201 Malpas Road, Newport, NP20 5PP

Flood Consequence Assessment

For Greg Moody

KRS.0886.001.R.001.A

September 2025

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201 Malpas Road, Newport, NP20 5PP

Project	Flood Consequence Assessment
Client	Greg Moody
Status	Final
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Date	September 2025

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EXECUTIVE SUMMARY

The Site would be expected to remain dry in all but the most extreme conditions. Providing the recommendations made in this Flood Consequence Assessment (FCA) are instigated, flood risk from all sources would be minimised, the consequences of flooding are acceptable and the development would be in accordance with the requirements of Technical Advice Note 15 Development and Flood Risk (TAN15).

This FCA demonstrates that the Proposed Development would be operated with minimal risk from flooding, would not increase flood risk elsewhere and is compliant with the requirements of TAN15. The development should not therefore be precluded on the grounds of flood risk.

1.0 INTRODUCTION

1.1 Background

This Flood Consequence Assessment (FCA) has been prepared by KRS Enviro at the request of Greg Moody to support a planning application for a change of use from a 3 bedroom terraced house to a 5 bedroom House in Multiple Occupation (HMO) ("the Proposed Development") at 201 Malpas Road, Newport, NP20 5PP ("the Site").

This FCA has been carried out in accordance with guidance contained in the Technical Advice Note 15 Development and Flood Risk (TAN15) and associated Flood Map for Planning (FMfP). This FCA identifies and assesses the risks of all forms of flooding to and from the development and demonstrates how these flood risks will be managed so that the development remains safe throughout the lifetime, taking climate change into account.

It is recognised that developments which are designed without regard to flood risk may endanger lives, damage property, cause disruption to the wider community, damage the environment, be difficult to insure and require additional expense on remedial works. The development design should be such that future users will not have difficulty obtaining insurance or mortgage finance, or in selling all or part of the development, as a result of flood risk issues.

1.2 Technical Advice Note 15 (TAN15)

One of the key aims of TAN15 is to ensure that flood risk is taken into account at all stages of the planning process; to avoid inappropriate development in areas at risk of flooding and to direct development away from areas of highest risk.

It advises that where new development is exceptionally necessary in areas of higher risk, this should be safe, without increasing flood risk elsewhere, and where possible, reduce flood risk overall. A risk-based approach is adopted at stages of the planning process, applying a source pathway receptor model to planning and flood risk. To demonstrate this, an FCA is required and should include:

- whether a proposed development is likely to be affected by current or future flooding from all sources;
- whether it will increase flood risk elsewhere;
- whether the measures proposed to deal with these effects and risks are appropriate; and
- satisfy the justification test, including the acceptability of consequences.

A revised TAN15 has now been implemented. This is supported by the new FMfP, which includes climate change information to show how this will affect flood risk extents over the next century. It shows the potential extent of flooding assuming no defences are in place.

1.3 Report Structure

This FCA has the following report structure:

- Section 2 describes the location and the existing and Proposed Development;
- Section 3 outlines the flood risk to the existing and Proposed Development;

- Section 4 outlines mitigation measures used to reduce the overall level of flood risk;
- Section 5 provides details of the Acceptability Criteria; and
- Section 6 presents a summary and conclusions.

2.0 LOCATION & DEVELOPMENT DESCRIPTION

2.1 Site Location

The Site is located at 201 Malpas Road, Newport, NP20 5PP (see Figure 1). The National Grid Reference (NGR) of the Site is 330475, 189692.

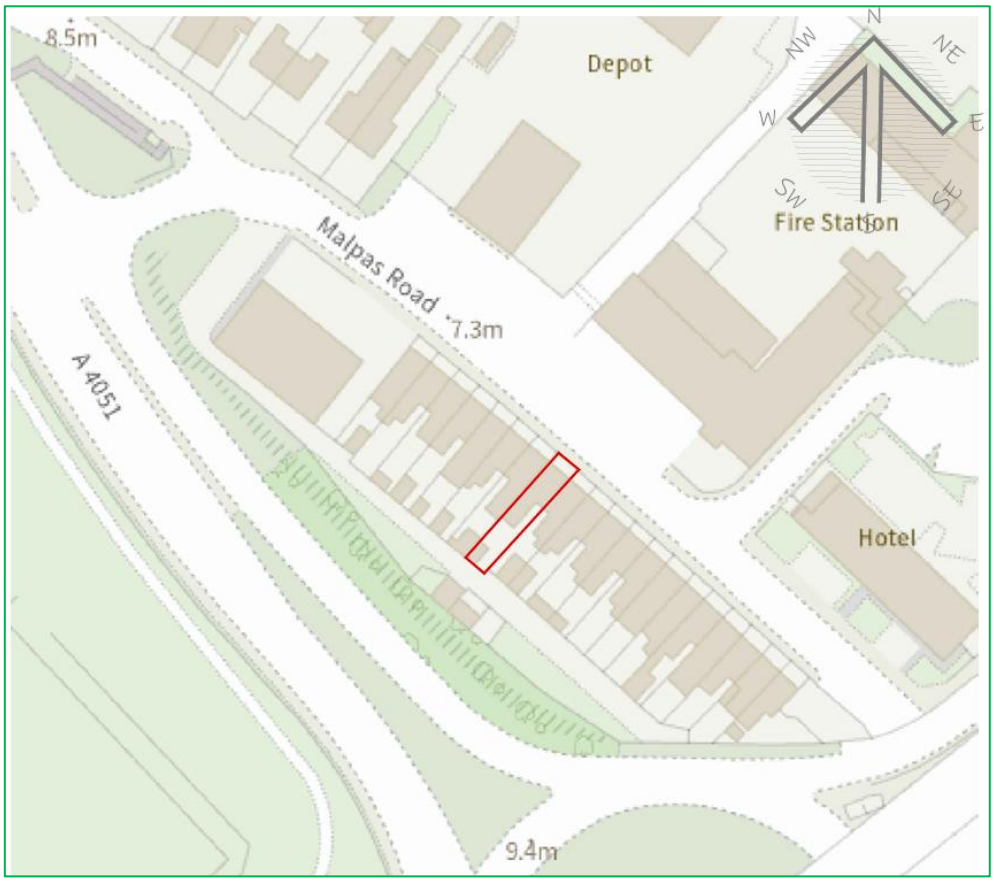


Figure 1 - Site Location

2.2 Existing Development

The Site currently comprises a 3 bedroom terraced house.

2.3 Proposed Development

The Proposed Development is for a change of use to a 5 bedroom HMO (see Appendix 1). Further details with regard to the Proposed Development can be found in the accompanying information submitted with the planning application.

2.4 Ground Levels

The Site is relatively flat with an approximate minimum ground level of 7.84 metres Above Ordnance Datum (mAOD), as per the Ordnance Survey Digital Terrain Model (DTM).

2.5 Catchment Hydrology

The Malpas Brook is located approximately 90m to the south of the Site, the Malpas Brook becomes known as the Crindau Pill when it passes below Malpas Road and the A4042 before discharging into the River Usk. The Monmouthshire & Brecon Canal is located approximately 185m to the south of the Site.

2.6 Ground Conditions

The British Geological Survey (BGS)[1] map shows that the bedrock deposits consist of the Raglan Mudstone Formation – mudstone and sandstone, interbedded. Sedimentary bedrock formed between 423.60 and 419.20 million years ago during the Silurian period. The superficial deposits consist of Alluvium - clay, silt, sand and gravel. Superficial deposits formed between 11.80 thousand years ago and the present during the Quaternary Period.

Information from the National Soil Resource Institute[2] details the Site area as being situated on slightly acid loamy and clayey soils with impeded drainage.

[1] https://geologyviewer.bgs.ac.uk/?_ga=2.66736489.617109230.1694767835-1467391725.1694767835
[2] https://www.landis.org.uk/soilscapes/

3.0 FLOOD RISK

3.1 Sources of Flooding

All sources of flooding have been considered, these are; fluvial (river) flooding, tidal (coastal) flooding, groundwater flooding, surface water (pluvial) flooding, sewer flooding and flooding from artificial drainage systems/infrastructure failure.

3.2 Natural Resources Wales

Information regarding the current flood risk at the application Site, local flood defences and flood risk has been obtained from Natural Resources Wales, outputs from the Malpas Brook Model update 2012 is the most up to date data at the time of this FCA.

In their letter dated the 26th August 2025 Natural Resources Wales has stated the following *"Our advice to you is the FCA is incomplete. Paragraph 10.24 of TAN 15 is clear 'In zones 2, 3 and TAN 15 defended zone developers must undertake a flood consequences assessment proportionate to the nature and scale of the proposal. Before granting planning permission, decision makers should be satisfied the scheme is justifiable in accordance with the principles set out in section 8, where they are not satisfied, planning permission should be refused.'"*

The existing development is a 3 bedroom house and the Proposed Development is for a change of use to a 5 bedroom HMO, an increase of 2 bedroom. Therefore, it is clear that this FCA is proportionate to the nature and scale of the proposal. The scheme is justifiable in accordance with the principles set out in section 8 of TAN15. For Natural Resources Wales to suggest otherwise is incorrect and misleading.

A pragmatic approach needs to be taken by Natural Resources Wales when assessing the flood risk at this location, particularly because the flood risk at this location is already well understood and the fact is that the Site is currently protected against fluvial and tidal flooding by existing flood defences. Undertaking more modelling would not provide any more useful information than what is already available and would not be cost effective given the scale of the Proposed Development for an additional 2 bedrooms when compared to the minor actual flood risk posed to the Site. It can be confirmed that the Natural Resources Wales Malpas Brook Model update 2012 is acceptable to assess the fluvial flood risk posed to the Site.

3.3 Climate Change

Projections of future climate change, in the UK, indicate more frequent, short-duration, high intensity rainfall and more frequent periods of long duration rainfall. Guidance included within TAN15 recommends that the effects of climate change are incorporated into FCA. Recommended precautionary sensitivity ranges for peak rainfall intensities, peak river flows and sea level rise are outlined in the following documents CL-03-16 - Climate Change Allowances for Planning Purposes[3], Flood Consequence Assessments: Climate change allowances[4] and Adapting to Climate Change: Guidance for Flood and Coastal Erosion Risk Management Authorities in Wales[5].

The 9th of January 2014 Welsh Government letter to all Chief Planning Officers (CPO) in Wales and CL-03-16 - Climate Change Allowances for Planning Purposes clarifies and refers to the Natural Resources Wales recommendations that the lifetime of development for residential

[3] https://gov.wales/sites/default/files/publications/2018-11/cl0316-climate-change-allowances.pdf
[4] https://gov.wales/sites/default/files/publications/2018-11/flood-consequence-assessments.pdf
[5] https://gov.wales/sites/default/files/publications/2021-09/adapting-to-climate-change-guidance-for-flood-and-coastal-erosion-risk-management-authorities-in-wales.pdf

development is 100 years, and for other development it is considered to be 75 years. Table 1 show the peak river flow allowances by river catchment.

Table 1 - Peak River Flow Allowances by River Catchment

River Catchment	Allowance Category	2020s	2050s	2080s
Severn	Upper	+25%	+40%	+70%
	Central	+10%	+20%	+25%

Projections of relative mean sea level rise for each epoch (period of time) is provided for the Welsh coastline in Table 2. These projections are consistent with the latest global predictions for sea level rise. The rate of change is projected to increase in each epoch.

