Weetwood
Development • Planning • Environment

LAND TO THE WEST OF MENDALGIEF ROAD, NEWPORT

FLOOD CONSEQUENCES ASSESSMENT

Final Report v1.2
May 2025

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Report Title	**Land to the West of Mendalgief Road, Newport** Flood Consequences Assessment Final Report v1.2
Client	LNT Construction Ltd
Date of issue	8 May 2025

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1 INTRODUCTION

1.1 Purpose of Report

Weetwood Services Ltd ('Weetwood') has been instructed by LNT Construction Ltd to prepare a Flood Consequences Assessment (FCA) report to accompany a planning application for the proposed redevelopment of land to the west of Mendalgief Road, Newport ("the Site") for a care home.

The assessment has been undertaken in accordance with the requirements of Technical Advice Note 15 (TAN15) dated March 2025.

1.2 Planning History

Outline planning permission for the *"Construction of 529 no. residential units, 24 no. assisted living units, pub/restaurant, retail units, primary school and associated landscape and highway infrastructure"* was granted by Newport City Council in September 2018 (planning ref: 15/0775). The site falls under 'Phase 4' of the consented application.

1.3 Structure of the Report

The report is structured as follows:

Section 1 Introduction and report structure
Section 2 Provides background information relating to the development site
Section 3 Presents national and local flood risk planning policy
Section 4 Assesses the potential risk of flooding to the development site
Section 5 Presents a summary of key findings and the recommendations

1.4 Relevant Documents

The assessment has been informed by the following documents:

- Newport Local Flood Risk Management Strategy 2024 – 2030, Draft, Newport City Council, undated
- Local Flood Risk Management Strategy, Newport City Council, October 2014
- Preliminary Flood Risk Assessment, Newport City Council, April 2011

2 SITE DETAILS AND PROPOSED DEVELOPMENT

2.1 Site Location

The approximately 0.69 ha site is located to the west of Mendalgief Road and to the north of Walker Point Way, Newport at Ordnance Survey National Grid Reference ST 309 869, as shown in **Figure 1**.

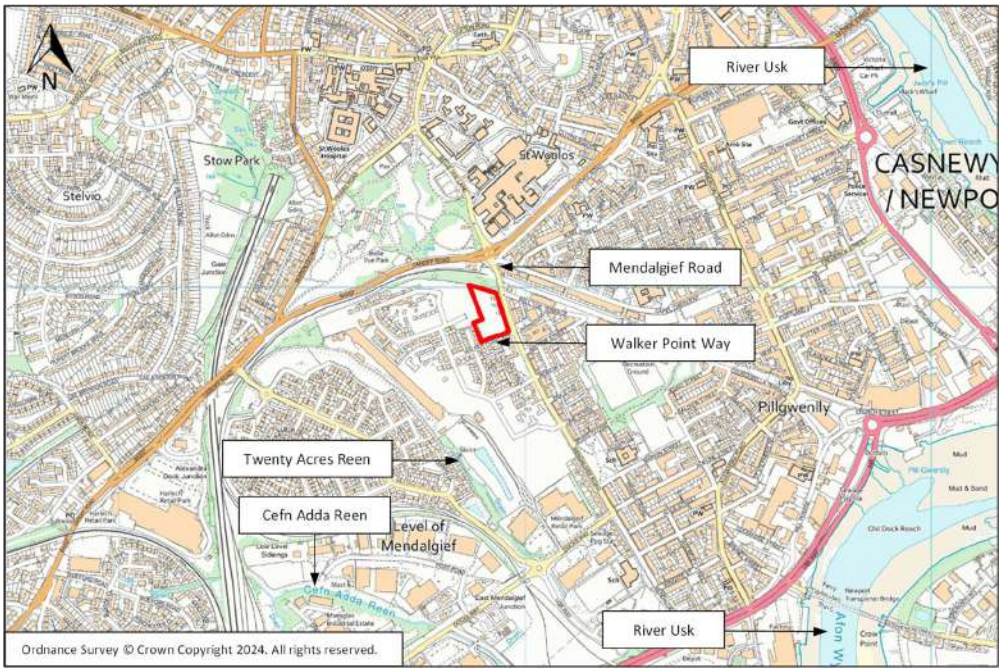

Figure 1: Site Location and Location of Surface Waterbodies

2.2 Existing and Proposed Development

The site previously formed part of an industrial estate which was cleared circa 2009. The buildings which were located at the site covered an area of approximately 2,370 m². The site currently comprises undeveloped land, a spoil heap and the storage of building materials associated with the development of the wider site.

