60 Mitton Road, Whalley, Lancashire, BB7 9RY

Flood Risk Assessment

For Mr & Mrs Robb

KRS.0918.001.R.001.A

December 2025

www.krsenviro.com

CONTACT DETAILS

Registered Office:
KRS Environmental Ltd
3 Princes Square
Princes Street
Montgomery
Powys
SY15 6PZ

Tel: 01686 668957
Mob: [redacted]

Email: [redacted]
Web: www.krsenviro.com
LinkedIn [redacted]

60 Mitton Road, Whalley, Lancashire, BB7 9RY

Project	Flood Risk Assessment
Client	Mr & Mrs Robb
Status	Final
Prepared by	Ruth Evans
Reviewed by	Keelan Serjeant BSc (Hons), MSc, MCIWEM
Date	December 2025

Disclaimer

This report has been produced by KRS Environmental Limited within the terms of the contract with the client and taking account of the resources devoted to it by agreement with the client.

We disclaim any responsibility to the client and others in respect of any matters outside the scope of the above.

This report is confidential to the client and we accept no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies on the report at their own risk.

CONTENTS

TABLES & FIGURES

EXECUTIVE SUMMARY

The Site would be expected to remain dry in all but the most extreme conditions. The consequences of flooding are acceptable, and the development would be in accordance with the requirements of the National Planning Policy Framework (NPPF). The Proposed Development would be operated with minimal risk from flooding, would not increase flood risk elsewhere and is compliant with the requirements of the NPPF.

The Proposed Development should not therefore be precluded on the grounds of flood risk or drainage.

1.0 INTRODUCTION

1.1 Background

This Flood Risk Assessment (FRA) has been prepared by KRS Enviro at the request of Mr & Mrs Robb to support a planning application for the demolition and rebuild of a single storey rear extension ("the Proposed Development") at 60 Mitton Road, Whalley, Lancashire, BB7 9RY ("the Site").

This FRA has been carried out in accordance with guidance contained in the National Planning Policy Framework (NPPF)[1], associated Planning Practice Guidance on flood risk and coastal change[2] (PPG) and the PPG 'Site-specific flood risk assessment checklist'. This FRA identifies and assesses the risks of all forms of flooding to and from the development and demonstrates how these flood risks will be managed so that the development remains safe throughout the lifetime, taking climate change into account.

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

1.2 National Planning Policy Framework (NPPF)

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

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

- whether a proposed development is likely to be affected by current or future flooding from all sources;
- whether it will increase flood risk elsewhere;
- whether the measures proposed to deal with these effects and risks are appropriate;
- if necessary, provide the evidence to the Local Planning Authority (LPA) that the Sequential Test can be applied; and
- whether the development will be safe and pass part c) of the Exception Test if this is appropriate.

The report findings are based upon professional judgement and are summarised below with detailed recommendations provided at the end of the report. The report includes rainfall data from the Flood Estimation Handbook (FEH) and hydrogeological information from the British Geological Survey (BGS). The assessment will summarise and refer to these datasets in the text.

[1] Ministry for Housing, Communities and Local Government (2025) National Planning Policy Framework: https://assets.publishing.service.gov.uk/media/675abd214cbda57cacd3476e/NPPF-December-2024.pdf
[2] Communities and Local Government (2022) Planning Practice Guidance - Flood Risk and Coastal Change: https://www.gov.uk/guidance/flood-risk-and-coastal-change

1.3 Report Structure

This FRA has the following report structure:

- Section 2 describes the location and the existing and Proposed Development;
- Section 3 outlines the flood risk to the existing and Proposed Development;
- Section 4 details the proposed surface water drainage for the Site and assesses the potential impacts of the Proposed Development on surface water drainage;
- Section 5 outlines the mitigation measures used to manage the overall level of flood risk;
- Section 6 details the Sequential and Exception Tests; and
- Section 7 presents a summary and conclusions

2.0 LOCATION & DEVELOPMENT DESCRIPTION

2.1 Site Location

The Site is located at 60 Mitton Road, Whalley, Lancashire, BB7 9RY (see Figure 1). The National Grid Reference (NGR) of the Site is 372672, 436720.

Figure 1 - Site Location

2.2 Existing Development

The existing Site consists of a detached residential dwelling with a rear single storey extension (see Appendix 1).

2.3 Proposed Development

The Proposed Development is for the demolition and rebuild of a single storey rear extension (see Appendix 1). The new extension will utilise the same footprint as the existing extension. Further details with regard to the Proposed Development can be found in the accompanying information submitted with the planning application.

2.4 Ground Levels

The Site has an approximate minimum ground level of 49.94 metres Above Ordnance Datum (mAOD) as per the Environment Agency's LiDAR 1m Digital Terrain Model (DTM).

2.5 Catchment Hydrology

There is an unnamed brook adjacent to the eastern and southern boundary of the Site. The River Calder is located approximately 380m to the south of the Site.

2.6 Ground Conditions

The British Geological Survey (BGS) map[3] shows that the bedrock deposits at the Site consist of the Hodderense Limestone Formation - limestone. These sedimentary rocks are subaqueous in origin. They are detrital, comprising coarse to fine grained materials, forming down-slope flows of beds and fans of material in a marine (or lacustrine) setting. The superficial deposits consist of Alluvium - Till, Devensian-Diamicton. These sedimentary deposits are glacigenic in origin. They are detrital, created by the action of ice and meltwater, they can form a wide range of deposits and geomorphologies associated with glacial and inter-glacial periods during the Quaternary.

Information from the National Soil Resources Institute[4] details the Site area as being situated on slowly permeable seasonally wet acid loamy and clayey soils with impeded drainage.

[3] https://mapapps2.bgs.ac.uk/geoindex/home.html?_ga=2.14476159.932338379.1655890995-1831306757.1655472887
[4] http://www.landis.org.uk/soilscapes/

3.0 FLOOD RISK

3.1 Sources of Flooding

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

3.2 Environment Agency

Information regarding the current flood risk at the application Site and local flood defences has been obtained from the Environment Agency (see Appendix 2) although no detailed modelling or flood levels are available for this location at the present time.

3.3 Climate Change

Projections of future climate change, in the UK, indicate more frequent, short-duration, high intensity rainfall and more frequent periods of long duration rainfall. Guidance included within the NPPF recommends that the effects of climate change are incorporated into FRA's. Recommended precautionary sensitivity ranges for peak rainfall intensities and peak river flows are outlined in the flood risk assessments: climate change allowances guidance[5]. Table 1 shows the peak river flow allowances by river management catchment.

The flood risk assessments: climate change allowances guidance recommends that the central allowances are used to assess climate change throughout the lifetime of the development which is 100 years.

The flood risk assessments: climate change allowances guidance recommends that the central allowances are used and the higher allowances are used to test the sensitivity of flood risk across the anticipated lifespan of the development[6]. The lifetime of the Proposed Development, as per Environment Agency guidance, is 100 years. Therefore, the fluvial design event for the Site is the 1 in 100 year (+36%) event.

Table 1 - Peak River Flow Allowances by River Catchment

River Catchment	Allowance Category	2020s	2050s	2080s
Ribble Management Catchment	Upper	+27%	+44%	+71%
	Higher	+19%	+29%	+46%
	Central	+16%	+23%	+36%

3.4 Environment Agency Flood Zones

A review of the Environment Agency's Flood Zones indicates that the Site is located within Flood Zones 1, 2 and 3, with a 'low to high probability' of fluvial flooding, as shown in Figure 2. The north of the Site have less than 1 in 1000 annual probability of river flooding in any year (<0.1%) and the south of the Site has a 1 in 100 or greater annual probability of river flooding (>1%) in any year.

Figure 3 shows how the combined extent of Flood Zones 2 and 3 could increase with climate change over the next 100 years. Given the extension reuses the existing footprint and does not

[5] https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances#high-allowances
[6] https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances#high-allowances

alter ground levels, the climate change uplift does not change the overall flood risk classification or the suitability of the site for development.

It should be noted that only the garden area to the south of the Site is located within Flood Zone 3 with the existing house being located on higher ground to the north of the Site within Flood Zones 1 and 2.

The Site should not be designated as Flood Zone 3b 'Functional Floodplain'. The definition of Flood Zone 3b 'Functional Floodplain' as per the PPG is: *"This zone comprises land where water from rivers or the sea has to flow or be stored in times of flood. The identification of functional floodplain should take account of local circumstances and not be defined solely on rigid probability parameters. Functional floodplain will normally comprise:*

- *land having a 3.3% or greater annual probability of flooding, with any existing flood risk management infrastructure operating effectively; or*
- *land that is designed to flood (such as a flood attenuation scheme), even if it would only flood in more extreme events (such as 0.1% annual probability of flooding).*

Local planning authorities should identify in their Strategic Flood Risk Assessments areas of functional floodplain and its boundaries accordingly, in agreement with the Environment Agency."

The Site does not comprise land where water has to flow or be stored in times of flood. The Site does not perform a water conveyance flood route or a flood storage area. The Site does not provide a function of flood conveyance (i.e. free flow) or flood storage, either through natural processes, or by design (e.g. washlands and flood storage areas). The Site is already developed therefore, the Site is located within Flood Zone 3a.

The Flood Zones are the current best information on the extent of the extremes of flooding from rivers or the sea that would occur without the presence of flood defences, because these can be breached, overtopped and may not be in existence for the lifetime of the development. They show the worst case scenario. The Environment Agency Flood Zones and acceptable development types are explained in Table 2. Table 2 shows that some development types are generally acceptable in Flood Zones 1, 2 and 3a.

