Flood Risk Assessment

34A Carew Road, Tottenham, London N17 9BA

Site-specific flood risk assessment submitted in support of a full planning application for one dwelling.

1 November 2026

Summary

This site-specific flood risk assessment (FRA) accompanies a full planning application for one single-storey, one-bedroom self-build dwelling of approximately 38 m² gross internal area on an 80 m² plot at 34A Carew Road. The dwelling replaces an existing domestic garage and is assessed here as a new "more vulnerable" residential use.

The site lies on the boundary between Flood Zones 2 and 3 on the Environment Agency (EA) Flood Map for Planning. Most of the building is within Zone 3, and the bedroom is located predominantly within the Zone 2 part of the plot. Flood zones show the extent of flooding without flood defences. Taking defences into account, the EA's national flood risk assessment rates the present-day chance of flooding from rivers and the sea at this location as Very Low (less than 0.1% each year). [S1, S11]

Surface-water risk is rated Low today. In a 1% (1 in 100) annual chance storm, mapped flood depths at the site are below 75 mm, the lowest band the EA maps. Even in the most extreme scenario mapped, a 0.1% (1 in 1,000) annual chance storm with climate change for 2061–2125, depths at the site fall in the 150–300 mm band. The finished floor is set 300 mm above the adjoining pavement and 400 mm above the Carew Road carriageway. [S1, S11]

There is no known history of flooding at the site. Neither the applicant nor the previous owner has observed flooding or standing water at the garage or garden, and Carew Road is not among the streets identified in Haringey's investigation of the July 2021 storms. [S3]

The design incorporates a raised finished floor, front and rear exits, flood-resistant and resilient construction, flood-warning registration with a written evacuation plan, and a 3,000-litre surface-water attenuation tank that replaces the existing uncontrolled roof drainage. The garden will be permeable gravel-grid with planting and six new trees. The Sequential and Exception Tests are addressed in Section 4.

EA modelled flood levels and breach data (Product 4) have been requested. An addendum will be submitted on receipt, confirming the finished floor level in metres AOD, which will be set at least 300 mm above the EA modelled design flood level.

Project parameters

Parameter	Assessment input
Application site	80 m²; existing domestic garage and associated land
Proposed accommodation	One self-contained Use Class C3 self-build dwelling; single-storey; 38 m² GIA; one bedroom; one-person occupancy
Existing building	Domestic garage to be demolished and rebuilt as the dwelling, retaining a garage-like form

Parameter	Assessment input
Flood-zone distribution	Predominantly Zone 3 with a Zone 2 element on the western side of the plot; bedroom predominantly within the Zone 2 part
Finished floor level	300 mm above adjacent pavement; 400 mm above Carew Road carriageway (relative levels); to be set in metres AOD at least 300 mm above the EA modelled design flood level, confirmed in the addendum
Entrances	Two external doors at finished floor level, one front and one rear
Roof and hardstanding	39 m² proposed roof; 36 m² existing concrete; 6 m² additional impermeable area; 2 m² front tarmac replaced with permeable gravel-grid
Landscape	Rear garden in permeable gravel-grid; approximately 8 m² of planted beds; six birch trees; no impermeable patio
Surface-water storage	3,000-litre below-ground attenuation tank with flow-controlled outlet
Heating	All-electric air-to-water heat pump; no gas connection
Accessibility	Designed to Building Regulations M4(2) accessible and adaptable dwellings standard

1. Scope, site and classification

This assessment considers flooding from rivers, surface water, sewers, groundwater and artificial sources; the effect of the development on flood risk elsewhere; and the safety of the dwelling over a 100-year residential lifetime, including climate change. It has been prepared in line with Chapter 18 of the National Planning Policy Framework and Haringey's Local Validation List (August 2024), which requires a site-specific FRA for new development in Flood Zones 2 and 3. [S4, S5]