The development proposals entail the construction of a 66-bed care home. Vehicular access will be provided via Walker Point Way. The proposed site plan is provided in **Appendix A**.

TAN15 classifies residential development as Highly Vulnerable to flood risk.

2.3 Surface Waterbodies in the Vicinity of the Site

The River Usk flows through Newport predominantly in a southerly direction and is located approximately 1.1 km to the north-east of the site and 970 m to the south-east. The River Usk outfalls into the Bristol Channel approximately 4.5 km to the south of the site.

The Ebbw River flows predominantly in a south-easterly direction approximately 1.2 km (at its closest point) to the south-west of the site. The Ebbw River outfalls into the River Usk approximately 3.2 km to the south of the site.

The River Usk and Ebbw River are classified as main river and are both tidally influenced within the vicinity of the site.

Twenty Acres Reen flows in a south-easterly direction approximately 265 m (at its closest point) to the south-west/south of the site. Based on OS mapping, it is assumed that Twenty Acres Reen flows into Newport Docks approximately 1.0 km to the south of the site.

Cefn Adda Reen flows in a south-easterly direction approximately 710 m to the south-west of the site.

2.4 Topographic Levels

A topographic survey of the site was undertaken by Quickdraw Surveys Ltd in April 2024 (**Appendix B**). Site levels are shown to generally range between 8.44 to 11.09 m AOD, with levels rising to 13.38 m AOD within the southern portion of the site where a spoil heap is present.

Ground levels on Walker Point Way adjacent to the site range between 8.38 to 9.34 m AOD, with levels rising towards Mendalgief Road.

It is worth noting that a comparison of LiDAR data (flown in November 2020) and the topographic survey indicates that LiDAR data is not representative of actual ground levels within the southern half of the site and on Walker Point Way. LiDAR data indicates that ground levels at the site are a minimum of 1.0 m lower within the southern portion and are 0.5 - 1.0 m lower on Walker Point Way.

2.5 Ground Conditions

According to the Soilscapes soils dataset produced by the Cranfield Soil and AgriFood Institute[1], soil conditions at the site and within the surrounding area are described as loamy and clayey soils of coastal flats with naturally high groundwater.

British Geological Survey mapping of surface geology[2] indicates the underlying bedrock formation comprises argillaceous rocks and sandstone, interbedded (St Maughans Formation), overlain by superficial deposits of clay and silt (Tidal Flat Deposits).

According to the British Geological Survey and Natural Resources Wales aquifer designation dataset[3] the superficial deposits at the site are classified as an Unproductive aquifer whilst the underlying bedrock is classified as a Secondary A aquifer. The site is not shown to be located within a designated groundwater source protection zone[4].

1 www.landis.org.uk/soilscapes/
2 https://www.bgs.ac.uk/map-viewers/geoindex-onshore/
3 https://www.bgs.ac.uk/map-viewers/geoindex-onshore/
4 https://datamap.gov.wales/layers/inspire-nrw:NRW_Source_Protection_Zones

3 PLANNING POLICY AND GUIDANCE

3.1 National Planning Policy and Policy Guidance

Future Wales - the national Plan 2040 sets out the national development framework for Wales with a strategy for addressing key national priorities through the planning system, including sustaining and developing a vibrant economy, achieving decarbonisation and climate-resilience, developing strong ecosystems and improving the health and well-being of our communities.

Policy 8 - Flooding states that *"flood risk management that enables and supports sustainable strategic growth and regeneration in National and Regional Growth Areas will be supported. The Welsh Government will work with Flood Risk Management Authorities and developers to plan and invest in new and improved infrastructure, promoting nature-based solutions as a priority. Opportunities for multiple social, economic and environmental benefits must be maximised when investing in flood risk management infrastructure. It must be ensured that projects do not have adverse impacts on international and national statutory designated sites for nature conservation and the features for which they have been designated"*.

