

Elan Valley Visitor Centre, Rhayader

Flood Consequences Assessment

August 2024

Project Information	
Project:	Elan Valley Visitor Centre, Rhayader
Report Title:	Flood Consequences Assessment
Client:	Dŵr Cymru Welsh Water
Instruction:	The instruction to undertake this Flood Consequences Assessment was received from Jason Mears of Dwr Cymru Welsh Water
File Ref:	15953-FCA-01

Approval Record	
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Document History		
Revision	Date	Comment
01	30/08/2024	First issue

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This report will remain valid for a period of twelve months (from the date of last issue) after which the source data should be reviewed in order to reassess the findings and conclusions on the basis of latest available information.

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Introduction

Waterco has been instructed to prepare a Flood Consequences Assessment (FCA) in respect of the proposed redevelopment of an existing Visitor Centre including upgrades to facilities and infrastructure at Elan Valley Visitor Centre, Elan Village, Rhayader, LD6 5HP.

The purpose of this report is to outline the potential flood risk to the site, the impact of the proposed development on flood risk elsewhere, and the proposed measures which could be incorporated to mitigate the identified flood risk. This report has been prepared in accordance with the guidance contained in Planning Policy Wales (PPW) and Technical Advice Note 15 (TAN15): Development and Flood Risk.

Existing Conditions

The site covers an area of approximately 1.52 hectares (ha) and is located at National Grid Reference (NGR) 292808, 264626. A location plan and an aerial image are included in Appendix A.

Online mapping (including Google Maps / Google Streetview imagery, accessed August 2024) shows that the site comprises an existing Visitor Centre with associated access, parking, and play area. The site is bordered by undeveloped high ground to the north, Afon Elan to the east and south, and open amenity space to the west. Access to the site is provided from an unnamed road to the north-east.

Local Topography

A topographical survey has been undertaken by PDS Survey Solutions Ltd in March 2019. The topographical survey shows that the site slopes from 215.33 metres Above Ordnance Datum (m AOD) in the west to 213.1m AOD in the north-east. Ground levels adjacent to the existing visitor centre generally vary from 214.64m AOD to 214.83m AOD.

Topographic levels to m AOD have also been derived from a 1m resolution Natural Resources Wales (NRW) composite 'Light Detecting and Ranging' (LiDAR) Digital Terrain Model (DTM). The LiDAR data generally corroborates with the topographical survey.

Topographical information is provided as Appendix B.

Ground Conditions

The British Geological Survey (BGS) online mapping (1:50,000 scale) shows that the site is located within the boundaries of three bedrock geologies including the Dyffryn Flags Facies consisting of mudstone and sandstone, Sedgwickii Grits Facies consisting of mudstone and sandstone, and the Caban Conglomerate Formation consisting of sandstone. No superficial deposits are recorded.

The geological mapping is available at a scale of 1:50,000 and as such may not be accurate on a site-specific basis.

There are no BGS borehole records within the vicinity of the site.

The Cranfield University 'Soilscapes' map [accessed August 2024] indicates that the site is underlain by '*freely draining loamy soils over rock*'.

Local Drainage

Public sewer records have been obtained from Dwr Cymru Welsh Water (DCWW) and are included in Appendix C. The DCWW sewer records show that there is a 225mm public sewer within Cnwch Wood Trail, approximately 75m east of the site and beyond the Afon Elan.

Information from the Client shows that surface water from the current visitor centre is drained to soakaways.

Development Proposals

The proposal is for the redevelopment of Elan Valley Visitor Centre to include an increase in size of the facilities, such as the café and exhibition space, together with additional facilities including a planetarium. Proposed development plans are included as Appendix D.

Flood Zone Category and Policy Context

Flood Zone Category

The Welsh Government Development Advice Map, included in Appendix E, shows that the majority of the site is located within Flood Zone A – an area considered to be at little or no risk of fluvial or tidal flooding, with a less than 0.1% (1 in 1000) annual probability of flooding. The south-western boundary of the site is located within Flood Zone C2 – an area considered at flood risk, without significant defence infrastructure, with a 0.1% (1 in 1000) or greater annual probability of flooding. The majority of the Flood Zone C2 extent is associated with the channel of the Afon Elan.

The NRW 'Flood Map for Planning' (Appendix E) shows that the majority off the site is located outside of the flood extent, meaning it has less than 0.1% annual probability of flooding, including the effects of climate change. The existing Visitor Centre is shown within Flood Zone 2, an area considered to be at risk of flooding from rivers with between a 1% and 0.1% annual probability of flooding, including the effects of climate change.

A review of the topographical survey shows that the existing visitor centre is not located at a topographically lower level than its immediate surrounds. The existing visitor centre may therefore be shown within Flood Zone 2 as its elevation (ground level) has not been represented accurately within the LiDAR data used by NRW to produce its Flood Map for Planning.

Development Vulnerability Classification

The proposed redevelopment is considered to be 'less vulnerable' development in accordance with Figure 2 of the Welsh Government's Technical Advice Note 15 – Development and Flood Risk (TAN15).

TAN15 states that less vulnerable development can be considered in Flood Zones A and C2 subject to the application of the TAN15 Justification Test and satisfying specific TAN15 acceptability criteria. The specific TAN15 'acceptability criteria' are assessed in the following sections.

Local Policy

The Powys Council Local Development Plan contains the following policies relating to flood risk:

'Policy DM5 – Development and Flood Risk

Development proposals must be located away from tidal or fluvial flood plains unless it can be demonstrated that the site is justified in line with national guidance and an appropriate detailed technical assessment has been undertaken to ensure that the development is designed to reduce / avoid the threat and alleviate the consequences of flooding over its lifetime. In addition the development must not increase flood risk elsewhere, and shall where possible allow floodplains to provide water storage to reduce flooding in the catchment, unless:

- 1. The development is of very minor nature such as an extension to a dwelling ; or*
- 2. There is an overriding need in the public interest for the development.'*

Local guidance documents including the Powys Council Strategic Flood Consequences Assessment (SFCA) (September 2013) and the Powys Council Preliminary Flood Risk Assessment (PFRA) (2011 and its October 2017 addendum) have been reviewed and inform this report.

Consultation

A pre-planning opinion request was submitted to NRW in August 2024. In their response, included in Appendix E, NRW have stated:

'The proposal is to redevelop an existing Visitors Centre, classed as less vulnerable development and located in Flood Zone 2 of the Flood Map for Planning and Zone A of the Development Advice Map (DAM). The proposal indicates that there will be an increase of 965m² in floor space (including ground and first floors). Any Flood Consequence Assessment (FCA) would need to demonstrate that there will be no increase in third party flood risk as a result of the proposal, however given the scale and location of the proposal we would not expect modelling to form part of the FCA.'

Sources of Flooding and Probability

Fluvial

The nearest watercourse is the Afon Elan which is located immediately south of the site. Afon Elan flows north-east in this location. Flows within the Afon Elan are controlled by the Caban Coch Dam (and associated Caban Coch Reservoir) located approximately 325m west of the site.

Fluvial flooding could occur if the Afon Elan overtopped its banks during or following an extreme rainfall event.

No hydraulic model data is available for the Afon Elan in this area. An assessment of fluvial flood risk has therefore been based on topographical data (Appendix B) and the NRW 'Flood Map for Planning' (Appendix E).

The NRW 'Flood Map for Planning' shows that the majority of the existing Visitor Centre is located within Flood Zone 2, meaning it has between a 1% and 0.1% annual probability of flooding, including the effects of climate change. Land surrounding the visitor centre building is located within Flood Zone 1, an area with a less than 0.1% chance of flooding, including the effects of climate change. The site is therefore flood free during the 1% annual probability plus climate change event.

A review of the topographical survey shows that the existing visitor centre is not located at a topographically lower level than its immediate surrounds. The existing visitor centre may therefore be shown within Flood Zone 2 as its elevation (ground level) has not been represented accurately within the LiDAR data used by NRW to produce its Flood Map for Planning.

The Flood Map for Planning has been overlaid onto LiDAR data. The flood map with LiDAR overlay is included as Appendix F and shows that the Flood Zone 2 extent adjacent to the visitor centre reaches a maximum elevation of 214.85m AOD. A flood level of 214.85m AOD can therefore conservatively be derived for the 0.1% annual probability plus climate change event.

As shown on the topographic survey (Appendix B), topographic levels in the location of the existing visitor centre vary from 214.64m AOD to 214.83m AOD. Flood depths in the location of the visitor centre therefore vary from 210mm to 20mm during the 0.1% annual probability plus climate change event.

The NRW 'Historic Flood Risk' map (Appendix E) shows that the site is not located within a historical flood extent.

It can be concluded that the site is at low risk of fluvial flooding during all events up to and including the 1% annual probability plus climate change event. A potential flood risk remains during the 0.1% annual probability plus climate change event with maximum flood depths of up to 210mm.

Tidal

The site is situated at a minimum of approximately 213.1m AOD and is significantly above sea level. The site is therefore not at risk of tidal flooding.

Surface Water

Surface water flooding occurs when rainwater does not drain away through the normal drainage system or soak into the ground. It is usually associated with high intensity rainfall events but can also occur with lower intensity rainfall or melting snow where the ground is saturated, frozen or developed, resulting in overland flow and ponding in depressions in topography. Surface water flooding can occur anywhere without warning. However, flow paths can be determined by consideration of contours and relative levels.

The 'Surface Water & Small Watercourses Flood Zones' map (Appendix E) shows the majority of the site is located in Flood Zone 1, meaning it has a less than 0.1% annual probability of flooding from surface water. The site access road in the north-eastern extent of the site is located within Flood Zone 2 and 3. Flood Zone 2 is defined as having between a 1% and 0.1% annual probability of flooding, including the effects of climate change. Flood Zone 3 is defined as having a greater than 1% annual probability of flooding, including the effects of climate change.

The flood risk shown on the NRW 'Surface Water & Small Watercourses Flood Zones' map is associated with a flow route from high ground to the north of the site. Flood flows are directed south-east through the site access and car park and into the Afon Elan. No flooding is shown in the location of the visitor centre.

There are no records of surface water flooding affecting the site. It can therefore be concluded that the risk of surface water flooding to the visitor centre is very low. However, a risk of flooding remains to the access road and car park in the eastern extent of the site.

Sewer

Flooding from sewers can occur when a sewer is overwhelmed by heavy rainfall, becomes blocked, is damaged, or is of inadequate capacity. Flooding is mostly applicable to combined and surface water sewers.

The DCWW sewer records show that there is a 225mm public surface water sewer within Cnwch Wood Trail, approximately 75m east of the site and beyond the Afon Elan. Any potential flooding arising from the 225mm sewer in Cnwch Wood Trail would be directed into the Afon Elan and would not affect the site. It can therefore be concluded that the risk of sewer flooding is very low.

Groundwater

Groundwater flooding occurs when water levels underneath the ground rise above normal levels. Prolonged heavy rainfall soaks into the ground and can cause the ground to become saturated. This results in rising groundwater levels which leads to flooding above ground.

As described above, the site located within the boundaries of three bedrock geologies including Dyffryn Flags Facies consisting of mudstone and sandstone, Sedgwickii Grits Facies consisting of mudstone and sandstone, and Caban Conglomerate Formation consisting of sandstone.

There are no records of groundwater flooding at or near to the site. The impermeable nature of the underlying bedrock will restrict the vertical migration of groundwater.

It can therefore be concluded that the risk of groundwater flooding is very low.

Artificial Sources

There are no canals in the immediate vicinity of the site. The NRW 'Flood Risk from Reservoirs' map (Appendix E) shows that the site is at risk from a failure of the following reservoirs:

Table 1 – NRW Flooding from Reservoirs

Name	Location (NGR)	Owner
Caban Coch	291512, 263603	Dŵr Cymru Welsh Water
Craig-Goch	289829, 269336	Dŵr Cymru Welsh Water
Pen y Garreg	290229, 267570	Dŵr Cymru Welsh Water
Dol-y-Mynach	290623, 261662	Dŵr Cymru Welsh Water
Claerwen	285257, 265170	Dŵr Cymru Welsh Water

NRW state that reservoir flooding is extremely unlikely to happen. All large reservoirs must be inspected and supervised by reservoir panel engineers. As the enforcement agency for the Reservoirs Act 1975 in Wales, NRW ensure that reservoirs are inspected regularly, and essential safety work is carried out. The probability of flooding from reservoirs is very low.

It can therefore be concluded that the risk of flooding from artificial sources is very low. However, in the very unlikely event of reservoir failure, there is potential for the site to become inundated within a short space of time given its location immediately downstream of Caban Coch Dam.

Summary of Potential Flooding

It can be concluded that fluvial flooding is the main potential source of flood risk at this site. The associated risk has been used to inform mitigation design.

Mitigation

The site is identified at risk of fluvial flooding during the 0.1% annual probability plus climate change event with a conservative flood level of 214.85m AOD.

Where practical, the finished floor levels of any new buildings (extensions) should be set at or above 214.85m AOD. The flood depths estimated during the 0.1% annual probability plus climate change event are within the tolerable limits of A1.15 of TAN15.

Flood Warnings and Evacuation

Flood Warnings do not cover this area. The site management should prepare a flood plan to inform site users of the potential flood risk and to provide advice on what to do in the event of a flood. The flood plan should include details of a safe evacuation route to be used during a flood event. Safe evacuation is available via the Elan Valley Visitor Centre access road, an area shown outside of the extreme fluvial flood extent on NRW mapping. A flood evacuation route plan is included in Appendix G.

In the unlikely event of reservoir inundation, site users should immediately head to higher ground. An unnamed road located 65m north of the site is located outside of the reservoir failure flood extent and would provide a means of refuge and safe evacuation.

Impact on Flood Risk Elsewhere

All additional building footprint proposed will be located within Flood Zone 1. Therefore, the redevelopment does not remove flood storage space from the floodplain and will not result in an increase in flood risk elsewhere.

Justification

In accordance with TAN15, less vulnerable development will be justified in Flood Zone C2 if it can be demonstrated that:

- i. Its location in Zone C is necessary to assist, or be part of, a local authority regeneration initiative or a local authority strategy to sustain an existing settlement: or,
- ii. Its location in Zone C is necessary to contribute to key employment objectives supported by the local authority, and other key partners, to sustain an existing settlement or region

and,

- iii. It concurs with the aims of Planning Policy Wales (PPW) and meets the definition of previously development land (PPW fig 2.1); and,
- iv. The potential consequences of a flooding event for the particular type of development have been considered, and in terms of the criteria contained in sections 5 and 7 and appendix 1 [of TAN15] found to be acceptable.

With reference to point (i) and (ii) above, this proposal is part of the Elan Valley project, led by DCWW Visitor Attractions which aims at economic recovery and growth in the Mid Wales economy. The project also aims at supporting job creation and delivering sustainable tourism.

With reference to point (iii) above, this proposal is for the redevelopment of an existing Visitor Centre and

meets the definition of previously developed land.

With reference to point (iv) above, the site is located outside of Flood Zone 3 and is flood free during the 1% annual probability plus climate change event. The development therefore complies with A1.14 of TAN15.

The flood depths estimated during the 0.1% annual probability plus climate change event (210mm maximum) are within the tolerable limits of A1.15 of TAN15.

The acceptability of the consequences of a flooding event have been considered in this FCA and it can be concluded that the development satisfies the criteria contained in sections 5 and 7 and appendix 1 of TAN15.

Conclusions

The proposal is for the redevelopment of Elan Valley Visitor Centre and includes an increase in the size of facilities, such as the café and exhibition space, together with additional facilities including a planetarium.

The Welsh Government Development Advice Map shows that the majority of the site is located within Flood Zone A – an area considered to be at little or no risk of fluvial or tidal flooding, with a less than 0.1% (1 in 1000) annual probability of flooding. The south-western boundary of the site is located within Flood Zone C2 – an area considered at flood risk, without significant defence infrastructure, with a 0.1% (1 in 1000) or greater annual probability of flooding.

The main potential source of flooding at this site is fluvial flooding from Afon Elan. The NRW 'Flood Map for Planning' shows that the majority of the existing Visitor Centre is located within Flood Zone 2, meaning it has between a 1% and 0.1% annual probability of flooding, including the effects of climate change. Land surrounding the visitor centre building is located within Flood Zone 1, an area with a less than 0.1% chance of flooding, including the effects of climate change.

A review of the topographical survey shows that the existing visitor centre is not located at a topographically lower level than its immediate surrounds. The existing visitor centre may therefore be shown within Flood Zone 2 as its elevation (ground level) has not been represented accurately within the LiDAR data used by NRW to produce its Flood Map for Planning.

Using the NRW Flood Zone 2 extent, a flood level of 214.85m AOD is estimated for the 0.1% annual probability plus climate change event. Based on the estimated flood levels, depths in the location of the visitor centre vary from 210mm to 20mm.

