

FLOOD CONSULT



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Land at New Road, Ystradowen
Flood Consequence Assessment

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Preface

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Executive Summary

The proposed development is a detached four bedroom dormer bungalow which requires a flood consequence assessment in line with TAN15 guidance to assess the vulnerability and impacts of the development from flooding. The development location has been reviewed based on commercially available information with the present-day exposure summarised in the below table:

Source of Flooding	Exposure	Likelihood
Fluvial	Very Low	Less than 0.1% (1 in 1000)
Tidal	Very Low	Less than 0.1% (1 in 1000)
Surface Water	Very Low	Less than 0.1% (1 in 1000)
Artificial	Very Low	N/A
Groundwater	Low	N/A

The flood exposure of the site is detailed below:

- The site lies partially within flood zone 2 on the Natural Resources Wales flood map for planning which equates to between 1% (1 in 100) and 0.1% (1 in 1000) chance of flooding including climate change.
- The site is located within flood zone B on the Development Advice Map (DAM) and is classed as 'highly vulnerable' in line with TAN15 guidance.
- Detailed modelled flood levels for the Afon Llynfell are not available and therefore the extent of NRW flood zone 2 and available topographic surveys and LiDAR data have been used to estimate the level of flooding. Using this technique an extreme flood level of 155.50mAOD was produced which is considered to be conservative.
- The detached dwelling will be situated outside of the NRW flood zone 2 extent with the flood level set at 156.00mAOD, 0.5m greater than the estimated extreme flood level, and the risk of flooding to the property is deemed to be very low.
- Coastal/tidal flooding is not applicable at the site location due to ground elevation in excess of 154m above mean sea level.
- The risk of surface water flooding has been deemed very low.
- The site location is not known to have suffered flooding from any source historically.
- The detached dwelling will be constructed outside of the predicted flood zone and therefore there will be no displacement of floodplain volume.
- The proposed development will increase the areas of hard standing in terms of the dwelling footprint as well as extended driveway. This will increase surface water run-off from pre-development conditions which will be managed by a separate SuDS application.
- It is advised that the client signs up for flood alerts from Natural Resources Wales.
- The proposed development will not increase flood risk elsewhere and can be managed in line with TAN15 guidance.

Flood Risk Report

1.0 Introduction

Following instruction given to FCI by BCG Ltd, a flood consequence assessment has been completed to form part of the planning application for the construction of a four bed detached dormer bungalow in Ystradowen. This report will discuss any flood risk that has been identified and give recommendations to mitigate if required.

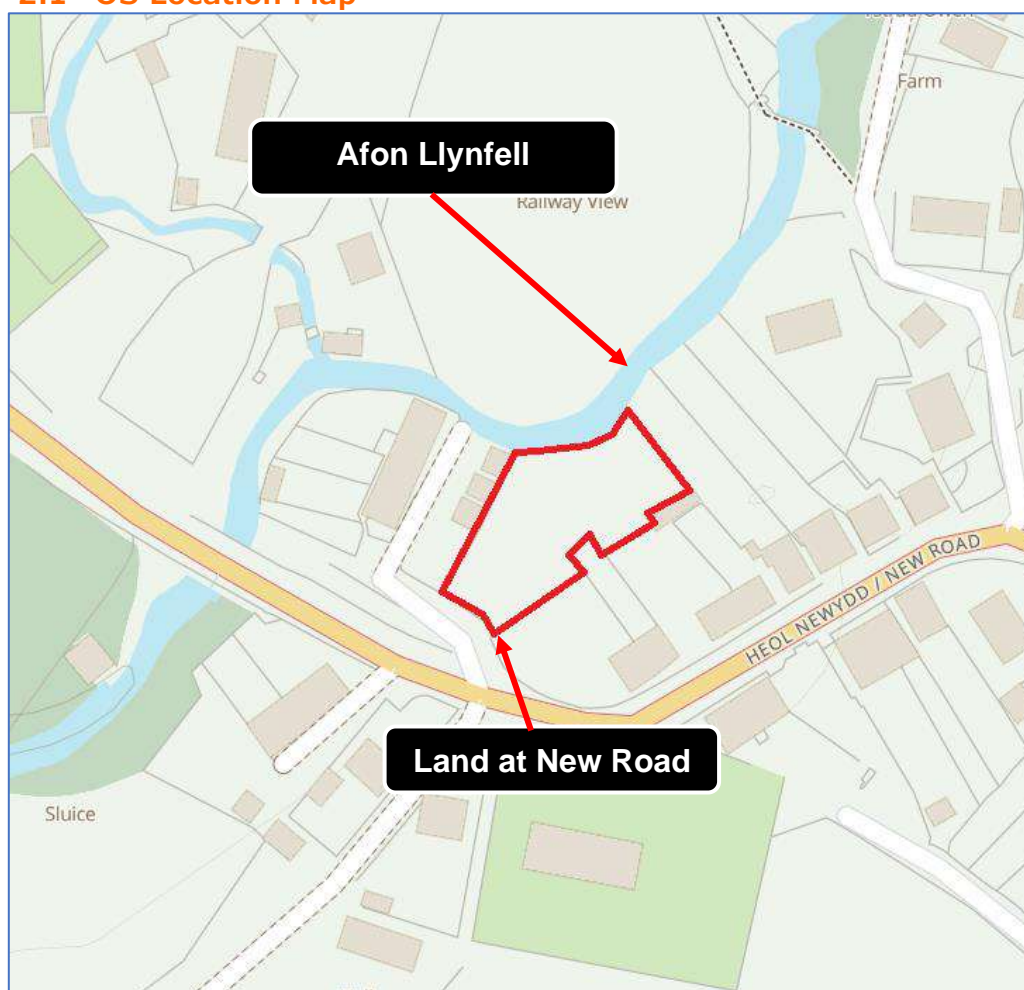
2.0 Site Information

The proposed property is located grid reference SN 74866 12479 in Ystradowen, South Wales. Access into the grounds is gained from New Road.

The nearest watercourse to the site is the Afon Llynfell which borders the site boundary to the north. This can be seen on the following OS and aerial image.

The site location is largely undeveloped land with only a small access track and two containers situated within the boundary at present.

2.1 OS Location Map



(OS Copyright)

2.2 Aerial Image



(Google Copyright)

3.0 Site Information

3.1 Geology

Analysis of the British Geological Survey (BGS) indicates that the superficial site geology is Alluvium - Clay, silt, sand and gravel. Sedimentary superficial deposit formed between 11.8 thousand years ago and the present during the Quaternary period.

The bedrock geology is defined as South Wales Middle Coal Measures Formation - Mudstone, siltstone and sandstone. Sedimentary bedrock formed between 318 and 309.5 million years ago during the Carboniferous period.

No formal geotechnical survey has been undertaken at the proposed site at the time of this report.

3.2 Hydrology

The nearest major watercourse to the site is the Afon Llynfell which borders the property boundary to the north. The site lies within the Western Wales Drainage Basin within the Tawe to Cadoxton management area.