Planning Policy Wales (PPW) sets out government's planning policies for Wales and how these are expected to be applied. TAN15 provides technical guidance which supplements the policy within PPW and seeks to ensure that flood risk is taken into account at all stages in the planning process and is appropriately addressed.

The general approach of TAN15 is to set out a precautionary framework to guide planning decisions in areas at high risk of flooding. The overarching aim of TAN15 is to provide a framework within which the flood risks arising from rivers, the sea and surface water, and the risk of coastal erosion can be assessed. It also provides advice on the consequences of the risks and adapting to and living with flood risk.

3.2 Local Planning Policy

The Newport Local Development Plan 2011 - 26 was adopted by Newport City Council in January 2015. The following policies are relevant in respect of flood risk:

Policy SP1: Sustainability

The policy states in part the following:

Proposals will be required to make a positive contribution to sustainable development by concentrating development in sustainable locations on brownfield land within the settlement boundary. They will be assessed as to their potential contribution to:

vi. Minimising the risk of and from flood risk, sea level rise and the impact of climate change.

Policy SP3: Flood Risk

Newport's coastal and riverside location necessitates that development be directed away from areas where flood risk is identified as a constraint and ensure that the risk of flooding is not increased elsewhere. Development will only be permitted in flood risk areas in accordance with national guidance. Where appropriate a detailed technical assessment will be required to ensure that the development is designed to cope with the threat and consequences of flooding over its lifetime. Sustainable solutions to manage flood risk should be prioritised.

Policy GP1: General Development Principles – Climate Change

The policy states in part the following:

Development proposals should:

i. Be designed to withstand the predicted changes in the local climate and to reduce the risk of flooding on site and elsewhere by demonstrating where appropriate that the risks and consequences of flooding can be acceptably managed, including avoiding the use of non-permeable hard surfaces.

3.3 Water Framework Directive

The Water Framework Directive (WFD) provides a legal framework for the protection, improvement and sustainable use of inland surface waters, groundwater, transitional waters, and coastal waters across Wales, and seeks to:

- Prevent deterioration in the status of aquatic ecosystems, protect them and improve the ecological condition of waters
- Achieve at least 'good' status for all waterbodies by 2015
- Promote the sustainable use of water as a natural resource
- Conserve habitats and species that depend directly on water
- Progressively reduce or phase out the release of individual pollutants or groups of pollutants that present a significant threat to the aquatic environment
- Progressively reduce the pollution of groundwater and prevent or limit the entry of pollutants; and
- Contribute to mitigating the effects of floods and droughts.

The WFD applies to any proposed development which has the potential to impact on a waterbody. Where this is the case, the Natural Resources Wales may require evidence demonstrating that the proposed development does not compromise the aims of the WFD.

4 REVIEW OF FLOOD RISK

4.1 Historical Records of Flooding

The Flood Map for Planning - Recorded Flood Extents and associated database[5] indicates that there are no records of flooding at or within the immediate vicinity of the site.

4.2 Flood Risk from the Sea (Tidal / Coastal) and Rivers (Fluvial)

The Flood Map for Planning - Rivers and Sea (**Figure 2**) indicates the majority of the site to be located in flood zone 2 (sea) with a small section of the southern part of the site in flood zone 3 (sea).

The flood zones are defined as follows and include the effects of climate change:

- Flood zone 1 (Rivers and Sea): Less than a 1 in 1,000 chance of flooding from rivers and the sea in a given year
- Flood Zone 2 (Rivers): Areas with a 1 in 1,000 to 1 in 100 chance of flooding from rivers in a given year
- Flood Zone 3 (Rivers): Areas with more than a 1 in 100 chance of flooding from rivers in a given year
- Flood Zone 2 (Sea): Areas with a 1 in 1,000 to 1 in 200 chance of flooding from the sea in a given year
- Flood Zone 3 (Sea): Areas with more than a 1 in 200 chance of flooding from the sea in a given year
- TAN15 Defended Zones: Areas that benefit from Risk Management Authority flood defences with a present day 1 in 100 AEP and 1 in 200 AEP standard of protection for rivers and the sea respectively

Figure 2: Flood Map for Planning - Rivers and Sea
Source: Natural Resources Wales website; Accessed: April 2025

Tidal flood defences (as indicated on the DataMapWales[6]) are present throughout Newport along the Bristol Channel. Within the vicinity of the site, defences are present along part of the left bank of the Ebbw River to the south-west of the site and comprise of high ground and an embankment. No further defences are present within the vicinity of the site.

