

P W A / G R O U P

CONSULTING ENGINEERS

Everything Retreat

Flood Risk Assessment

Client: Zara Moon Architects
Author: Isaac Borchers
Date: 07/04/2026
Reference: 25221-PWA-00-XX-RP-C-1000-P01

P W A G R O U P . C O . U K

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Executive Summary

The Environment Agency's Flood Maps for Planning present the site falling entirely within Flood Zone 1

Flood risk from rivers and seas and surface water sources has been assessed in further detail and the flood maps for planning present that the area is at very low risk of flooding from fluvial sources, with climate change considered.

The risk of reservoirs flooding has been assessed and deemed as very low

Other secondary flood risk including ground water and sewer flooding has also been assessed; these were both found as low.

The risk from climate change and residual risk is considered to be low, post-development.

Surface water is to be dealt with efficiently in line with relevant guidance before outfalling offsite in an approved location with the LLFA or other representing body.

Forward

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The report should be read in its entirety, including all associated drawings and appendices. Paul Waite Associates Ltd cannot be held responsible for any misinterpretations arising from the use of extracts that are taken out of context.

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Paul Waite Associates Ltd reserves the right to amend their conclusions and recommendations in the light of further information that may become available.

This flood risk assessment report is prepared in accordance with the requirements generally set out in the 'Technical Guidance to the National Planning Policy Framework', updated in July 21 and following the standard section format and order of the GOV.UK – Flood risk and coastal change site specific flood risk assessment checklist.

PWA Credentials

This Flood Risk Assessment has been conducted by Paul Waite Associates Ltd who have over 30 years' experience of civil engineering and flood risk assessment preparation. This Flood Risk Assessment has been carried out following the general requirements of the Nation Planning Policy Framework (2021), considering recently updated national climate change considerations.

Flood Risk Assessment (FRA) Approach

The requirements for flood risk assessments are generally as set out in the 'Technical Guidance to the National Planning Policy Framework' Chapter 14, updated in July 21; and in more detail from the Government website 'Flood risk assessments if you're applying for planning permission'.

<https://www.gov.uk/government/publications/national-planning-policy-framework--2>

<https://www.gov.uk/guidance/flood-risk-assessment-for-planning-applications>

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1. Flood Risk Assessment

1.1. Development Site Details

1.1.1. Site Location

Site Co-ordinates:
OS X (Eastings): 366360
OS Y (northings): 431314
National grid reference: SD 66360 31314
Nearest post code: BB2 7EQ

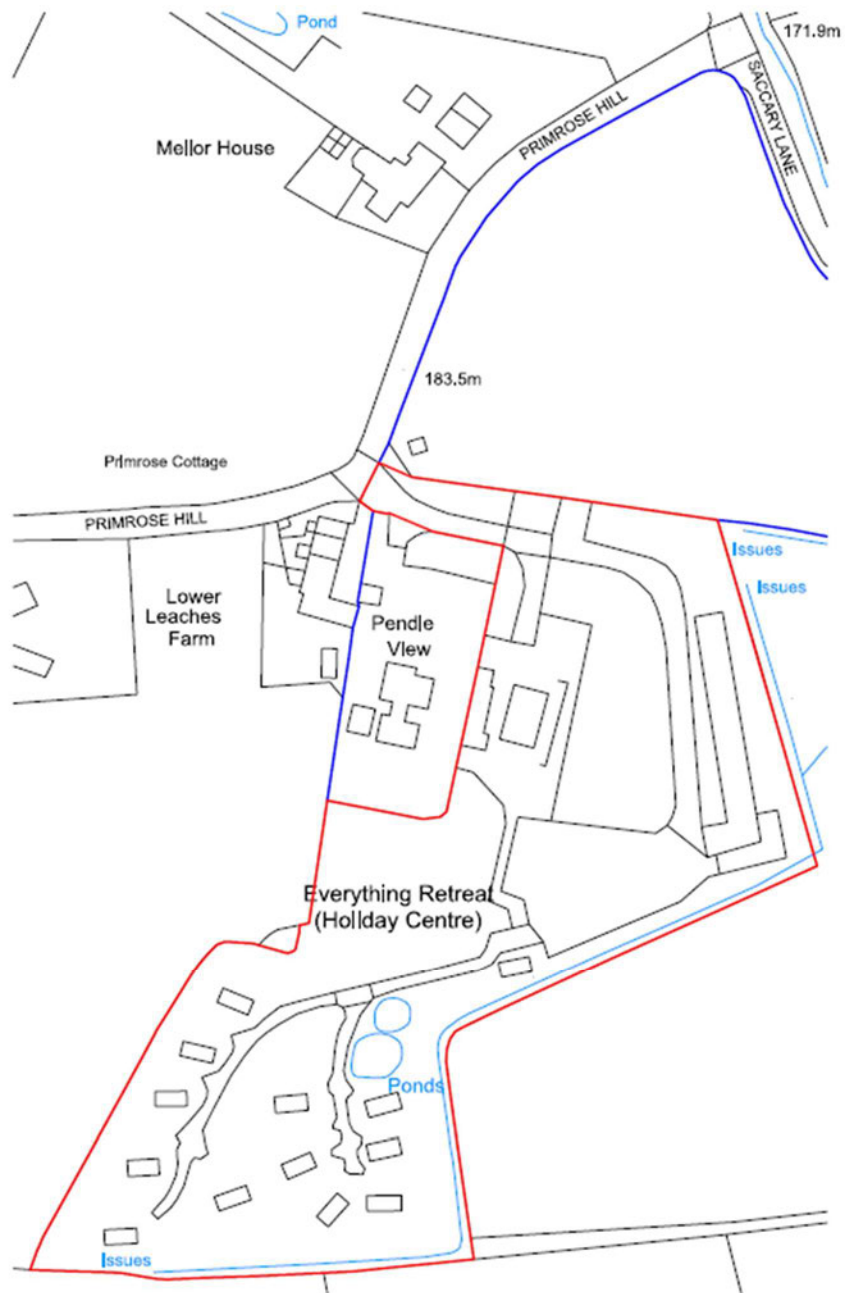


Figure 1 - Site Location Plan

Refer to appendix A for the full site location plan.

1.1.2. Current and former land use

The site is currently being used as luxury lodgings with a centre-point building used for catering. Historic maps dating from 1844 to 1938 display the site to be an open field with no hardstanding development. It is unclear if the site was used for anything other than luxury lodgings between the given dates and the present. Refer to Figure 2 below for site images:



Figure 2 - Site Photos

Images 1 & 2 – Site photos.

Image 3 – Historic map from 1844.