The site is in an established residential area of South Tottenham, west of Down Lane Park (OS grid reference 534224/190127). The surrounding streets, including Carew Road, Mafeking Road, Buller Road and Park View Road, are predominantly mapped in Flood Zone 3, with Zone 2 land immediately to the west of the site. The plot sits on the Zone 2/3 boundary (Appendix A). [S1]

The site is not within a water storage area, which the EA identifies as likely to be functional floodplain (Zone 3b). Functional floodplain is land with a 3.3% or greater annual chance of flooding with flood defences operating. The EA rates the present-day river flood risk here as Very Low (less than 0.1% each year), so the site is not functional floodplain. This FRA adopts the Zone 3a basis, being the highest zone affecting the site, consistent with Haringey's Strategic Flood Risk Assessment approach where multiple zones intersect a site. [S1, S2, S6, S11]

2. Sources of flood risk

Source	Assessment
Rivers	Flood Zone 3 on the Flood Map for Planning, which shows flooding without defences. With defences taken into account, the EA rates the present-day chance of river flooding as Very Low (less than 0.1% each year), rising to Low (0.1–1%) for 2036–2069. The Flood Map for Planning also flags the site for the 2070–2125 climate-change extent. No main river or flood defence is shown within the mapped extent. Residual risk from defence breach will be assessed in the addendum using EA breach data. [S1, S11]
Surface water	Low today (0.1–1% each year), rising to Medium (1–3.3%) for 2040–2060. Mapped depths at the site are below 75 mm in a 1% annual chance storm, and within the 150–300 mm band in a 0.1% annual chance storm with climate change (2061–2125). The finished floor is 300 mm above the adjoining pavement (Section 6.1, Appendix B). [S1, S11]
Sewers	No sewer flooding has been observed at the site. Haringey's Section 19 investigation of the July 2021 storms does not identify Carew Road; the nearest recorded flooding was on Dowsett Road, attributed to rainfall intensity exceeding the capacity of the drainage network. A non-return valve will be fitted to the foul connection. [S3]
Groundwater	No groundwater flooding has been reported at the site. The dwelling has no basement or below-ground accommodation, which is the form of development most sensitive to groundwater. The attenuation tank will be designed and anchored to resist flotation.
Reservoirs and artificial sources	No reservoir, canal or other artificial water body adjoins the site. Reservoirs in England are subject to statutory inspection under the Reservoirs Act 1975, so any risk from this source is residual.

3. Historical flooding and site observations

Neither the applicant nor the previous owner is aware of the garage or garden ever flooding or holding significant standing water, including during the major local storms of July 2021 and August 2022. The existing garage roof currently discharges, without attenuation, onto concrete hardstanding in the garden, and no standing water has been observed there. This is consistent with the site draining freely.

Haringey's Section 19 investigation of the 12 and 25 July 2021 storms identifies the streets affected across South Tottenham. Carew Road and Mafeking Road are not among them. [S3]

4. Planning policy and vulnerability

The National Planning Policy Framework (29 September 2026), policies F4–F8 and Annex F, classifies dwellings as "more vulnerable". More vulnerable development may be permitted in Flood Zone 3a where the Sequential Test and Exception Test are passed. [S5]

4.1 Sequential Test

As the proposal is a new dwelling replacing a demolished garage, it is not within the exemptions in policy F5(2)(c), and the Sequential Test applies. The aim of the test is to steer new development

to areas with the lowest risk of flooding. Policy F5 provides that the area to which the test is applied "should not be greater than the anticipated catchment of the development in terms of its likely occupiers or users". [S5]

The proposal is a single self-build dwelling on land in the applicant's ownership, created by rebuilding an existing garage on its own plot. Self-build housing is by its nature tied to a plot that the self-builder owns or controls. The anticipated catchment of this development is therefore the site itself and its immediate locality. Sites elsewhere in the borough would not be available to the applicant to deliver this self-build home and would not meet the same need.