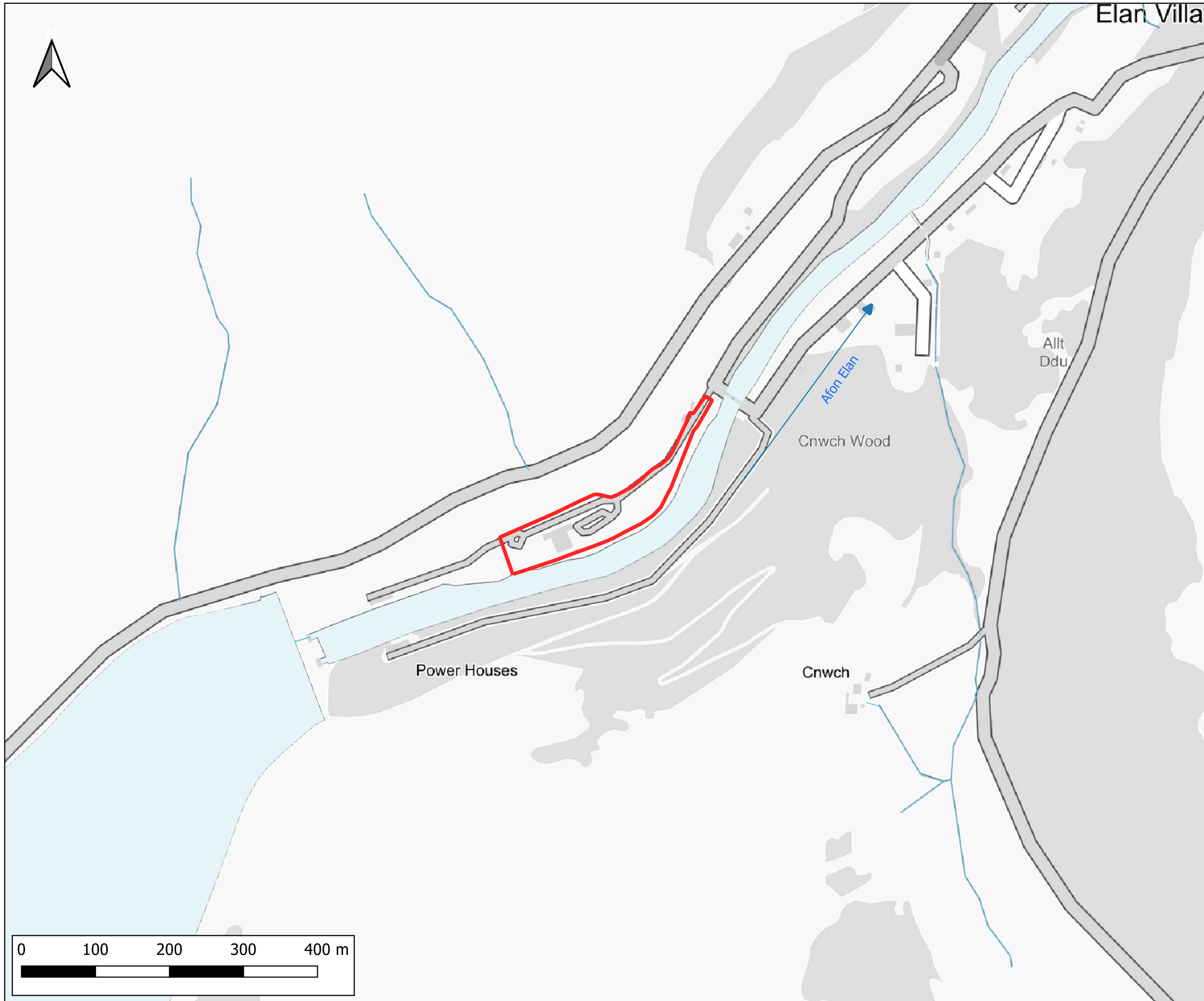
Where practical, the finished floor levels of any new buildings (extensions) should be set at or above 214.85m AOD. The flood depths estimated during the 0.1% annual probability plus climate change event are within the tolerable limits of A1.15 of TAN15.

All additional building footprint proposed will be located within Flood Zone 1. Therefore, the redevelopment does not remove flood storage space from the floodplain and will not result in an increase in flood risk elsewhere.

Recommendations

1. Submit this Flood Consequences Assessment to the Planning Authority in support of the Planning Application.
2. Where practical set finished floor levels of new buildings / extensions at or above 214.85m AOD.

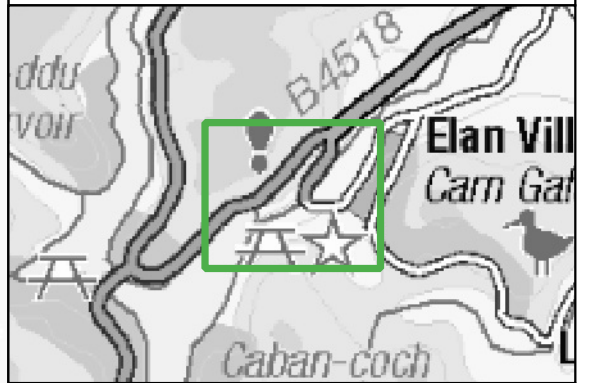
Appendix A Location & Aerial Plan



Notes:
 1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Watercourses
- Waterbodies



CLIENT:
 Dŵr Cymru Welsh Water



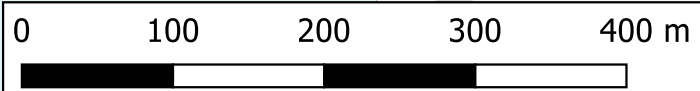
SCHEME:
 Elan Valley Visitor Centre,
 Rhayader

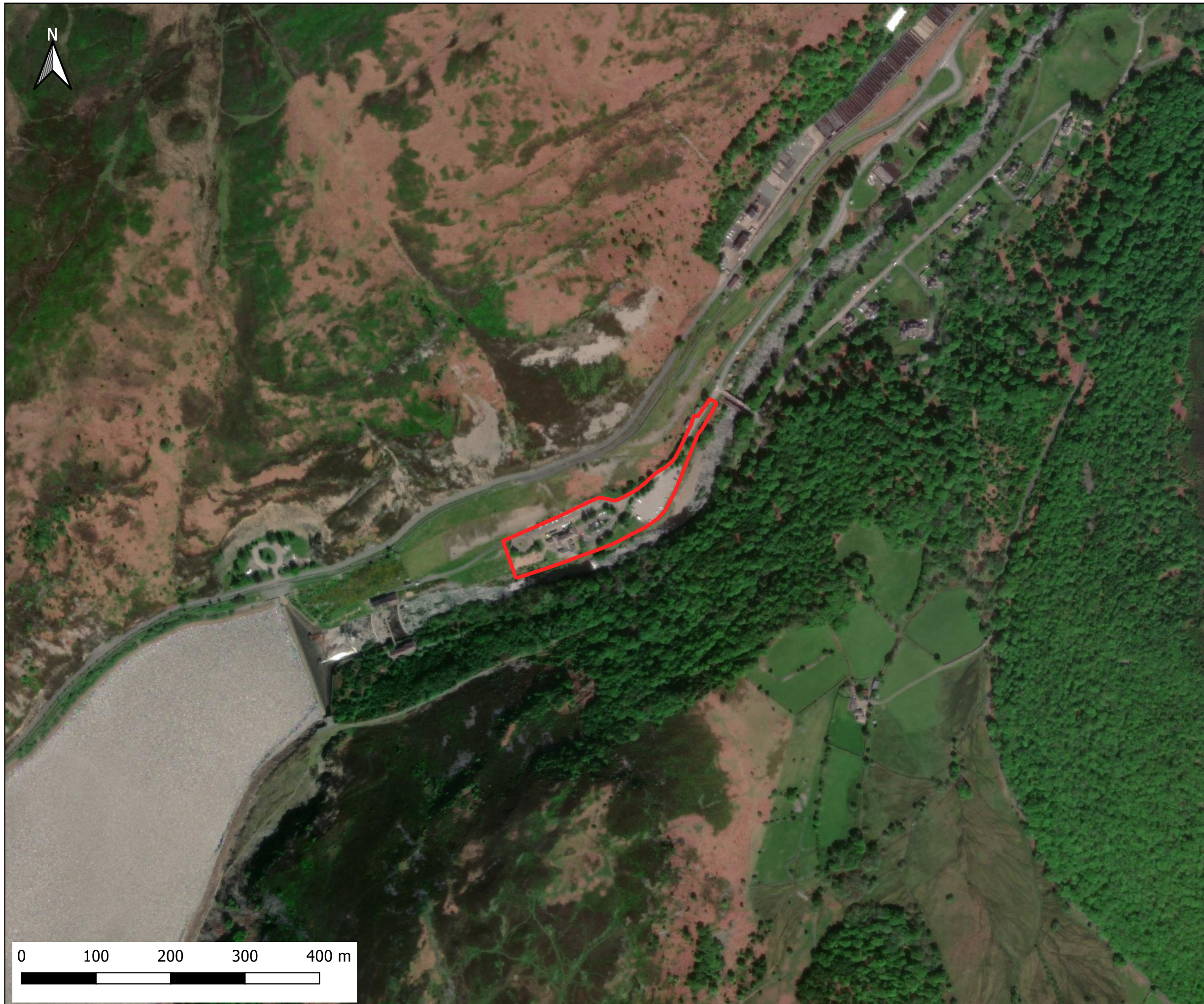
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 Location Plan

PLOT STATUS: FINAL	DATE: 16-08-2024
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PLOT NAME: 15953_Location_Plan	REVISION: -
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Notes:
 1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

 Site Boundary



CLIENT:
 Dŵr Cymru Welsh Water



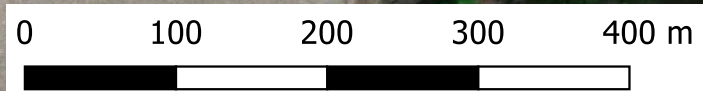
SCHEME:
 Elan Valley Visitor Centre,
 Rhayader

PLOT TITLE:
 Aerial Plan

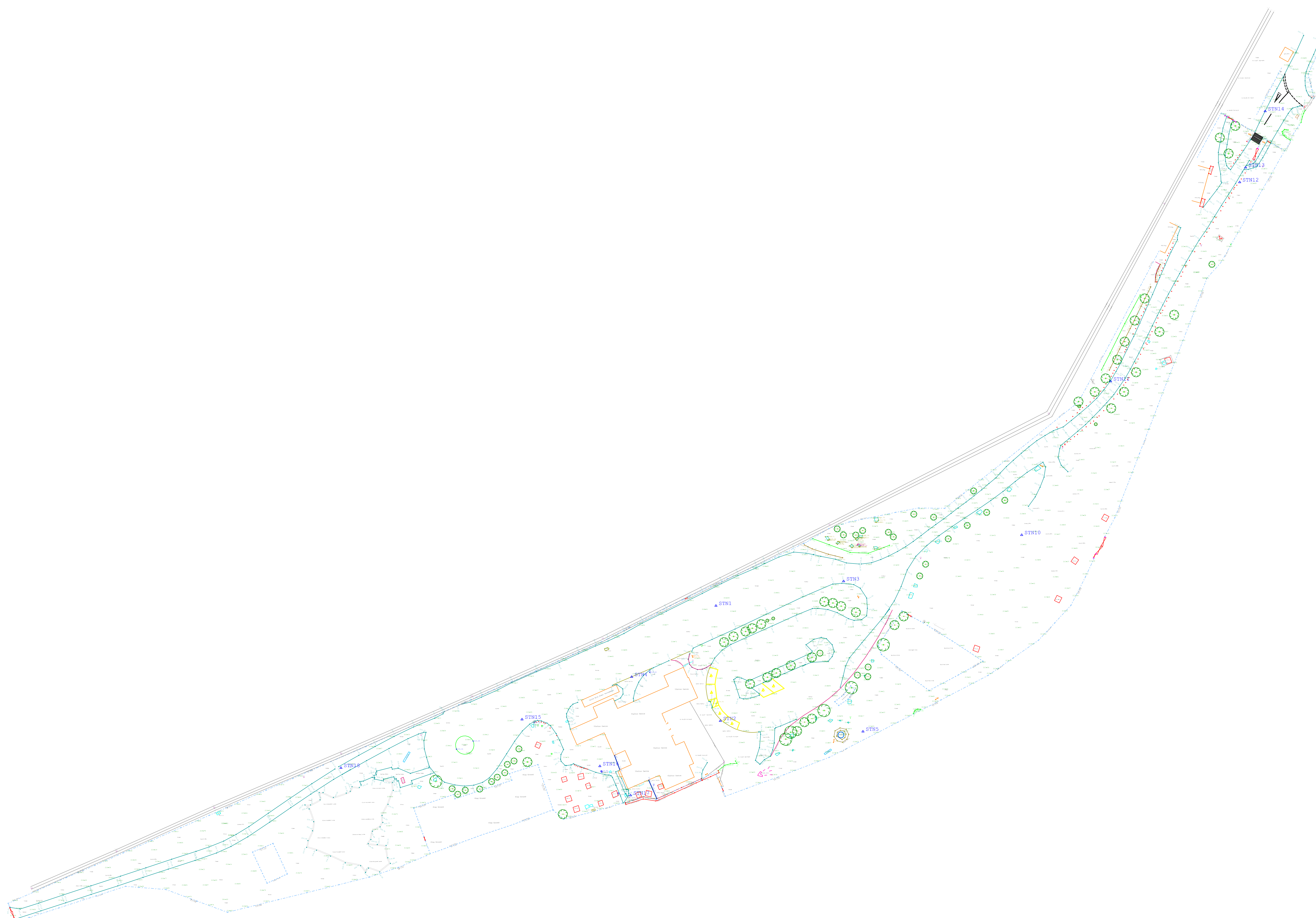
PLOT STATUS:	FINAL	DATE:	16-08-2024
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DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
AM	AW	MW	1:5000

PLOT NAME:	REVISION:
15953_Aerial_Plan	-



Appendix B Topographical Information



- NOTES:**
1. All dimensions in meters unless stated.
 2. This drawing is copyright and its use or reproduction without the permission of PDS Ltd is prohibited.
 3. Due to unavoidable inaccuracies during the reproduction process these drawings should not be scaled where dimensions are critical.
 4. PDS Ltd should be requested to confirm dimensions based on survey information, scales appearing at the base of the drawing are for indicative purpose only.
 5. All dimensions & particulars should be checked on site. Any discrepancies should be reported to PDS Ltd before any work commences on site.
 6. Station data has been obtained via GIS Network cover and converted into permanent datum's this should not be tied into any other survey unless datum's are confirmed by PDS Ltd.
 7. No CAT Tracing of Gravity sewers has been completed.
 8. No invert levels of chambers was required.
 9. No detail close to the entrance of the visitor centre was carried out as this was not required.

Legend

B	Bollard
BB	Bellisha Beacon
BB	Borehole
BT	British Telecom cover
B/W	Barbed Wire
CMTV	Cable Television cover
C/B	Close Boarded
C/L	Chain Link
CL	Cover Level
CH	Ceiling Height
Conc.	Concrete
C/P	Chestnut Palling
DK	Drop Kerbs
EL	Eaves Level
Elec.	Electricity Cover
El.Sub.Sta.	Electricity Sub Station
EP	Electricity Pole
ER	Earth Rod
FH	Fire Hydrant
FFL	Floor Level
GD	Gate (Double)
GS	Gate (Single)
Gully	Gully
GV	Gas Valve
IC	Inspection Chamber
IL	Invert Level
KT	Kerb Top
LB	Letter Box
LP	Lamp Post
MH	Manhole
Mkr.	Marker
P/R	Post and Rail
P/W	Post and wire
RE	Rodding Eye
RL	Ridge Level
RG	Road Gully
RK	Retaining Wall
RS	Road Sign
RSD	Roller Shutter Door
RWP	Rain Water Pipe
ST	Stop Tap
SV	Stop Valve
SV	Soil & Vent Pipe
SW	Surface Water Sewer
Survey Station	Survey Station
TS	Top of Steel
TL	Traffic Light
TP	Telegraph Pole
UTL	Unable To Lift
WL	Water level
WM	Water Meter
WO	Wash out
Bank (top/bottom)	Bank (top/bottom)
Tree Canopy	Fence
Change of Surface	Kerbs
Overhead line	Wall
Edge of Hedge	Approximate Line of Detail
	Verge
	Building Line

Rev	Date	By	Description

Drawing Status: **FINAL**

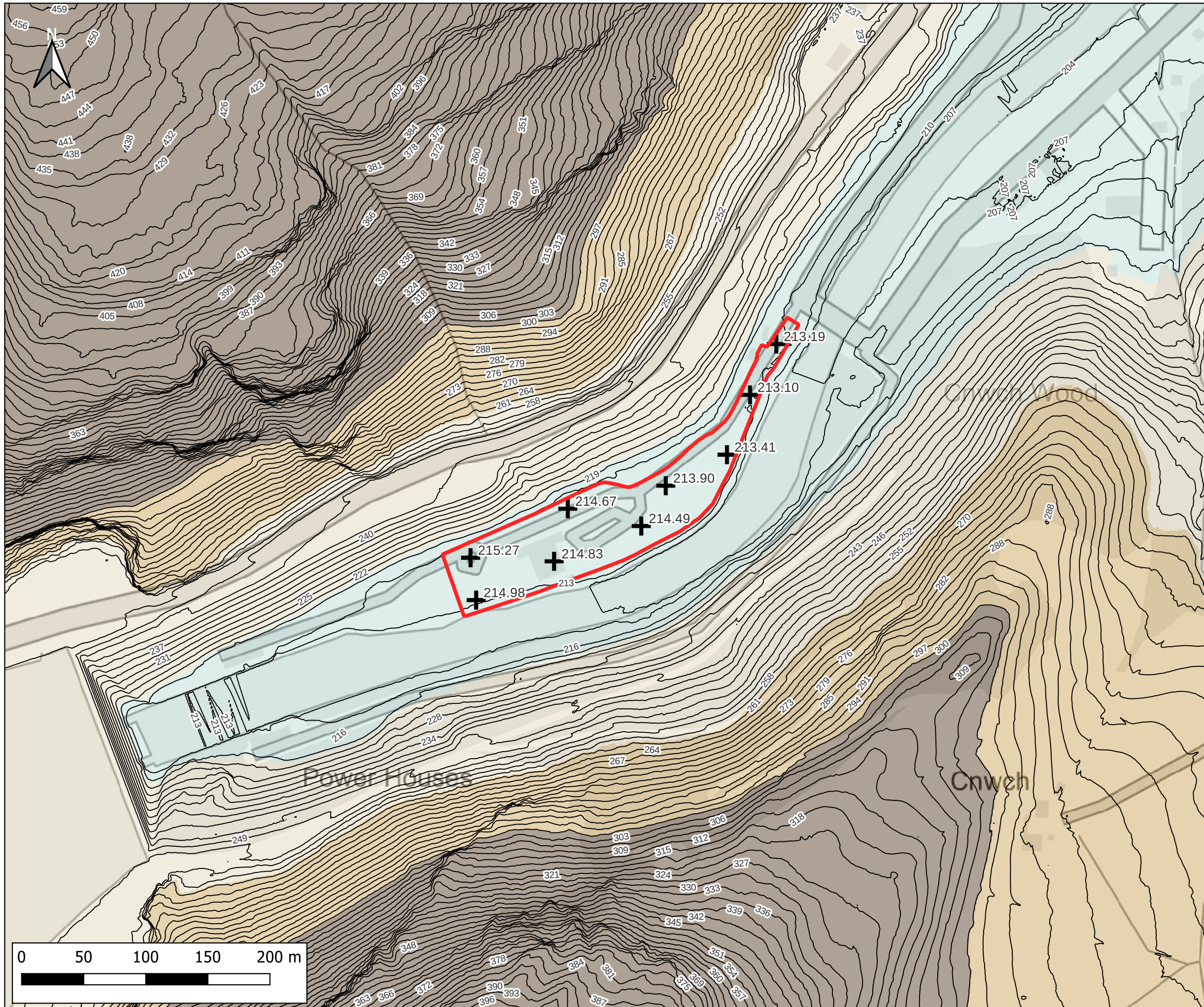


Job Title
Elan Valley Visitor Centre
Elan Valley

Drawing Title
Topographical Survey

PDS Ltd
 Company No. CF83 15Y
 Tel. 07791 78899

Consultants	DCWW	Originator	LH
Scale	1:500	Checked	LH
Checked	LH	Approved	LH
Drawn	LH	Date	09/03/2019
SET Scheme No.		Drawing No.	001
		Rev	R00