Table 2 - Sea Level Allowances (m)

Local Authority Area	Allowance Category	Mean Sea Level Rise (m) by 2100*	Mean Sea Level Rise (m) by 2120*
Newport	95th	1.11	1.33
	70th	0.85	1.01

* (UKCP18 baseline 1981-2000)

In their letter dated the 26th August 2025 Natural Resources Wales has stated the following "TAN 15 (paragraph 4.3) states '*detailed Flood Consequences Assessments, to accompany planning applications, will be required to consider a range of climate change scenarios, including upper end estimates, making reference to the Welsh Government guidance on climate change allowances for planning purposes.' Current Welsh Government guidance on climate change allowances for planning purposes states this information should be used to inform mitigation measures that help to ensure the long term resilience of the development.*"

The statement from Natural Resources Wales shown above is incorrect and misleading, the current Welsh Government guidance on climate change allowances for planning purposes actually states *"It is recommended that in addition to the change factor, an assessment of risk is made using the upper end estimate. The information derived from this assessment should be used to inform mitigation measures that help to ensure the long term resilience of the development. (Note: The upper end estimate may not be applicable to every site but will need to be considered depending upon the scale and nature of the site in question)."*

It can be confirmed that the upper end estimate is not applicable to the Proposed Development when the scale and nature of the Site is taken into account. The flood risk at this location, particularly because the flood risk at this location is already well understood and the fact is that the Site is currently protected against fluvial and tidal flooding by existing flood defences especially when you take into account the scale of the Proposed Development for an additional 2 bedrooms when compared to the minor actual flood risk posed to the Site.

Natural Resources Wales have suggest that the upper allowances have not been assessed however, this is not the case, to suggest otherwise is incorrect and misleading. The fluvial 1 in 100 year (+70%), 1 in 1000 year (+70%) events, the tidal 1 in 200 year in 2125 event and the 1 in 1000 year in 2125 event based on the 95th percentile have been assessed within this FCA.

3.4 Historic Flooding

The Natural Resources Wales historic flood map shows that the Site has not historically flooded (see Figure 2). The British Hydrological Society "Chronology of British Hydrological Events[6]" has no information on flooding within the vicinity of the Site. No other historical records of flooding for the Site have been recorded. Therefore, it has been concluded that the Site has not historically flooded in the recent past.

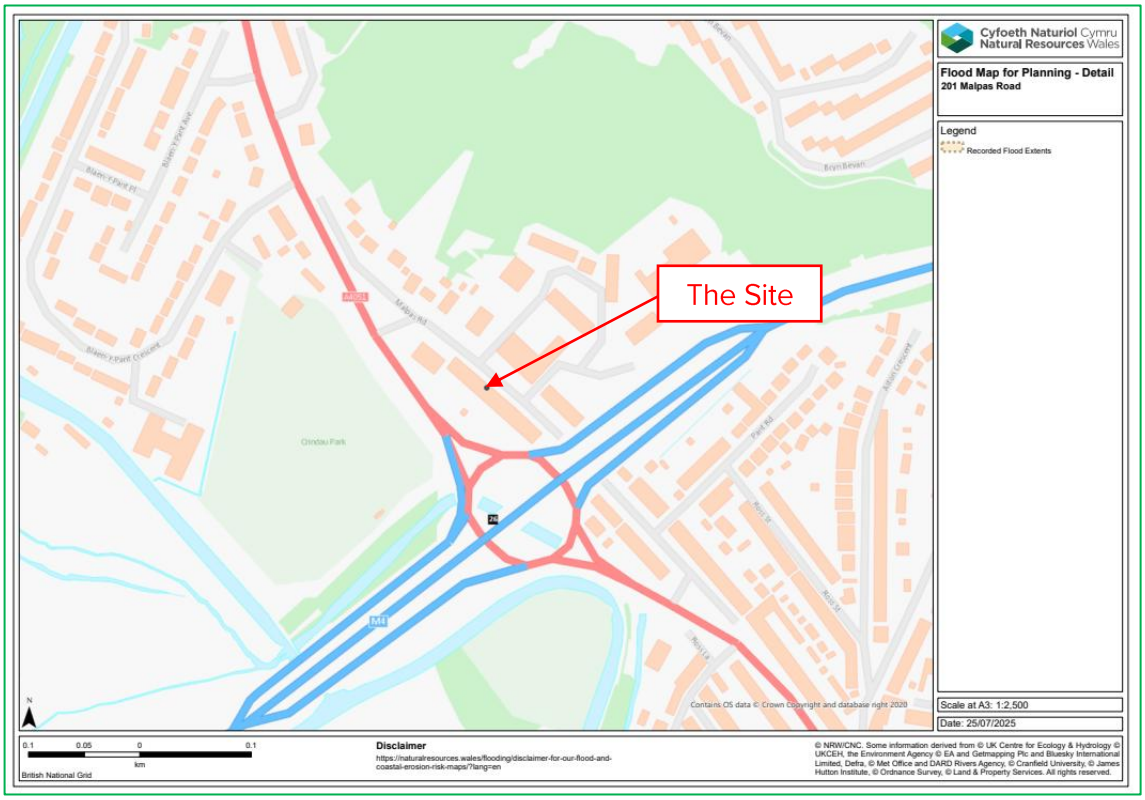


Figure 2 - Natural Resources Wales Historic Flood Map

3.5 Existing and Planned Flood Defence Measures

The Site is protected against fluvial flooding and is located within a TAN15 Defended Zone. The Gwastad Mawr storage scheme (see Figure 3) was developed to attenuate flows to the north of the M4 before discharging the flow from the storage area through a sluice structure (see Figure 4). The sluice opening has been set at 0.50m within the Malpas Brook model as advised by Newport City Council. In conjunction to the sluice structure, there are flood defences which are located to the south of the M4 Motorway that contain the water within the attenuation area. The Gwastad Mawr flood attenuation area is a controlled structure under the Reservoir Act 1975.

The Malpas Brook scheme, constructed in 2005, was designed to provide protection against a 1 in 200 year tidal event (0.5%). The crest level of the flood wall varies from 9.01mAOD adjacent to the Shell fuel station on Malpas Road (NGR 330867 189171) to 9.13mAOD adjacent to the Malpas Brook Health Centre (NGR 330604 189510) (see Figure 5).

[6] https://cbhe.hydrology.org.uk/

The flood risk will be further mitigated by using a number of risk management measures to manage the overall flood risk at the Site, these are discussed in Section 4.0.

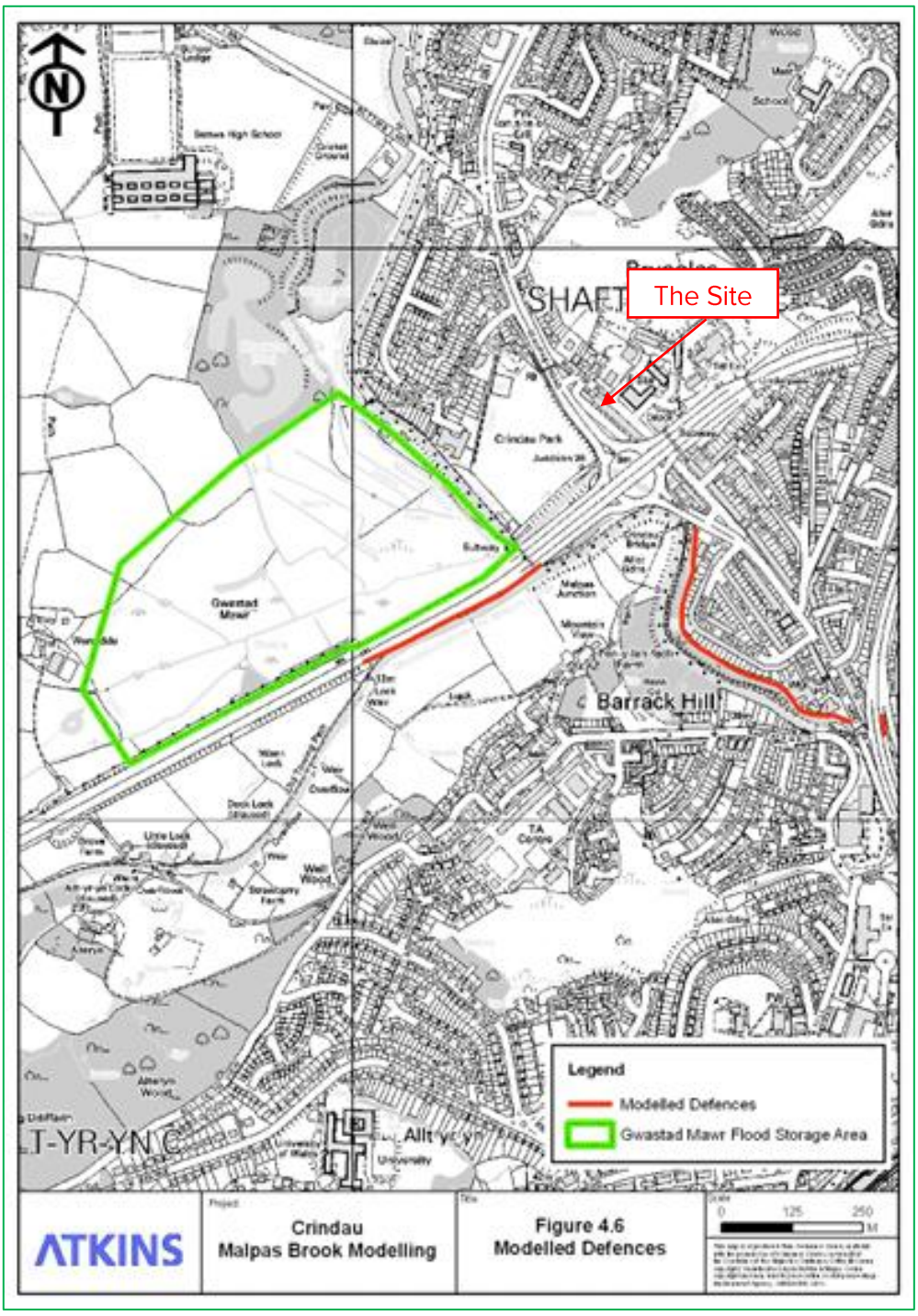


Figure 3 - Natural Resources Wales Fluvial Flood Defences Map

Figure 4 - Gwastad Mawr Sluice

Figure 5 - Malpas Brook Flood Wall

3.6 Flood Vulnerability

Applying the Flood Risk Vulnerability Classification in Figure 4 of TAN15, the existing and proposed use of the Site is classified as 'highly vulnerable'. The Proposed Development will not change the vulnerability of the Site to flooding or introduce a new 'highly vulnerable' use into the floodplain. The Proposed Development is deemed appropriate for this location.

3.7 Flood Map for Planning

The Flood Map for Planning (FMfP) represents the best available information on flood risk. The FMfP shows that the Site is located within the following flood zones:

- Rivers: Flood Zone 3 with a 1 in 100 (1%) annual probability of flooding from rivers in a given year, including the effects of climate change (see Figure 6).
- Sea: Flood Zone 3 with a 1 in 200 (0.5%) annual probability of flooding from the sea in a given year, including the effects of climate change (see Figure 7).
- Surface water and small watercourses: The majority of the Site is located within Flood Zone 2 with 1 in 1000 to 1 in 100 (0.1% to 1%) annual probability of flooding from surface water and/or small watercourses in a given year, including the effects of climate change. However, a very small proportion of the Site, along the northeastern and southwestern boundaries, is located within Flood Zone 3 with a 1 in 100 (1%) chance of flooding from surface water and/or small watercourses in a given year, including the effects of climate change (see Figure 8). Flood Zone 3 is confined to the boundaries of the Site and will not affect the whole of the Site.

Table 3 provides details of the FMfP Flood Zones. The Proposed Development is appropriate for this location.