Figure 2 - Environment Agency Flood Zones: Present Day

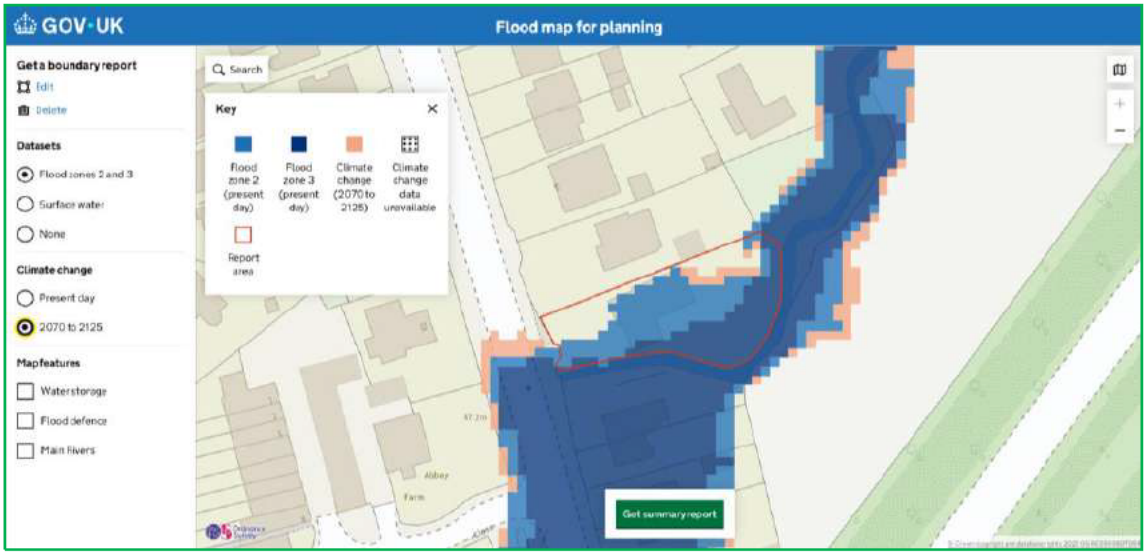


Figure 3 - Environment Agency Flood Zones: Climate Change 2070 to 2125

Table 2 - Environment Agency Flood Zones and Appropriate Land Use

Flood Zone	Probability	Explanation	Appropriate Land Use
Zone 1	Low	Less than a 1 in 1000 annual probability of river or sea flooding in any year (<0.1%)	All development types generally acceptable
Zone 2	Medium	Between a 1 in 100 and 1 in 1000 annual probability of river flooding (1% - 0.1%) or between a 1 in 200 and 1 in 1000 annual probability of sea flooding (0.5% 0.1%) in any year	Most development type are generally acceptable
Zone 3a	High	A 1 in 100 or greater annual probability of river flooding (>1%) or a 1 in 200 or greater annual probability of flooding from the sea (>0.5%) in any year	Some development types not acceptable
Zone 3b	'Functional Floodplain'	This zone comprises land where water from rivers or the sea has to flow or be stored in times of flood. The identification of functional floodplain should take account of local circumstances and not be defined solely on rigid probability parameters. Functional floodplain will normally comprise: • land having a 3.3% or greater annual probability of flooding, with any existing flood risk management infrastructure operating effectively; or • land that is designed to flood (such as a flood attenuation scheme), even if it would only flood in more extreme events (such as 0.1% annual probability of flooding). Local planning authorities should identify in their Strategic Flood Risk Assessments areas of functional floodplain and its boundaries accordingly, in agreement with the Environment Agency. (Not separately distinguished from Zone 3a on the Flood Map)	Some development types not acceptable

3.5 Flood Vulnerability

In the PPG, appropriate uses have been identified for the Flood Zones. Applying the Flood Risk Vulnerability Classification in the PPG, the existing and proposed use is classified as 'more vulnerable'. The Proposed Development will not change the nature or times of occupation or introduce a new 'more vulnerable' use into the floodplain. Table 3 of this report and the PPG state that 'more vulnerable' uses are appropriate within Flood Zones 1, 2 and 3a after the completion of a satisfactory FRA.

Table 3 - Flood Risk Vulnerability and Flood Zone 'Compatibility'

Flood Risk Vulnerability Classification	Essential Infrastructure	Water Compatible	Highly Vulnerable	More Vulnerable	Less Vulnerable
Zone 1	✓	✓	✓	✓	✓
Zone 2	✓	✓	Exception test required	✓	✓
Zone 3a	Exception test required	✓	×	Exception test required	✓
Zone 3b 'Functional Floodplain'	Exception test required	✓	×	×	×

Key: *✓: Development is appropriate, ×: Development should not be permitted.*

3.6 Historic Flooding

The Environment Agency data shows that the Site has not historically flooded (see Figure 4). There are no records of anecdotal information of flooding at the Site. The British Hydrological Society "Chronology of British Hydrological Events[7]" has no information on flooding within the vicinity of the Site. No other historical records of flooding for the Site have been recorded. Therefore, it has been assumed that the Site has not flooded in the recent past.

[7] http://www.dundee.ac.uk/geography/cbhe/

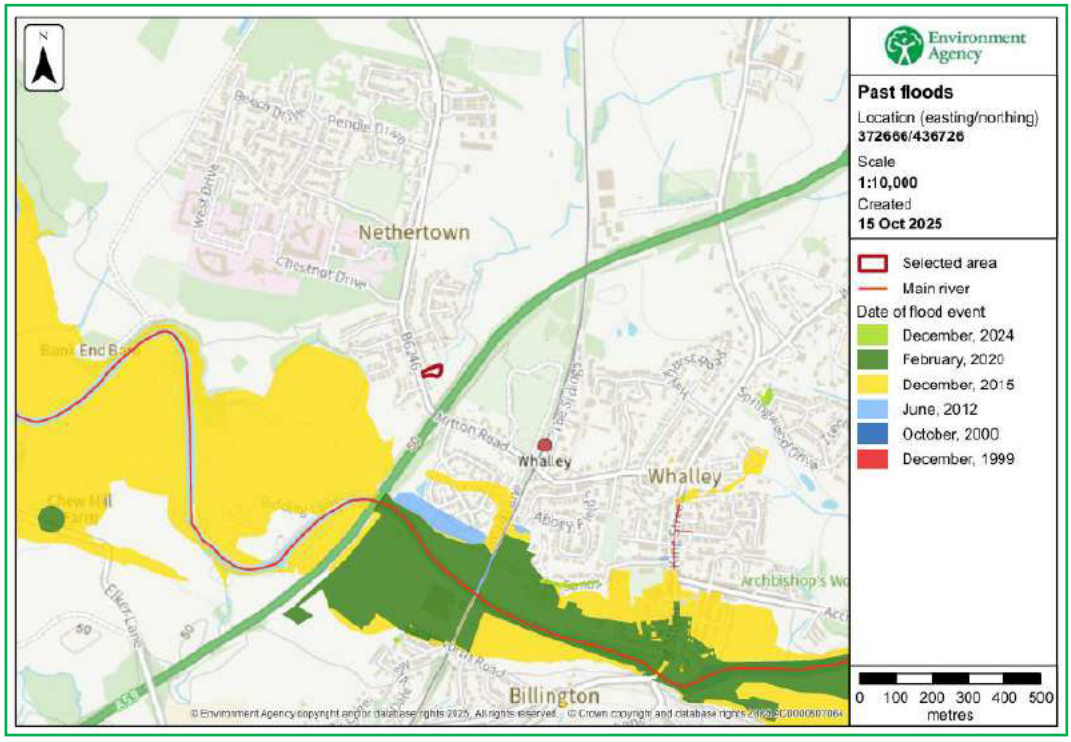


Figure 4 - Environment Agency Historic Flood Outline

3.7 Existing and Planned Flood Defence Measures

The Environment Agency data shows that the Site is not protected against flooding by existing flood defence measures. However, further property level protection measures will be used to protect the Site from flooding these are discussed in Section 5.0.

3.8 Fluvial (River) Flooding

The primary, but unlikely, flood risk posed to the Site is from fluvial flooding from the unnamed brook adjacent to the eastern and southern boundary of the Site and the River Calder which is located approximately 380m to the south of the Site.

The Environment Agency have confirmed they do not hold modelled data for this area. The size and scale of the Proposed Development does not justify the time and cost required to undertake detailed hydraulic model of the area.

The Site is located within Flood Zones 1, 2 and 3a, with a 'low to high probability' of fluvial flooding. The north of the Site have less than 1 in 1000 annual probability of river flooding in any year (<0.1%) and the south of the Site has a 1 in 100 or greater annual probability of river flooding (>1%) in any year.

The new National Flood Risk Assessment (NaFRA) data shows the during the 1 in 100 year event (i.e. 1%) the water depths, on the south of the Site, may be up to 300mm during the existing situation and water depths may be up to 300mm when climate change is taken into account between 2036 and 2069 (see Figures 5 to 6). The NaFRA dataset provides the most up-to-date national assessment of fluvial flood hazard. Given the extension reuses the existing footprint and does not alter ground levels, the climate change uplift does not change the overall flood risk classification or the suitability of the site for development.

However, it should be noted that only the garden area to the south of the Site is located within Flood Zone 3 with the existing house being located on higher ground to the north of the Site within Flood Zones 1 and 2.

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

Fluvial flood risk to the Site can be considered to be limited. Any overbank flow would follow the contours of the surrounding area and would flow away from the Site rather than flowing towards the Site. It should also be noted that the Site has not historically flooded.

Given the scale and nature of the Proposed Development and the size and location of the fluvial flooding sources it has been concluded that fluvial flooding poses a low flood risk to the Site from the culverted watercourse. Therefore, the risk of fluvial flooding is considered to be of medium significance. The risk of fluvial flooding will be further managed and mitigated by using a number of property level protection measures to manage and reduce the overall flood risk at the Site (see Section 5.0).

Figure 5 - Environment Agency Rivers and Sea Flood Map: Present Day Water Depths

Figure 6 - Environment Agency Rivers and Sea Flood Map: Climate Change Water Depths

Fluvial flood risk to the Site can be considered to be limited. Any overbank flow would follow the contours of the surrounding area and would flow away from the Site rather than flowing towards the Site. It should be noted however that the Site has not historically flooded.

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

Given the scale and nature of the Proposed Development and the size and location of the fluvial flooding sources it has been concluded that fluvial flooding poses a minimal actual and residual flood risk to the site. Therefore, the risk of fluvial flooding is considered to be of low significance. The risk from this source will be further mitigated by using a number of property level protection measures to manage and reduce the overall flood risk at the Site (see Section 5.0).

3.9 Tidal (Coastal) Flooding

The Site is not located within the vicinity of tidal flooding sources and the risk of tidal flooding is considered to be not significant.

3.10 Groundwater Flooding

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

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

The Environment Agency data shows that flooding from groundwater is unlikely in this area. Site ground conditions suggest a low potential for groundwater flooding. The Site is not located within an area of elevated groundwater emergence potential, and the bedrock geology does not suggest susceptibility to groundwater flooding. The risk of flooding from groundwater flooding is considered to be not significant.

3.11 Surface Water (Pluvial) Flooding

The local catchment is relatively small, and surface water flow pathways are shallow and limited in extent. The Site surroundings are relatively flat and there are no large catchments that would tend to generate surface water runoff towards the Site. Surface water flow flooding tends to occur sporadically in both location and time such surface water flows would tend to be confined to the streets around the development.

The Environment Agency Surface Water flood map shows that the Site has a very low risk of surface water flooding with a chance of flooding of less than a 1 in 1000 (0.1%) annual probability of flooding in any year, as shown in Figures 7 to 9.

Given the scale and nature of the Proposed Development and the size and location of the surface water flooding sources it has been concluded that surface water flooding poses a very low flood risk to the Site. Therefore, the risk of flooding from surface water flooding is considered to be not significant.

Figure 7 - Environment Agency Surface Water Flood Map: High Risk 1 in 30 Year Event

Figure 8 - Environment Agency Surface Water Flood Map: Medium Risk 1 in 100 Year Event

Figure 9 - Environment Agency Surface Water Flood Map: Low Risk 1 in 1000 Year Event

3.12 Sewer Flooding

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

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

Given the design parameters normally used for drainage design in recent times and allowing for some deterioration in the performance of the installed systems, which are likely to have been in place for many years, an appropriate flood risk probability from this source could be assumed to have a return period in the order of 1 in 10 to 1 in 20 years.