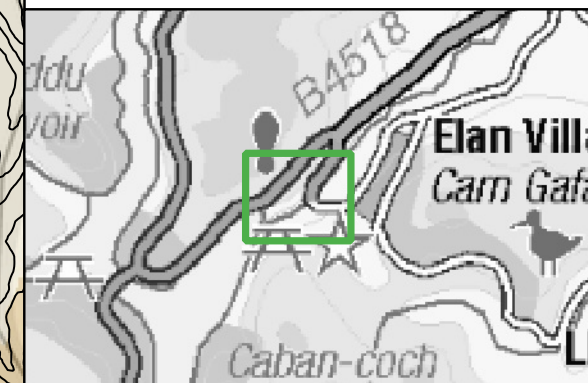
Notes:
 1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise


LEGEND

- Site Boundary
- + Site Levels (m AOD)

Ground Elevations (m AOD)

- ≤ 180
- 195 - 197
- 220 - 260
- 260 - 300
- > 358



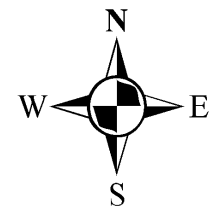
CLIENT:			
Dŵr Cymru Welsh Water			
 www.waterco.co.uk			
SCHEME:			
Elan Valley Visitor Centre, Rhayader			
PLOT TITLE:			
LiDAR Plan 1m Resolution Data from Natural Resources Wales			
PLOT STATUS:			DATE:
FINAL			16-08-2024
DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
AM	AW	MW	1:3000
PLOT NAME:			REVISION:
15953_LiDAR_Plan			-

Appendix C DCWW Sewer Plan



Dŵr Cymru
Welsh Water

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LEGEND (Representative of most common features)

- Gravity Sewer
 - Rising Main
 - Sluice Valve
 - Outfall
 - Air Valve SINGLE
 - Pumping Station
 - Tap
 - Lamphole
 - Pressure Reducing Valve
 - Combined Sewer Overflow
 - Special Purpose Chamber
 - Meter
 - Treatment Works
 - Bulk Meter
 - Private Sewer Transfer
 - Fire Hydrant
 - Lateral Drain
 - Cap
 - Inspection Chamber
 - Non Dwr Cymru
 - Existing Distribution Main
- NB: Sewer symbol colour indicates the sewer type.
 RED - Combined
 GREEN - Surface Water
 BROWN - Foul

Notes:

--- Type notes here ---
--- Remembering to manually add line breaks ---

Whilst every reasonable effort has been taken to correctly record the pipe material of DCWW assets there is a possibility that in some cases pipe material (other than Asbestos Cement or Pitch Fibre) may be found to be asbestos cement (AC) or Pitch Fibre (PF). It is therefore advisable that the possible presence of AC or PF pipes be anticipated and considered as part of any risk assessment prior to excavation

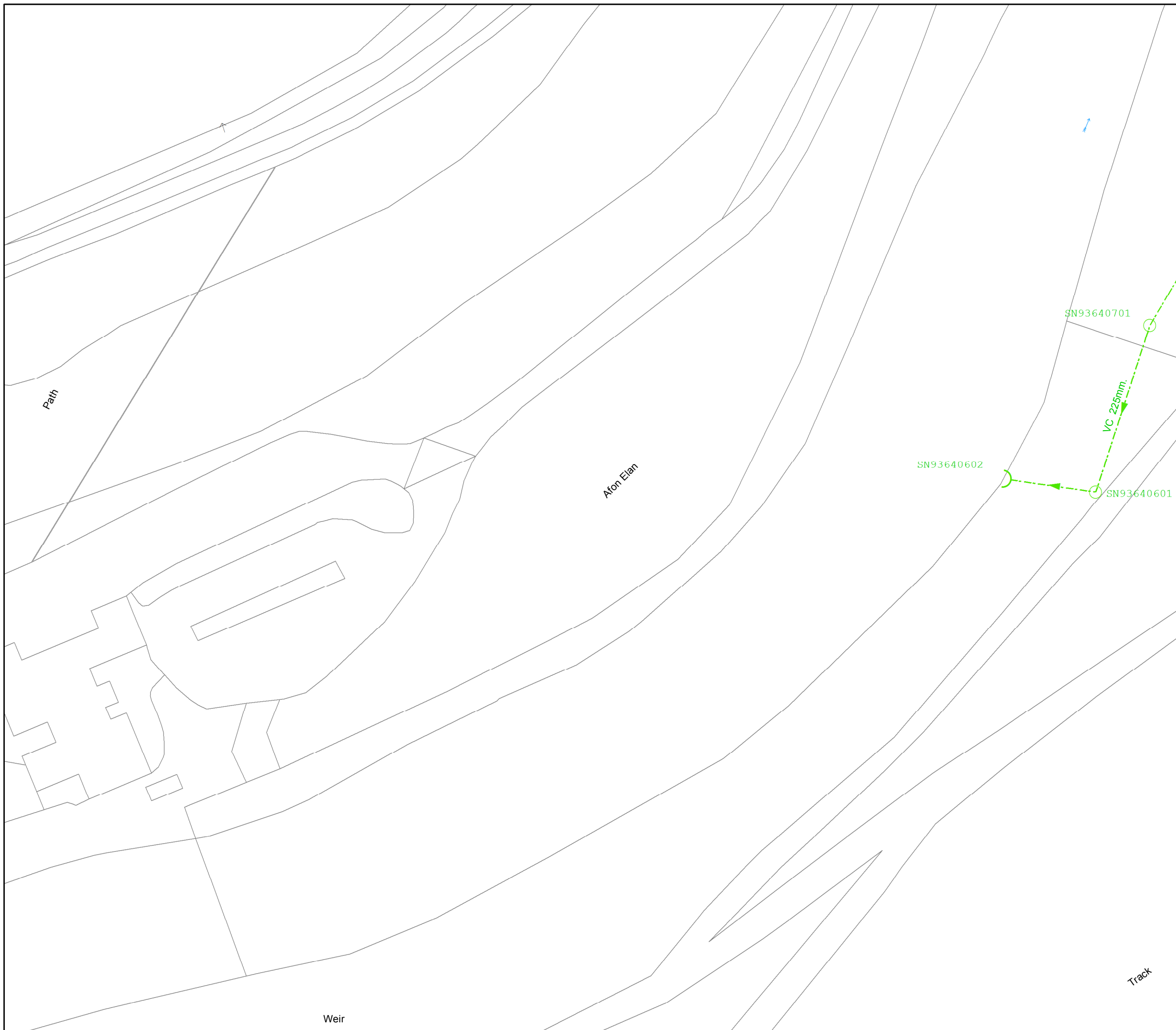
Dŵr Cymru Cyfyngedig (the Company) gives this information as to the position of its underground apparatus by way of general guidance only and on the strict understanding that it is based on the best information available and no warranty as to its correctness is relied upon in the event of excavations or other works made in the vicinity of the company's apparatus. The onus of locating apparatus before carrying out any excavations rests entirely on you. The information which is supplied by the Company, is done so in accordance with statutory requirements of sections 196 and 199 of the Water Industry Act 1991 which is based upon the best information available and, in particular, but without prejudice to the generality of the foregoing, it should be noted that the records that are available to the Company may not disclose the existence of a water main, service pipe, sewer, lateral drain or disposal main and any associated apparatus laid before 1 September 1989, or, if they do, the particulars thereof including their position underground may not be accurate. It must be understood that the furnishing of this information is entirely without prejudice to the provision of the New Roads and Street Works Act 1991 and the Company's right to be compensated for any damage to its apparatus.

Service pipes are not generally shown but their presence should be anticipated.

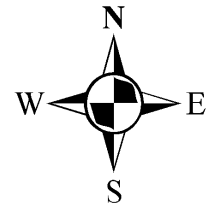
EXACT LOCATIONS OF ALL APPARATUS TO BE DETERMINED ON SITE.

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Map Ref: 292,913, 264,665
Map scale: 1:750
Printed by: C002424
Printed on: 04/10/2018



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LEGEND (Representative of most common features)

	Gravity Sewer
	Rising Main
	Outfall
	Pumping Station
	Lamphole
	Combined Sewer Overflow
	Special Purpose Chamber
	Treatment Works
	Fire Hydrant
	Pressure Reducing Valve
	Meter
	Air Valve SINGLE
	Tap
	Sluice Valve
	Bulk Meter
	Cap
	Non Dwr Cymru Existing Distribution Main
	Private Sewer Transfer
	Lateral Drain
	Inspection Chamber

NB: Sewer symbol colour indicates the sewer type.
RED - Combined
GREEN - Surface Water
BROWN - Foul

Notes:

--- Type notes here ---
--- Remembering to manually add line breaks ---

Whilst every reasonable effort has been taken to correctly record the pipe material of DCWW assets there is a possibility that in some cases pipe material (other than Asbestos Cement or Pitch Fibre) may be found to be asbestos cement (AC) or Pitch Fibre (PF). It is therefore advisable that the possible presence of AC or PF pipes be anticipated and considered as part of any risk assessment prior to excavation

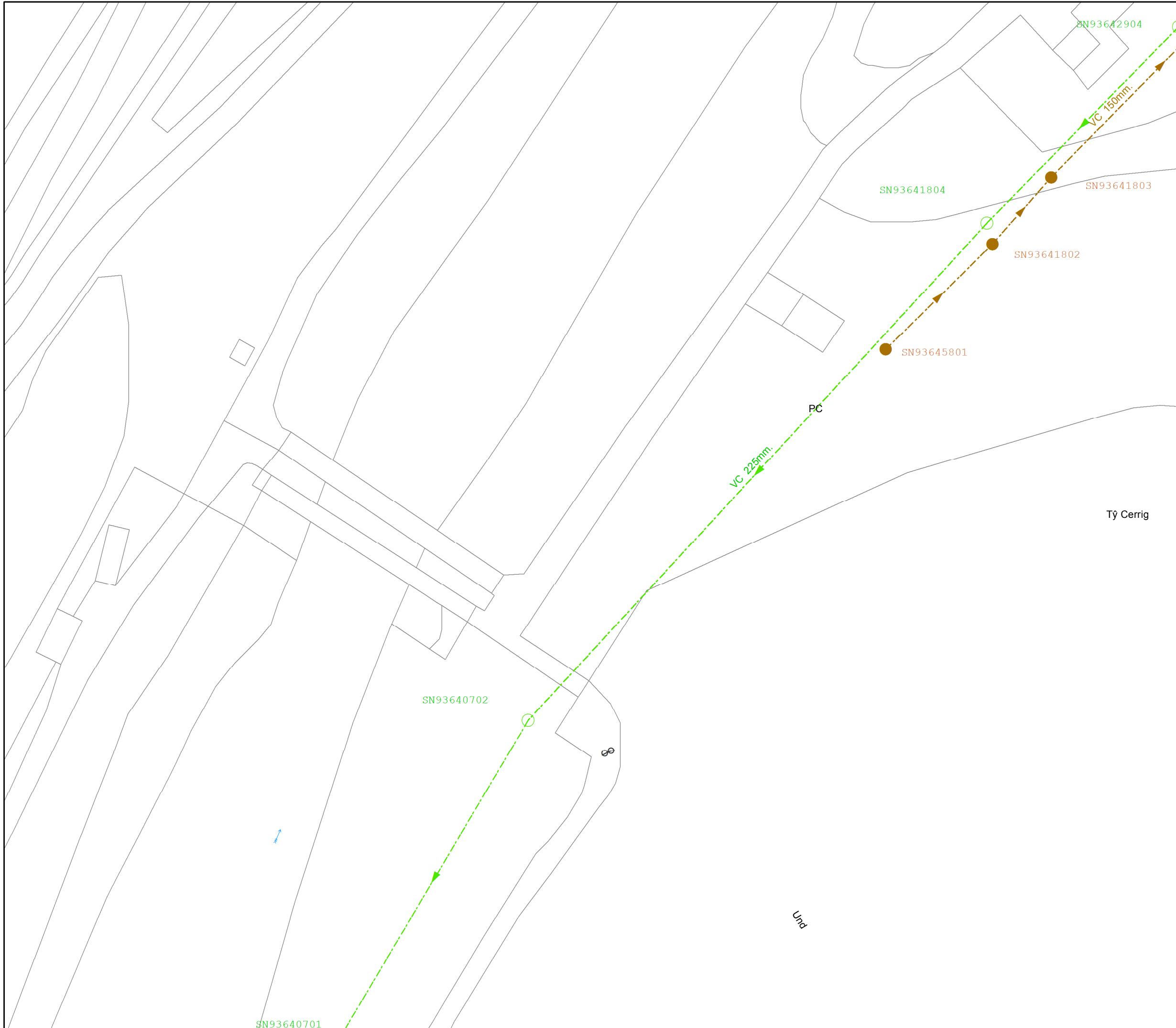
Dŵr Cymru Cyfyngedig (the Company) gives this information as to the position of its underground apparatus by way of general guidance only and on the strict understanding that it is based on the best information available and no warranty as to its correctness is relied upon in the event of excavations or other works made in the vicinity of the company's apparatus. The onus of locating apparatus before carrying out any excavations rests entirely on you. The information which is supplied by the Company, is done so in accordance with statutory requirements of sections 196 and 199 of the Water Industry Act 1991 which is based upon the best information available and, in particular, but without prejudice to the generality of the foregoing, it should be noted that the records that are available to the Company may not disclose the existence of a water main, service pipe, sewer, lateral drain or disposal main and any associated apparatus laid before 1 September 1989, or, if they do, the particulars thereof including their position underground may not be accurate. It must be understood that the furnishing of this information is entirely without prejudice to the provision of the New Roads and Street Works Act 1991 and the Company's right to be compensated for any damage to its apparatus.

Service pipes are not generally shown but their presence should be anticipated.

EXACT LOCATIONS OF ALL APPARATUS TO BE DETERMINED ON SITE.

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Map Ref: 293,081, 264,813
Map scale: 1:750
Printed by: C002424
Printed on: 04/10/2018

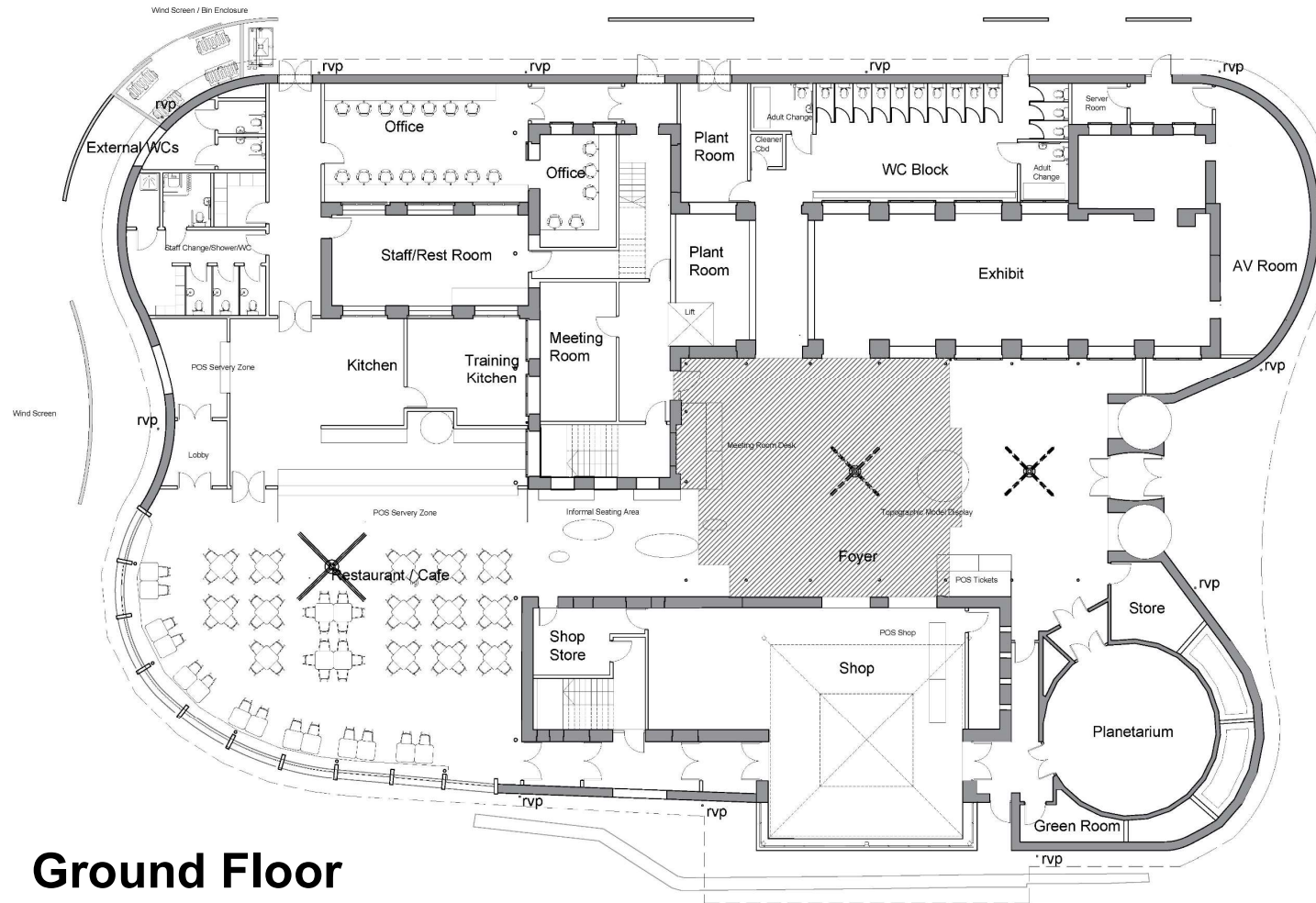


Appendix D Proposed Development Plans

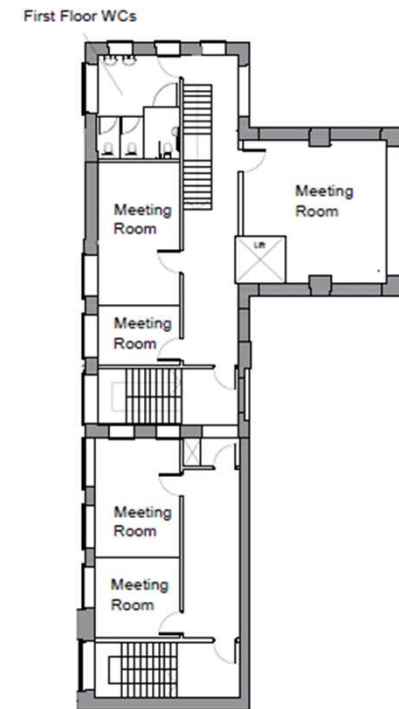


reimagining • redefining • realising • rebalancing

Design Process – Pre-Application Proposals (Ground and First Floor Plans)