Within the immediate locality, the residential streets east of Kimberley Road are predominantly mapped in Flood Zone 3 (Appendix A). The site lies at the edge of Zone 3, directly adjoining Zone 2.

The layout places the bedroom, the only sleeping accommodation, predominantly within the Zone 2 part of the plot, locating the most vulnerable part of the dwelling in the lowest-risk area of the site, consistent with policy F7. [S5]

On this basis, the applicant considers that no reasonably available alternative site at lower flood risk exists within the appropriate search area that could accommodate this development, and that the Sequential Test is passed. The applicant would welcome early discussion with the local planning authority if it takes a different view of the appropriate search area.

4.2 Exception Test

Policy F6 requires the development to meet all three Exception Test criteria. [S5]

The first criterion is that the development provides wider sustainability benefits to the community that outweigh the flood risk. The proposal:

- delivers a new home on a small, already built-on urban plot in an accessible location, making efficient use of land as supported by London Plan Policy H2 (small sites) [S13];
- contributes to the supply of self-build housing, which Haringey has a statutory duty to support under the Self-build and Custom Housebuilding Act 2015;
- replaces an uninsulated, unheated garage with an all-electric home heated by an air-to-water heat pump, with no gas connection and no on-site combustion emissions;
- provides an accessible and adaptable home built to Building Regulations M4(2) standard;
- adds urban greening, with six birch trees and approximately 8 m² of planted beds; and
- introduces surface-water attenuation where none exists, reducing peak roof runoff to the local drainage network in an area where surface-water flooding has been recorded elsewhere.

Set against a Very Low present-day river flood risk and shallow surface-water depths, these benefits are considered to outweigh the flood risk.

The second criterion is that the development will be safe for its lifetime. The river flood risk with defences is Very Low; mapped surface-water depths are shallow; the floor is raised 300–400 mm above the street; the dwelling has two exits, a short escape route towards lower-risk land, flood-resistant and resilient construction, and a flood warning and evacuation plan (Section 6). The finished floor will be set at least 300 mm above the EA modelled design flood level, as confirmed in the addendum.

The third criterion is that the development will not increase flood risk elsewhere and, where possible, will reduce flood risk overall. The dwelling largely occupies the footprint of the existing garage. Roof water will be attenuated in a 3,000-litre tank, replacing the existing uncontrolled discharge, and the garden will be permeable. The small net increase in impermeable area (about 4

m²) is more than offset by the new storage, so runoff from the site is controlled better than at present (Section 7).

The applicant considers that each of the three criteria is met, with confirmation of the finished floor level against EA modelled levels to follow in the addendum.

5. Local context: Ashley Road Depot

The former Ashley Road Depot, east of Down Lane Park in the same neighbourhood, received planning permission in 2022 for 272 homes (HGY/2022/0752) and has since been developed. The current EA Flood Map for Planning shows the substantial majority of that development within present-day Flood Zone 3, with smaller areas in Zone 2. [S7, S9]

The 2022 officer report assessed the depot site as Flood Zone 2, before the EA's March 2025 update of national flood zones, so the scheme is not cited as a precedent for the Sequential or Exception Tests. It does show that new residential development in this part of Tottenham, on land now mapped as Zone 3, has been delivered with site-specific flood risk assessment and sustainable drainage. [S7, S10]

6. Flood-safety and resilience measures

6.1 Finished floor level

The finished floor is set 300 mm above the adjoining Carew Road pavement and approximately 400 mm above the carriageway, higher than the existing garage floor.

For surface water, in a 1% (1 in 100) annual chance storm, mapped depths at the site are below 75 mm, so the floor sits comfortably above them. In the most extreme scenario the EA maps, a 0.1% (1 in 1,000) annual chance storm with climate change for 2061–2125, depths at the site fall in the 150–300 mm band, and the floor is at or above the top of that band. [S1]

For river flooding, with defences taken into account, the present-day chance of river flooding is Very Low (less than 0.1% each year). EA modelled flood levels have been requested. The finished floor level will be set in metres above Ordnance Datum (AOD) at least 300 mm above the EA modelled design flood level (the 1% annual probability flood level including the climate-change allowance). The addendum will state the resulting level and assess residual risk from defence breach.