A 1D-2D ESTRY-TUFLOW hydraulic model of the River Usk and the Ebbw River was developed by Natural Resources Wales as part of the Newport Model, which was most recently updated in October 2021 (v8.0).

[5] https://datamap.gov.wales/layers/inspire-nrw:NRW_HISTORIC_FLOODMAP
[6] https://datamap.gov.wales/layergroups/geonode:nrw_flood_defence_structures

The updated model assesses both defended and undefended scenarios for the River Usk and the Ebbw River during the present day (2021) 1 in 200 and 1 in 1,000 AEP events and including an allowance for climate change (2121), albeit utilising now superseded climate change guidance[7].

According to the Environment Agency's Coastal Flood Boundary Conditions for the UK: 2018 Update[8], the "present day" (2017) peak still tidal levels presented in **Table 1** are expected adjacent to the site. This is taken from the River Usk due to peak still tidal levels being higher than the Ebbw River.

TAN15 requires an allowance for climate change to be made. Using the allowance set out in Welsh Government guidance[9] and a development lifetime of 100 years, this allowance has been calculated as 1.09 m (70th Percentile; 70P) and 1.47 m (95th Percentile; 95P). The peak still tidal levels accounting for climate change are also presented in **Table 1**.

Table 1: Peak Still Tidal Levels

AEP Event	Peak Still Tidal Level (m AOD)	
	Coastal Flood Boundary Conditions for the UK, 2018	
1 in 200 "present day"	2017	8.42
1 in 1,000 "present day"	2017	8.78
1 in 200 plus climate change - 70P	2125	9.51
1 in 200 plus climate change - 95P	2125	9.89
1 in 1,000 plus climate change - 70P	2125	9.87
1 in 1,000 plus climate change - 95P	2125	10.25

The modelled 1D in-channel flood level expected adjacent to the site during the defended 1 in 200 and 1 in 1,000 AEP events plus climate change (2121) for the River Usk is 9.48 and 9.83 m AOD respectively. The sea level rises considered for the 2121 scenario provide similar flood levels to those derived for the 70P allowances in accordance with current climate change guidance to the year 2125 (as shown in **Table 1**). As such, the model outputs from the updated Newport Model may be used as a proxy to assess the future flood risk to the site.

When accounting for the 95P allowance, a 0.38 m uplift may be applied to the flood level observed at the extremity of the modelled flood extents to accord with current climate change guidance for the 95P scenario (albeit such increases in sea level may not be expected to be fully realised at the site).

The Welsh Government climate change guidance is based on UK Climate Projections (UKCP18) data and states *"as a minimum, development proposals should be assessed against the relevant regional 70th percentile… to inform design levels. An assessment should also be made against the 95th percentile to inform mitigation measures, access and egress routes and emergency evacuation plans"*.

The modelled defended (overtopping) outputs are provided in **Figure 3** and indicate the following:

- The site is not expected to flood during the present day 1 in 200 and 1 in 1,000 AEP events.
- The site is indicated to flood to a maximum level of 7.80 m AOD during the 1 in 200 AEP event plus climate change (2121 - 2125, 70P proxy) and therefore estimated to be 8.18 m AOD when accounting for the uplift of 0.38 m for the 95P scenario. However, based on the minimum site level (i.e. 8.44 m AOD) the site would not be expected to flood during the 70P and 95P scenarios. Walker Point Way adjacent to the southern boundary of the site would also not be expected to flood due to ground levels (i.e. 8.38 - 9.34 m AOD) being higher than the modelled and estimated flood levels.
- The site is indicated to flood to a maximum level of 9.00 m AOD during the 1 in 1,000 AEP event plus climate change (2121 - 2125, 70P proxy) and therefore estimated to be 9.38 m AOD when accounting for the uplift of 0.38 m for the 95P scenario.
- The site is not indicated to be at risk of flooding from the Ebbw River during all modelled scenarios.