Ground Floor

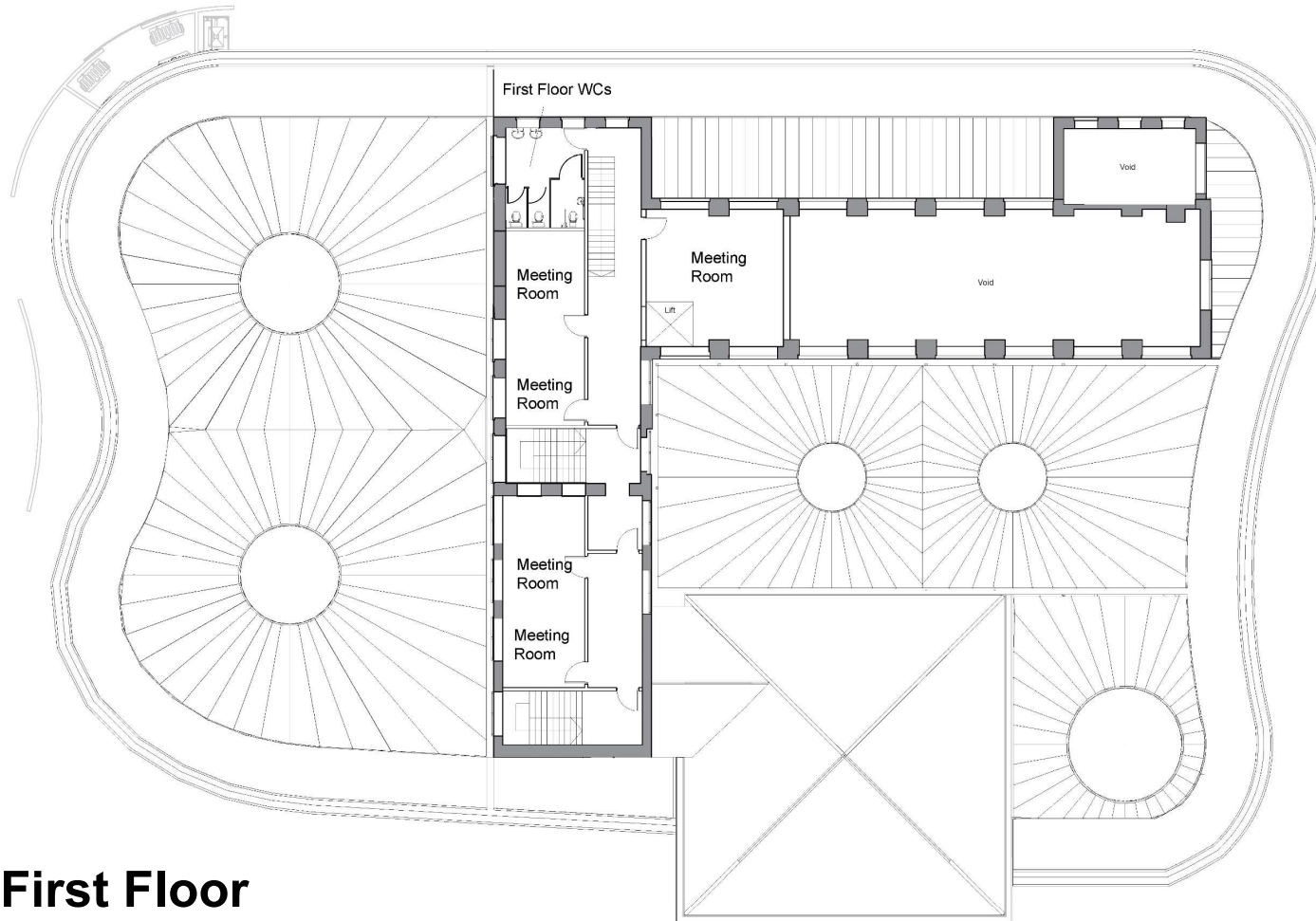


First Floor

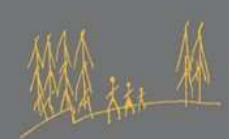


reimagining • redefining • realising • rebalancing

Design Process – Pre-Application Proposals (First Floor Plans)

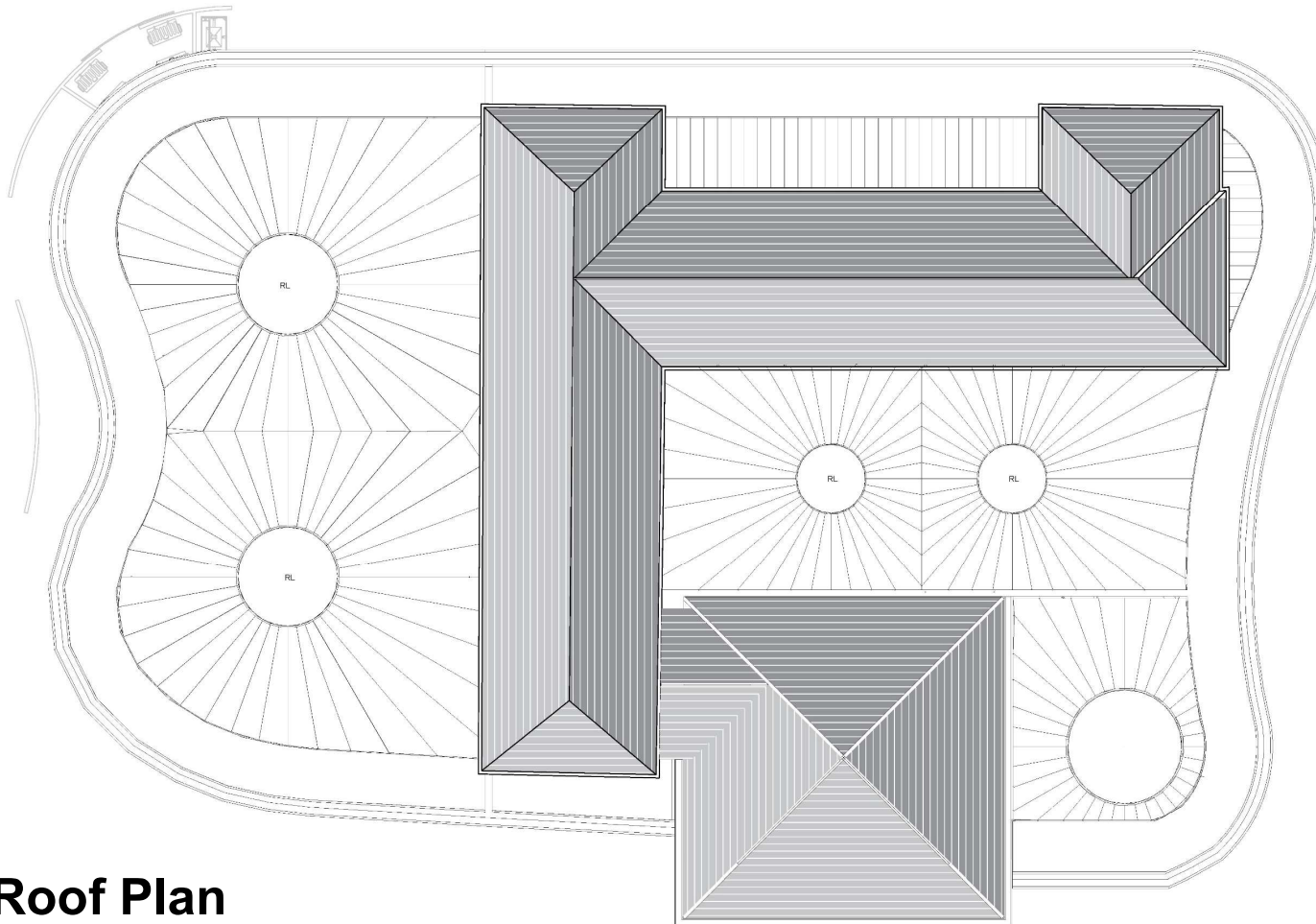


First Floor

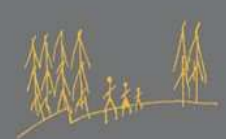


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Design Process – Pre-Application Proposals (Roof Plan)

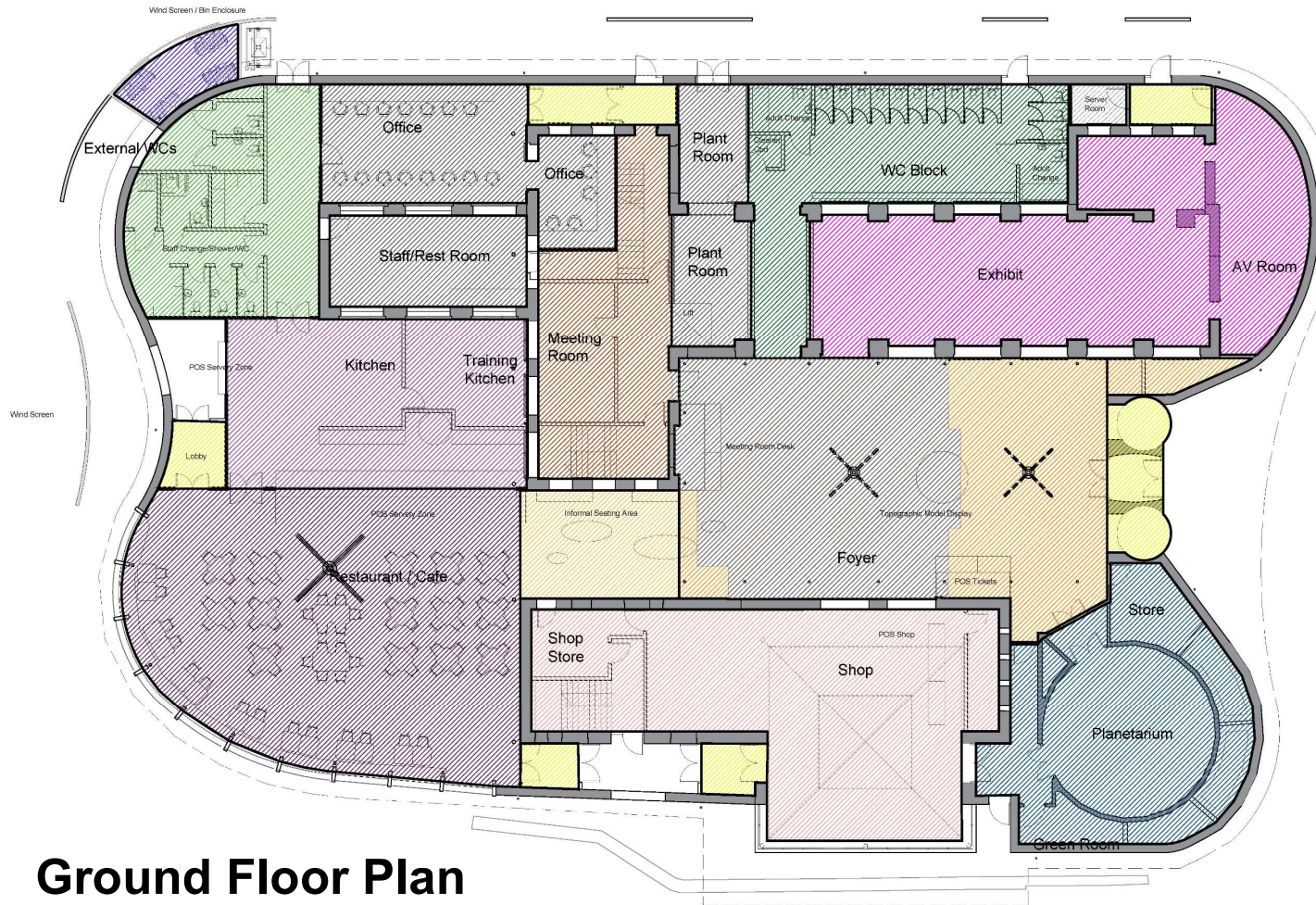


Roof Plan

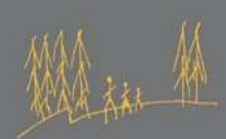


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Design Process – Pre-Application Proposals (Use Plan and GIA Analysis)

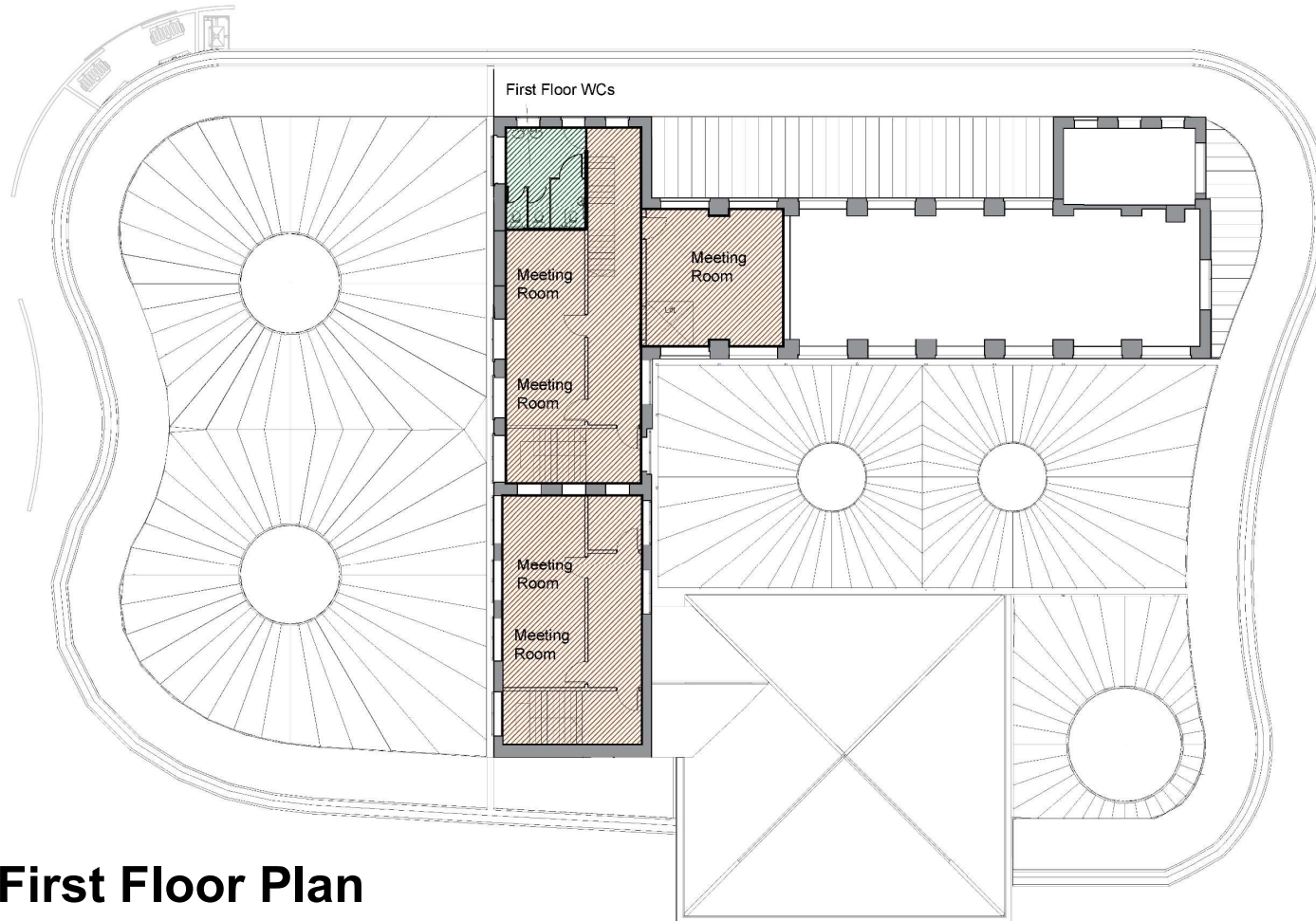


Ground Floor Plan

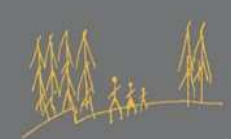


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Design Process – Pre-Application Proposals (Use Plan and GIA Analysis)



First Floor Plan



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Design Process – Pre-Application Proposals (Uses and Areas)

Elan Valley Visitor Centre

Preliminary Gross Internal Area (GIA) Schedule

rev: C
rev. date: 29/07/2024

Proposed Building

	Function / Use	Total GI Area (m2)	Circulation Space (m2)	Note
Ground Floor	Entrance Foyer	225	8	Current storage area shown as "Circulation Space"
	Entrance Lobby	19		
	Planetarium	124	14	Egress corridor shown as "Circulation Space"
	Shop	167	16	Egress corridor shown as "Circulation Space"
	Shop Egress Lobby	7		
	F&B Egress Lobby (towards retail)	5		
	Informal Seating Area	36		
	Exhibit	182		
	Exhibit Egress Lobby	7		
	WC Block	99	16	Access corridor shown as "Circulation Space"
	Plant Room	41		
	Meeting Rooms	79	55	Access corridor /stair zone shown as "Circulation Space"
	Kitchen Zone (Main + Train.)	109		
	F&B Zone (Incl. Servery)	215		
	F&B Egress Lobby (towards play)	8		
	Staff Change + Ext. Toilet	86	27	Access corridor shown as "Circulation Space"
	Staff Rest Room	38		Servery area shown as "Circulation Space"
Office/Meeting Egress Lobby	13			
	Total:	1460 m2		
1. Floor	Meeting Rooms	187	66	Stair landing area and corridor shown as "Circulation Space"
	WCs	16		
	Total:	203 m2		

TOTAL GIA: 1663 m2
NET ADDITIONAL GIA: 965 m2
(TOTAL GIA - TOTAL EXISTING GIA)

N.B. Former external mass structure wall footprints that are encapsulated by new envelope excluded from GIA calculations; sheltered canopy zones at 2no entrance points excluded from GIA calculations



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Design Process – Pre-Application Proposals (Elevations – Eastern and Northern)



2 ELEVATION (FRONT)
NE PROPOSED SCALE 1:100



1 ELEVATION (NORTHERN SIDE)
NW PROPOSED SCALE 1:100





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Design Process – Pre-Application Proposals (Elevations – Southern and Western)