3.3 Existing Property

The overall site covers approximately 1,419m² and at present is largely undeveloped consisting of a tarmac access track and two storage containers.

Based on an available topographical survey of the existing site the topography generally lies between 154.50mAOD and 157.00mAOD with steep banking on the eastern perimeter where levels rise to over 159.00mAOD. The topographical survey can be seen in APPENDIX H.

3.4 Proposed Development

The proposed development is the construction of a four bed dormer bungalow and driveway.

The detached dwelling covers an area of approximately 120m². There is also planned increase in area to the existing tarmac access road to provide a driveway and turning area within the property boundary. The proposed property plans can be seen in APPENDIX I.

3.5 Planning Information

This assessment has been undertaken by firstly compiling information concerning the Site and the surrounding area. The information gathered was then used to construct a 'conceptual site model', including an understanding of the appropriateness of the development as defined in the PPW (2016) and the source(s) of any flood risk present. Finally, a preliminary assessment of the steps that can be taken to manage any flood risk to the development was undertaken.

This report has been prepared with reference to the TAN 15 (2004) which supplements the PPW (2016).

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

- Direct new development away from those areas which are at high risk of flooding; and
- Where development is considered to be in high risk areas (Zone C) only those developments which can be justified on the basis of the tests outlined in section 6 and section 7 are located within such areas.

The proposed development is classed as Highly Vulnerable according to Table 9 (Summary of Policy Requirements) in TAN 15 (2004).

3.6 Report Scope

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

A thorough review of a commercially available flood risk report and NRW supplied data indicating potential sources of flood risk to the property from rivers, the sea, surface run-off (pluvial), groundwater and reservoirs, including historical flood information and modelled flood extent. Appropriate measures are recommended to manage and mitigate the flood risk to the property.

Information obtained from NRW has been used to ascertain local flooding issues and, where appropriate, identify information to support a Justification test and Assessment of Flood Consequences required as part of the PPW (2016).

NRW currently do not hold detailed fluvial modelling for the Afon Llynfell and therefore the risk of flooding to the site boundary will be evaluated based on the extents of the NRW flood map for planning compared with the site topography.

Limitations

It should be noted that the findings presented in this report will be a desktop study using information supplied by third parties. It is assumed that all information is representative of past and present conditions we can offer no guarantee as to its validity and a proportionate programme of site investigations would be required to fully verify these findings.

4.0 Flood Risk Assessment

4.1 Planning Information

The following flood risk assessment has been undertaken in line with the TAN15 Technical Guidance on flood risk. Information has been gathered from relevant parties and include the following:

- Flood Map for Planning (Natural Resources Wales)
- Flood Zone Classification (Natural Resources Wales)
- Historical Flooding Information (Natural Resources Wales)
- Topographic survey in metres above Ordnance Datum (mAOD)
- Development proposals provided by the client.

4.2 Modelling Introduction

FCI set out to use the most accurate flood risk modelling information that is available which will cover flood risk from Fluvial (River), Pluvial (Surface Water) and Tidal (Coastal Flooding), Groundwater and Artificial sources (Reservoir, Canal). Below, each potential flood risk will be discussed.

4.3 Fluvial Flooding

4.3.1 Flood Zone

Based on the Natural Resources Wales (NRW) flood map for planning, approximately 30% of the property boundary is located with flood zone 2 which is defined as 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. The remainder of the property boundary is shown to lie outside of the predicted flood extents and hence is considered at very low risk of flooding, less than 0.1% (1 in 1000) chance. The NRW flood map for planning can be seen in APPENDIX A.

According to the NRW Development Advice Map (DAM) the property is located partially within zone B which is defined Areas known to have flooded in the past evidenced by sedimentary deposits. The extent of the DAM zone B covers approximately 40% of the site boundary on the northern and north western perimeters. The NRW DAM can be seen in APPENDIX B.

The DAM zone definitions can be seen in the below table:

Zone Description	Zone
Considered to be a little or no risk of fluvial/tidal flooding	A
Areas known to have flooded in the past evidenced by sedimentary deposits	B
Areas of the floodplain which are developed and served by significant infrastructure, including flood defences.	C1
Areas of the floodplain without significant flood defence infrastructure	C2

4.3.2 Fluvial Flood Levels

Following the searches conducted, no detailed flood modelling is currently available for the Afon Llynfell.

The site boundary is shown to lie partially within flood zone 2 with the extent of flooding contained on the north western perimeter of the site where ground levels are lowest based on the topographical survey provided. Analysis of the extent of flood zone 2 with the topographical survey data and available LiDAR shows that the extent ceases approximately where ground levels exceed 155.50mAOD, this can be seen on the below map:



The above map shows that the maximum extent of NRW flood zone 2 ceases at or below 155.50mAOD with the majority significantly lower than this level, therefore the estimated level of 155.50mAOD is considered conservative.

The property is to be located outside of the NRW flood zone 2 extent with the floor level set at 156.00mAOD, 0.5m greater than the estimated extreme flood level and hence internal flooding to the property will be prevented.

4.3.3 Climate Change

The property will be situated outside of the NRW flood zone 2 extent which indicates the extreme flood scenario including additions for climate change and hence the property is considered safe for its lifetime from fluvial flooding.

4.3.4 Fluvial Flood Defences

The NRW mapping indicates that the Afon Llynfell does not benefit from any formal flood defences local to the property.

4.4 Coastal/Tidal Flooding

The location of proposed development is situated in excess of 154m above mean sea level (mAOD) and hence is greater than any conceivable flood level arising from coastal/tidal flooding. The risk of flooding is therefore considered to be very low.

4.5 Surface Water Flooding

Based on the NRW surface water flood map for planning, the site is shown to lie entirely outside of flood zone 2 and hence the risk of flooding is considered to be very low, less than 0.1% (1 in 1000) chance. The NRW surface water flood map for planning can be seen in APPENDIX E.

The site topography is generally flat local topography falling steadily from west to east across the site boundary and therefore any surface water flooding is expected to be minimal and freely disperse to the surroundings before resulting in inundation to the ground floor.

4.6 Groundwater Flooding

Based on information within the Carmarthenshire County Council Flood Risk Management Plan, May 2019, groundwater flooding is not considered to be a significant source of flooding in the area with no specific records of flooding from this source historically.

Although the risk of flooding from this cannot be completely discounted, the proposed development will not include any below ground structures and hence rising ground water is not expected to impact the property.

4.7 Artificial Sources of Flooding

Based on the NRW reservoir flood maps the extent of flooding from an uncontrolled release of water from reservoirs further upstream in the Afon Llynfell catchment does not affect the site boundary, therefore the flood risk associated with reservoir breach is considered negligible.

5.0 Development Flood Risk

Taking into account the information gathered within this report, the location of the proposed development is partially deemed susceptible to fluvial flooding from the Afon Llynfell during an extreme flood scenario.

The below section will therefore discuss the potential flood risk in and around the proposed development location from fluvial flooding and also discuss how the development affects flood risk elsewhere.