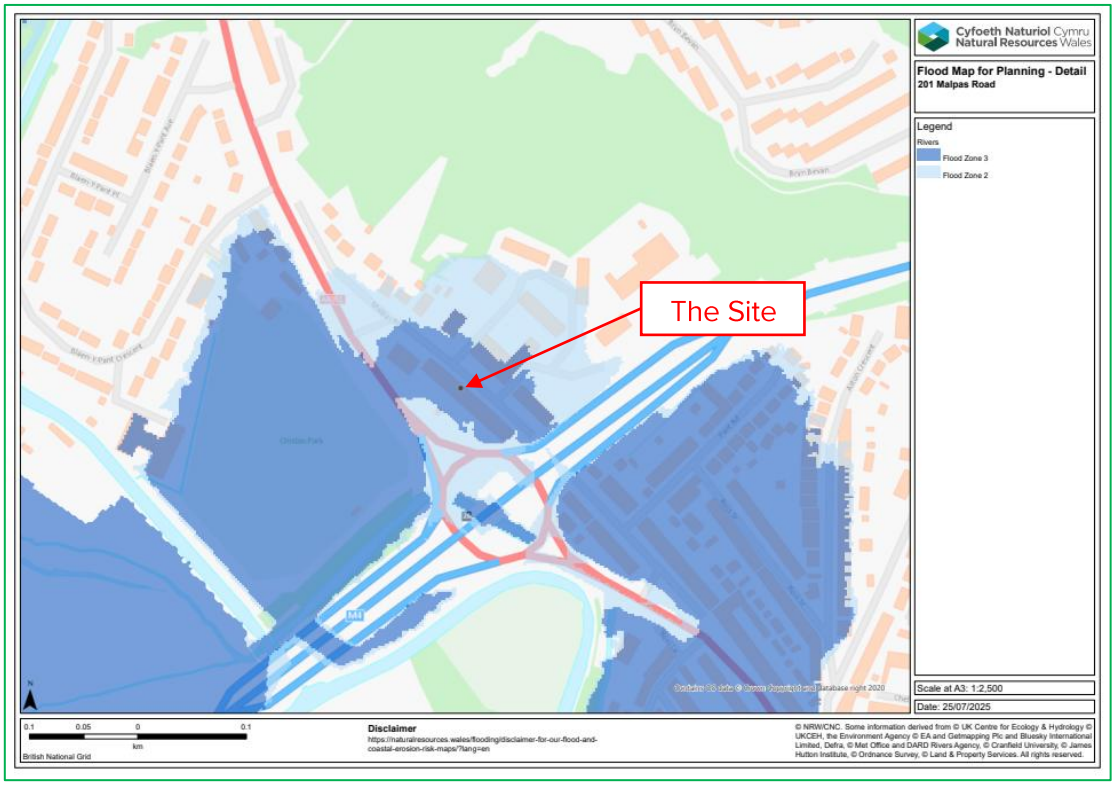


Figure 6 - Flood Map for Planning: Rivers

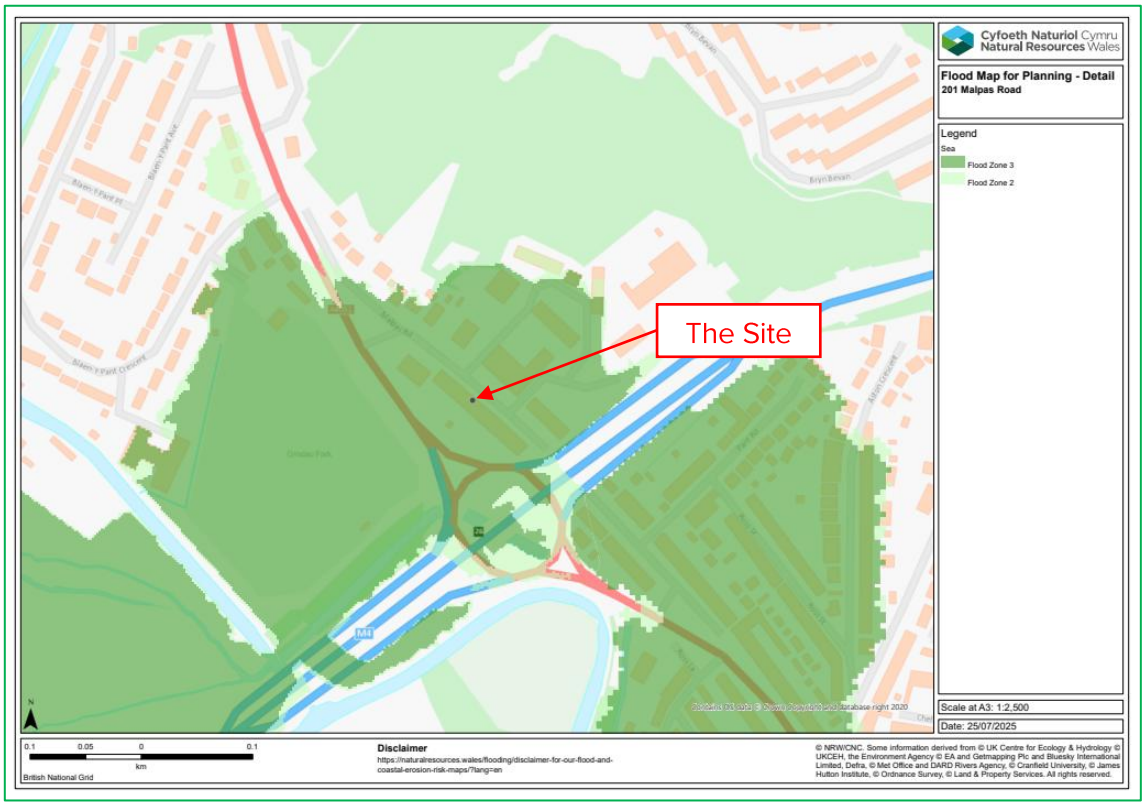


Figure 7 - Flood Map for Planning: Sea

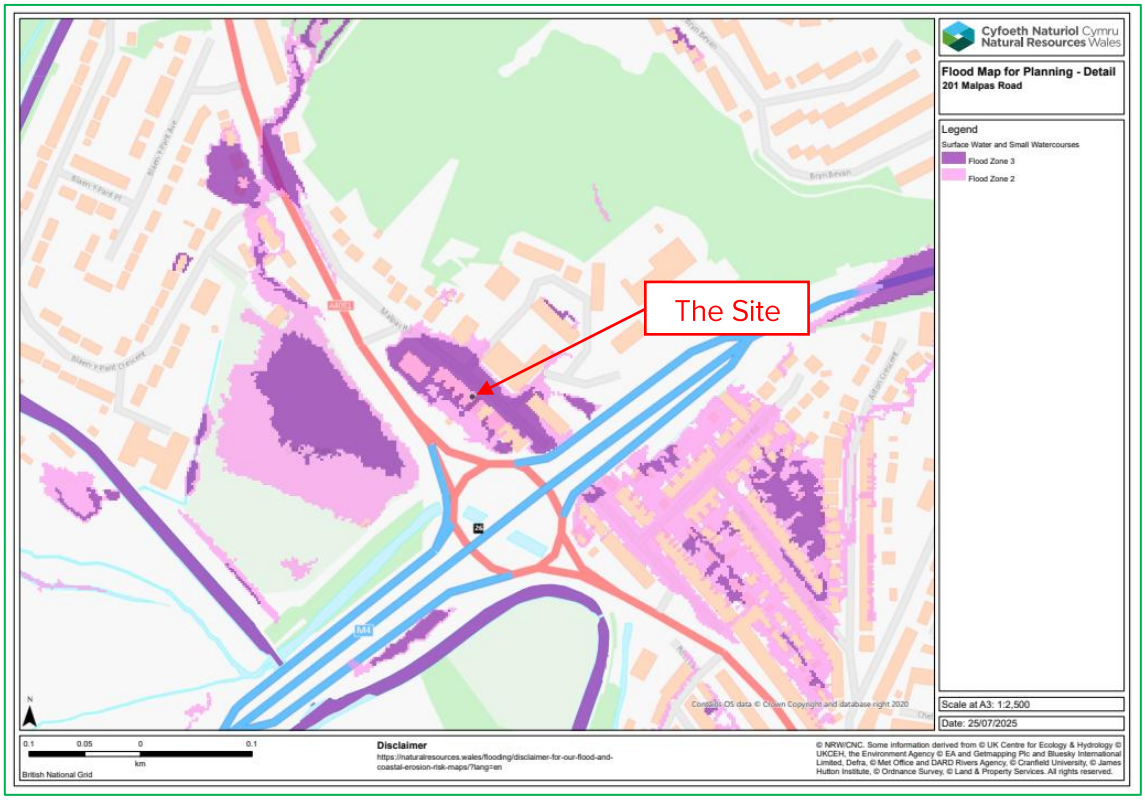


Figure 8 - Flood Map for Planning: Surface Water and Small Watercourses

Table 3 - Flood Map for Planning Flood Zones

Flood Zone	Explanation
Rivers - Flood Zone 2	Areas with 0.1% to 1% (1 in 1000 to 1 in 100) chance of flooding from rivers in a given year, including the effects of climate change.
Rivers - Flood Zone 3	Areas with more than 1% (1 in 100) chance of flooding from rivers in a given year, including the effects of climate change.
Sea - Flood Zone 2	Areas with 0.1% to 0.5% (1 in 1000 to 1 in 200) chance of flooding from the sea in a given year, including the effects of climate change.
Sea - Flood Zone 3	Areas with more than 0.5% (1 in 200) chance of flooding from the sea in a given year, including the effects of climate change.
Surface Water and Small Watercourses - Flood Zone 2	Areas with 0.1% to 1% (1 in 1000 to 1 in 100) chance of flooding from surface water and/or small watercourses in a given year, including the effects of climate change.
Surface Water and Small Watercourses - Flood Zone 3	Areas with more than 1% (1 in 100) chance of flooding from surface water and/or small watercourses in a given year, including the effects of climate change.

3.8 Fluvial (River) Flooding

The Malpas Brook is located approximately 90m to the south of the Site. The Natural Resources Wales Malpas Brook Model update 2012 has been used to assess the fluvial flood risk posed to the Site in detail. This model is the most up to date data at the time of this FCA. Figure 9 shows that the Natural Resources Wales modelled fluvial flood outlines.

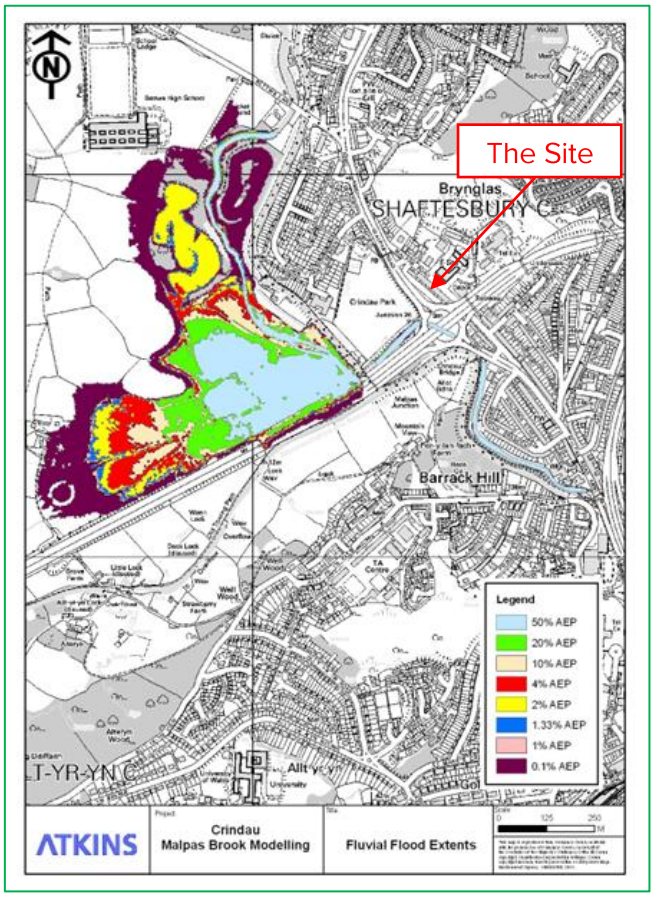


Figure 9 - Natural Resources Wales Modelled Fluvial Flood Outlines

Defended Scenarios

Table 4 shows the Natural Resources Wales modelled defended fluvial data. The Site will not be inundated with floodwater for all events up to and including the defended 1 in 100 year (+20%) and the 1 in 1000 year events. The Site will be flood free during the defended 1 in 100 year (+20%) and the 1 in 1000 year events. The actual flood risk posed to the Site is less than 1 in 1000 years. It is also likely that due to the small difference between the defended 1 in 100 year (+20%) event and the defended 1 in 100 year (+25%) event that Site would be flood free during the defended 1 in 100 year (+25%) event.

