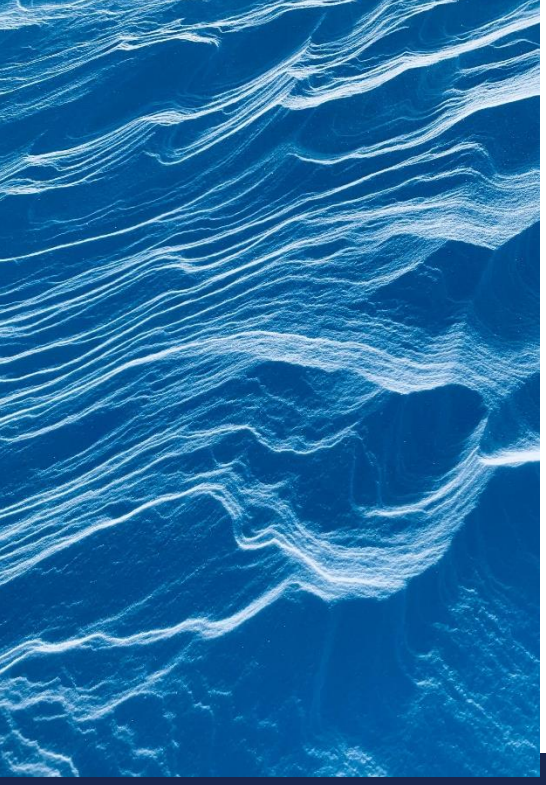

Flood Risk Assessment

AEG0622_UB8_Uxbridge_01

aegaea

Flood risk, water and environment

Site Address: Riverview
Packet Boat Lane
Uxbridge
Hillingdon
UB8 2JR

UK Experts in Flood Modelling, Flood Risk Assessments, and Surface Water Drainage Strategies

aegaea

Document Issue Record

Project: Flood Risk Assessment

Prepared for: Sav Shingadia

Reference: AEG0622_UB8_Uxbridge_01

Site Location: Riverview, Packet Boat Lane, Uxbridge, Hillingdon, UB8 2JR

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Please Note:

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Summary

Development Description	Existing	Proposed
Development Type	A Residential Dwelling	Demolition of a garden room associated with the main property and rebuild; as well as demolition of a solid outbuilding and transferring the footprint to the main property; and loft conversion.
EA Vulnerability Classification	More Vulnerable	More Vulnerable
Ground Floor Level	N/A[2]	No lower than the existing in accordance with EA Standing Advice for Minor Developments
Level of Sleeping Accommodation	Ground Floor Only	Ground and First Floor Level
Impermeable Surface Area	No net increase in built footprint	No net increase in built footprint
Surface Water Drainage	N/A[1]	No net increase in built footprint
Site Size	N/A[2]	No change
Development Size	N/A[2]	<250m2
Risk to Development	**Summary**	**Comment**
EA Flood Zone	Flood Zone 3b	
Flood Source	N/A	Fluvial
SFRA Available	West London SFRA (2018)	
Management Measures	**Summary**	**Comment**
Ground floor level above extreme flood levels	No. FFLs to be set no lower than existing in accordance with EA Standing Advice for Minor Developments.	Proposed development is for the demolition and rebuild of part of the building whilst also demolishing a solid outbuilding and transferring the footprint to multiple small extensions across the property.
Safe Access/Egress Route	N/A[2]	Same as existing given that proposal is alterations to existing dwelling. Recommended that occupants sign up to the EA flood alert and warning service if not done so already.
Flood Resilient Design	Yes – see Section 5 of this report.	Betterment provided by setting some bedrooms on the first-floor level. Also allows for safe refuge on site worst case scenario whereby prior evacuation not possible.
Site Drainage Plan	N/A[1]	No net increase in built footprint

Flood Warning & Evacuation Plan	N/A[1]	Recommended that occupants sign up to the EA flood alert and warning service.
Offsite Impacts	**Summary**	**Comment**
Displacement of floodwater	Negligible	Proposed development is for the demolition and rebuild of part of the building whilst also demolishing a solid outbuilding and transferring the footprint to multiple small extensions across the property. No net increase in footprint on site.
Increase in surface run-off generation	Negligible	No net increase of built footprint - transfer only.
Impact on hydraulic performance of channels	Negligible	The nearest main river is the River Colne/ Frays River, which borders the site to the west. The property Is approximately 10m east of the Main River at its closest.

[1] not required for this assessment
[2] data not available.

1. Introduction

1.1. Aegaea were commissioned by Sav Shingadia to undertake a Flood Risk Assessment (FRA) to accompany a planning application for the proposed development. This FRA has been prepared in accordance with the requirements set out in the National Planning Policy Framework (NPPF) and the associated Planning Practice Guidance.

1.2. This FRA is intended to support a planning application and as such the level of detail included is commensurate and subject to the nature of the proposals.

Site Overview

1.3. The site of the proposed development is Riverview, Packet Boat Lane, Uxbridge, Hillingdon, UB8 2JR (Figure 1). The site is currently a residential dwelling with an outbuilding. All sleeping accommodation is currently on the ground floor level.

1.4. The proposed development is for the demolition of the existing garden room and reconstruction; as well as the demolition of a solid 8.3m^2 outbuilding and transferring this footprint to the main property to increase the total footprint by the same amount 8.3m^2. The development further proposes to convert the loft space and place new sleeping accommodation to the first floor / converted loft floor level. One bedroom will remain at the ground floor.

Figure 1: Site Location (Source: Google Earth)

1.5. In the absence of a topographical survey, Environment Agency Light Detection and Ranging (LiDAR) data Digital Terrain Model (2m resolution) has been utilised to review the topography of the site (Figure 2).

1.6. Review of topographic levels across the site range between approximately 26.65m AOD within a pond in the rear garden to approximately 27.77 m AOD along the river bank. The existing property (where the replacement outbuilding footprint will be transferred into the existing unit is at approximately 27.15m AOD.

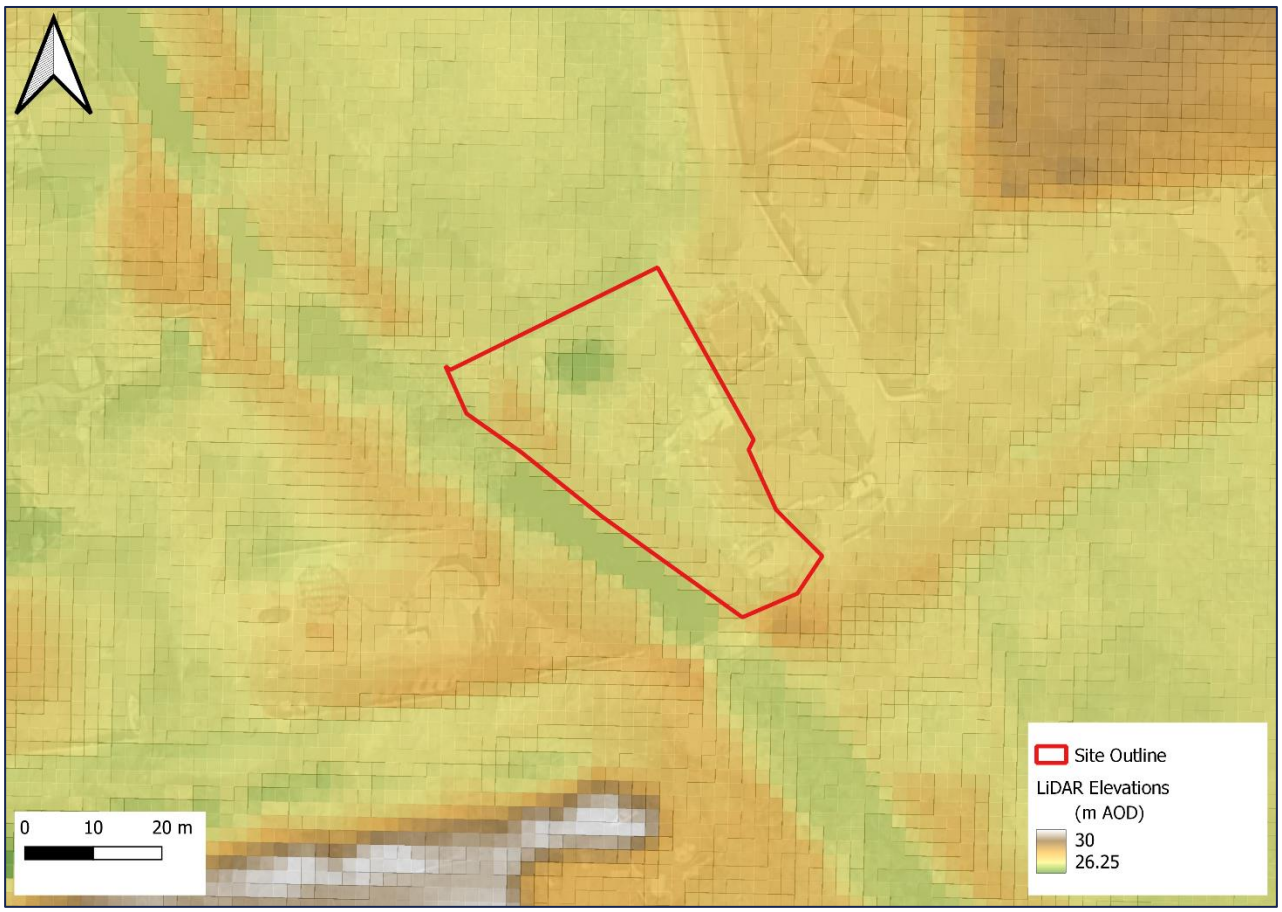

Figure 2: Site Topography (Source: EA 1m LiDAR)

1.7. Hillingdon Council is the Local Planning Authority (LPA) for the site, and also the designated Lead Local Flood Authority (LLFA). The site sits within the Environment Agency's Hertfordshire and North London region.

Planning Policy and Guidance

1.8. UK government planning guidance states[1] that an FRA is required for sites which are:

- *In Flood Zone 2 or 3 including minor development (in terms of flood risk) and change of use*
- *More than 1 hectare in Flood Zone 1*
- *Less than 1 ha in Flood Zone 1, including a change of use in development type to a more vulnerable class (for example from commercial to residential), where they could be affected by sources of flooding other than river and the sea (for example surface water drains or reservoirs)*
- *In an area within Flood Zone 1 which has critical drainage problems as notified by the Environment Agency*

1.9. The site is located within Flood Zone 3b. According to NPPF Footnote 55 an FRA is required.

1.10. The objective of this FRA is to demonstrate that the proposals are acceptable in terms of flood risk. This report summarises the findings of the study and specifically addresses the following issues in the context of the current legislative regime:

- Fluvial flood risk
- Surface water flood risk
- Risk of flooding from other sources

[1] **https://www.gov.uk/guidance/flood-risk-assessment-for-planning-applications#when-you-need-an-assessment**

2. National Planning Policy Framework

2.1. Inappropriate development in a flood risk area could pose significant risk in terms of personal safety and damage to property for the occupiers of the development or for people elsewhere. The approach taken in the assessment of flood risk at the planning stage is set out in national, regional, and local planning policy and associated guidance. This section summarises the key policies and guidance relevant to the proposed development.