The applicant will accept a planning condition securing this finished floor level. On receipt of the EA data, the level will be checked against LiDAR ground-level data, and it will be set out and verified on site at groundworks stage, before the floor slab is constructed. The design retains scope to adjust the floor level modestly if required, while maintaining M4(2) step-free access.

6.2 Access, escape and flood warning

The dwelling has two external doors, at the front and rear, both directly accessible from the finished floor level, giving alternative ways out of the building. The approach and principal entrance are designed to M4(2) standard, so the dwelling is straightforward to leave for occupiers with reduced mobility.

From the site, the escape route runs west along Carew Road, reaching Flood Zone 2 within about 40 m, and continues via Kimberley Road and Dowsett Road to Flood Zone 1 about 250 m from the site (distances scaled from the EA map in Appendix A). [S1]

The EA operates the Lower River Lee (Hoddesdon to Canning Town) flood alert area, which covers Tottenham. The occupier will register with the EA flood warning service for the property. [S12]

A written Flood Warning and Evacuation Plan will be provided to the occupier and kept in the dwelling. It will cover registration for flood alerts and warnings, evacuation on receipt of a Flood Warning by the westward route described above, isolating electricity, protecting belongings, and emergency contacts. Provision of the plan can be secured by planning condition. [S8]

6.3 Flood-resistant and resilient construction

The dwelling will incorporate:

- low-permeability materials and water-resistant finishes to lower wall sections, with easily cleaned floor finishes;
- sealed service entries and carefully detailed external door thresholds;
- a non-return valve on the foul drainage connection;
- electrical sockets, the consumer unit and heat-pump controls raised above floor level, with the external heat-pump unit on a raised mounting; and
- a below-ground attenuation tank anchored against flotation.

These measures limit the potential for water entry and allow a quick return to occupation in the unlikely event of flooding. [S8]

Demountable flood barriers are not proposed, given the Very Low present-day river flood risk and shallow surface-water depths, but could be added to the door openings in future if required. All measures will be detailed to remain compatible with the dwelling's M4(2) accessible and adaptable design, including its step-free entrance.

6.4 Floodplain storage and flow routes

The dwelling largely occupies the footprint of the existing garage, so the change in building footprint, and any effect on floodplain storage or flood flow routes, is small. The remainder of the plot will be permeable gravel and planting. With a Very Low present-day chance of river flooding, the likelihood of river floodwater reaching the site is remote. Any change in floodplain volume will be quantified in the addendum against the EA modelled levels. The attenuation tank is a surface-water measure and is not relied on as floodplain compensation.

7. Sustainable drainage

7.1 Scheme and surface areas

At present, the garage roof discharges without attenuation onto concrete hardstanding. The proposal routes all roof water to a 3,000-litre below-ground attenuation tank with a flow-controlled outlet. The rear garden will be permeable gravel in a stabilising grid over a free-draining sub-base, with approximately 8 m² of planted beds and six birch trees, and 2 m² of front tarmac will be replaced with permeable gravel-grid. There is no impermeable patio.

Surface / measure	Specification
Whole application site	80 m²
Proposed roof	39 m², drained to the attenuation tank
External area	Approximately 41 m² outside the roof footprint; predominantly permeable gravel-grid and planting

Surface / measure	Specification
Planted beds	Approximately 8 m²; six birch trees
Existing concrete	36 m² (overlaps in part with the existing garage footprint, so not additive to the roof area)
Additional impermeable area	6 m²
Tarmac removed	2 m² at the front; replaced by permeable gravel-grid
Net change in impermeable area	Approximately +4 m²
Attenuation	3,000-litre below-ground tank with flow-controlled outlet

7.2 Drainage operation

A 3,000-litre tank provides storage equivalent to approximately 77 mm of rainfall over the 39 m² roof, which is substantial storage for a roof of this size. Combined with the flow-controlled outlet, this is a clear improvement on the existing arrangement, where roof water is discharged without any attenuation, and more than offsets the small net increase of about 4 m² in impermeable area.

