

# Cooper Associates

Consulting Structural Engineers



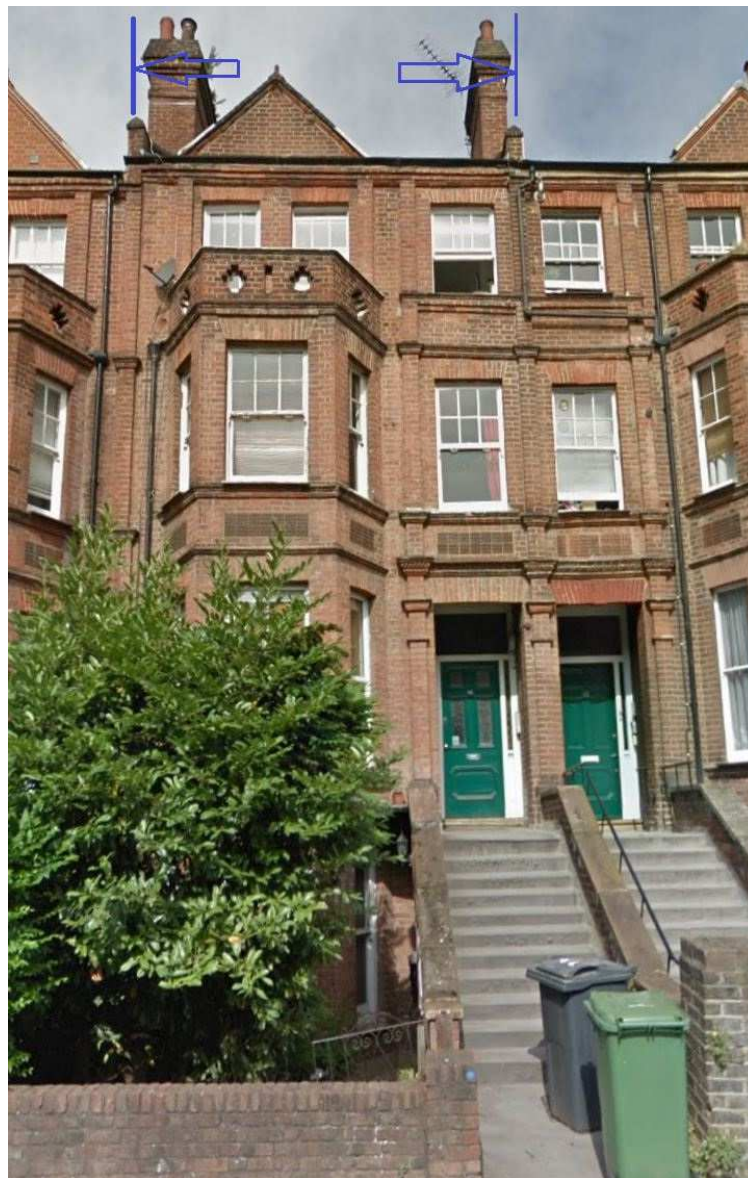
CA4735.02

April 2018

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## 44 Goldhurst Terrace, London NW6 3HT.

### Flood Risk Assessment.



It is intended to construct a basement level below this four story terraced house, that is currently converted into flats.

The British Geological Survey maps show that the property is founded on 'London Clay Formation'. This agrees with our experience of trial holes in the area, including foundation works at other properties in this road

Bore holes in the area (provided by the British Geological Survey) show that London Clay will be found below the property.

A borehole carried out at the site and presented as appendix C as part of the BIA prepared by Solid Geometry Structural Engineers, shows that below approximately 1 metre depth of Made Ground, clay was found for the full depth of the 5.75 m deep borehole. No water was found in the borehole. This is as expected as clay is normally considered to be an impermeable material

Although detailed landscaping and surface treatment has yet to be designed, it is expected that there will be some marginal increase in the area of hardstanding at the front and the rear of the property. As the existing building is already embedded in the London Clay, the construction of a basement will not have an impact on the water flow across the site.

The new hardstanding - primarily the areas of the new lightwells to the front and rear of the basement, will be drained by a designed rain water drainage system and so the water will be controlled in a more controlled manner than currently exists.

Photographs on sheet 5 of this report shows that the property has a woodland area to the rear and so the marginal increase in hardstanding will have no impact to the rear of the property.

Both foul and rainwater drainage will be routed via the existing drain run, using a pump where necessary.

Information from the environmental agency (Page 10 below) shows that the property is at a very low risk of flooding from rivers or seas.

The risk of flooding from surface water in the surrounding area is considered to be very low (page 11). The risk from Reservoirs is considered to be very low (page 12).

Although the Environment Agency has published the above and appended information, the London Borough of Camden have published records of surface water flooding - which we have reproduced on page 9. This shows that Goldhurst Terrace was flooded in 1975 and in 2002. As a result, the risk of surface flooding cannot be entirely ruled out.

The occupants of the development can mitigate any residual risk by using the Flood Warning Service subscribing to the Floodline Warning Direct and listening to the available information ([www.gov.uk/sign-up-for-flood-warnings](http://www.gov.uk/sign-up-for-flood-warnings)).

Escape from the front and rear of the property can be achieved via a fixed ladder in the front lightwell and via a fixed spiral staircase in the lightwell to the rear of the property.