5.1 Fluvial Flood Risk

Fluvial flooding during an extreme flood scenario including additions for climate change, less than 1% (1 in 100) chance, is shown to inundate approximately 30% of the site boundary on the north western perimeter only. The maximum flood level estimated during this flood scenario is 155.50mAOD as shown in section 4.3.2 of this report.

The proposed detached property will be situated outside of the NRW flood zone 2 extent with the floor level set at 156.00mAOD which is 0.5m above the estimated extreme flood level. Therefore, the proposed property will not be inundated by fluvial flooding.

Access to the property will also be maintained during a flood event as the existing tarmac track is elevated above the estimated extreme flood level of 155.50mAOD and will not be subject to fluvial flooding.

5.2 Impact on Local Flood Risk

5.2.1 Loss of Floodplain Volume

The proposed dwelling will be located outside of the NRW extreme flood extents including climate change and therefore there will be no loss of floodplain storage as a result.

5.2.2 Increased Run-off

The proposed development will create additional hardstanding areas such as the house footprint and extended access road. This will increase the surface water run-off rate from the pre-development scenario and will be addressed by a suitable SuDS application but is beyond the scope of this report.

6.0 Flood History

Through the background research conducted as well as data received from NRW, no records were found to show that the site or immediate locality had suffered any degree of flooding from any source historically.

The NRW DAM designates areas of the site boundary on the northern and north western perimeters which are known to have flooded historically based on sediment deposits, however, further information on historical flooding were unable to be confirmed.

7.0 Development Suitability

The information below outlines the suitability of proposed development in relation to national and local planning policy.

Planning Policy

The aims of the national planning policies TAN15 (2004) and PPW (2012 and 2016) are achieved through application of the Justification Test and by assessing Flood Consequences. The key requirements of these are outlined below:

Justification Test: New developments should be directed away from Zone C and towards suitable land in Zone A, otherwise Zone B, where river or coastal flooding will be less of an issue. In Zone C the tests outlined in sections 6 and 7 of TAN15 will be applied, recognizing, however, that highly vulnerable development and Emergency Services in Zone C2 should not be permitted. All other new development should only be permitted within Zones C1 and C2 if determined by the planning authority to be justified in that location.

Assessing Flood Consequences: If a development proposal in Zone C1, or in C2 and if it is defined as being of low vulnerability, it would meet the test outlines in section 6, however it should be noted that those developments would be more likely to flood and appropriate mitigation would need to be planned accordingly. This section applies to Zone C, and those parts of Zone B where flooding has been identified as a material consideration to allow for localised problems.

Assessing whether a development should proceed or not will depend upon whether the consequences of flooding of that development can be managed and reduced to a level which is acceptable for the nature/type of proposed development, including its effects on existing development.

Suitability of the proposed development, and whether a Justification Test is required, is based on the Development Advice Map Zone the Site is located in and the flood risk vulnerability

classification of the development proposals.

The site proposed for development is located within DAM Zone B, and the proposed development is defined as Highly Vulnerable, according to Table 9 (Summary of Policy Requirements) in TAN 15 (2004).

It should be noted that on the provision the mitigation measures detailed within the following section and planning application are implemented, flood resilience materials and a flood evacuation plan, the flood risk and overall risk to life will be minimal.

An Assessment of Flood Consequences (Section 7 and Appendix 1 TAN15) will be included with the report as set out in Table 9 of TAN15 which can be seen below:

Zone	Development Type (Section 5)	Planning Requirements (Section 4)	Acceptability Criteria (Section 7 & Appendix 1)	Development Advice (Section 5, 6, 7 and Appendix 1)
A	Emergency services Highly vulnerable development Less vulnerable development Other	<ul style="list-style-type: none"> Justification test not applicable Refer to surface water requirements 	<ul style="list-style-type: none"> No increase in flooding elsewhere 	No constraints relating to river or coastal flooding, other than to avoid increasing risk elsewhere.
B	Emergency Services	<ul style="list-style-type: none"> If site levels are greater than the flood levels used to define adjacent extreme flood outline there is no need to consider flood risk further. Refer to surface water requirements 	<ul style="list-style-type: none"> Acceptable consequences for nature of use Flood defences adequate Agreement for construction and maintenance costs secured Occupiers aware of flood risk Escape/evacuation routes present Effective flood warning provided Flood emergency plans and procedures Flood resistant design No increase in flooding elsewhere 	Generally suitable for most forms of development. Assessments, where required, are unlikely to identify consequences that cannot be overcome or managed to an acceptable level. It is unlikely, therefore, that these would result in a refusal of planning consent on the grounds of flooding.
	Highly vulnerable development		<ul style="list-style-type: none"> Acceptable consequences for nature of use Occupiers aware of flood risk Escape/evacuation routes present Effective flood warning provided Flood emergency plans and procedures 	

			<ul style="list-style-type: none"> • No increase in flooding elsewhere 	
	Less vulnerable development		<ul style="list-style-type: none"> • No increase in flooding elsewhere 	
	Other	<ul style="list-style-type: none"> • Refer to surface water requirements 	<ul style="list-style-type: none"> • Occupiers aware of flood risk • No increase in flooding elsewhere 	
C1	Emergency services Highly vulnerable development Less vulnerable development	<ul style="list-style-type: none"> • Application of justification test (section 6) , including acceptability of consequences (section 7 and appendix 1) • Refer to surface water requirements 	<ul style="list-style-type: none"> • Acceptable consequences for nature of use • Flood defences adequate • Agreement for construction and maintenance costs secured • Occupiers aware of flood risk • Escape/evacuation routes present • Effective flood warning provided • Flood emergency plans and procedures • Flood resistant design • No increase in flooding elsewhere 	Plan allocations and applications for all development can only proceed subject to justification in accordance with section 6 and acceptability of consequences in accordance with section 7 and Appendix 1.
	other	<ul style="list-style-type: none"> • Application of acceptability of consequences (section 7 and appendix 1) • Refer to surface water requirements 	<ul style="list-style-type: none"> Acceptable consequences for nature of use • Occupiers aware of flood risk • Desirable if effective flood warning and evacuation routes/procedure provided depending on nature of proposal • No increase in flooding elsewhere 	Plan allocations and applications for development should only be made if considered acceptable in accordance with section 7 and Appendix 1.
C2	Emergency services Highly vulnerable development	The flooding consequences associated with Emergency Services and highly vulnerable development are not considered to be acceptable. Plan allocations should not be made for such development and planning applications not proposed.		
	Less vulnerable development	<ul style="list-style-type: none"> • Application of justification test (section 6) , including acceptability of consequences (section 7 and appendix 1) • Refer to surface water requirements 	<ul style="list-style-type: none"> • Acceptable consequences for nature of use • Flood defences adequate • Agreement for construction and maintenance costs secured • Occupiers aware of flood risk 	Plan allocations or applications for less vulnerable development can only proceed subject to justification in accordance with section 6 and

			<ul style="list-style-type: none"> • Escape/evacuation routes present • Effective flood warning provided • Flood emergency plans and procedures 	acceptability of consequences in accordance with section 7 and Appendix 1.
	Other	<ul style="list-style-type: none"> • Application of acceptability of consequences (section 7 and appendix 1) • Refer to surface water requirements 	<ul style="list-style-type: none"> • Flood resistant design • No increase in flooding elsewhere • Acceptable consequences for nature of use • Occupiers aware of flood risk • Effective flood warning provided • No increase in flooding elsewhere 	Plan allocations and applications for development should only be made if considered acceptable in accordance with section 7 and Appendix

As per the guidance in TAN15, for highly vulnerable development in zone B the acceptability criteria of Section 7 Appendix 1 will be discussed below (FCI comments in red):

1) Acceptable consequences for the nature of use

The property will be situated outside of NRW flood zone 2 which is the extreme flood outline including climate change and hence the risk of internal flooding is deemed to be very low and acceptable for the nature of the development.