The gravel-grid surfacing provides temporary storage within its open-graded sub-base and allows infiltration where ground conditions permit. Surface water will be directed away from the dwelling and neighbouring foundations.

Final details of the outfall connection, flow-control rate, exceedance route and maintenance can be secured by planning condition. The owner will maintain the system, including annual inspection of the tank and flow control and keeping the gravel-grid surface free of fine material. [S5]

8. Information to follow by addendum

Detailed flood risk data (Product 4) has been requested from the EA Hertfordshire and North London team, which aims to provide data within 20 working days. On receipt, an addendum to this FRA will be submitted that:

- reports the EA modelled river flood levels for the site, including the 1% annual chance event with the climate-change allowance;
- assesses residual risk from flood-defence breach using the EA breach data;
- states the finished floor level in metres AOD, set at least 300 mm above the EA modelled design flood level, with a desk check against LiDAR ground-level data; and
- quantifies any change in floodplain storage.

9. Conclusions

The proposal replaces an existing garage with a small self-build home on the boundary between Flood Zones 2 and 3. Although the site is mapped in Zone 3, the EA rates the present-day river flood risk with defences as Very Low, surface-water depths at the site are shallow, and there is no known history of flooding at the site or on Carew Road.

The design responds with a finished floor raised 300 mm above the pavement and 400 mm above the carriageway, a bedroom located predominantly in the lower-risk part of the plot, two exits with a short route towards lower-risk land, flood-resistant and resilient construction, flood-warning

registration and an evacuation plan, and attenuated, permeable drainage that improves on the existing uncontrolled runoff.

The Sequential Test is addressed on the basis of the development's catchment as a self-build home tied to this plot, and the three Exception Test criteria are met. On the evidence available, the development will be safe for its lifetime and will not increase flood risk elsewhere, consistent with NPPF Chapter 18. The finished floor will be set at least 300 mm above the EA modelled design flood level, confirmed in the addendum and verified on site at groundworks stage.

10. Documents and evidence references

[S1] Environment Agency, Flood Map for Planning: flood zones and surface-water depth layers, and site summary report (map created 31 October 2026; viewed 1 November 2026). Reproduced in Appendices A and B.

[S2] Haringey, Strategic Flood Risk Assessment Level 1 (April 2022), section 5.12 and Policy Web Map. Available at: https://haringey.gov.uk/sites/default/files/2025-11/strategic-flood-risk-assessment-sfra-level-1-report-2022.pdf

[S3] Haringey, South Tottenham Section 19 Flood Investigation Report (July 2021 flood events). Available at: https://www.minutes.haringey.gov.uk/documents/s130762/Appendix%204%20-%20Section%2019%20Flood%20Investigation%20-%20South%20Tottenham.pdf

[S4] Haringey, Local Validation List, August 2024, page 12; supplied by applicant.

[S5] National Planning Policy Framework (29 September 2026), Chapter 18, policies F4–F8 and Annex F. Available at: https://www.gov.uk/guidance/national-planning-policy-framework-chapter-18-managing-flood-risk-and-coastal-change-f1-9

[S6] Environment Agency, Flood risk assessment: flood zones 1, 2, 3 and 3b. Available at: https://www.gov.uk/guidance/flood-risk-assessment-flood-zones-1-2-3-and-3b

[S7] Haringey, Ashley Road Depot officer report, HGY/2022/0752 (2022), paragraphs 3.10 and 6.282–6.288. Available at: https://www.minutes.haringey.gov.uk/documents/s133755/7.%20ARD%20Committee%20Report%20FINAL.pdf

[S8] Environment Agency, Preparing a flood risk assessment: standing advice (updated 28 May 2026). Available at: https://www.gov.uk/guidance/flood-risk-assessment-standing-advice

[S9] Environment Agency, Flood Map for Planning (present-day river flood zones, viewed 1 November 2026), Ashley Road Depot redevelopment, Tottenham.