[7] To account for climate change, the FCDPAG3 guidance was used during the model update, which adds 1.12 m for 2121. However, part way through the model update a new set of extreme sea level guidance was published (UKCP18). For consistency, the FCDPAG3 guidance was retained.

[8] https://data.gov.uk/dataset/73834283-7dc4-488a-9583-a920072d9a9d/coastal-design-sea-levels-coastal-flood-boundary-extreme-sea-levels-2018

[9] Flood Consequences Assessments: Climate Change Allowances - https://gov.wales/sites/default/files/publications/2021-09/climate-change-allowances-and-flood-consequence-assessments_0.pdf

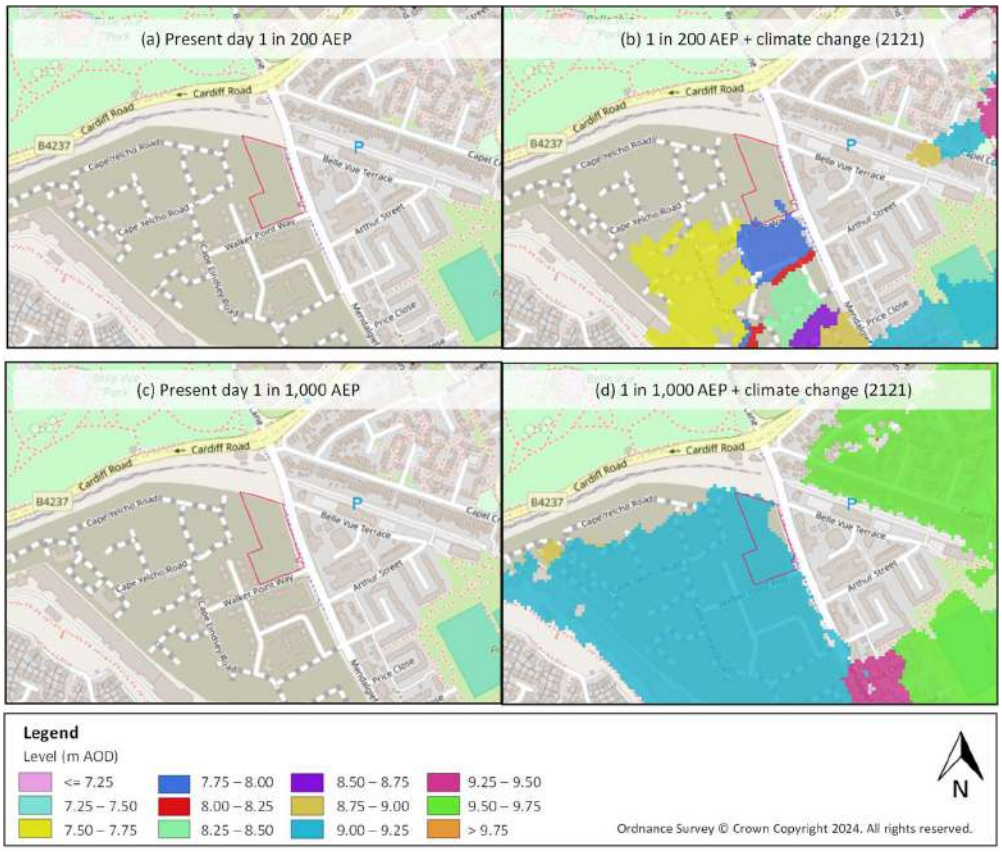

Figure 3: Modelled Flood Extents and Levels - Defended (Overtopping)
Source: Updated Newport Model, Natural Resources Wales, October 2021

A breach of the existing flood defences was not assessed as part of the Newport Model. In the absence of such data the undefended modelled outputs may be utilised to provide a conservative estimate of the risk of flooding during such a scenario. The modelled outputs indicate the following:

- Flood levels remain unchanged.
- Flood extents within the vicinity of the site are similar to those presented in **Figure 3**.
- The site is not indicated to be at risk of flooding from the Ebbw River during all modelled scenarios.