2) Escape/evacuation routes present

The access route to the property is above estimated flood levels and hence will not be obstructed during a flood event.

3) Effective flood warning provided

NRW only provide flood alerts at the property location, however, given that the property will not suffer inundation the requirement for a greater level of warning is not considered necessary.

4) Flood emergency plans and procedures

The property will not suffer flood water ingress and the site access road will also remain free from flooding, therefore, detailed plans and procedures are not considered necessary.

5) Occupiers aware of flood risk

The landowner has commissioned this FCA and therefore should make any third party aware of the flood risk.

6) No increase in flooding elsewhere

Fluvial floodplain storage will not be affected as a result of the development with surface water run-off from increased hardstanding managed by implementing SuDS (beyond the scope of this report).

8.0 Recommendations

Taking into account the information gathered within this report, the proposed detached dwelling will be located outside for NRW flood zone 2 and hence are considered at very low risk of flooding over the course their lifetime. Flood risk from all other applicable sources has also been deemed very low. Therefore, FCI would only recommend that the property owner sign up for flood alerts from NRW purely to increase awareness of flooding close vicinity of the property.

8.1 NRW Flood Alerts

The property is located within an area where flood alerts are provided by NRW and therefore it is recommended the client is signed up to receive these.

Further information regarding any of the above recommendations can be attained by contacting Flood Consult International.

9.0 Conclusion

Following investigation into the flood risk exists at the site of proposed development at New Road Ystradowen, the following conclusions are made:

- The site lies partially within flood zone 2 on the Natural Resources Wales flood map for planning which equates to between 1% (1 in 100) and 0.1% (1 in 1000) chance of flooding including climate change.
- The site is located within flood zone B on the Development Advice Map (DAM) and is classed as 'highly vulnerable' in line with TAN15 guidance.
- The purpose of applying for planning is to construct a detached four bedroom dormer bungalow and driveway on a largely undeveloped plot of land.
- Detailed modelled flood levels for the Afon Llynfell are not available and therefore the extent of NRW flood zone 2 and available topographic surveys and LiDAR data have been used to estimate the level of flooding. Using this technique an extreme flood level of 155.50mAOD was produced which is considered to be conservative.
- The detached dwelling will be situated outside of the NRW flood zone 2 extent with the flood level set at 156.00mAOD, 0.5m greater than the estimated extreme flood level, and the risk of flooding to the property is deemed to be very low.
- Coastal/tidal flooding is not applicable at the site location due to ground elevation in excess of 154m above mean sea level.
- The risk of surface water flooding has been deemed very low.
- The site location is not known to have suffered flooding from any source historically.
- The detached dwelling will be constructed outside of the predicted flood zone and therefore there will be no displacement of floodplain volume.
- The proposed development will increase the areas of hard standing in terms of the dwelling footprints as well as extended driveway. This will increase surface water run-off from pre-development conditions which will be managed by a separate SuDS application.
- It is advised that the client signs up for flood alerts from Natural Resources Wales.
- The redevelopment of the property will not increase flood risk elsewhere and can be managed in line with TAN15 guidance.

10.0 Glossary

Word	Definition
1D	Estimation of peak flow and elevation in the river channel only
2D	Estimation of flow routes and elevations across the floodplain
CC	Climate Change
BGS	British Geological Survey
DAM	Development Advice Map – flood maps used in Wales to derive development suitability
Fluvial	Rivers
LiDAR	Light Detection and Ranging – method of remote sensing using laser pulses to measure variable distances to earth.
mAOD	Meters Above Ordnance Datum - a vertical datum used by Ordnance Survey as the basis for deriving altitudes on maps.
Pluvial	Rainfall or surface water
Property Level Protection	Utilising the existing structure of an asset to implement flood protection measures.
Return Period	Estimated likelihood of an event
SFCA	Strategic Flood Consequence Assessment – a broadscale overview of flood risk for a town or borough
TAN15	Technical Advice Note 15 – Guidance in Wales with regard to development and flood risk
Topography	The arrangement of the natural and artificial physical features of an area