Table 4 - Natural Resources Wales Modelled Defended Fluvial Data

Parameter	1 in 200	1 in 100 (+20%)	1 in 100 (+25%)	1 in 1000
Water Level (mAOD)	NULL	NULL	NULL	NULL
Depth (m)	NULL	NULL	NULL	NULL
Velocity (m/s)	NULL	NULL	NULL	NULL

* NULL values show that the site is flood free for that return period.

Undefended Scenarios

If the flood defences were not there, the area would be flooded. However, as area of land may benefit from the presence of flood defences even if the flood defences are overtopped, the presence of the flood defences means that the floodwater does not extend as far as it would if the flood defences were not there.

Table 5 shows the Natural Resources Wales modelled undefended fluvial data. The Site will not be inundated with floodwater for all events up to and including the undefended 1 in 1000 year event. The Site will be flood free during the undefended the 1 in 1000 year event. The residual flood risk posed to the Site is less than 1 in 1000 years.

It is only when climate change is taken into account during the undefended 1 in 100 year and 1 in 1000 year events that the Site may be inundated with floodwater as shown within the FMfP. Figure 6 shows that the Site may be inundated with floodwater during the undefended 1 in 100 year (+25%) and the 1 in 1000 year (+25%) events. The Site may also be inundated with floodwater during the undefended 1 in 100 year (+70%) and the 1 in 1000 year (+70%) events.

Table 5 - Natural Resources Wales Modelled Undefended Fluvial Data

Parameter	With Sluice		Without Sluice	
	1 in 100	1 in 1000	1 in 100	1 in 1000
Water Level (mAOD)	NULL	NULL	NULL	NULL
Depth (m)	NULL	NULL	NULL	NULL
Velocity (m/s)	NULL	NULL	NULL	NULL

* NULL values show that the site is flood free for that return period.

Breach/Blockage Scenarios

In their letter date the 26th August 2025 Natural Resources Wales has stated that as a result of the Site being located within a TAN15 Defended Zone that TAN15 states that an *"..assessment is required for the breach of a defence (breach scenario) and blockage of a structure (blockage scenario), which should be considered as the 'design event.' In the absence of breach assessment and blockage assessment, justification for not including them should be provided*

in the FCA." This is incorrect TAN15 does not state that a breach or blockage scenario is required as a result of a Site being located within a TAN15 Defended Zone.

Paragraph 10.13 of TAN15 which is titled Defended Zones states *"The allocation of sites for new development in Defended Zones, needs careful consideration as the failure of flood defences can lead to catastrophic flooding for areas behind those defences. The presence of formal flood defences does not guarantee that land in the Defended Zone will remain free from flooding in the future, they simply lower the risk of exposure to flooding. Breaches and/or over-topping of even the most modern flood defences are possible resulting in significant flood events. The impact of climate change means that these risks can only increase."*

Paragraph 10.14 of TAN15 goes on to state *"As a pre-requisite to proposing any development in Defended Zones Local Planning Authorities must understand fully the quality and condition* of existing flood defences and the level of protection they afford both now and in the future."

It is clear from the above that there is no requirement for Sites located within the TAN15 Defended Zones to assess the breach/blockage scenarios, to suggest otherwise is incorrect and misleading.

Furthermore, an assessment of the flood risk posed to the Site for the undefended scenarios has been undertaken which will pose a greater flood risk to the Site than the breach/blockage scenarios.

Summary

The Site is located within a low risk area where the onset of flooding is very gradual (many hours) as per Flood Risk Assessment Guidance for New Development Phase 2, R&D Technical Report FD2320/TR2. Therefore, it can be concluded that fluvial flooding poses a low risk to the Site and the risk of fluvial is considered to be of low significance. The risk of fluvial flooding will be further mitigated by using a number of risk management measures to manage and reduce the overall flood risk at the Site (see Section 4.0).

3.9 Tidal (Coastal) Flooding

The Malpas Brook is located approximately 90m to the south of the Site. The Natural Resources Wales Malpas Brook Model update 2012 has been used to assess the tidal flood risk posed to the Site in detail. This model is the most up to date data at the time of this FCA. Figure 10 shows that the Natural Resources Wales modelled tidal flood outlines.

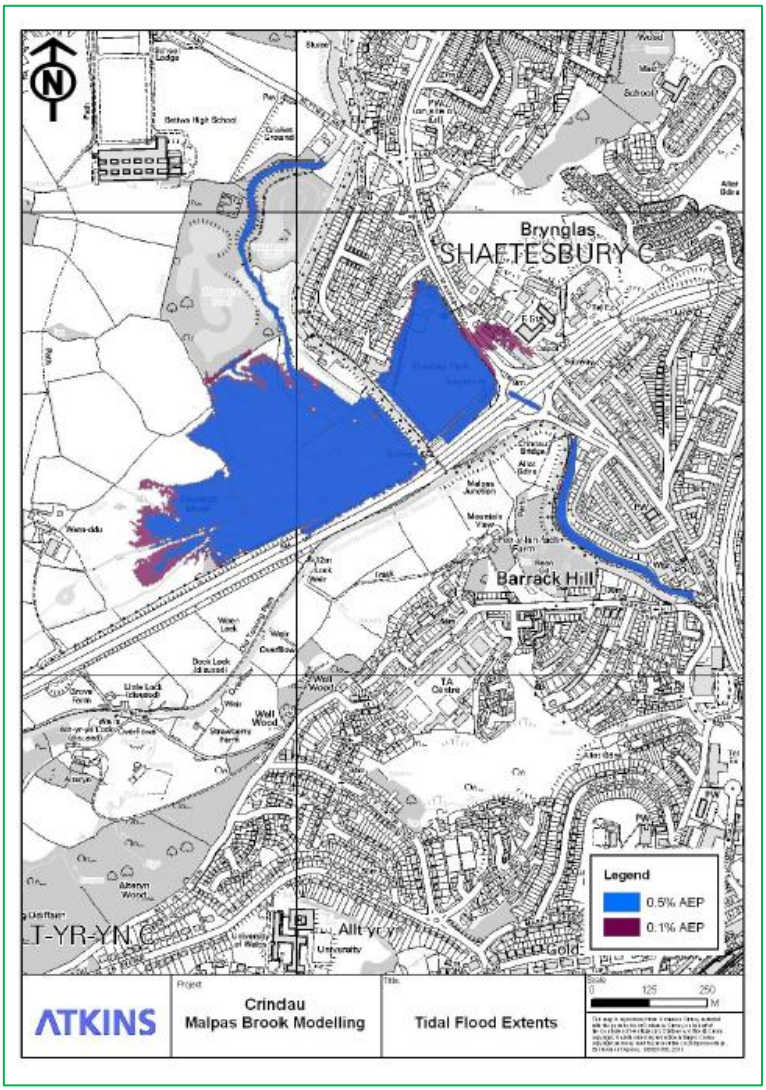


Figure 10 - Natural Resources Wales Modelled Tidal Flood Outlines

Defended Scenarios

Tables 6 and 7 show the Natural Resources Wales modelled defended tidal data. To take into account climate change from 2111 to 2125 the allowances in Table 2 have been used (i.e. 95th percentile – 0.011m/year = 0.15m).

The Site will not be inundated with floodwater for all events up to and including the defended 1 in 1000 year event. The Site will be flood free during the defended 1 in 1000 year event and the actual flood risk posed to the Site is less than 1 in 1000 years.

It is only when climate change or the upper confidence intervals are taken into account during the defended in 200 year and defended 1 in 1000 year events that the Site may be inundated with floodwater. The Site may be inundated with floodwater during the defended 1 in 200 year in 2125 the defended 1 in 1000 year and the 1 in 1000 year in 2125 events.

Table 6 - Natural Resources Wales Modelled Defended Tidal Data

Parameter	1 in 200	1 in 1000	1 in 200 in 2111	1 in 200 in 2125	1 in 1000 in 2111	1 in 1000 in 2125
Water Level (mAOD)	NULL	NULL	9.48	9.63	9.93	10.08
Depth (m)	NULL	NULL	2.00	2.15	2.45	2.60
Velocity (m/s)	NULL	NULL	0.21	<0.30	0.37	<0.40

* NULL values show that the site is flood free for that return period.

Table 7 - Natural Resources Wales Modelled Defended Tidal Data (including upper confidence interval)

Parameter	1 in 200	1 in 1000	1 in 200 in 2111	1 in 200 in 2125
Water Level (mAOD)	7.72	9.34	9.96	10.11
Depth (m)	0.27	1.89	2.51	2.66
Velocity (m/s)	0.19	0.29	0.20	<0.30

* NULL values show that the site is flood free for that return period.

Undefended Scenarios

If the flood defences were not there, the area would be flooded. However, as area of land may benefit from the presence of flood defences even if the flood defences are overtopped, the presence of the flood defences means that the floodwater does not extend as far as it would if the flood defences were not there.

Table 8 shows the Natural Resources Wales modelled undefended tidal data. To take into account climate change from 2111 to 2125 the allowances in Table 2 have been used (i.e. mean sea level rise of 1.33m). The Site may be inundated with floodwater during the undefended 1 in 200 year, the undefended 1 in 200 year in 2125, the undefended 1 in 1000 year and the undefended 1 in 1000 year in 2125 events.

Table 8 - Natural Resources Wales Modelled Undefended Tidal Data

Parameter	With Sluice				Without Sluice			
	1 in 200	1 in 200 in 2125	1 in 1000	1 in 1000 in 2125	1 in 200	1 in 200 in 2125	1 in 1000	1 in 1000 in 2125
Water Level (mAOD)	7.97	9.30	8.59	9.92	7.96	9.29	8.57	9.90
Depth (m)	0.52	1.85	1.14	2.47	0.51	1.84	1.12	2.45
Velocity (m/s)	0.36	--	0.08	--	0.34	--	0.09	--

* NULL values show that the site is flood free for that return period.

Breach/Blockage Scenarios

In their letter date the 26th August 2025 Natural Resources Wales has stated that as a result of the Site being located within a TAN15 Defended Zone that TAN15 states that an *"..assessment is required for the breach of a defence (breach scenario) and blockage of a structure (blockage scenario), which should be considered as the 'design event.' In the absence of breach assessment and blockage assessment, justification for not including them should be provided in the FCA."* This is incorrect TAN15 does not state that a breach or blockage scenario is required as a result of a Site being located within a TAN15 Defended Zone.

Paragraph 10.13 of TAN15 which is titled Defended Zones states *"The allocation of sites for new development in Defended Zones, needs careful consideration as the failure of flood defences can lead to catastrophic flooding for areas behind those defences. The presence of formal flood*

defences does not guarantee that land in the Defended Zone will remain free from flooding in the future, they simply lower the risk of exposure to flooding. Breaches and/or over-topping of even the most modern flood defences are possible resulting in significant flood events. The impact of climate change means that these risks can only increase."

Paragraph 10.14 of TAN15 goes on to state *"As a pre-requisite to proposing any development in Defended Zones Local Planning Authorities must understand fully the quality and condition* of existing flood defences and the level of protection they afford both now and in the future."

It is clear from the above that there is no requirement for Sites located within the TAN15 Defended Zones to assess the breach/blockage scenarios, to suggest otherwise is incorrect and misleading.

Furthermore, an assessment of the flood risk posed to the Site for the undefended scenarios has been undertaken which will pose a greater flood risk to the Site than the breach/blockage scenarios.

Summary

The mechanism for tidal flooding is generally prolonged episodes of high sea levels, which affords good time for flood warnings to be issued. The likelihood of a rapid water level rise and possible rapid inundation of urban areas posing a risk to life is considered to be minimal with a forewarning of two (2) days of a pending flood event.

The Site is located within a low risk area where the onset of flooding is very gradual (many hours) as per Flood Risk Assessment Guidance for New Development Phase 2, R&D Technical Report FD2320/TR2. Therefore, it can be concluded that tidal flooding poses a low risk to the Site and the risk of tidal flooding is considered to be of medium significance. The risk of tidal flooding will be further mitigated by using a number of risk management measures to manage and reduce the overall flood risk at the Site (see Section 4.0).