1.1.3. Topographical Review

A site topographical survey was undertaken to identify the sites falls. A copy of this drawing is present within appendix B of this report and an extract from this shown in Figure 3 below.

The site generally falls southwest to northeast. The highest elevation recorded within proximity to the development is approximately 187.152mAOD on the southwest corner by site existing building. The lowest elevation adjacent to the developable site is approximately 185.160m AOD in the southeast corner of patio.

There are some low-lying levels around the existing building which are being used a low point in the patio for gullies to collect the surface water. We estimate the floor level of the existing building to be approximately 186.100m based on the visible step in the image below.



Figure 3 - Topographical survey.

1.2. Development proposals

1.2.1. Site layout

The proposal includes; demolition of existing stable block; extension of existing building to provide purpose built back-of-house accommodation; treatment rooms and yoga studio; extension of existing office building; creation of natural outdoor swimming pool and associated landscaping. Refer to Figure 4 below and appendix C for the proposed preliminary site layout.

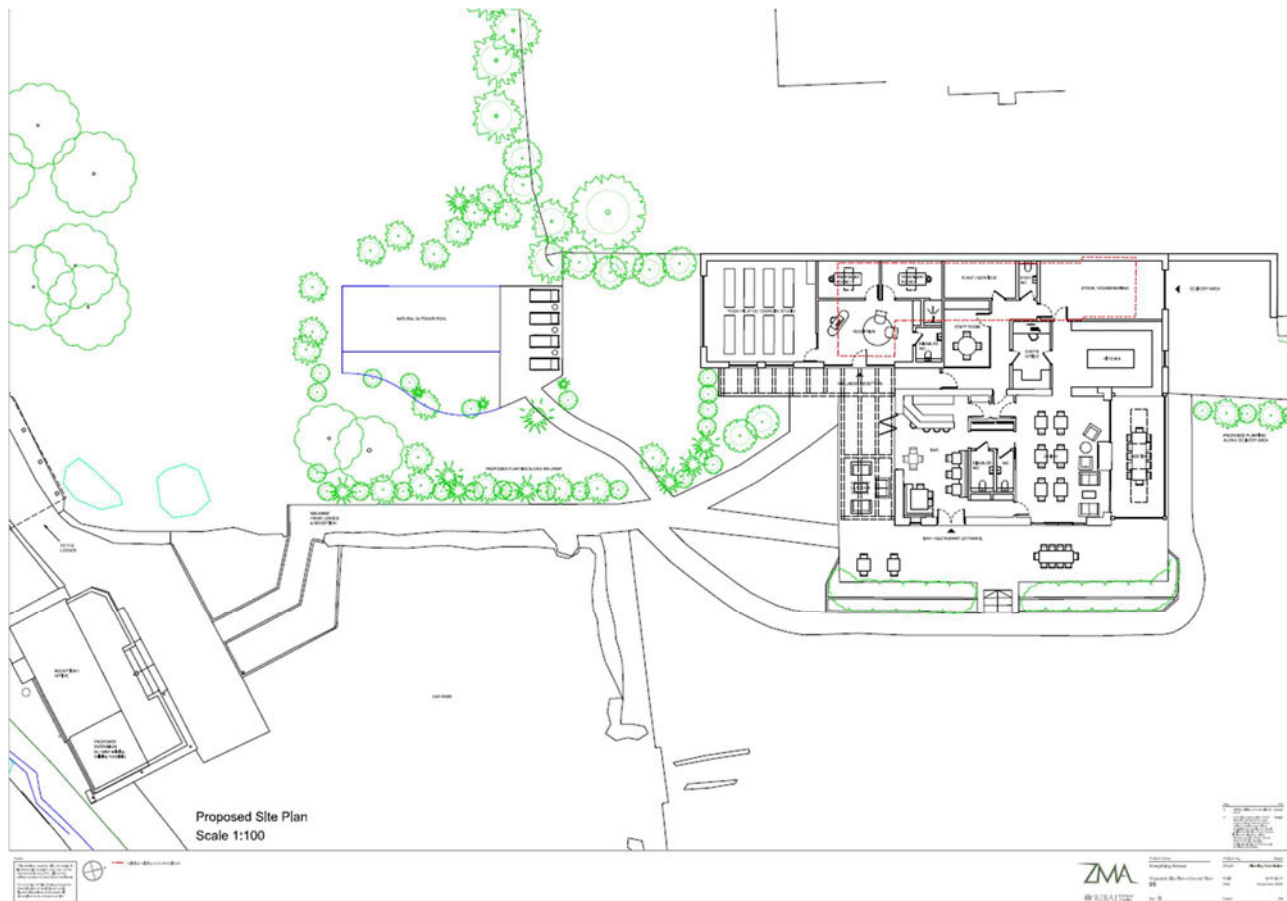


Figure 4 – proposed site layout.

1.2.2. Vulnerability classification

With reference to the nation planning policy guidance GOV.UK flood risk and costal change site specific flood risk assessment- guidance annex 3, the primary development can be seen as.

More vulnerable e.g. buildings used more:

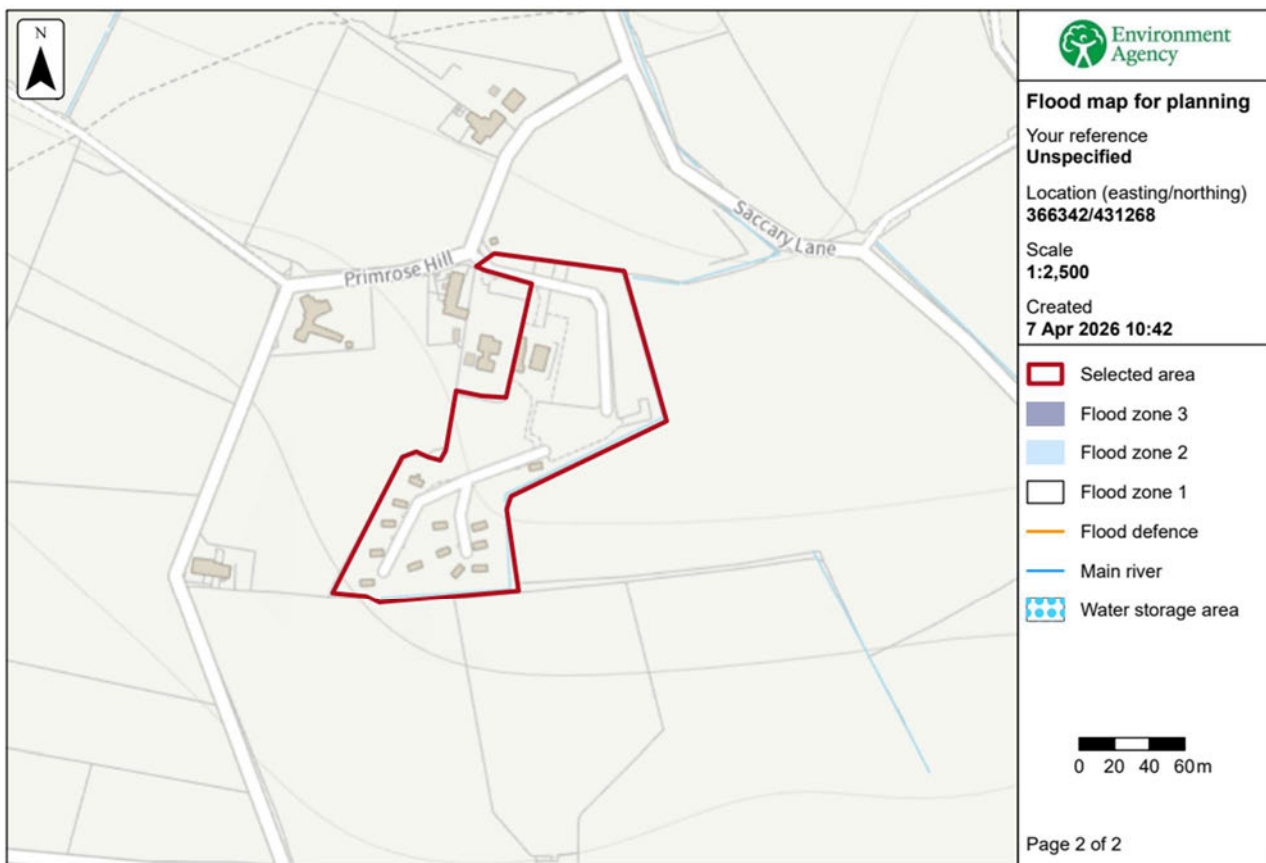
Sites used for holiday or short-let caravans and camping, subject to a specific warning and evacuation plan.

1.2.3. Development life cycle

A 100-year lifecycle is assumed for all residential development when assessing in relation to flood risk.

1.3. Flood zone

A review of the flood maps for planning was undertaken to understand the flood zone classification for the proposed development. In line with appendix D, Figure 5 flood maps for planning below, the development lies within flood zone 1.



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Figure 5 – flood maps for planning.

1.4. Climate change

The impacts of climate change will be considered within each of the report sections on specific flood risk.

This will take into consideration current national climate change guidance published by the Government in February 2016 and last updated July 2020. Climate Change allowances are predictions of anticipated change for:

- Peak River Flow
- Peak Rainfall Intensity
- Sea Level Rise
- Offshore Wind Speed and Extreme Wave Height

When assessing the Peak River Flows for a less vulnerable development within Flood Zone 1, the central allowance should be assessed in relation to the development. An anticipated climate change allowance of 36% should be applied in line with Figure 5.

Table 1 Ribble management catchment peak river flow allowances

Epoch	Central	Higher	Upper
2020s	16%	19%	27%
2050s	23%	29%	44%
2080s	36%	46%	71%

When assessing the peak rainfall allowances for a more vulnerable development within Flood Zone 1 the upper end allowance should be assessed in relation to the development. An anticipated climate change allowance of 40% should be applied to all the 3.3% (1 in 30 year) annual events and 50% for all 1% (1 in 100 year) annual events should be applied in line with Figure 5. The change is only from the already existing water course therefore the course will also take the water away meaning it is a low risk of a significant change.

Table 2 Ribble management catchment peak rainfall allowances

Allowance Category	3.3% annual exceedance rainfall event		1% annual exceedance rainfall event	
	Central allowance	Upper end allowance	Central allowance	Upper end allowance
'2050s' (2024 to 2060)	20%	35%	25%	40%
'2070s' (2061 to 2125)	25%	40%	30%	50%

1.5. Site specific flood risk

The environment agency's website provides online mapping to identify multiple sources for flooding for planning purposes. A review of the potential sources of flooding is contained within this section.

1.5.1. Fluvial flood risk

Fluvial flooding occurs when water course such as rivers, streams, and becks flood because of high or intense rainfall events.



Figure 6 - fluvial flood maps for planning.

Based on the above fluvial flood map, the development site is at very low risk of surface water flooding.

1.5.2. Pluvial flood risk 1 in 100

Pluvial flooding occurs when extreme rainfall events saturate drainage systems and excess surface water cannot be accommodated within existing drainage systems, leading to surcharging and flooding. This could also include the surcharge of watercourses and sewer systems as a result of high rainfall intensities; pluvial flooding can occur from lower rainfall intensities and/or melting snow when ground is previously saturated or frozen.

The Environment Agency, working with the Lead Local Flood Authority (LLFA) have produced a series of updated Flood Maps for Surface Water (UFMFSW). These updated flood maps are based upon the latest modelling techniques and flood data, superseding previous nationally produced surface water mapping products.