APPENDIX A
NRW Rivers & Sea Flood Map For Planning




Flood Map for Planning

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Legend

TAN15 Defended Zones

TAN15 Defended Zones

-  Rivers
-  Sea
-  Rivers and Sea

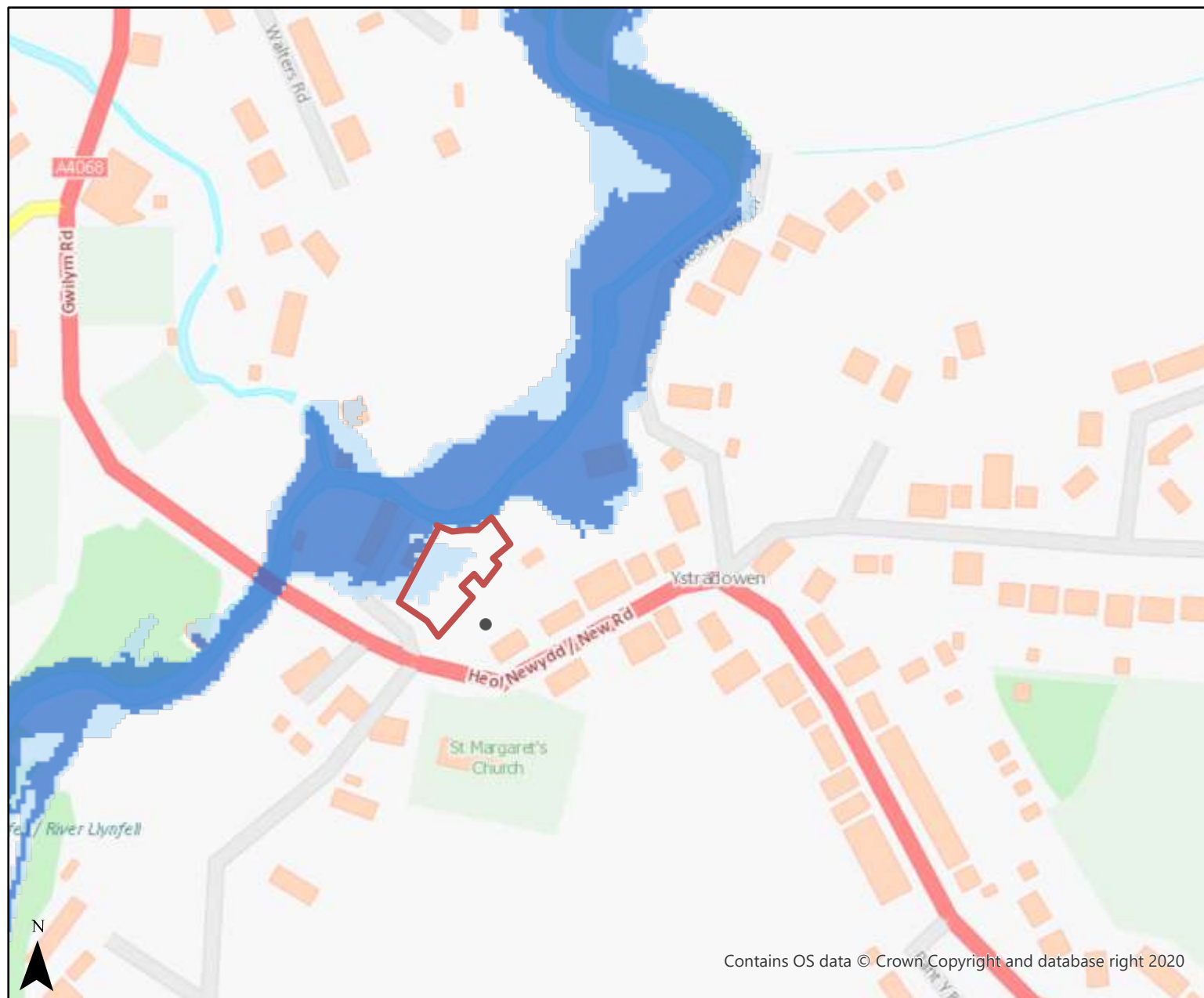
Rivers and Sea

Rivers and Sea

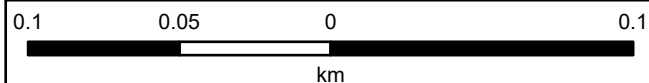
-  Flood Zone 3
-  Flood Zone 2

Scale: 1:2,500

Date: 14/03/2023



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British National Grid

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APPENDIX B
Development Advice Map

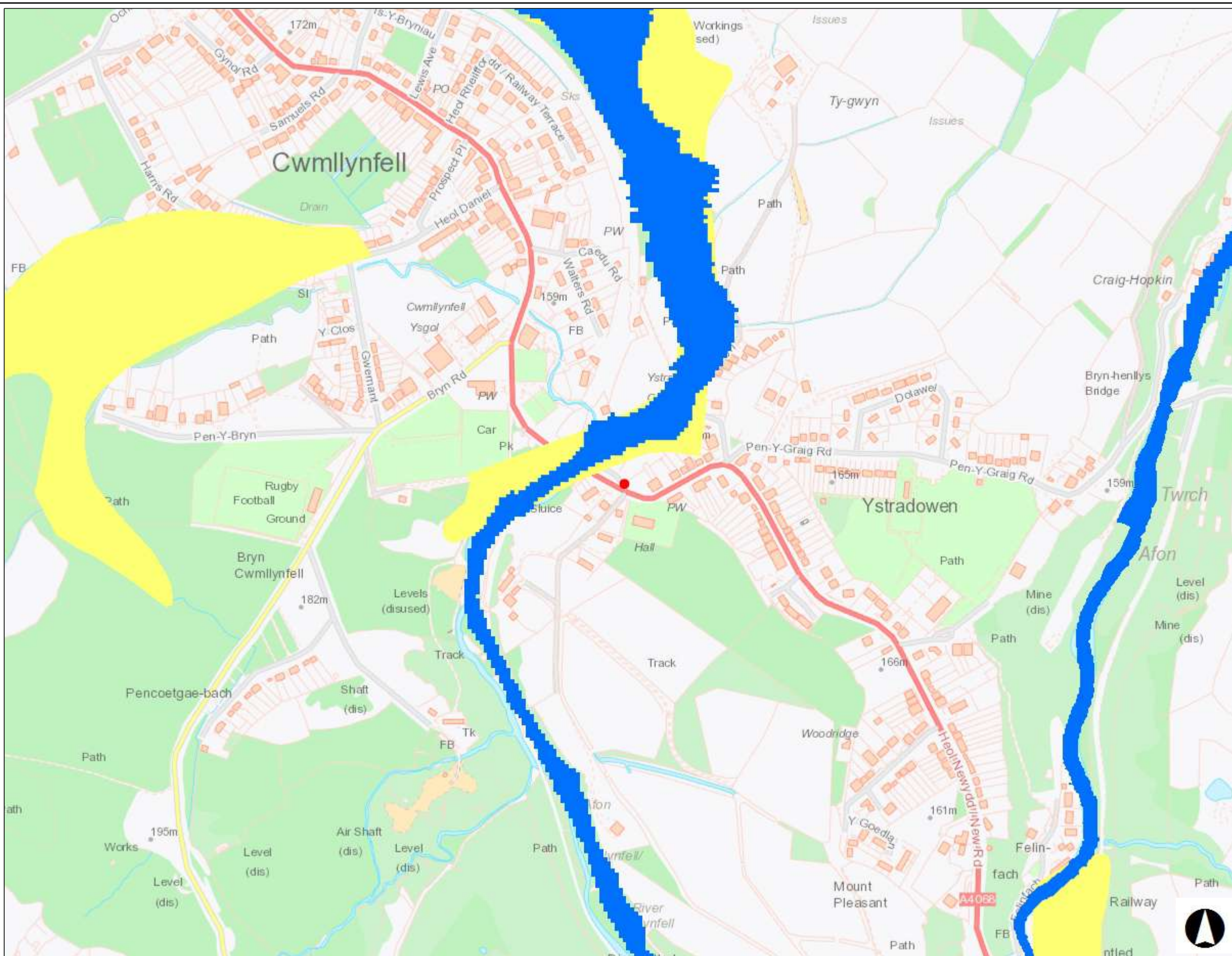
Map Perygl Llifogydd / Flood Risk Map -

Allwedd / Map Key

- Zone C1
- Zone C2
- Zone B
- Zone A

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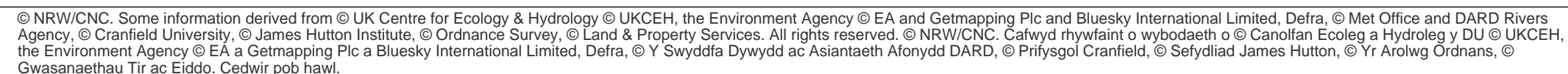
Dyddiad / Date
14/03/2023



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British_National_Grid Kilometers

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APPENDIX C
NRW Tidal Flood Zone Map