4 ELEVATION (SOUTHERN SIDE)
SE PROPOSED SCALE 1:100



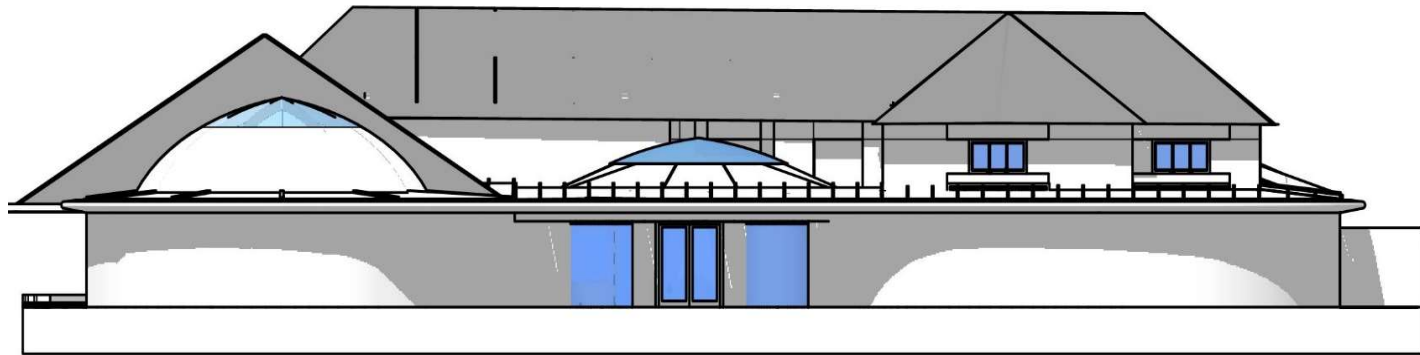
3 ELEVATION (REAR)
SW PROPOSED SCALE 1:100





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Design Process – Pre-Application Proposals (Elevations)

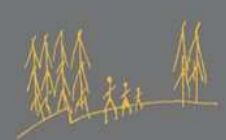


East Elevation

VB TO AMEND

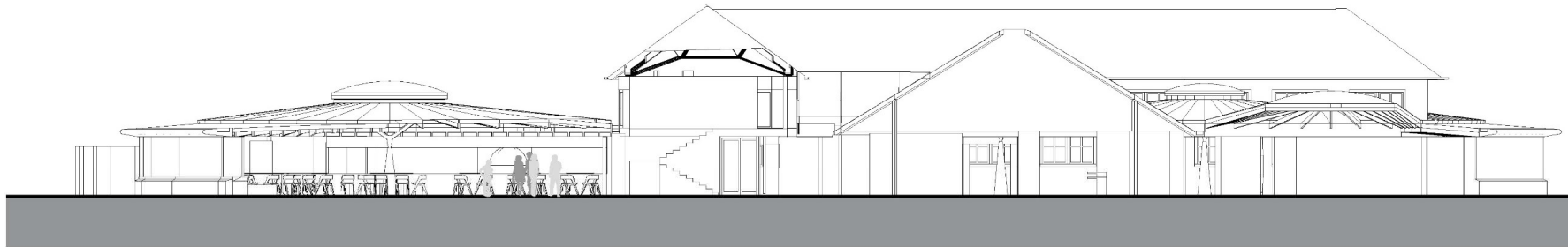


West Elevation



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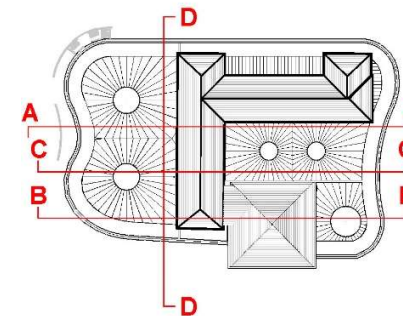
Design Process – Pre-Application Proposals (Sections)



2 SECTION
BB PROPOSED SCALE 1:100



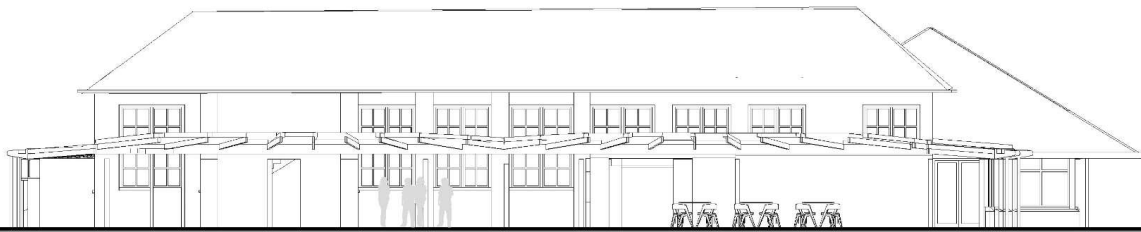
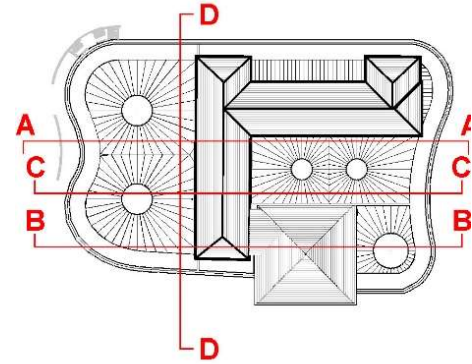
1 SECTION
AA PROPOSED SCALE 1:100



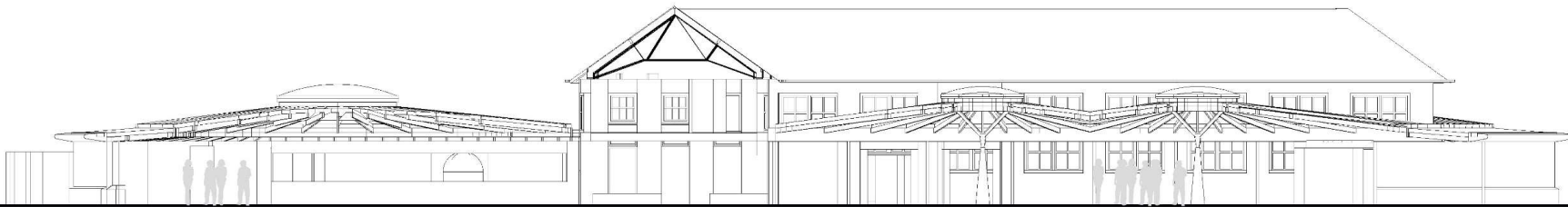


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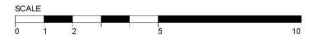
Design Process – Pre-Application Proposals (Sections)



4 SECTION
DD PROPOSED
SCALE 1:100



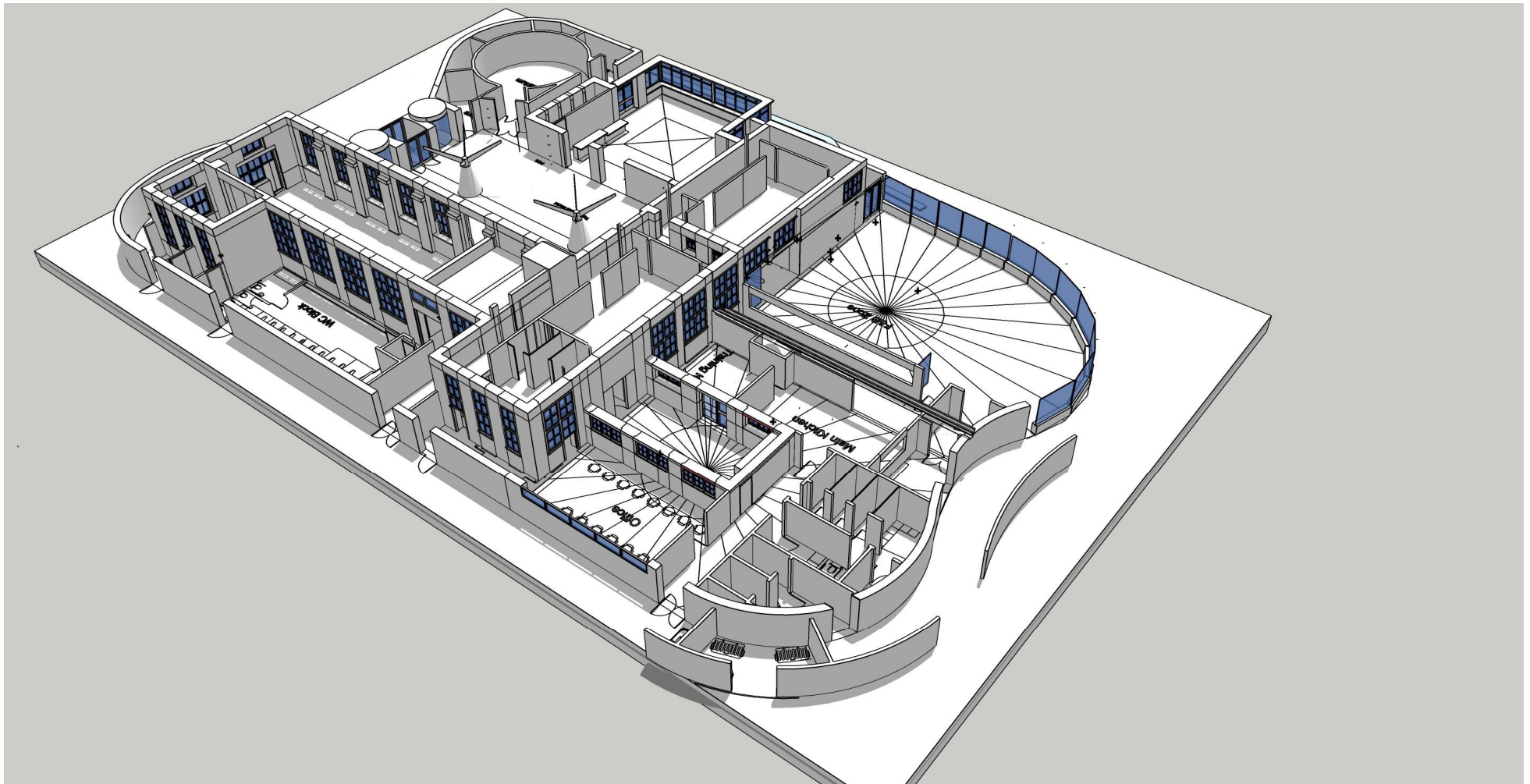
3 SECTION
CC PROPOSED
SCALE 1:100





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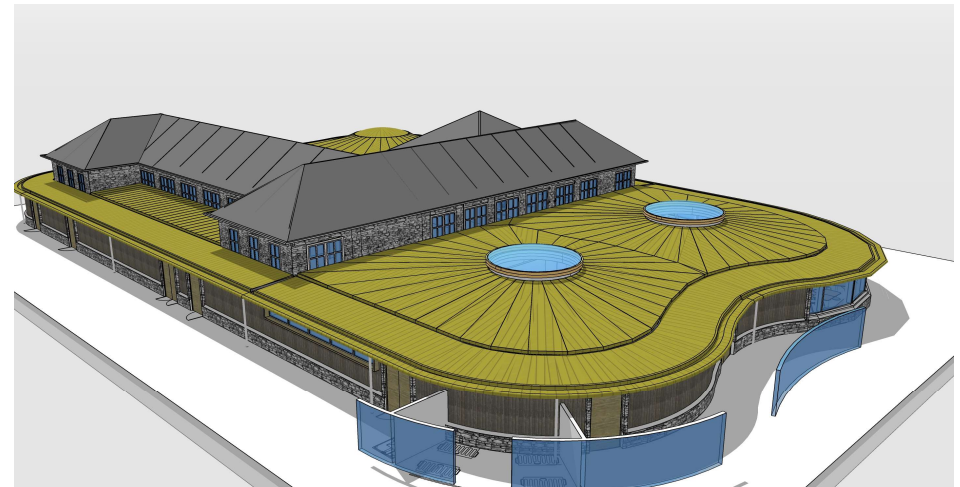
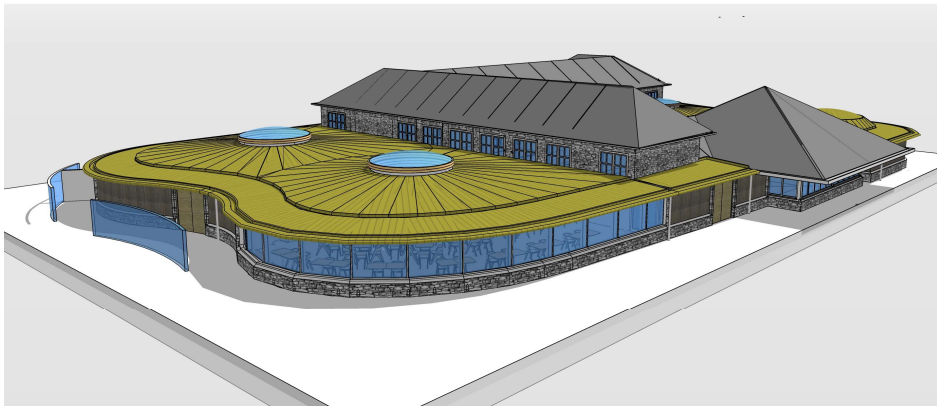
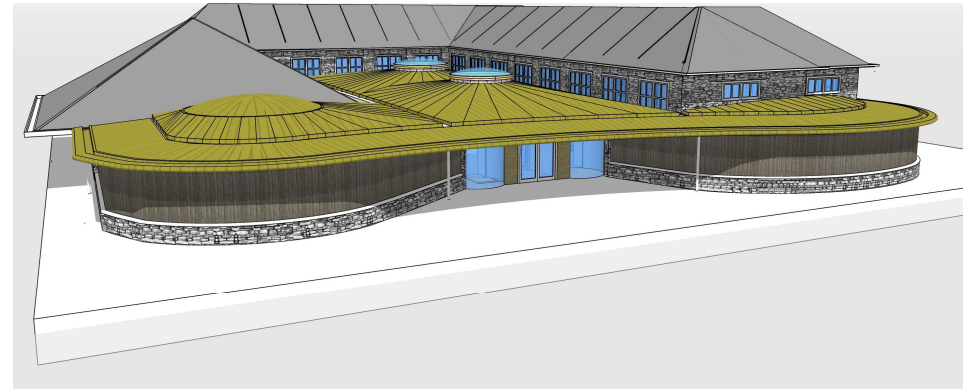
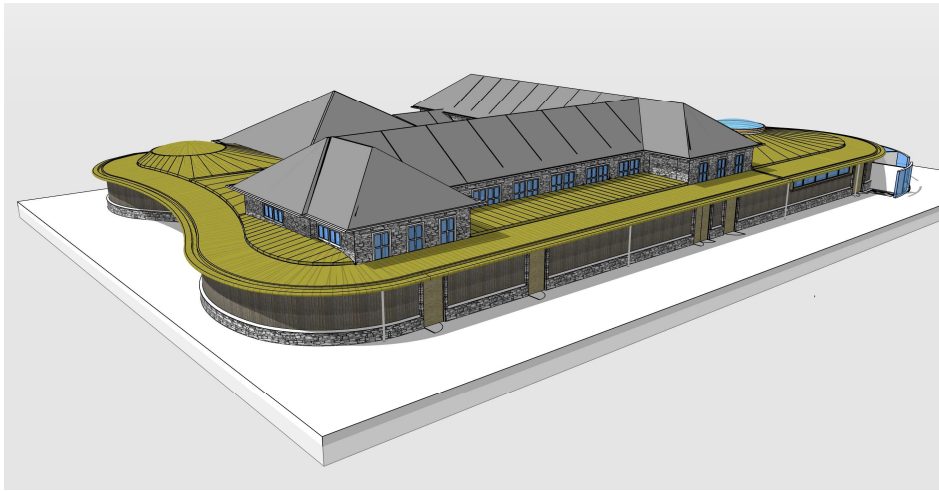
Design Process – Pre-Application Proposals (Aerial View – Roofs Removed)