The lower ground floor level will be closed in times of flooding and the internal access from the basement to the ground floor can be utilised should an evacuation be necessary. Safe refuge is also provided on the upper floors of the building should this be necessary.

Flood resilience measures will be incorporated into the design of the lower ground floor to prevent the ingress of water. This will include concrete ground slabs and appropriate waterproofing methods etc. Page 13 illustrates a typical waterproofing method. Page 14 indicates a typical pumping detail.

Mitigation against the ingress of any surface water from the street to the basement level will be incorporated in the detailed design surface water drainage strategy. This will include fitting non-return valves to the foul and surface water system to prevent sewers surcharging into the dwelling should the outlet become submerged under extreme floor conditions.

Flood resilient building materials and fittings will be used. All service ducts / gaps etc., to accommodate utilities such as gas, electricity and telephone cables to the lower ground floor level, will be sealed with silicone.

This FRA meets the requirements of the EAs Flood Risk Standing Advice for Minor Extensions in Flood Zones 2 and 3; the external footprint is less than 250sqm (the property is in Flood Zone 1).

Report prepared by

Eur Ing **Martin Cooper**, BSc, CEng, MICE, MStructE.

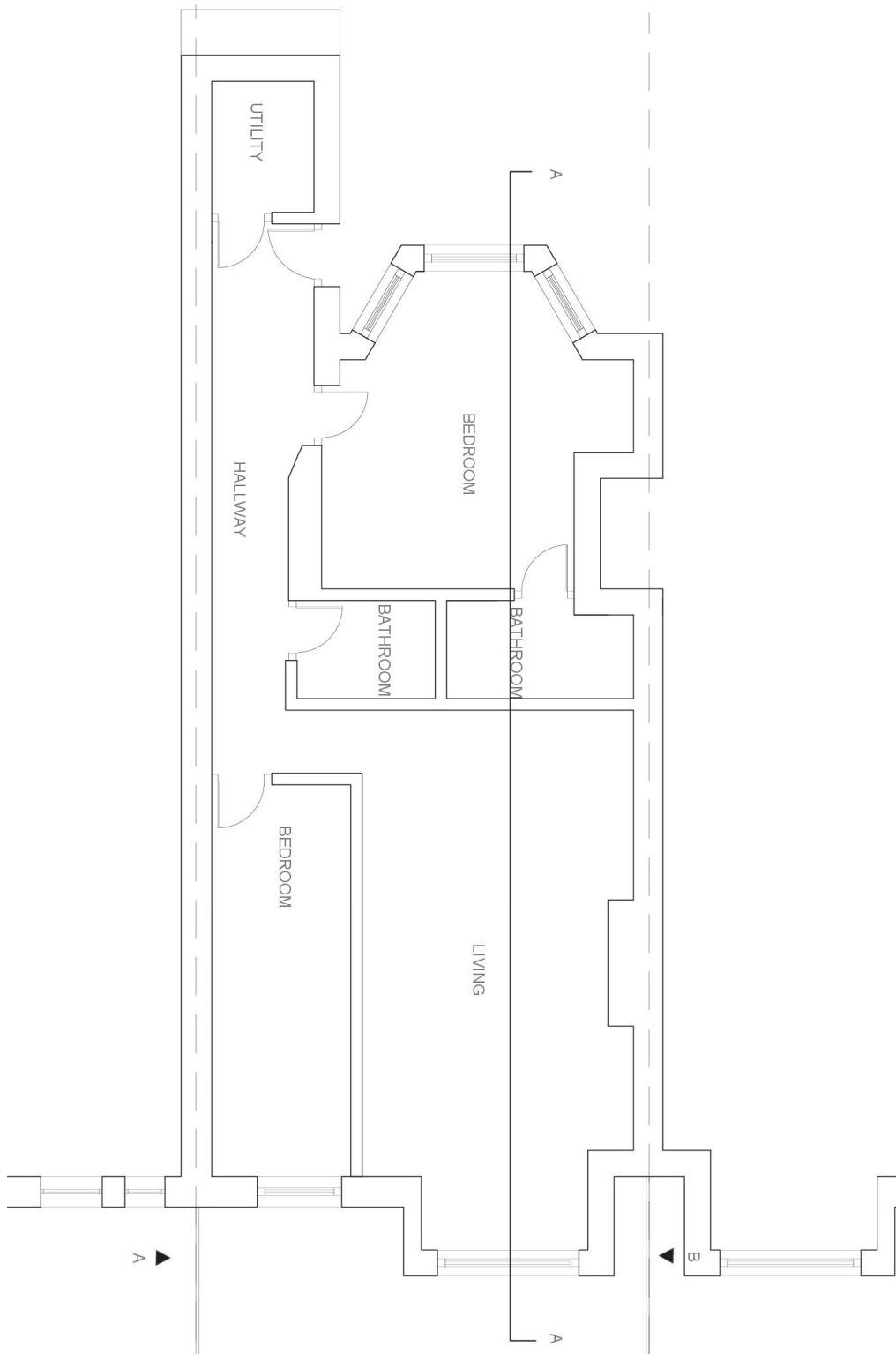
**Cooper Associates.**



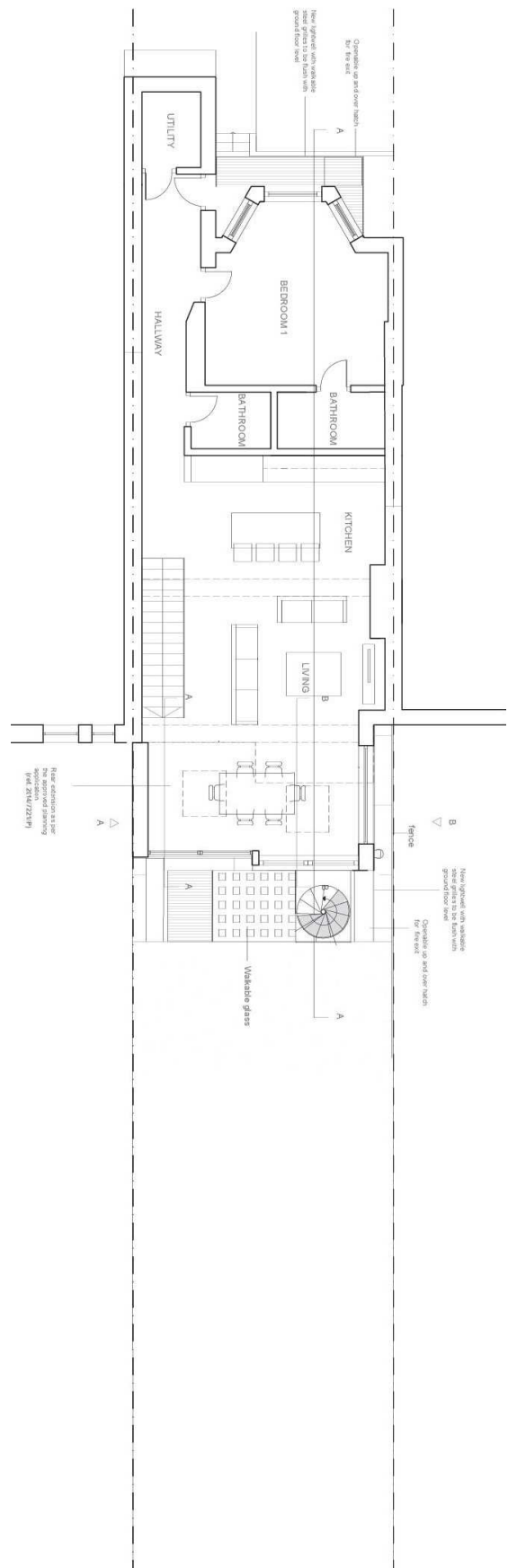


**Above (across left hand boundary) and Below (view down the garden) – woodland area to the rear of the property.**

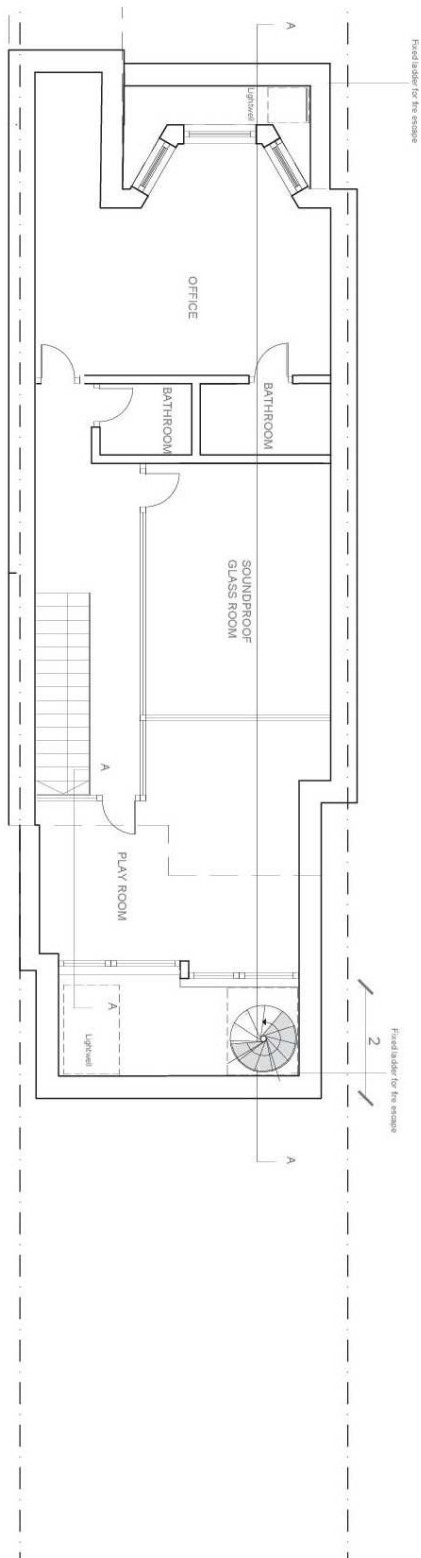




Existing Ground Floor Plan



Proposed ground floor with garden



Proposed basement