2.2. The National Planning Policy Framework[2] (NPPF) (DCLG, 2021) includes Government policy on development and flood risk stating that:

> *"159. Inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk (whether existing or future). Where development is necessary in such areas, the development should be made safe for its lifetime without increasing flood risk elsewhere.*
>
> *167. When determining any planning applications, local planning authorities should ensure that flood risk is not increased elsewhere. Where appropriate, applications should be supported by a site-specific flood-risk assessment. Development should only be allowed in areas at risk of flooding where, in the light of this assessment (and the sequential and exception tests, as applicable) it can be demonstrated that:*
>
> *a) within the site, the most vulnerable development is located in areas of lowest flood risk, unless there are overriding reasons to prefer a different location;*
>
> *b) the development is appropriately flood resistant and resilient such that, in the event of a flood, it could be quickly brought back into use without significant refurbishment;*
>
> *c) it incorporates sustainable drainage systems, unless there is clear evidence that this would be inappropriate.*
>
> *d) any residual risk can be safely managed; and*
>
> *e) safe access and escape routes are included where appropriate, as part of an agreed emergency plan.*
>
> *168. Applications for some minor development and changes of use should not be subject to the sequential or exception tests but should still meet the requirements for site-specific flood risk assessments set out in footnote 55. "*

2.3. Footnote 55 of the NPPF states:

> *"A site-specific flood risk assessment should be provided for all development in Flood Zones 2 and 3. In Flood Zone 1, an assessment should accompany all proposals involving: sites of 1 hectare or more; land which has been identified by the Environment Agency as having critical drainage problems; land identified in a strategic flood risk assessment as being at increased flood risk in future; or land that may be subject to other sources of flooding, where its development would introduce a more vulnerable use."*

[2] https://www.gov.uk/guidance/national-planning-policy-framework, **last updated July 2021**

2.4. Flood Zones in England are defined as follows:

Table 1: Flood Zone Definitions

Flood Zone	Definition
Zone 1 Low Probability	Land having less than 1 in 1,000 annual probability of river or sea flooding (all land outside Zones 2 and 3).
Zone 2 Medium Probability	Land having between a 1 in 100 and 1 in 1,000 annual probability of river flooding; or land having between a 1 in 200 and 1 in 1,000 annual probability of sea flooding.
Zone 3a High Probability	Land having a 1 in 100 or greater annual probability of river flooding; or Land having a 1 in 200 or greater annual probability of sea flooding.
Zone 3b The Functional Floodplain	This zone comprises land where water has to flow or be stored in times of flood. 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)

2.5. An FRA should be appropriate to the scale, nature, and location of the development. It should identify and assess the risk from all sources of flooding to and from the development and demonstrate how any flood risks will be managed over the lifetime of the development.

2.6. An assessment of hydrological impacts should be undertaken, including to surface water runoff and impacts to drainage networks in order to demonstrate how flood risk to others will be managed following development and taking climate change into account.

2.7. The Planning Practice Guidance, which was substantially revised in August 2022 in relation to drainage, requires that sustainable drainage systems (SuDS) should be considered and included where practicable, in line with DEFRA Technical Standards[3].

Local Plan

2.8. The Local Plan prepared by the Local Planning Authority, Hillingdon Council, sets out the policies for development in the local area.

2.9. Policy EM6 Flood Risk Management outlines the requirements for new development within the area. It states:

> *The Council will require new development to be directed away from Flood Zones 2 and 3 in accordance with the principles of the National Planning Policy Framework (NPPF). The subsequent Hillingdon Local Plan: Part 2 -Site Specific Allocations LDD will be subjected to the Sequential Test in accordance with the NPPF. Sites will only be allocated within Flood Zones 2 or 3 where there are overriding issues that outweigh flood risk. In these instances, policy criteria will be set requiring future applicants of these sites to demonstrate that flood risk can*

3 Technical Standards Accessed Online
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/415773/sustainable-drainage-technical-standards.pdf

be suitably mitigated. The Council will require all development across the borough to use sustainable urban drainage systems (SUDS) unless demonstrated that it is not viable. The Council will encourage SUDS to be linked to water efficiency methods. The Council may require developer contributions to guarantee the long term maintenance and performance of SUDS is to an appropriate standard.

Sequential and Exception Tests

2.10. The Sequential and Exception Tests are applied in specific cases defined by UK Government policy. Their purpose is to drive development to areas of low flood risk and to support developments which improve flood risk for developments in areas at risk of flooding.

Sequential Test

2.11. Under the NPPF all new planning applications should undergo a Sequential Test unless a minor household development or a change of use application in accordance with paragraph 168 and footnotes 55 and 56. This test should be implemented by local planning authorities with a view to location particularly vulnerable new developments outside of the flood plain.

2.12. Paragraph 168 of the 2021 NPPF states that:

*168. Applications for some **minor development** and changes of use should not be subject to the sequential or exception tests but should still meet the requirements for site-specific flood risk assessments set out in footnote 55. "*

2.13. Therefore, in accordance with Paragraph 168 and footnotes 55 and 56 of the NPPF, the proposed development is classified as a minor development and should not be subject to the sequential or exception tests but should still meet the requirement for the site specific flood risk assessments.

Summary

2.14. This flood risk assessment has been prepared with due consideration to the above local and national policy.

3. Consultation and Review

Sources of Information

Consultation

3.1. The site is within the remit of Hillingdon Council as Lead Local Flood Authority (LLFA).

Documents

3.2. Local Governments and Lead Local Flood Authorities provide documents which contain data and policies on flood risk and new development in their areas. These documents are introduced and briefly summarised below. For the purposes of this FRA, these documents have been reviewed for relevant information and any relevant data is discussed within the appropriate sub heading of this report.

3.3. The following sources of information have been reviewed for this assessment:

- Interactive Flood Risk Mapping available on the Environment Agency (EA) website[4].
- The National Planning Policy Framework (NPPF) technical guide (Communities and Local Government, 2019).
- Planning Practice Guidance - Flood Risk and Coastal Change (2022)
- British Geological Survey - Geoindex Onshore (British Geological Survey, 2022).
- Local Plan: Part 1 - Strategic Policies, Hillingdon Council (2012)
- Preliminary Flood Risk Assessment, Hillingdon Council (2011)
- West London Strategic Flood Risk Assessment, Hillingdon Council (2018)

Preliminary Flood Risk Assessment (PFRA)

3.4. The PFRA, published in 2011, is a high-level appraisal of flood risk across Lead Local Flood Authority Hillingdon Council. The flood risk from all sources, including fluvial, surface water, groundwater and surcharged sewers is evaluated. It is the basis upon which the Local Flood Risk Management Strategy (described below) is produced.

3.5. The PFRA summarises historical flood incidents in Hillingdon Council. The site is not recorded as having been affected by any flood event.

Strategic Flood Risk Assessment (SFRA)

3.6. The SFRA, published in 2018, provides the evidence base for the Local Planning Authority Hillingdon Council Local Plan and guidance for consideration when determining planning applications. The SFRA seeks to place new development into areas of lower flood risk taking into account current flood risk, future flood risk, and the effect a proposed development would have on the risk of flooding.

3.7. The SFRA mapping provided by Hillingdon Council has been used throughout production of this report as a source of information, particularly pertaining to historical flood incidents.

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4 Environment Agency, Flood Map for Planning, https://flood-map-for-planning.service.gov.uk/, 2017

3.8. The proposed development sits wholly within Flood Zone 3b as mapped in the West London SFRA (which it should be noted is based on a 1:20 year event, not 1:30 year as per the August 2022 PPG). Although new development is not usually permitted in this zone, the applicant is seeking to demolish the existing garden room and construct a new room of equal size, provide a loft extension, and demolish and transfer footprint from an existing solid outbuilding to the main property.

3.9. As such there would be no **net** increase of footprint on site post development and therefore no increase in flood risk or change of vulnerability of use on site post development.

3.10. The proposed development meets the 5.3 Recommended Policies guidance of the West London SFRA; in particular section 5.3.1 Strategic, Paragraph 13, bullet points 4 and 5 which discusses development in Flood Zone 3b;

> *4.The development must not increase flood risk elsewhere and where possible reduce flood risk overall.*
>
> ***5. Where beneficial to flood risk and/or other planning requirements, it may also be possible for development to occur within the functional floodplain through the relocation (but not increase of footprint size) of an existing building's footprint within a site.***

3.11. Furthermore, the SFRA in section 3.11 Functional Floodplain, states that;

> *The area identified as functional floodplain should take into account the effects of defences and other flood risk management infrastructure. Areas which would naturally flood, but which are prevented from doing so by existing defences and infrastructure or solid buildings, will not normally be identified as functional floodplain – further clarification of this is provided below in Section 3.11.2.*

3.12. Finally In section 3.11.2 Interpretation - Approach the SFRA states the following with regards to development In Flood Zone 3b.

> *Development may be possible within land classified as Flood Zone 3b (fluvial / tidal) when it is directed to the areas occupied by existing infrastructure or solid building footprint (which are not currently floodable). The proposals must provide mitigation and resilience against flood risks, must not increase flood risk elsewhere, and aim to provide an improvement to the current situation by reducing the levels of risk. Proposals will not be acceptable where they introduce additional development footprint outside the existing solid footprint areas. Where beneficial to flood risk and / or other planning requirements it may be possible for development to occur within the functional floodplain through the relocation (but not increase of footprint size) of an existing building's footprint within a site (taking advice from the Environment Agency as appropriate).*

3.13. The proposed development will not cause a net increase in the footprint that currently exists on site and will transfer footprint on the site to the main property or demolish and rebuild existing elements of the property. As such with there being no net increase in footprint; when comparing existing to proposed, there should be no increased flood risk off site.

3.14. The development further reduces overall vulnerability to the unit by adding a first floor refuge. Finally, as per paragraph 5.7 of this FRA, as part of the renovation / proposed works, adoption of best practices in accordance with the New Buildings - Flood Resilient Construction (2007) should be implemented.

4. Sources of Flood Risk

Fluvial Flood Risk

4.1. Flooding from watercourses arises when flows exceed the capacity of the channel, or where a restrictive structure is encountered, resulting in water overtopping the banks into the floodplain.

4.2. The site is located within Flood Zone 3 according to the EA Flood Map for Planning (Figure 3). Flood Zone 3 denotes a risk of flooding from fluvial sources greater than 1 in 100 (1%).