APPENDIX D
NRW Flood Defence Locations & Areas Benefitting from Defences



Map Perygl Llifogydd / Flood Risk Map -

Allwedd / Map Key

+

Flood Defence Locations

Areas Benefitting from Flood Defences

Rivers

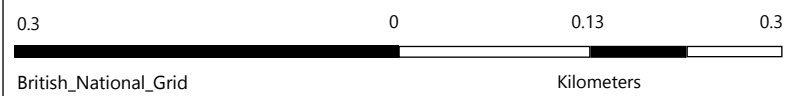
Sea

Rivers and Sea

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Dyddiad / Date

14/03/2023



APPENDIX E
NRW Surface Water Flood Map for Planning


Flood Map for Planning NRW Surface Water FMP

Legend

TAN15 Defended Zones

TAN15 Defended Zones

 Rivers

 Sea

 Rivers and Sea

Surface Water and Small Watercourses

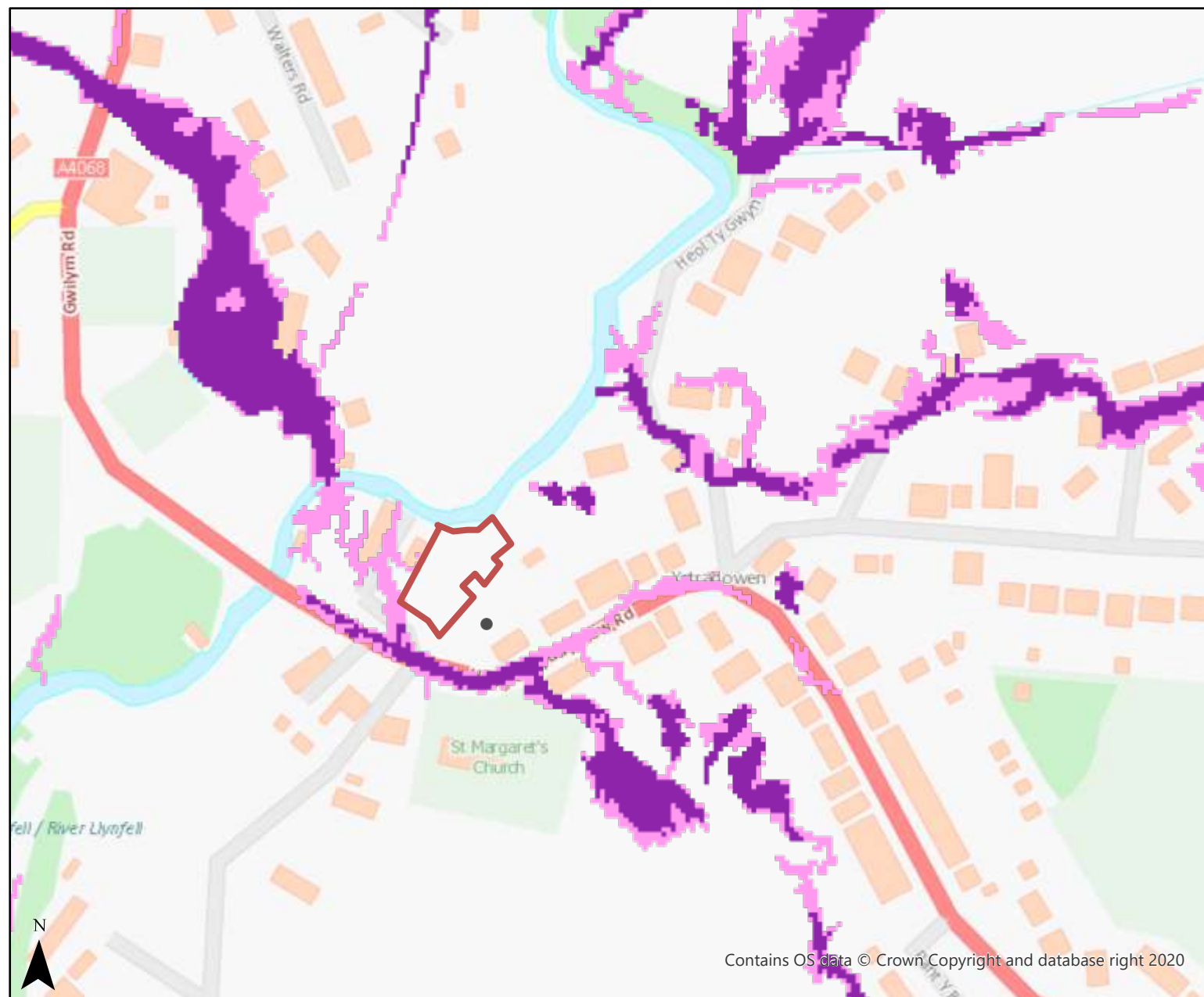
Surface Water and Small Watercourses

 Flood Zone 3

 Flood Zone 2

Scale: 1:2,500

Date: 14/03/2023



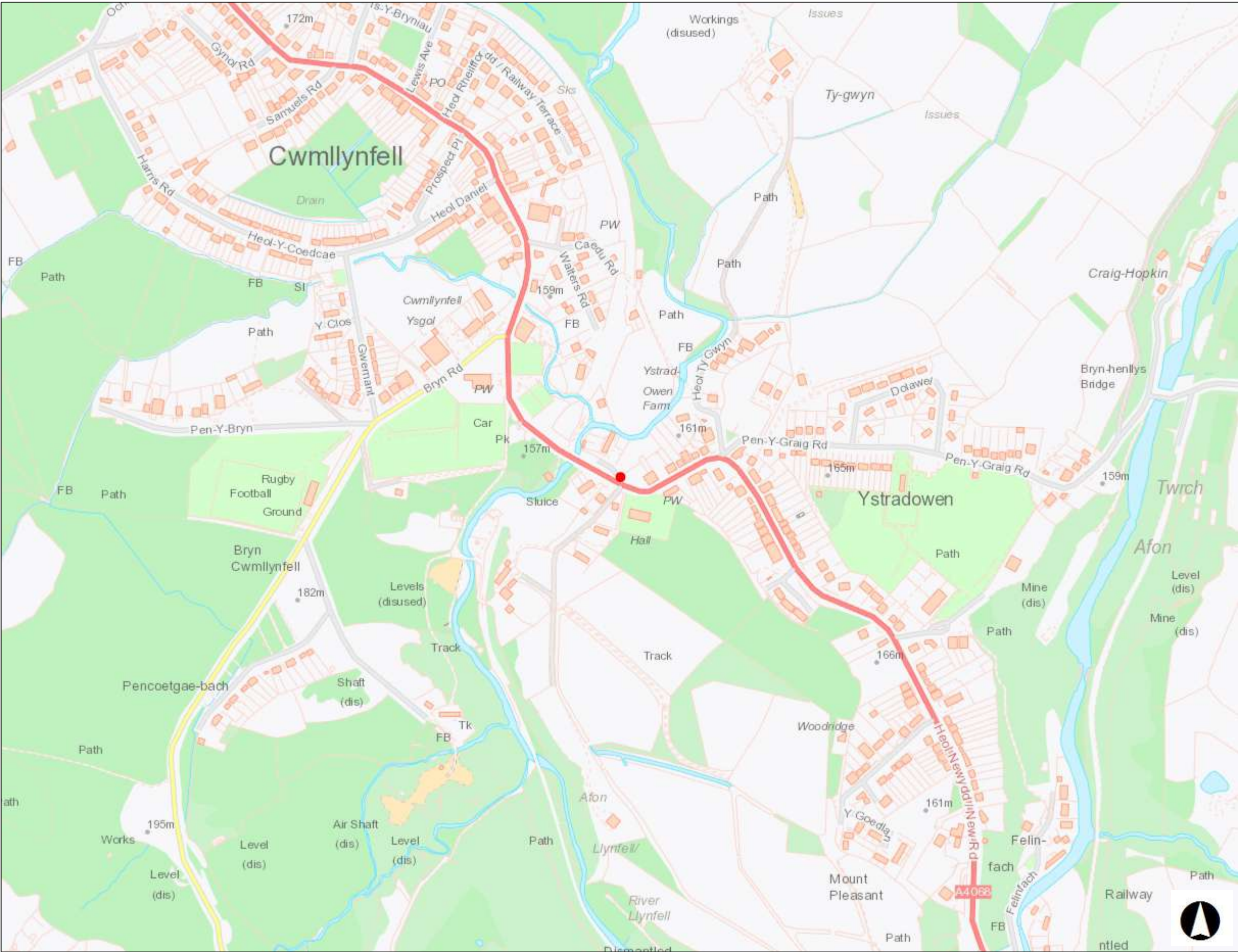
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0.1 0.05 0 0.1
km

