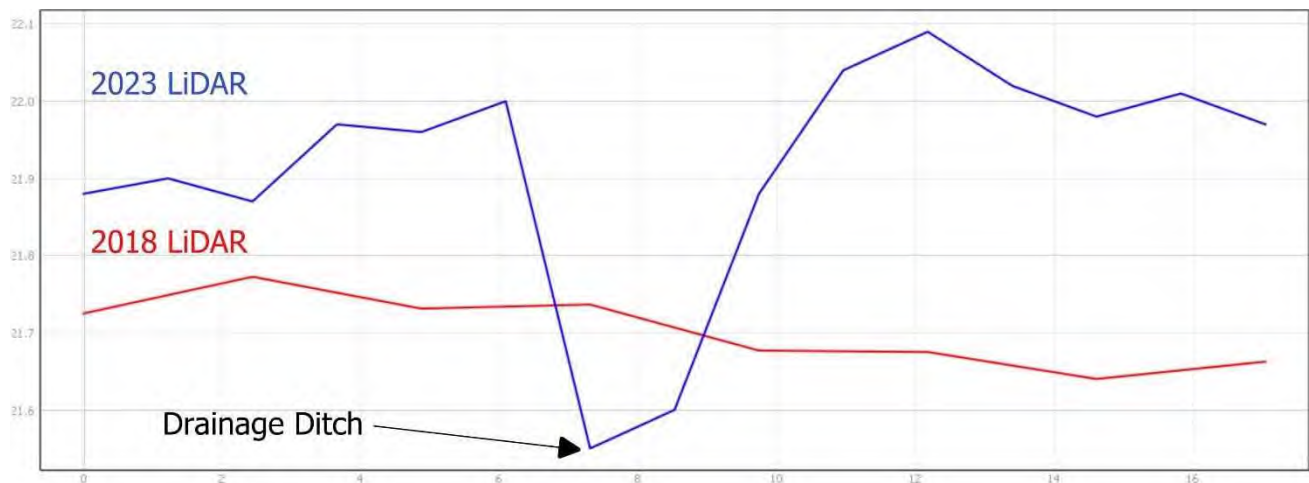


Figure 4-3 Comparison of DTM LiDAR across drainage ditch

4.1.2 Flood Risk from Groundwater

The JBA groundwater depth map indicates that two thirds of the development site lies within an area that is at moderate to high risk of groundwater emergence during a 1% AEP event, as shown in Figure 4-4. Moderate to high risk equates to areas affected having groundwater levels that are near the ground surface (high) or are between 0.025 and 0.5m below (moderate) the grounds surface.

It is recommended that any site-specific assessment considers the potential for groundwater emergence across the site. This assessment should be informed by a programme of groundwater monitoring, ideally conducted over a 12-month period to capture seasonal variations, as well as detailed site-specific ground investigations. Understanding the groundwater regime is particularly important where Sustainable Drainage Systems (SuDS) are proposed. Infiltrating SuDS features, such as soakaways or infiltration basins, typically require a minimum 1-metre clearance between the base of the asset and the highest recorded groundwater level. Failure to meet this requirement could compromise the effectiveness of infiltration-based drainage and may necessitate alternative SuDS solutions.

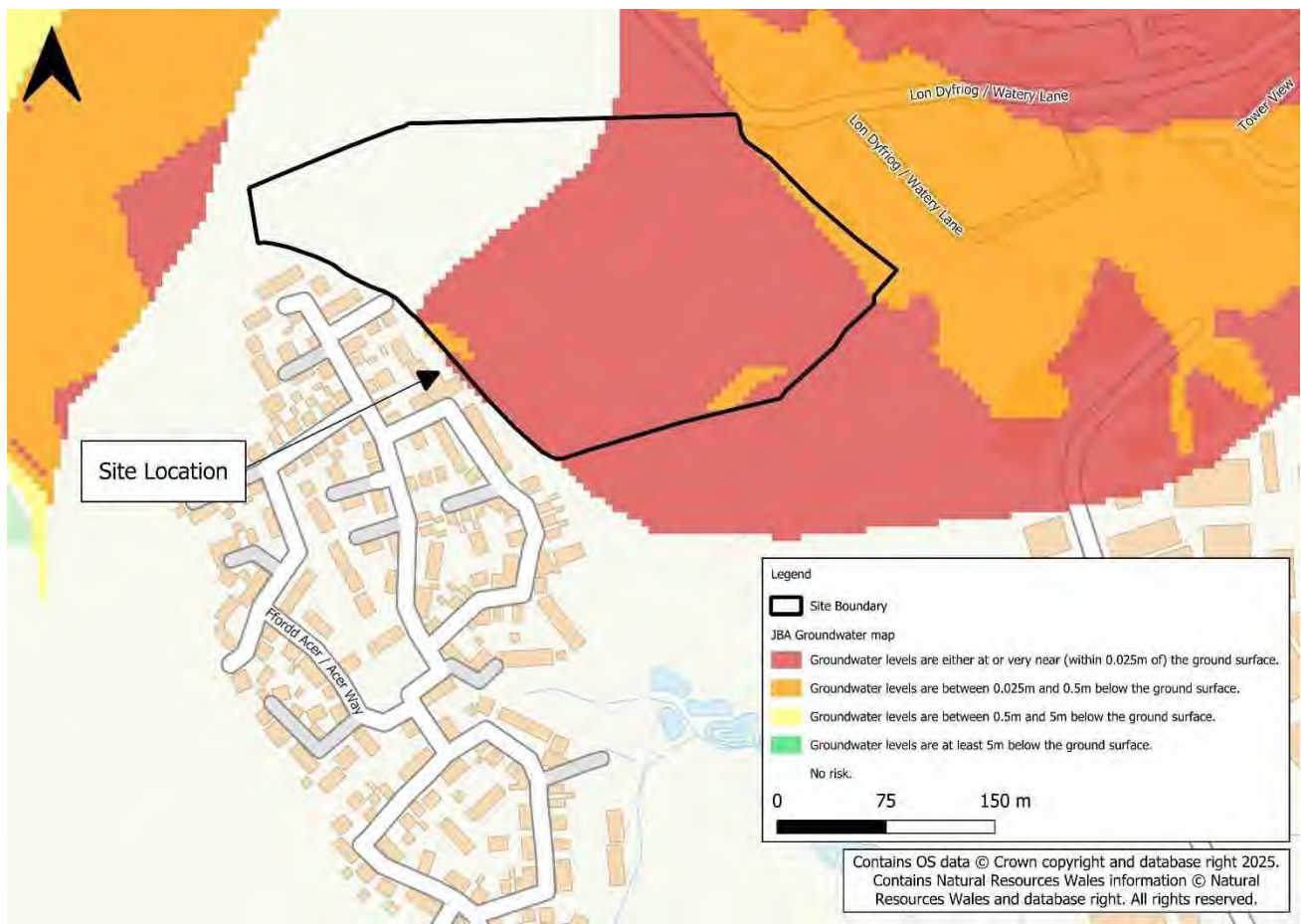


Figure 4-4 JBA Groundwater map

5 Application of Flood Zones to Development Management Decisions

Sections 10 and 11 of TAN-15 do not strictly apply to the surface water and small watercourse zones in which this proposed development site lies. However, the principles of the TAN should be considered for proposed development, particularly where flood risk relates to small watercourses.

The site is predominantly located within Flood Zone 1. All forms of development are permissible in Flood Zone 1.

Areas of the development site are located within Flood Zone 2 and 3 of the Flood Map for Planning - Flood Risk from Surface Water and small watercourses, associated with a drainage ditch that is shown to flow through the site.

It is considered that the indicated flood extent and depths may be an overestimation of flood risk to the site. It may therefore be beneficial to undertake a detailed hydraulic assessment to determine a more accurate understanding of the baseline flood risk to the site, and redefine the flood extent. A detailed hydraulic assessment shall also demonstrate how surface water flows can be managed, and flood risk to third parties as a direct result of the development can be managed. It is considered unlikely that any proposed SuDS system to manage site-generated surface water shall be sufficient to manage the risk associated with the onsite drainage ditch, and consequently any proposed mitigation system should be kept separate from any proposed SuDS system on site.

A sequential approach to master planning and good site design can result in an avoidance of development in the flood zones. All highly vulnerable development should be directed towards areas of Flood Zones 1, with the existing drainage ditch retained as an open channel where possible. Opportunities to enhance the watercourse corridor should be considered through the provision of public open space and Blue Green infrastructure within this area of the site. Proposed site layouts should also consider access to the watercourse for management and maintenance, and it is therefore preferable that the watercourse corridor is retained within public areas.

Access and Egress is a key consideration for proposed developments under TAN15. The primary site access route from Kingfisher Way and Belle Etoile Drive are predicted to be at risk from Surface Water Flooding during both the 0.1% AEP and 1% AEP plus climate change events, though flood depths are shallow and likely to be passable by high-sided vehicles. Access and egress remain possible from Watery Lane during all flood events, as it is predicted to be flood free and can be used as secondary access and egress in emergency situations.

6 Summary and recommendations

The site is at very low risk of fluvial, tidal, groundwater, reservoir and sewer flooding. The site is located within Flood Zones 2 and 3 of the FMfP for Surface Water and Small Watercourses. As the site is situated within Flood Zones 2 and 3, it triggers the requirements for an FCA to be undertaken.

The extent and severity of flooding from surface water within the site is likely to be adequately managed through a sequential approach to site master planning. A detailed hydraulic assessment shall be required to demonstrate that on and off site surface water risks shall be managed adequately.

The site is therefore considered likely to satisfy the requirements of TAN-15, subject to the following recommendations:

- Any planning application for the site should be accompanied by an which demonstrates how the proposals meet the requirements of TAN-15.
- A Drainage Statement shall be required demonstrating how surface water shall be managed on site, in line with the Statutory Standards for SuDS in Wales, and TAN-15
- A site specific hydraulic assessment shall be required to demonstrate how the overland flows impact the site and ensure that any Surface Water Management System is suitably designed to capture and manage existing flood risk to the site. This system should be kept separate to any proposed SuDS system for managing site-generated surface water flows.
- A sequential approach to site masterplanning should be considered to retain all highly vulnerable development within areas of Flood Zone 1, where possible.
- It is recommended that options are explored to enhance the existing drainage ditch corridor by implementing Blue Green infrastructure and retaining the watercourse in areas of public open space so that it can be accessed and maintained. Any required crossings should be accompanied by detailed hydraulic calculations to demonstrate sufficient capacity and to mitigate the risk of flooding from any such structure.
- The risk of groundwater emergence on the site should be managed by a programme of groundwater monitoring, ideally conducted over a 12-month period to capture seasonal variations, as well as detailed site-specific ground investigations.

Our Offices

Bristol
Coleshill
Cork
Doncaster
Dublin
Edinburgh
Exeter
Glasgow
Haywards Heath
Leeds
Limerick

Newcastle
Newport
Peterborough
Portsmouth
Saltaire
Skipton
Tadcaster
Thirsk
Wallingford
Warrington



Registered Office

1 Broughton Park
Old Lane North
Broughton
SKIPTON
North Yorkshire
BD23 3FD
United Kingdom

+44(0) 1756 799919
info@jbaconsulting.com
www.jbaconsulting.com

Follow us on  

Jeremy Benn
Associates Limited
Registered in
England
3246693

JBA Group Ltd is
certified to
ISO 9001:2015
ISO 14001:2015
ISO 27001:2022
ISO 45001:2018





Monmouthshire Strategic Flood Consequences Assessment - Land south of Monmouth Road, Raglan (HA10)

Final

Prepared for
Monmouthshire County
Council
County Hall
The Rhadyr
Usk
NP15 1GA

Date
October 2025

Document Status

Issue date	October 2025
Issued to	Monmouthshire County Council
BIM reference	QEW-JBA-XX-XX-RP-Z-0009-D3- C02_Land_South_Of_Monmouth_Road_Raglan
Revision	Final
Prepared by	Polly Stradling BSc (Hons) Assistant Analyst
Reviewed by	Peter Rook BSc MSc MCIWEM C.WEM FGS Project Manager
Authorised by	Peter Rook BSc MSc MCIWEM C.WEM FGS Project Manager

Carbon Footprint

The format of this report is optimised for reading digitally in pdf format. Paper consumption produces substantial carbon emissions and other environmental impacts through the extraction, production and transportation of paper. Printing also generates emissions and impacts from the manufacture of printers and inks and from the energy used to power a printer. Please consider the environment before printing.

Accessibility

JBA aims to align with [governmental guidelines on accessible documents](#) and [WGAG 2.2](#) AA standards, so that most people can read this document without having to employ special adaptation measures. This document is also optimised for use with assistive technology, such as screen reading software.

Contract

JBA Project Manager	Peter Rook
Address	35 Perrymount Road, Haywards Heath, West Sussex, RH16 3BW
JBA Project Code	2025s0977

This report describes work commissioned by Monmouthshire County Council by an instruction dated 8th August. Polly Stradling of JBA Consulting carried out this work.

Purpose and Disclaimer

Jeremy Benn Associates Limited (“JBA”) has prepared this Report for the sole use of Monmouthshire County Council and its appointed agents in accordance with the Agreement under which our services were performed.

JBA has no liability for any use that is made of this Report except to Monmouthshire County Council for the purposes for which it was originally commissioned and prepared.

No other warranty, expressed or implied, is made as to the professional advice included in this Report or any other services provided by JBA. This Report cannot be relied upon by any other party without the prior and express written agreement of JBA.

JBA disclaims any undertaking or obligation to advise any person of any change in any matter affecting the Report, which may come or be brought to JBA’s attention after the date of the Report.

The methodology adopted and the sources of information used by JBA in providing its services are outlined in this Report. The work described in this Report was undertaken between August 2025 and September 2025 and is based on the conditions encountered and the information available during the said period. The scope of this Report and the services are accordingly factually limited by these circumstances.

The conclusions and recommendations contained in this Report are based upon information provided by others and upon the assumption that all relevant information has been provided by those parties from whom it has been requested and that such information is accurate. Information obtained by JBA has not been independently verified by JBA, unless otherwise stated in the Report.

Copyright

© Jeremy Benn Associates Limited 2025

Contents

1	Introduction	1
2	Site Description	1
2.1	Development proposals	2
2.2	Watercourses and Flood Defences	2
2.3	Topography	3
3	Planning Policy and Flood Risk	5
4	Assessment of Flood Risk	6
5	Application of Flood Zones to Development Management Decisions	10
6	Summary and recommendations	11

List of Figures

Figure 2-1	Proposed development site	2
Figure 2-2	Watercourses and Defences	3
Figure 2-3	1m LiDAR	4
Figure 3-1	Flood Map for Planning- Surface Water and Small Watercourses	5
Figure 4-1	Flood Risk from Surface Water and Small Watercourses- 1% AEP + Climate Change - Flood depths	8
Figure 4-2	Flood Risk from Surface Water and Small Watercourses- 0.1% AEP + Climate Change - Flood depths	9

List of Tables

Table 2-1	Site Summary	1
Table 3-1	TAN-15 Development classification summary	5
Table 4-1	Summary of flood risk	6

1 Introduction

JBA Consulting has been commissioned by Monmouthshire County Council to prepare an independent Flood Risk Appraisal as part of a Stage 2 Strategic Flood Consequences Assessment (SFCA) for sites considered for allocation in its Replacement Local Development Plan.

This assessment will evaluate the risk of flooding from all sources to Land south of Monmouth Road, Raglan, the proposed development site, as well as the appropriateness of development at the site in accordance with Welsh Government policy, as outlined in Technical Advice Note 15 (TAN15). Furthermore, recommendations will be provided, where appropriate, to mitigate the risk of flooding at the proposed development site as well as recommendations for further works.

2 Site Description

The key characteristics of the site are summarised in Table 2-1 and the location and site boundary are shown in Figure 2-1 below.

Table 2-1 Site Summary

Site name	Land south of Monmouth Road, Raglan
Site ID	HA10
Site area	4.56 ha
Existing land use	Greenfield land
Purpose of development	Residential
OS NGR	SO 41643 07664
Access location	Access from Monmouth Road and an emergency secondary access from Station Road



Figure 2-1 Proposed development site

2.1 Development proposals

The proposed development is for residential use, on greenfield land and is classed as a highly vulnerable development.

No indicative site layout is available for this assessment.

2.2 Watercourses and Flood Defences

Figure 2-2 shows the locations of the nearest NRW Main Rivers and ordinary watercourses.

The Barton Brook, an ordinary watercourse, is located 73m west of the site. The Barton Brook flows in a southerly direction towards the Nant Wilcae/Olway Brook, an NRW designated Main River.

A drainage ditch/small ordinary watercourse located along the eastern boundary of the site. The watercourse originates north-east of the site, and flows in a south-westerly direction. It is culverted beneath Station Road, and its subsequent route is unknown - though it is likely to discharge to the Barton Brook.

The development site is not located within an area that benefits from the presence of flood defences.

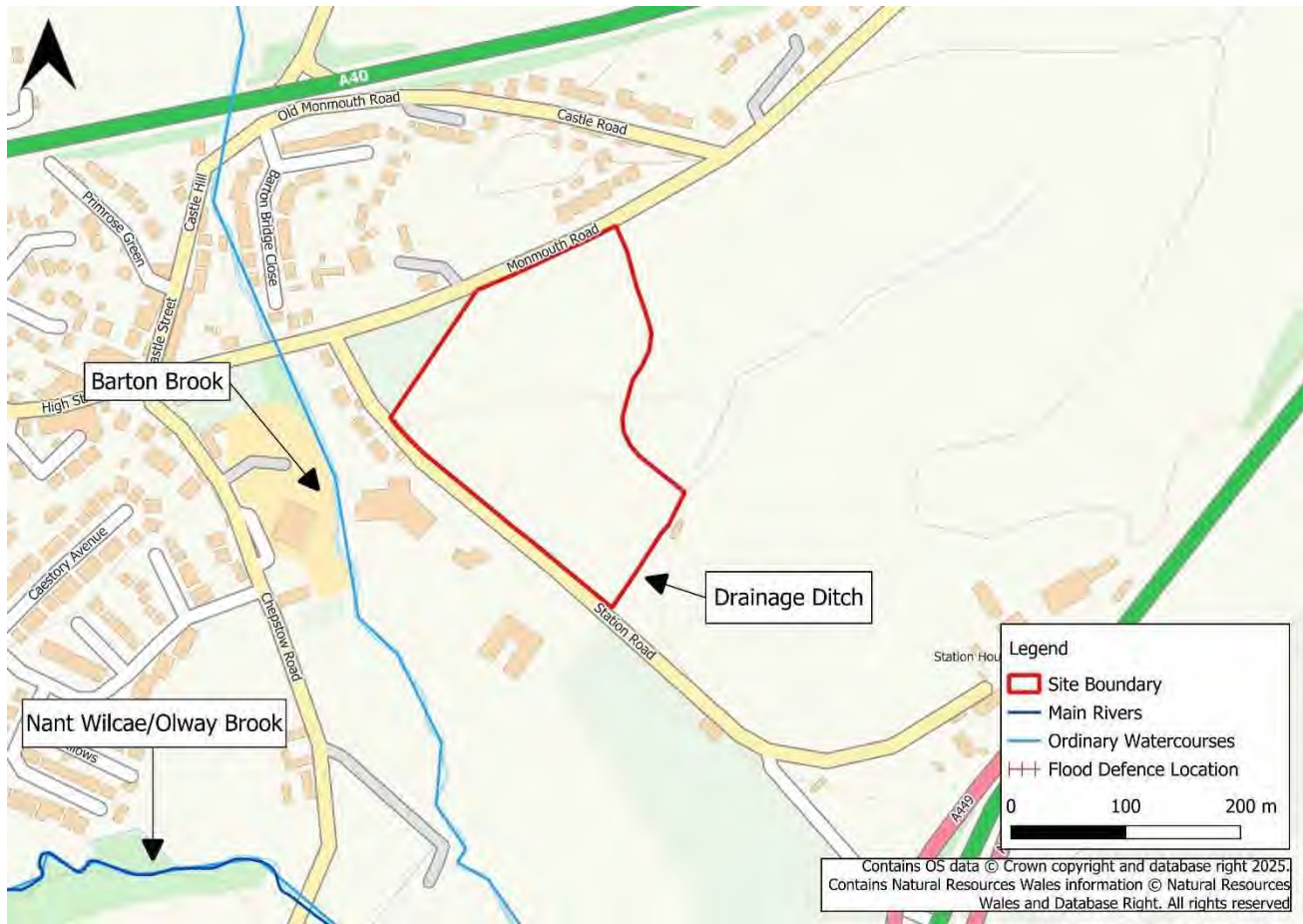


Figure 2-2 Watercourses and Defences

2.3 Topography

The Natural Resources Wales (NRW) Open Source 1m Light Detection and Ranging (LiDAR) data¹ across the site has been reviewed and is shown in Figure 2-3.

Levels across the site generally fall in a south easterly direction. Highest ground levels are seen in the northernmost corner of the at 46.35 mAOD, with levels falling to 38.31 mAOD at the southeastern boundary of the site.

Externally to the site boundary, along the access road, ground levels rise to 47.25 mAOD along Monmouth Road.