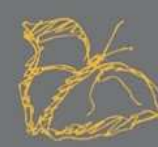




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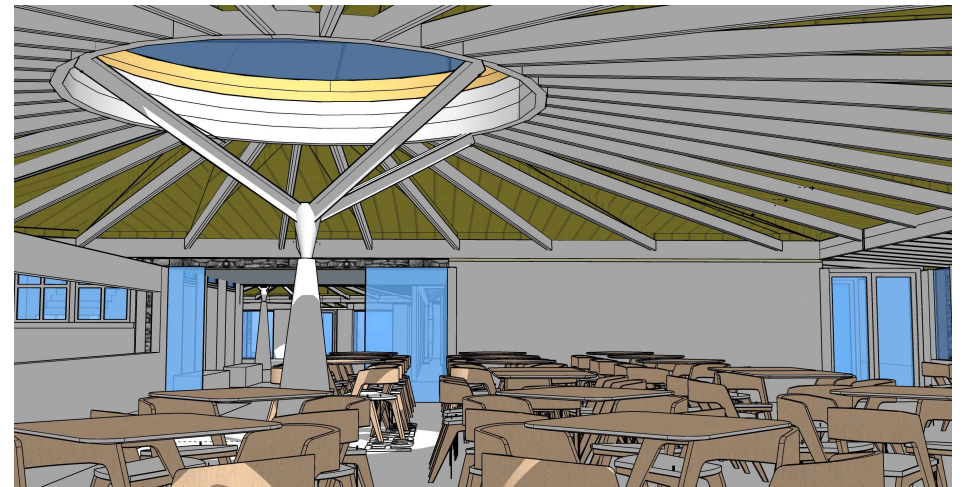
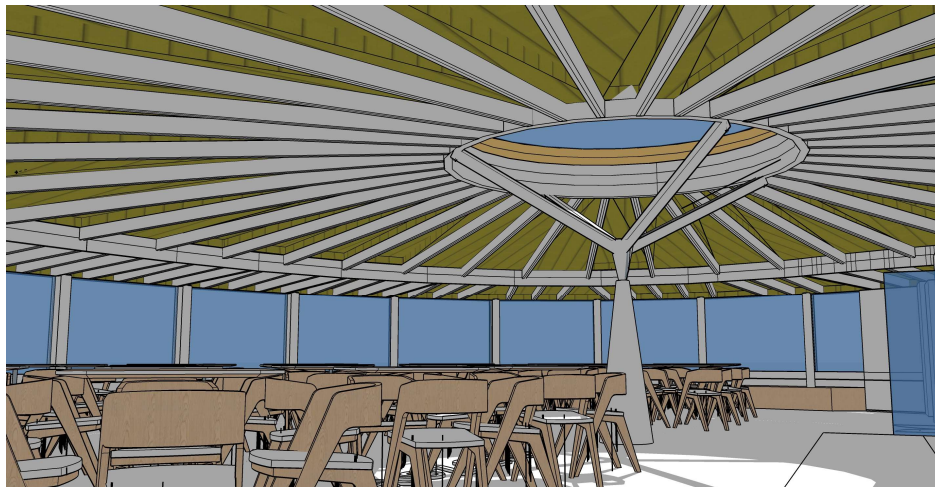
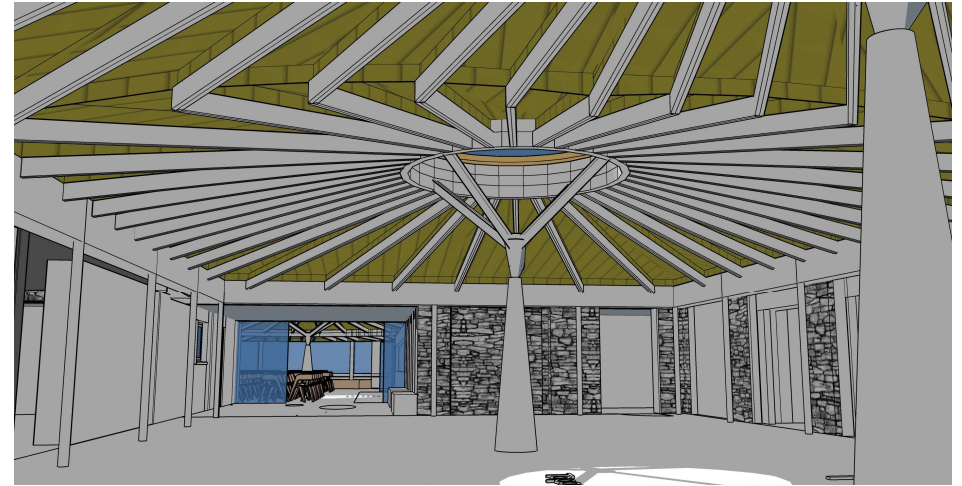
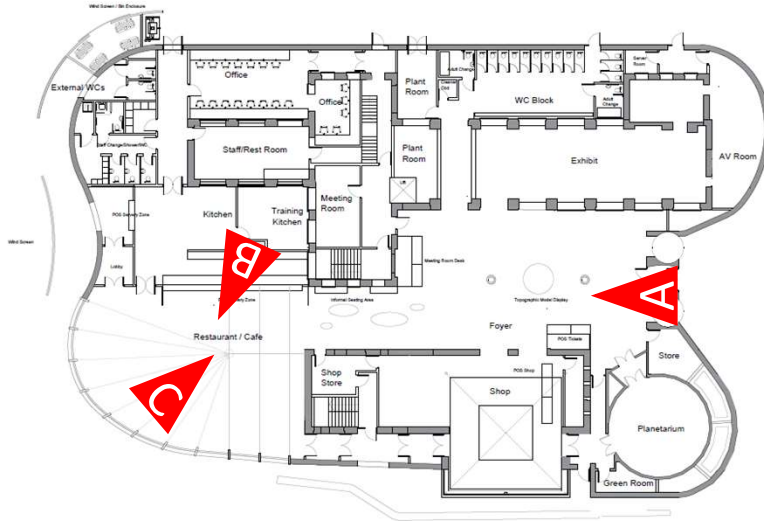
Design Process – Pre-Application Proposals (Aerial View Roof)

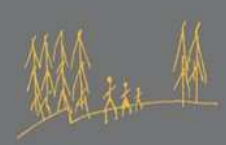




reimagining • redefining • realising • rebalancing

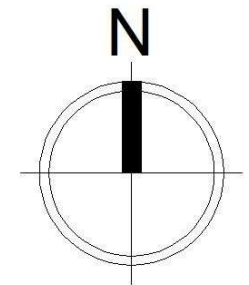
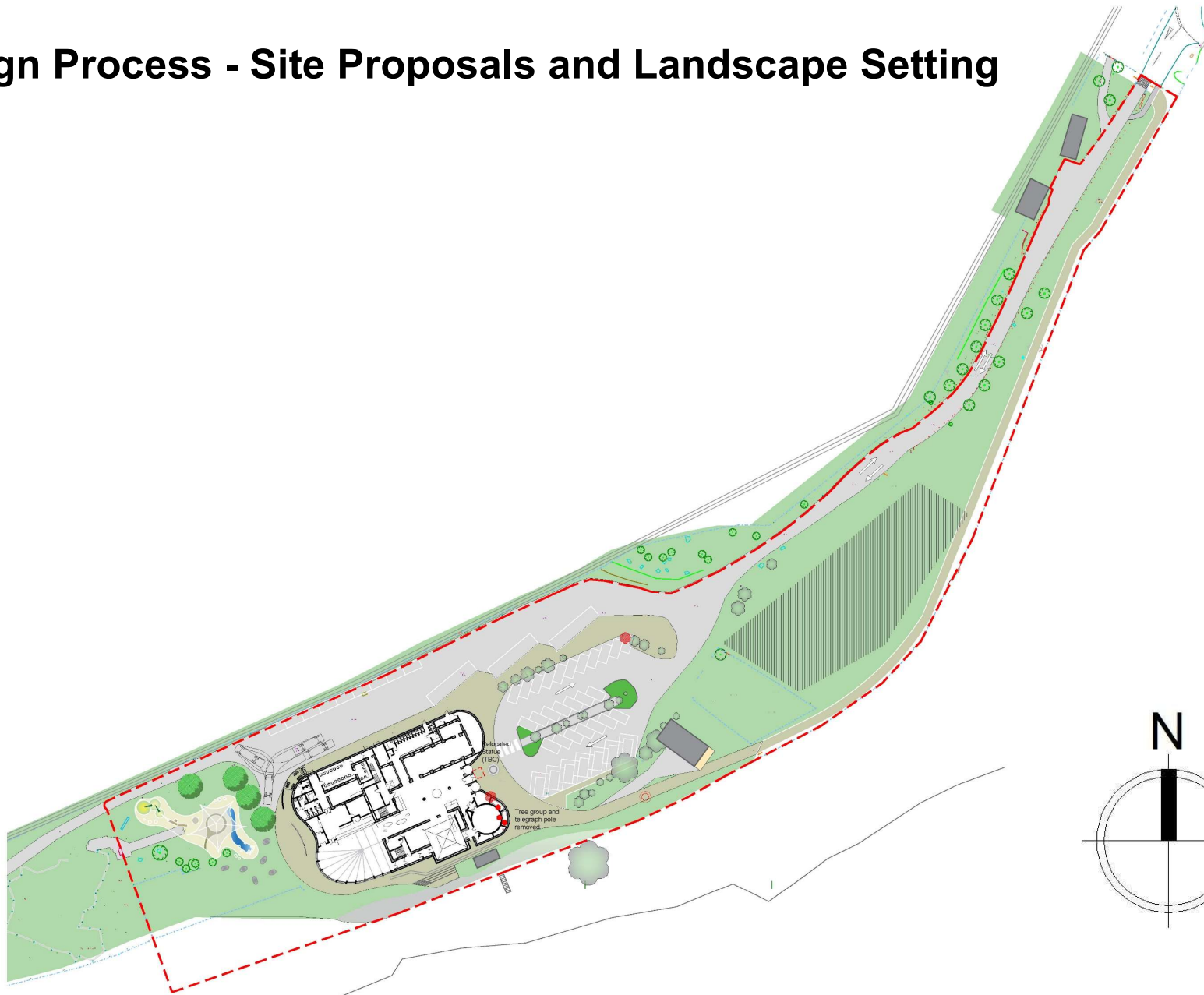
Design Process – Pre-Application Proposals (Primary Internal Views)





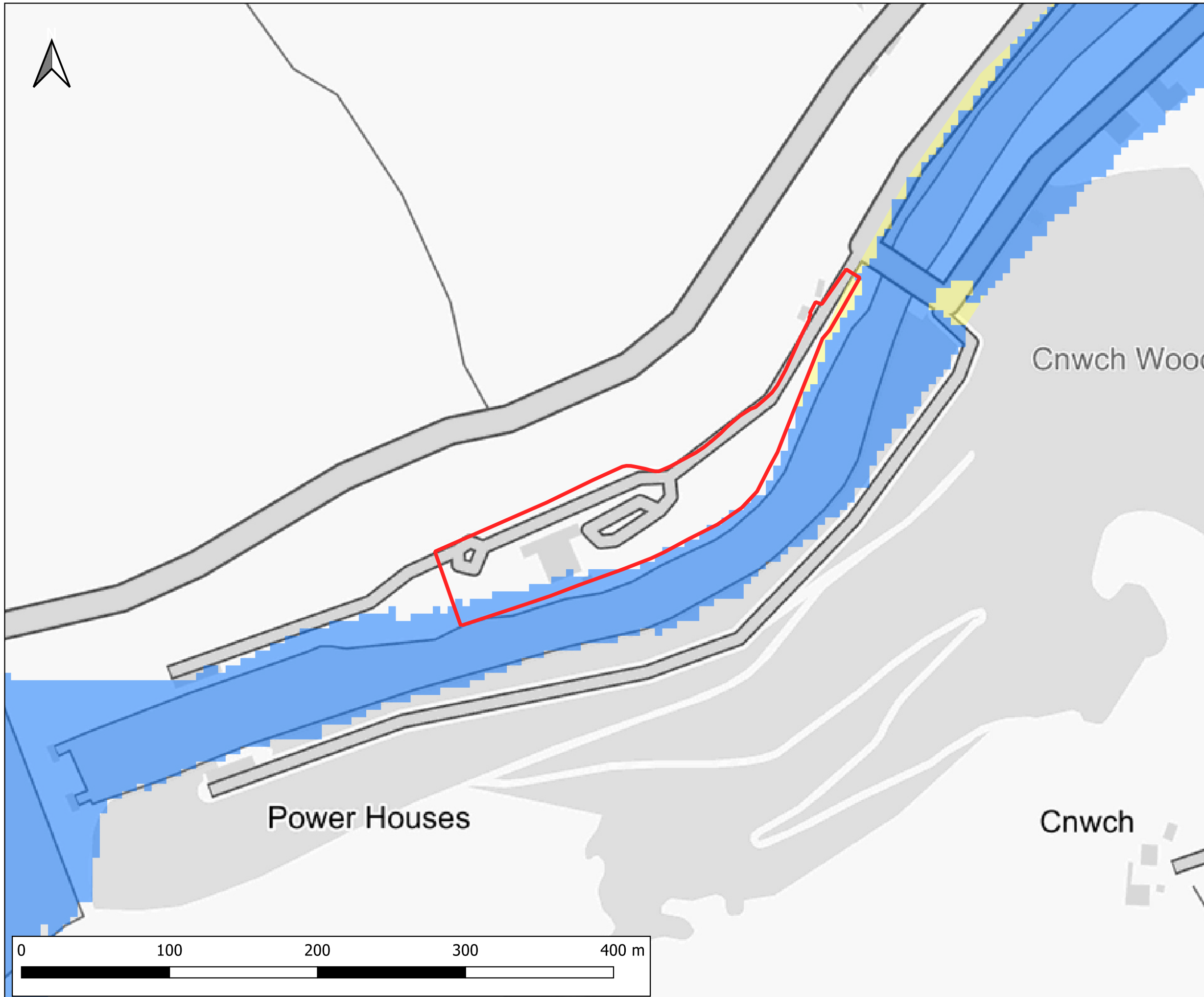
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Design Process - Site Proposals and Landscape Setting



SCALE

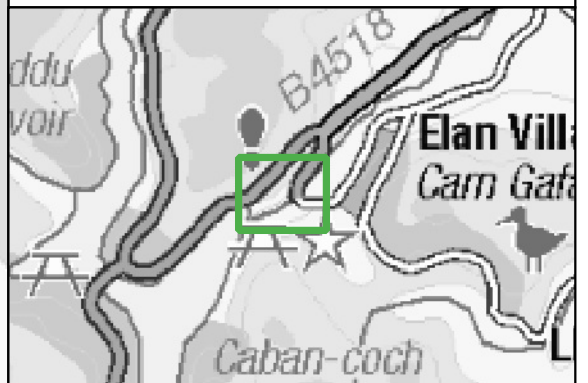
Appendix E NRW Maps & Correspondence



Notes:
 1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Development Advice Map (TAN15)
- Zone A
- Zone B
- Zone C1
- Zone C2



CLIENT:
 Dŵr Cymru Welsh Water



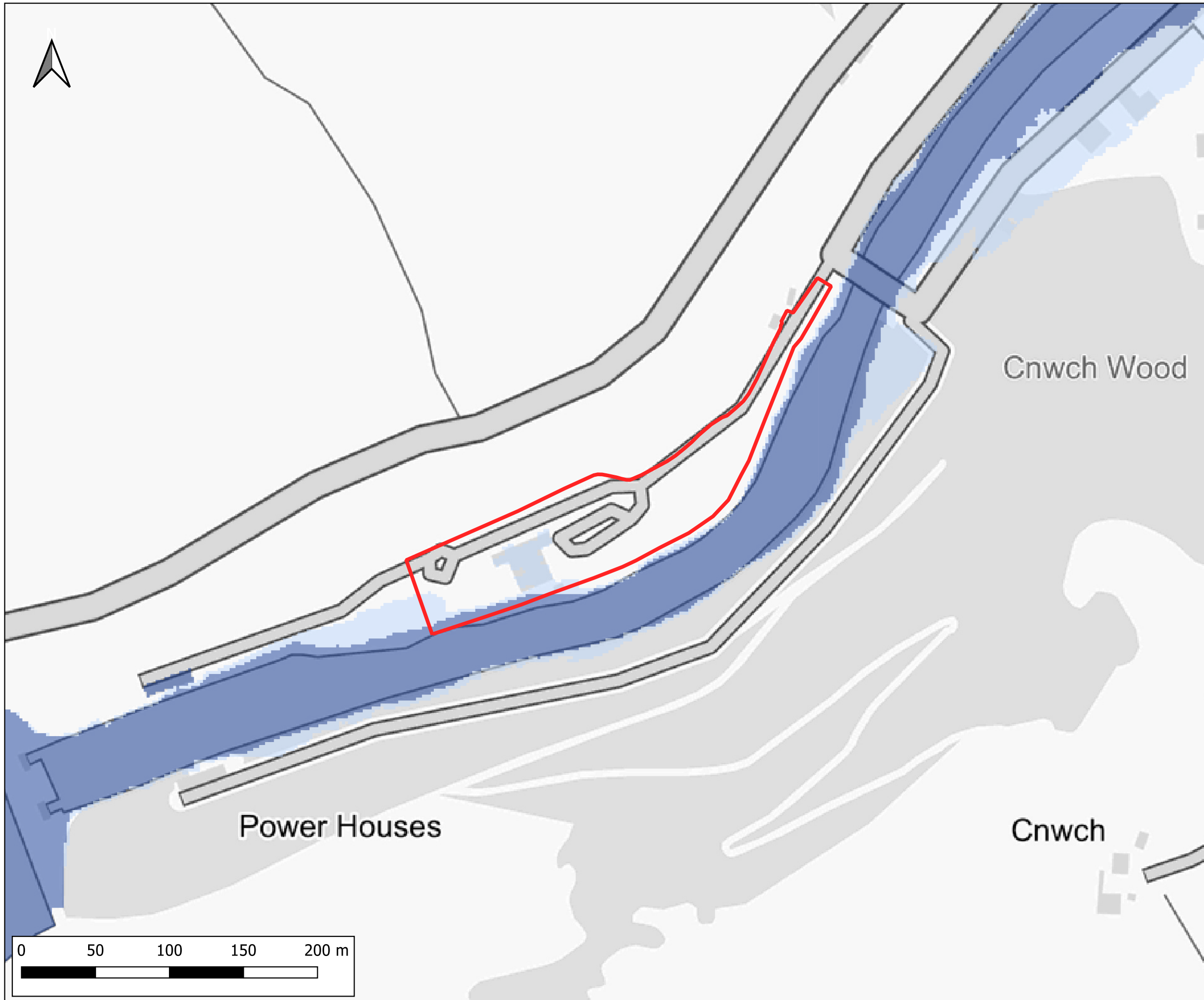
SCHEME:
 Elan Valley Visitor Centre,
 Rhayader

PLOT TITLE:
 NRW Development Advice Map
 Data accessed August 2024

PLOT STATUS: FINAL	DATE: 16-08-2024
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DRAWN: AM	CHECKED: AW	APPROVED: MW	PLOT SCALE AT A3: 1:2500
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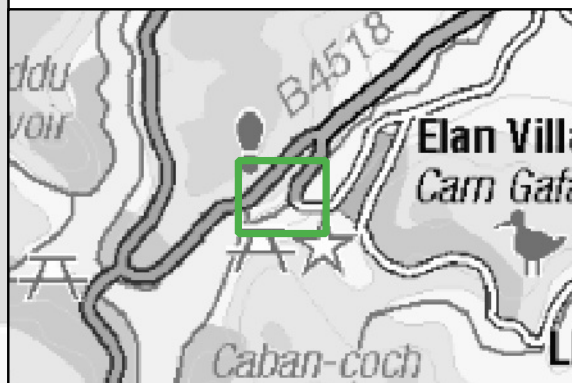
PLOT NAME: 15953_NRW_DAM_Map	REVISION: -
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Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- NRW Flood Map for Planning
- Flood Zone 2
- Flood Zone 3



CLIENT:
Dŵr Cymru Welsh Water



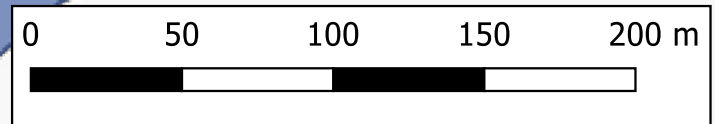
SCHEME:
Elan Valley Visitor Centre, Rhayader