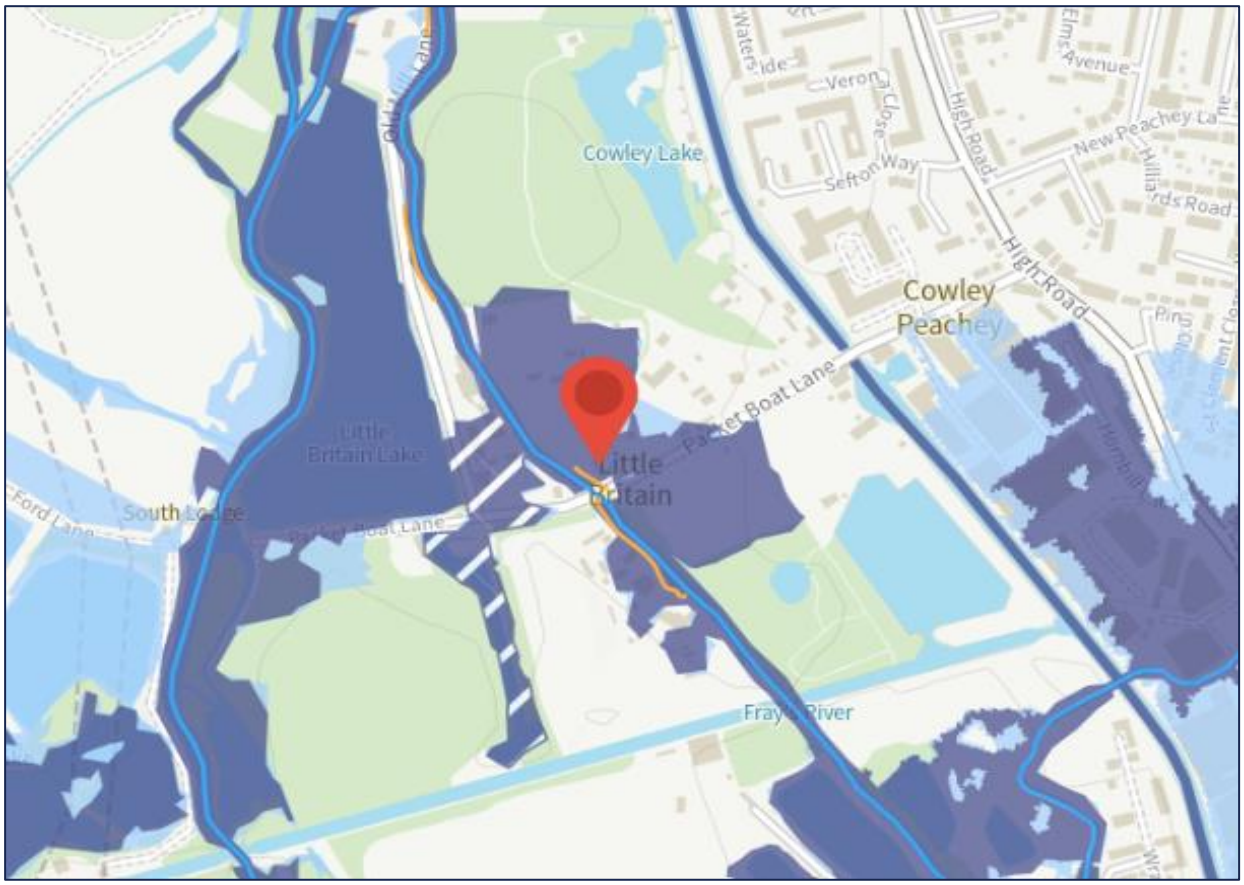


Figure 3: EA Flood Map for Planning

4.3. The EA flood map for planning does not delineate whether a site is Flood Zone 3a or 3b. Further review of the West London SFRA (2018) which does delineate Flood Zones 3a and 3b has confirmed that the site is in Flood Zone 3b using the previous 1 in 20-year definition (Figure 4).

4.4. This until very recently was used to define Flood Zone 3b - the functional floodplain. The latest Planning Practice Guidance released in August has changed the return period from 1 in 20 (5%) to 1 in 30 (3.3%) to define Flood Zone 3b. In absence of a 1 in 30-year return period, the previous 1 in 20 has been used for this assessment.

Figure 4: West London SFRA - Flood Zone 3b

Main Rivers

4.5. The nearest main river is the River Colne/ Frays River, which borders the west of the site. The property is approximately 10m east of the Main River at its closest.

4.6. To better assess the risk of flooding to the Site Aegaea have been provided with Environment Agency Product 4 Flood Data.

4.7. The flood mapping provided in the Product 4 has demonstrated that the site is affected by the modelled 1 in 20 (5%) year flood event. This until very recently was used to define Flood Zone 3b - the functional floodplain. The latest Planning Practice Guidance released in August has changed the return period from 1 in 20 (5%) to 1 in 30 (3.3%) to define Flood Zone 3b. In absence of a 1 in 30-year return period, the previous 1 in 20 has been used for this assessment.

4.8. Figure 5 is an extract of the EA Product 4 mapping; it shows the site identified as a green dot, located within the defended 1 in 20 year modelled extent (previous Flood Zone 3b definition).

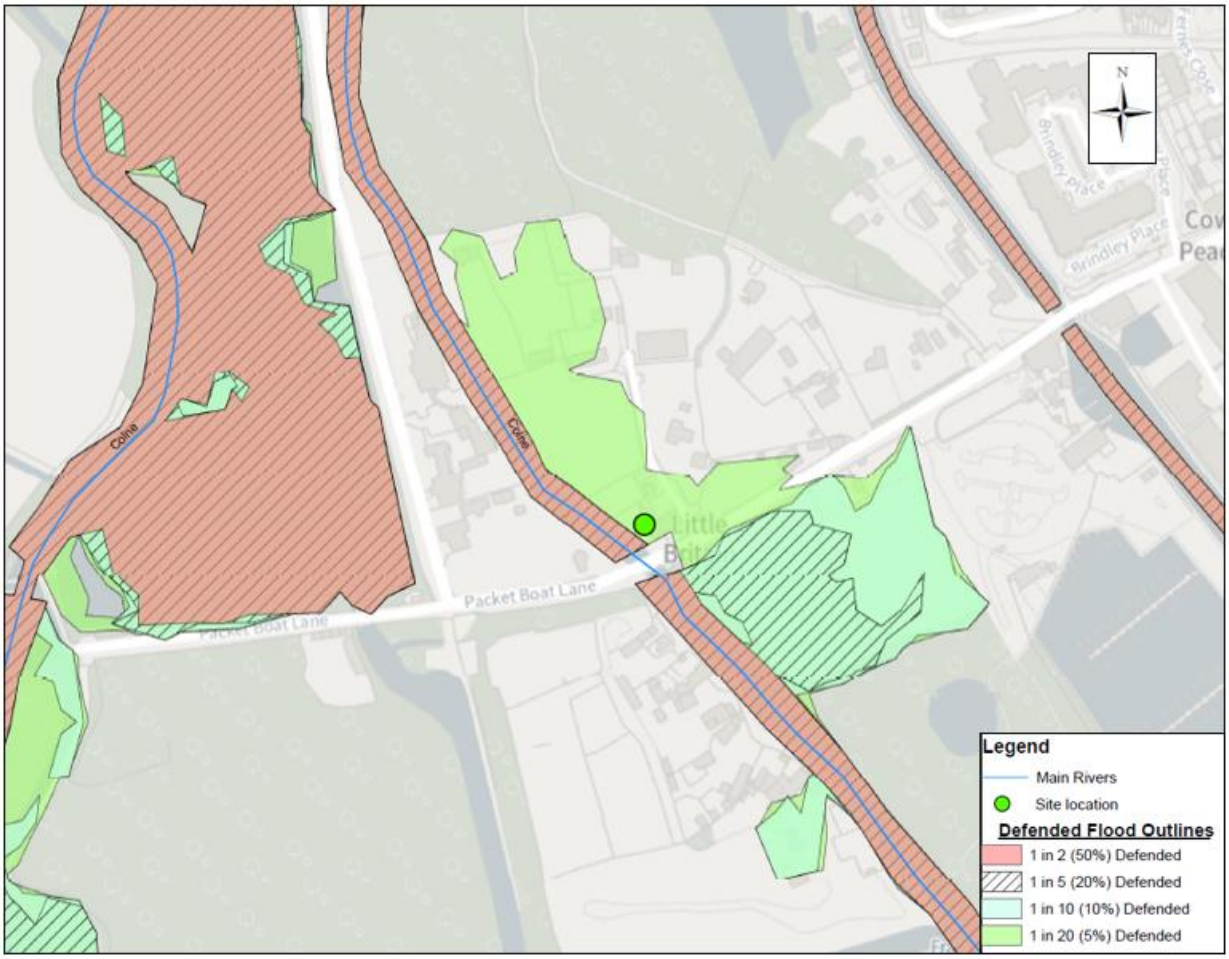


Figure 5: Environment Agency Lower Colne Modelling and Mapping Study - Defended Flood Extents

4.9. Review of Figure 3 demonstrates that there is a defence near the site - orange line. The bund / defence near the property - shows crest height levels of approximately 27.35mAOD through analysing Environment Agency 2m LiDAR.

4.10. Review of the Flood Node data, NODE J032 has been assessed as part of this assessment. The node location map has been provided as Figure 6. Aegaea rather than presenting all the information provided for all the flood nodes have extracted the relevant flood levels for planning just for NODE J302, these are presented in Table 3.

Table 3 - Modelled Flood Levels of Node JO32 extracted from the Environment Agency Lower Colne Modelling and Mapping Study (2012)

	1 in 20 year Flood Level m AOD	1 in 100 year Flood Level m AOD	1 in 100 year + CC (20%) Flood Level m AOD	1 in 1000 year Flood Level m AOD
NODE JO32	27.61	27.65	27.7	27.74