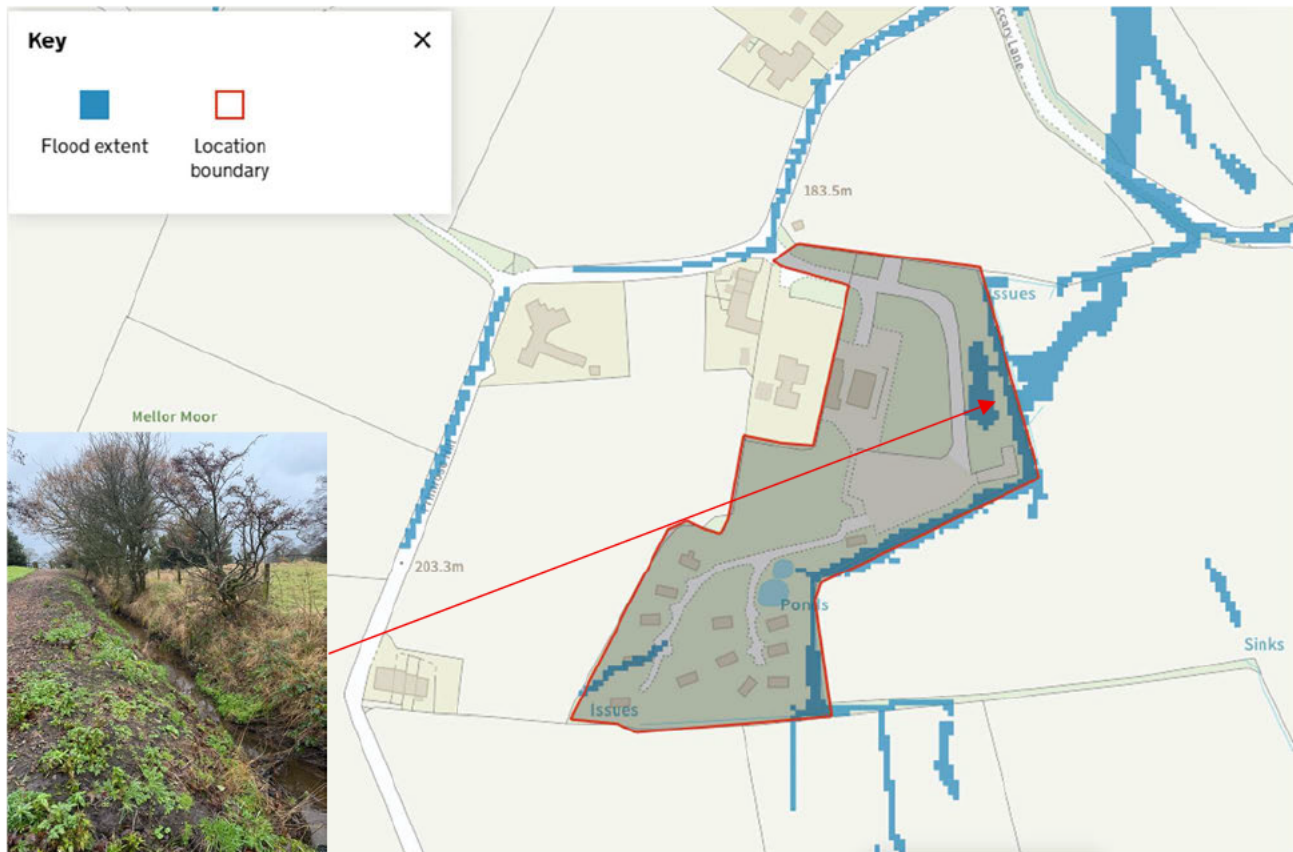


Figure 7 - presents the risk of surface water flooding on the site during a 1 in 100-year storm.

The above map presents the site has an area at high risk of surface water flooding during 1 in 100-year storm events. Flood risk is arising from the small existing drainage ditch which runs along the east site boundary. The flooding appears to spill out of the watercourse during heavy storm events into the onsite depression within the densely vegetated area to the east of the access road. Due to the topography of the site, the development area has a low chance of surface water flood risk during this storm event.

There is an increase chance of pluvial flooding outside the east boundary, but this does not affect the site because it is outside the boundary and appears to across neighbouring fields.

1.5.3. Pluvial flood risk 1 in 1000

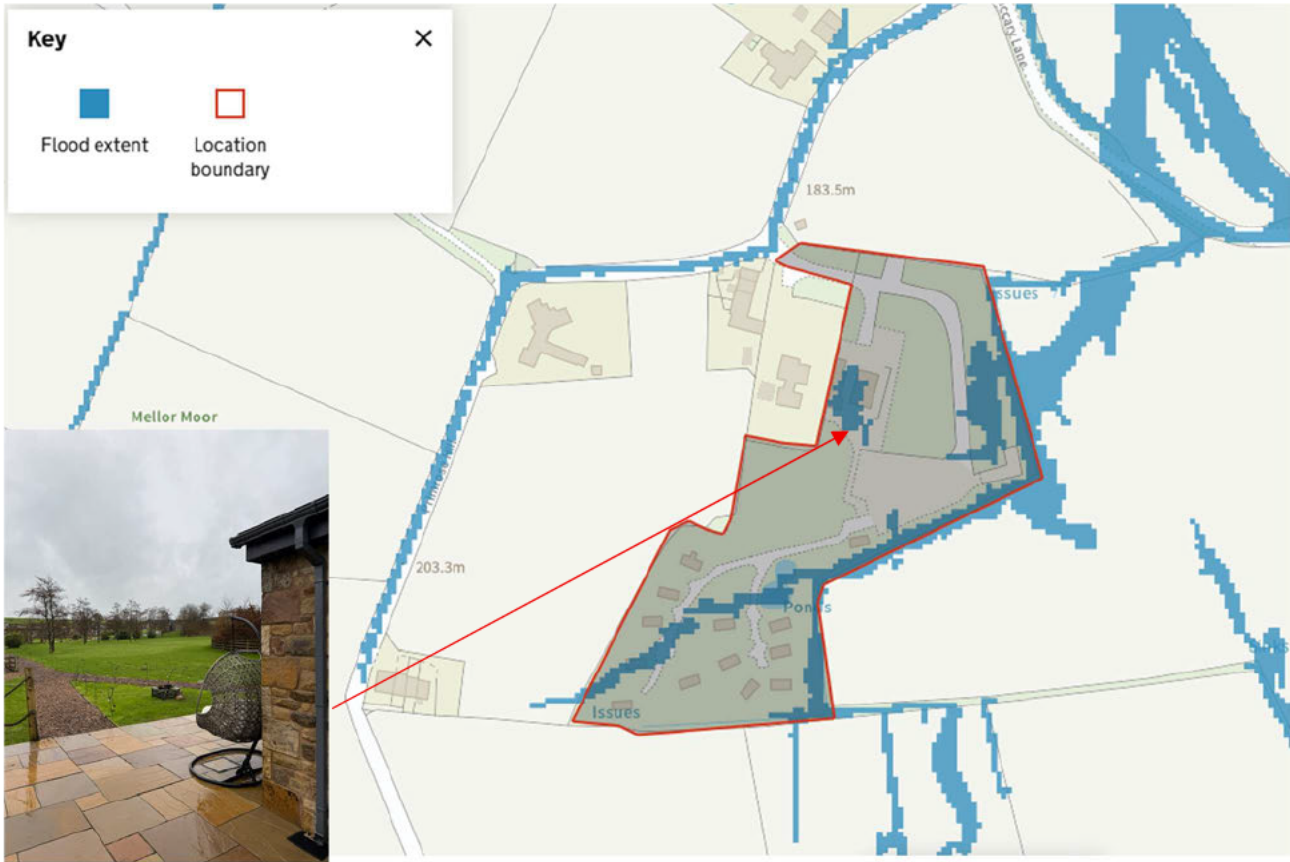


Figure 8 - presents the risk of surface water flooding on the site during a 1 in 1000-year storm.