¹ <https://datamap.gov.wales/maps/lidar-data-download/>

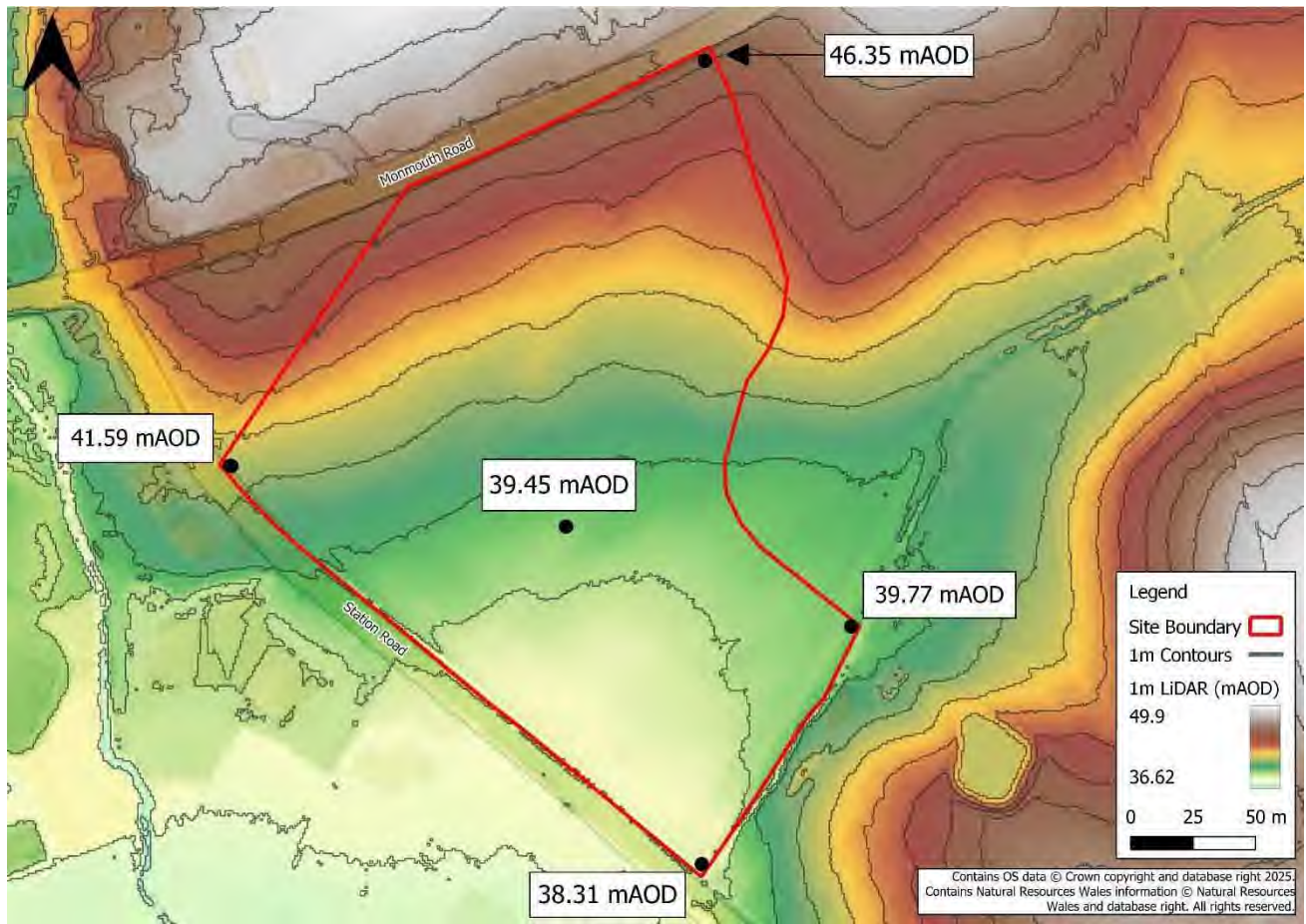


Figure 2-3 1m LiDAR

3 Planning Policy and Flood Risk

TAN-15 provides a framework within which flood risks arising from rivers, the sea, and surface water, as well as the risk of coastal erosion, can be assessed. TAN-15 adopts a risk-based approach, which emphasises the ability to avoid or minimise risk depending on the type of development proposed.

The following table identifies the form of development, vulnerability classification and Flood Map for Planning classification (as defined in TAN-15) for the proposed development site.

Table 3-1 TAN-15 Development classification summary

TAN-15 classification	Classification
Development Proposal	Residential
Form of Development	New Development
Vulnerability Classification	Highly Vulnerable Development
Flood Map for Planning- Rivers	Flood Zone 1
Flood Map for Planning- Sea	Flood Zone 1
Flood Map for Planning- Surface Water and Small Watercourses	Flood Zones 2 and 3 - See Figure 3-1 below

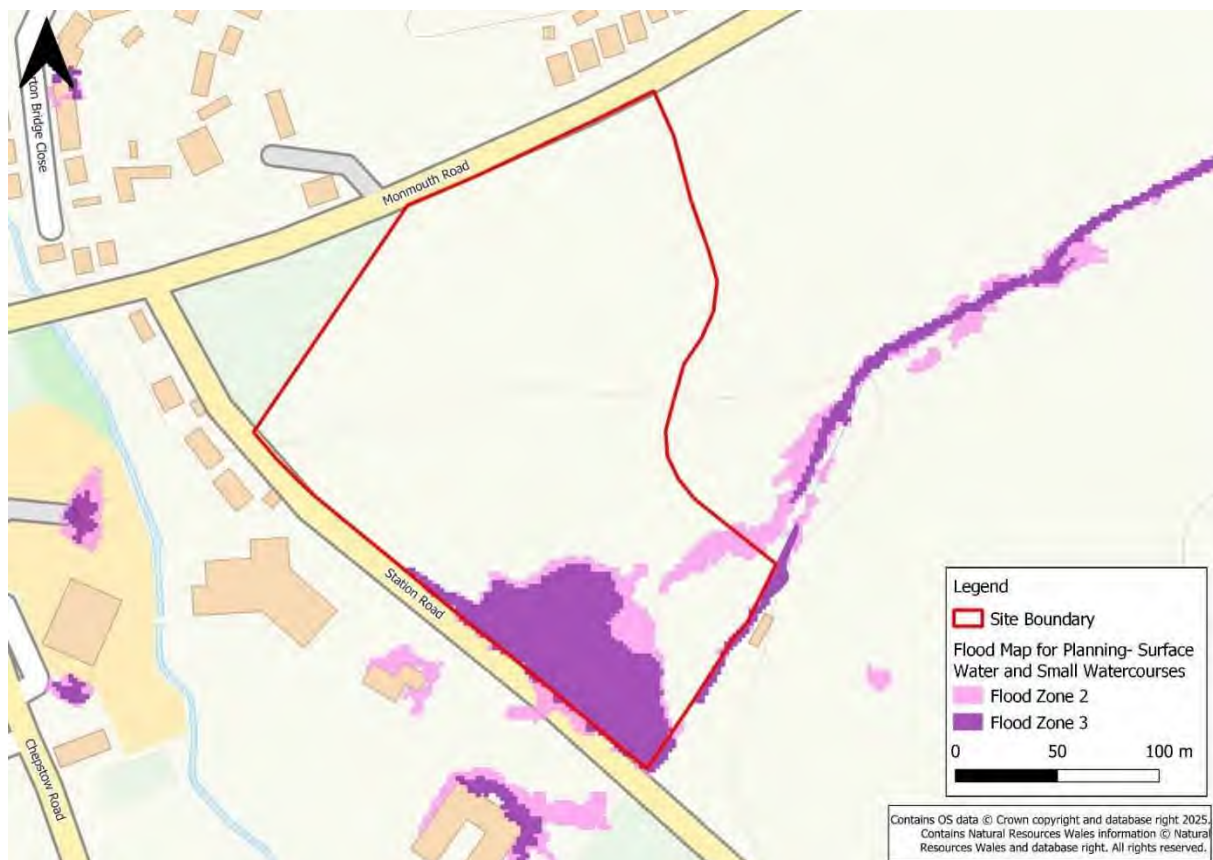


Figure 3-1 Flood Map for Planning- Surface Water and Small Watercourses

4 Assessment of Flood Risk

The latest available information on flood risk at the site, published by Natural Resources Wales (NRW) and datasets used in the SFCA is summarised in Table 4-1 below.

Table 4-1 Summary of flood risk

Source of Flooding	Onsite Presence	Description
Flood Risk from Rivers	✖	The site's location within Flood Zone 1 of the FMfP for Rivers indicates that the site is at very low risk of fluvial flooding.
Flood Risk from the Sea	✖	The site's location within Flood Zone 1 of the FMfP for the Sea indicates that the site is at very low risk of fluvial flooding.
Flood Risk from Surface Water and Small Watercourses	✓	The site is at moderate risk of surface water flooding and has been further assessed in Section 4.1.1.
Flood Risk from Groundwater	✖	The South East Wales SFCA includes JBAs Groundwater Risk of Emergence map as part of the assessment and shows the site to be in an area of 'low' risk from groundwater emergence. There have been no recorded incidents of groundwater flooding in this area of Monmouthshire mentioned in the SFCA. Therefore, it is concluded that the risk of flooding is very low .
Flood Risk from Reservoirs	✖	The NRW Flood Map for Planning shows that the site is not located in an area at risk of reservoir flooding. Therefore, it is concluded that the risk of flooding is very low .
Flood Risk from Sewers	✖	The South East Wales SFCA has identified there to be no historic sewer flood incidents within this area of Monmouthshire. The site is greenfield and is unlikely to have any sewerage infrastructure which could overflow and cause sewer flooding. Therefore, it is concluded that the risk of flooding is very low .

4.1.1 Flood Risk from Surface Water and Small Watercourses

Surface water flooding occurs when rain falling on saturated grounds flow overland, following the local topography. Surface water flooding and subsequent overland flow can therefore pose a risk to both the development site and the surrounding land. The overland flow may originate from the site itself or adjoining land at a higher elevation from which flow migrates onto the development.

The Flood Map for Planning - Surface Water and Small Watercourses indicates that the flood risk is predominantly associated with the eastern extend of the site, and the small ordinary watercourse located along the eastern boundary. Flood risk is shown associated with the watercourse corridor, and with some flows entering the site from the north where flows appear to overtop the watercourse channel.

Flows are also shown to accumulate in the south-eastern corner of the site, where ground levels are lowest, resulting in a larger extent of flood zone in this location. Whilst there is a known culvert conveying flows beneath Station Road, it is unlikely that any such culvert is portrayed accurately, if at all, within the broadscale modelling which informs the Flood Map for Planning. As Station Road sits at a higher level than the development site at this location, water cannot drain away easily, leading to ponding during rainfall events.

The FMfP flood zones correspond with two recorded historical incidents located in the southeastern corner of the site, where flooding was observed in both February 2019, and January 2024.

The NRW National Flood Hazard Mapping (NFHM) has been used to provide a further assessment of flooding. During the 1% AEP plus climate change event, flood depths of up to 750mm are predicted, as shown in Figure 4-1 and in the 0.1% AEP plus climate change event, flood depths are up to 860mm are predicted. During the 0.1% AEP event the extent of the flood risk is larger, and surface water is shown to overtop Station Road, with depths of up to 200mm predicted. Flows also encroach into the site via the northern boundary where the channel capacity of the small watercourse is exceeded upstream of the site. Flood depths at this location are less than 300mm.

NRW's NFHM and FMfP mapping of this surface water and small watercourse flood risk is derived from generalised national scale modelling and LiDAR data. It therefore only includes generalised assumptions for surface water drainage features and limited representations of structures such as culverted watercourses. Where culverted watercourses are present in the modelling these features are often identified and/or assumed from OS and aerial mapping, and it is not unusual for key culverts to be entirely absent from the modelling. This can lead to significant overestimation of flooding in some locations, and underestimation in others.

In this instance, it is believed that the culvert along the south-eastern boundary of the site, beneath Station Road has not been represented in the modelling and consequently flows are forced to travel along the surface of the DTM without recognition of established sub-surface drainage features. Given local ground levels in the area, the broadscale mapping indicates that surface water ponds within this corner of the site, unable to drain away and

resulting in significant flooding. However, it is likely that the flood depths are overestimated. In reality, flows would be able to discharge through the culvert to the ordinary watercourse east of the site. Any supporting FCA for the site should include a hydraulic assessment to demonstrate capacity of the culvert, and likely flood risk to the development site as a result.

It is considered unlikely that a SuDS system shall be sufficient to manage the small watercourse risk as assessed on the site. It is therefore anticipated that a separate surface water management system will need to be constructed to manage this surface water flood risk separately to the site SuDS System.

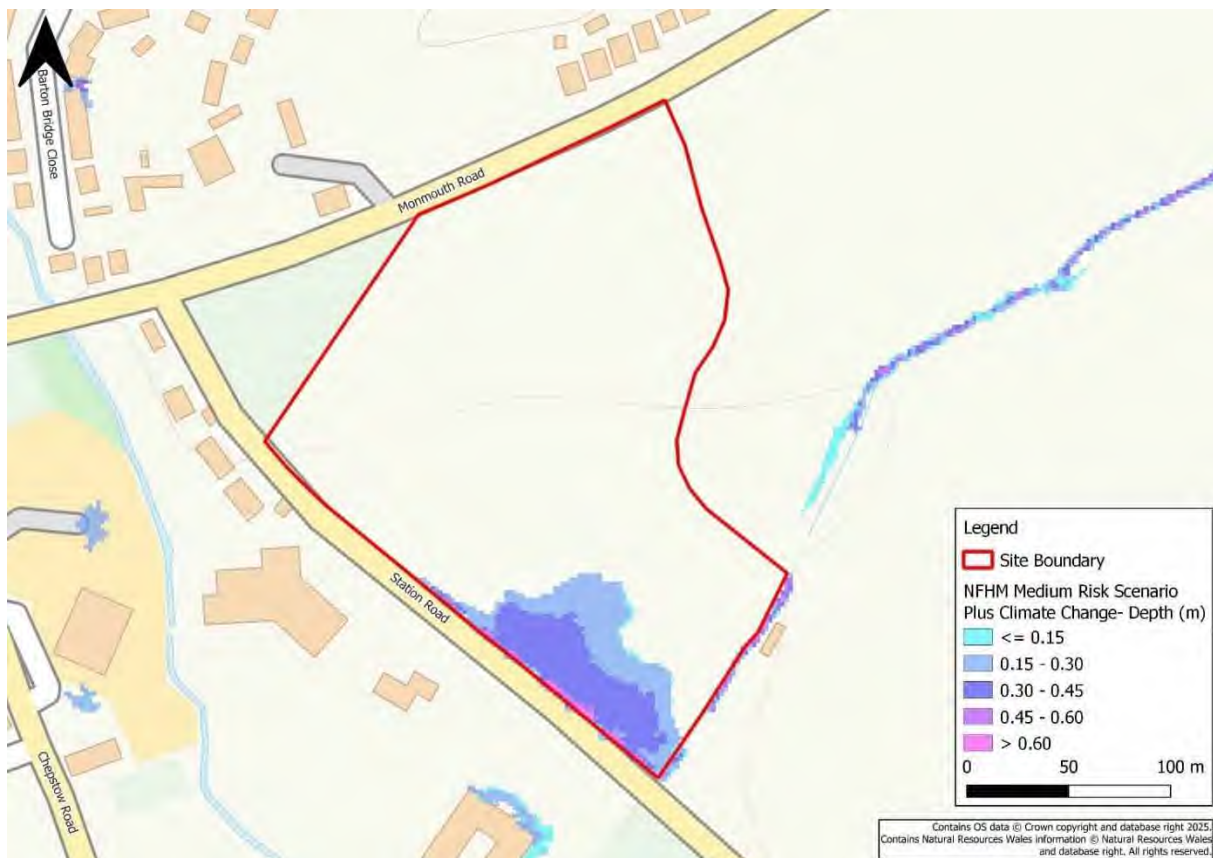


Figure 4-1 Flood Risk from Surface Water and Small Watercourses- 1% AEP + Climate Change - Flood depths

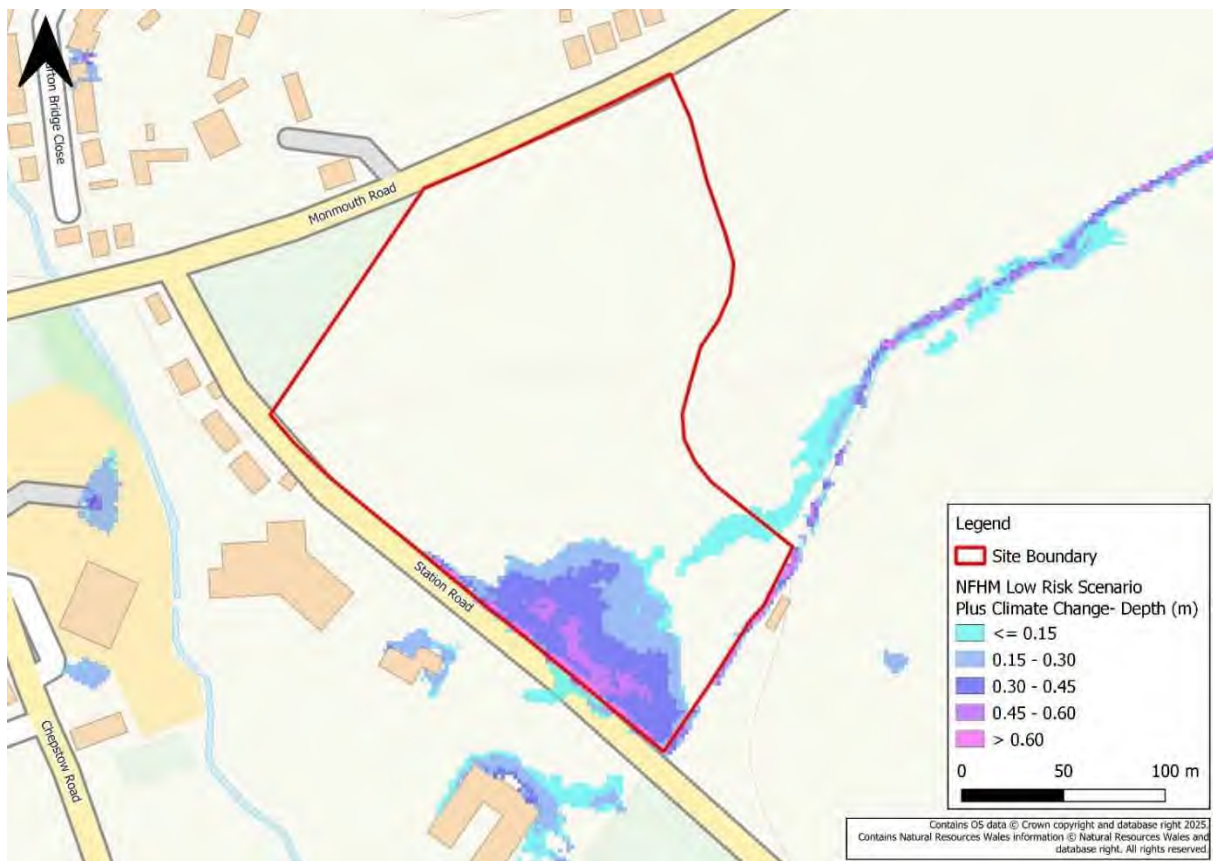


Figure 4-2 Flood Risk from Surface Water and Small Watercourses- 0.1% AEP + Climate Change - Flood depths

5 Application of Flood Zones to Development Management Decisions

Sections 10 and 11 of TAN15 do not strictly to apply to the surface water and small watercourse zones in which this proposed development site lies. However, the principles of the TAN should be considered for proposed development, particularly where flood risk relates to small watercourses.

The site is predominantly located within Flood Zone 1. All forms of development are permissible within Flood Zone 1.

Areas of the development site have been identified as being located within Flood Zones 2 and 3 of the Flood Map for Planning - Flood Risk from Surface Water and Small Watercourses. Consequently, an FCA shall be required to be submitted for any forthcoming planning application for the site.

A sequential approach to master planning and good site design can result in an avoidance of development in the flood zones. Water compatible uses, such as areas of open space are permissible in all flood zones. The location of SuDS may be permissible within this location, dependent on flood frequencies and storage requirements within the required design events.

A full hydraulic assessment of the small watercourse at the eastern boundary of the site may provide opportunities to redefine the flood extent and frequencies on the site, allowing for a larger developable area. Any FCA should contain a detailed hydraulic assessment of on-site flood risk to demonstrate the suitability of proposals.

Access and egress remain possible from Monmouth Road. Monmouth Road is predicted to be flood free during all design events. Secondary access from Station Road remains flood free during the 1% AEP event. During the extreme event, flood depths of less than 100mm are predicted, which is considered viable for access for emergency and high-sided vehicles.

It is considered unlikely that a SuDS system, for site generated surface water, alone shall be sufficient to manage the small watercourse risk as assessed on the site. It is therefore anticipated that a separate surface water management system will need to be constructed to manage the flood risk associated with the small watercourse along the eastern boundary.

A Drainage Statement shall be submitted in support of the planning application, demonstrating how surface water generated on site will be managed in accordance with the Statutory Standards for SuDS in Wales, thereby ensuring compliance with TAN-15.

6 Summary and recommendations

The site is at very low/low risk of fluvial, tidal, groundwater, reservoir and sewer flooding. The site is located within Flood Zones 2 and 3 of the FMfP for Surface Water and Small Watercourses. As the site is situated within Flood Zones 2 and 3, it triggers the requirements for an FCA to be undertaken. The extent and severity of flooding from surface water within the site is likely to be adequately managed through further assessment and good site design.

It is therefore considered that this site is likely to satisfy the requirements of TAN-15, subject to the following recommendations:

- Any planning application for the site should be accompanied by an FCA which demonstrates how the proposals meet the requirements of TAN-15.
- The FCA shall include a detailed hydraulic assessment demonstrating small watercourse risk to the site. Detailed assessment may provide an opportunity to redefine the flood extents at this location.
- Any surface water management scheme to mitigate flood risk associated with the small watercourse shall be required to demonstrate sufficient capacity for all design events. This system shall be retained separately to the proposed system for on-site surface water drainage.
- A sequential approach to master planning placing all Highly Vulnerable Development outside of the predicted flood extent is followed. Water compatible uses, such as public open space could be appropriate in areas of Flood Zone 2 and 3.
- A Drainage Statement shall be required, demonstrating how surface water shall be managed on site, in line with the Statutory Standards for SuDS in Wales. Consideration should be given to the risk of a surcharged outfall should any proposed surface water system discharge to the small watercourse along the eastern boundary of the site.

Our Offices

Bristol
Coleshill
Cork
Doncaster
Dublin
Edinburgh
Exeter
Glasgow
Haywards Heath
Leeds
Limerick

Newcastle
Newport
Peterborough
Portsmouth
Saltaire
Skipton
Tadcaster
Thirsk
Wallingford
Warrington



Registered Office

1 Broughton Park
Old Lane North
Broughton
SKIPTON
North Yorkshire
BD23 3FD
United Kingdom

+44(0) 1756 799919
info@jbaconsulting.com
www.jbaconsulting.com

Follow us on  

Jeremy Benn
Associates Limited
Registered in
England
3246693

JBA Group Ltd is
certified to
ISO 9001:2015
ISO 14001:2015
ISO 27001:2022
ISO 45001:2018





Monmouthshire Strategic Flood Consequences Assessment - Land East of Burrium Gate, Usk (HA11)

Final

Prepared for
Monmouthshire County
Council
County Hall
The Rhadyr
Usk
NP15 1GA

Date
October 2025

Document Status

Issue date	October 2025
Issued to	Monmouthshire County Council
BIM reference	QEW-JBA-XX-XX-RP-Z-0002-D3-C02-Land_East_of_Burrium_Gate
Revision	Final
Prepared by	George Williams Analyst
Reviewed by	Peter Rook BSc MSc MCIWEM C.WEM FGS Project Manager
Authorised by	Peter Rook BSc MSc MCIWEM C.WEM FGS Project Manager

Carbon Footprint

The format of this report is optimised for reading digitally in pdf format. Paper consumption produces substantial carbon emissions and other environmental impacts through the extraction, production and transportation of paper. Printing also generates emissions and impacts from the manufacture of printers and inks and from the energy used to power a printer. Please consider the environment before printing.