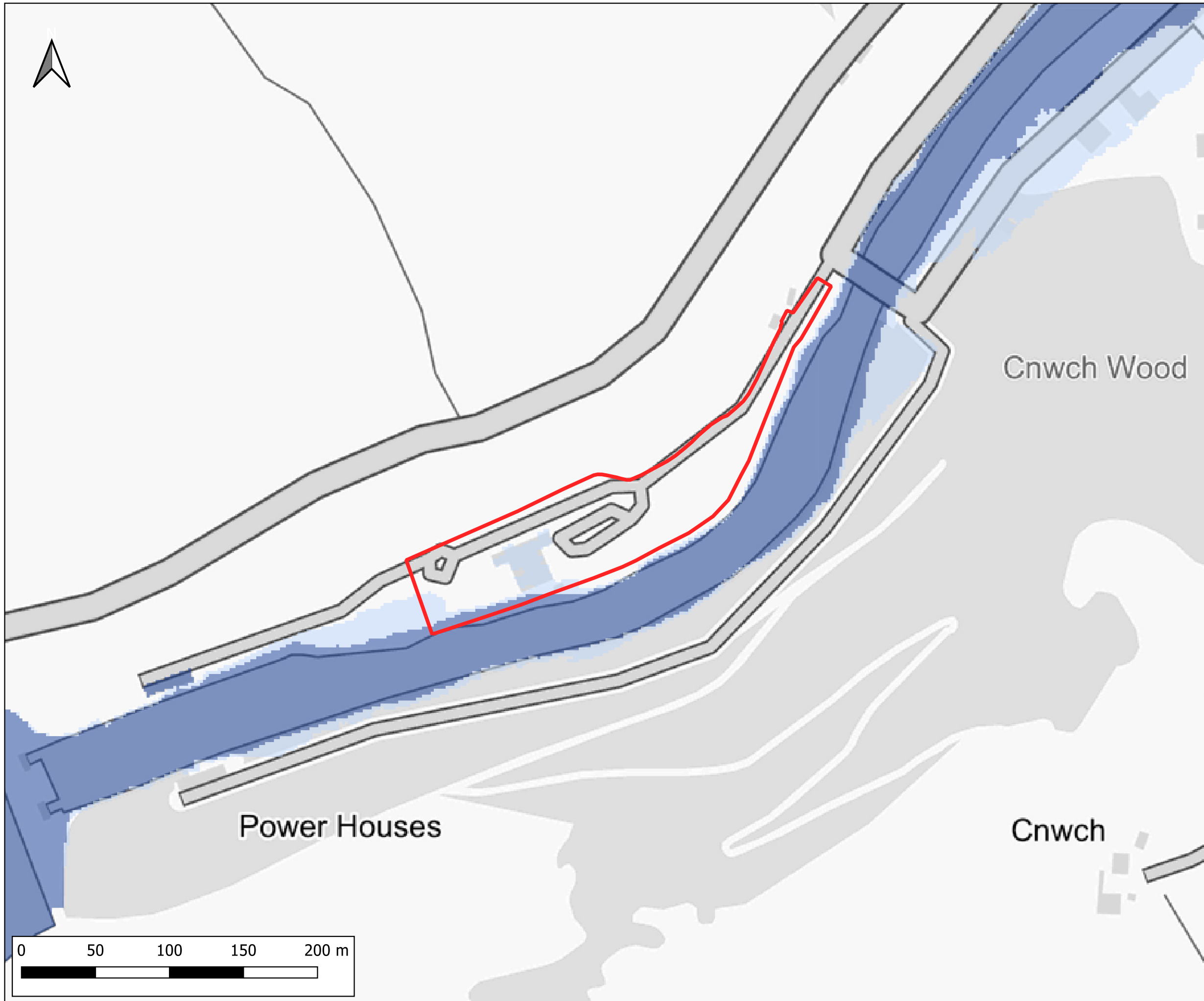
PLOT TITLE:
NRW Flood Map for Planning (Rivers and Sea)

PLOT STATUS: FINAL	DATE: 23-08-2024
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DRAWN: AM	CHECKED: AW	APPROVED: MW	PLOT SCALE AT A3: 1:2500
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PLOT NAME: 15953_NRW_FMfP	REVISION: -
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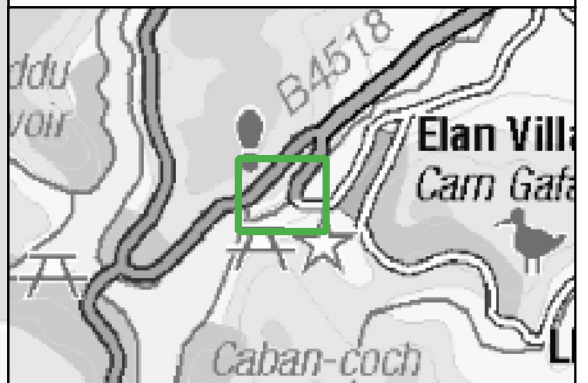




Notes:
 1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Flood Risk from Rivers
- Flood Zone 2
- Flood Zone 3



CLIENT:
 Dŵr Cymru Welsh Water



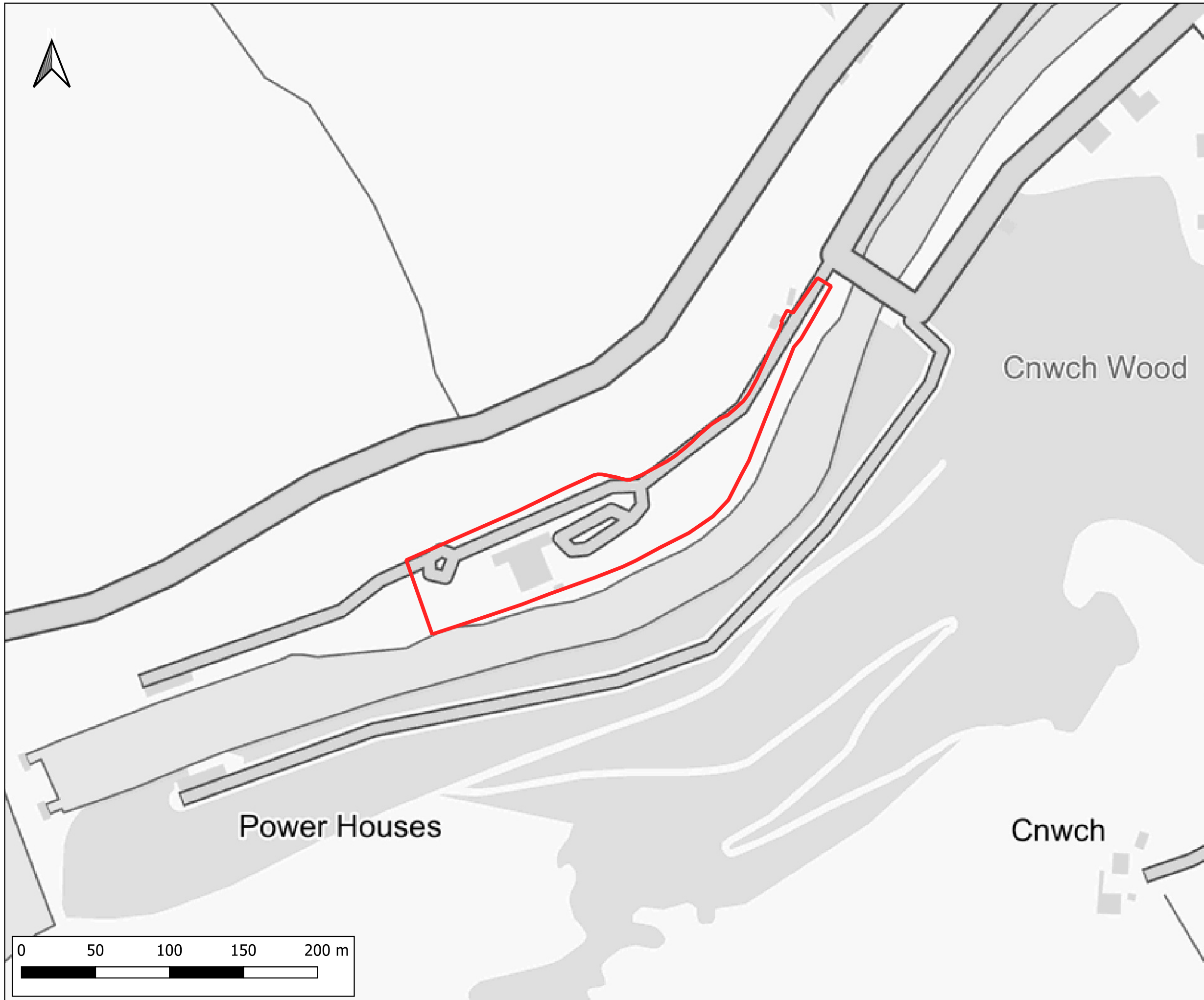
SCHEME:
 Elan Valley Visitor Centre,
 Rhayader

PLOT TITLE:
 NRW River Flood Zones
 Data accessed August 2024

PLOT STATUS: FINAL DATE: 30-08-2024

DRAWN: AM	CHECKED: AW	APPROVED: MW	PLOT SCALE AT A3: 1:2500
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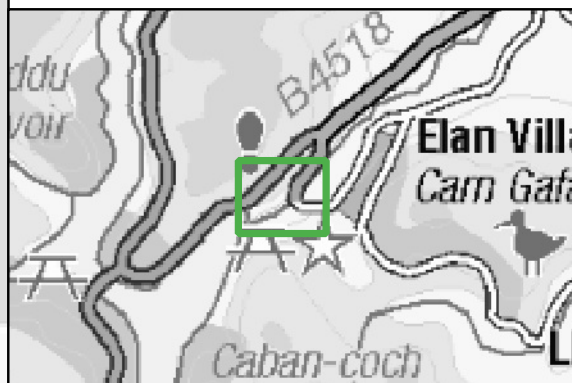
PLOT NAME: 15953_NRW_Rivers	REVISION: -
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Notes:
 1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Flood Risk from the Sea
- Flood Zone 3
- Flood Zone 2



CLIENT:
 Dŵr Cymru Welsh Water



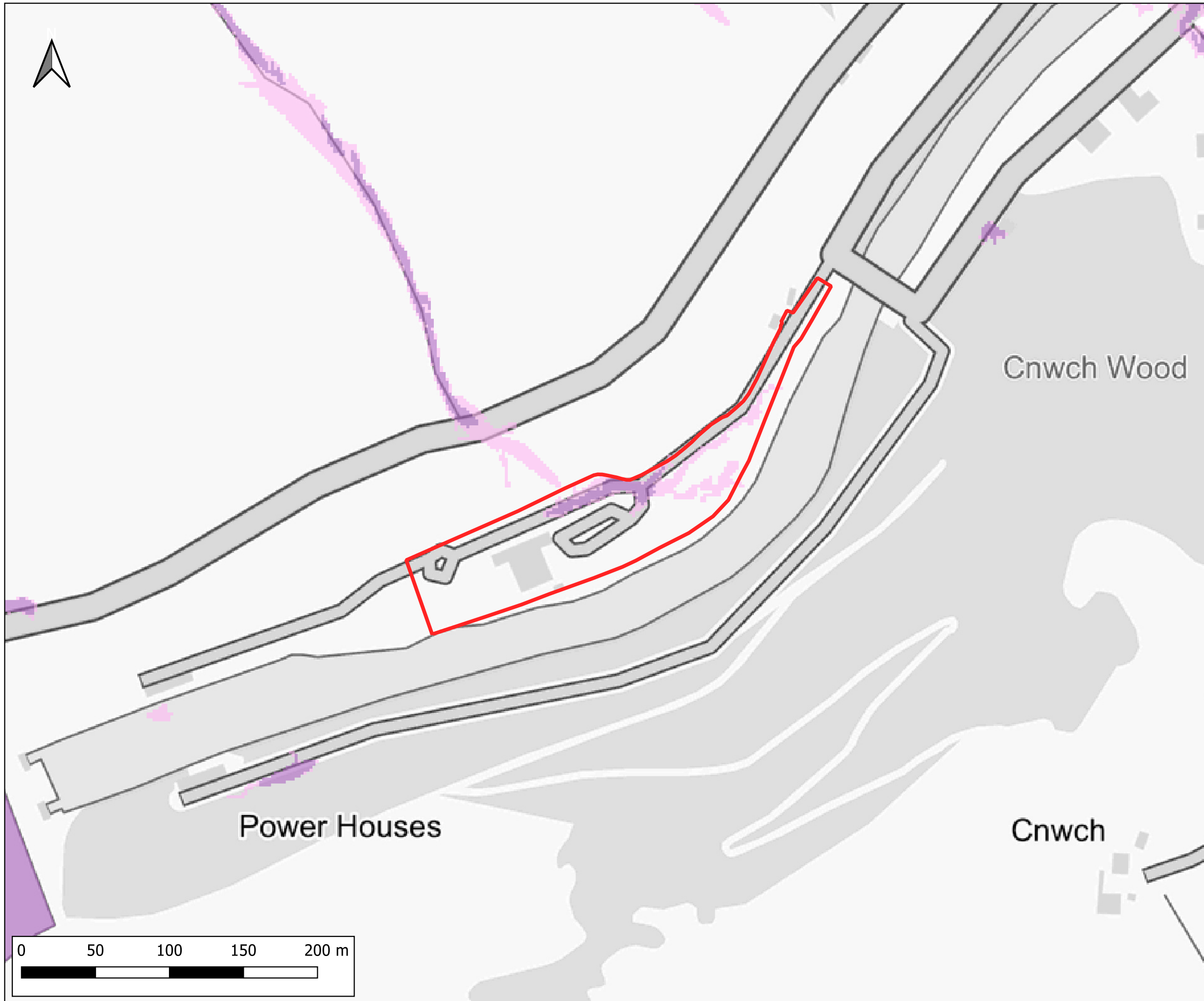
SCHEME:
 Elan Valley Visitor Centre,
 Rhayader

PLOT TITLE:
 NRW Sea Flood Zones
 Data accessed August 2024

PLOT STATUS: FINAL DATE: 30-08-2024

DRAWN: AM	CHECKED: AW	APPROVED: MW	PLOT SCALE AT A3: 1:2500
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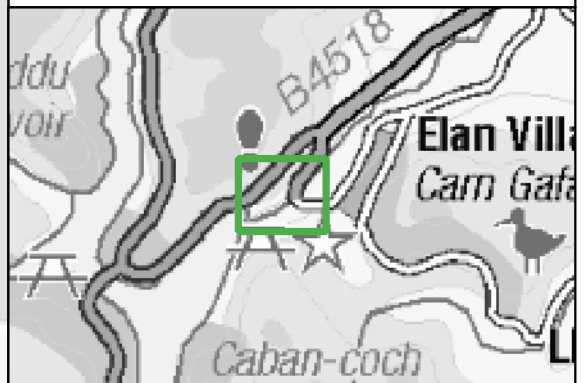
PLOT NAME: 15953_NRW_Sea	REVISION: -
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Notes:
 1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Flood Risk from Surface Water
- Flood Zone 2
- Flood Zone 3



CLIENT:
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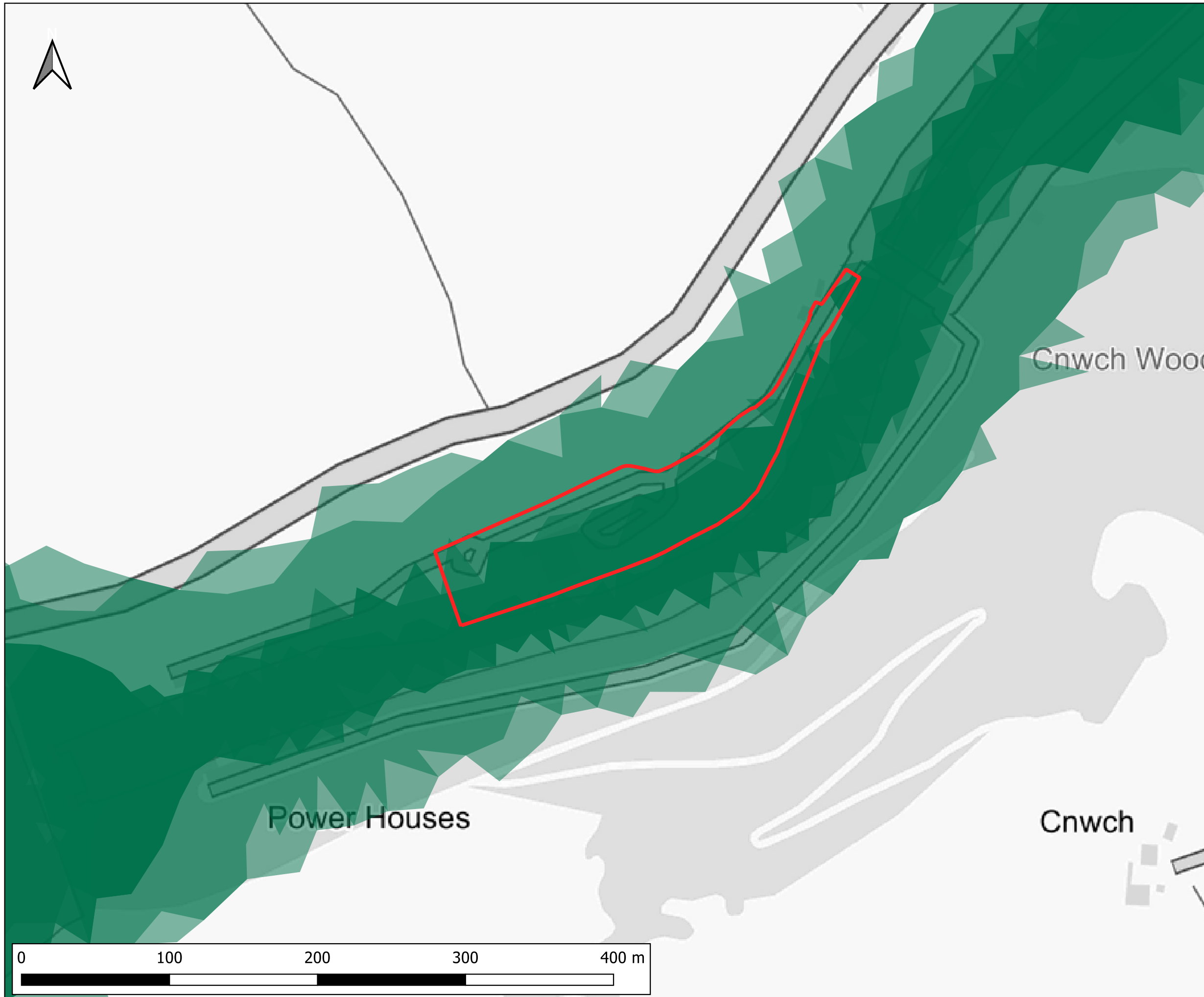
SCHEME:
 Elan Valley Visitor Centre,
 Rhayader

PLOT TITLE:
 NRW Surface Water & Small Watercourses
 Flood Zones
 Data accessed August 2024