## Flood map for planning

Your reference  
**44 Goldhurst**

Location (easting/northing)  
**526233/184320**

Created  
**24 Apr 2018 9:13**

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

### This means:

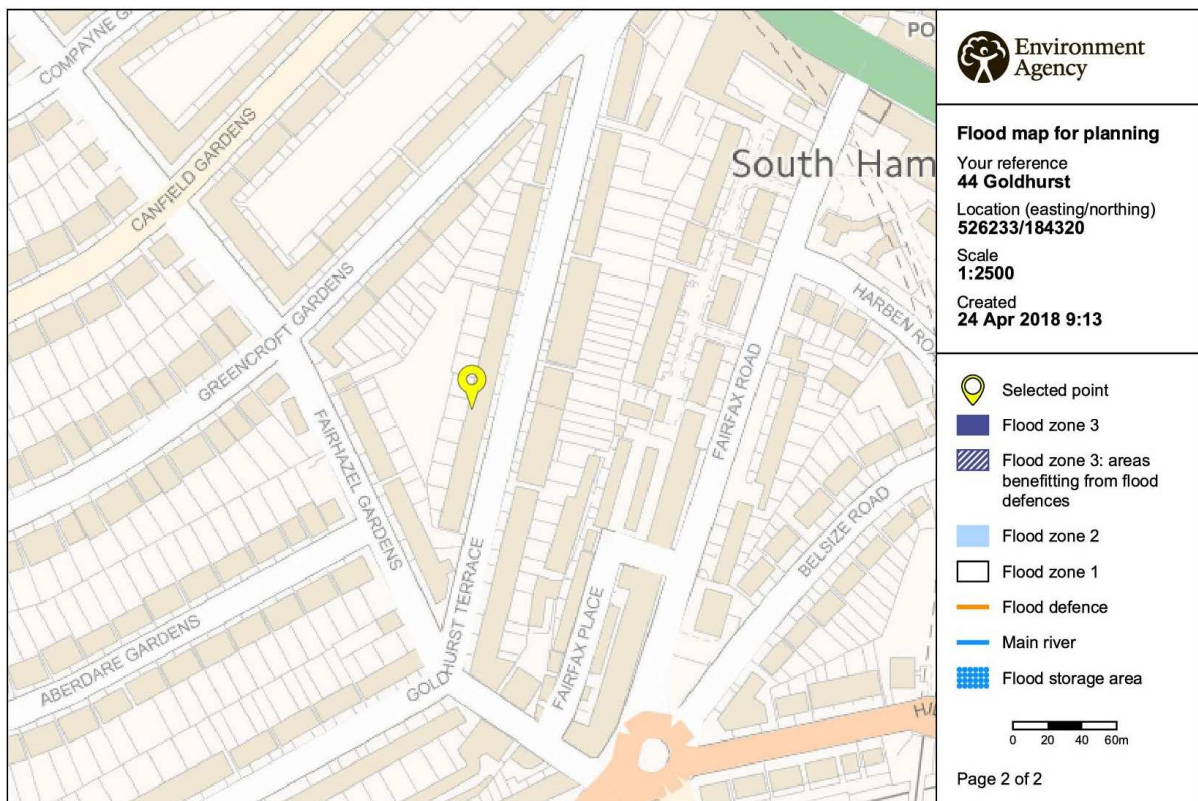
- you don't need to do a flood risk assessment if your development is smaller than 1 hectare and not affected by other sources of flooding
- you may need to do a flood risk assessment if your development is larger than 1 hectare or affected by other sources of flooding or in an area with critical drainage problems

### Notes

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

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

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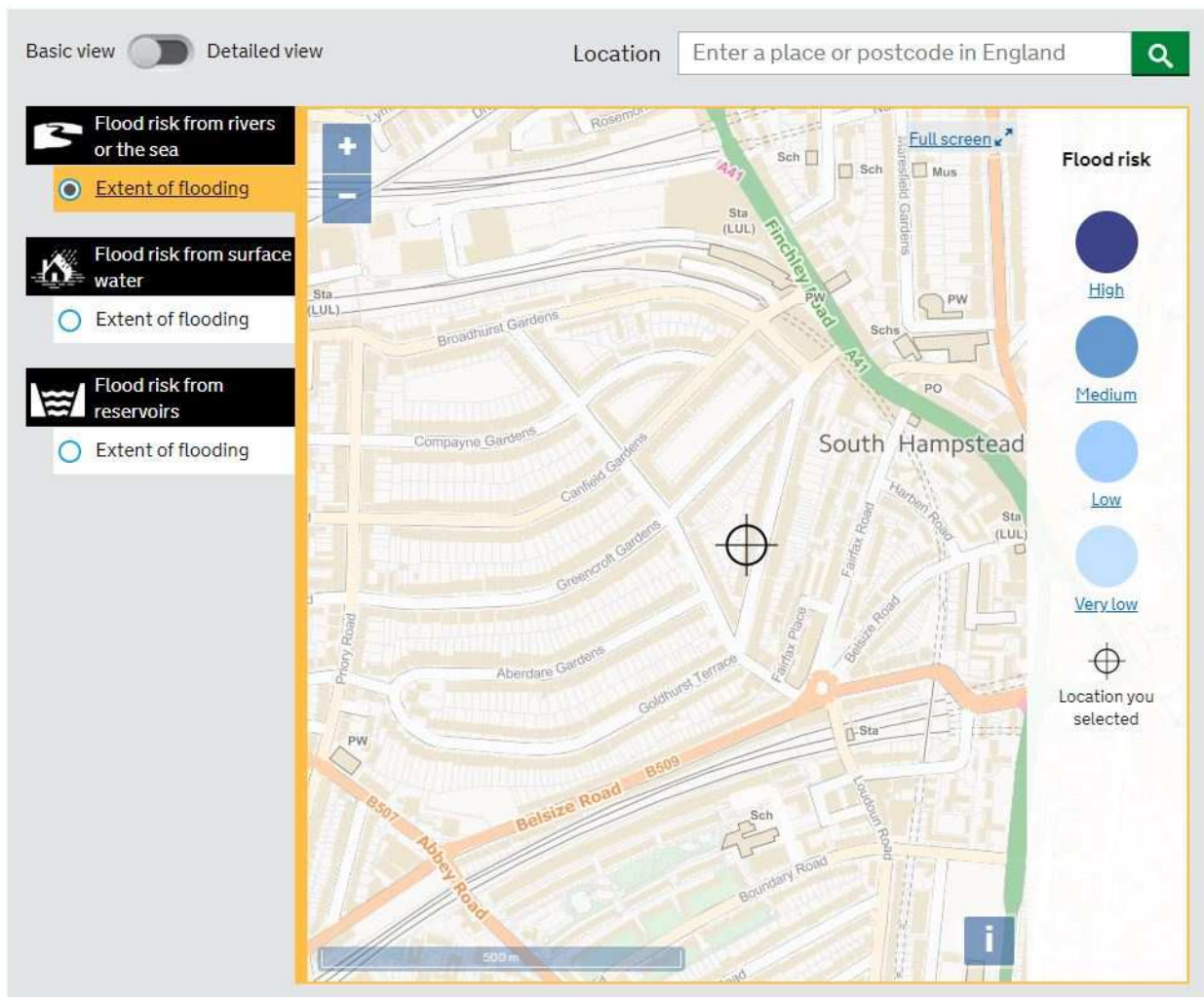
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## Streets at risk of surface water flooding