The above map displays the extents of flooding during a 1 in 1000-year storm event. It can be seen that flooding is now present within the development area, this is likely due to the low spots discussed within the topographical review where gullies have been implemented to collect surface water run-off. The image above is taken facing southwest from the corner of the existing building on one of the topographical low-spots, and a gully can be seen in this location.

Overall, the site is at low risk of surface water flooding as the flooding is being anticipated from low spots in the patio which have been implemented to collect surface water run-off, diverting flows into the drainage system. Additionally, the development area only appears to be at risk during the 1 in 1000-year storm events.

1.5.4. Existing sewer flood risk

Flooding from existing sewers and drains can present a flood risk which will relate to surface water flooding during extreme rainfall rather than foul sewer flooding. At the time of writing no CCTV survey of the existing sewers has been made available so we are unable to review the condition of the sewers in-depth. But following a site visit we could determine that the existing drainage had been installed recently and the drainage components that were inspected are in good condition.

Following the above, we can categorise the site is at low risk of sewer flooding onto site.

1.5.5. Ground water flood risk

Ground flooding often occurs over prolonged rainfall events, where ground becomes saturated within the underlying strata causing the water table to rise above ground level. With continuous rainfall, this will prevent infiltration and proper drainage of pluvial water into the soil, disallowing it from draining appropriately and causing it to pool on the surface creating flooding.

A desktop review has been undertaken to assess the likelihood of groundwater flooding occurring on site.

Landis Soils describes the soil in the area as “Slowly permeable wet very acid upland soils with a peaty surface with impeded drainage,” meaning that surface water may struggle to infiltrate away and flow over land. However, following the review of the pluvial flood risk maps, surface water flows collate within the drainage ditch which runs along the eastern boundary and don’t impact the development area during 1 in 100-year events. Therefore we can assume any ground water onsite to move appropriately and scarcely affect the development.

Reviewing the available information, as above the risk to the site from ground water flooding has been assessed as a low risk.

1.5.6. Reservoir & artificial waterbody flood risk

The environment agency flood maps for planning have been reviewed to determine the risk of flooding from artificial sources as reservoirs, canals, and flood defences, these maps will show any areas of potential risk of flooding due to failure such as structure.

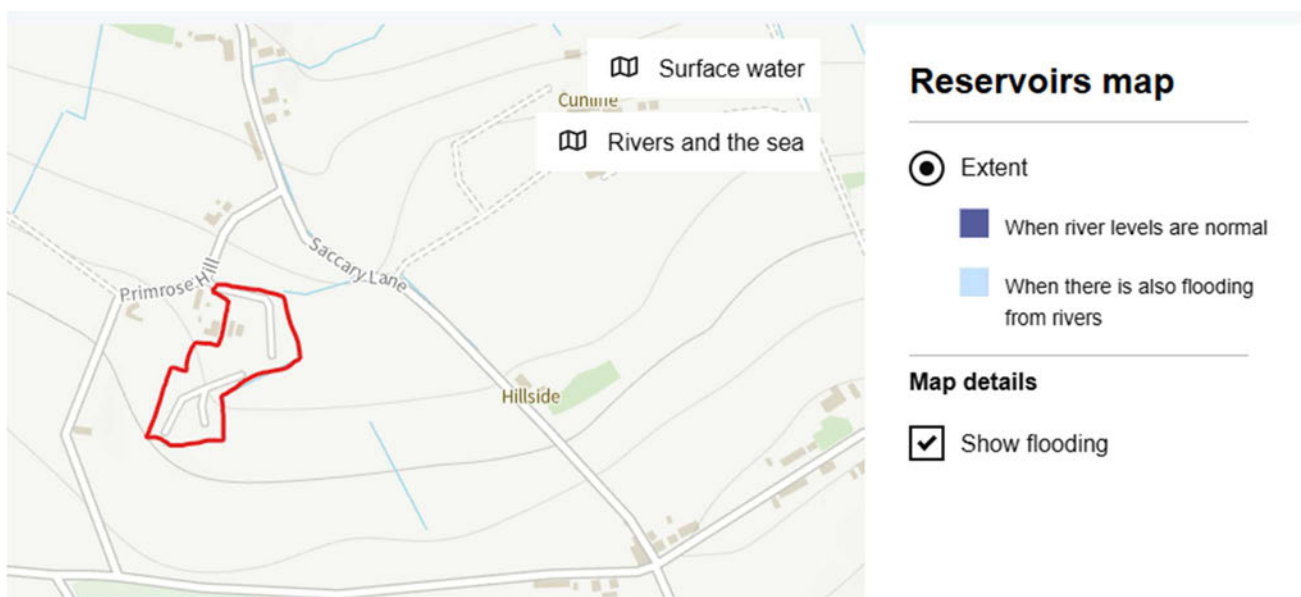


Figure 9 – reservoirs & artificial waterbody flood risk.

Reviewing the available information as above, the risk to the site from reservoirs and ratification flooding has been assessed as very low risk.

1.5.7. Risk from climate change

The impacts of climate change should be assessed upon all proposed developments for their anticipated lifecycle. Refer to section 1.4 of this report for climate change allowances that are to be considered within all site proposals. A summary of this section is presented below.

When assessing the peak river flows in relation to the development, and its vulnerability classification an anticipated climate change allowance of 36% should be applied in line with Table 1 of this report. However, due to the site remaining entirely within flood zone 1 this aspect of the assessment does not need to be assessed.

When assessing the peak rainfall allowance in relation to development, an anticipated climate change allowance of 40% should be applied to all 3.3% (1 in 30 year) annual events and 50% for all 1% (1 in 100 year) annual events should be applied in line with Table 2 of this report.

Due to the proposed development considering climate change in line with current government guidance the risk to the development from climate change is considered as low.

1.5.8. Pre-development flood risk summary

Following the review of available flood information the following can therefore be summarised in terms of flooding risks:

Primary river flood risk	Very low
Surface water flood risk	Low
Groundwater flood risk	Low
Existing drainage flood risk	Low
Reservoir & artificial waterbody flood risk	Very low
Risk from climate change	Low

1.6. Flood mitigation measures

Flooding from a new drainage system can be presented a risk of flooding if systems are not designed to cater for the correct site area, storm duration, or allowance for climate change.

All new drainage should be designed in accordance with all relevant British standards, building regulations and in accordance with the northwest SuDS pro-forma which will be reviewed and approved through the planning process.

Localised risk of flooding is mitigated by ensuring any flush doorways and other access points to the proposed building are not located around gullies, channel drains, and other areas where surface water may pond during extreme rainfall events. General good practice is to be adopted where possible direction any potential flood exceedance flows away from proposed buildings and introduced 150mm threshold steps into any units where achievable.