3.10 Groundwater Flooding

Groundwater flooding is defined as the emergence of groundwater at the ground surface or the rising of groundwater into man-made ground under conditions where the normal range of groundwater levels is exceeded.

Groundwater flooding tends to occur sporadically in both location and time. When groundwater flooding does occur, it tends to mostly affect low-lying areas, below surface infrastructure and buildings (for example, tunnels, basements and car parks) underlain by permeable rocks (aquifers).

Site conditions suggest a low probability of groundwater flooding. The Newport City Council Preliminary Flood Risk Assessment (PFRA) confirms that groundwater is not considered to a significant flood risk and is considered to rise and fall relatively slowly. In addition, the local geology is not considered to yield significant volumes of groundwater. No below surface infrastructure and buildings are located or are proposed for the Site. The risk of flooding from groundwater flooding is considered to be not significant.

3.11 Surface Water (Pluvial) Flooding

The Site is not situated near to large areas of poor permeability which may result in surface water flooding. The FMfP shows that the majority of the Site is located within Flood Zone 2 with 1 in 1000 to 1 in 100 (0.1% to 1%) annual probability of flooding from surface water and/or small watercourses in a given year, including the effects of climate change. However, a very small proportion of the Site, along the northeastern and southwestern boundaries, is located

within Flood Zone 3 with a 1 in 100 (1%) chance of flooding from surface water and/or small watercourses in a given year, including the effects of climate change (see Figure 5). Flood Zone 3 is confined to the boundaries of the Site and will not affect the whole of the Site.

Given the scale and nature of the Proposed Development and the size and location of the surface water flooding sources it has been concluded that surface water flooding poses a low flood risk to the Site and the risk of surface water flooding is considered to be of low significance.

3.12 Sewer Flooding

Sewer flooding occurs when urban drainage networks become overwhelmed and maximum capacity is reached. This can occur if there is a blockage in the network causing water to back up behind it or if the sheer volume of water draining into the system is too great to be handled. Sewer flooding tends to occur sporadically in both location and time such flood flows would tend to be confined to the streets around the development.

It has been assumed that there are existing sewers located within the vicinity of the Site and these will inevitably have a limited capacity so in extreme conditions there would be surcharges, which may in turn cause flooding. Flood flows could also be generated by burst water mains, but these would tend to be of a restricted and much lower volume than weather generated events and so can be discounted for the purposes of this assessment.

Given the design parameters normally used for drainage design in recent times and allowing for some deterioration in the performance of the installed systems, which are likely to have been in place for many years, an appropriate flood risk probability from this source could be assumed to have a return period in the order of 1 in 10 to 1 in 20 years. The provision of adequate level difference between the ground floors and adjacent ground level would reduce the annual probability of damage to property from this source to 1 in 100 years or less. Sewer flooding poses a flood risk to the Site therefore, the risk of flooding from sewer flooding is considered to be not significant.

3.13 Flooding from Artificial Drainage Systems/Infrastructure Failure

The Site is located within the vicinity of reservoirs. The Natural Resources Wales Reservoir flood map shows that the Site is at risk of flooding from reservoir failure (see Figure 11). This map shows the largest area that might be flooded if a reservoir were to fail and release the water it holds. The Natural Resources Wales Reservoir flood map has been prepared for emergency planning purposes and for this reason they reflect a worst case scenario. Since this is a prediction of a worst case scenario, it's unlikely that any actual flood would be this large.

Reservoir flooding is extremely unlikely; reservoirs in the UK have a very good safety record. There has been no loss of life in the UK from reservoir flooding since 1925. Since then reservoir safety legislation has been introduced to make sure reservoirs are well maintained.

The hazard is well managed through effective legislation and it is unlikely that the impact zone downstream of these reservoirs should not allow the proposed development. Reservoir flooding poses a very low flood risk to the Site.

The Monmouthshire & Brecon Canal is located approximately 185m south of the Site. A freeboard of 300-500mm exists between the canal water level and the canal's bank during 'normal' operation. The level of the water in canals is normally determined predominantly by the level and size of weirs. Most canal water levels are managed around a normal operating zone (NOZ) which is typically +/- 200mm, but water levels outside of the NOZ may be

experienced at times. The existence of a number of lock gates along the length of the canal provides a mechanism for control. These locks moderate flows through the canal and provide some protection against upstream flood flows through the delay and timely release of flows downstream.

The main incidents of uncontrolled loss of water from canals are overtopping and breaching as a result of inundation from adjacent watercourses, vandalism or structural failure. The water levels in canals are maintained by the Canal & River Trust using reservoirs, feeders and boreholes, and thereafter manages the water by transferring it within the canal system.

When surface water enters canals, the level of the water rises. Eventually the water level will reach a point where it discharges from our waterways through control structures. Where the capacity of these control structures is exceeded, overtopping may result.

Breaches which may lead to flooding can occur on canals. There can be a number of causes for these including: culvert collapse, animal burrowing and overtopping. The Canal & River Trust operates a comprehensive asset management system which enables us to manage the risks of such events occurring. Breaches occur on average at a rate of three per year over the whole of the Canal & River Trust owned canal network (that's over 2,000 miles of canal).

Given the above, it is evident that canal flows are sufficiently controlled, and the likelihood of canal overtopping is extremely rare. This point is reinforced by the lack of recorded canal flooding events within the vicinity of the Site.

There are no other nearby artificial water bodies, reservoirs, water channels and artificial drainage systems that could be considered a flood risk to the Site. The risk of flooding from artificial drainage systems/infrastructure failure is considered to be not significant.

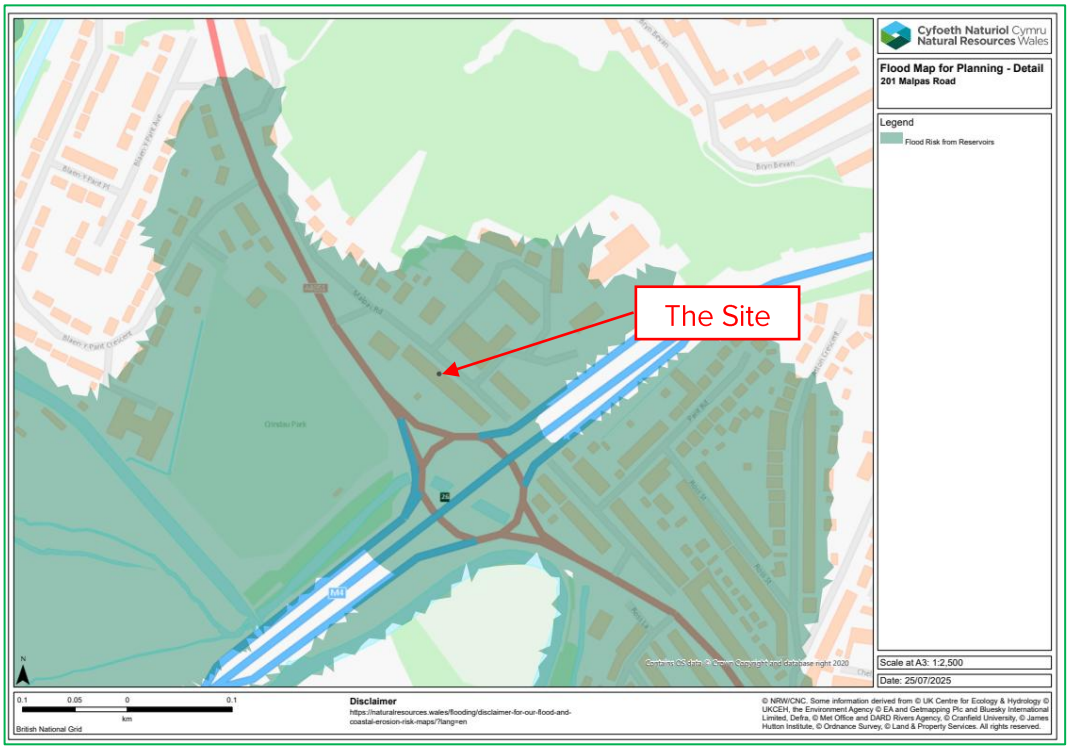


Figure 11 - Natural Resources Wales Reservoir Flood Map

3.14 The Effect of the Development on Flood Risk

The building is existing and no land raising will occur within the Site therefore, the Proposed Development will not impede the movement of floodwater across the Site. This will ensure no detriment to the flood storage capacity of the Site. The overall direction of the movement of water will be maintained within the developed Site and surrounding area.

The conveyance routes (flow paths) will not be blocked or obstructed. There will be no increase in the floodwater levels due to the Proposed Development. There will be no loss in flood storage capacity and no change in the on-site and off-site flood risk. The Site proposals have been shown to be in accordance with TAN15.

3.15 Summary of Site Specific Flood Risk

A summary of the sources of flooding and a review of the risk posed by each source at the Site is shown in Table 9.

Table 9 - Risk Posed by Flooding Sources

Sources of Flooding	Potential Flood Risk	Potential Source	Probability/Significance
Fluvial Flooding	Yes	Malpas Brook	Low
Tidal Flooding	Yes	Malpas Brook	Medium
Groundwater Flooding	No	None Reported	None
Surface Water Flooding	Yes	Low Spots/Poor Permeability	Low
Sewer Flooding	No	None Reported	None
Flooding from Artificial Drainage Systems/Infrastructure Failure	Yes	Reservoir	None

The Site is unlikely to flood except in extreme conditions. The primary, but unlikely, flood risk to the Site is from tidal flooding from the Malpas Brook. The Site is located within FMfP Flood Zone 3 for tidal flooding, with a 1 in 200 (0.5%) annual probability of flooding from the sea in a given year, including the effects of climate change.

However, the Site is protected against tidal and fluvial flooding by flood defence measures which protect the Site from flooding furthermore, the Site has no history of flooding. The existing and proposed use of the Site is 'highly vulnerable'. The Proposed Development will not change the vulnerability of the Site to flooding or introduce a new 'highly vulnerable' use into the floodplain. The Proposed Development is deemed appropriate for this location.

Defended Scenarios

The Site will not be inundated with floodwater for all events up to and including the defended 1 in 1000 year event. The Site will be flood free during the defended 1 in 1000 year event and the actual flood risk posed to the Site is less than 1 in 1000 years.

It is only when climate change or the upper confidence intervals are taken into account during the defended in 200 year and defended 1 in 1000 year events that the Site may be inundated with floodwater. The Site may be inundated with floodwater during the defended 1 in 200 year in 2125 the defended 1 in 1000 year and the 1 in 1000 year in 2125 events.

Undefended Scenarios

If the flood defences were not there, the area would be flooded. However, as area of land may benefit from the presence of flood defences even if the flood defences are overtopped, the presence of the flood defences means that the floodwater does not extend as far as it would if the flood defences were not there.

The Site may be inundated with floodwater during the undefended 1 in 200 year, the undefended 1 in 200 year in 2125, the undefended 1 in 1000 year and the undefended 1 in 1000 year in 2125 events.

Breach/Blockage Scenarios

In their letter date the 26th August 2025 Natural Resources Wales has stated that as a result of the Site being located within a TAN15 Defended Zone that TAN15 states that an *"..assessment is required for the breach of a defence (breach scenario) and blockage of a structure (blockage scenario), which should be considered as the 'design event.' In the absence of breach assessment and blockage assessment, justification for not including them should be provided in the FCA."* This is incorrect TAN15 does not state that a breach or blockage scenario is required as a result of a Site being located within a TAN15 Defended Zone.

Paragraph 10.13 of TAN15 which is titled Defended Zones states *"The allocation of sites for new development in Defended Zones, needs careful consideration as the failure of flood defences can lead to catastrophic flooding for areas behind those defences. The presence of formal flood defences does not guarantee that land in the Defended Zone will remain free from flooding in the future, they simply lower the risk of exposure to flooding. Breaches and/or over-topping of even the most modern flood defences are possible resulting in significant flood events. The impact of climate change means that these risks can only increase."*

Paragraph 10.14 of TAN15 goes on to state *"As a pre-requisite to proposing any development in Defended Zones Local Planning Authorities must understand fully the quality and condition* of existing flood defences and the level of protection they afford both now and in the future."