4.3 Flood Risk from Small Watercourses and Surface Water (Pluvial)

No modelled information is available for Twenty Acres Reen and Cefn Adda Reen. The Flood Map for Planning - Surface Water and Small Watercourses (**Figure 4**) has therefore been utilised to assess the risk of flooding from these sources. This mapping indicates that no flooding of the site is expected from Twenty Acres Reen and Cefn Adda Reen in up to a 1 in 1,000 AEP event including an allowance for climate change.

The Flood Map for Planning - Surface Water and Small Watercourses also indicates that the site is predominantly at a Very Low risk of pluvial flooding from surface water; however, there is an isolated area of flood zone 2 (1 in 100 to 1 in 1,000 AEP including an allowance for climate change) to the north of the site which represents a localised depression within the topography.

The Flood Risk Assessment Wales Map - Flood Risk from Surface Water and Small Watercourses (**Figure 5**), which does not account for climate change, indicates that the maximum depth of flooding in this location is 0.3 - 0.9 m.

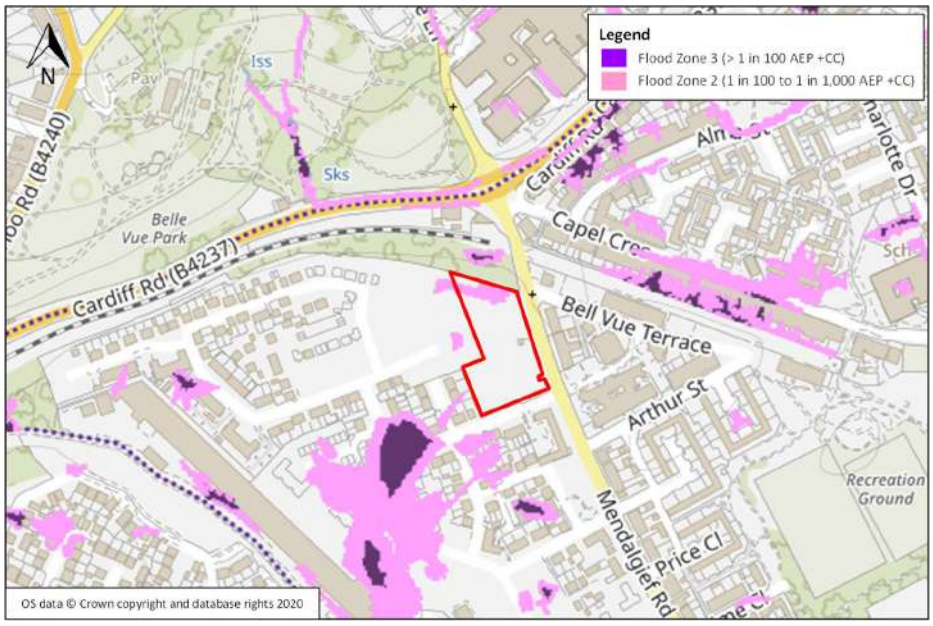

Figure 4: Flood Map for Planning - Surface Water and Small Watercourses
Source: Natural Resources Wales website; Accessed: April 2025