British National Grid


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APPENDIX F
NRW Reservoir Flood Map



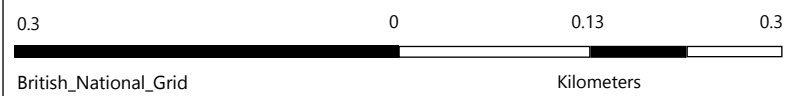
Map Perygl Llifogydd / Flood Risk Map -

Allwedd / Map Key

-  Flood Risk from Reservoirs

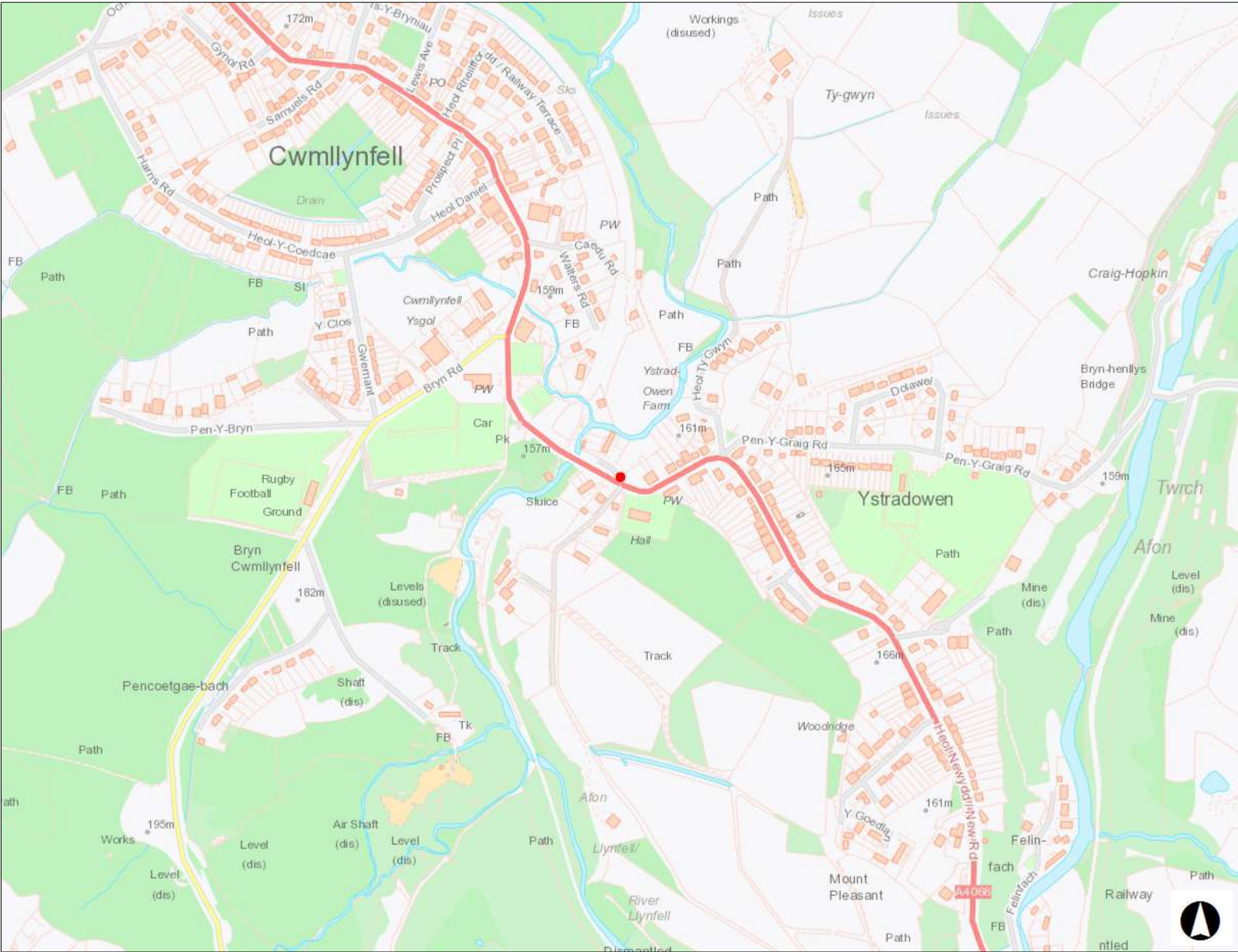
Graddfa / Scale at A3 1: 5,000

Dyddiad / Date
14/03/2023




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APPENDIX G
NRW Flood History Map