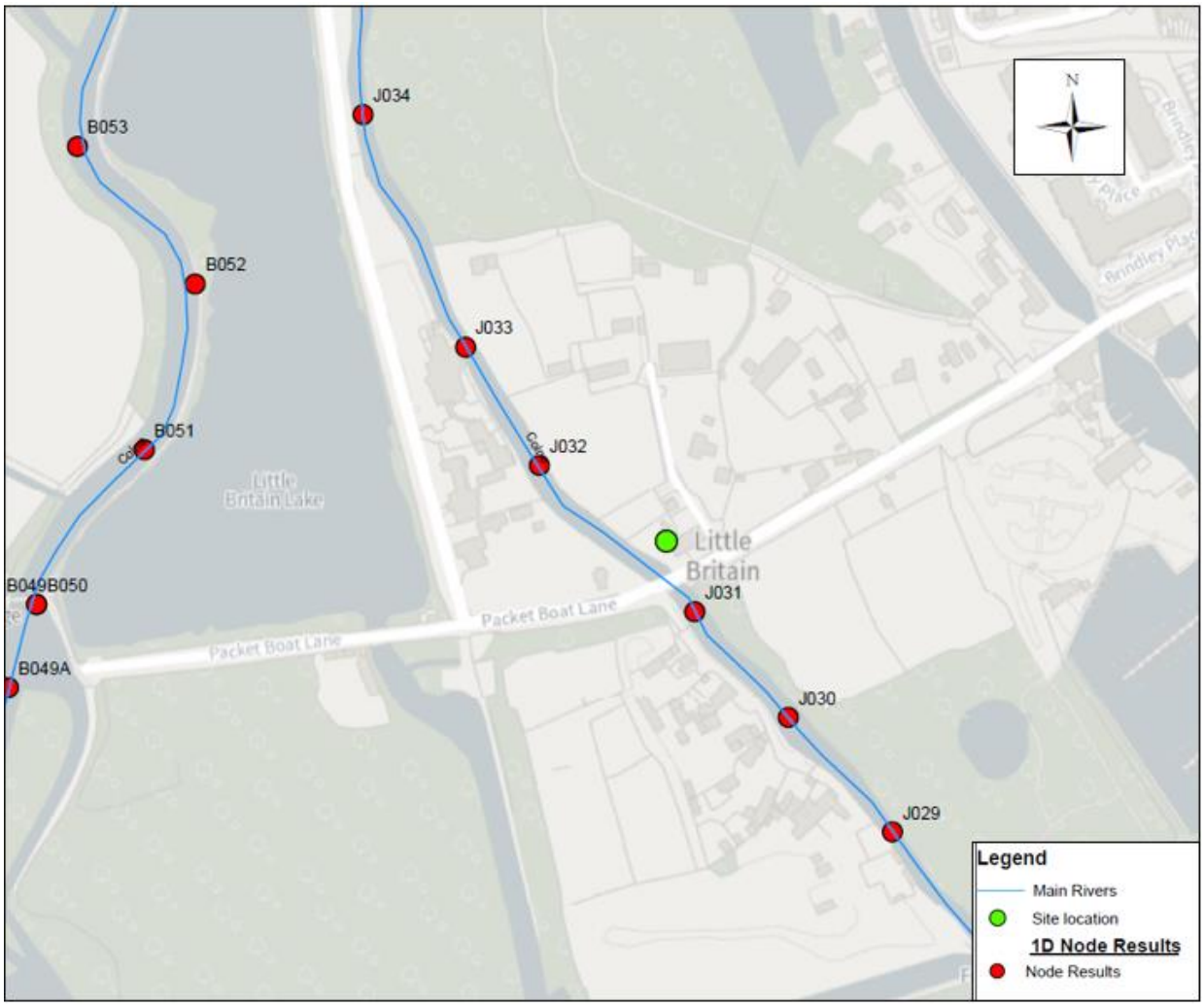


Figure 6: Environment Agency Lower Colne Modelling and Mapping Study - 1d Node Location Map

4.11. Analysis of the flood levels indicates that the modelled 1 in 20 year event provides a flood level of 27.61m AOD. Review of topographic levels across the site range between approximately 26.65m AOD within a pond in the rear garden to approximately 27.77 m AOD along the river bank. The existing property (where the replacement outbuilding footprint will be transferred into the existing unit is at approximately 27.15m AOD. While the maximum depth of flooding within the property boundary would be up to 1m within the pond, the property and risk area associated with the proposal would be up to 0.46m in the 1 in 20 year event.

4.12. It is noted that increasing return periods do not impact modelled flood levels considerably, with only a 130mm increase in flood level between the 1 in 20 and the 1 in 1000 year events.

4.13. As such, the risk of flooding from fluvial sources is considered high, but, with no net increase in footprint, and with the creation of a first floor, the change in risk is considered negligible.

Ordinary Watercourses

4.14. There are no other watercourses in the vicinity of the site.

Historical Flooding

4.15. The DEFRA open-source database for the historic flood risk records and recorded flood outlines has provided no records of flooding within the vicinity of the site.

Tidal Flooding

4.16. The site is not at risk from tidal sources.

Canals

4.17. The Canal and River Trust (CRT) generally maintains canal levels using reservoirs, feeders and boreholes and manages water levels by transferring it within the canal system.

4.18. Water in a canal is typically maintained at predetermined levels by control weirs. When rainfall or other water enters the canal, the water level rises and flows out over the weir. If the level continues rising it will reach the level of the storm weirs. The control weirs and storm weirs are normally designed to take the water that legally enters the canal under normal conditions. However, it is possible for unexpected water to enter the canal or for the weirs to become obstructed. In such instances the increased water levels could result in water overtopping the towpath and flowing onto the surrounding land.

4.19. Flooding can also occur where a canal is impounded above surrounding ground levels and the retaining structure fails.

4.20. The site is located approximately 250m west of the Grand Union Canal and approximately 300m north of the Canal Way – London Loop. The risk of flooding from the canals is considered low.

Pluvial Flood Risk

4.21. Pluvial flooding can occur during prolonged or intense storm events when the infiltration potential of soils, or the capacity of drainage infrastructure is overwhelmed leading to the accumulation of surface water and the generation of overland flow routes.

4.22. Examination of EA surface water flood risk mapping for the modelled 3.3% (high risk), 1% (medium risk) and 0.1% (low risk) AEP flood events shows the site is at risk of flooding in 'Very Low' surface water flood events (Figure 5).

4.23. The SFRA web mapping does not identify the site as being in a Critical Drainage Area.

Figure 4: EA Surface Water Flood Risk Mapping

4.24. The SFRA provides no mapping of historical surface water flood incident records. No records of historical pluvial flooding have been found at the time of writing. The risk of pluvial flooding to this site is therefore considered low.

Reservoirs

4.25. Flooding can occur from large waterbodies or reservoirs if they are impounded above the surrounding ground levels or are used to retain water in times of flood. Although unlikely, reservoirs and large waterbodies could overtop or breach leading to rapid inundation of the downstream floodplain.

4.26. According to EA flood risk from reservoirs mapping the site is at risk of flooding in the event of a breach at multiple reservoirs and flooding to be occurring at the same time.

4.27. As reservoirs are highly managed the maximum flood extent provided in the EA Risk of Flooding from Reservoir mapping is considered a worst-case scenario. Therefore, given these criteria the site is deemed at a low risk of flooding from this source. Although to be precautionary flood resilient design and building practices could be implemented to further reduce risk. The risk of flooding from reservoirs at this location would be if a failure occurred at the same time of the River Colne/ Frays River flooding simultaneously.

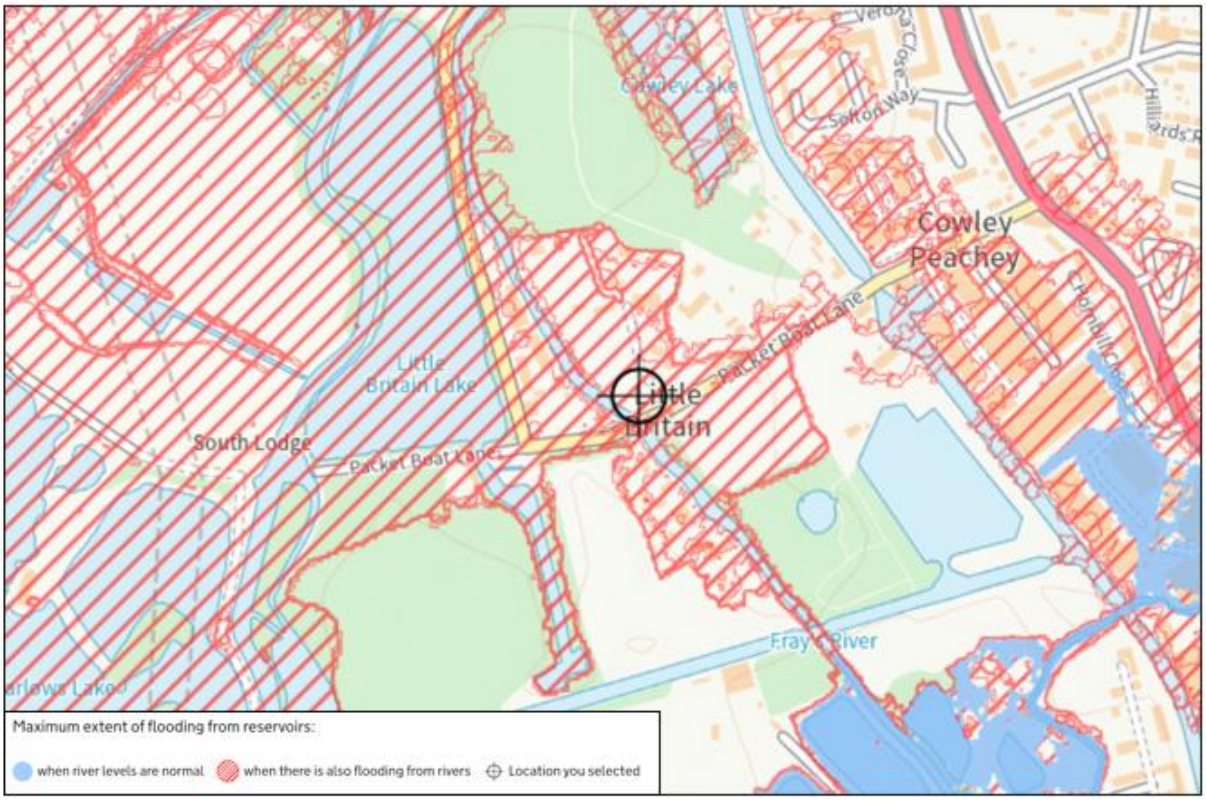


Figure 5: EA Reservoir Flood Risk Mapping

Groundwater

4.28. Groundwater flooding occurs in areas where underlying geology is permeable, and water can rise within the strata sufficiently to breach the surface.

4.29. The British Geological Survey's (BGS) mapping shows superficial deposits of: Lynch Hill Gravel Member – sand and gravel underlying the area. The bedrock underlying the area is London clay Formation – clay, silt and sand.

4.30. There are no representative Historical BGS boreholes within the vicinity of the site to confirm the geology underlain by the site.

4.31. The SFRA presents the EA's Areas Susceptible to Groundwater Flooding mapping. The data set shows the site to be in a 1km grid square of which >=50% <75% is considered susceptible to groundwater flooding.