It is clear from the above that there is no requirement for Sites located within the TAN15 Defended Zones to assess the breach/blockage scenarios, to suggest otherwise is incorrect and misleading.

Furthermore, an assessment of the flood risk posed to the Site for the undefended scenarios has been undertaken which will pose a greater flood risk to the Site than the breach/blockage scenarios.

Summary

The mechanism for tidal flooding is generally prolonged episodes of high sea levels, which affords good time for flood warnings to be issued. The likelihood of a rapid water level rise and possible rapid inundation of urban areas posing a risk to life is considered to be minimal with a forewarning of two (2) days of a pending flood event.

The Site is located within a low risk area where the onset of flooding is very gradual (many hours) as per Flood Risk Assessment Guidance for New Development Phase 2, R&D Technical Report FD2320/TR2. Therefore, it can be concluded that tidal flooding poses a low risk to the Site and the risk of tidal flooding is considered to be of medium significance.

A number of secondary flooding sources have been identified which may pose a low significant risk to the Site. These are:

- Fluvial Flooding

- Surface Water Flooding

The risk from all sources will be further mitigated by using a number of risk management measures to manage and reduce the overall flood risk at the Site (see Section 4.0).

The building is existing and no land raising will occur across the Site and the development will not impede the movement of floodwater across the Site. The Proposed Development will have no impact on the movement of floodwater across the Site.

The overall direction of the movement of water will be maintained within the developed Site and surrounding area. The conveyance routes (flow paths) will not be blocked or obstructed. There will be no increase in the floodwater levels due to the Proposed Development. The Site proposals have been shown to be in accordance with TAN15.

4.0 RISK MANAGEMENT

4.1 Introduction

It is in this flood zone, developers and local authorities should seek opportunities to reduce the overall level of flood risk in the area through the layout and form of the development and the use of flood mitigation measures.

A number of techniques and mitigation strategies to manage and reduce the overall flood risk in the area will be used. This will ensure the development will be safe and there is:

- Minimal risk to life;
- Minimal disruption to people living and working in the area;
- Minimal potential damage to property;
- Minimal impact of the Proposed Development on flood risk generally; and;
- Minimal disruption to natural heritage.

The flood risk at the Site will be reduced by using a number of risk management measures to mitigate and reduce the overall flood risk at the Site.

4.2 Finished Floor Levels

The finished floor levels will be set at the existing finished floor levels. It is recognised however that owing to limited headroom constraints, massing, planning policy and Building Regulations it is considered impractical to raise the finished floor levels further. Therefore, in order to mitigate against this, it is recommended that the occupants of the Site are sign up to receive flood warnings from Natural Resources Wales and a Flood Plan to a safe area away from the building during times of flood is developed.

A combination of resistance (proofing) and resilience measures will be included to provide further protection. This is discussed below.

4.3 First Floor Accommodation

Accommodation will be located on the first floor as well as the ground floor of the building. This will allow occupants to retreat to higher floor levels if needed. The levels of the first floor are located a minimum of 2.50m above the ground floor finished floor level well above any floodwater levels. This provides a 'safe haven' above any floodwater levels.

This will enable rapid escape should flooding occur which is unlikely. The upper floor is accessed via external stairs and are sufficient in size to safely house occupants of the building. The 'safe haven' will only be required in very extreme events or if a flood warning has not been received.

4.4 Flood Resilience and Resistance

The development of the layout should always consider that the site is potentially at risk from an extreme event and as such the implementation of flood resilience and resistance methods should be assessed.

Flood risk can be mitigated through the design of building. Flood resistance measures are measures that help resist floodwaters entering a property (airbrick covers are an example of a flood resistance measure). Flood resilient and resistant measures will be used, including:

- Flood doors/barriers will be used on all external doors.
- Windows are a minimum of 1000mm above the external ground levels.
- Sealant will be used around external doors and windows.
- All external doors and windows will be constructed from hard wearing materials with flood seals.
- All electrics wiring, switches, sockets, socket outlets etc. to be located a minimum of 450mm above the finished floor levels.

4.5 Flood Plan

A Flood Plan outlining the precautions and actions you should take when a flood event is anticipated to help reduce the impact and damage flooding may cause will be developed. Sensible precautions would include raising electrical items, irreplaceable items and sentimental items off the ground or where possible moving them to a higher floor, rolling up carpets and rugs and turning off utilities. In addition, consider what actions you would take should the property need to be evacuated including access and egress routes and preparing a flood kit in advance containing warm clothing, medication, a torch, food and wellingtons.

The Flood Plan is a 'living' document and therefore should be periodically reviewed and updated to provide advice and guidance to occupants in the event of an extreme flood. The Flood Plan will therefore reduce the vulnerability of the occupants to flooding and makes them aware of the mechanisms of flooding at the Site. A Flood Warden will be designated from the occupants of the Site who will monitor flood levels and keep occupants and visitors informed and will decide whether to initiate the Flood Plan.

The Site is located in a flood risk area; therefore, the Site will participate in Natural Resources Wales flood warning telephone service. The Site will register contact details with the Natural Resources Wales Flood Warnings Service in order to receive Flood Warnings.

Natural Resources Wales operate a free flood warning service providing alerts by phone, text or email when flooding is anticipated providing an opportunity for owners to take necessary precautions, giving enough time for the building to be safely evacuated and mitigation measures to be put in place.

All occupants of the Site will be made aware of the Natural Resources Wales Floodline telephone number and the Flood Warning Codes and their meaning. The owner of the properties will carry out the role of Flood Warden for the Site and ensure they have an understanding of the flood mechanisms of the Site and will ensure that the safety of the occupants and visitors will not be compromised.

Natural Resources Wales uses Flood Warnings Codes. They can be issued in any order, usually ending with an 'all clear'. They are issued by Natural Resources Wales through their website and Floodline Warning Direct. The flood warning will be passed onto the occupiers and visitors of the Site verbally, by telephone and/or in person. It will be ensured that everyone receives the flood warnings when required.

The mechanism for flooding from tidal flooding is generally prolonged episodes of high sea levels, which affords good time for flood warnings to be issued. The likelihood of a rapid water level rise and possible rapid inundation of urban areas posing a risk to life is considered to be minimal with a forewarning of two (2) days of a pending flood event.

The Site is located within a low risk area where the onset of flooding is very gradual (many hours) as per Flood Risk Assessment Guidance for New Development Phase 2, R&D Technical Report FD2320/TR2. The speed of inundation and rate of floodwater rise would be low.

In order for the following evacuation procedures to be effective:

- The Site will register contact details with the Natural Resources Wales Flood Warning Service (Floodline 0345 988 1188) in order to receive Flood Warnings/Alerts.
- The flood warning will be passed onto the occupants and visitors of the Site verbally, by telephone and/or in person. It will be ensured that everyone receives the flood warnings when required.

The following flood evacuation procedures have been developed for the Site, so that the Site is safe during a flood.

Flood Alert

'Flooding of low-lying land and roads is expected. Be aware, be prepared, watch out!'. The Natural Resources Wales will issue a Flood Alert status when flooding is possible, based upon weather and river/sea conditions.

Be prepared to act on your flood plan. At this stage occupants and visitors should make themselves aware of the Flood Plan and evacuation routes. Prepare a flood kit of essential items. Monitor local water levels and the flood forecast.

Contact Natural Resources Wales Floodline on 0345 988 1188 to get more information should be contacted to get more information, periodically and listen to and watch for weather and flood warnings on local radio and television stations.

Flood Warning

'Flooding of homes and businesses is expected. Act now!'. The Flood Warning alert will be issued when water levels are rising and further rain is expected. The Site will be evacuated. Move family, pets and valuables to a safe place.

Safe access and egress, including emergency access can be maintained for vehicles and/or by foot. Water, electricity and gas supplies should be located and switched off before evacuating. Contact Natural Resources Wales Floodline on 0845 988 1188 to get more information should be contacted to get more information, periodically and listen to and watch for weather and flood warnings on local radio and television stations.

Severe Flood Warning

'Severe Flooding is expected. There is extreme danger life and property. Act now!'. If the Site has not already been evacuated it will be evacuated immediately. Co-operate with the emergency services and call 999 if immediately in danger. Safe access and egress, including emergency access can be maintained for vehicles and/or by foot.

Contact Natural Resources Wales Floodline on 0845 988 1188 to get more information should be contacted to get more information, periodically and listen to and watch for weather and flood warnings on local radio and television stations.

Warning No Longer in Force

'Flood Watches or Flood Warnings are no longer in force for this area'. Occupants and visitors should contact the LPA to check that it is safe to return to the Site. Please be careful water may be around for several days. If there is any doubt that appliances may be water damaged they must be checked before switching the power or gas back on. Contact your insurance company as soon as possible to get their approval before arranging any clean-up or repairs.

4.6 Safe Access and Egress Route

Access routes should be such that occupants can safely access and exit their dwellings in design flood conditions. These routes must also provide the emergency services with access to the development during a flood event and enable flood defence authorities to carry out any necessary duties during the period of flood.

The Site is one of the last places in the area to flood and remains flood free when other areas close by are flooded. The Site is at such a ground level that it would only flood in the most extreme flood events; the Site will remain flood free for the vast majority of flood events during the lifetime of the Proposed Development.

Safe access and egress routes, including emergency access can be maintained for vehicles and/or by foot as shown in Figure 12. Flood defences protect the Site from flooding from the River Usk with a SoP of 1 in 200 years. The Natural Resources Wales data shows the Site has a low actual risk of tidal flooding with a chance of flooding of less than 1 in 200 years. The Site is shown to be flood free during the 1 in 200 year event, the actual flood risk posed to the Site is less than 1 in 200 years. The Site will be flood free during the defended 1 in 200 year event.

The likelihood of a rapid water level rise and possible rapid inundation of urban areas posing a risk to life is considered to be minimal with a forewarning of two (2) days of a pending flood event. The Site is located within a low risk area where the onset of flooding is very gradual (many hours) as per Flood Risk Assessment Guidance for New Development Phase 2, R&D Technical Report FD2320/TR2.

The Proposed Development will be located on the first floor as well as the ground floor which will allow occupants to retreat to higher floor levels if needed. This provides a 'safe haven' above any floodwater levels.

Given that the Site is located within a flood warning area, Site users would be aware of the flood risk and should have more than sufficient time to evacuate the Site before flooding of the access road would be expected. Therefore, the lead time of the flooding will provide Site users with more than ample time to evacuate the Site and seek safe refuge outside the floodplain. People should make their way to areas outside of the flood zone. In the event of a Flood Warning, vital belongings, including waterproof clothing, necessary medication and essentials for infants and children will be collected. It should be ensured that all occupiers and visitors to the Site are accounted for, and then exit the Site. The above will allow safe access and egress from the as per Natural Resources Wales guidance using the route shown in Figure 12.