[S10] Environment Agency / Defra Data Services Platform, "New Versions of the Flood Zones" (2025), explaining the 25 March 2025 update to national flood zone data.

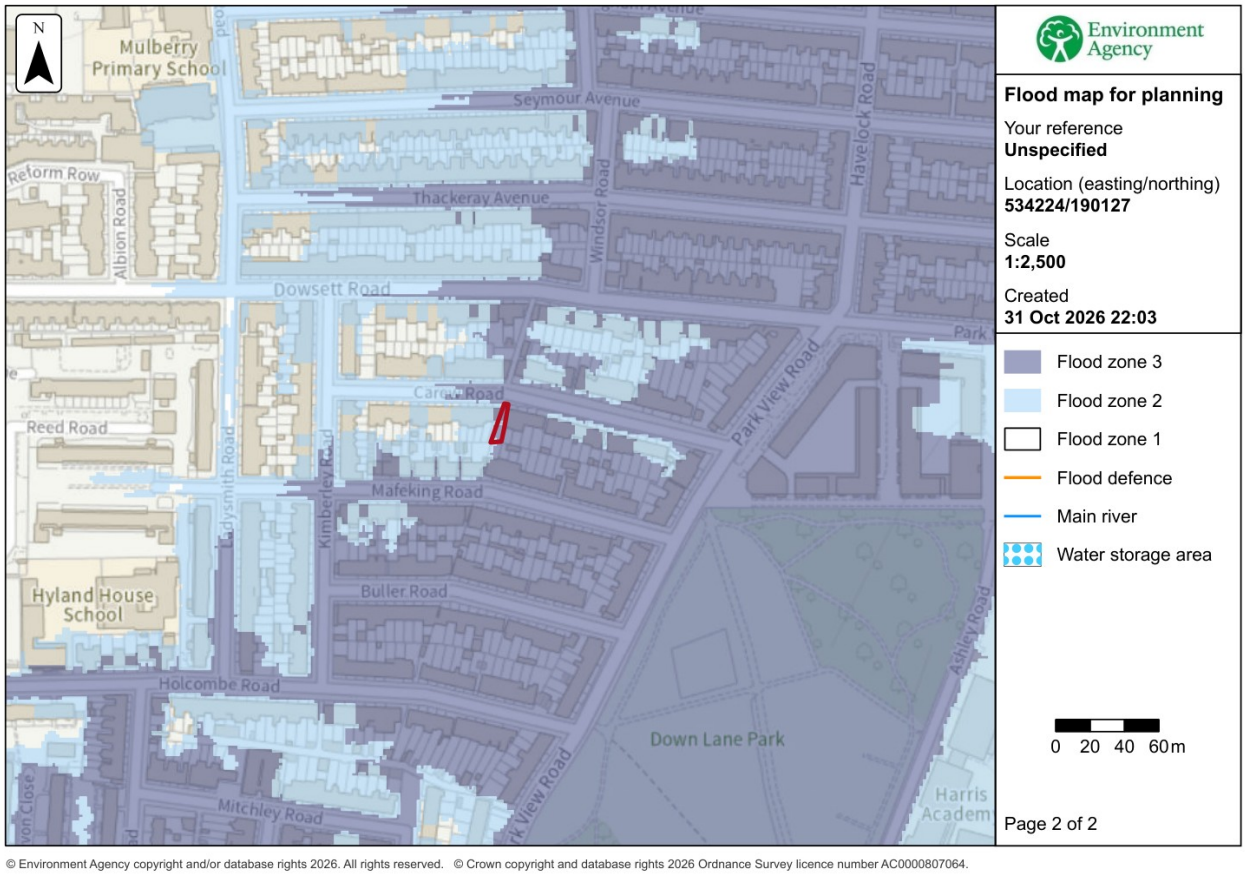
[S11] Environment Agency, Check your long term flood risk (national flood risk assessment), 34 Carew Road, viewed 1 November 2026. Reproduced in Appendix B. Available at: https://check-long-term-flood-risk.service.gov.uk/