In line with current guidance, the drainage guidance the drainage system should be designed accommodated the 1:100-year storm event +50% climate change with 10% urban creep allowed. Hard standing rainfall run off should fall towards gullies or channel drains, flows from the surface are to be directed towards the surface water system and leave the site at a restricted rate. Any permeable area which enters the system should be included under a pimp analysis to determine.

With the above, it is considered that flood risk from new drainage systems is low.

1.7. Exception test

In line with the Flood Risk Vulnerability Classification Guidance, the proposed development is classified as **More vulnerable** due to it entirely comprising of a residential development. The proposed development area is also shown to be entirely within **Flood Zone 1**.

Table 4 - Exception Test

Flood Risk Vulnerability Classification		Essential Infrastructure	Water Compatible	Highly Vulnerable	More Vulnerable	Less Vulnerable
Food Zones	Zone 1	✓	✓	✓	✓	✓
	Zone 2	✓	✓	Exception Test Required	✓	✓
	Zone 3a	Exception Test Required	✓	X	Exception Test Required	✓
	Zone 3b	Exception Test Required	✓	X	X	X

✓ Development is appropriate.

X Development is not appropriate.

1.8. Occupants and users of development (access & egress)

The proposed development will increase the numbers of overall people entering the leaving the site, as the development is due to increase the number of lodges and expand on the existing building. Due to the site being at generally low risk from all sources, site access and egress can be safely undertaken by site users.

1.9. Post development flood risk summary

Following the review of available flood maps, topographical information and the flood mitigation measures proposed, the following can therefore be summarised in terms of flood risk:

Primary River Flood Risk	Very low
Surface Water Flood Risk	Very low
Existing Drainage Flood Risk	Low
Groundwater Flood Risk	Low
Reservoir & Artificial Waterbody Flood Risk	Very Low
New Drainage Flood Risk	Low
Risk from Climate Change	Low
Residual (Lifecycle) Primary River Flood Risk	Low

2. Conclusion

This flood risk assessment has been conducted to assess flood risk to a developments and extensions and the Everything Retreat.

The Environment Agency's Flood Map for planning presents the site falling within Flood Zone 1.

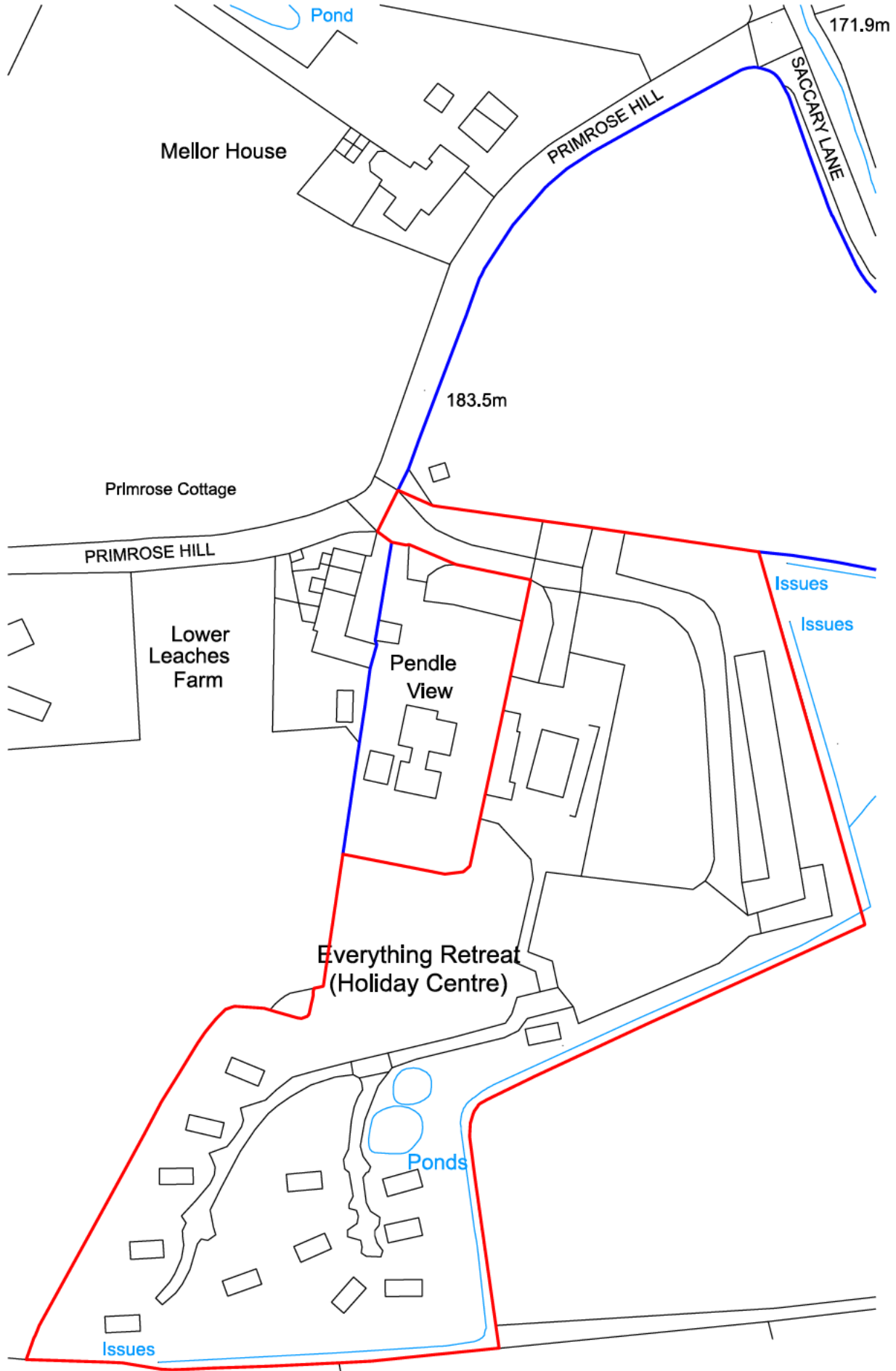
Flood Risk from rivers and Seas had been considered as very low.

Surface Water flood risk has been assessed and deemed to be very low.

Secondary sources of flooding such as ground water and drainage have been reviewed and assessed as low.

Other secondary flooding which has been assessed is reservoir flooding, which is deemed at very low risk.