The provision of adequate level difference between the ground floors and adjacent ground level would reduce the annual probability of damage to property from this source to 1 in 100 years or less. There are no records of sewer flooding in the vicinity of the Site, and in the absence of confirmed DG5 entries, sewer flood risk is considered. Therefore, the risk of flooding from sewer flooding is considered to be not significant.

3.13 Flooding from Artificial Drainage Systems/Infrastructure Failure

Reservoirs are located within the vicinity of the Site. The Environment Agency flood map shows that the Site is at risk of reservoir flooding (see Figure 10). This map shows the largest area that might be flooded if a reservoir were to fail and release the water it holds. The Environment Agency Reservoir flood map has been prepared for emergency planning purposes and for this reason they reflect a worst-case scenario. Since this is a prediction of a worst-case scenario, it is unlikely that any actual flood would be this large.

Reservoir flooding is extremely unlikely; reservoirs in the UK have a very good safety record. There has been no loss of life in the UK from reservoir flooding since 1925. Since then, reservoir safety legislation has been introduced to make sure reservoirs are well maintained. The hazard is well managed through effective legislation and it is unlikely that the impact zone downstream of these reservoirs should not allow the Proposed Development. The risk of flooding from artificial drainage systems/infrastructure failure is considered to be not significant.

Figure 10 - Environment Agency Reservoir Flood Map

3.14 The Effect of the Development on Flood Risk

The Proposed Development reuses the existing footprint and does not introduce any increase in impermeable area, changes to ground levels or obstruction of existing flow paths. As such, the development results in no loss of floodplain storage, no impediment of conveyance, and no increase in runoff rates or volumes. The development therefore complies with NPPF 181(b) and 181(c), demonstrating that it will not increase flood risk elsewhere.

3.15 Summary of Site Specific Flood Risk

A summary of the sources of flooding and a review of the risk posed by each source at the Site is shown in Table 4.

The primary, but unlikely, flood risk posed to the Site is from fluvial flooding. The Site is located within Flood Zones 1, 2 and 3a, with a 'low to high probability' of fluvial flooding. The north of the Site have less than 1 in 1000 annual probability of river flooding in any year (<0.1%) and the south of the Site has a 1 in 100 or greater annual probability of river flooding (>1%) in any year.

The new NaFRA data shows the during the 1 in 100 year event (i.e. 1%) the water depths, on the south of the Site, may be up to 300mm during the existing situation and water depths may be up to 300mm when climate change is taken into account between 2036 and 2069. Given the extension reuses the existing footprint and does not alter ground levels, the climate change uplift does not change the overall flood risk classification or the suitability of the site for development.

However, it should be noted that only the garden area to the south of the Site is located within Flood Zone 3 with the existing house being located on higher ground to the north of the Site within Flood Zones 1 and 2.

It should also be noted that the Site has not historically flooded and the proposed extension will use the same footprint as the existing extension. The existing and proposed use is classified as 'more vulnerable' and the Proposed Development will not change the nature or times of occupation or introduce a new 'more vulnerable' use into the floodplain. 'More vulnerable' uses are appropriate within Flood Zones 1, 2 and 3a after the completion of a satisfactory FRA.

Given the scale and nature of the Proposed Development and the size and location of the fluvial flooding sources it has been concluded that fluvial flooding poses a minimal actual and residual flood risk to the site. Therefore, the risk of fluvial flooding is considered to be of low significance. The risk from this source will be further mitigated by using a number of property level protection measures to manage and reduce the overall flood risk at the Site (see Section 5.0).

The Proposed Development reuses the existing footprint and does not introduce any increase in impermeable area, changes to ground levels or obstruction of existing flow paths. As such, the development results in no loss of floodplain storage, no impediment of conveyance, and no increase in runoff rates or volumes. The development therefore complies with NPPF 181(b) and 181(c), demonstrating that it will not increase flood risk elsewhere.

Table 4 - Risk Posed by Flooding Sources

Sources of Flooding	Potential Flood Risk	Potential Source	Probability/Significance
Fluvial Flooding	Yes	Unnamed Brook/River Calder	Low
Tidal Flooding	No	None Reported	None
Groundwater Flooding	No	None Reported	None
Surface Water Flooding	No	None Reported	None
Sewer Flooding	No	None Reported	None
Flooding from Artificial Drainage Systems/Infrastructure Failure	Yes	Reservoirs	None

4.0 SURFACE WATER DRAINAGE

4.1 Surface Water Management Overview

It is recognised that consideration of flood issues should not be confined to the floodplain. The alteration of natural surface water flow patterns through developments can lead to problems elsewhere in the catchment, particularly flooding downstream. For example, replacing vegetated areas with roofs, roads and other paved areas can increase both the total and the peak flow of surface water runoff from the Site. Changes of land use on previously developed land can also have significant downstream impacts where the existing drainage system may not have sufficient capacity for the additional drainage.

An assessment of the surface water runoff rates has been undertaken, in order to determine the surface water options and attenuation requirements for the Site. The assessment considers the impact of the proposals compared to current conditions. Therefore, the surface water attenuation requirement for the developed Site can be determined and reviewed against existing arrangements.

The surface water drainage arrangements for any development site should be such that the volumes and peak flow rates of surface water leaving a developed site are no greater than the rates prior to the Proposed Development unless specific off-site arrangements are made and result in the same net effect.

4.2 Surface Water Runoff Rates/Volumes

The Proposed Development will not alter the impermeable areas of the Site. There will be no increase in surface water runoff or exacerbation of off-site risk as a result of the development. It is understood that the existing drainage infrastructure at the Site efficiently and effectively manages surface water runoff generated at the Site.

5.0 RISK MANAGEMENT

5.1 Introduction

The flood risk at this location is considered suitable for the Proposed Development within the NPPF. In this flood zone, developers and local authorities should seek opportunities to reduce the overall level of flood risk in the area through the layout and form of the development and the use of flood mitigation measures.

The flooding sources will be mitigated on the Site by using a number of techniques, and mitigation strategies to manage and reduce the overall flood risk at the Site. This will ensure the development will be safe and there is:

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

The flood risk at the Site will be reduced by mitigation measures; these are discussed in more detail below.

5.2 Finished Floor Levels

Finished floor levels of the extension will match the existing dwelling, which is already raised approximately 150mm above surrounding ground levels. Raising the floor levels further is not feasible without breaching Building Regulations headroom requirements and causing harmful massing impact.

In accordance with NPPF 181(e), where raising floor levels is not practicable, risk may instead be managed through a combination of property level protection, resilience measures and the provision of safe refuge on upper floors. These measures ensure the development remains safe for its lifetime. A Flood Plan will be prepared to support this.

5.3 First Floor Accommodation

Accommodation is located on the first floor as well as the ground floor of the house. This will allow occupants to retreat to higher floor levels if needed. The levels of the first floor are located well above any floodwater levels. This provides a 'safe haven' above any floodwater levels. This will enable rapid escape should flooding occur which is unlikely.

The upper floors are accessed via internal stairs and are sufficient in size to safely house all occupants of the building. The 'safe haven' will only be required in very extreme events or if a flood warning has not been received. The availability of safe first floor refuge ensures that occupants can safely shelter for the duration of any extreme flood event if external access is temporarily restricted

5.4 Flood Resistance Measures

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

- The walls of the extension will be thick.
- Sealant will be used around all external doors and windows.
- All windows will be located above the finished floor levels.
- All external doors and windows are constructed from hard wearing materials.

These factors will prevent water entering the property and make the property more resistant to seepage.

5.5 Flood Resilience Measures

Flood resilience measures are designed in such a way as to reduce the cost and time required to reinstate the property should it be flooded (tiled floors are an example of a flood resilience measure).

The extension will be constructed in such a way that although floodwater may enter the building, elements that are damaged by flood water can be easily repaired or replaced. This is a form of flood resilience. They are suitable as no other measure is practicable. Robust materials and finishes will be used.

All electrics wiring, switches, sockets, socket outlets etc. to be located a minimum of 450mm above the finished floor levels.

5.6 Flood Warning

The Site is located in a flood risk area therefore; the Site will participate in the Environment Agency flood warning telephone service. The Site will register contact details with the Environment Agency' Flood Warnings Service (Floodline 0845 988 1188) in order to receive Flood Alerts. The Environment Agency operate a free flood warning service providing alerts by phone, text or email when flooding is anticipated providing an opportunity for home owners to take necessary precautions, giving enough time for the building to be safely evacuated and mitigation measures to be put in place.

All occupants/visitors of the Site will be made aware of the Environment Agency Floodline telephone number (Call Floodline on 0345 988 1188 or 0845 988 1188 to get more information). The owner of the Site will carry out the role of Flood Warden for the Site and ensure they have an understanding of the flood mechanisms of the Site and will ensure that the safety of the occupants and visitors will not be compromised.

The Environment Agency are unable to send flood warnings for the Site but they will issue flood alert messages which give an early indication of possible flooding and they are sent more often than flood warnings. The flood alert will be passed onto the occupier/visitors of the Site verbally, by telephone and/or in person. It will be ensured that everyone receives the flood alert when required.

5.7 Flood Plan

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

precautions would include raising electrical items, moving valuable items off the ground or where possible moving them to a higher floor, rolling up carpets and rugs and turning off utilities. In addition, consider what actions you would take should the property need to be evacuated including access and egress routes and preparing a flood kit in advance containing warm clothing, medication, a torch, food and wellingtons.

The Flood Plan is a 'living' document and therefore should be periodically reviewed and updated to provide advice and guidance to occupants in the event of an extreme flood. The Flood Plan will therefore reduce the vulnerability of the occupants to flooding and makes them aware of the mechanisms of flooding at the Site.

Residual Risk

If flooding starts to affect the Site without any pre-warning i.e. in real time (e.g. through a failure of the flood warning delivery) the following actions will be taken:

- Occupants and visitors should consider evacuating the Site.
- If flood levels continue to rise, occupants and visitors are advised to evacuate before safe access is lost. Occupants and visitors should monitor the flood progression and evacuate.

The Flood Warden will monitor flood levels and keep occupants and visitors informed and will decide whether to initiate the Flood Plan. If required a 'safe haven' can also be maintained and may be required in very extreme events if a flood warning has not been received.

5.8 Safe Access and Egress Route

The NPPF requires that, where required, safe access and escape is available to/from new developments in flood risk areas. Access routes should be such that occupants can safely access and exit their houses in design flood conditions. These routes must also provide the emergency services with access to the development during a flood event and enable flood defence authorities to carry out any necessary duties during the period of flood.