Abbey Road	1975	Jeffreys Street	2002
Aberdare Gardens	1975	Kelly Street	1975 and 2002
Achilles Road	2002	Kentish Town Road	1975
Adamson Road	2002	Kidderpore Gardens	1975
Agamemnon Road	2002	Kilburn High Road	1975
Ajax Road	2002	Kilburn Priory	1975
Aldred Road	2002	Kingdon Road	2002
Arkwright Road	1975 and 2002	Kingsgate Road	1975
Arkwright Road	1975 and 2002	Lady Margaret Road	2002
Avenue Road	2002	Lambolle Road	1975
Belsize Lane	1975 and 2002	Lancaster Drive	2002
Belsize Park Gardens	1975	Lancaster Grove	1975 and 2002
Belsize Road	1975 and 2002	Langland Gardens	1975
Boundary Road	1975	Lowfield Road	1975
Broadhurst Gardens	1975	Lyncroft Gardens	2002
Broomsleigh Street	1975	Lyndurst Gardens	1975
Bullbarrow, Abbey Road Estate	1975	Mansfield Road	1975
Canfield Gardens	1975 and 2002	Maygrove Road	1975
Cannon Hill	1975 and 2002	Menelik Road	2002
Caversham Road	2002	Messina Avenue	1975
Chalcot Gardens	1975	Mill Lane	1975 and 2002
Chesterford Gardens	2002	Nassington Road	2002
Cotleigh Road	1975	Oak Village	1975
Dennington Park Road	1975 and 2002	Ornan Road	2002
Edis Street	1975	Pandora Road	1975 and 2002
Egbert Street	1975	Park End	1975
Fairfax Road	2002	Parkhill Road	1975 and 2002
Fairhazel Gardens	1975 and 2002	Parliament Hill	2002
Fellows Road	1975	Platt's Lane	1975 and 2002
Femcroft Avenue	1975	Primrose Hill Road	1975 and 2002
Finchley Road	2002	Prince of Wales Road	2002
Fleet Road	2002	Princess Road	1975
Fordwych Road	1975	Priory Road	2002
Frognal Gardens	1975	Priory Terrace	1975
Gaisford Street	2002	South End Road	2002
Glenhurst Avenue	2002	South Hill Park	2002
Gloucester Avenue	1975	South Hill Park Gardens	2002
Goldhurst Terrace	1975 and 2002	Sumatra Road	1975 and 2002
Gospel Oak Estate	1975	Swains Lan	1975
Greencroft Gardens	1975 and 2002	Tanza Road	2002
Hampstead Lane N6	1975	Templewood Avenue	2002
Harben Road	2002	Templewood Gardens	2002
Harley Road	1975	Wending, Haverstock Road	2002
Hawley Road	1975	West End Lane	2002
Heath Street	1975	Westbere Road	2002
Hemstal Road	1975	Willow Road	1975 and 2002
Highgate Road	1975	Winchester Road	1975
Hillfield Road	1975 and 2002	Windmill Hill	1975
Holmdale Road	1975 and 2002	Woodchurch Road	2002
Ingestre Road	2002	Woodsome Road	1975
Inglewood Road	2002	York Rise	1975