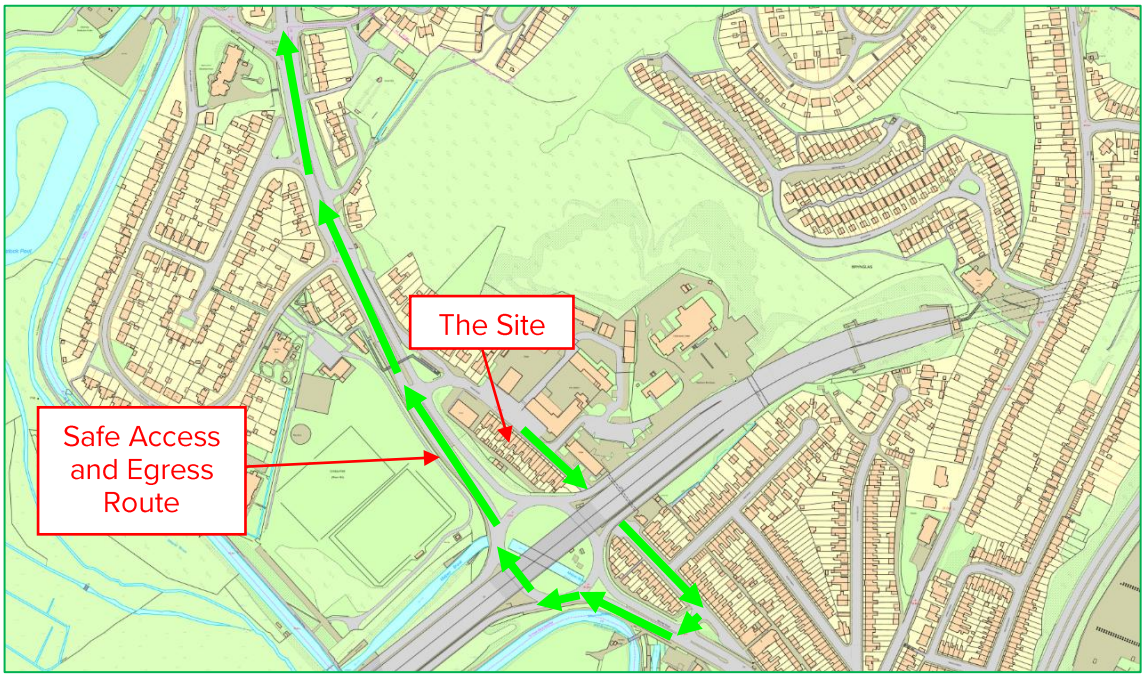


Figure 12 - Safe Access and Egress Route

4.7 Residual Risk

The Site can be justified in accordance with TAN15 as it can be demonstrated that the consequences of flooding can be managed down to a level which is acceptable for the nature and type of Site. The mitigation measures detailed above show that the flood risk can be effectively managed and therefore the consequences of flooding are acceptable.

5.0 JUSTIFYING THE LOCATION OF THE DEVELOPMENT

5.1 Assessment of Acceptability Criteria

New development should be directed away from Zone 3 and towards suitable land in Zone 1, otherwise to Zone 2, where river or coastal flooding will be less of an issue. However, in some areas where developable land is in short supply, there can be an overriding need to build in areas that are at risk of flooding.

There are indicative frequency threshold of flooding below which flooding of developed may not be allowed (see Figure 5 of TAN15) and flood consequences during an extreme flood (see Figure 6 of TAN15). Planning Appeal Reference: APP/G6935/A/20/3258002 confirms that the these should only be taken as indicative and are not prescriptive.

It should be taken into account that flooding of the Site would only occur as a result of overtopping of the defences, causing tidal inundation, which is highly unlikely.

The Site will not be inundated with floodwater for all events up to and including the defended 1 in 1000 year event. The Site will be flood free during the defended 1 in 1000 year event and the actual flood risk posed to the Site is less than 1 in 1000 years.

It is only when climate change or the upper confidence intervals are taken into account during the defended in 200 year and defended 1 in 1000 year events that the Site may be inundated with floodwater. The Site may be inundated with floodwater during the defended 1 in 200 year in 2125 the defended 1 in 1000 year and the 1 in 1000 year in 2125 events.

The flood defences in the vicinity of the Site are significant structures that protect the area from flooding. Although the defences have a 1 in 200 year SoP, as with any flood defences have been they designed to be structurally sound during an exceedance event and this is the purpose of the Natural Resources Wales inspection and maintenance programme to maintain structures to their target condition grade. Therefore, overtopping and/or breaching of the defences is very unlikely.

It can be confirmed that the Proposed Development has been developed taking into account the context of TAN and national flood risk policy. The Proposed Development has been shown to be safe, resistant and resilient to flooding for given flood event, as per the guidance contained within the Dear CPO letter from the 9th January 2014.

The values provided within TAN15 are not definitive; that they are indicative and reflect conditions in which, given the presence of adequate warnings and preparation, appropriately equipped personnel could undertake emergency activities. It has been suggested previously by Natural Resources Wales that within TAN15 it is stated that the that the design event is the breach or overtopping event, this incorrect, TAN15 makes no mention of the breach or overtopping event.

It is considered that the Proposed Development has been elevated as far as is practicable, accounting for Site constraints. The finished floor levels will be set at the existing finished floor levels. The finished floor levels have been raised as much as possible and the consequences of flooding are low and acceptable when assessed against the criteria within TAN15. The Proposed Development will be located on the first floor as well as the ground floor which will

allow occupants to retreat to higher floor levels if needed. This provides a 'safe haven' above any floodwater levels.

The Site has been designated as suitable in size and location to accommodate the Proposed Development. The Proposed Development will provide improved residential uses compared to the existing situation and will help encourage economic impetus that will in turn help deliver a stronger service function and mix of housing uses. The Site proposals remain consistent with the relevant planning policies and are not at odds with the current use of the Site and can only enhance and preserve the situation which currently exists.

The Council's objectives are to sustain and enhance the vitality and viability of the region, and to ensure a wide range of residential uses to which people have easy access by a range of transport therefore, improving the overall quality of life. This is underpinned by the quality of the physical environment, social well-being and economic and environmental improvements. The Council seeks to grant permission for developments that add to the vitality and viability of the region.

This Site will help to regenerate the region and will help to deliver these objectives. This Site will help encourage economic impetus that will in turn help deliver a stronger service function and mix of residential uses.

The Site proposals cannot be located in another site elsewhere. There are no alternative sites available to develop. The wider area surrounding the Proposed Development Site is affected by a very similar, and in many cases, higher risk of flooding. The application is for a new, suitable flood-resilient design which is preferable to the existing Site. The exposure of people and property will be minimised. From the above it is shown that there are overriding sustainability reasons for the development to be granted planning permission within FMfP Flood Zone 3.

Therefore, the indicative requirements of TAN15 are passed. The development proposals should therefore be considered by the LPA to satisfy the Acceptability Criteria as set out in TAN15. The Site can be justified in accordance with TAN15 as it can be demonstrated that the consequences of flooding can be managed down to a level which is acceptable for the nature and type of Site. The mitigation measures detailed above show that the flood risk can be effectively managed and therefore the consequences of flooding are acceptable.

6.0 SUMMARY AND CONCLUSIONS

6.1 Introduction

This report presents an FCA in accordance with TAN15 for the Proposed Development at 201 Malpas Road, Newport, NP20 5PP.

This FCA identifies and assesses the risks of all forms of flooding to and from the development and demonstrates how these flood risks will be managed so that the development remains safe throughout the lifetime, taking climate change into account.

6.2 Flood Risk

The Site is unlikely to flood except in extreme conditions. The primary, but unlikely, flood risk to the Site is from tidal flooding from the Malpas Brook. The Site is located within FMfP Flood Zone 3 for tidal flooding, with a 1 in 200 (0.5%) annual probability of flooding from the sea in a given year, including the effects of climate change.

However, the Site is protected against tidal and fluvial flooding by flood defence measures which protect the Site from flooding furthermore, the Site has no history of flooding. The existing and proposed use of the Site is 'highly vulnerable'. The Proposed Development will not change the vulnerability of the Site to flooding or introduce a new 'highly vulnerable' use into the floodplain. The Proposed Development is deemed appropriate for this location.

Defended Scenarios

The Site will not be inundated with floodwater for all events up to and including the defended 1 in 1000 year event. The Site will be flood free during the defended 1 in 1000 year event and the actual flood risk posed to the Site is less than 1 in 1000 years.

It is only when climate change or the upper confidence intervals are taken into account during the defended in 200 year and defended 1 in 1000 year events that the Site may be inundated with floodwater. The Site may be inundated with floodwater during the defended 1 in 200 year in 2125 the defended 1 in 1000 year and the 1 in 1000 year in 2125 events.

Undefended Scenarios

If the flood defences were not there, the area would be flooded. However, as area of land may benefit from the presence of flood defences even if the flood defences are overtopped, the presence of the flood defences means that the floodwater does not extend as far as it would if the flood defences were not there.

The Site may be inundated with floodwater during the undefended 1 in 200 year, the undefended 1 in 200 year in 2125, the undefended 1 in 1000 year and the undefended 1 in 1000 year in 2125 events.

Breach/Blockage Scenarios

In their letter date the 26th August 2025 Natural Resources Wales has stated that as a result of the Site being located within a TAN15 Defended Zone that TAN15 states that an *"..assessment is required for the breach of a defence (breach scenario) and blockage of a structure (blockage scenario), which should be considered as the 'design event.' In the absence of breach assessment and blockage assessment, justification for not including them should be provided in the FCA."* This is incorrect TAN15 does not state that a breach or blockage scenario is required as a result of a Site being located within a TAN15 Defended Zone.

Paragraph 10.13 of TAN15 which is titled Defended Zones states *"The allocation of sites for new development in Defended Zones, needs careful consideration as the failure of flood defences can lead to catastrophic flooding for areas behind those defences. The presence of formal flood defences does not guarantee that land in the Defended Zone will remain free from flooding in the future, they simply lower the risk of exposure to flooding. Breaches and/or over-topping of even the most modern flood defences are possible resulting in significant flood events. The impact of climate change means that these risks can only increase."*

Paragraph 10.14 of TAN15 goes on to state *"As a pre-requisite to proposing any development in Defended Zones Local Planning Authorities must understand fully the quality and condition* of existing flood defences and the level of protection they afford both now and in the future."

It is clear from the above that there is no requirement for Sites located within the TAN15 Defended Zones to assess the breach/blockage scenarios, to suggest otherwise is incorrect and misleading.

Furthermore, an assessment of the flood risk posed to the Site for the undefended scenarios has been undertaken which will pose a greater flood risk to the Site than the breach/blockage scenarios.

Summary

The mechanism for tidal flooding is generally prolonged episodes of high sea levels, which affords good time for flood warnings to be issued. The likelihood of a rapid water level rise and possible rapid inundation of urban areas posing a risk to life is considered to be minimal with a forewarning of two (2) days of a pending flood event.

The Site is located within a low risk area where the onset of flooding is very gradual (many hours) as per Flood Risk Assessment Guidance for New Development Phase 2, R&D Technical Report FD2320/TR2. Therefore, it can be concluded that tidal flooding poses a low risk to the Site and the risk of tidal flooding is considered to be of medium significance.

A number of secondary flooding sources have been identified which may pose a low significant risk to the Site. These are:

- Fluvial Flooding
- Surface Water Flooding

The risk from all sources will be further mitigated by using a number of risk management measures to manage and reduce the overall flood risk at the Site.

The building is existing and no land raising will occur across the Site and the development will not impede the movement of floodwater across the Site. The Proposed Development will have no impact on the movement of floodwater across the Site.

The overall direction of the movement of water will be maintained within the developed Site and surrounding area. The conveyance routes (flow paths) will not be blocked or obstructed. There will be no increase in the floodwater levels due to the Proposed Development. The Site proposals have been shown to be in accordance with TAN15.

6.3 Risk Management

The flood risk at the Site will be reduced by using a number of risk management measures to manage and reduce the overall flood risk at the Site. Measures used:

Finished Floor Levels: The finished floor levels will be set at the existing finished floor levels. It is recognised however that owing to limited headroom constraints, massing, planning policy and Building Regulations it is considered impractical to raise the finished floor levels further. Therefore, in order to mitigate against this, it is recommended that the occupants of the Site are sign up to receive flood warnings from Natural Resources Wales and a Flood Plan to a safe area away from the building during times of flood is developed.

A combination of resistance (proofing) and resilience measures will be included to provide further protection. This is discussed below.

First Floor Accommodation: Accommodation will be located on the first floor as well as the ground floor of the building. This will allow occupants to retreat to higher floor levels if needed. The levels of the first floor are located a minimum of 2.50m above the ground floor finished floor level well above any floodwater levels. This provides a 'safe haven' above any floodwater levels.

This will enable rapid escape should flooding occur which is unlikely. The upper floor is accessed via external stairs and are sufficient in size to safely house occupants of the building. The 'safe haven' will only be required in very extreme events or if a flood warning has not been received.