The Site is at such a ground level that it would only flood in the most extreme flood event. The Site is located where the onset of flooding is very gradual (many hours) as per Flood Risk Assessment Guidance for New Development Phase 2, R&D Technical Report FD2320/TR2. The ground levels rise to the north west of the Site with the water depths decreasing rapidly Therefore, a safe access and egress route, including emergency access can be maintained for vehicles and/or by foot.

The Proposed Development lies at the northern end of the Site, where ground levels rise away from the flood source. NaFRA data indicates that during the 1 in 100 year (plus climate change), water depths are limited to approximately 300mm in the south of the Site and reduce rapidly toward the dwelling. Along the access route to Mitton Road, predicted depths fall to shallow levels that would remain passable on foot with low hazard.

Flood hazard along this route has been assessed in accordance with FD2320/TR2 ("Flood Risks to People") using the formula Hazard = d(v + 0.5). Given the very low predicted velocities and limited water depths (<0.30m), the resulting hazard rating (<0.75) falls within the 'Low Hazard' category ('Flood Zone with Caution'), confirming safe pedestrian and vehicle access can be maintained under design conditions in accordance with NPPF 181(e).

In the highly unlikely event that flood conditions change rapidly or safe access cannot be maintained, the dwelling benefits from first floor accommodation positioned well above all predicted flood levels. This provides a safe internal refuge fully compliant with NPPF 181(e) and

PPG guidance. Internal refuge is a recognised, policy-supported mitigation measure where raising finished floor levels is not practicable and where safe dry access cannot be guaranteed for all scenarios. A Flood Plan will be prepared to ensure occupants are fully aware of actions to take before, during and after a flood event.

Facilities such as community centres, shops etc. are located to the north of the Site. There may also be large areas than those shown in Figure 2 that are flood free located nearer and within the vicinity of the Site. In the event of a flood warning, vital belongings, including waterproof clothing, necessary medication and essentials for infants and children will be collected. It should be ensured that all occupiers and visitors to the Site are accounted for, and then exit the Site using the routes shown in Figure 11.

The Safe Access and Egress Route shown in Figure 11 indicates the exit routes that all people (i.e. occupants and visitors) on Site should follow once a flood warning has been received. People should make their way to areas outside of the flood zone. Therefore, safe access and egress can be maintained in accordance with the NPPF and Environment Agency guidance.

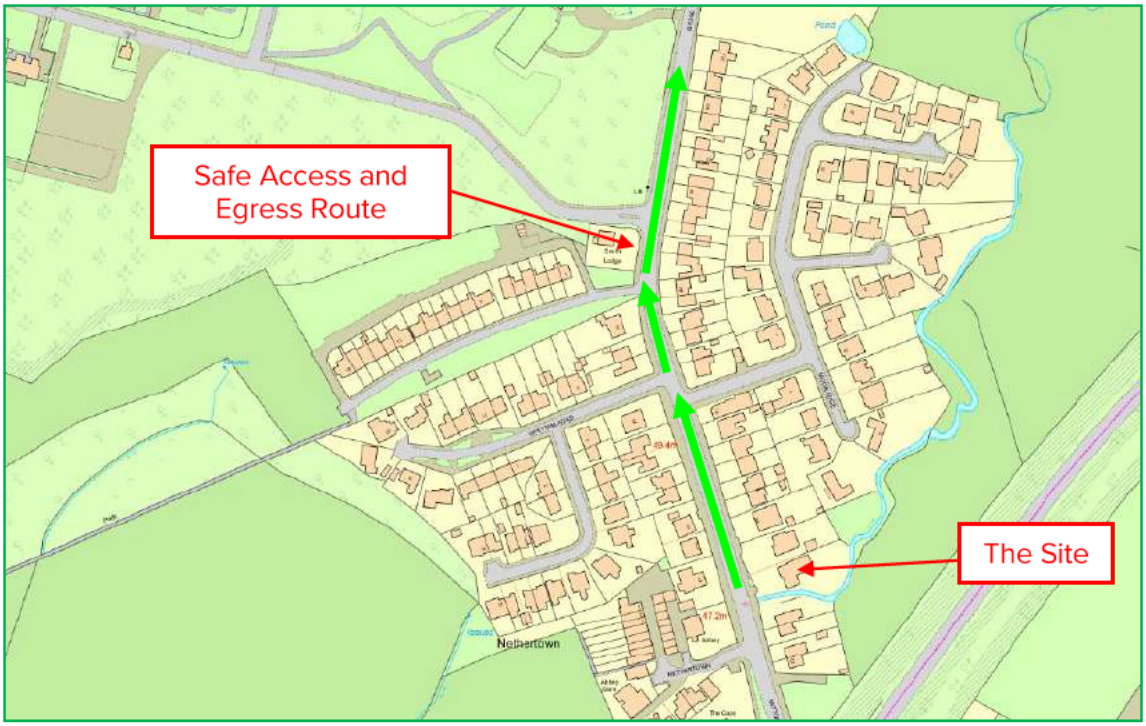


Figure 11 - Safe Access and Egress Route

5.9 Flooding Consequences

The mitigation measures detailed above show that the flood risk can be effectively managed and therefore the consequences of flooding are acceptable. The Site is unlikely to flood except in extreme conditions. This takes into account the property level protection measures.

6.0 SEQUENTIAL APPROACH

6.1 Sequential/Exception Tests

The risk-based Sequential Test in accordance with the NPPF aims to steer new development to areas at the lowest probability of flooding (i.e. Flood Zone 1). However, paragraph 176 of the NPPF confirms that: *'Applications for some minor development and changes of use[8] should not be subject to the Sequential or Exception Tests but should still meet the requirements for site-specific flood risk assessments'.*

Furthrmoe, the existing and proposed use is classified as 'more vulnerable'. The Proposed Development will not change the nature or times of occupation or introduce a new 'more vulnerable' use into the floodplain. The development proposals should therefore be considered by the LPA to satisfy the Sequential and Exception Tests as set out in the NPPF.

[8] This includes householder development, small non-residential extensions (with a footprint of less than 250m^2) and changes of use; except for changes of use to a caravan, camping or chalet site, or to a mobile home or park home site, where the sequential and exception tests should be applied as appropriate.

7.0 SUMMARY AND CONCLUSIONS

7.1 Introduction

This report presents a FRA in accordance with the NPPF for the Proposed Development at 60 Mitton Road, Whalley, Lancashire, BB7 9RY.

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

7.2 Flood Risk

The primary, but unlikely, flood risk posed to the Site is from fluvial flooding. The Site is located within Flood Zones 1, 2 and 3a, with a 'low to high probability' of fluvial flooding. The north of the Site have less than 1 in 1000 annual probability of river flooding in any year (<0.1%) and the south of the Site has a 1 in 100 or greater annual probability of river flooding (>1%) in any year.

The new NaFRA data shows the during the 1 in 100 year event (i.e. 1%) the water depths, on the south of the Site, may be up to 300mm during the existing situation and water depths may be up to 300mm when climate change is taken into account between 2036 and 2069. Given the extension reuses the existing footprint and does not alter ground levels, the climate change uplift does not change the overall flood risk classification or the suitability of the site for development.

However, it should be noted that only the garden area to the south of the Site is located within Flood Zone 3 with the existing house being located on higher ground to the north of the Site within Flood Zones 1 and 2.

It should also be noted that the Site has not historically flooded and the proposed extension will use the same footprint as the existing extension. The existing and proposed use is classified as 'more vulnerable' and the Proposed Development will not change the nature or times of occupation or introduce a new 'more vulnerable' use into the floodplain. 'More vulnerable' uses are appropriate within Flood Zones 1, 2 and 3a after the completion of a satisfactory FRA.

Given the scale and nature of the Proposed Development and the size and location of the fluvial flooding sources it has been concluded that fluvial flooding poses a minimal actual and residual flood risk to the site. Therefore, the risk of fluvial flooding is considered to be of low significance. The risk from this source will be further mitigated by using a number of property level protection measures to manage and reduce the overall flood risk at the Site.

The new extension will utilise the same footprint as the existing extension and there will be no increase in built footprint. The Proposed Development will not increase flood risk elsewhere. Existing overland flow paths through and around the Site will be preserved, and the layout does not introduce any barriers to conveyance. There will be no net loss of floodplain storage, and ground levels will remain broadly consistent with the existing topography. Accordingly, the Proposed Development will have no adverse impact on flood risk within the Site or the wider area.

7.3 Surface Water Drainage

The Proposed Development will not alter the impermeable areas of the Site. It is understood that the existing drainage infrastructure at the Site efficiently and effectively manages surface water runoff generated at the Site. There will be no increase in surface water runoff or exacerbation of off-site risk as a result of the development.

7.4 Risk Management

The flood risk at the Site will be reduced by mitigation measures, discussed below.

Finished Floor Levels: Finished floor levels of the extension will match the existing dwelling, which is already raised approximately 150mm above surrounding ground levels. Raising the floor levels further is not feasible without breaching Building Regulations headroom requirements and causing harmful massing impact.

In accordance with NPPF 181(e), where raising floor levels is not practicable, risk may instead be managed through a combination of property level protection, resilience measures and the provision of safe refuge on upper floors. These measures ensure the development remains safe for its lifetime. A Flood Plan will be prepared to support this.

First Floor Accommodation: Accommodation is located on the first floor as well as the ground floor of the house. This will allow occupants to retreat to higher floor levels if needed. The levels of the first floor are located well above any floodwater levels. This provides a 'safe haven' above any floodwater levels. This will enable rapid escape should flooding occur which is unlikely.

The upper floors are accessed via internal stairs and are sufficient in size to safely house all occupants of the building. The 'safe haven' will only be required in very extreme events or if a flood warning has not been received. The availability of safe first floor refuge ensures that occupants can safely shelter for the duration of any extreme flood event if external access is temporarily restricted

Flood Resistance Measures: Flood resistant measures will be used, including:

- The walls of the extension will be thick.
- Sealant will be used around all external doors and windows.
- All windows will be located above the finished floor levels.
- All external doors and windows are constructed from hard wearing materials.

These factors will prevent water entering the property and make the property more resistant to seepage.

Flood Resilience Measures: Robust materials and finishes will be used:

- All electrics wiring, switches, sockets, socket outlets etc. to be located a minimum of 450mm above the finished floor levels.

Flood Warning: The Site is located in a flood risk area therefore; the Site will participate in the Environment Agency flood warning telephone service.

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

Safe Access and Egress Route: Facilities such as community centres, shops etc. are located to the north of the Site. In the event of a flood warning, vital belongings, including waterproof clothing, necessary medication and essentials for infants and children will be collected. It should be ensured that all occupiers and visitors to the Site are accounted for, and then exit the Site.

The Safe Access and Egress Route indicates the exit routes that all people (i.e. occupants and visitors) on Site should follow once a flood warning has been received. People should make their way to areas outside of the flood zone. Therefore, safe access and egress can be maintained in accordance with the NPPF and Environment Agency guidance.