4.32. The risk of groundwater flooding is therefore considered moderate to high.

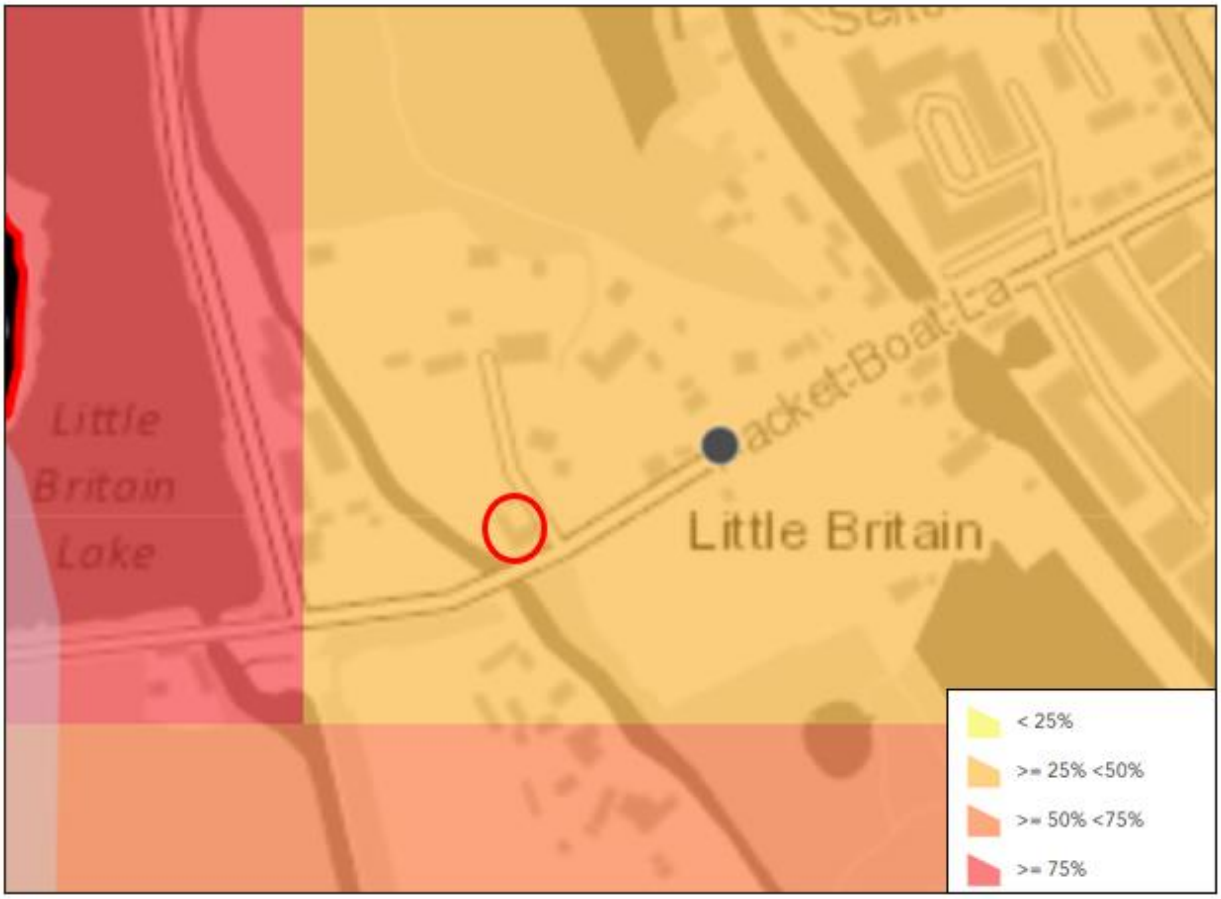


Figure 7: EA Susceptibility to Groundwater Flooding (EA 2017)

Sewer Flooding

4.33. Sewers can be a cause of flooding where the drainage network has become overwhelmed, either by blockage or due to local development beyond the designed capabilities of the drainage system.

4.34. The SFRA provides mapping of historical sewer flood incident records. No historical sewer surcharging incidents have been recorded in the vicinity of the site.

4.35. The development is therefore considered to be at low risk of flooding from sewers.

5. Flood Risk Mitigation

Fluvial and Tidal

5.1. The site is located in Flood Zone 3b (fluvial – 1 in 20 year extent) and the proposed development is for the replacement of an existing extension to the property through demolition and rebuild. In addition, the development includes demolition of a solid outbuilding and transferring this footprint to the main property to support other extensions. **As such there will be no net increase in built footprint on site.**

5.2. It is recommended that the finished floor levels of the proposed extensions and replacement structures are set no lower than the existing in accordance with the EA Standing Advice for Minor Developments.

5.3. The site is at very low risk of flooding from tidal sources.

5.4. If any future outbuildings are to be replaced, it is recommended that they do not exceed the existing footprint of those on site currently given that the site is in Flood Zone 3b.

5.5. Any works proposed within 8m of the EA main river would require a Flood Risk Activity Permit.

5.6. Furthermore, it is recommended as part of the proposed works and renovation of the property that they should be constructed in a flood resilient manner in accordance with the CLG Report, Improving the Flood Performance of New Buildings - Flood Resilient Construction (2007) including measures such as the below:

- *Solid (i.e. concrete floors) with waterproof screed.*
- *Raised wiring and power outlets at ground level.*
- *Units to be raised on legs above plinth.*
- *Waterproof plasterboard used at ground floor.*
- *Air brick covers to be installed.*
- *Damp Proof Membranes (d.p.m.) should be included in any design to minimise the passage of water through ground floors.*
- *Any PVC window/door sills should be adequately sealed. Double glazing should be used to provide resistance against external flood water pressure.*
- *Residents to sign up to the EA flood warning service if not done so already.*

Pluvial

5.7. The site is very low risk of flooding from this source as such no specific mitigation is proposed.

Canals, Reservoirs, Groundwater and Sewers

5.8. The risk of flooding from Canals, Reservoirs and Sewers is considered to be low risk, therefore no mitigation has been proposed.

5.9. The site is in a 1km grid square of which >=50% <75% is considered susceptible to groundwater flooding.

5.10. It is therefore considered that the risk of flooding is moderate to high and that any new floors should be of concrete to mitigate groundwater flooding.

Increase to Flood Risk Elsewhere

5.11. The proposed development is for the construction of an extension to the existing dwelling on site. As such, the proposal constitutes a Minor Development under the NPPF.

5.12. The proposed development sits wholly within Flood Zone 3b. Although new development is not usually permitted in this zone, the applicant is seeking to demolish the existing garden room and construct a new room of equal size, provide a loft extension, and transfer footprint from an existing solid outbuilding to the main property.

5.13. Evidence of the garden room and solid building outbuilding is presented below. When referring to the existing development plans, the outbuilding is referred to as Shed 2 (8.3m^2). Shed 2, is not a single cell construction outbuilding (one line of bricks, traditional shed), it is a solid structure consisting of metal exterior with green door, lined, insulated and served by mains power. It has also been set on a plinth lifting it above external ground levels and has been operating as a private homeowner workshop, prior to the applicant acquiring the property. The garden room is a traditional extension given the age of the property and is of solid building construction.

5.14. As such there would be no net increase of footprint on site post development and therefore no increase in flood risk or change of vulnerability of use on site post development.

Figure 8: Evidence of Solid Outbuilding Shed 2, 8.3m2 (Metal with green door)

Figure 9: Evidence of existing garden room (12.88m2)

5.15. The proposed development therefore meets the 5.3 Recommended Policies guidance of the West London SFRA In particularly section 5.3.1 Strategic, Paragraph 13, bullet points 4 and 5 which discusses development in Flood Zone 3b…..

> *4.The development must not increase flood risk elsewhere and where possible reduce flood risk overall.*
>
> *5. Where beneficial to flood risk and/or other planning requirements, it may also be possible for development to occur within the functional floodplain through the relocation (but not increase of footprint size) of an existing building's footprint within a site.*

5.16. Furthermore, the SFRA in section 3.11 Functional Floodplain, states that;

> *The area identified as functional floodplain should take into account the effects of defences and other flood risk management infrastructure. Areas which would naturally flood, but which are prevented from doing so by existing defences and infrastructure or solid buildings, will not normally be identified as functional floodplain – further clarification of this is provided below in Section 3.11.2.*

5.17. Finally in section 3.11.2 Interpretation - Approach the SFRA states the following with regards to development In Flood Zone 3b.

Development may be possible within land classified as Flood Zone 3b (fluvial / tidal) when it is directed to the areas occupied by existing infrastructure or solid building footprint (which are not currently floodable). The proposals must provide mitigation and resilience against flood risks, must not increase flood risk elsewhere, and aim to provide an improvement to the current situation by reducing the levels of risk. Proposals will not be acceptable where they introduce additional development footprint outside the existing solid footprint areas. Where beneficial to flood risk and / or other planning requirements it may be possible for development to occur within the functional floodplain through the relocation (but not increase of footprint size) of an existing building's footprint within a site (taking advice from the Environment Agency as appropriate).

5.18. The proposed development will not cause a net increase in the footprint that currently exists on site and will transfer footprint on the site to the main property or demolish and rebuild existing elements of the property. As such with there being no net increase in footprint when comparing existing to proposed.

EA Flood Warning Service

5.19. As a further precaution and risk reduction, the owner of the site should sign up the EA flood warning service. This service allows site owners to register an address, which is at risk of flooding, along with contact details so that in the event of a flood being forecast, the site owner will be sent an alert directly to their chosen method of contact.

5.20. Flood warnings/alerts can be enforced at any time of the day or night. Signing up for this service provides site owners some notice before a flood event. The amount of time afforded before a flood occurs depends on the site-specific location (e.g. proximity to the source of flooding, topography of the surrounding area) and the flood mechanism (e.g. bank over topping versus a breach event). Flood alerts and warnings provide site managers with time to take necessary action, e.g. communication of the risk of flooding to occupants/employees etc, evacuation of occupants offsite or to a safe level, removal of valuable items out of reach of flooding and the mounting of site specific flood defences.

6. Conclusions

6.1. This FRA has been undertaken with reference to the requirements of NPPF and Planning Practice Guidance with respect to the development at Riverview, Packet Boat Lane, Uxbridge, Hillingdon, UB8 2JR. It has been written to support a planning application and has been prepared with due consideration to the nature of the proposed development to provide the appropriate level of detail.

6.2. The FRA supports the planning application and demonstrates that there is an acceptable level of flood risk to the site if the mitigation strategies recommended are implemented in the scheme. The development does not increase flood risk off site or to the wider area.

Source of Flooding	Flood Risk Summary
Fluvial and Tidal	The site is located in Flood Zone 3b (fluvial) and the proposed development is for the replacement of an existing extension to the property through demolition and rebuild. In addition, the development includes demolition of a solid outbuilding and transferring this footprint to the main property to support other extensions. As such there will be no net increase in built footprint on site. The site is at very low risk of tidal flooding.
Pluvial	The site is very low risk of flooding from this source as such no mitigation is proposed.
Reservoirs Groundwater Sewers	The risk of flooding from Canals, Reservoirs and Sewers is considered to be low risk, therefore no mitigation has been proposed. The site is in a 1km grid square of which >=50% <75% is considered susceptible to groundwater flooding.. It is therefore considered that the risk of flooding is moderate to high and that any new floors should be of concrete to mitigate groundwater flooding.

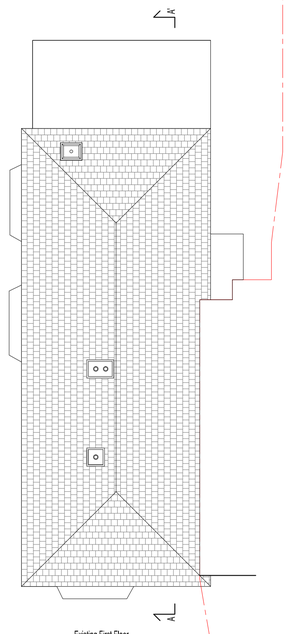
6.3. The following conclusions can be drawn from this level 1 FRA:

- This proposed development is minor and will not cause a net increase in the current built footprint on the site, as such there should be no increase to flood risk elsewhere
- Any works within 8m of the EA main river will require an EA flood risk activity permit

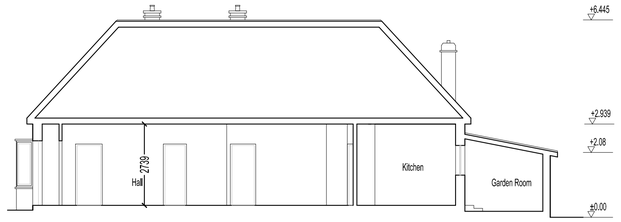
6.4. This Flood Risk Assessment should be submitted as part of the planning application to satisfy the requirements under NPPF.