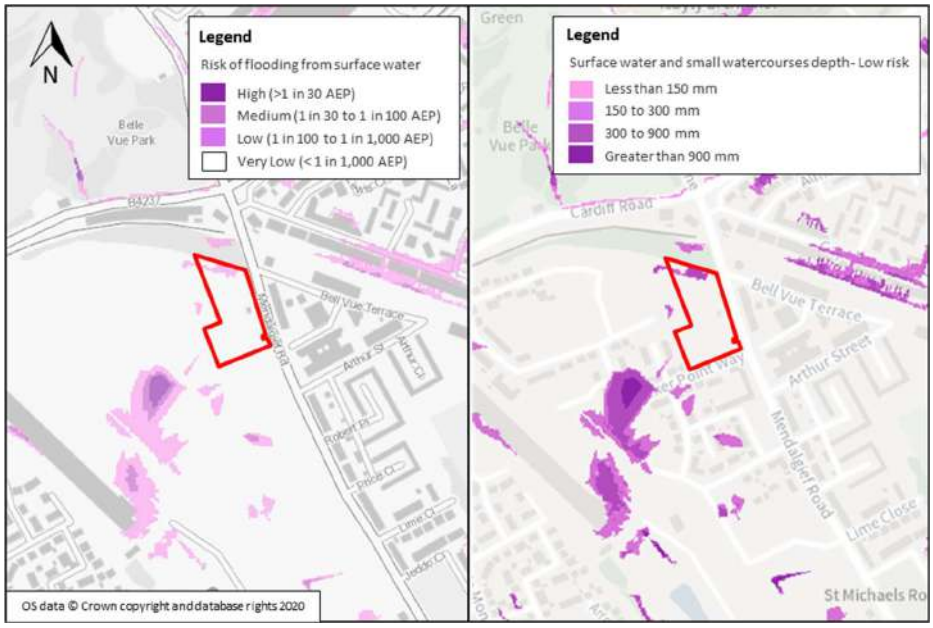

Figure 5: Flood Risk Assessment Wales Map - Flood Risk from Surface Water and Small Watercourses
Source: Natural Resources Wales website; Accessed: April 2025

4.4 Flood Risk from Reservoirs, Canals and Other Water Impounding Structures

Newport Docks has an enclosed dock system with a maintained water level. Given this, the docks are not considered to pose a risk of flooding to the site. This is reiterated on the Flood Map for Planning - Surface Water and Small Watercourses map.

There are no canals or other impounded waterbodies located within the immediate vicinity of the site. The Flood Map for Planning - Flood Risk from Reservoirs (not shown) indicates that the site is not at risk of flooding from such sources.

It is concluded that the site is not at risk of flooding from reservoirs, canals or other water impounding structures.

4.5 Flood Risk from Groundwater

The JBA Groundwater Flood Risk Indicator map (not shown) indicates that the site is at a Negligible risk during a 1% AEP groundwater flood event.

4.6 Flood Risk Mitigation

The risk of flooding to the proposed development from all identified sources is assessed to be low / negligible, with the exception of flooding from the River Usk (tidal) when taking climate change into account.

The risk of flooding to the proposed development will be mitigated through the implementation of the following measures:

- Site levels including all ancillary areas should be set at a minimum of 8.40 m AOD. This is 600 mm above the flood level expected at the site in a 1 in 200 AEP defended/undefended (breach proxy) event plus climate change (2121 - 2125, 70P proxy). This will ensure that the proposed development complies with Figure 5 of TAN15. This will also ensure that the proposed development complies with Figure 6 of TAN15 during a 1 in 1,000 AEP defended/undefended (breach proxy) event plus climate change (2121 - 2125, 70P proxy). Based on current ground levels no land raising should be required to achieve this level.
- Finished floor levels should be set at least 0.15 m above adjacent ground levels following any reprofiling of the site (i.e. a minimum of 8.55 m AOD), with ground levels sloping down from the building. This provides a 750 mm freeboard above the flood level expected at the site in a 1 in 200 AEP undefended (breach proxy) event plus climate change (2121 - 2125, 70P proxy) and a 370 mm freeboard above the flood level expected at the site in a 1 in 200 AEP undefended (breach proxy) event plus climate change (2121 - 2125, 95P proxy).
- It is recommended that a Flood Warning and Evacuation Plan is prepared in consultation with Newport City Council emergency planning team. Whilst the site is not included in a Natural Resources Wales flood alert and warning area, there is a flood warning area to the east/south-east of the site for the River Usk which poses a risk to the site and, as such, the site could sign up to this flood warning area. This provides the opportunity for the relevant response procedures set out in the plan to be invoked in response to receipt of a flood warning from Natural Resources Wales

4.7 Flood Risk Elsewhere

In accordance with Figure 2 of TAN15 developers must ensure there will be no loss of flood flow or flood storage capacity for floods up to the severity of the 1 in 1,000 AEP event including an allowance for climate change.