7.5 Sequential/Exception Tests

The development proposals should therefore be considered by the LPA to satisfy the Sequential and Exception Tests as set out in the NPPF.

7.6 Conclusion

In conclusion, the Proposed Development, would be expected to remain dry in all but the most extreme conditions. The Proposed Development does not introduce any new occupants into the floodplain and does not alter the existing vulnerability classification

The Proposed Development complies with NPPF paragraph 181(a–f). Flood risk to the site has been fully assessed; the Proposed Development does not increase flood risk elsewhere; resilience and property-level protection measures ensure safety for the lifetime of the development; safe access is achievable in the design event with first-floor refuge available for more extreme scenarios; and the development type ('more vulnerable') is appropriate within Flood Zones 1, 2 and 3a for minor development

Providing the recommendations made in this FRA are instigated, flood risk from all sources would be minimised, the consequences of flooding are acceptable and the development would be in accordance with the requirements of the NPPF.

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

APPENDICES

APPENDIX 1 – Existing and Proposed Site Layout

5 EXISTING SOUTH
1 : 100

2 PROPOSED SOUTH
1 : 100

6 EXISTING EAST
1 : 100

4 PROPOSED EAST
1 : 100

7 EXISTING WEST
1 : 100

1 PROPOSED WEST
1 : 100

8 EXISTING NORTH.
1 : 100

3 PROPOSED NORTH.
1 : 100

Peter Hitchen
Architects

Marathon House
The Sidings Business Park
Whalley, BB7 9SE

01254 823 885

www.peterhitchenarchitects.co.uk

NOTES:

DRAWINGS TO BE USED FOR PLANNING PURPOSES ONLY

No.	Description	Date

CLIENT: Dr & Mrs Robb
60 Mitton Road. Whalley

PROJECT: Proposed alterations to improve the accommodation

SHEET: EXISTING AND PROPOSED ELEVATIONS

Project number	PHA/973
Date	29/09/2025
Drawn by	DH
Checked by	PH

A2.3.

Scale	1 : 100
Sheet size	A1

1 EXISTING SITE PLAN
1 : 200

2 PROPOSED SITE PLAN.
1 : 200

Peter Hitchen
Architects

Marathon House
The Sidings Business Park
Whalley, BB7 9SE

01254 823 885

www.peterhitchenarchitects.co.uk

NOTES:

DRAWINGS TO BE USED FOR PLANNING PURPOSES ONLY

No.	Description	Date

CLIENT: Dr & Mrs Robb
60 Mitton Road. Whalley

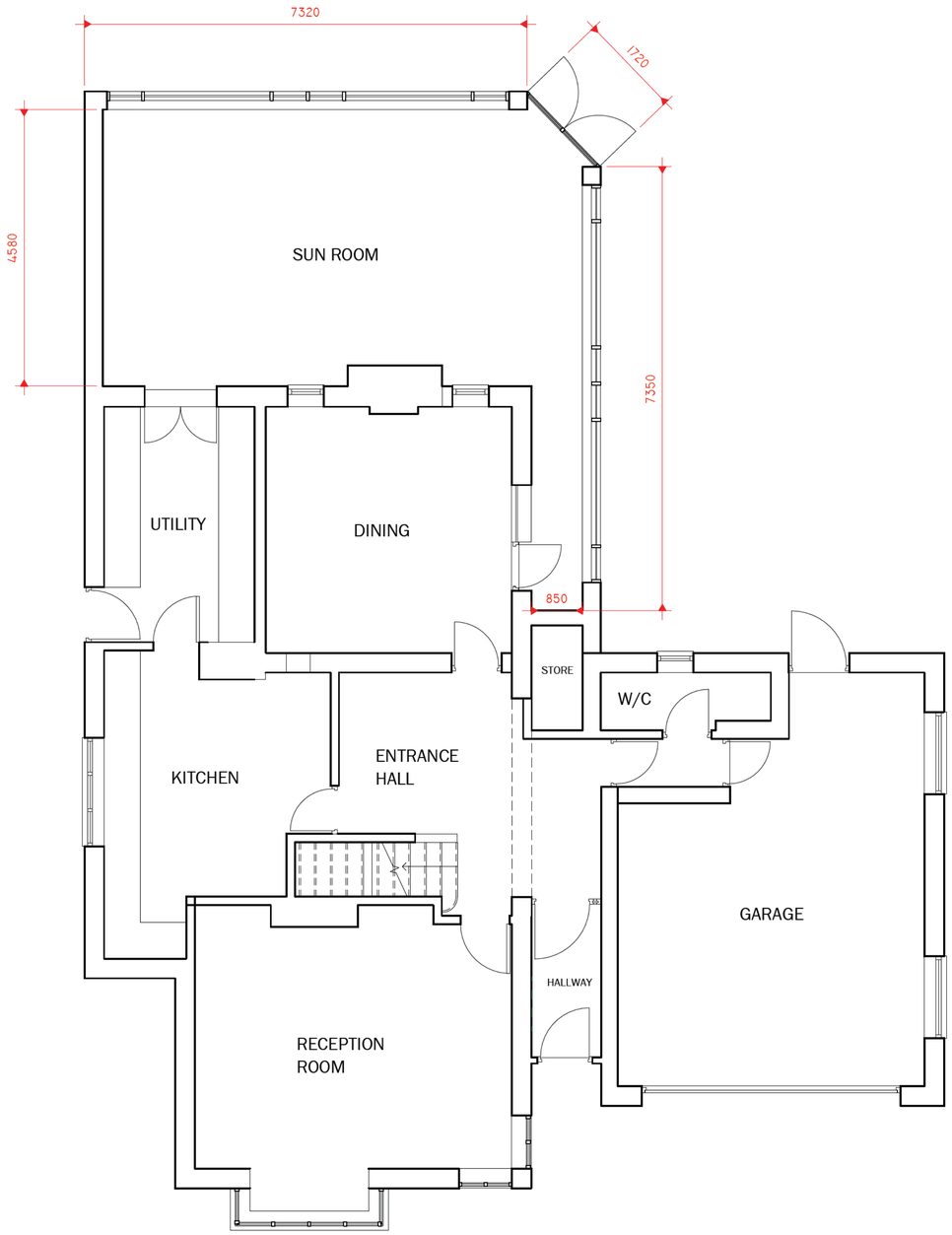
PROJECT: Proposed alterations to improve the accommodation

SHEET: EXISTING & PROPOSED SITE PLAN

Project number	PHA/973
Date	29/09/2025
Drawn by	DH
Checked by	PH

A1.2

Scale	1 : 200
Sheet size	A1



1 0 GROUND FLOOR
1 : 50

2 1 FIRST FLOOR
1 : 50

Peter Hitchen
Architects

Marathon House
The Sidings Business Park
Whalley, BB7 9SE

01254 823 885

www.peterhitchenarchitects.co.uk

NOTES:

DRAWINGS TO BE
USED FOR PLANNING
PURPOSES ONLY

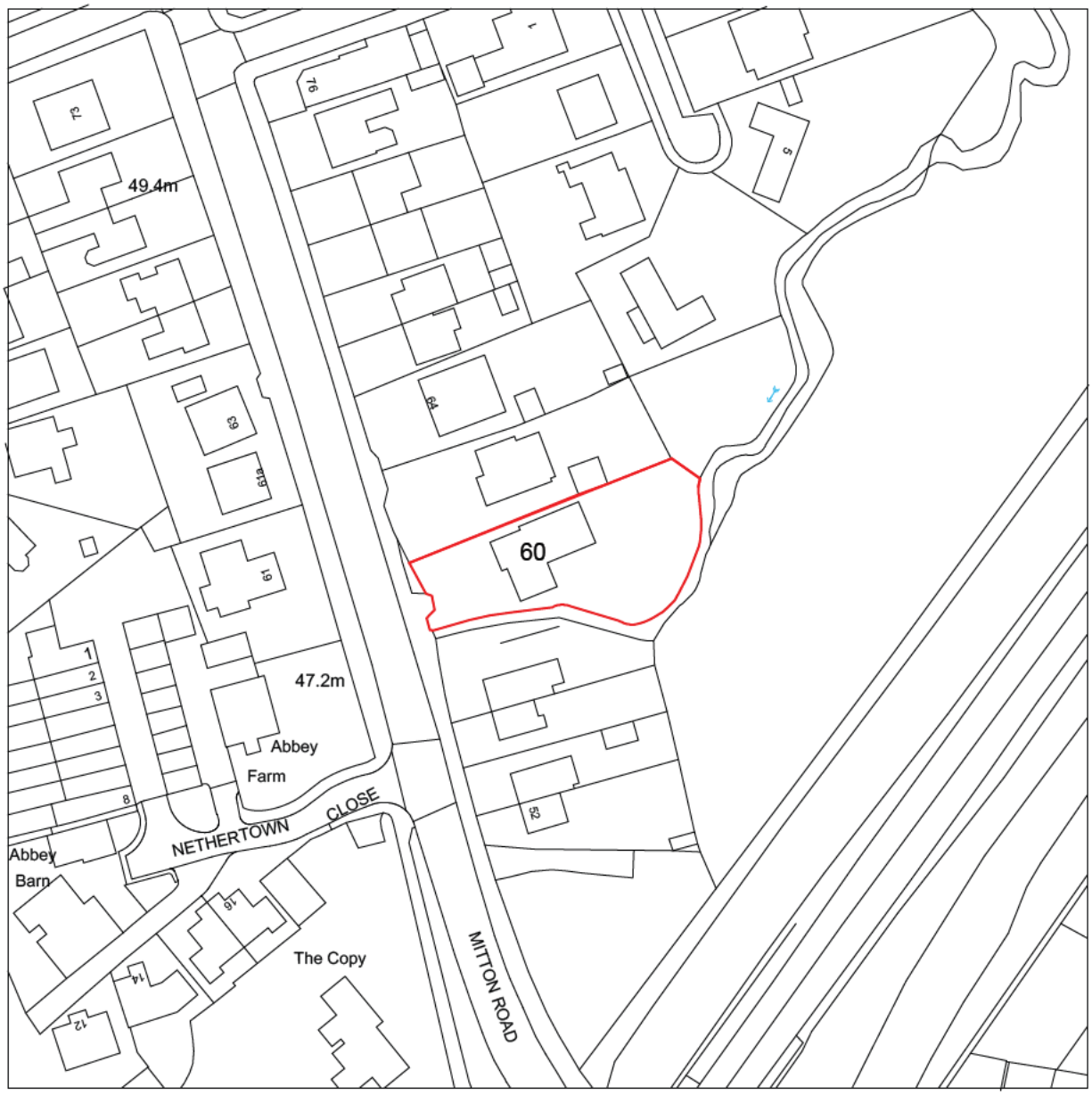
No.	Description	Date

CLIENT: Dr & Mrs Robb
60 Mitton Road. Whalley

PROJECT: Proposed alterations to improve the accommodation

SHEET: EXISTING FLOOR PLANS

Project number	PHA/973
Date	29/09/2025
Drawn by	DH
Checked by	PH
	A1.1
Scale	1 : 50
Sheet size	A1