Appendix A – Development Proposals

Existing Ground Floor
Scale 1:100

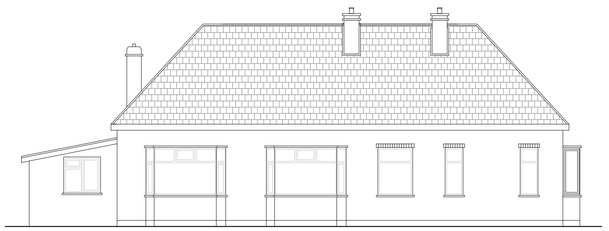


Existing First Floor
Scale 1:100



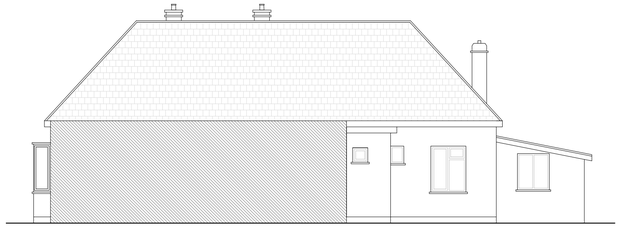
Existing Section AA'
Scale 1:100

Existing Front Elevation
Scale 1:100



Existing Side Elevation (North-West)
Scale 1:100

Existing Rear Elevation
Scale 1:100



Existing Side Elevation (North-East)
Scale 1:100

TOTAL SHED AREA: 24.97 sqm
FLOOR AREA: 90.21 sqm

0 1 2 3 4 5m
scale 1:100

Kappa Planning Ltd
46-48 Ennersdale Road, London,
SE13 6JB
tel: 02080041662
www.kappa-planning.co.uk

CLIENT
SAV SHINGADIA

PROJECT
RIVERVIEW,PACKET BOAT LANE,UB8 2JR

JOB TITLE
PROPOSED NEW PORCH,LOFT CONVERSION,SINGLE STOREY REAR AND SIDE EXTENSION AND INTERNAL ALTERATIONS

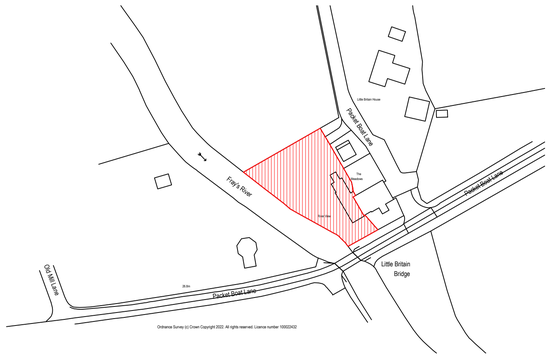
DRAWING
EXISTING FLOOR PLANS, ELEVATIONS, SECTION

DRAWN BY	CHECKED BY
TTA	GP

REVISION

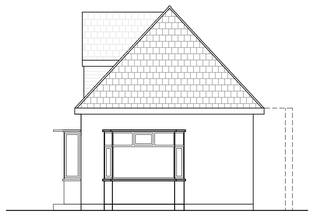
DATE	SCALE
30.05.2022	1:100@A1

RELEASE	PROJECT No	DRAWING No
01	717	01

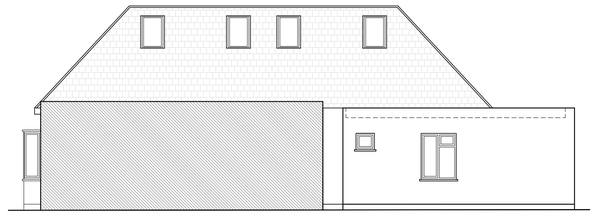


SITE LOCATION PLAN
SCALE: 1:1250

EXISTING DWELLING FOOTPRINT:	103.93 m²
SHED 1:	7.72 m²
SHED 2:	8.30 m²
SHED 3:	8.95 m²
TOTAL:	**128.9 m²**
PROPOSED DWELLING FOOTPRINT:	112.14 m²
SHED 1:	7.72 m²
SHED 3:	8.95 m²
TOTAL:	**128.81 m²**



Proposed Front Elevation
Scale 1:100



Proposed Side Elevation (North-East)
Scale 1:100

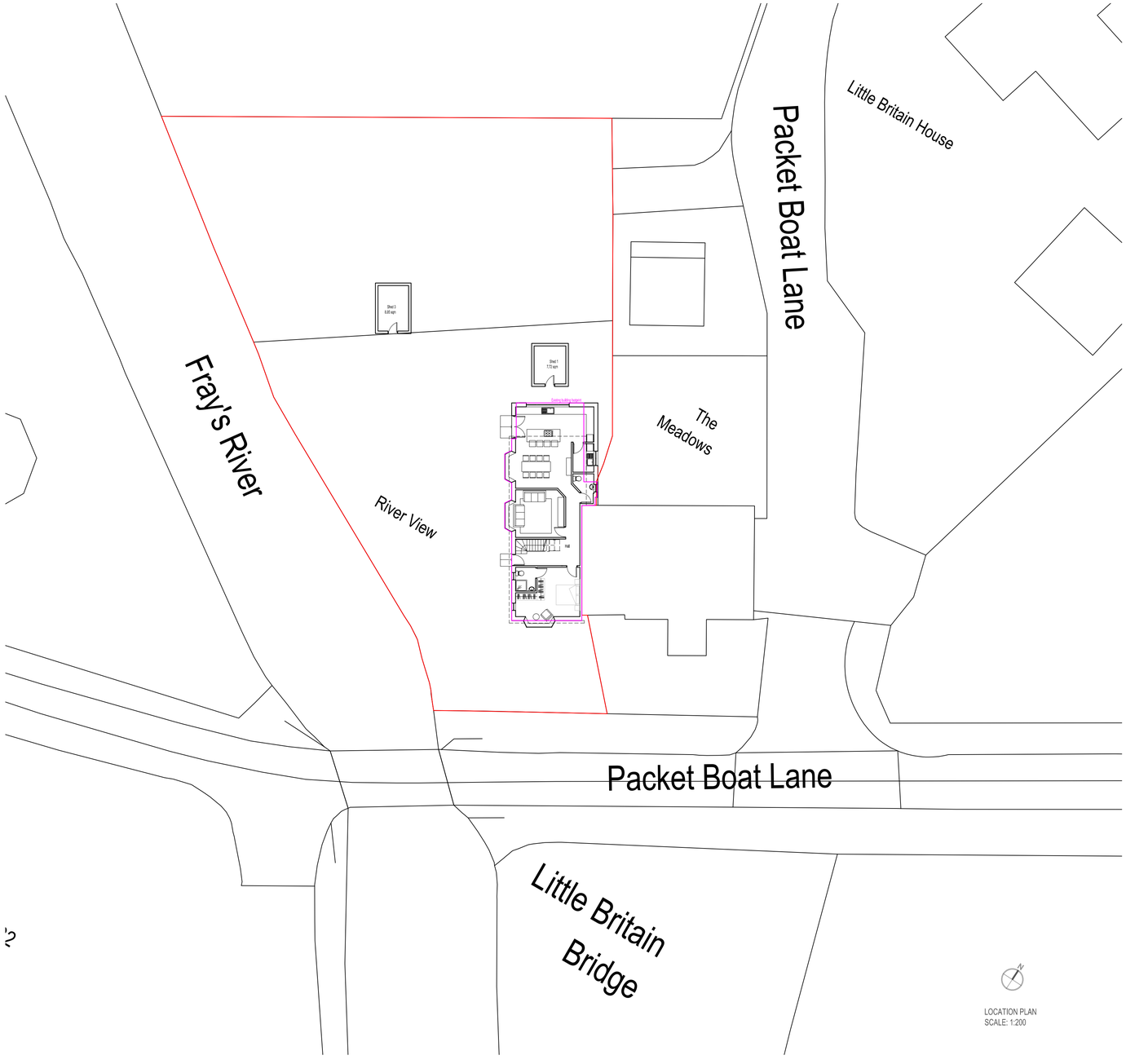
Proposed Section AA'
Scale 1:100

Proposed Rear Elevation
Scale 1:100

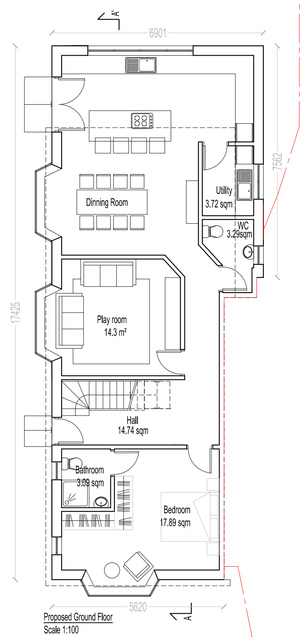
Proposed Side Elevation (North-West)
Scale 1:100

0 1 2 3 4 5m

scale 1:100

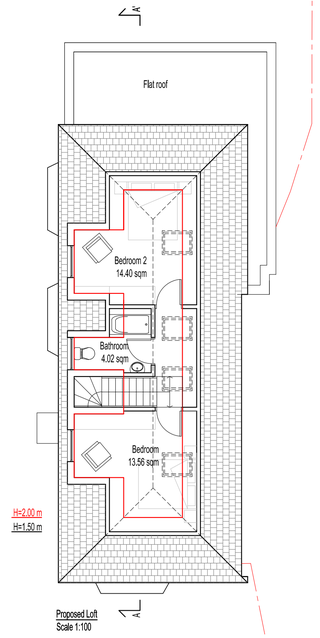


LOCATION PLAN
SCALE: 1:200



Proposed Ground Floor
Scale 1:100

Internal floor area: 98.13 m²



Proposed Loft
Scale 1:100

Internal floor area: 37.64 m²

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46-48 Ennersdale Road, London,
SE13 6JB
tel: 02080041662
www.kappa-planning.co.uk