PLOT STATUS: FINAL	DATE: 29-08-2024
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DRAWN: AM	CHECKED: AW	APPROVED: MW	PLOT SCALE AT A3: 1:2500
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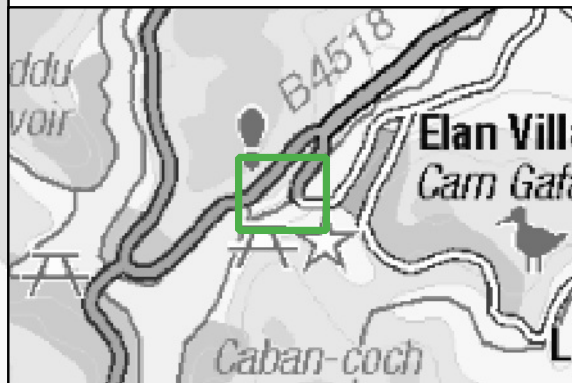
PLOT NAME: 15953_NRW_Surface_Water	REVISION: -
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Notes:
 1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Flood Risk from Reservoirs Extent



CLIENT:
 Dŵr Cymru Welsh Water



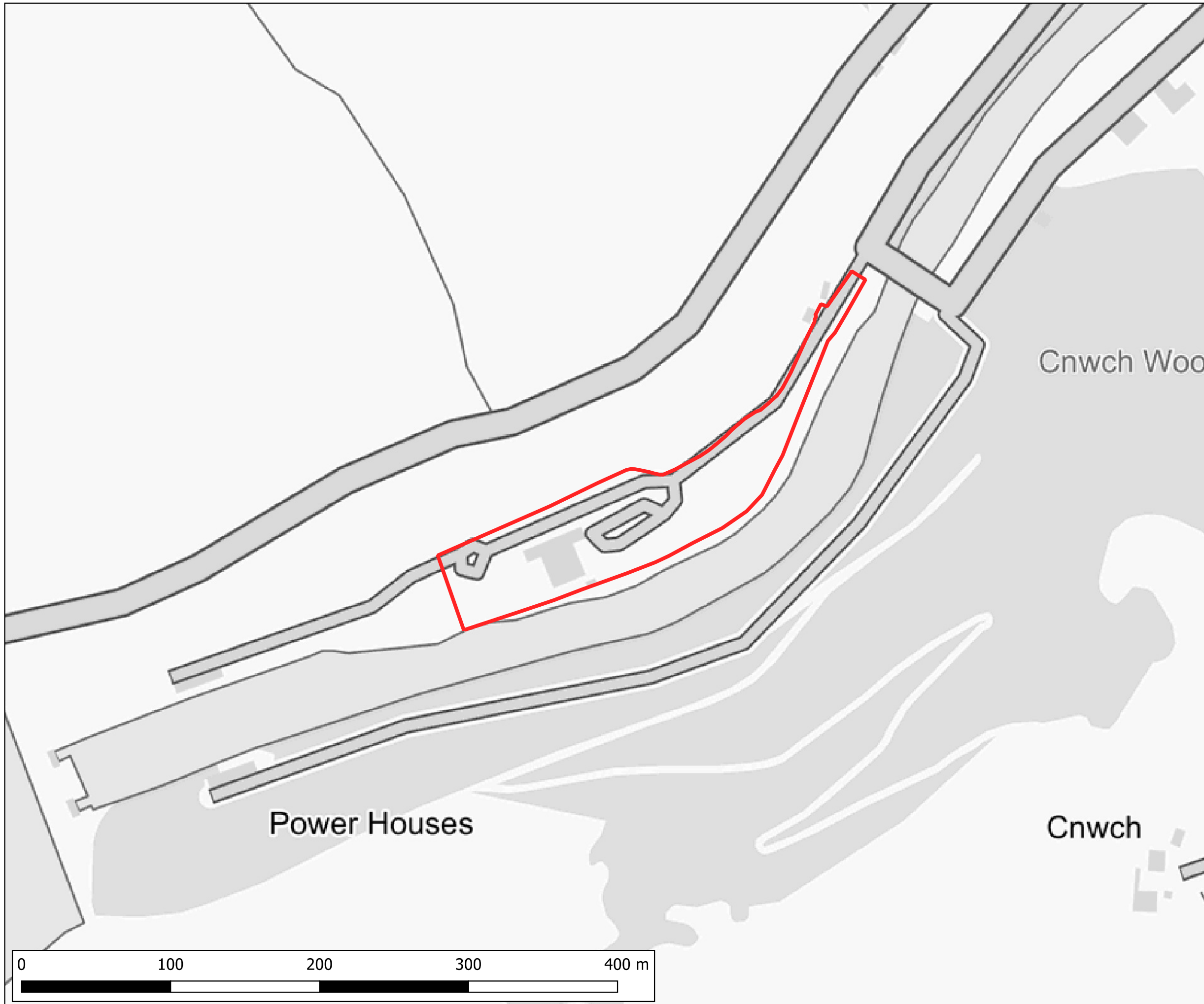
SCHEME:
 Elan Valley Visitor Centre,
 Rhayader

PLOT TITLE:
 NRW Flood Risk from Reservoirs
 Data accessed August 2024

PLOT STATUS: FINAL	DATE: 16-08-2024
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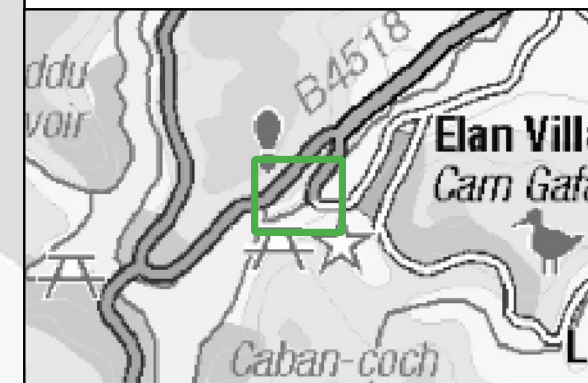
DRAWN: AM	CHECKED: AW	APPROVED: MW	PLOT SCALE AT A3: 1:2500
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PLOT NAME: 15953_NRW_Flood_Risk_from_Reservoirs	REVISION: -
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Notes:
 1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

- LEGEND**
- Site Boundary
 - Recorded Flood Extents



CLIENT:
 Dŵr Cymru Welsh Water



SCHEME:
 Elan Valley Visitor Centre,
 Rhayader

PLOT TITLE:
 NRW Historic Flood Risk
 Data accessed August 2024

PLOT STATUS: FINAL DATE: 16-08-2024

DRAWN: AM	CHECKED: AW	APPROVED: MW	PLOT SCALE AT A3: 1:2500
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PLOT NAME: 15953_NRW_Historic_Flood_Risk	REVISION: -
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Adam McColloch

Waterco Ltd
Eden Court
Ruthin
LL15 1NJ

ebost/email:
MidPlanning@cyfoethnaturiolcymru.gov.uk

20/08/2024

Annwyl / Dear Mr McCulloch,

PRELIMINARY PRE-APPLICATION ADVICE

BWRIAD / PROPOSAL: REDEVELOPMENT OF VISTOR CENTRE

LLEOLIAD / LOCATION: ELAN VALLEY VISITOR CENTRE, ELAN VALLEY, RHAAYADER, POWYS LD6 5HP

Thank you for consulting Cyfoeth Naturiol Cymru / Natural Resources Wales about the above pre-application enquiry which we received on 15/08/2024.

We have considered your enquiry in relation to Flood Risk ONLY, we have not considered other topics/constraints which may be relevant to the application site, please refer to our Development Planning [Consultations Topics](#) document (September 2018) for further information. We advise the following flood risk matters are relevant to the site / proposed development and suggest you consider these further prior to the submission of any planning application.

Flood Risk

We have reviewed the following drawings provided in your pre-application enquiry:

- Location Plan 16-08-2024
- Aerial Plan 16-08-2024
- Design Process - Pre-Application Proposal drawings (various)

The proposal is to redevelop an existing Visitor Centre, classed as less vulnerable development and located in Flood Zone 2 of the Flood Map for Planning and Zone A of the Development Advice Map (DAM). The proposal indicates that there will be an increase of 965m² in floor space (including ground and first floors). Any Flood Consequence Assessment (FCA) would need to demonstrate that there will be no increase in third party flood risk as a result of the proposal, however given the scale and location of the proposal we would not expect modelling to form part of the FCA.

Other Matters

Please note, the view expressed in this letter is a response to a pre-planning enquiry only. We trust these comments will prove helpful, but they should not set a precedent for any future Natural Resources Wales' response to any formal application for planning permission or other legal consent. Such applications shall be assessed on the information submitted and regulations of relevance at that time. The details contained in this letter are based on the information available to date.

As part of our discretionary advice service, we can provide further advice relating to land contamination, groundwater and flood risk prior to your planning application being submitted. Please note there is a charge for this service. Further details are available on our [website](#).

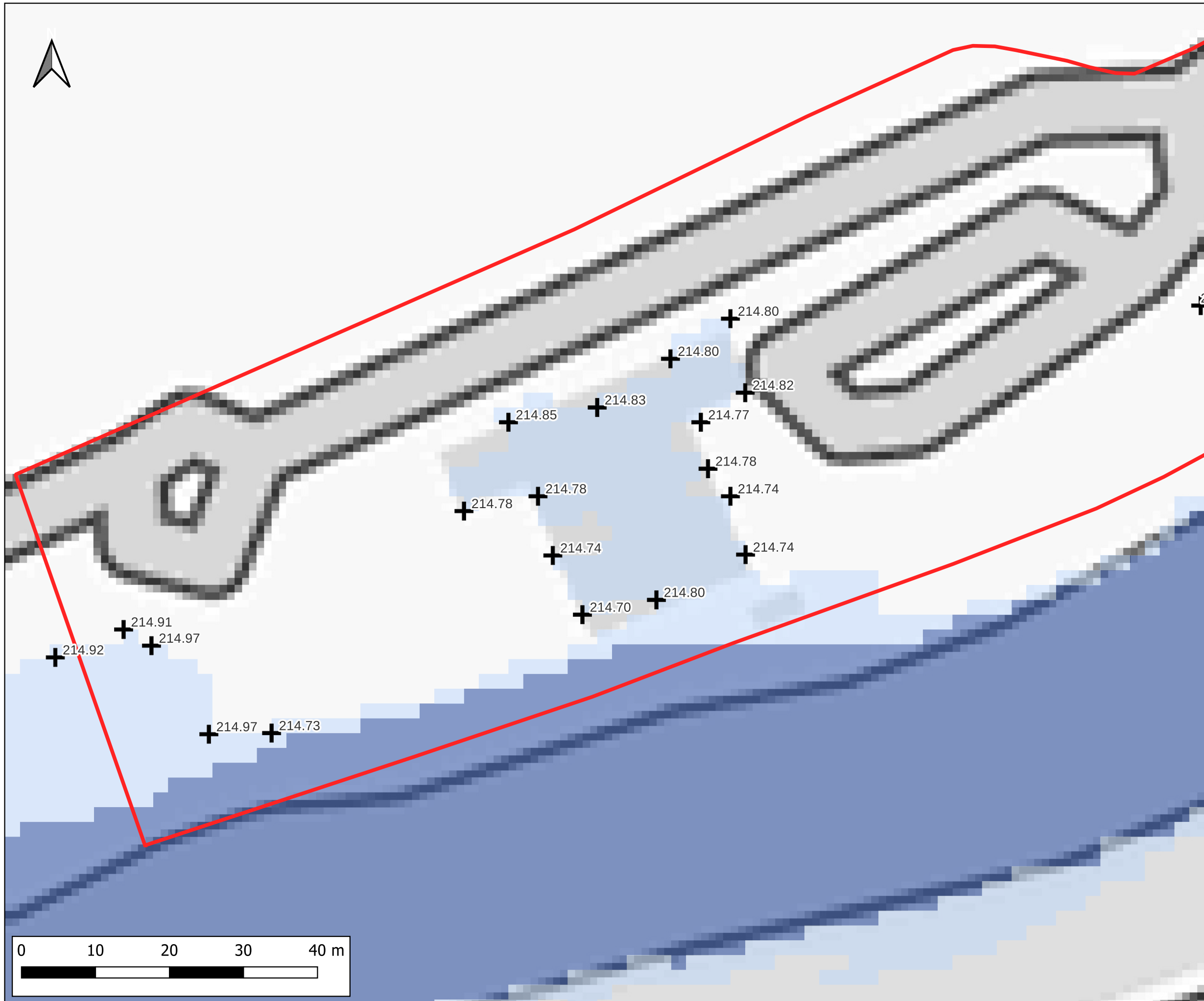
If you have any queries on the above, please do not hesitate to contact us.

Yn gywir / Yours sincerely,

Debra Renshaw

Cynghorydd - Cynllunio Datblygu / Advisor - Development Planning
Cyfoeth Naturiol Cymru / Natural Resources Wales

Appendix F Flood Map for Planning with Topographic Overlay



Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- NRW Flood Map for Planning
- Flood Zone 2
- Flood Zone 3
- + Site Levels (m AOD)



CLIENT:
Dŵr Cymru Welsh Water



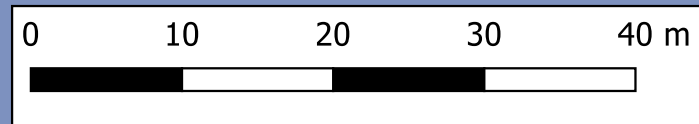
SCHEME:
Elan Valley Visitor Centre, Rhayader

PLOT TITLE:
NRW Flood Map for Planning (Rivers and Sea) with Topographic Overlay

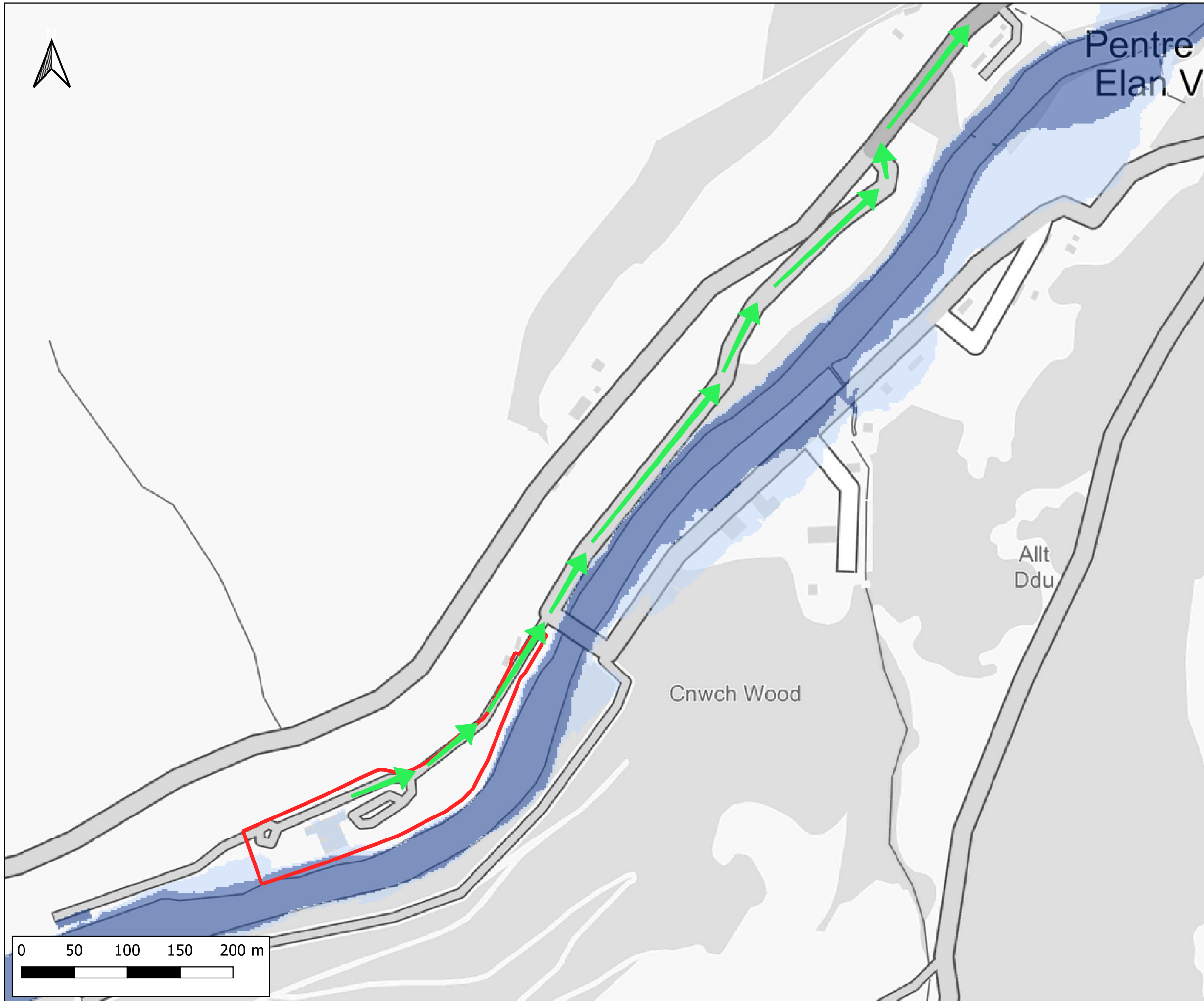
PLOT STATUS:	FINAL	DATE:	28-08-2024
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DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
AM	AW	MW	1:500

PLOT NAME:	REVISION:
15953_NRW_FMfP_topo	-



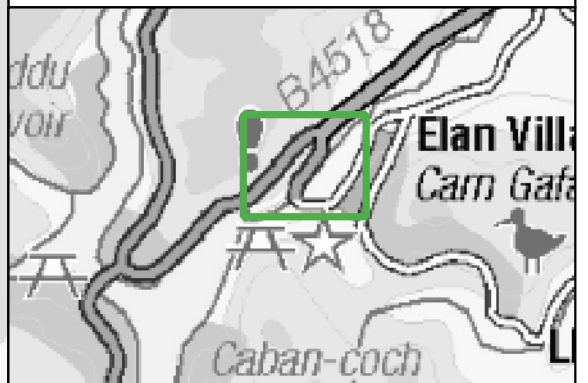
Appendix G Flood Evacuation Route Plan



Notes:
 1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- ▭ Site Boundary
- Flood Evacuation Route
- NRW Flood Map for Planning
- Flood Zone 2
- Flood Zone 3



CLIENT:
 Dŵr Cymru Welsh Water



SCHEME:
 Elan Valley Visitor Centre,
 Rhayader

PLOT TITLE:
 Flood Evacuation Route Plan

PLOT STATUS: FINAL DATE: 29-08-2024

DRAWN: AM	CHECKED: AW	APPROVED: MW	PLOT SCALE AT A3: 1:3500
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PLOT NAME: 15953_Flood_Evacuation_Route_Plan	REVISION: -
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