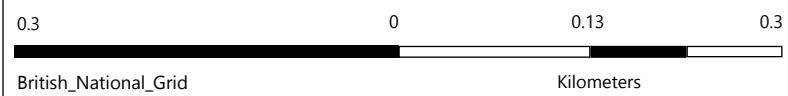
Map Perygl Llifogydd / Flood Risk Map -

Allwedd / Map Key

 Recorded Flood Extents

Graddfa / Scale at A3 1: 5,000

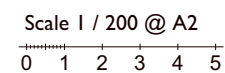
Dyddiad / Date
14/03/2023



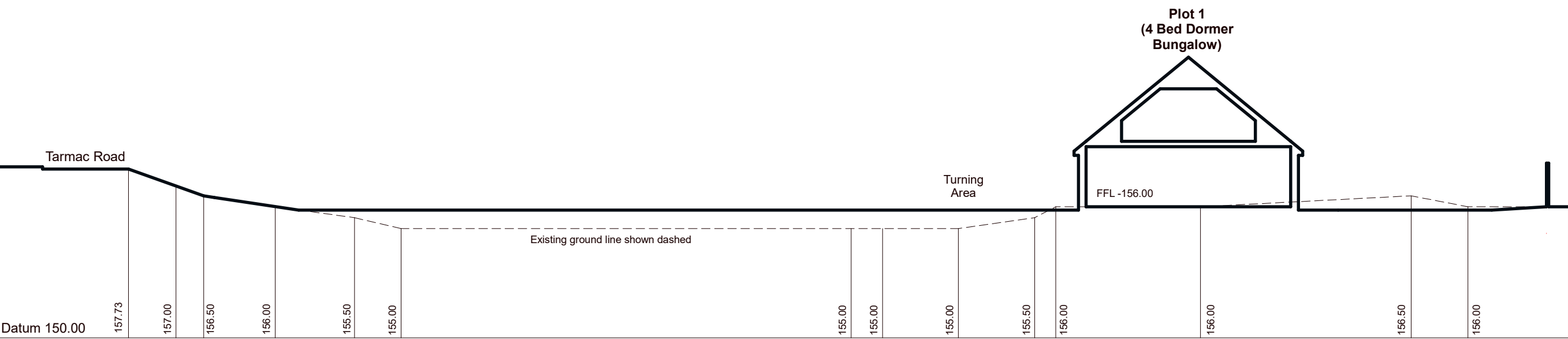
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APPENDIX H
Existing Site Plans & Topographical Survey

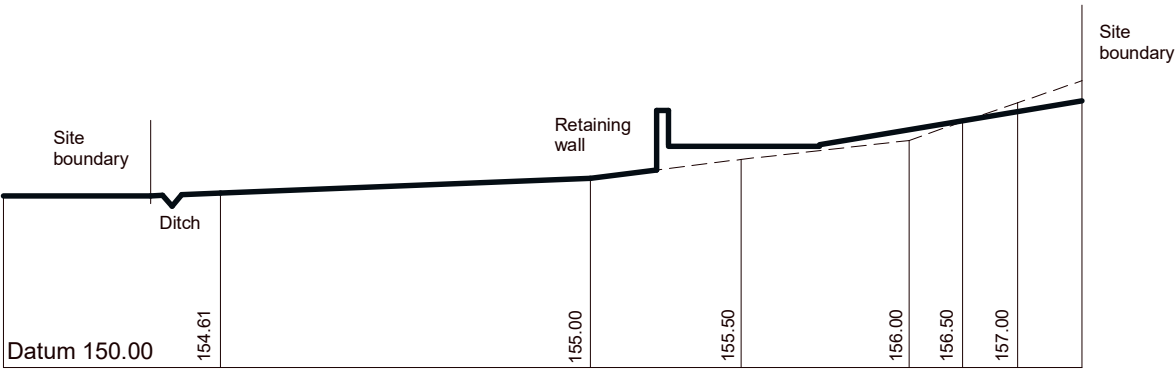
	LINE TYPES
Building	
Kerbs, Walls	
Fences	
Iron railings	
Top of banks	
Bottom of banks	
Hedges	
Overhead Wires	
Change of surface	



APPENDIX I
Proposed Site Plan

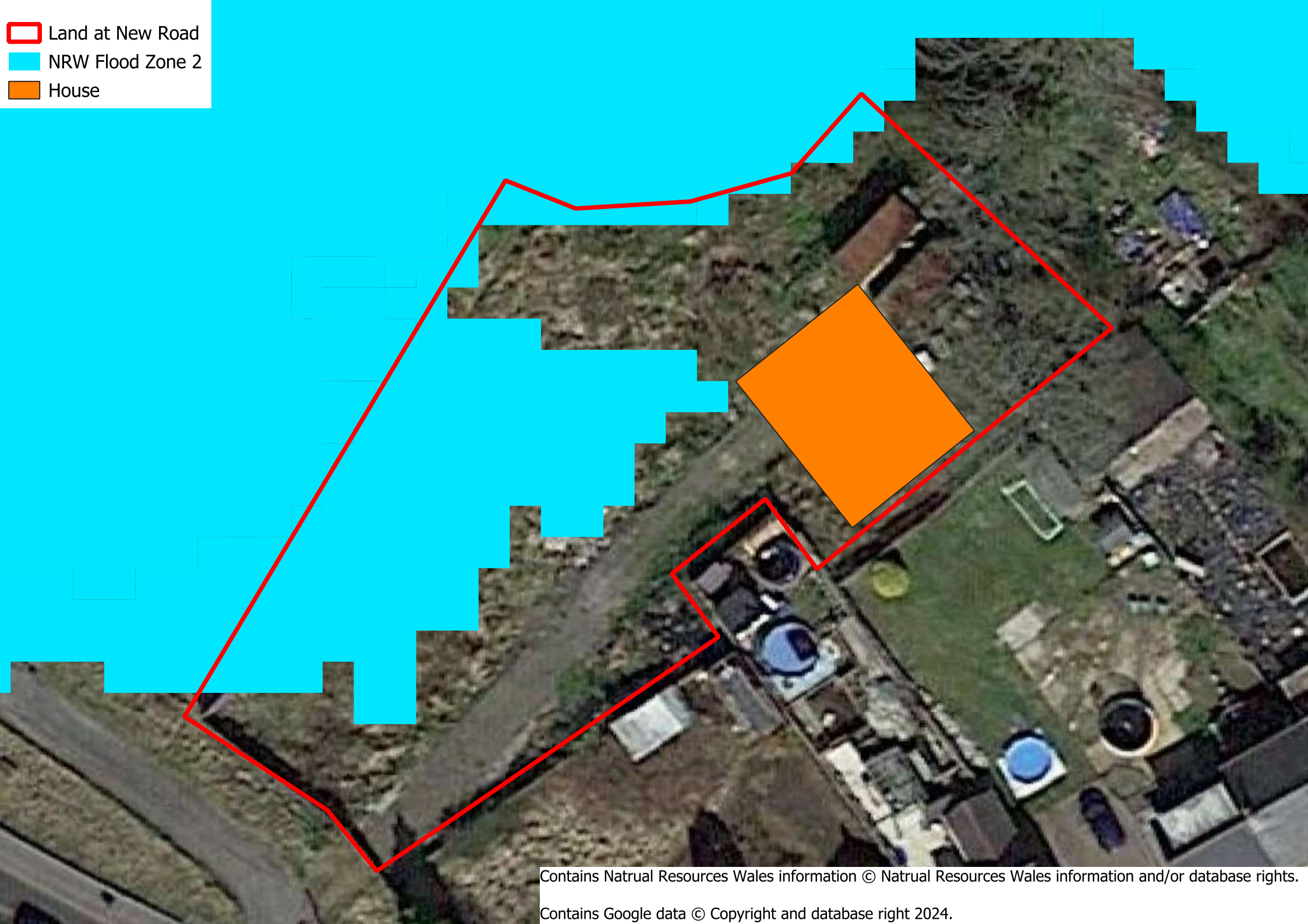


Site Section A-A



Site Section B-B

APPENDIX J
NRW Flood Zone 2 Extent – Proposed Dwelling



Land at New Road

NRW Flood Zone 2

House

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