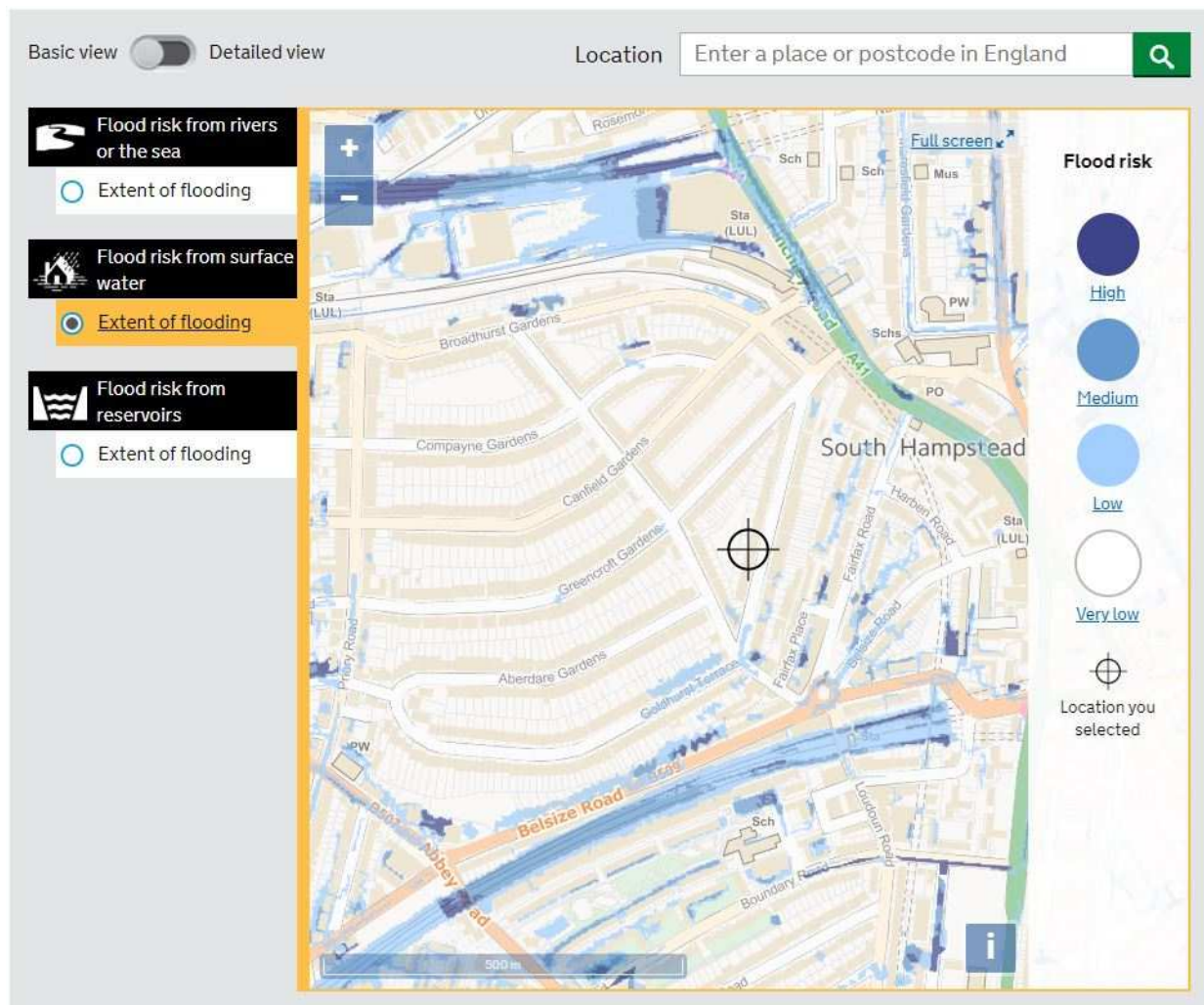
Source: Floods in Camden, Report of the Floods Scrutiny Panel, London Borough of Camden 2003, Appendix 4, Flooded Roads in Camden 1975 and 2002.