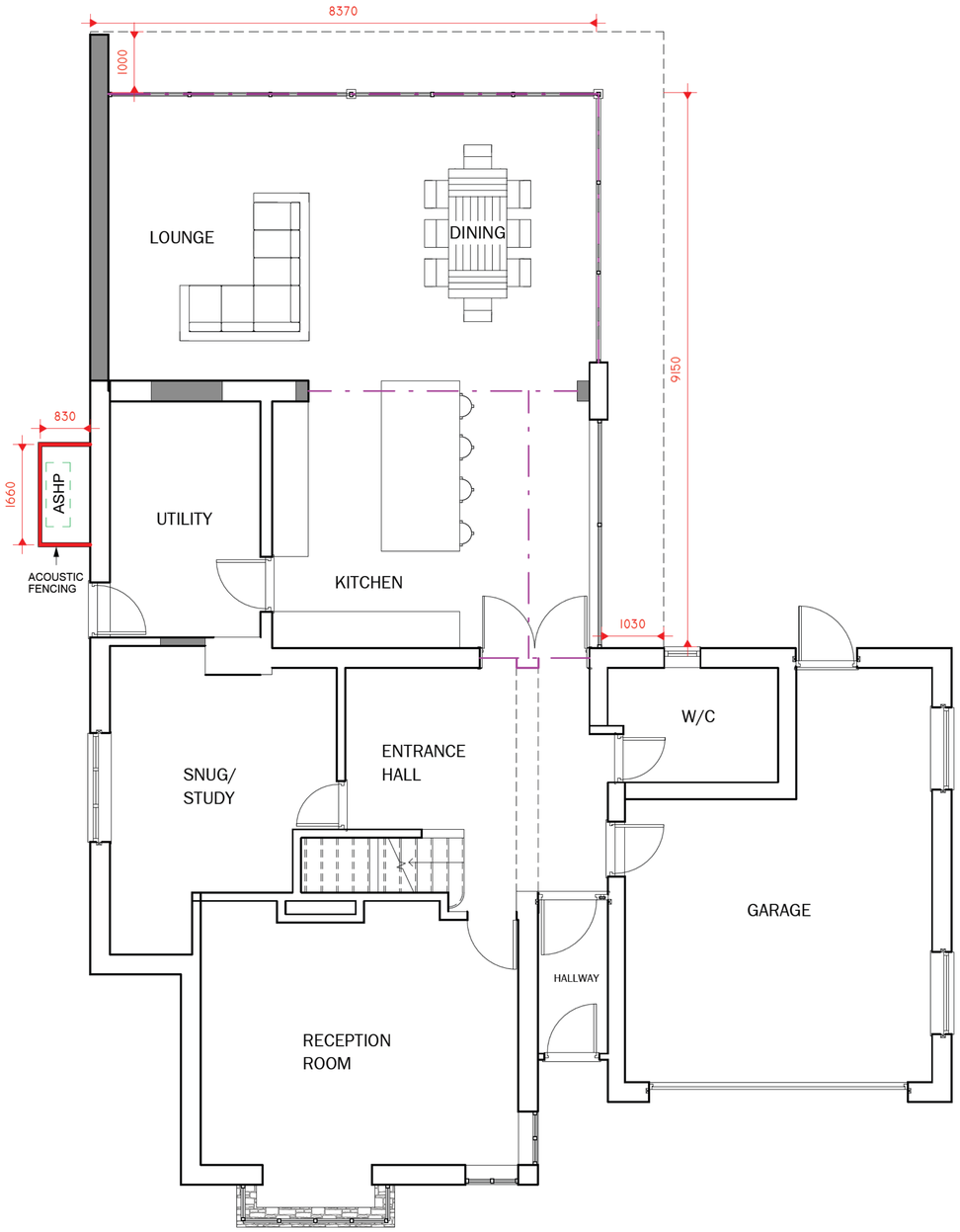
LOCATION PLAN

1

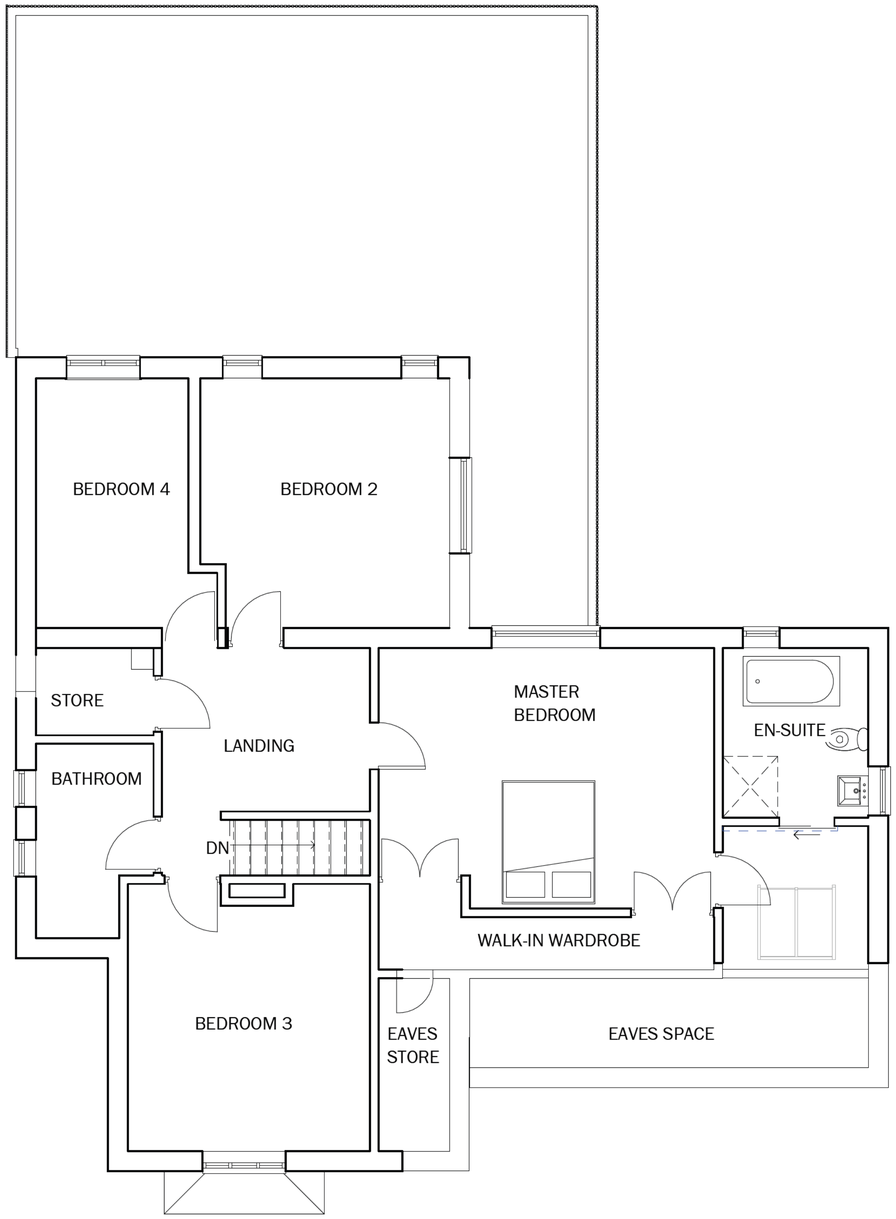
1 : 1250

N

Peter Hitchen Architects		PROJECT ADDRESS: 60 Mitton Road. Whalley	CLIENT Dr & Mrs Robb		
			Date 29/09/2025	Project Number PHA/973	Scale (@ A4) 1 : 1250 / REV
Code	Status				
SUITABILITY DESCRIPTION	PURPOSE OF ISSUE	SHEET LOCATION PLAN	Drawn by DH	DRAWING NUMBER A0.1	
			Checked by PH		



1 0 PROPOSED GROUND FLOOR
1 : 50



2 1 PROPOSED FIRST FLOOR
1 : 50

Peter Hitchen
Architects

Marathon House
The Sidings Business Park
Whalley, BB7 9SE

01254 823 885

www.peterhitchenarchitects.co.uk

NOTES:

DRAWINGS TO BE USED FOR PLANNING PURPOSES ONLY

No.	Description	Date

CLIENT: Dr & Mrs Robb
60 Mitton Road. Whalley

PROJECT: Proposed alterations to improve the accommodation

SHEET: PROPOSED FLOOR PLANS

Project number	PHA/973
Date	29/09/2025
Drawn by	DH
Checked by	PH

A2.2

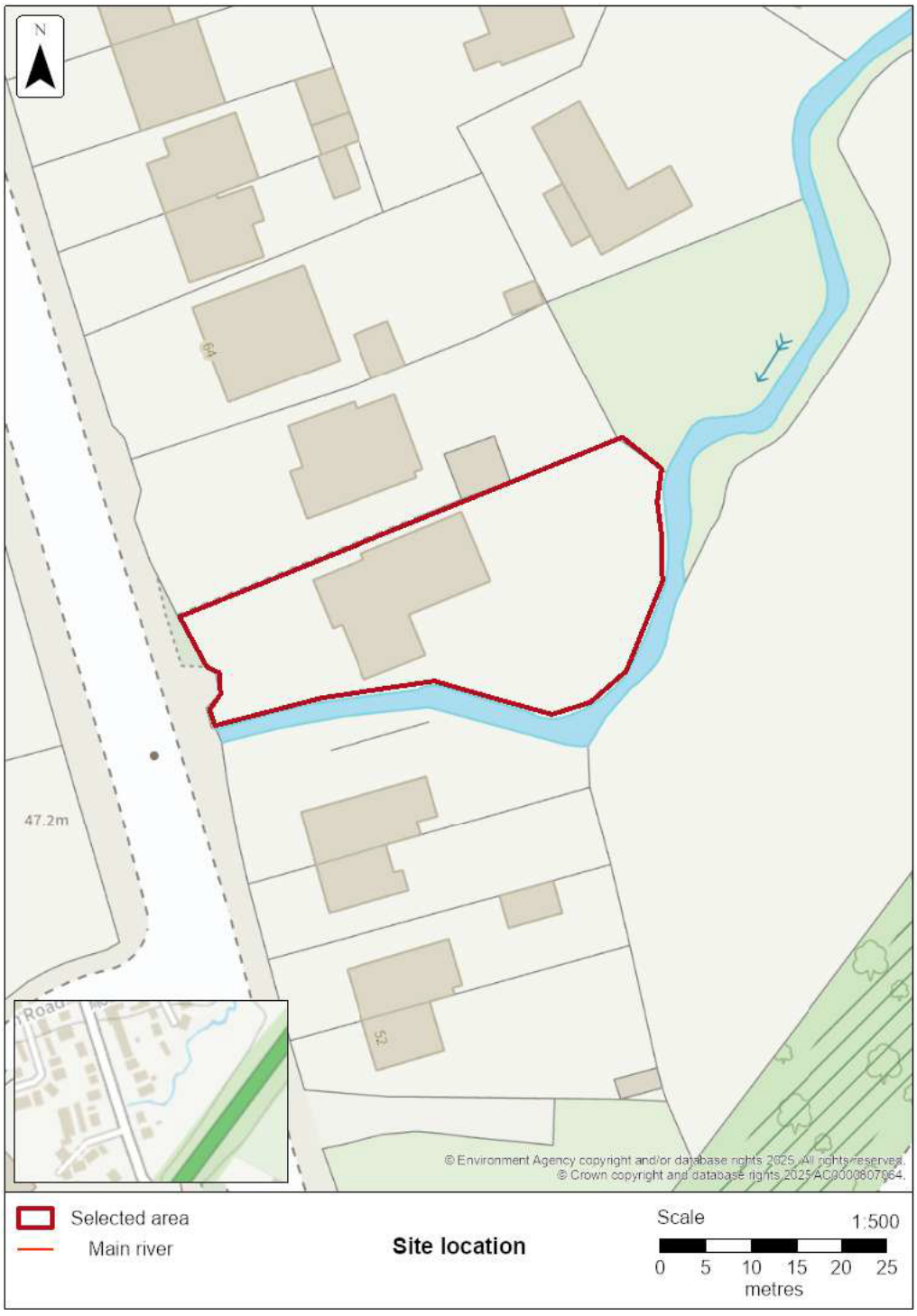
Scale	1 : 50
Sheet size	A1

APPENDIX 2 – Environment Agency Data

Flood risk assessment data

Location of site: 372666 / 436726 (shown as easting and northing coordinates)
Document created on: 15 October 2025
This information was previously known as a product 4.
Customer reference number: TFHVWHW3CFD6

Map showing the location that flood risk assessment data has been requested for.



How to use this information

You can use this information as part of a flood risk assessment for a planning application. To do this, you should include it in the appendix of your flood risk assessment.

We recommend that you work with a flood risk consultant to get your flood risk assessment.

Included in this document

In this document you'll find:

- how to find information about surface water and other sources of flooding
- information on the models used
- definitions for the terminology used throughout
- flood map for planning (rivers and the sea)
- past floods
- flood defences and attributes
- information to help you assess if there is a reduced flood risk from rivers and the sea because of defences
- modelled data
- information about strategic flood risk assessments
- information about this data
- information about flood risk activity permits
- help and advice

Surface water and other sources of flooding

When using the surface water map on the check your long term flood risk service the following considerations apply:

- surface water extents are suitable for use in planning
- surface water climate change scenarios may help to inform risk assessments, but the available data fall short of what is required to assess planned development
- surface water depth information should not be used for planning purposes

To find out about other factors that might affect the flood risk of this location, you should also check:

- reservoir flood risk
- groundwater flood risk - you could use the British Geological Survey groundwater flooding data, groundwater: current status and flood risk and the guide on mining and groundwater constraints for development - further information may be available from the lead local flood authority (LLFA)
- your local planning authority's SFRA, which includes future flood risk

Your Lead Local Flood Authority is Lancashire County.

For information about sewer flooding, contact the relevant water company for the area.

About the models used

This model contains the most relevant data for your area of interest.

Terminology used

Annual exceedance probability (AEP)

This refers to the probability of a flood event occurring in any year. The probability is expressed as a percentage. For example, a large flood which is calculated to have a 1% chance of occuring in any one year, is described as 1% AEP.

Metres above ordnance datum (mAOD)

All flood levels are given in metres above ordnance datum which is defined as the mean sea level at Newlyn, Cornwall.

Flood map for planning (rivers and the sea)

Your selected location is in flood zone 3.

Flood zone 3 shows the area at risk of flooding for an undefended flood event with a:

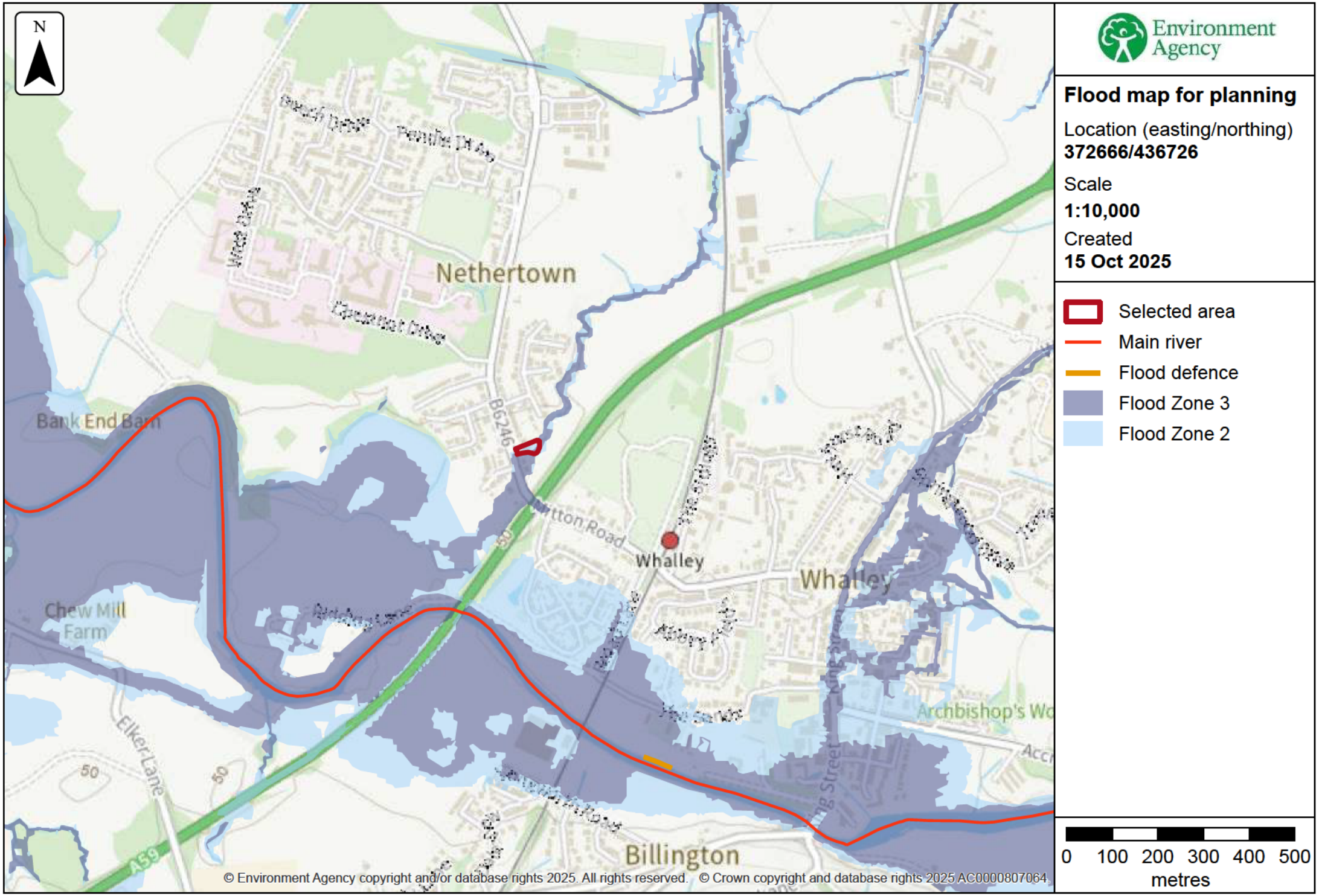
- 0.5% or greater probability of occurring in any year for flooding from the sea
- 1% or greater probability of occurring in any year for fluvial (river) flooding

Flood zone 2 shows the area at risk of flooding for an undefended flood event with:

- between a 0.1% and 0.5% probability of occurring in any year for flooding from the sea
- between a 0.1% and 1% probability of occurring in any year for fluvial (river) flooding

It's important to remember that the flood zones on this map:

- refer to the land at risk of flooding and do not refer to individual properties
- refer to the probability of river and sea flooding, ignoring the presence of defences
- do not take into account potential impacts of climate change



Environment Agency

Flood map for planning

Location (easting/northing)
372666/436726

Scale
1:10,000

Created
15 Oct 2025

- Selected area
- Main river
- Flood defence
- Flood Zone 3
- Flood Zone 2

0 100 200 300 400 500
metres

Past floods

Past flood events included in this document

The recorded flood outlines included in this document are for areas of land local to your site location that have been flooded by any of these sources:

- ephemeral water
- main rivers
- ordinary watercourses
- the sea
- unknown

Data limitations

The outlines do not include flooding from:

- drainage where rainfall has led to surface water ponding or overland runoff
- artificial, water-bearing sewer, water supply and wastewater treatment pipelines

Changes to flood defences

The defences (also known as assets) that were in place may also have changed. For example, assets may have been built more recently than the last recorded flood outline.