Accessibility

JBA aims to align with [governmental guidelines on accessible documents](#) and [WGAG 2.2](#) AA standards, so that most people can read this document without having to employ special adaptation measures. This document is also optimised for use with assistive technology, such as screen reading software.

Contract

JBA Project Manager	Peter Rook
Address	35 Perrymount Road, Haywards Heath, West Sussex, RH16 3BW
JBA Project Code	2025s0844

This report describes work commissioned by Monmouthshire County Council by an instruction dated 8th of August 2025. George Williams of JBA Consulting carried out this work.

Purpose and Disclaimer

Jeremy Benn Associates Limited (“JBA”) has prepared this Report for the sole use of Monmouthshire County Council and its appointed agents in accordance with the Agreement under which our services were performed.

JBA has no liability for any use that is made of this Report except to Monmouthshire County Council for the purposes for which it was originally commissioned and prepared.

No other warranty, expressed or implied, is made as to the professional advice included in this Report or any other services provided by JBA. This Report cannot be relied upon by any other party without the prior and express written agreement of JBA.

JBA disclaims any undertaking or obligation to advise any person of any change in any matter affecting the Report, which may come or be brought to JBA’s attention after the date of the Report.

The methodology adopted and the sources of information used by JBA in providing its services are outlined in this Report. The work described in this Report was undertaken between August 2025 and October 2025 and is based on the conditions encountered and the information available during the said period. The scope of this Report and the services are accordingly factually limited by these circumstances.

The conclusions and recommendations contained in this Report are based upon information provided by others and upon the assumption that all relevant information has been provided by those parties from whom it has been requested and that such information is accurate. Information obtained by JBA has not been independently verified by JBA, unless otherwise stated in the Report.

Copyright

© Jeremy Benn Associates Limited 2025

Contents

1	Introduction	1
2	Site Description	1
2.1	Site Overview	1
2.2	Development proposals	2
2.3	Watercourses and Flood Defences	2
2.4	Topography	3
3	Planning Policy and Flood Risk	5
4	Assessment of Flood Risk	6
5	Application of Flood Zones to Development Management Decisions	9
5.1	Flood Risk from Surface Water and Small Watercourses	9
6	Summary and recommendations	10

List of Figures

Figure 2-1	Proposed Development Site	2
Figure 2-2	Watercourse and Flood Defences	3
Figure 2-3	NRW 1m LiDAR DTM	4
Figure 4-1	0.1% AEP + Climate Change - Flood depths	7

List of Tables

Table 2-1	Site Summary	1
Table 3-1	TAN-15 Development classification summary	5
Table 4-1	Summary of flood risk	6

1 Introduction

JBA Consulting has been commissioned by Monmouthshire County Council to prepare an independent Flood Risk Appraisal as part of a Stage 2 Strategic Flood Consequences Assessment (SFCA) for sites considered for allocation in its Replacement Local Development Plan.

This assessment will evaluate the risk of flooding from all sources to the proposed development at Land East of Burrium Gate, Usk, the proposed development site, as well as the appropriateness of development at the site in accordance with Welsh Government policy, as outlined in Technical Advice Note 15 (TAN-15). Furthermore, recommendations will be provided, where appropriate, to mitigate the risk of flooding at the proposed development site, as well as recommendations for further works.

2 Site Description

2.1 Site Overview

The key characteristics of the site are summarised in Table 2-1 and the location and site boundary are shown in Figure 2-1 below.

Table 2-1 Site Summary

Site Name	Land East of Burrium Gate
Site ID	HA11
Site area	2.6
Existing land use	Greenfield
Purpose of development	Residential development
OS NGR	SO 38386 01548
Access location	Access to the site is via Monmouth Road.



Figure 2-1 Proposed Development Site

2.2 Development proposals

The proposal is currently at a high level strategic stage for an allocation for residential development within the Monmouthshire RLDP (2018-2033).

2.3 Watercourses and Flood Defences

A small, unnamed watercourse is shown to transgress the site close to the northern boundary. The watercourse flows in an east to west direction before joining another small, unnamed ordinary watercourse. The watercourse flows in a predominantly southerly direction, through the Burrium Gate estate, where a small amount of attenuation is present within a pond in the centre of the estate. From this pond, the watercourse continues to flow in a southerly direction towards tributaries of the Olway Brook.

The Olway Brook, an NRW designated Main River is located approximately 350m south of the proposed development site. The Olway Brook flows in a westerly direction towards the River Usk. The River Usk, at its nearest point, is approximately 1km to the east of the site.

The site does not benefit from the presence of any defences.

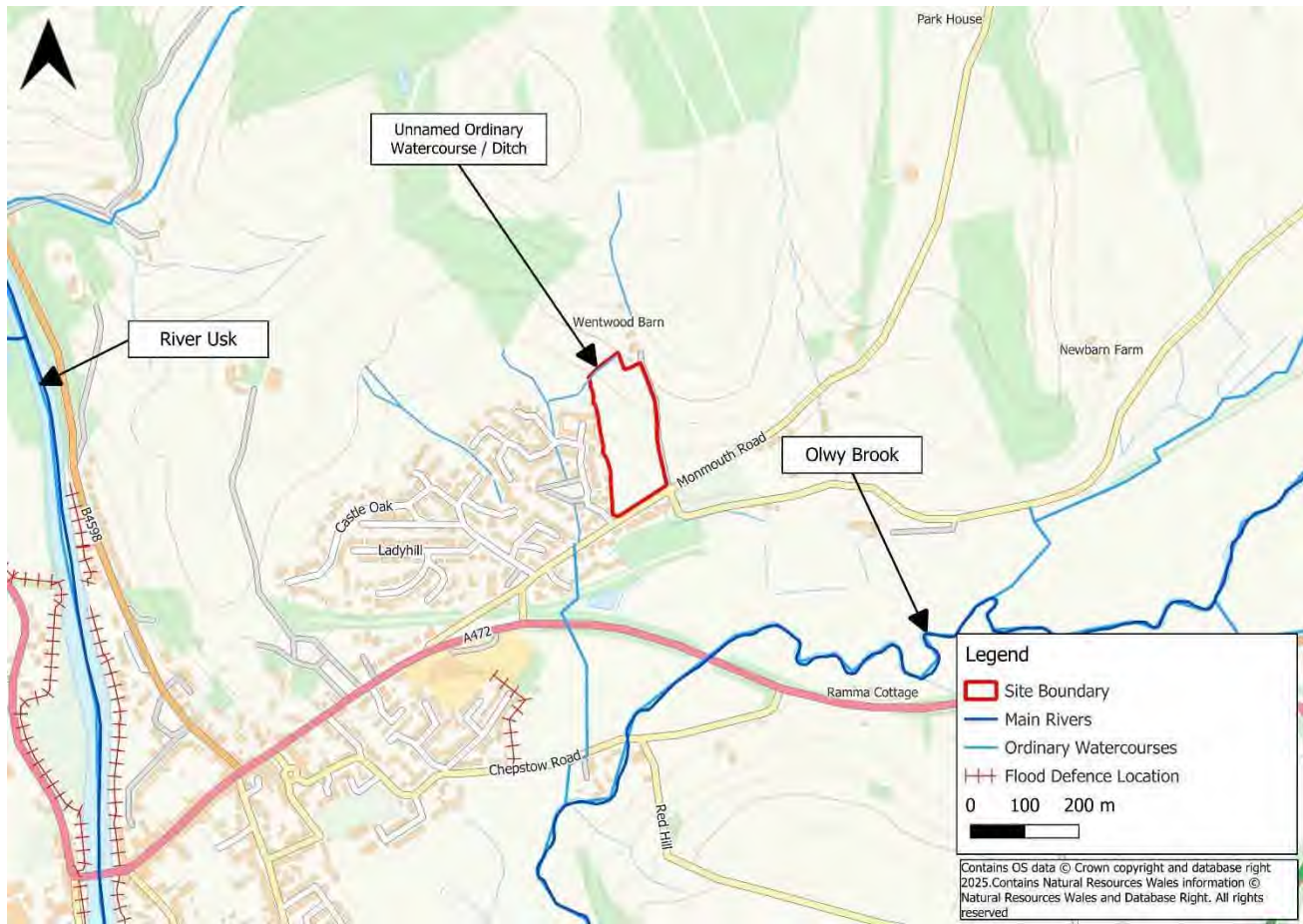


Figure 2-2 Watercourse and Flood Defences

2.4 Topography

The Natural Resources Wales (NRW) Open Source 1m Light Detection and Ranging (LiDAR) data¹ across the site has been reviewed and is shown in Figure 2-3.

The site has a steep fall in a northeast to southwest direction, with highest ground levels found in the northwest, at an elevation of 52.4mAOD. The lowest identified ground level on site has an elevation of 20.02mAOD in the southwest corner of the site.

¹ <https://datamap.gov.wales/maps/lidar-data-download/>

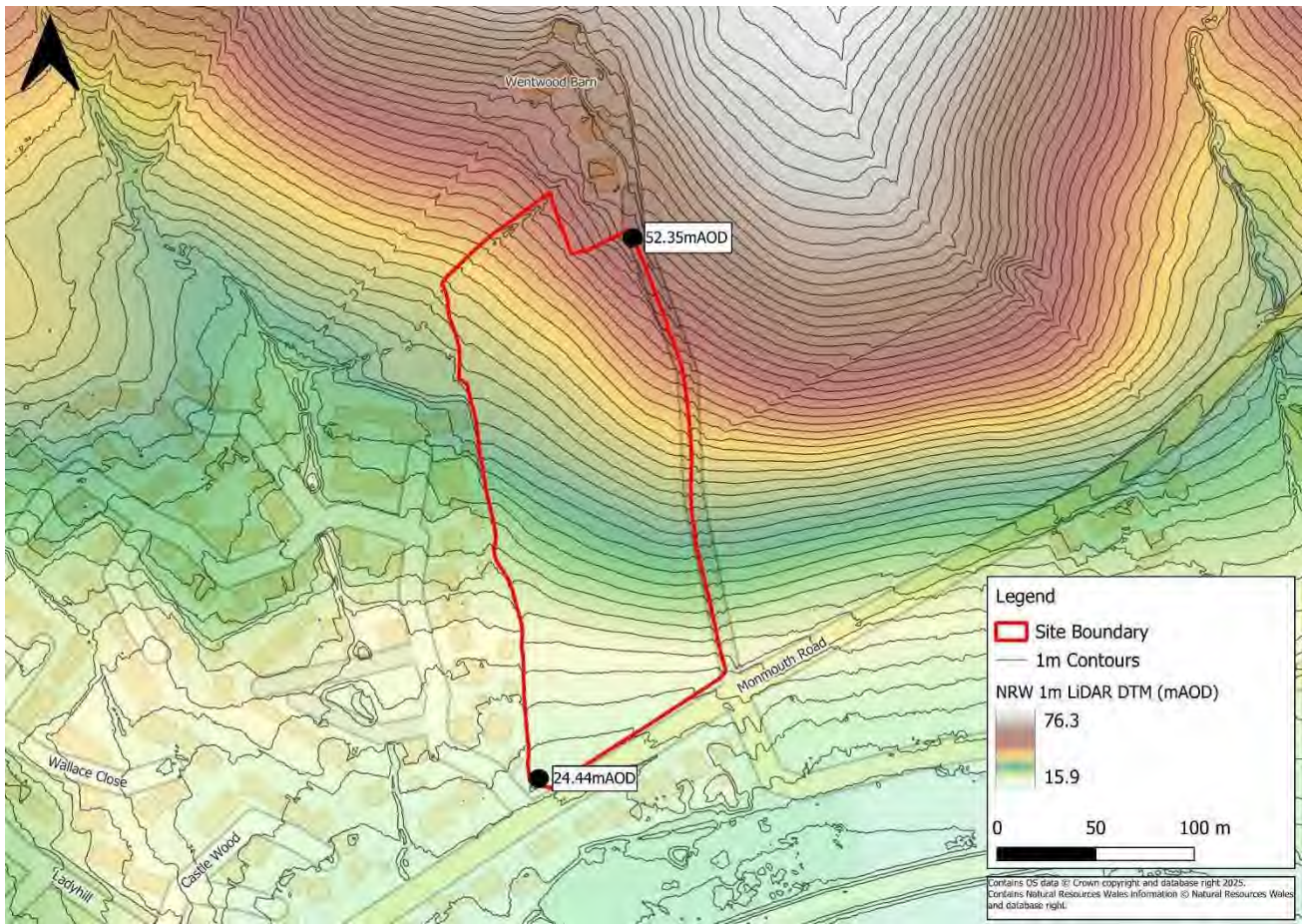


Figure 2-3 NRW 1m LiDAR DTM

3 Planning Policy and Flood Risk

TAN-15 provides a framework within which flood risks arising from rivers, the sea, and surface water, as well as the risk of coastal erosion, can be assessed. TAN-15 adopts a risk-based approach, which emphasises the ability to avoid or minimise risk depending on the type of development proposed.

The following table identifies the form of development, vulnerability classification and Flood Map for Planning classification (as defined in TAN-15) for the proposed development site.

Table 3-1 TAN-15 Development classification summary

TAN-15 classification	Classification
Development Proposal	Residential
Form of Development	New Development
Vulnerability Classification	Highly Vulnerable Development
Flood Map for Planning- Rivers	Flood Zone 1
Flood Map for Planning- Sea	Flood Zone 1
Flood Map for Planning- Surface Water and Small Watercourses	Flood Zone 1

4 Assessment of Flood Risk

The latest available information on flood risk at the site, published by Natural Resources Wales (NRW) and datasets used in the SFCA is summarised in Table 4-1 below.

Table 4-1 Summary of flood risk

Source of Flooding	Onsite Presence	Description
Flood Risk from Rivers	✖	The site's location within Flood Zone 1 of the FMfP for the Sea indicates that the site is at very low risk of fluvial flooding.
Flood Risk from the Sea	✖	The site's location within Flood Zone 1 of the FMfP for the Sea indicates that the site is at very low risk of flooding from the sea.
Flood Risk from Surface Water and Small Watercourses	✖	The site's location within Flood Zone 1 of the FMfP for the Surface Water and Small watercourses indicates that the site is at very low risk of surface water and small watercourse flooding. However, there is a known history of flooding at this location. Consequently, further assessment is contained in Section 4.1.1.
Flood Risk from Groundwater	✓	The South East Wales SFCA includes JBAs Groundwater Risk of Emergence map as part of the assessment and shows the site to be in an area of 'no risk' from groundwater emergence. Consequently the risk of flooding has been assessed to be very low .
Flood Risk from Reservoirs	✖	The NRW Flood Map for Planning shows that the site is not located in an area at risk of reservoir flooding. Therefore, it is concluded that the risk of flooding is very low .
Flood Risk from Sewers	✖	The Southeast Wales SFCA has identified that there are no historic sewer flood incidents within this area of Monmouthshire. The site is greenfield and is unlikely to have any sewerage infrastructure, which could overflow and cause sewer flooding. Therefore, it is concluded that the risk of flooding is very low .

4.1.1 Flood Risk from Surface Water and Small Watercourses

Surface water flooding occurs when rain falling on saturated ground flows overland, following the local topography. Surface water flooding and subsequent overland flow can therefore pose a risk to both the development site and the surrounding land. The overland flow may originate from the site itself or adjoining land at a higher elevation from which the flow migrates onto the development.

The Flood Map for Planning - Surface Water and Small Watercourses indicates that the site is at very low risk of this source of flooding, including an allowance for climate change. However, there is a known flood history to the area and further analysis of flood risk is therefore considered appropriate.

NRW's National Flood Hazard Mapping has been consulted to provide an indication of flood risk to the area. The 0.1% AEP plus climate change results are shown in Figure 4-1. The dataset indicates that the proposed development site is predicted to be flood free during the extreme event.

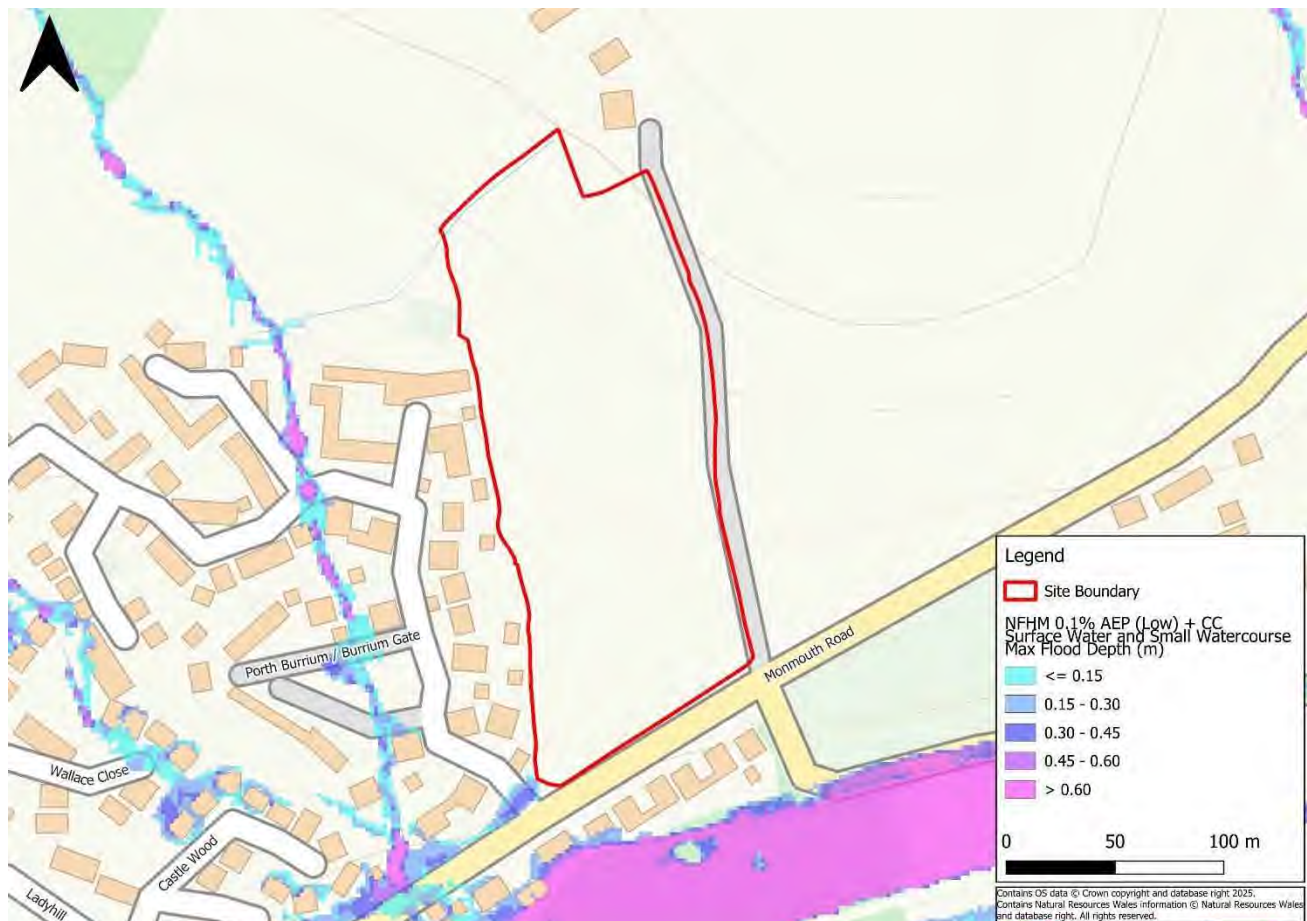


Figure 4-1 0.1% AEP + Climate Change - Flood depths

The NFHM is considered to not correlate well with known historic flood events. In May 2023 flooding occurred at both the adjacent Burrium Gate development, and to properties north of the proposed development site. In addition, flooding occurred along Monmouth Road (the proposed access route) and the unnamed highway to the eastern boundary of the site.

Flood flows were also observed along the western boundary of the proposed development site, with an area of ponding in the south-western corner of the site.

NRW's NFHM mapping of surface water and small watercourse flood risk is derived from generalised national scale modelling and LiDAR data. It therefore only includes generalised assumptions for surface water drainage features and limited representations of structures and watercourses, dependent on quality of the LiDAR data used. Where culverted watercourses are present in the modelling these features are often identified and/or assumed from OS and aerial mapping, and it is not unusual for key culverts to be entirely absent from the modelling. This can lead to significant overestimation of flooding in some locations, and underestimation in others. Analysis of the LiDAR informing the broadscale mapping at this location indicates that the unnamed watercourse to the north of the site is not well represented. As a result of this, alongside the known flood history in this location, it is considered likely that the NFHM is underestimating risk to the proposed development site and its access routes.

It is therefore recommended that further hydraulic assessment is undertaken to determine actual flood risk to the proposed development site, and its access route. It is considered unlikely that a SuDS system shall be sufficient to manage the small watercourse risk as assessed on the site. It is therefore anticipated that a separate surface water management system will need to be constructed to manage this surface water flood risk separately to the site SuDS System.

5 Application of Flood Zones to Development Management Decisions

5.1 Flood Risk from Surface Water and Small Watercourses

Sections 10 and 11 of TAN15 do not strictly to apply to the surface water and small watercourse zones in which this proposed development site lies. However, the principles of the TAN should be considered for proposed development, particularly where flood risk relates to small watercourses.

When a site is developed in areas at risk or near a risk, it will potentially change the expected flow of water during a flood. It is important that planning authorities are provided with a clear assessment of how a development will affect surface water risks, and these sources can be managed or mitigated; these measures must not increase the flood risk elsewhere.

Whilst a site is located in Flood Zone 1, there is a known history of flooding at the proposed development site. It is also considered that the NFHM is likely to underestimate flood risk at this location as a consequence of the broadscale modelling methods used to derive the dataset. Consequently, in line with Section 6.1 of TAN-15, an FCA shall be required to demonstrate that a full hydraulic assessment has been undertaken to determine actual flood risk to the proposed development site, and its access route. Section 6.1 of TAN-15 states:

A Flood Consequences Assessment is required for any development proposal located fully or partly in Surface Water and Small Watercourses - Flood Zones 2 and 3...An assessment should also be undertaken for development on sites outside of these zones, but which has the potential to affect the course of surface water and/or excess water from ordinary watercourses.