## Flood risk from rivers or the sea

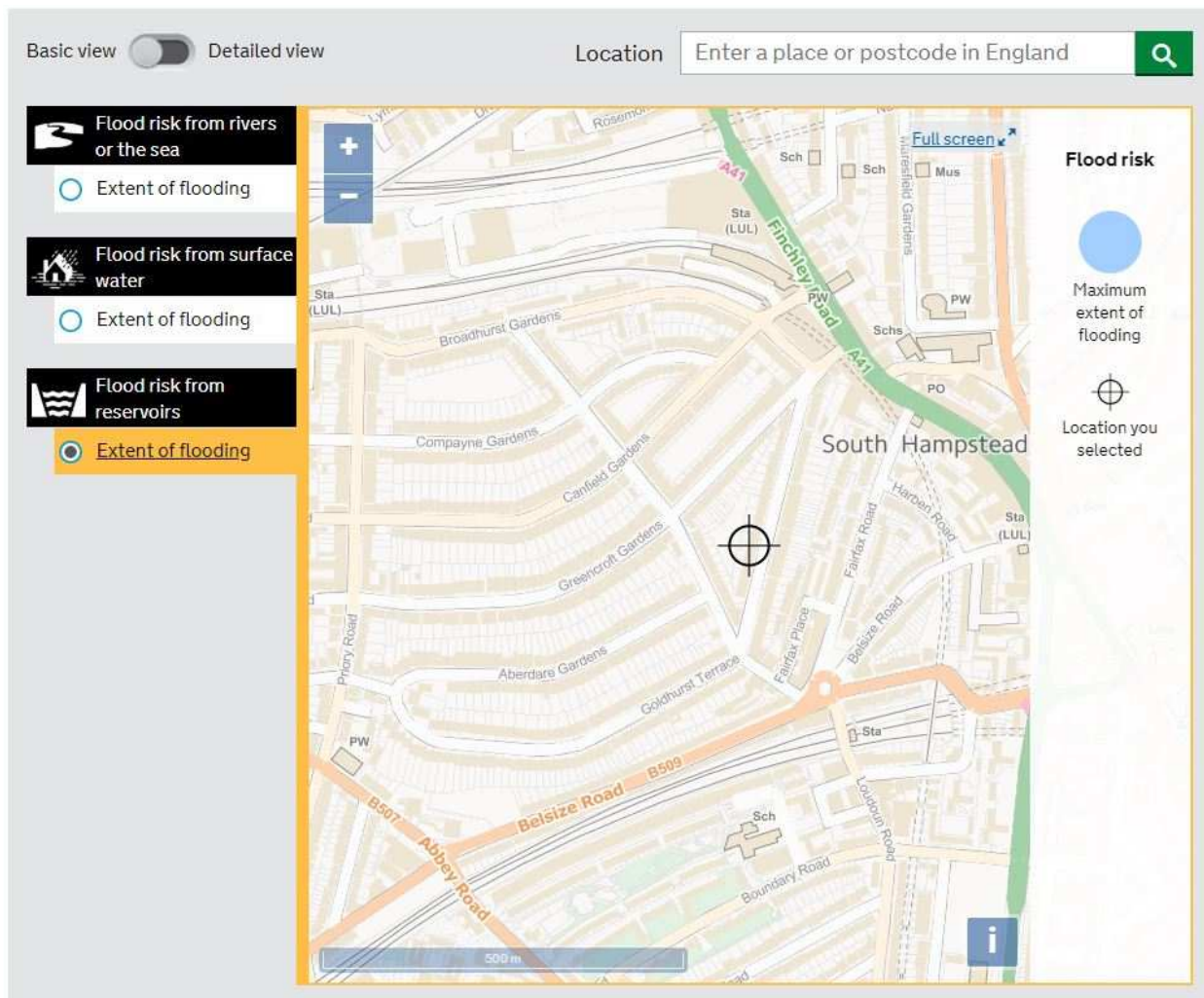
**Very low risk** means that each year this area has a chance of flooding of less than 0.1%. This takes into account the effect of any flood defences in the area. These defences reduce but do not completely stop the chance of flooding as they can be overtopped, or fail.





## Flood risk from surface water

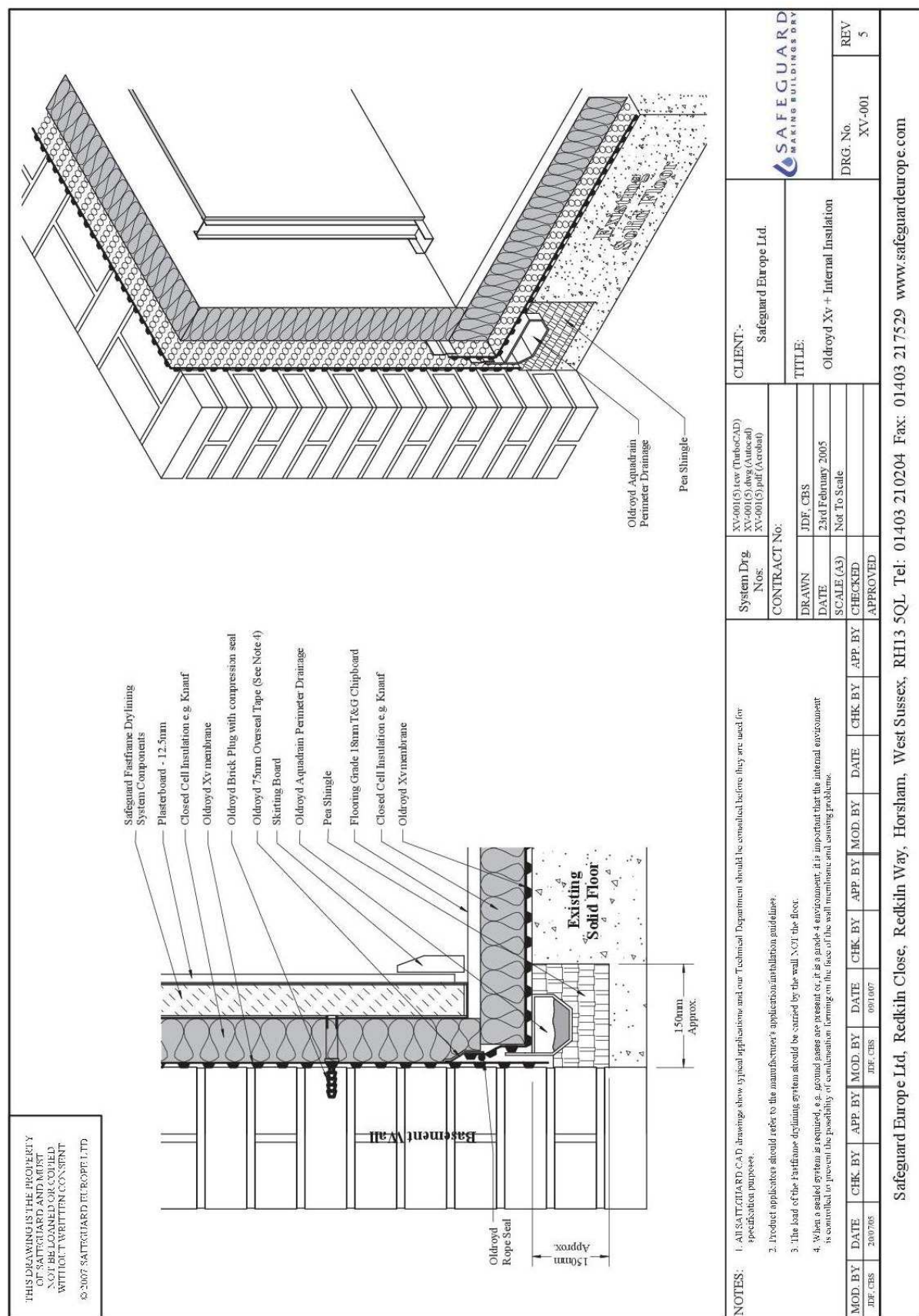
**Very low risk** means that each year this area has a chance of flooding of less than 0.1%. Flooding from surface water is difficult to predict as rainfall location and volume are difficult to forecast. In addition, local features can greatly affect the chance and severity of flooding.