Appendix A – Site Location Plan



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- Key
- Application boundary
 - Land also owned by applicant



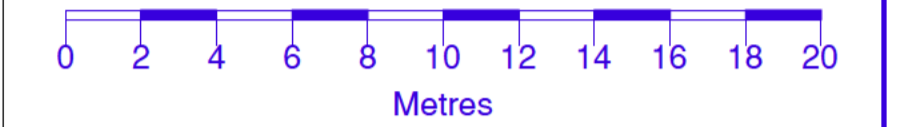
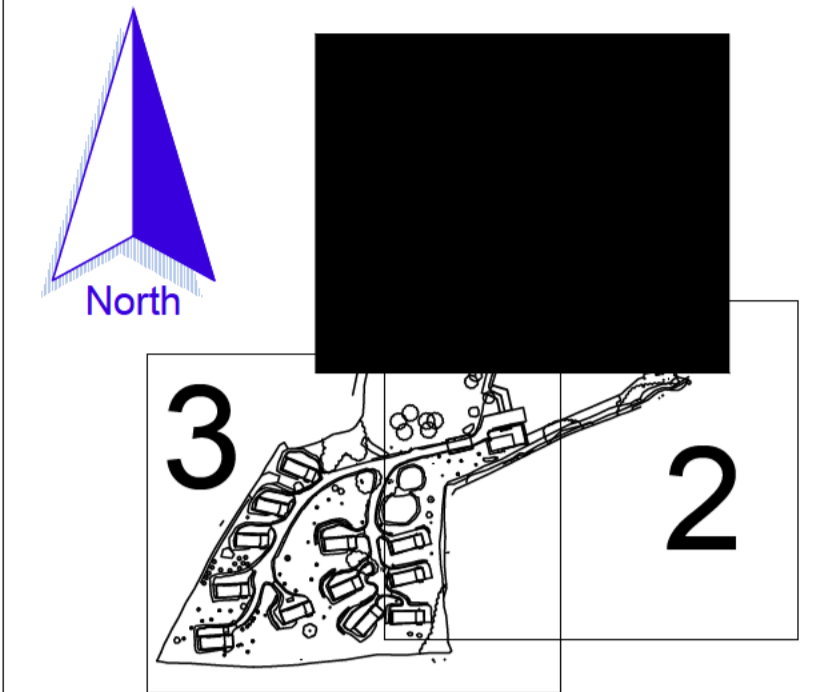
RIBA Chartered Practice

Project Name	Project No.	Stage
Everything Retreat BB2 7EQ	200.24	Planning Submission
Location Plan 01	Scale Date	1:1250 @ A4 August 2025
Rev --	Drawn	ZM

Appendix B – Topographical Survey

Notes

All Dimensions to be checked on site. Walls shown on plans are not to be assumed to be solid & should be checked for thickness, construction, load bearing capacity & stability.



ABBREVIATIONS

- BT BT Cover
- CB Control Box
- ch: Ceiling Height
- CL Cover Level
- EH Eaves Height
- ffi Finished Floor Level
- GV Gas Valve
- GU Gully
- IC Inspection Cover
- LP Lamp Post
- MH Man Hole
- RH Ridge/Roof Height
- RWP Rain Water Pipe
- SL Step Level
- SVP Soil Vent Pipe
- TF Top of Fence
- TL Threshold Level
- TP Telegraph Pole
- TH Top of Hedge
- TW Top of Wall
- usb Under Side of Beam
- WL Water Level

NOTE

All levels and coordinates relate to OSGB36(15) using OSNS data.
Levels defining edge of carriageway are observed at channel (bottom of kerb).

Rev.0 Description. Issued



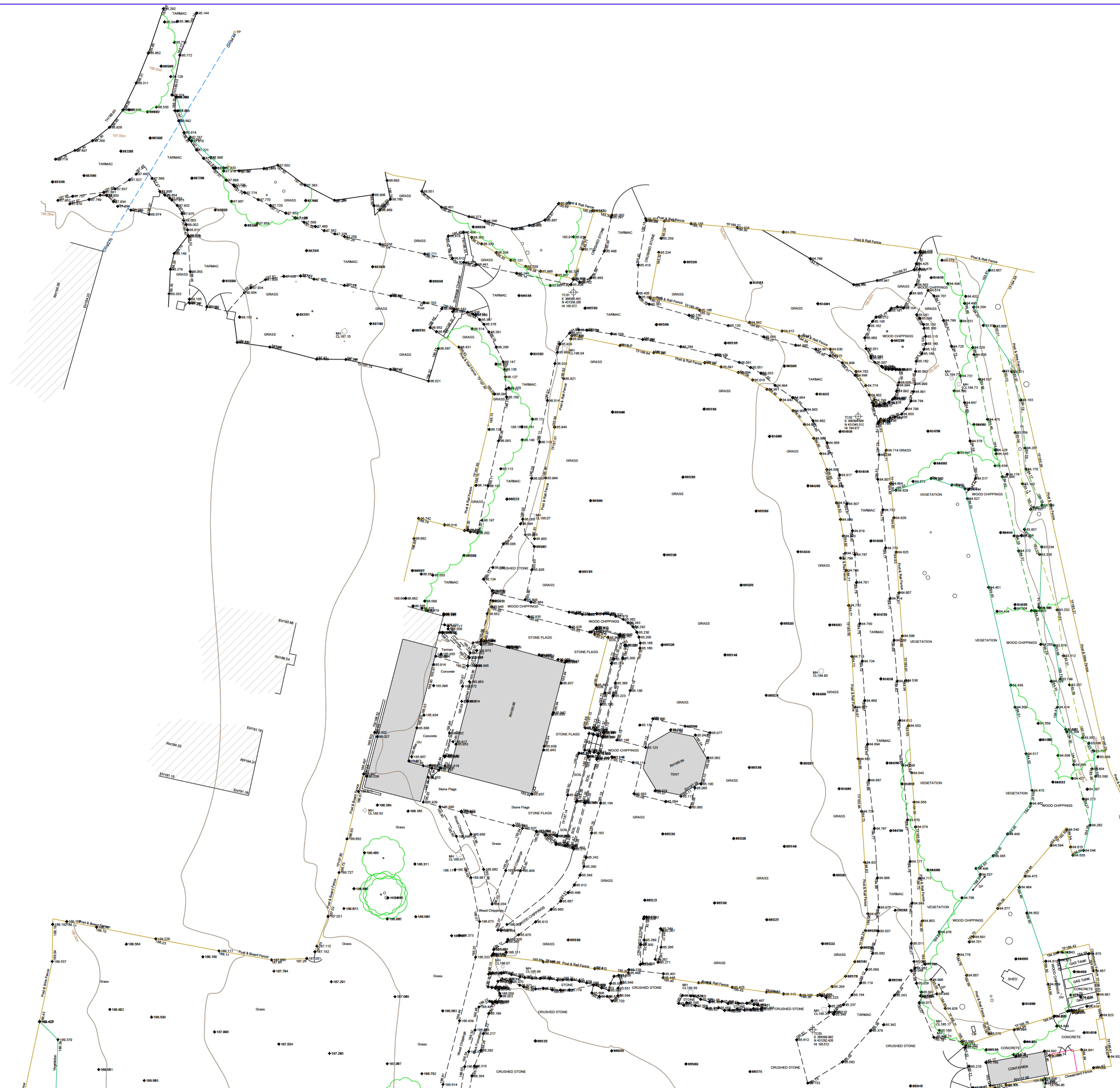
2 Berkshire Close | Wilpshire | Blackburn | Lancashire | BB1 9NG
tel 01254 614055 fax 01254 209754 e-mail sales@tricadsolutions.co.uk