It is considered unlikely that a SuDS system shall be sufficient to manage the small watercourse risk as assessed on the site. It is therefore anticipated that a separate surface water management system will need to be constructed to manage this surface water flood risk separately to the site SuDS System.

A Drainage Statement shall also be required to be submitted in support of the planning application, demonstrating how surface water generated on-site will be managed in accordance with the Statutory Standards for SuDS in Wales, thereby ensuring compliance with TAN-15.

6 Summary and recommendations

The site is located in Flood Zone 1 for flood risk from Rivers, the Sea and Surface Water and Small Watercourses, indicating very low risk of flooding from these sources.

Furthermore, the site was also found to be at very low risk from groundwater, reservoir and sewer flood risk.

However, there is a known flood history to the development site and its surrounding area, and it is considered likely that the FMfP and NFHM datasets are underestimating flood risk at this location. Consequently, it is advised that in line with Section 6.1 of TAN-15, an FCA shall be required for the site, providing details of a full hydraulic assessment of flood risk to the proposed development site. Any such assessment should include consideration of the provision of safe access and egress during all design events for the lifetime of the proposed development.

It is considered likely that the site shall meet the requirements of TAN-15, subject to the following recommendations:

- Any planning application for the site should be accompanied by an FCA which demonstrates how the proposals meet the requirements of TAN-15.
- The FCA shall include a detailed hydraulic assessment demonstrating small watercourse flood risk to the site. Detailed assessment may provide an opportunity to redefine the flood extents at this location.
- Any surface water management scheme to mitigate flood risk associated with the small watercourse shall be required to demonstrate sufficient capacity for all design events. This system shall be retained separately to the proposed system for on-site surface water drainage.
- A Drainage Statement shall be required, demonstrating how surface water shall be managed on site, in line with the Statutory Standards for SuDS in Wales, and TAN-15.

Our Offices

Bristol
Coleshill
Cork
Doncaster
Dublin
Edinburgh
Exeter
Glasgow
Haywards Heath
Leeds
Limerick

Newcastle
Newport
Peterborough
Portsmouth
Saltaire
Skipton
Tadcaster
Thirsk
Wallingford
Warrington



Registered Office

1 Broughton Park
Old Lane North
Broughton
SKIPTON
North Yorkshire
BD23 3FD
United Kingdom

+44(0) 1756 799919
info@jbaconsulting.com
www.jbaconsulting.com

Follow us on  

Jeremy Benn
Associates Limited
Registered in
England
3246693

JBA Group Ltd is
certified to
ISO 9001:2015
ISO 14001:2015
ISO 27001:2022
ISO 45001:2018





Monmouthshire Strategic Flood Consequences Assessment - Land adjacent to Piercefield Public House, St Arvans (HA13)

Final

Prepared for
**Monmouthshire County
Council**
County Hall,
The Rhadyr,
Usk,
NP15 1GA.

Date
October 2025

Document Status

Issue date	October 2025
Issued to	Monmouthshire County Council
BIM reference	QEW-JBA-XX-XX-RP-Z-0005-D3-C02-Land_adjacent_to_Piercefield_Public_House_St_Arvans
Revision	Final
Prepared by	George Williams BSc (Hons) MSc Analyst
Reviewed by	Peter Rook BSc MSc MCIWEM C.WEM FGS Project Manager
Authorised by	Peter Rook BSc MSc MCIWEM C.WEM FGS Project Manager

Carbon Footprint

The format of this report is optimised for reading digitally in pdf format. Paper consumption produces substantial carbon emissions and other environmental impacts through the extraction, production and transportation of paper. Printing also generates emissions and impacts from the manufacture of printers and inks and from the energy used to power a printer. Please consider the environment before printing.

Accessibility

JBA aims to align with [governmental guidelines on accessible documents](#) and [WGAG 2.2](#) AA standards, so that most people can read this document without having to employ special adaptation measures. This document is also optimised for use with assistive technology, such as screen reading software.

Contract

JBA Project Manager	Peter Rook
Address	35 Perrymount Road, Haywards Heath, West Sussex, RH16 3BW
JBA Project Code	2025s0844

This report describes work commissioned by Monmouthshire County Council by an instruction dated 08 August 2025. George Williams of JBA Consulting carried out this work.

Purpose and Disclaimer

Jeremy Benn Associates Limited (“JBA”) has prepared this Report for the sole use of Monmouthshire County Council and its appointed agents in accordance with the Agreement under which our services were performed.

JBA has no liability for any use that is made of this Report except to Monmouthshire County Council for the purposes for which it was originally commissioned and prepared.

No other warranty, expressed or implied, is made as to the professional advice included in this Report or any other services provided by JBA. This Report cannot be relied upon by any other party without the prior and express written agreement of JBA.

JBA disclaims any undertaking or obligation to advise any person of any change in any matter affecting the Report, which may come or be brought to JBA’s attention after the date of the Report.

The methodology adopted and the sources of information used by JBA in providing its services are outlined in this Report. The work described in this Report was undertaken between August 2025 and October 2025 and is based on the conditions encountered and the information available during the said period. The scope of this Report and the services are accordingly factually limited by these circumstances.

The conclusions and recommendations contained in this Report are based upon information provided by others and upon the assumption that all relevant information has been provided by those parties from whom it has been requested and that such information is accurate. Information obtained by JBA has not been independently verified by JBA, unless otherwise stated in the Report.

Copyright

© Jeremy Benn Associates Limited 2025

Contents

1	Introduction	1
2	Site Description	1
2.1	Development proposals	2
2.2	Watercourses and Flood Defences	2
2.3	Topography	3
3	Planning Policy and Flood Risk	5
4	Assessment of Flood Risk	6
5	Application of Flood Zones to Development Management Decisions	9
6	Summary and recommendations	10

List of Figures

Figure 2-1	Proposed development site	2
Figure 2-2	Watercourses and Flood Defences	3
Figure 2-3	1m LiDAR	4
Figure 3-1	Flood Map for Planning- Surface Water and Small Watercourses	5
Figure 4-1	Flood Risk from Surface Water and Small Watercourses- 1% AEP + Climate Change - Flood depths	7
Figure 4-2	Flood Risk from Surface Water and Small Watercourses- 0.1% AEP + Climate Change - Flood depths	8

List of Tables

Table 2-1	Site Summary	1
Table 3-1	TAN-15 Development classification summary	5
Table 4-1	Summary of flood risk	6

1 Introduction

JBA Consulting has been commissioned by Monmouthshire County Council to prepare an independent Flood Risk Appraisal as part of a Stage 2 Strategic Flood Consequences Assessment (SFCA) for sites considered for allocation in its Replacement Local Development Plan.

This assessment will evaluate the risk of flooding from all sources to the Land adjacent to Piercefield Public House, St Arvans, the proposed development site, as well as the appropriateness of development at the site in accordance with Welsh Government policy, as outlined in Technical Advice Note 15 (TAN-15). Furthermore, recommendations will be provided, where appropriate, to mitigate the risk of flooding at the proposed development site, as well as recommendations for further works.

2 Site Description

The key characteristics of the site are summarised in Table 2-1 and the location and site boundary are shown in Figure 2-1 below.

Table 2-1 Site Summary

Site Name	Land Adjacent to Piercefield Public House, St Arvans
Site ID	HA13
Site Area (ha)	1.1
Existing land use	Greenfield
Purpose of development	Residential Development
OS NGR	ST 51851 96290
Access location	Via the A466



Figure 2-1 Proposed development site

2.1 Development proposals

The proposals are for an allocation for residential development within the Monmouthshire RLDP (2018-2033).

2.2 Watercourses and Flood Defences

Figure 2-2 shows the locations of the nearest NRW Main Rivers and ordinary watercourses.

The River Wye, an NRW designated Main River, is located approximately 700m east of the site.

OS watercourse mapping indicates the presence of an unnamed ordinary watercourse located approximately 35m to the south of the site. However, there is no evidence on aerial mapping or other information on the existence or location of the watercourse. The watercourse in question is shown to flow in an easterly direction before discharging into the River Wye.

The site does not benefit from any flood defences, nor are any present along the River Wye close to the proposed development site.

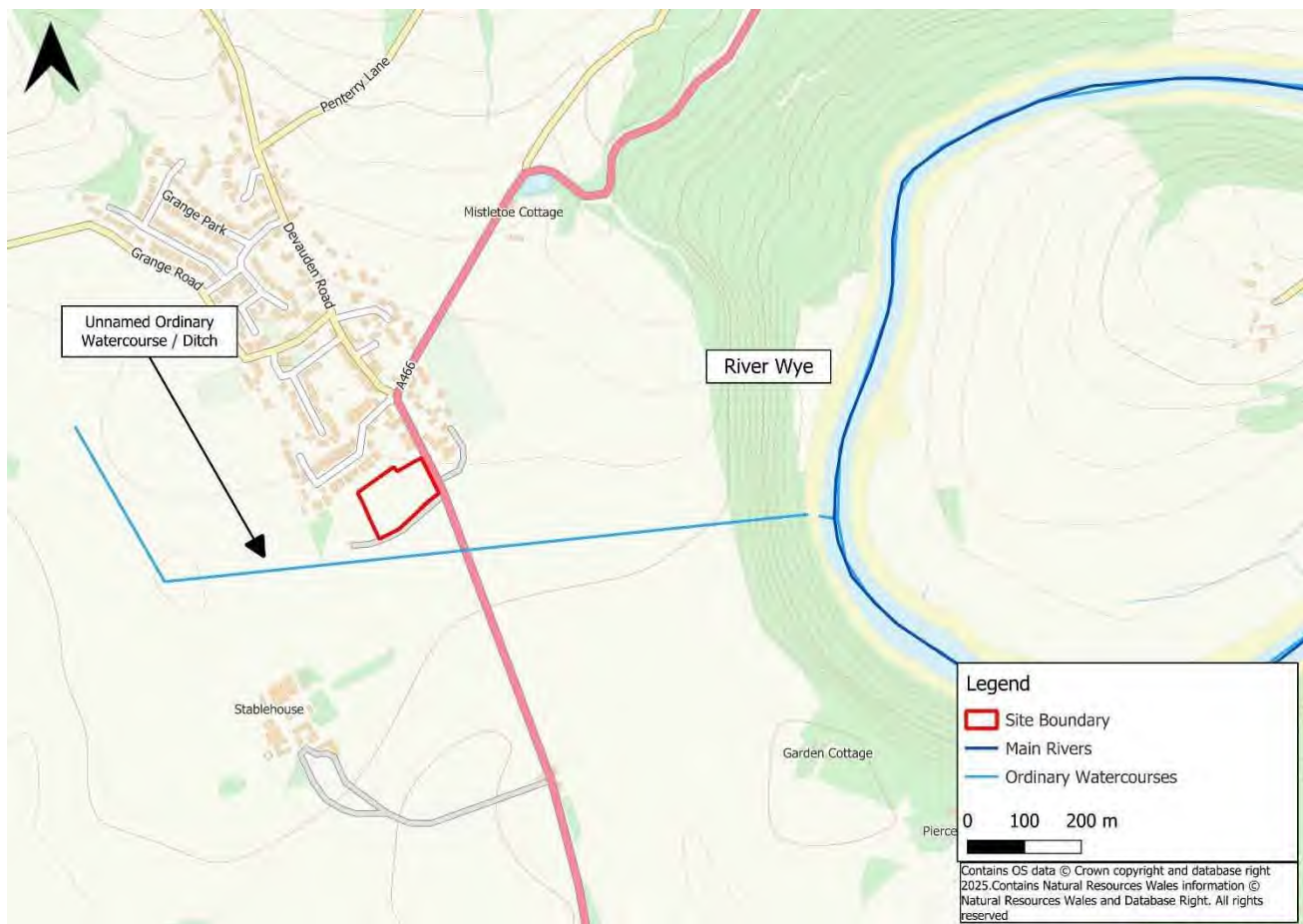


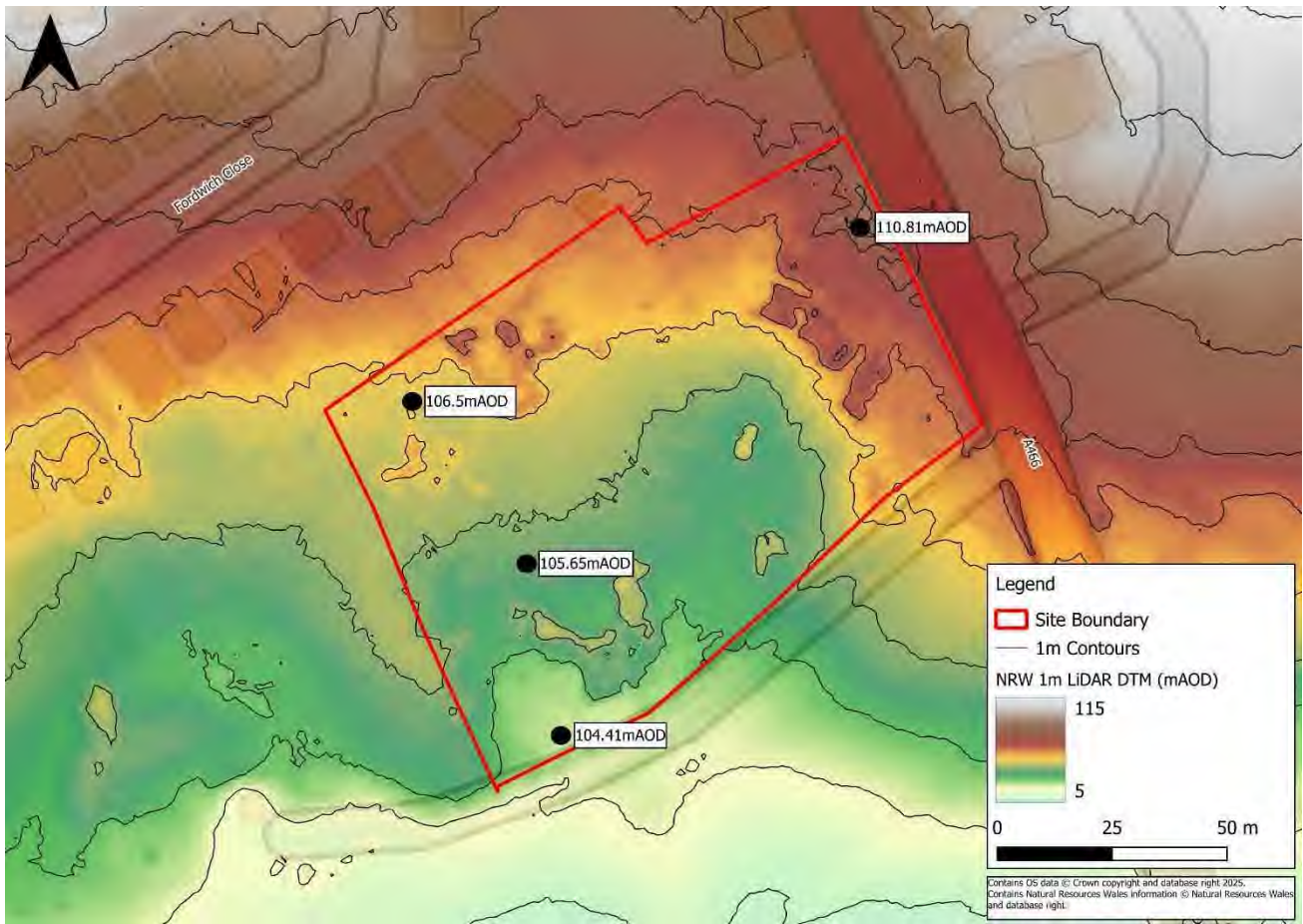
Figure 2-2 Watercourses and Flood Defences

2.3 Topography

The Natural Resources Wales (NRW) Open Source 1m Light Detection and Ranging (LiDAR) data¹ across the site has been reviewed and is shown in Figure 2-3.

Levels across the site generally fall in a south westerly direction, with levels in the northeastern corner adjacent to the A466 having the highest elevation of 110.81mAOD. Ground levels fall to 104.41mAOD at the south-western boundary of the site.

¹ <https://datamap.gov.wales/maps/lidar-data-download/>



3 Planning Policy and Flood Risk

TAN-15 provides a framework within which flood risks arising from rivers, the sea, and surface water, as well as the risk of coastal erosion, can be assessed. TAN-15 adopts a risk-based approach, which emphasises the ability to avoid or minimise risk depending on the type of development proposed.

The following table identifies the form of development, vulnerability classification and Flood Map for Planning classification (as defined in TAN-15) for the proposed development site.

Table 3-1 TAN-15 Development classification summary

TAN-15 Classification	Land Adjacent to Piercefield Public House, St Arvans
Development Proposal	Residential
Form of Development	New Development
Vulnerability Classification	Highly Vulnerable Development
Flood Map for Planning- Rivers	Flood Zone 1
Flood Map for Planning- Sea	Flood Zone 1
Flood Map for Planning- Surface Water and Small Watercourses	Flood Zones 2 - (See Figure 3-1 below)



Figure 3-1 Flood Map for Planning- Surface Water and Small Watercourses

4 Assessment of Flood Risk

The latest available information on flood risk at the site, published by Natural Resources Wales (NRW) and datasets used in the SFCA is summarised in Table 4-1 below.

Table 4-1 Summary of flood risk

Source of Flooding	Onsite Presence	Description
Flood Risk from Rivers	✖	The site's location within Flood Zone 1 of the FMfP for Rivers indicates that the site is at very low risk of fluvial flooding.
Flood Risk from the Sea	✖	The site's location within Flood Zone 1 of the FMfP for the Sea indicates that the site is at very low risk of fluvial flooding.
Flood Risk from Surface Water and Small Watercourses	✓	The site is at low risk of surface water flooding (Section 4.1.1).
Flood Risk from Groundwater	✖	The South East Wales Stage 1 SFCA includes JBAs Groundwater Risk of Emergence map as part of the assessment and shows the site to be in an area of 'low' risk from groundwater emergence. There have been no recorded incidents of groundwater flooding in this area of Monmouthshire mentioned in the Stage 1-SFCA. Therefore, it is concluded that the risk of flooding is very low .
Flood Risk from Reservoirs	✖	The NRW Flood Map for Planning shows that the site is not located in an area at risk of reservoir flooding. Therefore, it is concluded that the risk of flooding is very low .
Flood Risk from Sewers	✖	The South East Wales Stage 1 SFCA identifies that there have been 2 sewer flood incidents within St Arvans Ward. This is a low number of incidents. Furthermore, the site is greenfield and is unlikely to have any sewage infrastructure, which could surcharge and cause sewer flooding. Therefore, it has been assessed that the risk of sewer flooding is low .

4.1.1 Flood Risk from Surface Water and Small Watercourses

Surface water flooding occurs when rain falling on saturated ground flows overland, following the local topography. Surface water flooding and subsequent overland flow can therefore pose a risk to both the development site and the surrounding land. The overland flow may originate from the site itself or adjoining land at a higher elevation from which the flow migrates onto the development.

The Flood Map for Planning - Surface Water and Small Watercourses indicates that a small area of the site is at risk of small watercourse flooding, with the application of climate change. The risk is associated with a flow path that runs centrally through the site.

The NRW National Flood Hazard Mapping (NFHM) has been used to provide a further assessment of surface water flooding. During the 1% AEP plus climate change event the site is shown to flood free, as shown in Figure 4-1.

During the 0.1% AEP plus climate change event, the site is shown to flood to depths up to 300mm, close to the site's southern boundary, as shown in Figure 4-2. However, flood depths rarely exceed 180mm.