What the recorded flood outlines dataset is

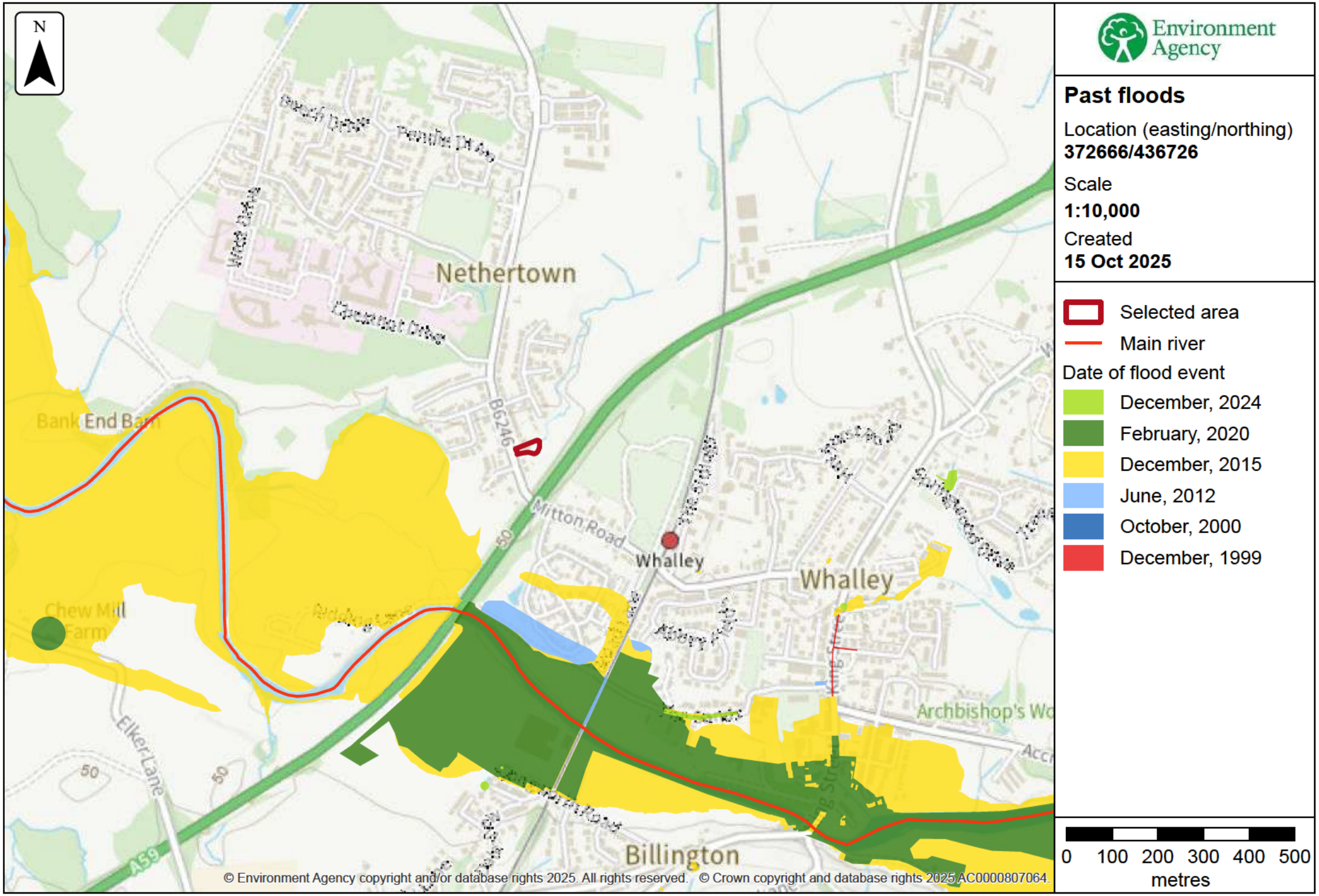
The recorded flood outlines are a geographical information system (GIS) data layer that show our verified records of areas that have flooded in the past from:

- rivers
- the sea
- groundwater
- surface water

Download the complete recorded flood outlines dataset, which includes data quality flags for outlines recorded after April 2020. This indicates the confidence we have in an outline.

Get flood information from other organisations

Contact Lancashire County Lead Local Flood Authority (LLFA) and your drainage board to get information about past flooding caused by surface water or drainage systems.


N
Nethertown
Bank End Barn
B6246
Mitton Road
Whalley
Whalley
Chew Mill Farm
Elker Lane
A59
Billington
Archbishop's Wo
Environment Agency
Past floods
Location (easting/northing)
372666/436726
Scale
1:10,000
Created
15 Oct 2025
Selected area
Main river
Date of flood event
December, 2024
February, 2020
December, 2015
June, 2012
October, 2000
December, 1999
0 100 200 300 400 500
metres
© Environment Agency copyright and/or database rights 2025. All rights reserved. © Crown copyright and database rights 2025 AC0000807064.

Data on past flood events

Start date	End date	Source of flood	Cause of flood	Affects location
31 December 2024	1 January 2025	unknown	unknown	No
9 February 2020	10 February 2020	main river	overtopping of defences	No
26 December 2015	27 December 2015	main river	channel capacity exceeded (no raised defences)	No
22 June 2012	23 June 2012	unknown	local drainage/surface water	No
26 October 2000	27 October 2000	main river	channel capacity exceeded (no raised defences)	No
11 December 1999	12 December 1999	ordinary watercourse	obstruction/blockage - debris screen	No

Flood defences and attributes

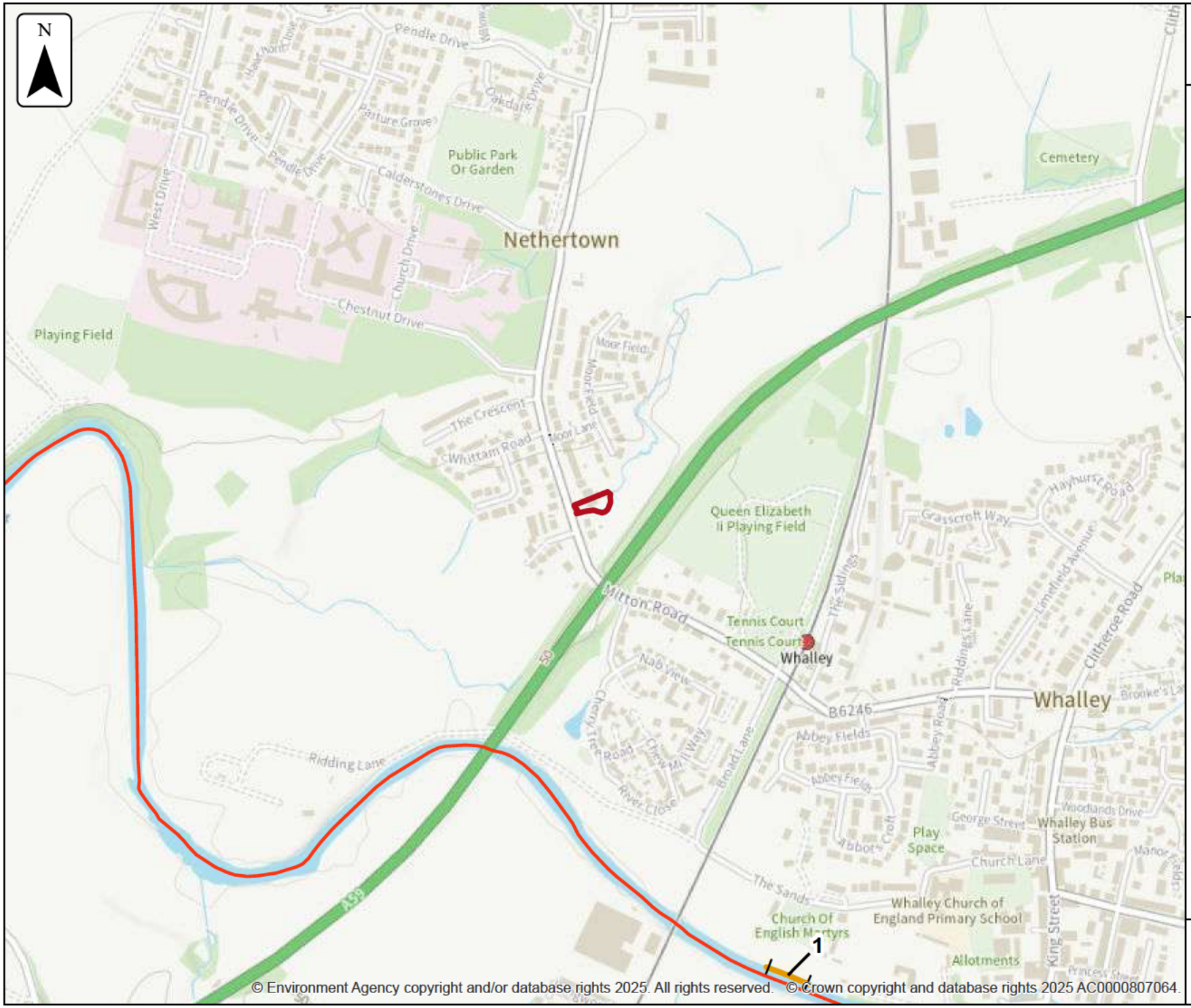
The flood defences map shows the location of the flood defences present.

The flood defences data table shows the type of defences, their condition and the standard of protection. It shows the height above sea level of the top of the flood defence (crest level). The height is In mAOD which is the metres above the mean sea level at Newlyn, Cornwall.

It's important to remember that flood defence data may not be updated on a regular basis. The information here is based on the best available data.

Use this information:

- to help you assess if there is a reduced flood risk for this location because of defences
- with any information in the modelled data section to find out the impact of defences on flood risk



Environment Agency

Flood defences

Location (easting/northing)
372666/436726

Scale
1:7,500

Created
15 Oct 2025

- Selected area
- Main river
- Flood defence

0 100 200 300
metres

Flood defences data

Label	Asset ID	Asset Type	Standard of protection (years)	Current condition	Downstream actual crest level (mAOD)	Upstream actual crest level (mAOD)	Effective crest level (mAOD)
1	64827	Embankment	5		43.90	43.90	43.90

Any blank cells show where a particular value has not been recorded for an asset.

Modelled data

This section provides details of different scenarios we have modelled and includes the following (where available):

- outline maps showing the area at risk from flooding in different modelled scenarios
- modelled node point map(s) showing the points used to get the data to model the scenarios and table(s) providing details of the flood risk for different return periods
- map(s) showing the approximate water levels for the return period with the largest flood extent for a scenario and table(s) of sample points providing details of the flood risk for different return periods

Climate change

The climate change data included in the models may not include the latest flood risk assessment climate change allowances. Where the new allowances are not available you will need to consider this data and factor in the new allowances to demonstrate the development will be safe from flooding.

The Environment Agency will incorporate the new allowances into future modelling studies. For now, it's your responsibility to demonstrate that new developments will be safe in flood risk terms for their lifetime.

Modelled scenarios

The following scenarios are included:

- Defended modelled fluvial: risk of flooding from rivers where there are flood defences
- Defences removed modelled fluvial: risk of flooding from rivers where flood defences have been removed
- Defended climate change modelled fluvial: risk of flooding from rivers where there are flood defences, including estimated impact of climate change
- Defences removed climate change modelled fluvial: risk of flooding from rivers where flood defences have been removed, including estimated impact of climate change

Strategic flood risk assessments

We recommend that you check the relevant local authority's strategic flood risk assessment (SFRA) as part of your work to prepare a site specific flood risk assessment.

This should give you information about:

- the potential impacts of climate change in this catchment
- areas defined as functional floodplain
- flooding from other sources, such as surface water, ground water and reservoirs

Your Lead Local Flood Authority is Lancashire County.

About this data

This data has been generated by strategic scale flood models and is not intended for use at the individual property scale. If you're intending to use this data as part of a flood risk assessment, please include an appropriate modelling tolerance as part of your assessment. The Environment Agency regularly updates its modelling. We recommend that you check the data provided is the most recent, before submitting your flood risk assessment.

Flood risk activity permits

Under the Environmental Permitting (England and Wales) Regulations 2016 some developments may require an environmental permit for flood risk activities from the Environment Agency. This includes any permanent or temporary works that are in, over, under, or nearby a designated main river or flood defence structure.

Find out more about flood risk activity permits

Help and advice

Contact the Cumbria and Lancashire Environment Agency team at inforequests.cmblnc@environment-agency.gov.uk for:

- more information about getting a product 5, 6, 7 or 8
- general help and advice about the site you're requesting data for

01686 668957 • info@krsenviro.com • www.krsenviro.com