Compensatory storage is generally not required for the loss of floodplain storage or conveyance during a tidally dominated event. However, in such instances where overtopping of defences is expected by tidal floodwaters, and the predicted water level is not an extension of the water level within the estuary then the developer should demonstrate no increase in flood risk.

The site is at risk of flooding in a 1 in 1,000 AEP tidal defended/undefended (breach proxy) event including an allowance for climate change (2121 - 2125, 70P proxy).

As discussed in **Section 1.2**, the application site falls under 'Phase 4' of the consented application (planning ref: 15/0775). The proposed built footprint within the consented application is approximately 1,390m². The current proposed built footprint is approximately 1,110 m². Therefore, due to the reduction in footprint, the proposals would not be expected to impact flood risk elsewhere when compared with the consented scheme and no compensatory flood storage would need to be provided on site.

Furthermore, as discussed in **Section 2.2**, the buildings which previously occupied the site had a built footprint of approximately 2,370m². A greater reduction in footprint is therefore provided when compared to the site pre 2009.

5 SUMMARY AND RECOMMENDATIONS

This report has been prepared on behalf of LNT Construction Ltd and relates to the proposed redevelopment of land to the west of Mendalgief Road, Newport for a care home.

Outline planning permission for the *"Construction of 529 no. residential units, 24 no. assisted living units, pub/restaurant, retail units, primary school and associated landscape and highway infrastructure"* was granted by Newport City Council in September 2018 (planning ref: 15/0775). The site falls under 'Phase 4' of the consented application.

The Flood Map for Planning - Rivers and Sea indicates the site to be located in flood zone 2 (sea) with a small section of the southern part of the site in flood zone 3 (sea).

The risk of flooding to the proposed development from all identified sources is assessed to be low / negligible, with the exception of flooding from the River Usk (tidal) when taking climate change into account. The risk of flooding to the proposed development will be mitigated through the implementation of the following measures:

- Site levels including all ancillary areas should be set at a minimum of 8.40 m AOD.
- Finished floor level should be set at least 0.15 m above adjacent ground levels following any reprofiling of the site (i.e. a minimum of 8.55 m AOD), with ground levels sloping down from the building.
- Flood Warning and Evacuation Plan to be developed in consultation with Newport City Council.

The proposals would not be expected to impact flood risk elsewhere when compared with the consented scheme and pre 2009 scenario.

In conclusion, this report demonstrates that the proposed development may be completed in accordance with the requirements of planning policy.

APPENDIX A

Proposed Site Plan

66 BED 3 STOREY CARE HOME.
SITE AREA - 6892sqm (1.7 acres).
26No CAR PARKING SPACES.
NEW SITE ENTRANCE REQUIRED.
DRAINAGE EASEMENT THROUGH PLOT.
EXISTING ENTRANCE SHOWN AS HIGHWAY OWNED ON LAND REGISTRY.
POTENTIAL POS SHOWN IN SOUTH EAST CORNER OF SITE.

REV	DATE	DETAILS OF AMENDMENTS	DRAWN

REVISIONS

LNT Construction

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CLIENT

SITE
MENDALGIEF ROAD
NEWPORT
NP20 2NW

TITLE
PROPOSED 66 BED CARE HOME
FEASIBILITY SCHEME

SCALE	1:500 @ A1	DATE	13-03-24
DRAWN	GB	DWG NO.	NP20 2NW-F-01

DRAWING STATUS

FEASIBILITY	PLANNING SUBMISSION
PLANNING APPROVAL	REGULATION SUBMISSION
REGULATION APPROVAL	CONSTRUCTION ISSUE

CHECKED BY	CELANDINE ROAD	DATE	
APPROVED BY		DATE	

APPENDIX B

Topographic Survey


STN1
RE 8.55
STN2
RE 11.45
STN3
RE 11.82
STN4
RE 12.78
STN5
RE 10.98
STN6
RE 10.55
STN7
RE 10.43
Spoil Heaps
MENDALGIEF ROAD
WALKER POINT WAY
Fence
Bank Bottom
Overhead Wire
Ramp
Kerb
Tarmac
Brick Setts
Grass
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