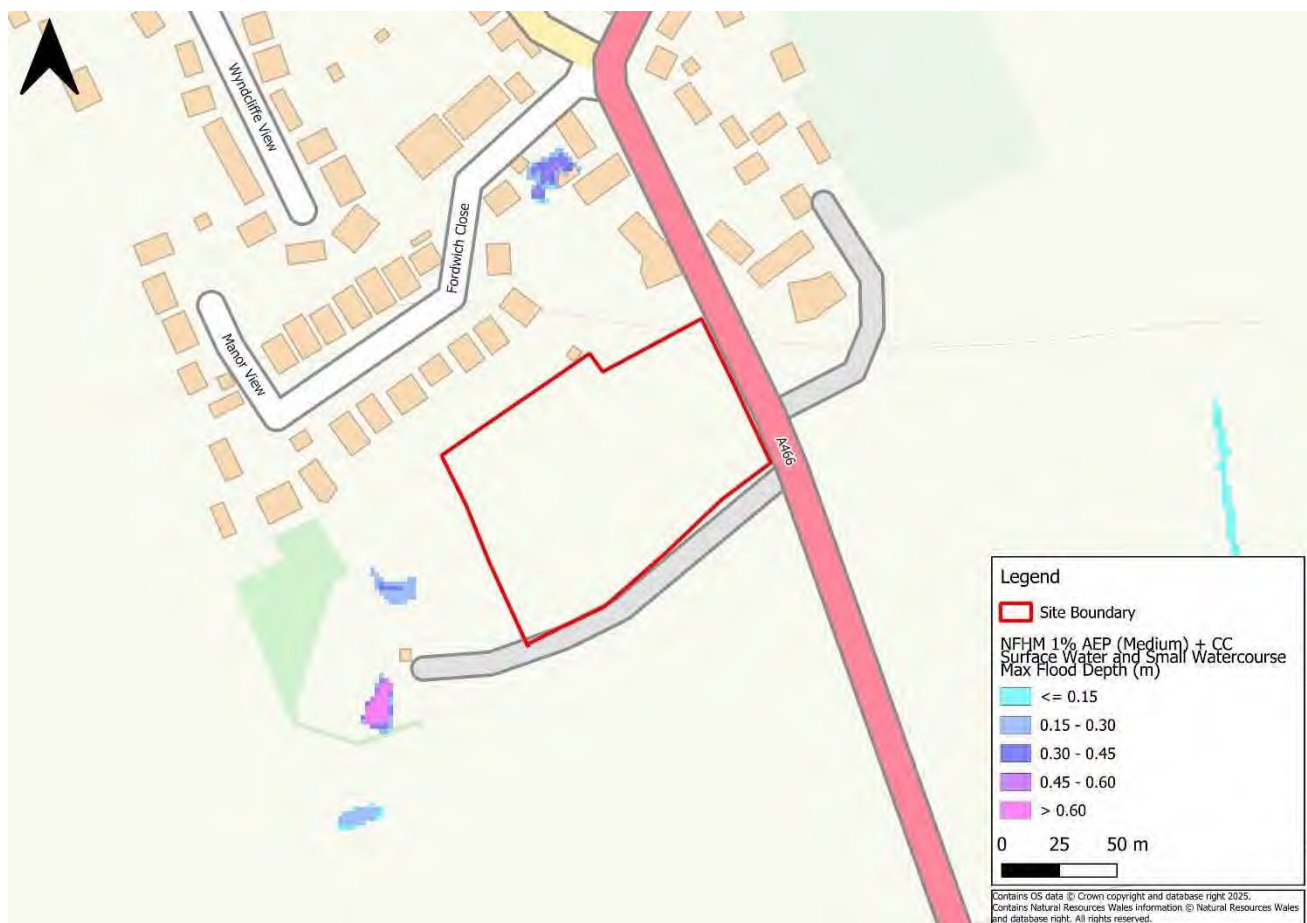


Figure 4-1 Flood Risk from Surface Water and Small Watercourses- 1% AEP + Climate Change - Flood depths

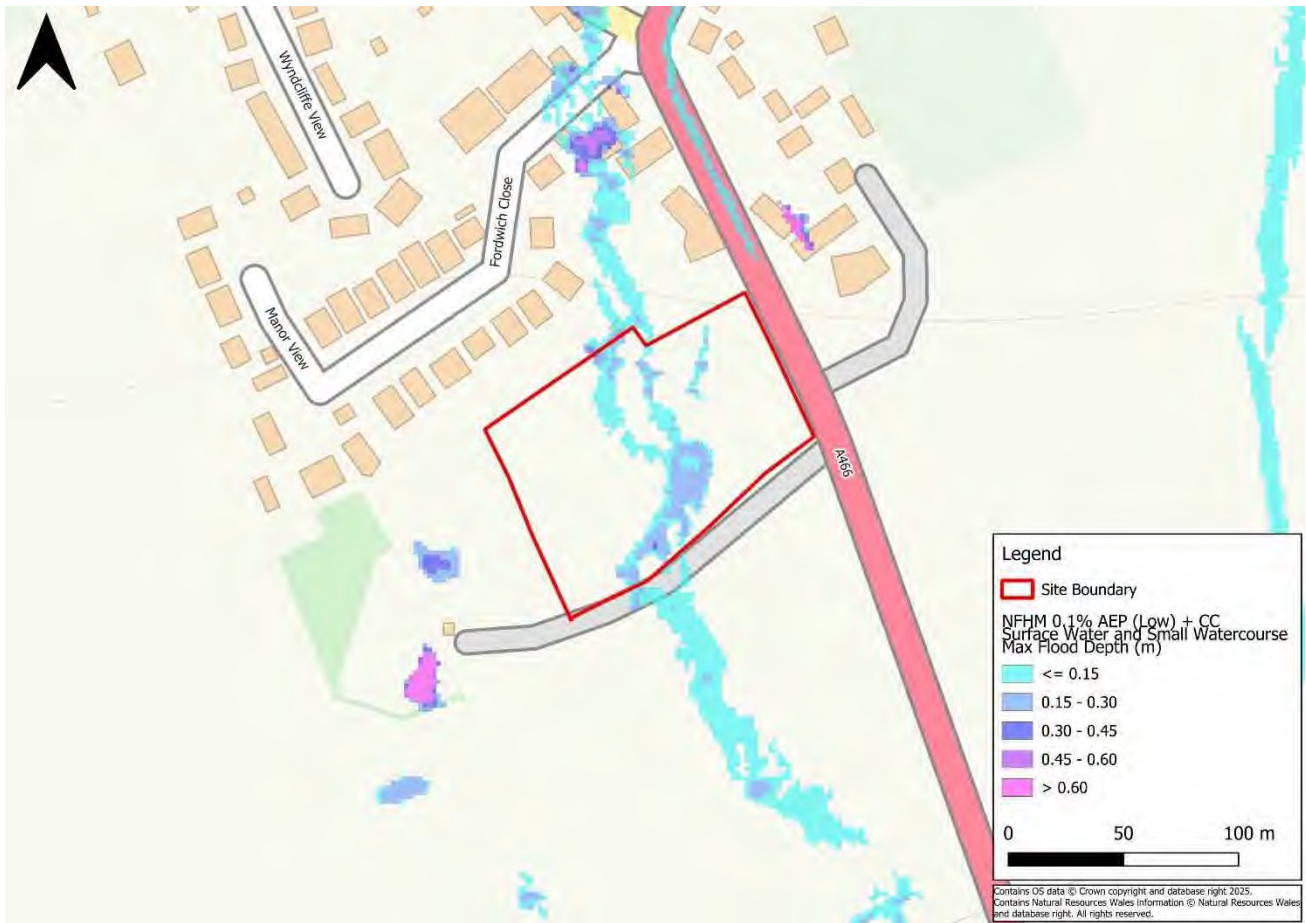


Figure 4-2 Flood Risk from Surface Water and Small Watercourses- 0.1% AEP + Climate Change - Flood depths

Due to the broadscale nature of the NFHM dataset, often surface water flow paths may be exaggerated, leading to an overestimation of risk. Furthermore, the relatively low depths will likely be managed via a site-specific drainage strategy that includes the use of SuDS. As the depths are relatively low, and the broad-scale mapping may be overestimating the risk, the risk from surface water flooding at the site is assessed to be **low**.

5 Application of Flood Zones to Development Management Decisions

When considering a site for development, Sections 10 and 11 of TAN-15 outline the requirements for the type of development permitted in any given flood zone. However, these sections do not strictly apply to the surface water and small watercourse zones in which this proposed development site lies.

As the site is located in Flood Zone 2 of the FMFP for Surface Water and Small Watercourses, it will require a Flood Consequences Assessment (FCA) to assess the risk to the development proposals. It should be ensured that the development complies with the requirements of Section 11.4 of TAN-15.

TAN-15 advises that Planning Authorities should ensure any new development adjacent to Flood Zones 2 and 3 for Surface Water and Small Watercourses is appropriately setback to allow for extreme flood events. When a site is developed in areas at risk or near at-risk, it will potentially change the expected flow of water during a flood. It is important that the LPA is provided with a clear assessment of how a development will affect surface water and ordinary watercourse flood risk, and if this risk can be managed or mitigated, these measures must not increase the flood risk elsewhere.

The LPA should also seek the LLFA's views on planning applications where surface water and ordinary watercourse flood risk is potentially a reason for refusal or where the risk is proposed to be managed or mitigated.

Due to the relatively small surface water flow path predicted onsite and the relatively shallow flood depths modelled, it is possible that surface water could be adequately managed through the implementation of Sustainable Drainage Systems (SuDS) as part of an adequate drainage strategy. Further investigations of the flow path should be undertaken as part of a site specific FCA.

6 Summary and recommendations

The site is located within Flood Zones 2 and 3 of the FMFP for Surface Water and Small Watercourses. As the site is situated within Flood Zones 2 and 3, it triggers the requirements for an FCA to be undertaken. The extent and severity of flooding within the site is minimal and is likely to be manageable through further assessment and design as the extent and severity of flooding is likely to be manageable.

The following recommendations are made for the site.

- Any planning application for the site should be accompanied by an FCA which demonstrates how the proposals meet the requirements of TAN-15.
- Utilise a sequential approach to master planning to locate the most vulnerable elements of the site within Flood Zone 1.
- The existing surface water flow path on site should be retained and managed appropriately, mitigating the risk of surface water flooding to proposed dwellings. Any FCA submitted for the site should demonstrate consideration of such risk. A hydraulic assessment may be required should significant alterations to the predicted flow path be proposed.
- A Drainage Statement shall be required demonstrating how surface water shall be managed on site, in line with the Statutory Standards for SuDS in Wales, and TAN-15

Our Offices

Bristol
Coleshill
Cork
Doncaster
Dublin
Edinburgh
Exeter
Glasgow
Haywards Heath
Leeds
Limerick

Newcastle
Newport
Peterborough
Portsmouth
Saltaire
Skipton
Tadcaster
Thirsk
Wallingford
Warrington



Registered Office

1 Broughton Park
Old Lane North
Broughton
SKIPTON
North Yorkshire
BD23 3FD
United Kingdom

+44(0) 1756 799919
info@jbaconsulting.com
www.jbaconsulting.com

Follow us on  

Jeremy Benn
Associates Limited
Registered in
England
3246693

JBA Group Ltd is
certified to
ISO 9001:2015
ISO 14001:2015
ISO 27001:2022
ISO 45001:2018





Monmouthshire Strategic Flood Consequences Assessment - Poultry Units, Rockfield Road, Monmouth (EA1b)

Final

Prepared for
Monmouthshire County
Council
County Hall
The Rhadyr
Usk
NP15 1GA

Date
October 2025

Document Status

Issue date	October 2025
Issued to	Monmouthshire County Council
BIM reference	QEW-JBA-XX-XX-RP-Z-0010-D3-C02_Poultry_Units_Monmouth
Revision	Final
Prepared by	Polly Stradling BSc Assistant Analyst
Reviewed by	Peter Rook BSc MSc MCIWEM C.WEM FGS Project Manager
Authorised by	Peter Rook BSc MSc MCIWEM C.WEM FGS Project Manager

Carbon Footprint

The format of this report is optimised for reading digitally in pdf format. Paper consumption produces substantial carbon emissions and other environmental impacts through the extraction, production and transportation of paper. Printing also generates emissions and impacts from the manufacture of printers and inks and from the energy used to power a printer. Please consider the environment before printing.

Accessibility

JBA aims to align with [governmental guidelines on accessible documents](#) and [WGAG 2.2](#) AA standards, so that most people can read this document without having to employ special adaptation measures. This document is also optimised for use with assistive technology, such as screen reading software.

Contract

JBA Project Manager	Peter Rook
Address	35 Perrymount Road, Haywards Heath, West Sussex, RH16 3BW
JBA Project Code	2025s0977

This report describes work commissioned by Monmouthshire County Council by an instruction dated 8th August 2025. Polly Stradling of JBA Consulting carried out this work.

Purpose and Disclaimer

Jeremy Benn Associates Limited (“JBA”) has prepared this Report for the sole use of Monmouthshire County Council and its appointed agents in accordance with the Agreement under which our services were performed.

JBA has no liability for any use that is made of this Report except to Monmouthshire County Council for the purposes for which it was originally commissioned and prepared.

No other warranty, expressed or implied, is made as to the professional advice included in this Report or any other services provided by JBA. This Report cannot be relied upon by any other party without the prior and express written agreement of JBA.

JBA disclaims any undertaking or obligation to advise any person of any change in any matter affecting the Report, which may come or be brought to JBA’s attention after the date of the Report.

The methodology adopted and the sources of information used by JBA in providing its services are outlined in this Report. The work described in this Report was undertaken between August 2025 and September 2025 and is based on the conditions encountered and the information available during the said period. The scope of this Report and the services are accordingly factually limited by these circumstances.

The conclusions and recommendations contained in this Report are based upon information provided by others and upon the assumption that all relevant information has been provided by those parties from whom it has been requested and that such information is accurate. Information obtained by JBA has not been independently verified by JBA, unless otherwise stated in the Report.

Copyright

© Jeremy Benn Associates Limited 2025

Contents

1	Introduction	1
2	Site Description	1
2.1	Development proposals	2
2.2	Watercourses and Flood Defences	2
2.3	Topography	3
3	Planning Policy and Flood Risk	5
4	Assessment of Flood Risk	7
5	Application of Flood Zones to Development Management Decisions	13
5.1	Flood Risk from Rivers	13
5.2	Flood Risk from Surface Water	13
6	Summary and recommendations	14

List of Figures

Figure 2-1	Proposed development site	2
Figure 2-2	Watercourses and Defences	3
Figure 2-3	1m LiDAR	4
Figure 3-1	Flood Map for Planning - Rivers	5
Figure 3-2	Flood Map for Planning - Surface Water and Small Watercourses	6
Figure 4-1	Flood Risk from Rivers - 1% AEP + Climate Change - Flood depths	8
Figure 4-2	Flood Risk from Rivers - 0.1% AEP + Climate Change - Flood depths	9
Figure 4-3	Flood Risk from Surface Water and Small Watercourses- 1% AEP + Climate Change - Flood depths	10
Figure 4-4	Flood Risk from Surface Water and Small Watercourses- 0.1% AEP + Climate Change - Flood depths	11
Figure 4-5	Flood Risk from Groundwater	12

List of Tables

Table 2-1 Site Summary	1
Table 3-1 TAN-15 Development classification summary	5
Table 4-1 Summary of flood risk	7

1 Introduction

JBA Consulting has been commissioned by Monmouthshire County Council to prepare an independent Flood Risk Appraisal as part of a Stage 2 Strategic Flood Consequences Assessment (SFCA) for sites considered for allocation in its Replacement Local Development Plan.

This assessment will evaluate the risk of flooding from all sources to Poultry Units, Rockfield Road, Monmouth, the proposed development site, as well as the appropriateness of development at the site in accordance with Welsh Government policy, as outlined in Technical Advice Note 15 (TAN15). Furthermore, recommendations will be provided, where required, to mitigate the risk of flooding at the proposed development site as well as recommendations for further works.

2 Site Description

The key characteristics of the site are summarised in Table 2-1 and the location and site boundary are shown in Figure 2-1 below.

Table 2-1 Site Summary

Site name	Poultry Units, Rockfield Road, Monmouth
Site ID	EA1b
Site area	2.78ha
Existing land use	Agricultural - Two redundant poultry sheds, that have been disused for several years
Purpose of development	Commercial - offices
OS NGR	SO 50163 13003
Access location	Access from Rockfield Road



Figure 2-1 Proposed development site

2.1 Development proposals

The proposed development at this site is for offices (commercial use). The site is classified as previously developed and is therefore classed as Redevelopment. Commercial land uses are considered Less Vulnerable Development under TAN15.

2.2 Watercourses and Flood Defences

Figure 2-2 shows the locations of the nearest NRW Main Rivers and ordinary watercourses. The River Monnow, an NRW designated Main River, is located 0.35km east of the site. An ordinary watercourse, the Scud Brook, is located in close proximity to the site. The Scud Brook appears to be culverted upstream of the B4233, prior to forming an open channel downstream of this highway. At this point, the Scud Brook is also designated an NRW Main River.

The River Wye, an NRW Main River, is located approximately 1 Km to the south-east of the proposed redevelopment site. The River Monnow discharges to the River Wye to the east of the A40.

NRW flood defences are located on the south bank of the Scud Brook, along the open channel downstream of the B4233 to its confluence with the River Monnow, in the form of an embankment. A stretch of the River Monnow downstream of its confluence with the

Scud Brook is defended on both banks, via a mix of flood walls and embankments. However, the site is not located within an area that benefits from flood defences.



Figure 2-2 Watercourses and Defences

2.3 Topography

The Natural Resources Wales (NRW) Open Source 1m Light Detection and Ranging (LiDAR) data¹ across the site has been reviewed and is shown in Figure 2-3.

The levels across the development site are mostly flat and fall in an easterly direction with site levels ranging from 20.31 mAOD to 19.15 mAOD.

There are some localised high points across the north of the development site, with levels of 21.26 mAOD.

Externally to the site boundary, levels continue to slope in an easterly direction with levels of 19.05 mAOD.

¹ <https://datamap.gov.wales/maps/lidar-data-download/>

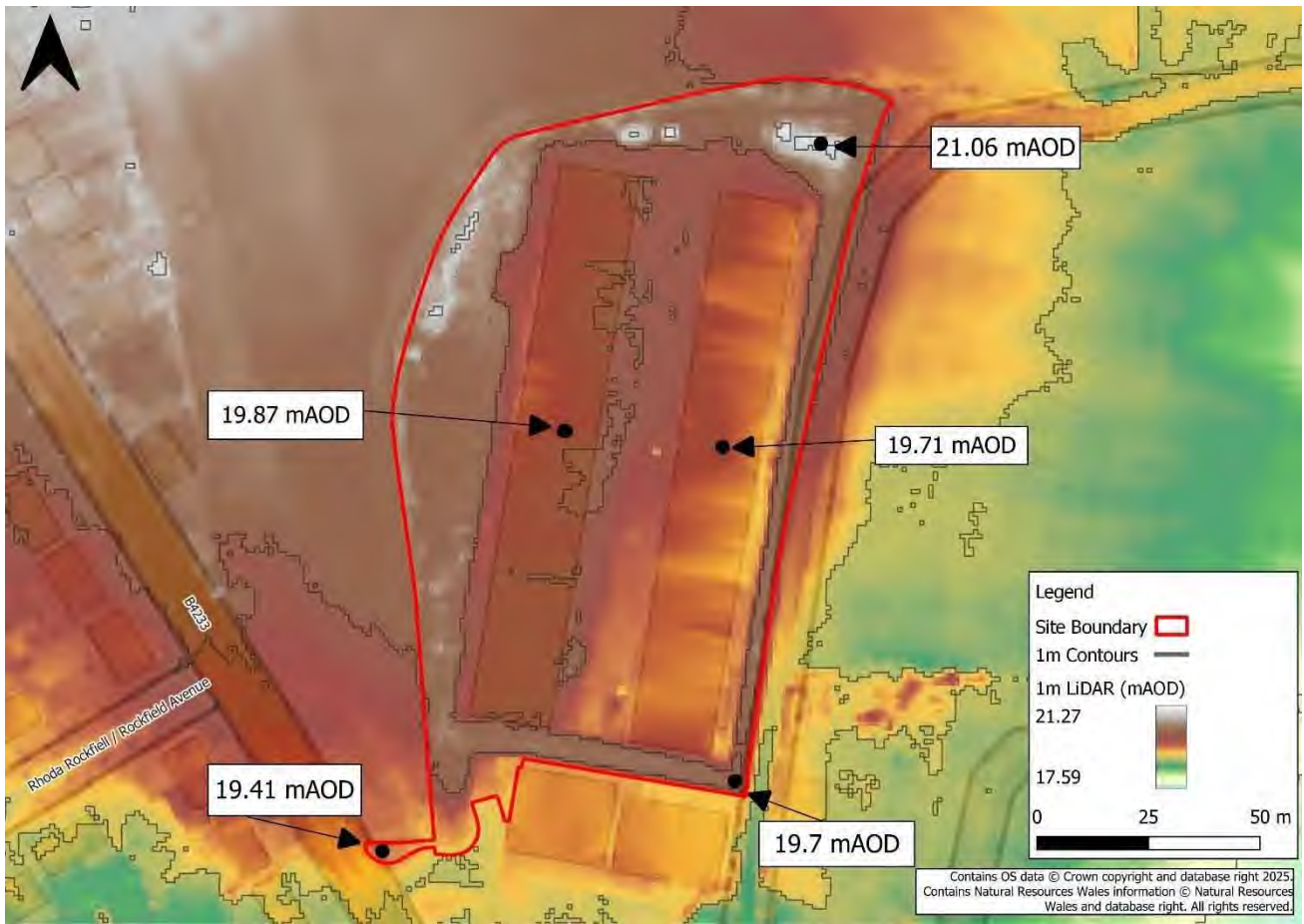


Figure 2-3 1m LiDAR

3 Planning Policy and Flood Risk

TAN-15 provides a framework within which flood risks arising from rivers, the sea, and surface water, as well as the risk of coastal erosion, can be assessed. TAN-15 adopts a risk-based approach, which emphasises the ability to avoid or minimise risk depending on the type of development proposed.

The following table identifies the form of development, vulnerability classification and Flood Map for Planning classification (as defined in TAN-15) for the proposed development site.

Table 3-1 TAN-15 Development classification summary

TAN-15 classification	Classification
Development Proposal	Offices
Form of Development	Redevelopment
Vulnerability Classification	Less Vulnerable Development
Flood Map for Planning- Rivers	Flood Zone 2 - See Figure 3-1 below
Flood Map for Planning- Sea	Flood Zone 1
Flood Map for Planning- Surface Water and Small Watercourses	Predominantly Flood Zone 1, with localised areas of Flood Zone 2 - See Figure 3-2 below



Figure 3-1 Flood Map for Planning - Rivers



Figure 3-2 Flood Map for Planning - Surface Water and Small Watercourses

4 Assessment of Flood Risk

The latest available information on flood risk at the site, published by Natural Resources Wales (NRW) and datasets used in the SFCA is summarised in Table 4-1 below.

Table 4-1 Summary of flood risk

Source of Flooding	Onsite Presence	Description
Flood Risk from Rivers	✓	The site's location within Flood Zone 2 of the FMfP for Rivers indicates that the site is at moderate risk of fluvial flooding. Further assessed in Section 4.1.1
Flood Risk from the Sea	✗	The site's location within Flood Zone 1 of the FMfP for the Sea indicates that the site is at very low risk of fluvial flooding.
Flood Risk from Surface Water and Small Watercourses	✓	The site's location within Flood Zones 1 and 2 of the FMfP for Surface Water and Small Watercourses indicates that the site is at low to moderate risk of fluvial flooding. Further assessed in Section 4.1.2
Flood Risk from Groundwater	✓	The South East Wales SFCA includes JBAs Groundwater Flood map as part of the assessment and shows the site to be in an area of ' high ' risk from groundwater emergence. Further assessed in Section 4.1.3
Flood Risk from Reservoirs	✗	The NRW Flood Map for Planning shows that the site is not located in an area at risk of reservoir flooding. Therefore, it is concluded that the risk of flooding is very low .
Flood Risk from Sewers	✗	The South East Wales SFCA and the Monmouthshire Strategic Flood Consequences Assessment has identified there to be no historic sewer flood incidents within the site. Therefore, it is concluded that the risk of flooding is low .

4.1.1 Flood Risk from Rivers

The Flood Map for Planning - Flood Risk from Rivers indicates that the entire development site is predicted to flood with the application of climate change. Fluvial flood risk to the site is associated with both the River Monnow and the River Wye, with the risk of flooding needing to be assessed from both fluvial sources.

This flood risk appraisal utilises the NRW National Flood Hazard Mapping (NFHM) in the absence of suitable detailed hydraulic modelling to inform the fluvial flood risk assessment of the site.

Figure 4-1 shows that during the 1% AEP plus climate change event, the redevelopment site remains flood-free.

In the 0.1% AEP plus climate change event, shown in Figure 4-2, the entire site is predicted to flood. Maximum flood depths of 1.45m are shown to the south-eastern corner of the site, with shallower depths of less than 600mm indicated towards the northern and western boundaries of the site.