CLIENT
SAV SHINGADIA

PROJECT
RIVERVIEW,PACKET BOAT LANE,UB8 2JR

JOB TITLE
PROPOSED NEW PORCH,LOFT CONVERSION,SINGLE STOREY REAR AND SIDE EXTENSION AND INTERNAL ALTERATIONS

DRAWING
PROPOSED FLOOR PLANS, ELEVATIONS, SECTION AND SITE LOCATION PLAN

DRAWN BY	CHECKED BY
LS	**GP**

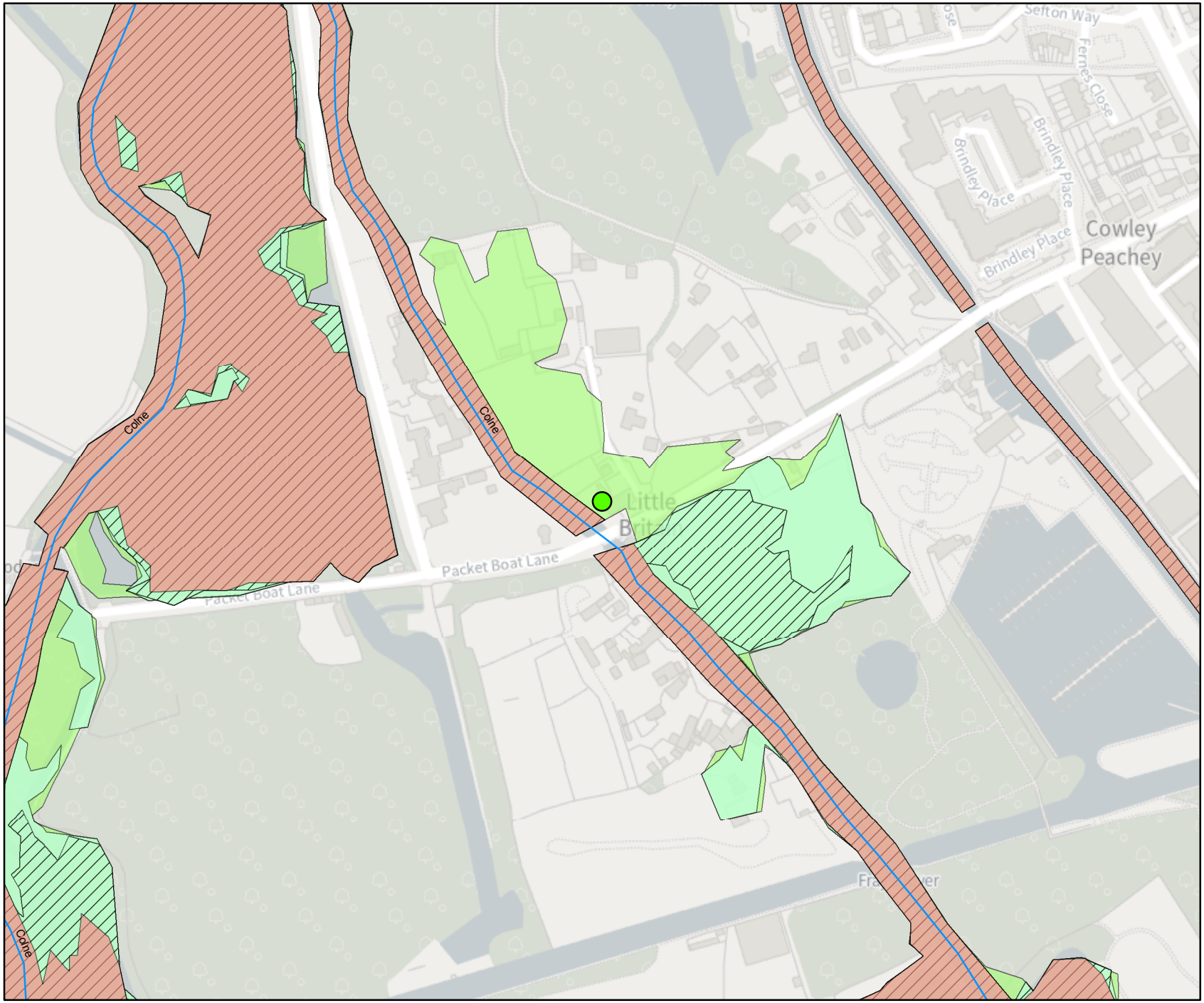
REVISION

DATE	SCALE
10.10.22	**1:100@A1**

RELEASE	PROJECT No	DRAWING No
01	**717**	**02**

Appendix B – Environment Agency Data

Detailed FRA centred on: Packet Boat Lane, Cowley, UB8 2JR - 26/08/2022 - HNL 276917 JH



Environment Agency
Alchemy,
Bessemer Road,
Welwyn Garden City,
Hertfordshire,
AL7 1HE

N

0 50 100 200
Metres

Legend

- Main Rivers
- Site location

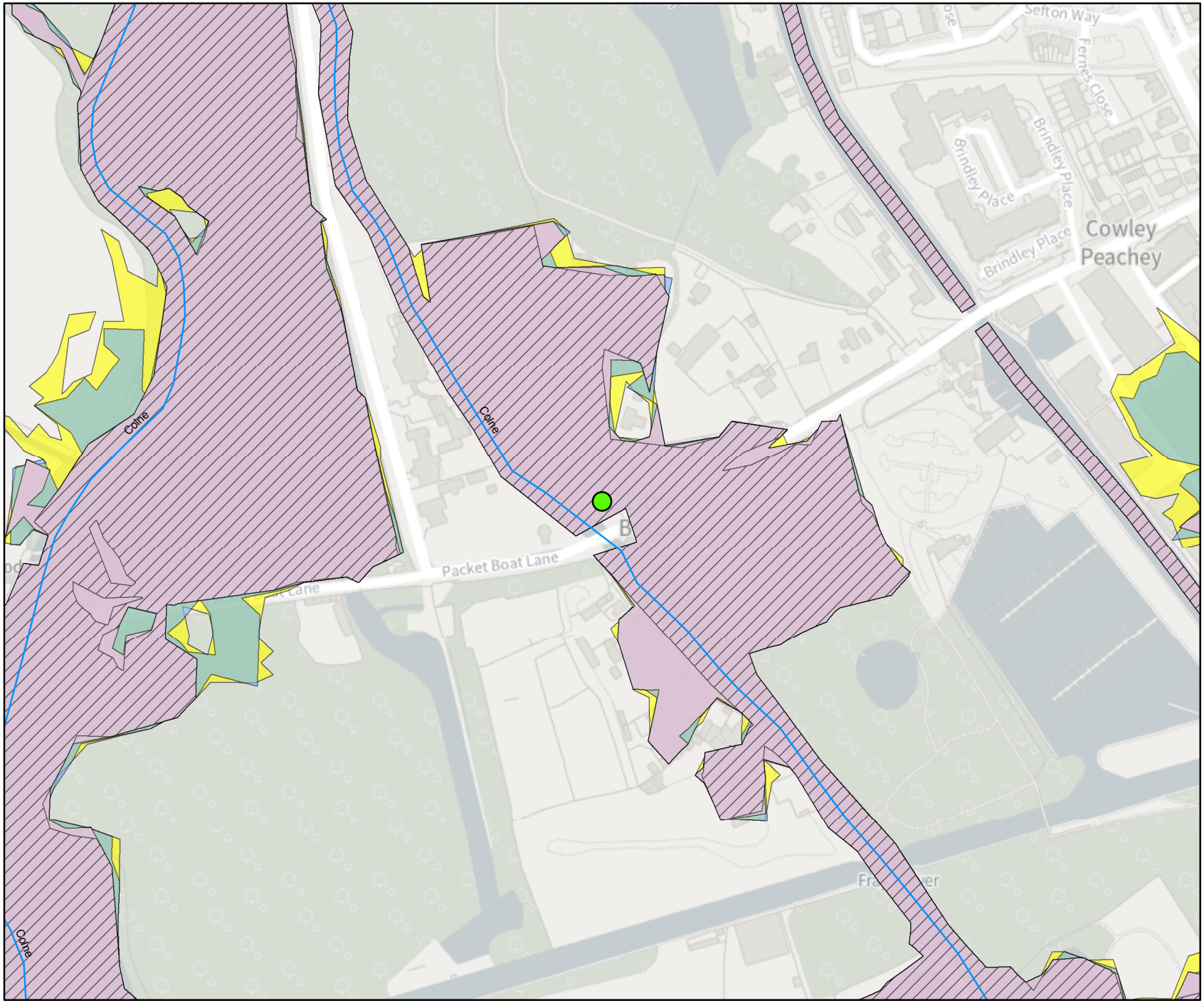
Defended Flood Outlines

- 1 in 2 (50%) Defended
- 1 in 5 (20%) Defended
- 1 in 10 (10%) Defended
- 1 in 20 (5%) Defended

The data in this map has been extracted from the Lower Colne Modelling and Mapping Study (Mott MacDonald 2012).
This model has been designed for catchment wide flood risk mapping. It should be noted that it was not created to produce flood levels for specific development sites within the catchment. Modelled outlines take into account catchment wide defences.
Flood risk data requests including an allowance for climate change will be based on the 1 in 100 flood plus 20% allowance for climate change, unless otherwise stated. You should refer to 'Flood risk assessments: climate change allowances' to check if this allowance is still appropriate for the type of development you are proposing and its location. You may need to undertake further assessment of future flood risk using different allowances to ensure your assessment of future flood risk is based on best available evidence. https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances

Produced by:
Partnerships & Strategic Overview,
Hertfordshire & North London

Detailed FRA centred on: Packet Boat Lane, Cowley, UB8 2JR - 26/08/2022 - HNL 276917 JH



Environment Agency
Alchemy,
Bessemer Road,
Welwyn Garden City,
Hertfordshire,
AL7 1HE

N

0 50 100 200
Metres

Legend

- Main Rivers
- Site location

Defended Flood Outlines

- 1 in 50 (2%) Defended
- 1 in 100 (1%) Defended
- 1 in 100+20% (*CC) Defended
- 1 in 1000 (0.1%) Defended

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Detailed FRA centred on: Packet Boat Lane, Cowley, UB8 2JR - 26/08/2022 - HNL 276917 JH

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Hertfordshire,
AL7 1HE

N

0 50 100 200
Metres

Legend

- Main Rivers
- Site location

1D Node Results

- Node Results

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https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances

Produced by:
Partnerships & Strategic Overview,
Hertfordshire & North London

Environment Agency ref: HNL 276917 JH

The data in this map has been extracted from the Lower Colne Modelling and Mapping Study (Mott MacDonald 2012).

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All flood levels are given in metres Above Ordnance Datum (mAOD)
All flows are given in cubic metres per second (cumecs)

MODELLED FLOOD LEVEL

			Return Period							
Node Label	**Easting**	**Northing**	**2 yr**	**5 yr**	**10 yr**	**20 yr**	**50 yr**	**100 yr**	**100 yr + 20%**	**1000 yr**
B047	504728	180822	25.89	26.06	26.17	26.28	26.35	26.41	26.47	26.58
B049	504755	181072	25.96	26.13	26.24	26.34	26.41	26.46	26.53	26.64
B049A	504739	181025	25.95	26.13	26.24	26.34	26.41	26.46	26.53	26.64
B050	504755	181072	25.98	26.18	26.3	26.42	26.52	26.57	26.65	26.75
B051	504816	181160	26.06	26.26	26.38	26.5	26.59	26.65	26.73	26.81
B052	504845	181254	26.18	26.34	26.43	26.53	26.61	26.66	26.73	26.8
B053	504778	181332	26.35	26.44	26.5	26.57	26.63	26.67	26.73	26.77
B055	504811	181426	26.54	26.61	26.66	26.7	26.74	26.78	26.83	26.89
J028	505304	180863	27.47	27.56	27.59	27.61	27.62	27.64	27.67	27.68
J029	505240	180943	27.48	27.56	27.59	27.61	27.62	27.64	27.67	27.7
J030	505181	181008	27.48	27.56	27.59	27.61	27.62	27.64	27.67	27.71
J031	505128	181068	27.48	27.56	27.59	27.61	27.63	27.65	27.68	27.72
J032	505040	181151	27.48	27.56	27.59	27.61	27.63	27.65	27.7	27.74
J033	504998	181218	27.48	27.56	27.59	27.61	27.63	27.65	27.7	27.75
J034	504940	181350	27.48	27.56	27.59	27.61	27.63	27.65	27.71	27.76
J035	504936	181425	27.48	27.56	27.59	27.61	27.63	27.66	27.71	27.77