Site Address
Everything Retreat
Mellor
BB2 7EQ
Project Description
Site Survey

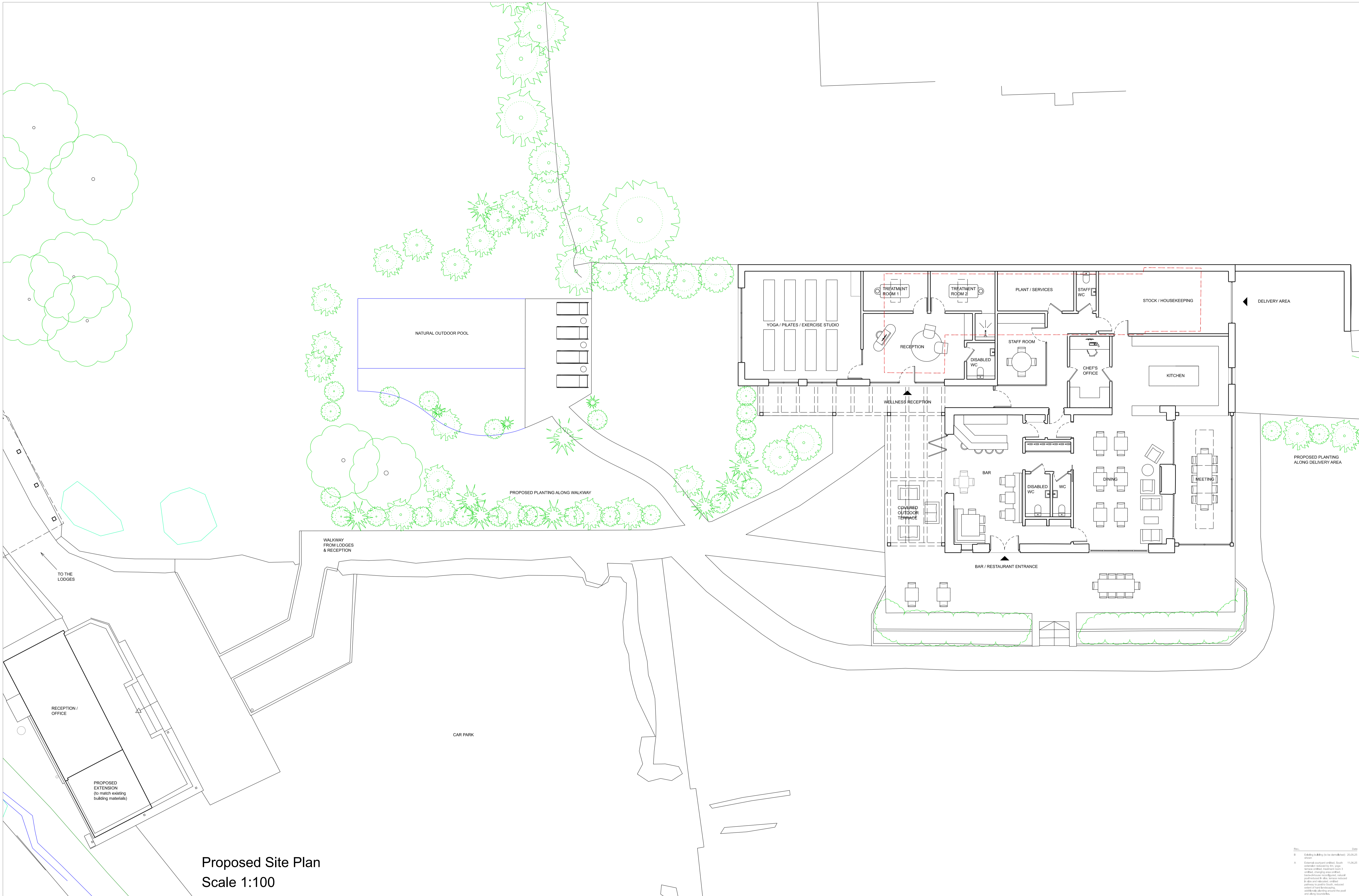
Drawing Title
Existing Site Layout

Scale	Date	Drawn By
1:200@A1	16/08/2024	IW

Drawing Number
TRI-4549-01



Appendix C – Site Layout



Proposed Site Plan
Scale 1:100

Notes
 This drawing, together with the design it illustrates, is copyright, and may not be reproduced in any form, without the written consent of Zara Moon Architects.
 Do not scale this drawing except for determination of basic layout - only figured dimensions to be used. All dimensions to be checked on site.
 - - - Existing building to be demolished

Rev.	Date
B	11/26/25
A	11/26/25

Appendix D – Flood Maps for Planning

Flood map for planning

Your reference
Unspecified

Location (easting/northing)
366342/431268

Created
7 April 2026 10:42

Your selected location is in flood zone 1, an area with a low probability of flooding.

You will need to do a flood risk assessment if your site is **any of the following**:

- bigger than 1 hectare (ha)
- in an area with critical drainage problems as notified by the Environment Agency
- identified as being at increased flood risk in future by the local authority's strategic flood risk assessment
- at risk from other sources of flooding (such as surface water or reservoirs) and its development would increase the vulnerability of its use (such as constructing an office on an undeveloped site or converting a shop to a dwelling)

Notes

The flood map for planning shows river and sea flooding data only. It doesn't include other sources of flooding. It is for use in development planning and flood risk assessments.

This information relates to the selected location and is not specific to any property within it. The map is updated regularly and is correct at the time of printing.

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Flood map for planning

Your reference
Unspecified

Location (easting/northing)
366342/431268

Scale
1:2,500

Created
7 Apr 2026 10:42

-  Selected area
-  Flood zone 3
-  Flood zone 2
-  Flood zone 1
-  Flood defence
-  Main river
-  Water storage area