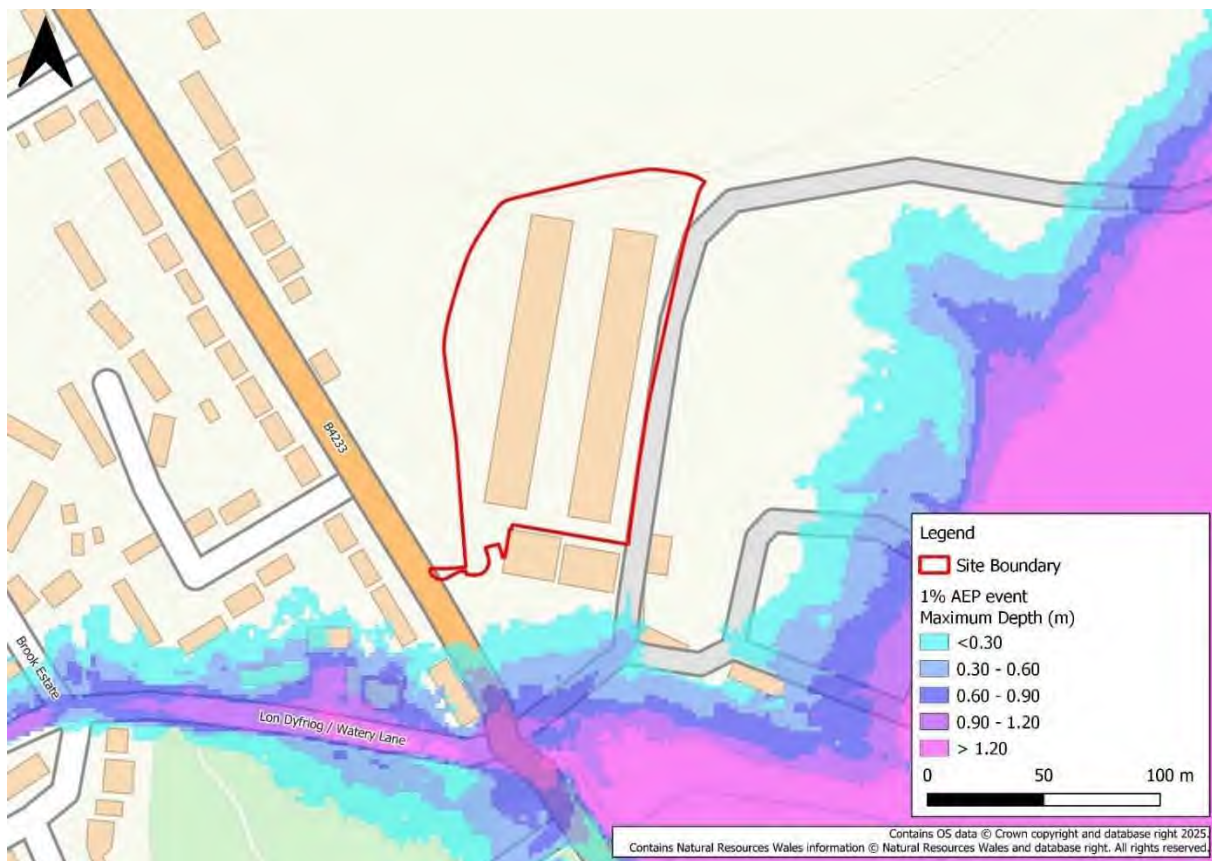


Figure 4-1 Flood Risk from Rivers - 1% AEP + Climate Change - Flood depths

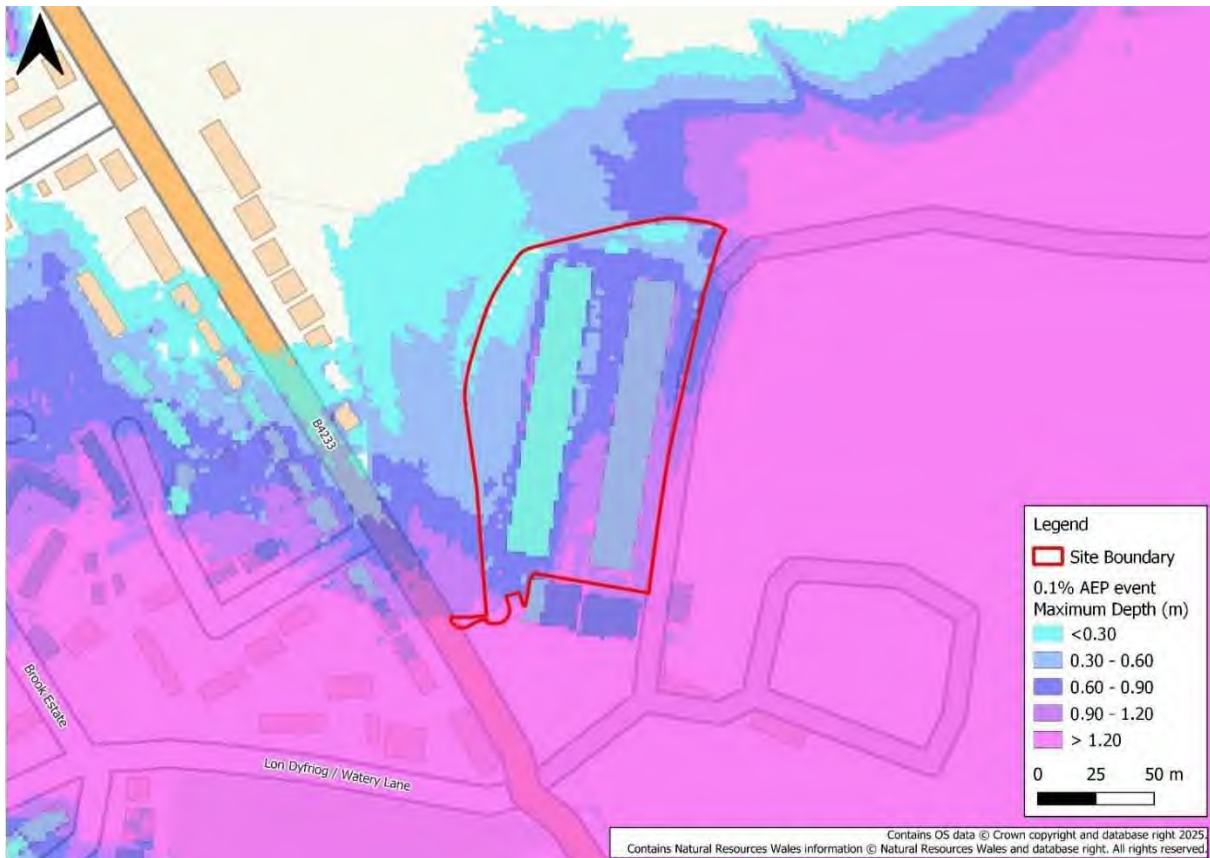


Figure 4-2 Flood Risk from Rivers - 0.1% AEP + Climate Change - Flood depths

4.1.2 Flood Risk from Surface Water and Small Watercourses

Surface water flooding occurs when rain falling on saturated grounds flow overland, following the local topography. Surface water flooding and subsequent overland flow can therefore pose a risk to both the development site and the surrounding land. The overland flow may originate from the site itself or adjoining land at a higher elevation from which flow migrates onto the development.

The Flood Map for Planning - Surface Water and Small Watercourses indicates that a small area to the west of the development site is predicted to flood.

The NRW National Flood Hazard Mapping (NFHM) has been used to provide a further assessment of flooding. During the 1% AEP plus climate change event the development site is predicted to be flood-free, as shown in Figure 4-3.

During the 0.1% AEP plus climate change event the proposed redevelopment site is shown to be predominantly flood free, with localised flooding along the western façade of the western-most poultry shed. Flood depths in this location are predicted to be up to 440mm.

LiDAR analysis has identified a slight topographic depression in this location, resulting in surface water accumulation with limited drainage potential. Ground levels in this area range from approximately 19.49 mAOD to 20.35 mAOD in the west. To the east, a building structure with a level of 19.95 mAOD acts as a barrier, creating a channel-like feature where water becomes trapped. This localised low point contributes to the site's surface

water flood risk. However, it is anticipated that the risk will reduce once demolition of the existing units begins, as the removal of built structures may improve site drainage and allow water to disperse more effectively.

It is envisaged that this source of flooding can be easily managed through the use of SuDS techniques associated with a comprehensive surface water drainage strategy for the site.



Figure 4-3 Flood Risk from Surface Water and Small Watercourses- 1% AEP + Climate Change - Flood depths



Figure 4-4 Flood Risk from Surface Water and Small Watercourses- 0.1% AEP + Climate Change - Flood depths

4.1.3 Flood Risk from Groundwater

The JBA Groundwater Risk of Emergence map indicates that the entire redevelopment site lies within an area that is at high risk of groundwater emergence. Groundwater across the site is indicated to be at or very near (within 0.025m of) ground level, as shown in Figure 4-5.

It is recommended that any site-specific assessment considers the potential for groundwater emergence across the site. This assessment should be informed by a programme of groundwater monitoring, ideally conducted over a 12-month period to capture seasonal variations, as well as detailed site-specific ground investigations. Understanding the groundwater regime is particularly important where Sustainable Drainage Systems (SuDS) are proposed. Infiltrating SuDS features, such as soakaways or infiltration basins, typically require a minimum 1-metre clearance between the base of the asset and the highest recorded groundwater level. Failure to meet this requirement could compromise the effectiveness of infiltration-based drainage and may necessitate alternative SuDS solutions.

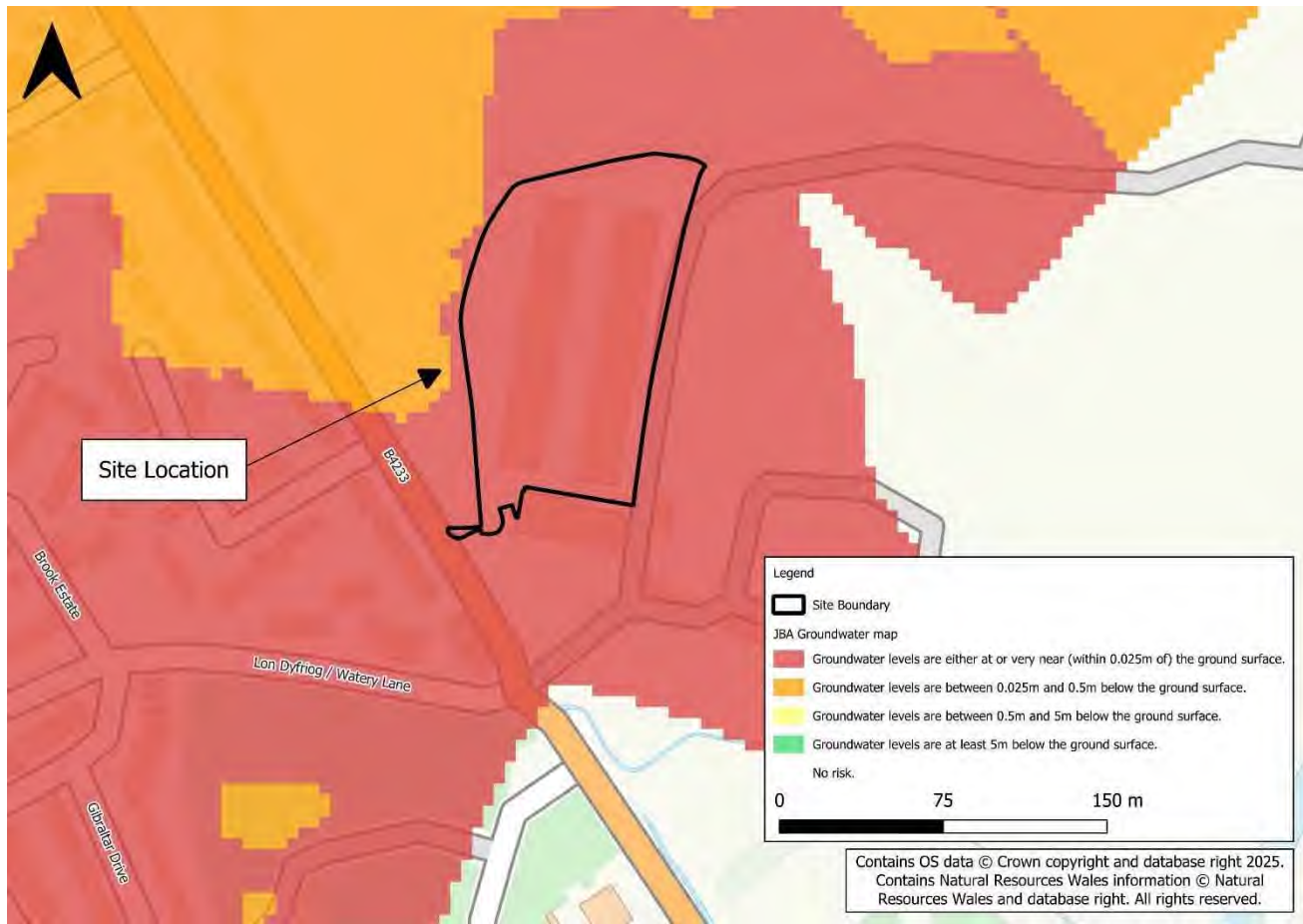


Figure 4-5 Flood Risk from Groundwater

5 Application of Flood Zones to Development Management Decisions

5.1 Flood Risk from Rivers

When considering a site for development, Sections 10 and 11 of TAN-15 outline the requirements for the type of development permitted in any given flood zone.

The proposed development is located within Flood Zone 2 of the Flood Map for Planning - for Rivers. It is located on brownfield land and is classed as a less vulnerable development.

Section 10.19 of TAN15 states:

'Proposals for redevelopment on brownfield land of any vulnerability will need to assist, and be consistent with, the Development Plan strategy to regenerate an existing settlement or achieve key economic or environmental objectives.'

As per Section 4.1.1 of this report, the proposed redevelopment site is predicted to flood in the extreme event (0.1% AEP, with an allowance for climate change). Any planning application for the site should be supported by a site-specific FCA, demonstrating how risk to the site is appropriately managed. It is recommended that detailed hydraulic modelling is used to support such an assessment. Given the redevelopment status of the proposals, some flexibility may be afforded to permissible flood depths across the site. However, it is recommended that resilient design is considered from the outset of masterplanning proposals, in line with the Ciria Code of Practice.

Flood Resilient design is important for developments located within Flood Zone 2 and authorities should make it a requirement through the inclusion of appropriate LDP policies and use of planning conditions.

5.2 Flood Risk from Surface Water

Sections 10 and 11 of TAN-15 do not strictly apply to the surface water and small watercourse zones in which this proposed development site lies.

Surface water flood risk is minimal across the site and the presence of Flood Zone 2 of the FMfP is a direct result of a localised depression in ground levels. A review of the National Flood Hazard Mapping supports this, indicating the site to be flood free during the 1% AEP plus climate change scenario, and minimal ponding during the 0.1% AEP plus climate change event is predicted.

Due to the localised depression in ground levels, it is anticipated that as part of the development proposals, SuDS techniques shall be implemented to appropriately manage the predicted surface water flood risk.

Given the negligible risk of surface water flooding to the site, it is unlikely that a full FCA is required to demonstrate compliance of TAN15 in terms of surface water. It is likely that a comprehensive Drainage Statement which demonstrates how surface water will be

managed in accordance with the Statutory Standards for SuDS in Wales, shall be sufficient to satisfy the requirements of TAN-15 and the LLFA.

6 Summary and recommendations

The site is located within Flood Zones 2 of both the FMfP - Rivers and FMfP - Surface Water and Small Watercourses. Consequently, it triggers the requirements for an FCA to be undertaken. It is considered likely that flood risk shall be manageable through further assessment and design, and the site is likely to comply with the requirements of TAN15, subject to the following recommendations.

The following recommendations are made for the site.

- Any planning application for the site should be accompanied by an FCA which demonstrates how the proposals meet the requirements of TAN-15. Any such should be supported by the use of detailed hydraulic modelling of the River Wye and Monnow to fully assess fluvial flood risk to the site.
- Proposals should consider the risk of fluvial flooding during the 0.1% AEP plus climate change event and demonstrate how resilience measures have been incorporated into the design, to manage fluvial flood flows, where appropriate.
- The surface water flood risk on the site should be managed via SuDS. A Drainage Statement shall be required demonstrating how surface water shall be managed on site, in line with the Statutory Standards for SuDS in Wales, and TAN-15.
- The risk of groundwater emergence on the site should be managed by a programme of groundwater monitoring, ideally conducted over a 12-month period to capture seasonal variations, as well as detailed site-specific ground investigations.

Our Offices

Bristol
Coleshill
Cork
Doncaster
Dublin
Edinburgh
Exeter
Glasgow
Haywards Heath
Leeds
Limerick

Newcastle
Newport
Peterborough
Portsmouth
Saltaire
Skipton
Tadcaster
Thirsk
Wallingford
Warrington



Registered Office

1 Broughton Park
Old Lane North
Broughton
SKIPTON
North Yorkshire
BD23 3FD
United Kingdom

+44(0) 1756 799919
info@jbaconsulting.com
www.jbaconsulting.com

Follow us on  

Jeremy Benn
Associates Limited
Registered in
England
3246693

JBA Group Ltd is
certified to
ISO 9001:2015
ISO 14001:2015
ISO 27001:2022
ISO 45001:2018





Monmouthshire Strategic Flood Consequences Assessment - Land North of Wonastow Road, Monmouth (EA1c)

Final

Prepared for
Monmouthshire County
Council
County Hall,
The Rhadyr,
Usk,
NP15 1GA.

Date
October 2025

Document Status

Issue date	October 2025
Issued to	Monmouthshire County Council
BIM reference	QEW-JBA-XX-XX-RP-Z-0006-D3-C02-Land_North_of_Wonastow_Road_Monmouth
Revision	Final
Prepared by	George Williams Analyst
Reviewed by	Peter Rook BSc MSc MCIWEM C.WEM FGS Project Manager
Authorised by	Peter Rook BSc MSc MCIWEM C.WEM FGS Project Manager

Carbon Footprint

The format of this report is optimised for reading digitally in pdf format. Paper consumption produces substantial carbon emissions and other environmental impacts through the extraction, production and transportation of paper. Printing also generates emissions and impacts from the manufacture of printers and inks and from the energy used to power a printer. Please consider the environment before printing.

Accessibility

JBA aims to align with [governmental guidelines on accessible documents](#) and [WGAG 2.2](#) AA standards, so that most people can read this document without having to employ special adaptation measures. This document is also optimised for use with assistive technology, such as screen reading software.

Contract

JBA Project Manager	Peter Rook
Address	35 Perrymount Road, Haywards Heath, West Sussex, RH16 3BW
JBA Project Code	2025s0844

This report describes work commissioned by Monmouthshire County Council by an instruction dated the 8th of August. George Williams of JBA Consulting carried out this work.

Purpose and Disclaimer

Jeremy Benn Associates Limited (“JBA”) has prepared this Report for the sole use of Monmouthshire County Council and its appointed agents in accordance with the Agreement under which our services were performed.

JBA has no liability for any use that is made of this Report except to Monmouthshire County Council for the purposes for which it was originally commissioned and prepared.

No other warranty, expressed or implied, is made as to the professional advice included in this Report or any other services provided by JBA. This Report cannot be relied upon by any other party without the prior and express written agreement of JBA.

JBA disclaims any undertaking or obligation to advise any person of any change in any matter affecting the Report, which may come or be brought to JBA’s attention after the date of the Report.

The methodology adopted and the sources of information used by JBA in providing its services are outlined in this Report. The work described in this Report was undertaken between August 2025 and October 2025 and is based on the conditions encountered and the information available during the said period. The scope of this Report and the services are accordingly factually limited by these circumstances.

The conclusions and recommendations contained in this Report are based upon information provided by others and upon the assumption that all relevant information has been provided by those parties from whom it has been requested and that such information is accurate. Information obtained by JBA has not been independently verified by JBA, unless otherwise stated in the Report.

Copyright

© Jeremy Benn Associates Limited 2025

Contents

1	Introduction	1
2	Site Description	1
2.1	Site Overview	1
2.2	Development proposals	2
2.3	Watercourses and Flood Defences	2
2.4	Topography	3
3	Planning Policy and Flood Risk	5
4	Assessment of Flood Risk	7
5	Application of Flood Zones to Development Management Decisions	11
5.1	Flood Risk from Surface Water and Small Watercourses	11
6	Summary and recommendations	12

List of Figures

Figure 2-1 Proposed development site	2
Figure 2-2 Watercourse and Flood Defences	3
Figure 2-3 NRW 1m LiDAR DTM	4
Figure 3-1 Flood Map for Planning - Flood Risk from Surface Water and Small Watercourses	6
Figure 4-1 1% AEP + Climate Change - Flood Depths	9
Figure 4-2 0.1% AEP + Climate Change - Flood Depths.	9

List of Tables

Table 2-1 Site Summary	1
Table 3-1 TAN-15 Development classification summary	5
Table 4-1 Summary of flood risk	7

1 Introduction

JBA Consulting has been commissioned by Monmouthshire County Council to prepare an independent Flood Risk Appraisal as part of a Stage 2 Strategic Flood Consequences Assessment (SFCA) for sites considered for allocation in its replacement Local Development Plan.

This assessment will evaluate the risk of flooding from all sources to the proposed development at Land North of Wonastow Road, Monmouth, the proposed development site, as well as the appropriateness of development at the site in accordance with Welsh Government policy, as outlined in Technical Advice Note 15 (TAN-15). Furthermore, recommendations will be provided, where appropriate, to mitigate the risk of flooding at the proposed development site, as well as recommendations for further works.

2 Site Description

2.1 Site Overview

The key characteristics of the site are summarised in Table 2-1 and the location and site boundary are shown in Figure 2-1 below.

Table 2-1 Site Summary

Site Name	Land North of Wonastow Road, Monmouth
Site ID	EA1c
Site area (ha)	4.5
Existing land use	Greenfield
Purpose of development	Employment
OS NGR	SO 49261 12027
Access location	Access is from the east via Ternata Drive.



Figure 2-1 Proposed development site

2.2 Development proposals

The proposed development at this site is for B1, B2, B8 development (offices/ general industrial/ storage or distribution).

2.3 Watercourses and Flood Defences

Figure 2-2 shows the location of an unnamed ordinary watercourse that transgresses the site. The watercourse flows in a west to east direction through the site before discharging to an unnamed watercourse that flows in a south to north direction.