MODELLED FLOWS

			Return Period							
Node Label	**Easting**	**Northing**	**2 yr**	**5 yr**	**10 yr**	**20 yr**	**50 yr**	**100 yr**	**100 yr + 20%**	**1000 yr**
B047	504728	180822	7.84	10.23	11.73	12.65	13.14	13.51	14.72	16.2
B049	504755	181072	7.85	10.23	11.82	13.54	15.36	15.93	16.69	16.65
B049A	504739	181025	7.85	10.23	11.81	13.32	14.54	15.24	16.66	18.32
B050	504755	181072	7.85	10.23	11.82	13.54	15.36	15.93	16.69	16.65
B051	504816	181160	6.46	7.21	7.45	7.45	8.33	9.39	8.01	8.26
B052	504845	181254	6.21	6.33	6.32	7.08	8.33	9.39	7.79	8.13
B053	504778	181332	6.21	6.33	6.32	7.08	8.33	9.39	7.81	8.09
B055	504811	181426	7.73	10.12	11.61	13.12	15.05	16.47	19.25	22.98
J028	505304	180863	0.61	0.67	0.78	1.13	1.32	1.41	2.48	3.25
J029	505240	180943	0.6	0.66	0.73	1.09	1.34	1.42	2.48	3.24
J030	505181	181008	0.58	0.64	0.75	1.14	1.27	1.4	2.48	3.19
J031	505128	181068	0.57	0.62	0.7	1.12	1.4	1.43	2.27	2.82
J032	505040	181151	0.55	0.61	0.72	1.14	1.36	1.49	2.48	3.25
J033	504998	181218	0.54	0.59	0.7	1.14	1.5	1.5	2.48	3.24
J034	504940	181350	0.53	0.58	0.7	1.14	1.38	1.49	2.48	3.24
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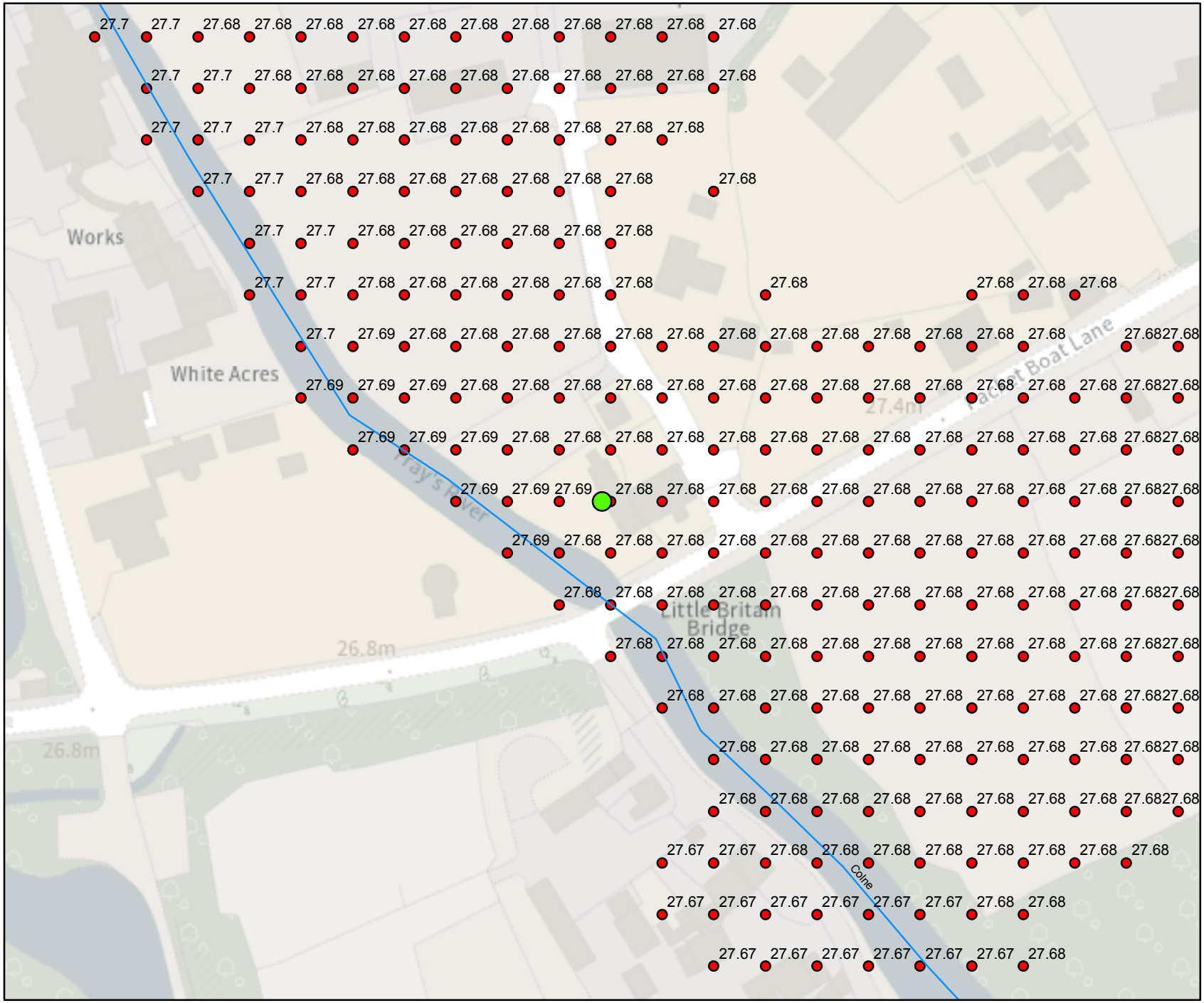
Detailed FRA centred on: Packet Boat Lane, Cowley, UB8 2JR - 26/08/2022 - HNL



Environment Agency
Alchemy,
Bessemer Road,
Welwyn Garden City,
Hertfordshire,
AL7 1HE

N

0 15 30 60
Metres

Legend

- Main Rivers
- Site location

2D Node Results

- 1 in 100+20% (*CC) Defended

The data in this map has been extracted from the Lower Colne Modelling and Mapping Study (Mott MacDonald 2012).
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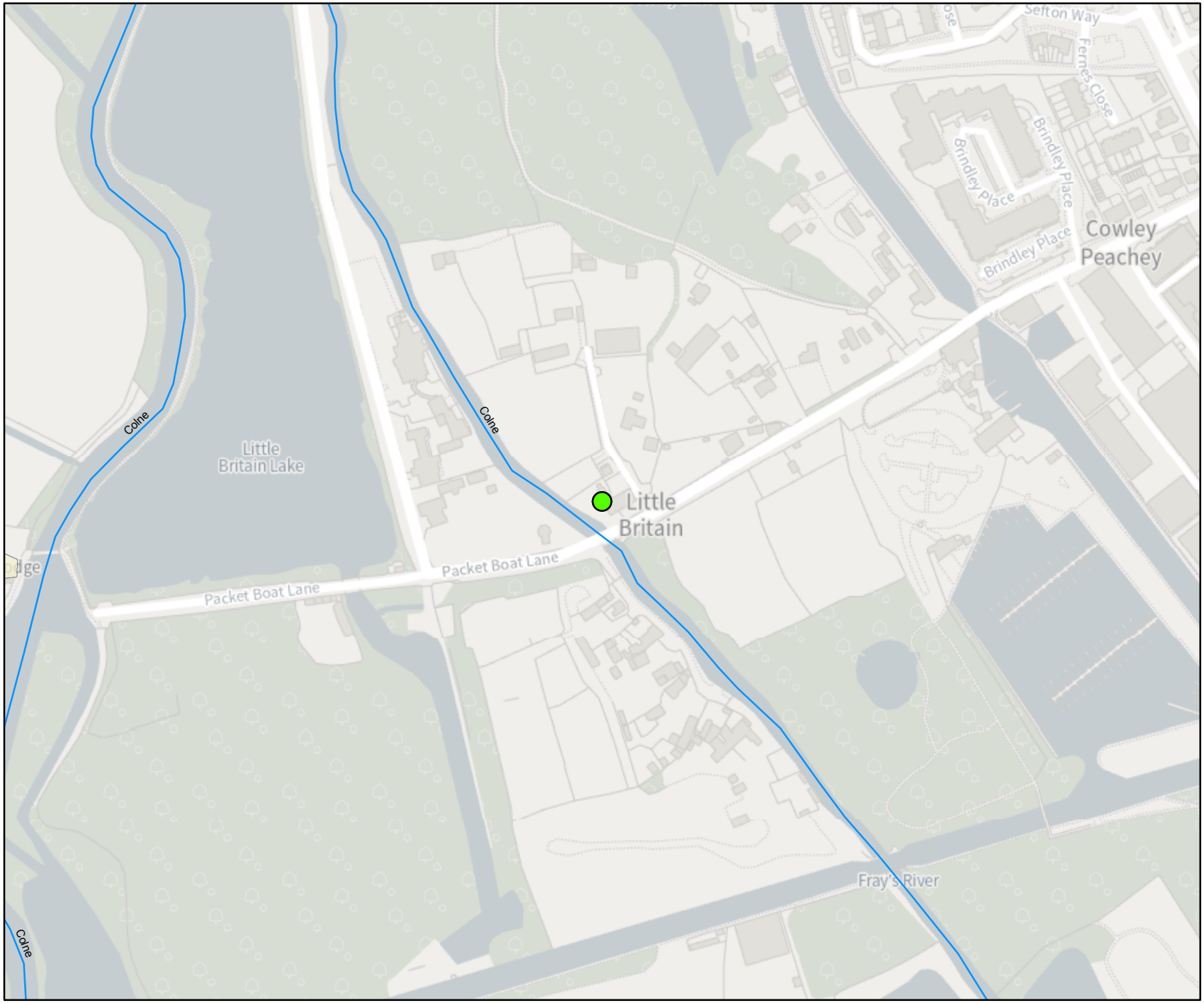
Flood risk data requests including an allowance for climate change will be based on the 1 in 100 flood plus 20% allowance for climate change, unless otherwise stated. You should refer to 'Flood risk assessments: climate change allowances' to check if this allowance is still appropriate for the type of development you are proposing and its location. You may need to undertake further assessment of future flood risk using different allowances to ensure your assessment of future flood risk is based on best available evidence.
https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances

Produced by:
Partnerships & Strategic Overview,
Hertfordshire & North London

Historic Flood Map centred on: Packet Boat Lane, Cowley, UB8 2JR - 26/08/2022 - HNL



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Bessemer Road,
Welwyn Garden City,
Hertfordshire,
AL7 1HE

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0 50 100 200
Metres

Legend

Main Rivers

Site location

Flood Event Outlines

2014

The historic flood event outlines are based on a combination of anecdotal evidence, Environment Agency staff observations and survey.
Our historic flood event outlines do not provide a definitive record of flooding.
It is possible that there will be an absence of datain places where we have not been able to record the extent of flooding.
It is also possible for errors occur in the digitisation of historic records of flooding.

Produced by:
Partnerships & Strategic Overview,
Hertfordshire & North London