Flood Resilience and Resistance: Flood resilient and resistant measures will be used, including:

- Flood doors/barriers will be used on all external doors.
- Windows are a minimum of 1000mm above the external ground levels.
- Sealant will be used around external doors and windows.
- All external doors and windows will be constructed from hard wearing materials with flood seals.
- All electrics wiring, switches, sockets, socket outlets etc. to be located a minimum of 450mm above the finished floor levels.

Flood Plan: A Flood Plan outlining the precautions and actions you should take when a flood event is anticipated to help reduce the impact and damage flooding may cause will be developed.

Safe Access and Egress Route: The Site is one of the last places in the area to flood and remains flood free when other areas close by are flooded. The Site is at such a ground level that it would only flood in the most extreme flood events; the Site will remain flood free for the vast majority of flood events during the lifetime of the Proposed Development.

Safe access and egress routes, including emergency access can be maintained for vehicles and/or by foot. The Natural Resources Wales data shows the Site has a low actual risk of tidal flooding with a chance of flooding of less than 1 in 200 years. The Site is shown to be flood free during the 1 in 200 year event, the actual flood risk posed to the Site is less than 1 in 200 years.

The likelihood of a rapid water level rise and possible rapid inundation of urban areas posing a risk to life is considered to be minimal with a forewarning of two (2) days of a pending flood event. The Site is located within a low risk area where the onset of flooding is very gradual

(many hours) as per Flood Risk Assessment Guidance for New Development Phase 2, R&D Technical Report FD2320/TR2.

The Proposed Development will be located on the first floor as well as the ground floor which will allow occupants to retreat to higher floor levels if needed. This provides a 'safe haven' above any floodwater levels.

Given that the Site is located within a flood warning area, Site users would be aware of the flood risk and should have more than sufficient time to evacuate the Site before flooding of the access road would be expected. Therefore, the lead time of the flooding will provide Site users with more than ample time to evacuate the Site and seek safe refuge outside the floodplain. People should make their way to areas outside of the flood zone. In the event of a Flood Warning, vital belongings, including waterproof clothing, necessary medication and essentials for infants and children will be collected. It should be ensured that all occupiers and visitors to the Site are accounted for, and then exit the Site. The above will allow safe access and egress from the as per Natural Resources Wales guidance.

6.4 Justifying the Location of the Development

The development proposals should be considered by the LPA to satisfy the Acceptability Criteria as set out in TAN15.

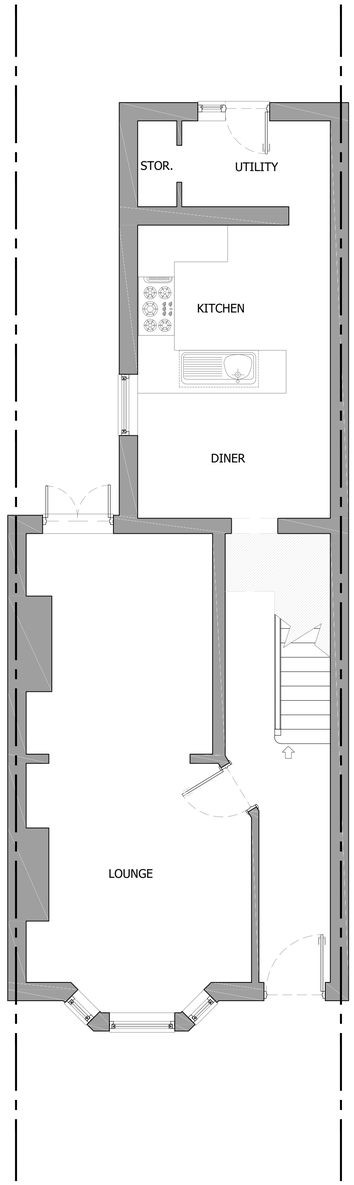
6.5 Conclusion

In conclusion, the Proposed Development would be expected to remain dry in all but the most extreme conditions. Providing the recommendations made in this FCA are instigated, flood risk from all sources would be minimised, the consequences of flooding are acceptable and the development would be in accordance with the requirements of TAN15.

This FCA demonstrates that the Proposed Development would be operated with minimal risk from flooding, would not increase flood risk elsewhere and is compliant with the requirements of TAN15. The development should not therefore be precluded on the grounds of flood risk.

APPENDICES

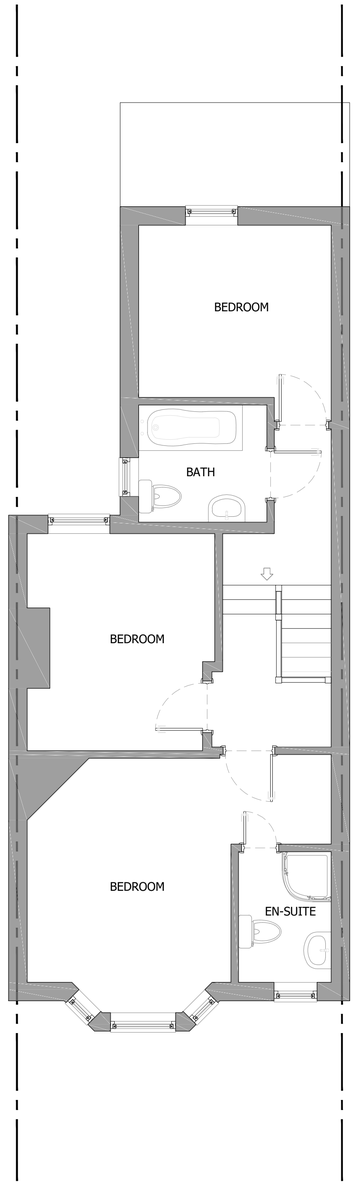
APPENDIX 1 – Existing and Proposed Site Layout



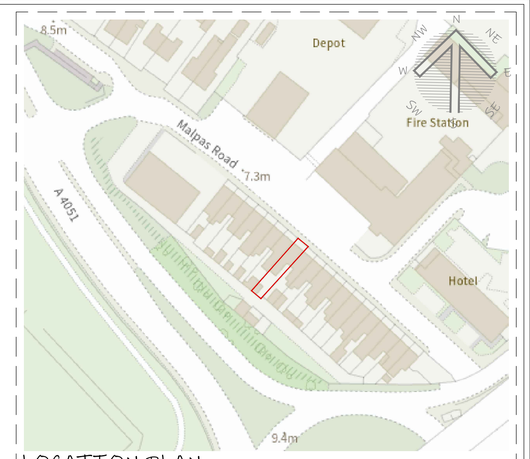
EXISTING GROUND FLOOR

1:50

0 1 2 3 4 5



EXISTING FIRST FLOOR



LOCATION PLAN

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0 25 50 100

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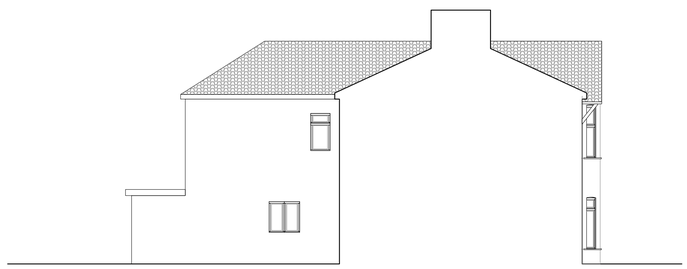
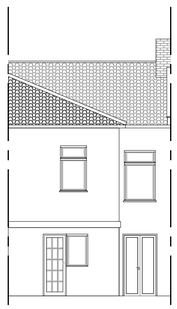
EXISTING FRONT VIEW

1:100

0 1 2 3 4 5



EXISTING SIDE VIEW



EXISTING REAR VIEW

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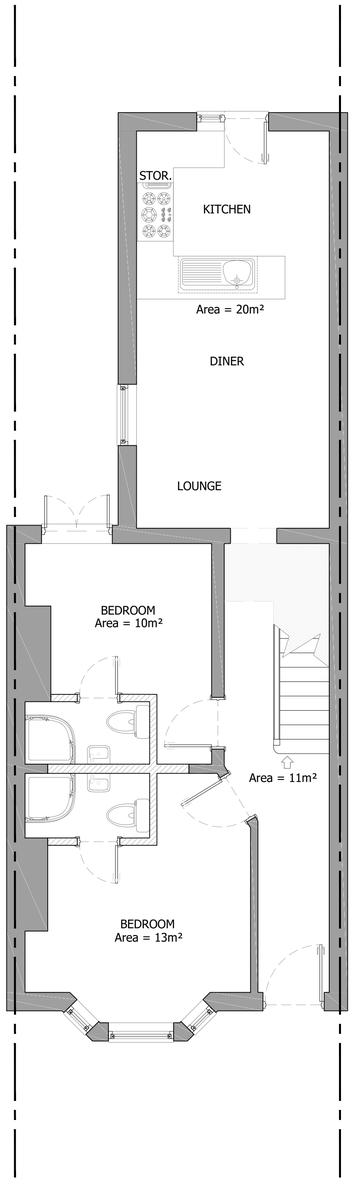

PROPOSED GROUND FLOOR

1:50

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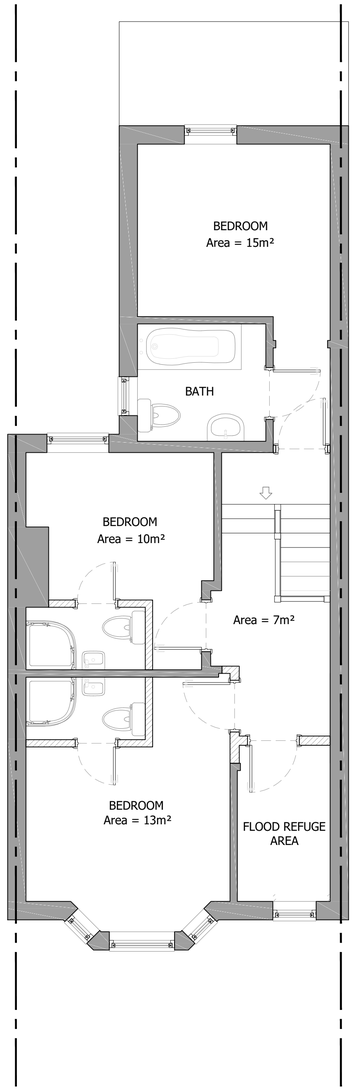
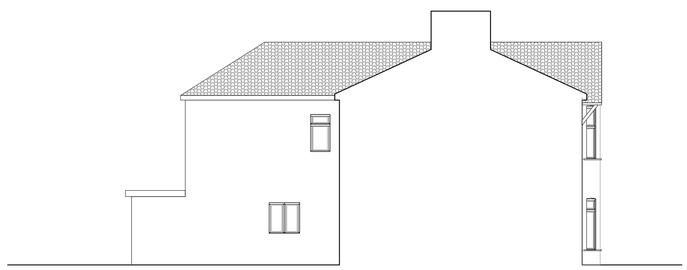


PROPOSED FIRST FLOOR

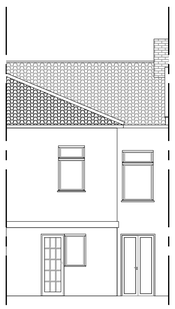
PROPOSED FRONT VIEW

1:100

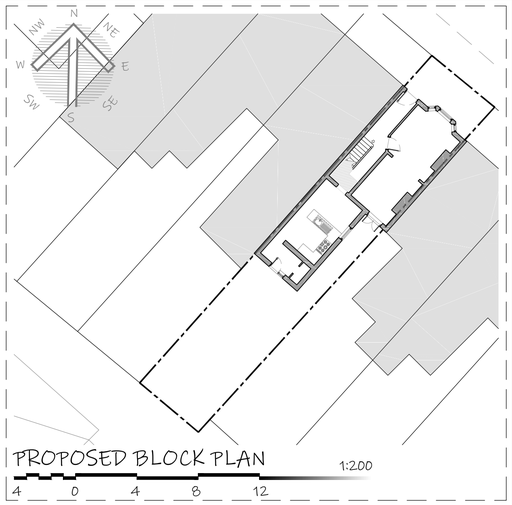
0 1 2 3 4 5



PROPOSED SIDE VIEW



PROPOSED REAR VIEW



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