Approximately 1.4km to the east of the site is the River Monnow and the River Wye is located approximately 1.83km to the east of the site. Both of these watercourses are NRW designated Main Rivers.

The site does not benefit from any flood defences, nor are any flood defences located close to the site.



Figure 2-2 Watercourse and Flood Defences

2.4 Topography

The Natural Resources Wales (NRW) Open Source 1m Light Detection and Ranging (LiDAR) data across the site has been reviewed and is shown in Figure 2-3.

The site generally falls in a southwest to northeast direction, with the highest elevation of 29.08mAOD found in the south-west. Lowest ground levels are found in the north-west, with an identified low point of 22.24mAOD. This is identified close to the location of the existing ordinary watercourse that runs in a south to north direction at the eastern boundary of the site.

Typically, site levels are around 24.0 - 25.0mAOD in elevation across much of the site.

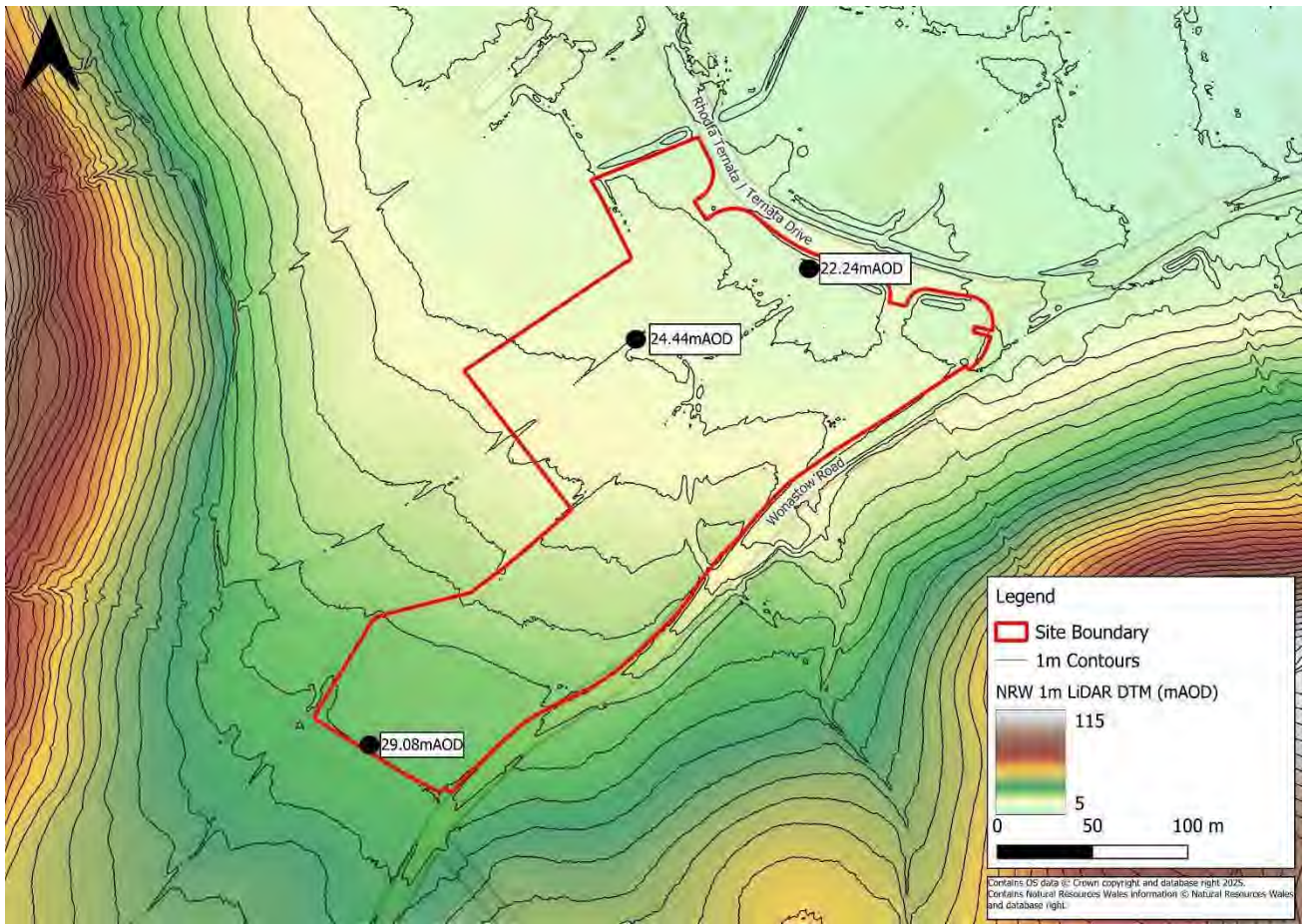


Figure 2-3 NRW 1m LiDAR DTM

3 Planning Policy and Flood Risk

TAN-15 provides a framework within which flood risks arising from rivers, the sea, and surface water, as well as the risk of coastal erosion, can be assessed. TAN-15 adopts a risk-based approach, which emphasises the ability to avoid or minimise risk depending on the type of development proposed.

The following table identifies the form of development, vulnerability classification and Flood Map for Planning classification (as defined in TAN-15) for the proposed development site.

Table 3-1 TAN-15 Development classification summary

TAN-15 classification	Classification
Development Proposal	B1, B2, B8 development (Offices/ general industrial/ storage or distribution)
Form of Development	New Development
Vulnerability Classification	Less Vulnerable Development
Flood Map for Planning- Rivers	Flood Zone 1
Flood Map for Planning- Sea	Flood Zone 1
Flood Map for Planning- Surface Water and Small Watercourses	Flood Zones 2 - 3 (See Figure 3-1 below)



Figure 3-1 Flood Map for Planning - Flood Risk from Surface Water and Small Watercourses

4 Assessment of Flood Risk

The latest available information on flood risk at the site, published by Natural Resources Wales (NRW) and datasets used in the SFCA is summarised in Table 4-1 below.

Table 4-1 Summary of flood risk

Source of Flooding	Onsite Presence	Description
Flood Risk from Rivers	✖	The site's location within Flood Zone 1 of the FMfP for Rivers indicates that the site is at very low risk of fluvial flooding.
Flood Risk from the Sea	✖	The site's location within Flood Zone 1 of the FMfP for the Sea indicates that the site is at very low risk of fluvial flooding.
Flood Risk from Surface Water and Small Watercourses	✓	The site is at low risk of surface water flooding (further assessment in Section 4.1.1).
Flood Risk from Groundwater	✓	The South East Wales Stage 1 SFCA includes JBAs Groundwater Risk of Emergence map as part of the assessment and shows the site to be in an area of high, medium and low risk of groundwater emergence at the site. Further assessment was undertaken in Section 2.4.2 and found the site to be at ' low risk '.
Flood Risk from Reservoirs	✖	The NRW Flood Map for Planning shows that the site is not located in an area at risk of reservoir flooding. Therefore, it is concluded that the risk of flooding is very low .
Flood Risk from Sewers	✖	The South East Wales Stage 1 SFCA does not identify any sewer flood incidents within Monmouthshire. Furthermore, the site is greenfield and is unlikely to have any sewage infrastructure, which could surcharge and cause sewer flooding. Therefore, it has been assessed that the risk of sewer flooding is low .

4.1.1 Flood Risk from Surface Water and Small Watercourses

Surface water flooding occurs when rain falling on saturated ground flows overland, following the local topography. Surface water flooding and subsequent overland flow can therefore pose a risk to both the development site and the surrounding land. The overland flow may originate from the site itself or adjoining land at a higher elevation from which the flow migrates onto the development.

The Flood Map for Planning - Surface Water and Small Watercourses indicates that an area of the site is at risk of small watercourse flooding, with the application of climate change. The risk is associated with an existing unnamed ordinary watercourse that runs centrally through the site. An additional area of risk is shown just north of the channel and follows the topography of the site.

The NRW National Flood Hazard Mapping (NFHM) has been used to provide a further assessment of this flood risk. Figure 4-1 indicates that during the 1% AEP plus climate change event, flood depths of up to 220mm are predicted in association with the ordinary watercourse, though depths are predominantly less than 100mm. These flood depths are associated with the channel of the unnamed watercourse and are retained within the watercourse corridor. A small area within the northern extent of the site is also shown to flood in this event, with flood depths of approximately 100mm. This area of ponding is associated with an on-site topographic depression, and is likely to be managed through development design levels, and an appropriate surface water drainage system.

During the 0.1% AEP plus climate change event, flood depths of up to 330mm are predicted in association with the unnamed ordinary watercourse, are predominantly less than 130mm, as shown in Figure 4-2. The flood extent is largely confined within the watercourse channel. Where overtopping occurs, flood waters are shallow. In the northern extent of the site, the flood extent is greater than in the 1% AEP plus climate change event, with maximum flood depths typically less than 100mm in most areas.

Though not identified on the NFHM dataset, there have been two recorded ordinary watercourse flood events at the junction of Wonastow Road to Kingswood Gate Estate, which is located close to the site. Flooding occurred during Storm Bert in November 2024, and again in January 2025.



Figure 4-1 1% AEP + Climate Change - Flood Depths



Figure 4-2 0.1% AEP + Climate Change - Flood Depths.

4.1.2 Flood Risk from Groundwater

Groundwater flooding is caused by unusually high groundwater levels. It occurs as excess water emerges at the ground surface or within manmade structures such as basements. Groundwater flooding tends to be more persistent than surface water flooding, in some cases lasting for weeks or months, and can result in damage to property. This risk of groundwater flooding depends on the nature of the geological strata underlying the site and the local topography.

The JBA Groundwater Risk of Emergence Map contained within the South East Wales Stage 1 SFCA shows that areas of the site are at high risk of groundwater flooding during a 1% AEP event, with areas with groundwater levels either at or very near (within 0.025m of) the ground surface. Additionally, there are areas at low to moderate risk of groundwater flooding. The site area affected has groundwater levels that are near the ground surface or are between 0.5 and 5m below the ground surface.

However, there are no recorded incidents of groundwater flooding in or other publicly available sources such as the Stage 1 SFCA or the Monmouthshire Flood Risk Management Plan¹. It can therefore be concluded that the risk of groundwater flooding at the Site is **Low**.

It is recommended that any site-specific assessment consider the potential for groundwater emergence across the Site. This assessment should be informed by a programme of groundwater monitoring, ideally conducted over a 12-month period to capture seasonal variations, as well as detailed site-specific ground investigations.

¹ Flood-Risk-Management-Plan-2016.pdf

5 Application of Flood Zones to Development Management Decisions

5.1 Flood Risk from Surface Water and Small Watercourses

Sections 10 and 11 of TAN-15 do not strictly apply to the surface water zones in which this proposed development site lies.

The development site is predominantly located within Flood Zone 1 of the FMfP - Flood Risk from Surface Water, where all forms of development are permissible. Areas of Flood Zones 2 and 3 are associated with a small, unnamed ordinary watercourse which crosses the centre of the site. This watercourse should be retained onsite, with development appropriately set back to allow for access and maintenance to the watercourse, and to suitably manage flood risk. Any required crossings should be supported by a detailed hydraulic assessment to demonstrate sufficient capacity, and to mitigate the risk of flooding associated with any such structure.

An area of surface water flooding is also identified within the northern extent of the site, with flows originating upstream, outside of the western site boundary. Further assessment shall be required to demonstrate that such surface water flows can be adequately managed. When a site is developed in areas at risk or near a risk, it will potentially change the expected flow of water during a flood. It is important that planning authorities are provided with a clear assessment of how a development will affect surface water risks and these sources can be managed or mitigated; these measures must not increase the flood risk elsewhere. The known flood history of the Wonastow Road/Kingswood Gate Estate junction should therefore be acknowledged and considered.

Any surface water management scheme developed to manage this source of flood risk should be kept separate from any future surface water drainage strategy for the site.

As the proposed development is for a 'less vulnerable' development, it is permissible within Flood Zone 2 where it is considered essential to support the aims and objectives of the Local Development Plan. Areas within Flood Zone 3 are considered suitable for water-compatible uses, including areas of open space. The location of SuDS may be permissible within this location, dependent on flood frequencies and storage requirements within the required design events.

A Drainage Statement should be submitted in support of the planning application, demonstrating how surface water will be managed in accordance with the Statutory Standards for SuDS in Wales, thereby ensuring compliance with TAN-15. An FCA shall be required, in line with the requirements of TAN15 to demonstrate how surface water flood risk shall be managed appropriately on site.

6 Summary and recommendations

The site is partially located within Flood Zones 2 and 3 of the FMfP for Surface Water and Small Watercourses. As the site is situated within Flood Zones 2 and 3, it triggers the requirements for an FCA to be undertaken. The extent and severity of flooding within the site are minimal and are likely to be manageable through further assessment and design.

Surface Water and Small Watercourse flood risk is confined mostly to an existing unnamed watercourse, with a small area shown to be within Flood Zones 2 and 3 located to the north of the existing watercourse. It is advisable that a sequential approach to master planning is applied, with areas of the site located within Flood Zone 3 forming open space, and therefore water compatible development. All built form development should be retained within Flood Zone 1, where possible.

It is therefore considered that this site is likely to satisfy the requirements of TAN-15, subject to the following recommendations:

- Any planning application for the site should be accompanied by an FCA which demonstrates how the proposals meet the requirements of TAN-15. The FCA should include a detailed hydraulic assessment demonstrating how offsite surface water flows shall be managed. Any required surface water mitigation scheme shall be separate to the proposed SuDS system for managing on-site surface water flood risk.
- Utilise a sequential approach to master planning to locate the most vulnerable elements of the site within Flood Zone 1. The watercourse should be retained onsite, with development appropriately set back to allow for access and maintenance to the watercourse, and to suitably manage flood risk. Any required crossings should be supported by a detailed hydraulic assessment to demonstrate sufficient capacity, and to mitigate the risk of flooding associated with any such structure.
- The risk of groundwater emergence on the site should be managed by a programme of groundwater monitoring, ideally conducted over a 12-month period to capture seasonal variations, as well as detailed site-specific ground investigations.
- Any planning application should be supported by a Drainage Statement which demonstrates how surface water shall be managed via SuDS, which are implemented in line with the Statutory Standards for SuDS in Wales.

Our Offices

Bristol
Coleshill
Cork
Doncaster
Dublin
Edinburgh
Exeter
Glasgow
Haywards Heath
Leeds
Limerick

Newcastle
Newport
Peterborough
Portsmouth
Saltaire
Skipton
Tadcaster
Thirsk
Wallingford
Warrington



Registered Office

1 Broughton Park
Old Lane North
Broughton
SKIPTON
North Yorkshire
BD23 3FD
United Kingdom

+44(0) 1756 799919
info@jbaconsulting.com
www.jbaconsulting.com

Follow us on  

Jeremy Benn
Associates Limited
Registered in
England
3246693

JBA Group Ltd is
certified to
ISO 9001:2015
ISO 14001:2015
ISO 27001:2022
ISO 45001:2018





Monmouthshire Strategic Flood Consequences Assessment - Gwent Europark, Magor (EA1h)

Final

Prepared for
Monmouthshire County
Council
County Hall
The Rhadry
Usk
NP15 1GA

Date
October 2025

Document Status

Issue date	October 2025
Issued to	Monmouthshire County Council
BIM reference	QEW-JBA-XX-XX-RP-Z-0004-D3-C02_Gwent_Europark_Magor
Revision	Final
Prepared by	Polly Stradling BSc (Hons) Assistant Analyst
Reviewed by	Peter Rook BSc MSc MCIWEM C.WEM FGS Project Manager
Authorised by	Peter Rook BSc MSc MCIWEM C.WEM FGS Project Manager

Carbon Footprint

The format of this report is optimised for reading digitally in pdf format. Paper consumption produces substantial carbon emissions and other environmental impacts through the extraction, production and transportation of paper. Printing also generates emissions and impacts from the manufacture of printers and inks and from the energy used to power a printer. Please consider the environment before printing.

Accessibility

JBA aims to align with [governmental guidelines on accessible documents](#) and [WGAG 2.2](#) AA standards, so that most people can read this document without having to employ special adaptation measures. This document is also optimised for use with assistive technology, such as screen reading software.

Contract

JBA Project Manager	Peter Rook
Address	35 Perrymount Road, Haywards Heath, West Sussex, RH16 3BW
JBA Project Code	2025s0844

This report describes work commissioned by Monmouthshire County Council by an instruction dated 08 August 2025. Polly Stradling of JBA Consulting carried out this work.

Purpose and Disclaimer

Jeremy Benn Associates Limited (“JBA”) has prepared this Report for the sole use of Monmouthshire County Council and its appointed agents in accordance with the Agreement under which our services were performed.

JBA has no liability for any use that is made of this Report except to Monmouthshire County Council for the purposes for which it was originally commissioned and prepared.

No other warranty, expressed or implied, is made as to the professional advice included in this Report or any other services provided by JBA. This Report cannot be relied upon by any other party without the prior and express written agreement of JBA.

JBA disclaims any undertaking or obligation to advise any person of any change in any matter affecting the Report, which may come or be brought to JBA’s attention after the date of the Report.

The methodology adopted and the sources of information used by JBA in providing its services are outlined in this Report. The work described in this Report was undertaken between August 2025 and October 2025 and is based on the conditions encountered and the information available during the said period. The scope of this Report and the services are accordingly factually limited by these circumstances.

The conclusions and recommendations contained in this Report are based upon information provided by others and upon the assumption that all relevant information has been provided by those parties from whom it has been requested and that such information is accurate. Information obtained by JBA has not been independently verified by JBA, unless otherwise stated in the Report.

Copyright

© Jeremy Benn Associates Limited 2025

Contents

1	Introduction	1
2	Site Description	1
2.1	Development proposals	2
2.2	Watercourses and Flood Defences	2
2.3	Topography	3
3	Planning Policy and Flood Risk	5
4	Assessment of Flood Risk	7
5	Application of Flood Zones to Development Management Decisions	11
5.1	Flood Risk from the Sea	11
5.2	Flood Risk from Small Watercourses	11
6	Summary and recommendations	12
List of Figures		
	Figure 2-1 Proposed development site	2
	Figure 2-2 Watercourses and Flood Defences	3
	Figure 2-3 1m LiDAR	4
	Figure 3-1 Flood Map for Planning - Sea	6
	Figure 3-2 Flood Map for Planning- Surface Water and Small Watercourses	6
	Figure 4-1 Flood Risk from the Sea - 1% AEP + Climate Change - Flood Depths	8
	Figure 4-2 Flood Risk from the Sea - 0.1% AEP + Climate Change - Flood Depths	9
	Figure 4-3 Flood Risk from Surface Water and Small Watercourses - 0.1% AEP + Climate Change - Flood depths	10
List of Tables		
	Table 2-1 Site Summary	1
	Table 3-1 TAN-15 Development classification summary	5
	Table 4-1 Summary of flood risk	7

1 Introduction

JBA Consulting has been commissioned by Monmouthshire County Council to prepare an independent Flood Risk Appraisal as part of a Stage 2 Strategic Flood Consequences Assessment (SFCA) for sites considered for allocation in its Replacement Local Development Plan.

This assessment will evaluate the risk of flooding from all sources to Gwent Europark, Magor, the proposed development site, as well as the appropriateness of development at the site in accordance with Welsh Government policy, as outlined in Technical Advice Note 15 (TAN15). Furthermore, recommendations will be provided, where appropriate, to mitigate the risk of flooding at the proposed development site as well as recommendations for further works.

2 Site Description

The key characteristics of the site are summarised in Table 2-1 and the location and site boundary are shown in Figure 2-1 below.

Table 2-1 Site Summary

Site name	Gwent Euro Park, Magor
Site ID	EA1h
Site area	7 ha
Existing land use	Greenfield land
Purpose of development	Offices/ general industrial/ storage or distribution
OS NGR	ST 40745 86780
Access location	Access from the A4810, which follows on to Llanwern Road.



Figure 2-1 Proposed development site

2.1 Development proposals

The proposal is for an employment (B1/B2/B8 use class) allocation within the Monmouthshire RLDP. The site is located on greenfield land and is classified as a less vulnerable development.

No indicative site layout has been provided to inform this appraisal. However, it is noted that this site is currently seeking planning permission, and the planning application reference is DM/2025/00852. Consequently, this site appraisal is based on a high-level overview of flood risk based on publicly available data, only.

2.2 Watercourses and Flood Defences

There are no NRW Main Rivers located in close proximity to the development site, however the site is bounded by a network of reens (ordinary watercourses) which form part of the wider Gwent Levels. The Gwent Levels are managed by NRW as the Internal Drainage District for the area. The Levels comprise watercourses and drainage channels which are controlled by a combination of tilting weirs, penstocks and boarded sluices.

Notable Reens located close to the site are the Bareland Street Reen which flows through the southern extent of the development site. The Wilcrick Moor Reen is located 0.4km west of the development site.

An existing swale that forms part of the surface water drainage regime for the adjacent site is found to the west of the site boundary. This swale discharges to the Bareland Street Reen at an attenuated runoff rate.

Approximately 3.5km to the south of the site is the South Wales Coastline. The entire site benefits from the presence of defences along the coastline, which are formed of earth embankments, managed and maintained by NRW. The defences have a standard of protection of 0.5% AEP. Consequently, the entire site is located within an 'area benefiting from defences' as defined by NRW mapping and shown in Figure 2-2.