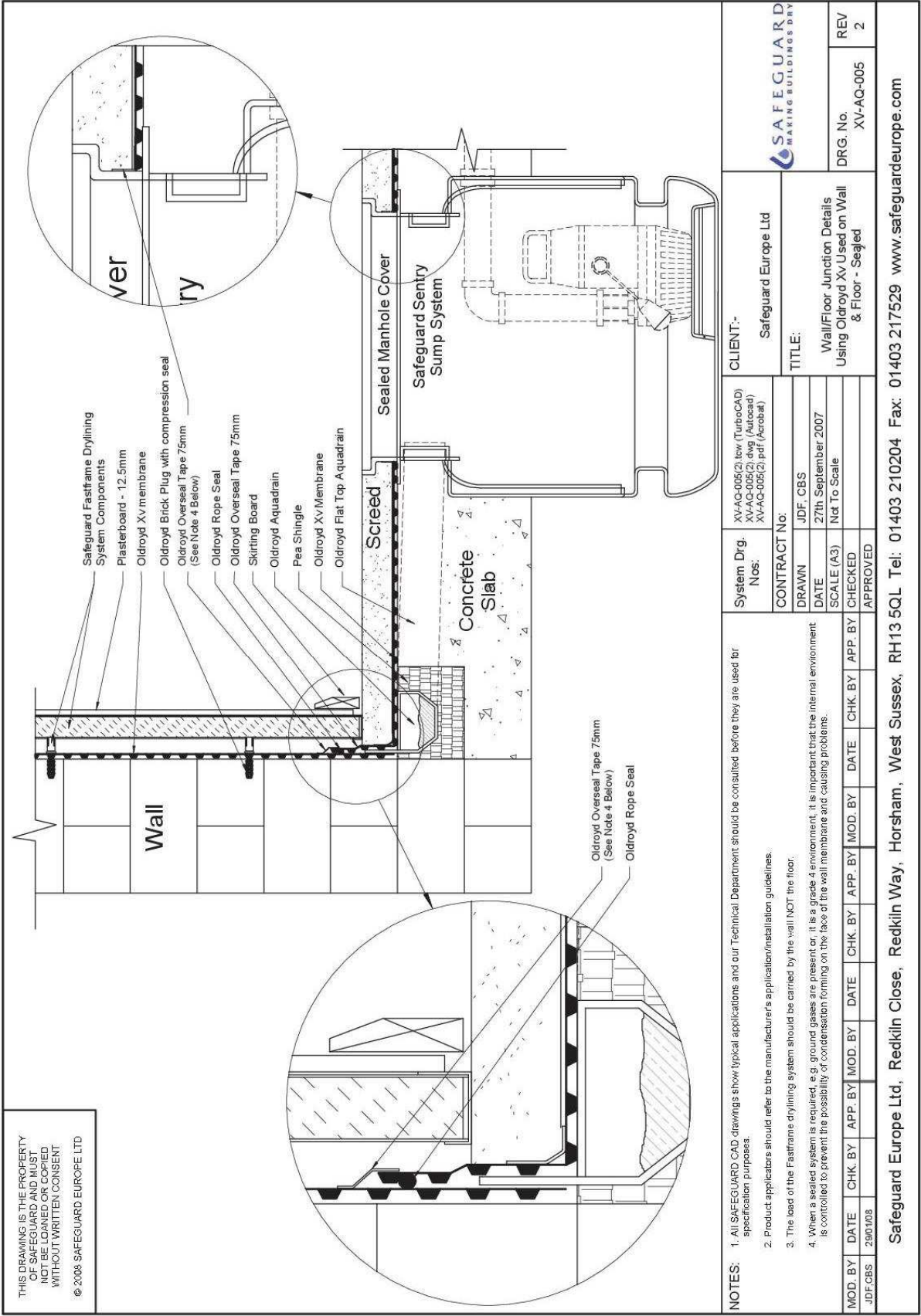
## Flood risk from reservoirs

If a location is at risk, flooding from reservoirs is extremely unlikely. There has been no loss of life in the UK from reservoir flooding since 1925.





Typical waterproofing detail



Typical pump detail