[S12] Environment Agency, Lower River Lee from Hoddesdon to Canning Town flood alert area. Available at: https://check-for-flooding.service.gov.uk/target-area/062WAF53LowerLee

[S13] Mayor of London, The London Plan (2021), Policy H2: Small sites.

Appendix A: Environment Agency Flood Map for Planning

Environment Agency Flood Map for Planning (flood zones). The red polygon shows the approximate application boundary on the Flood Zone 2/3 boundary.

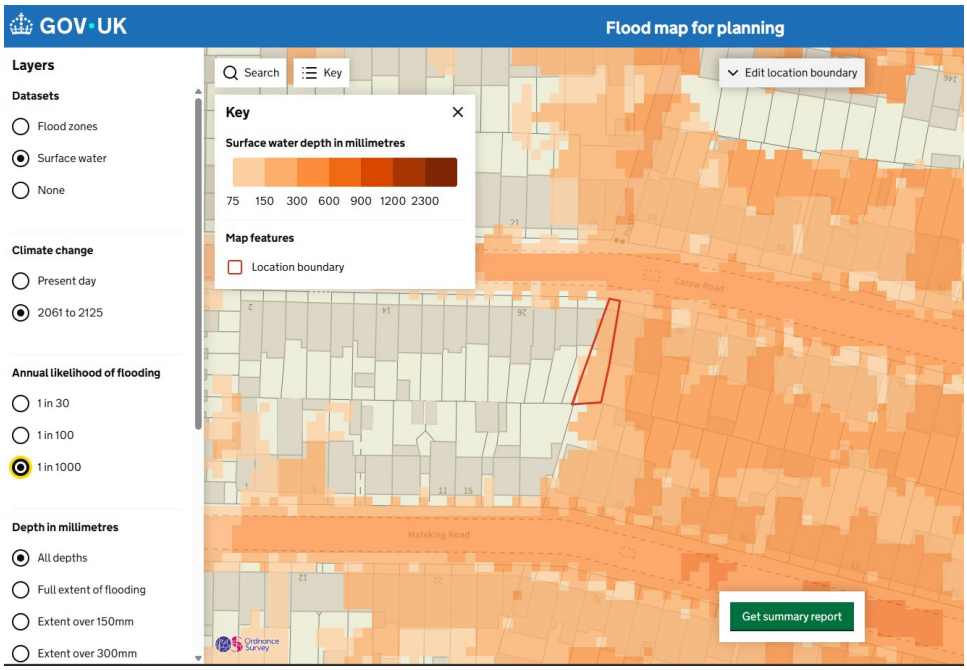


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Environment Agency, 31 October 2026. 1:2,500 scale. OS grid 534224 / 190127. Flood Zone 2 (light blue) and Flood Zone 3 (purple); application boundary in red.

Appendix B: Surface-water depth and long-term flood risk

B1. EA Flood Map for Planning, surface-water depth, 0.1% (1 in 1,000) annual chance with climate change (2061–2125), the most extreme scenario mapped. Depth at the site falls in the 150–300 mm band. In the present-day 1% (1 in 100) annual chance event, depths at the site are below 75 mm.



B2. EA Check your long term flood risk: surface water Low today; rivers and the sea Very Low today (taking account of flood defences).