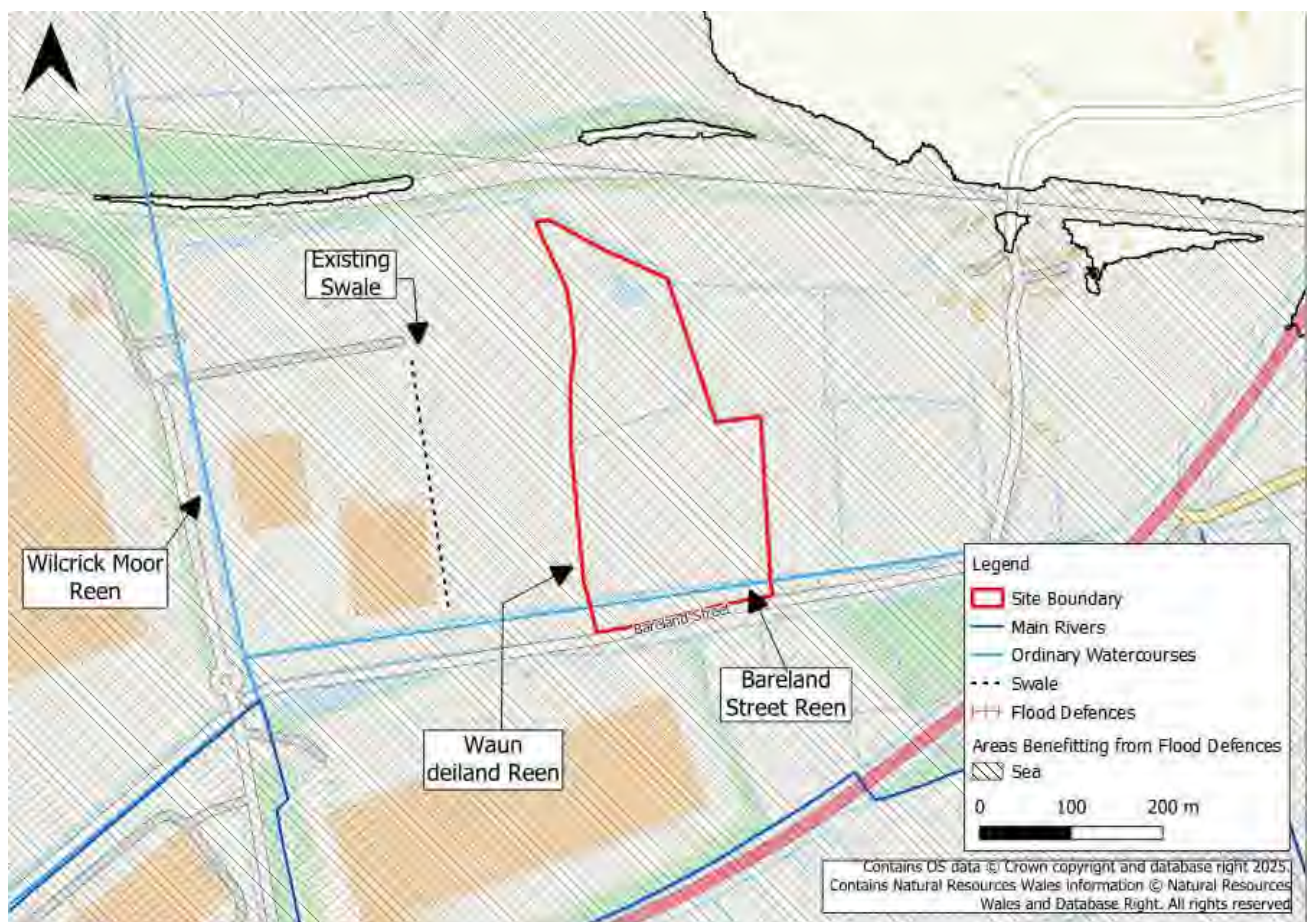


Figure 2-2 Watercourses and Flood Defences

2.3 Topography

The Natural Resources Wales (NRW) Open Source 1m Light Detection and Ranging (LiDAR) data¹ across the site has been reviewed and is shown Figure 2-3.

¹ <https://datamap.gov.wales/maps/lidar-data-download/>

Levels across the site tend to fall in a slight west to east direction but remains relatively flat with most site levels ranging between 5.82 mAOD and 4.75 mAOD.

Some levels across the site, particularly located alongside the east and southern site boundary are elevated with maximum ground levels reaching 7.51 mAOD along the southeastern boundary. This may be a result of groundworks as a consequence of ongoing development on the adjacent site to the west at the time of LiDAR data collection. A topographic depression that is present in the centre of the development site has a ground level of 4.88 mAOD.

Bareland Street Reen has an indicative bed level of 4.05 mAOD.



Figure 2-3 1m LiDAR

3 Planning Policy and Flood Risk

TAN-15 provides a framework within which flood risks arising from rivers, the sea, and surface water, as well as the risk of coastal erosion, can be assessed. TAN-15 adopts a risk-based approach, which emphasises the ability to avoid or minimise risk depending on the type of development proposed.

The following table identifies the form of development, vulnerability classification and Flood Map for Planning classification (as defined in TAN-15) for the proposed development site.

Table 3-1 TAN-15 Development classification summary

TAN-15 classification	Classification
Development Proposal	Offices/ general industrial/ storage or distribution
Form of Development	New Development
Vulnerability Classification	Less Vulnerable Development
Flood Map for Planning - Rivers	Flood Zone 1
Flood Map for Planning - Sea	Flood Zone 3 and TAN-15 Defended Zone (Figure 3-1)
Flood Map for Planning - Surface Water and Small Watercourses	Predominantly Flood Zone 1 with areas of Flood Zones 2 and 3 (Figure 3-2)

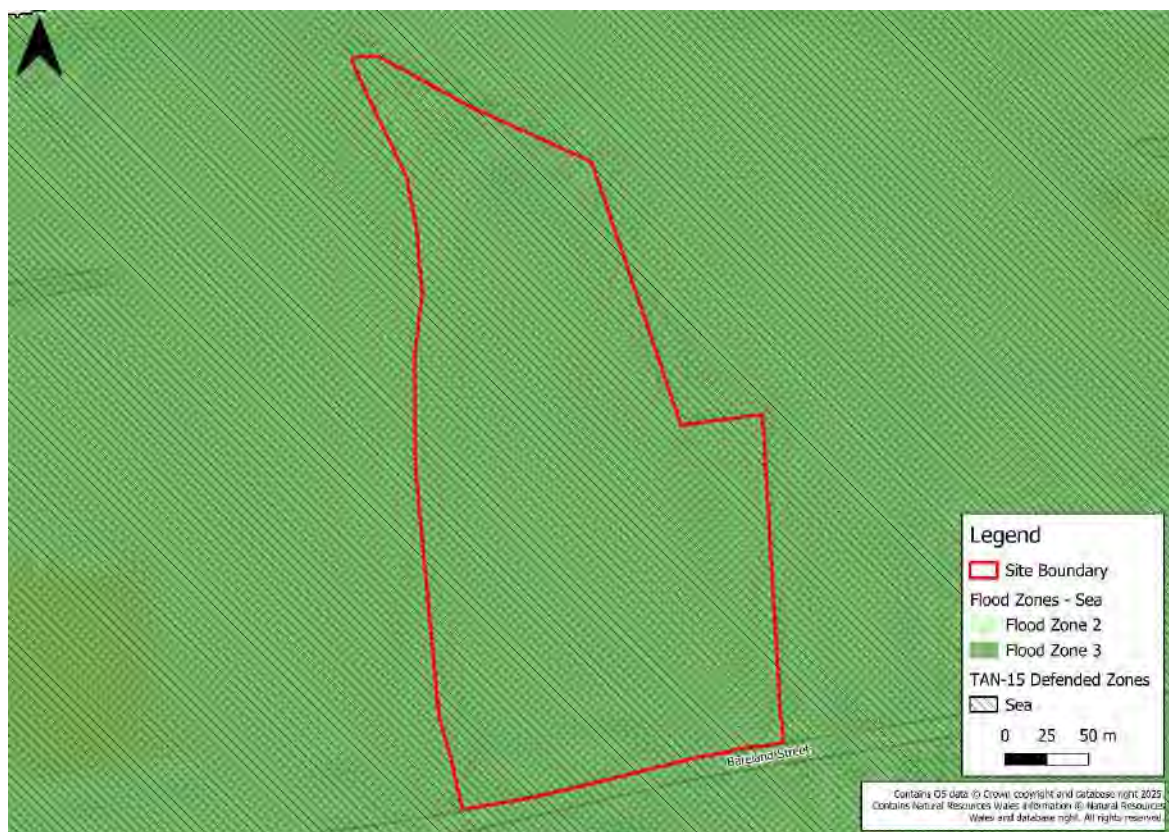


Figure 3-1 Flood Map for Planning - Sea

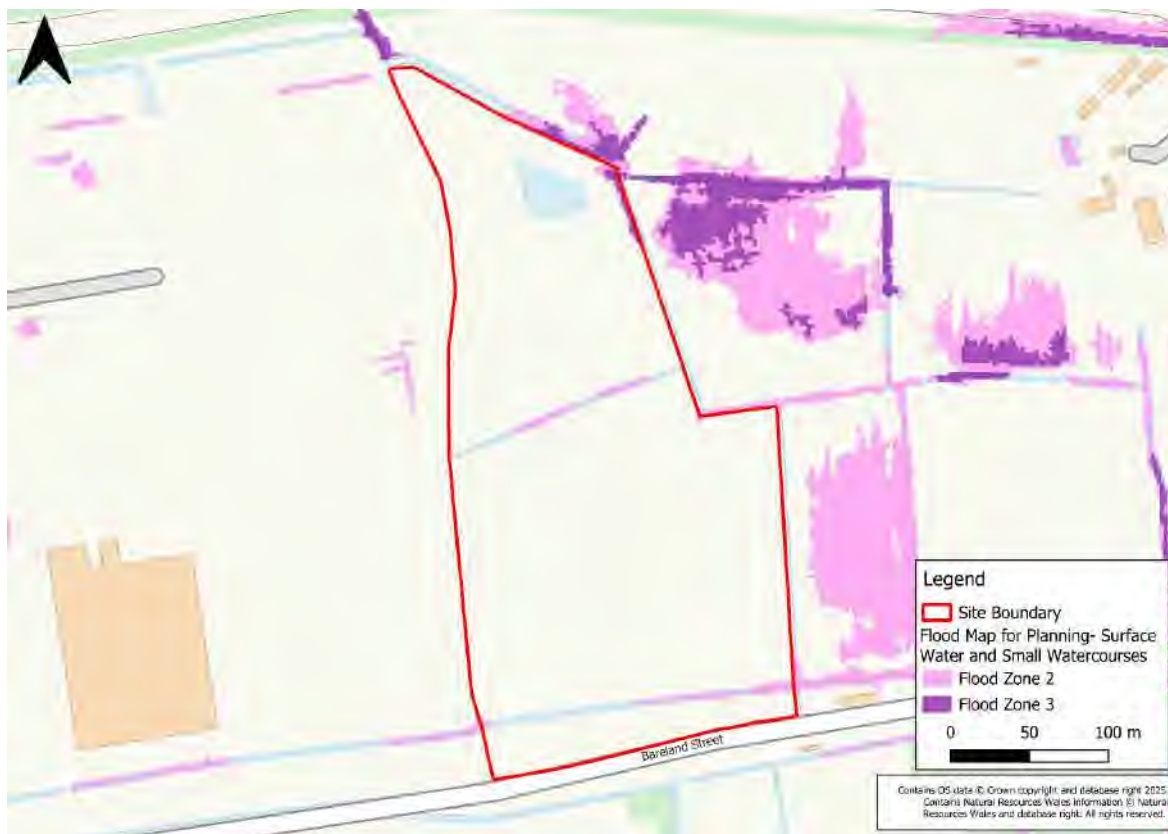


Figure 3-2 Flood Map for Planning- Surface Water and Small Watercourses

4 Assessment of Flood Risk

The latest available information on flood risk at the site, published by Natural Resources Wales (NRW) and datasets used in the SFCA is summarised in Table 4-1 below.

Table 4-1 Summary of flood risk

Source of Flooding	Onsite Presence	Description
Flood Risk from Rivers	✗	The site's location within Flood Zone 1 of the FMfP for Rivers indicates that the site is at very low risk of fluvial flooding.
Flood Risk from the Sea	✓	The site's location within the TAN-15 Defended Zone for the sea. This indicates that the site is at moderate risk of tidal flooding. Further assessed in Section 4.1.1
Flood Risk from Surface Water and Small Watercourses	✓	The site is predominantly located within Flood Zone 1 of the FMfP indicating a very low risk of surface water flooding. However, localised areas of the site are located within Flood Zones 2 and 3 indicating a Low to Moderate risk of flooding from surface water. Further assessed in Section 4.1.2
Flood Risk from Groundwater	✗	The South East Wales SFCA includes JBAs Groundwater Risk of Emergence map as part of the assessment and shows the site to be at very low risk from groundwater emergence. Therefore, it is concluded that the risk of emergence is very low .
Flood Risk from Reservoirs	✗	The NRW Flood Map for Planning shows that the site is not located in an area at risk of reservoir flooding. Therefore, it is concluded that the risk of flooding is very low .
Flood Risk from Sewers	✗	The South East Wales SFCA has identified there to be no historic sewer flood incidents within the area. The site is greenfield and is unlikely to have any sewerage infrastructure which could overflow and cause sewer flooding. Therefore, it is concluded that the risk of flooding is very low .

4.1.1 Flood Risk from the Sea

The Flood Map for Planning - Flood Risk from the Sea indicates that the site is predicted to flood, with the application of climate change.

It is understood that there is a detailed hydraulic model which covers the risk of tidal flooding from the Severn Estuary. NRW have been contacted to request the most up to date, publicly available, version of this model. However, a response is still pending. Given the study's time constraints, NRW's National Flood Hazard Mapping (NFHM) data has been used in the interim.

The NRW NFHM 1% and 0.1% AEP plus climate change events both show that during both events the development site is predicted to flood significantly with depths greater than 3m, as shown in Figures 4-1 and 4-2.

The NFHM does not account for the presence of existing tidal defences, nor does it consider any future site-specific mitigation measures. Consequently, the flood risk to the development site is likely to be significantly overestimated. To provide a more accurate and site-relevant assessment of flood risk, a detailed hydraulic assessment should be undertaken, incorporating breach scenarios to evaluate both 'actual' and residual flood risk impacts considering the presence of defences.

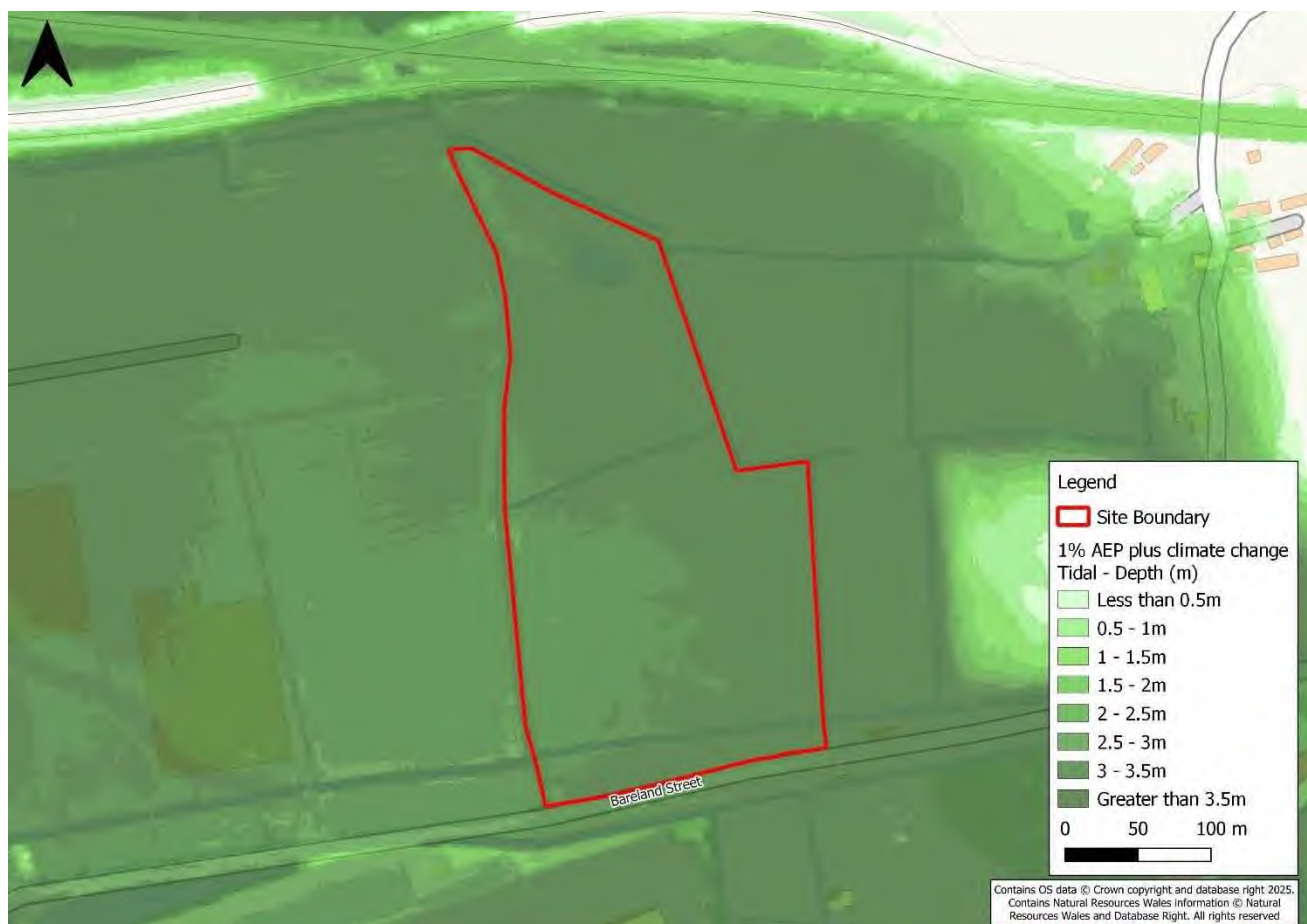


Figure 4-1 Flood Risk from the Sea - 1% AEP + Climate Change - Flood Depths



Figure 4-2 Flood Risk from the Sea - 0.1% AEP + Climate Change - Flood Depths

4.1.2 Flood Risk from Surface Water and Small Watercourses

Surface water flooding occurs when rain falling on saturated grounds flow overland, following the local topography. Surface water flooding and subsequent overland flow can therefore pose a risk to both the development site and the surrounding land. The overland flow may originate from the site itself or adjoining land at a higher elevation from which flow migrates onto the development.

The Flood Map for Planning - Surface Water and Small Watercourses indicates that the development site is predominantly located within Flood Zone 1, with small, localised areas of the development site located within Flood Zones 2 and 3. Areas of Flood Zones 2 and 3 are associated with the onsite reens during all design events, including an allowance for climate change.

The NRW National Flood Hazard Mapping (NFHM) 0.1% AEP plus climate change event has been presented below in Figure 4-3 to provide a further assessment of flooding. This indicates that during the extreme event, flows are retained within the reen channels on site.



Figure 4-3 Flood Risk from Surface Water and Small Watercourses - 0.1% AEP + Climate Change - Flood depths

5 Application of Flood Zones to Development Management Decisions

5.1 Flood Risk from the Sea

When considering a site for development, Sections 10 and 11 of TAN-15 outline the requirements for the type of development permitted in any given flood zone.

The proposed development is located within a TAN-15 Defended Zone of the Flood Map for Planning. It is located on greenfield land and is therefore considered as a new development. Furthermore, the development proposals are for offices/ general industrial/ storage or distribution use and thus defined as Less Vulnerable development.

TAN-15 states that before allocating land in Defended Zones, Local Planning Authorities will have undertaken a full flood risk assessment through an SFCA, and other additional studies if necessary, to understand the probability and potential consequences of flooding in the area. They must understand the risk from all sources including rivers, sea surface and ground water. Based on this evidence, Authorities should seek to prioritise redevelopment in areas of lower flood risk.

It is noted that this site is currently seeking planning permission under application reference is DM/2025/00852. Full flood risk information has been provided as part of this planning application to assess the risk of tidal flooding to the site, alongside an assessment of proposed flood risk mitigation measures and breach analysis of the existing tidal defences. It is recommended that should the LPA require additional information to support site allocation, further information should be sought from the site developer through the planning process.

5.2 Flood Risk from Small Watercourses

When considering a site for development, Sections 10 and 11 of TAN-15 outline the requirements for the type of development permitted in any given flood zone. It is understood that these sections apply to fluvial and tidal risk only. However, it is considered that the principles of the TAN should be reflected for proposed development where flood risk relates to surface water and small watercourses.

The development site is predominantly located within Flood Zone 1, where all forms of development are permissible.

Areas of Flood Zone 2 and 3 of the Flood Map for Planning - Flood Risk from Surface Water and Small Watercourses are associated with the reens located along the western site boundary and across the centre and southern areas of the site.

Further analysis using the NFHM indicates that the flood extent remains within the reens during all design events, and the development site remains predominantly flood-free.

A sequential approach to site planning should be implemented, leaving areas located within Flood zone 3 as open space, and the reens throughout the site could be further enhanced for biodiversity and amenity purposes.

6 Summary and recommendations

The site is at very low risk from fluvial, groundwater, reservoir and sewer flooding.

The site is located within a TAN-15 Defended Zone of the FMfP - Sea, with a standard of protection of up to the present-day 1 in 200-year event provided. The site's location with the TAN15 Defended Zone triggers the requirement for an FCA. In the absence of detailed hydraulic modelling, the NFHM dataset has been used to inform this report. However, this dataset is likely to significantly overestimate the actual risk to the site due to the absence of existing flood defences being present within the broadscale modelling used to inform this dataset. Therefore, any FCA submitted for the site should include an assessment of flood risk using a detailed hydraulic model. Any proposed flood risk mitigation measures should be assessed to demonstrate the impact on flood risk to both the proposed development site, and third parties. Given the sites benefits from the presence of flood defences, it is likely that an assessment of breach shall be required.

The site is predominantly located within Flood Zone 1 of the FMfP - Surface Water and Small Watercourses, with some areas of the development site located within Flood Zones 2 and 3. These areas are associated with the reens located along the western site boundary and across the central and southern areas of the site. The predicted flood extent is retained within the reen network during all design events.

The site is therefore considered likely to satisfy the requirements of TAN-15, subject to the following recommendations:

- Any planning application for the site should be accompanied by an FCA which demonstrates how the proposals meet the requirements of TAN-15. The FCA should contained an assessment of flood risk using a detailed hydraulic model, considering the impact of any proposed flood mitigation measures on the site and third parties. An assessment of breach is also likely to be required.
- A Drainage Statement shall be required demonstrating how surface water shall be managed on site, in line with the Statutory Standards for SuDS in Wales, and TAN-15.

Our Offices

Bristol
Coleshill
Cork
Doncaster
Dublin
Edinburgh
Exeter
Glasgow
Haywards Heath
Leeds
Limerick

Newcastle
Newport
Peterborough
Portsmouth
Saltaire
Skipton
Tadcaster
Thirsk
Wallingford
Warrington



Registered Office

1 Broughton Park
Old Lane North
Broughton
SKIPTON
North Yorkshire
BD23 3FD
United Kingdom

+44(0) 1756 799919
info@jbaconsulting.com
www.jbaconsulting.com

Follow us on  

Jeremy Benn
Associates Limited
Registered in
England
3246693

JBA Group Ltd is
certified to
ISO 9001:2015
ISO 14001:2015
ISO 27001:2022
ISO 45001:2018

