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CA4735.01 Rev.D

March 2019

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. A schedule of areas at the end of this written section shows the increase in impermeable area to be only 3.36 m^2 or about 13.5%.

Photographs on sheet 6 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.

Although the new construction will extend over part of the rear garden, and as a light well over the front of the property, any increase in rain water that might be run into the combined sewerage, will be mitigated by installing a rainwater harvesting system within the rear garden. This will be designed by a specialist to accommodate the likely rain water run-off. The water will be used for garden irrigation during the summer months, but may be released into the local drainage system, in a controlled 'off peak' discharge of the storage tanks.

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 15 illustrates a typical waterproofing method. Page 16 indicates a typical pumping detail.

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.

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 removed (via a rainwater harvesting system) in a more controlled manner than currently exists. A weathered threshold will be used below the external doors between the play room and the rear lightwell. A typical detail can be seen in page 17. This will prevent/slow down any water ingress into the house. The front lightwell is surrounded by the RC retaining wall and the bay windows brickwork. Water cannot ingress through the wall and into the house.

There is an existing low level boundary wall at the front of the property separating it from the pavement (see cover photo). A flood resistant fencing door will be installed at the location of the current gate. There are also brick walls on both sides of the front garden that form the external stairs providing access to the ground floor level. The front garden is thus enclosed on all sides and no additional external measures are required.

Both foul and rainwater drainage will be routed via the existing drain run, using a pump where necessary. The drainage design will be compliant with Camden's Planning Policy and the National Planning Policy Framework.

Information from the environmental agency (Page 12 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 13). There is a minimal slope to Goldhurst Terrace. The likely flooding point

due to surface water will be from the right hand side of the property. This will only affect the rear lightwell as the front is enclosed by brickwork, as explained above.

The risk from Reservoirs is considered to be very low (page 14).

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 11. 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 property is however in a Local Flood Risk Zone and a critical drainage zone, as illustrated in the attached flood and drainage risk map.

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.

Escape from the basement can be achieved via both internal and external stairs. A fixed ladder will be installed in the front lightwell as means of escape in the event of a fire or a flood. This can be accessed from the basement by exiting through the front bay window. A fixed staircase will also be installed in the rear lightwell. Both of these staircases provide safe access to the ground floor level. Access from the basement to the ground floor will also be provided via the internal stairs, should an evacuation be necessary. The internal stairs will also provide safe refuge to the upper floors of the building, should this be necessary.

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). The agency also operates a 24 hour service telephone (03459881188).

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, MIStructE.

Cooper Associates.

KOKORELIAARCHITECTS

Project: 44 Goldhurst Terrace
Date: 14.09.2018
Tittle: Change in Impermeable Area

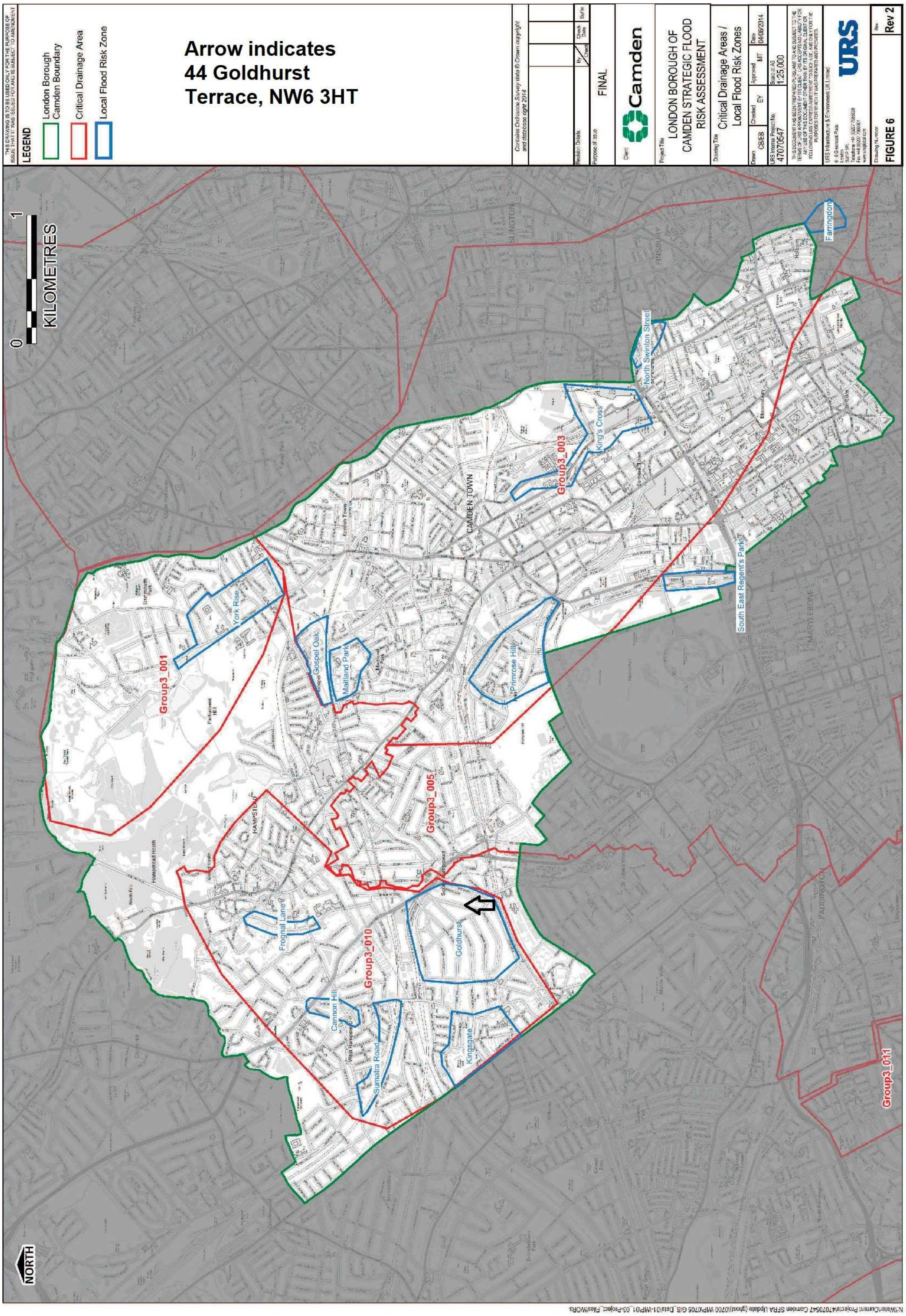
Calculation of existing impermeable area:

Front area: 4.36sqm
Rear terraced area: 14.56 sqm
Concert platform at north east corner: 6 sqm (to be removed during the works)

Calculation of proposed impermeable area:

Front area lightwell: 4.36sqm (as existing)
New rear terraced area: 9.36 sqm
Rear extension and lightwell: 14.62 sqm

Increase of impermeable area due to the works: 3.36 sqm



Arrow indicates
44 Goldhurst
Terrace, NW6 3HT
LEGEND
London Borough
Camden Boundary
Critical Drainage Area
Local Flood Risk Zone
KILOMETRES
0
1
NORTH
Group3_001
Group3_003
Group3_005
Group3_010
Group3_011
York Rise
Gospel Oak
Maitland Park
Primrose Hill
King's Cross
North Swinton Street
Farringdon
South East Regent's Park
Frognal Lane
Goldhurst
Cannon Hill
Sumatra Road
Kingsgate
CAMDEN TOWN
HAMPSTEAD
MARYLEBONE
Contains Ordnance Survey data © Crown copyright and database right 2014
FINAL
Camden
LONDON BOROUGH OF CAMDEN STRATEGIC FLOOD RISK ASSESSMENT
Critical Drainage Areas / Local Flood Risk Zones
CB/EB
EY
MT
04/08/2014
47070547
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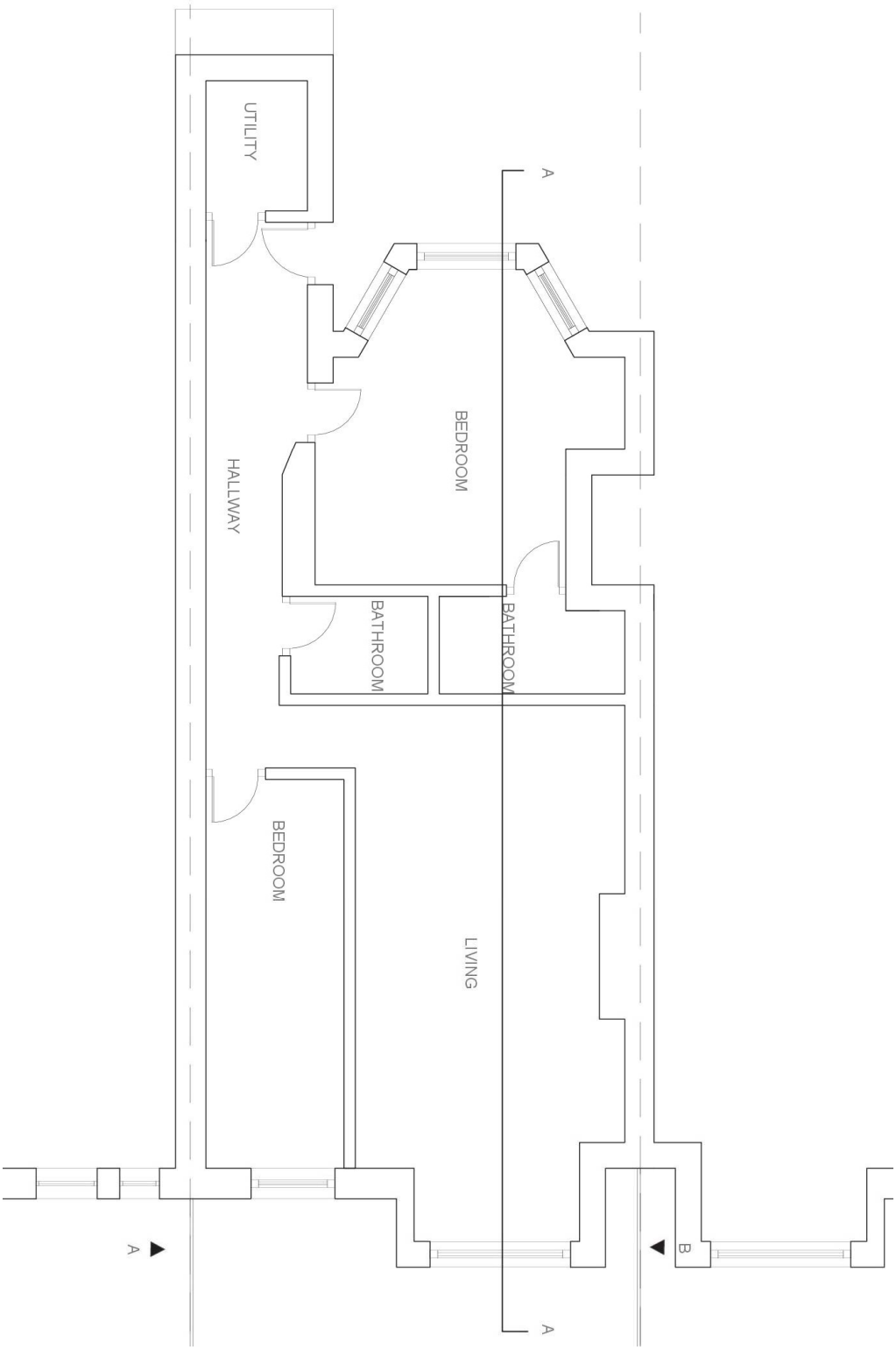
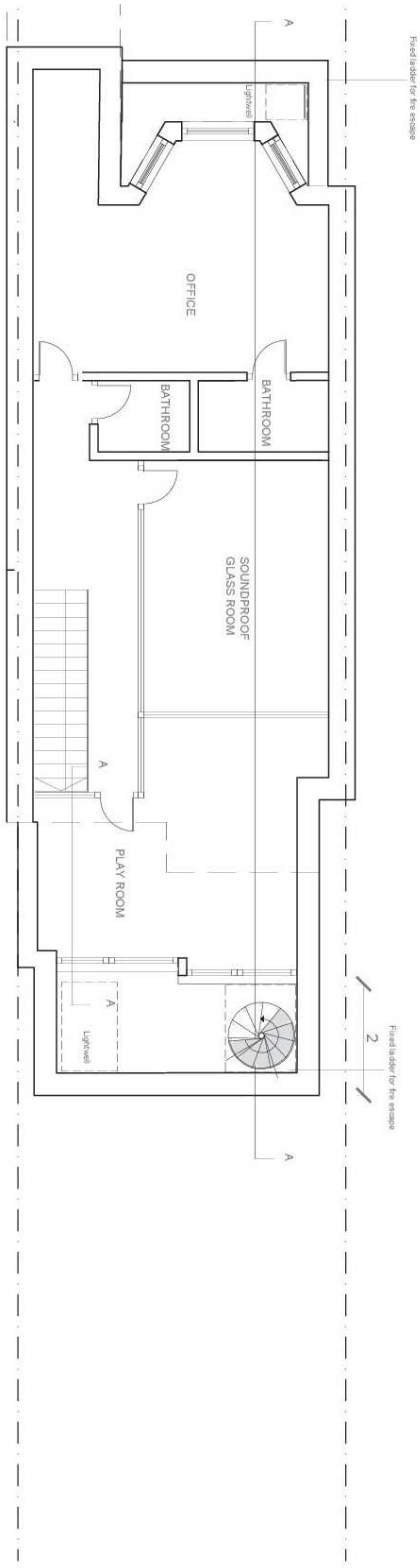
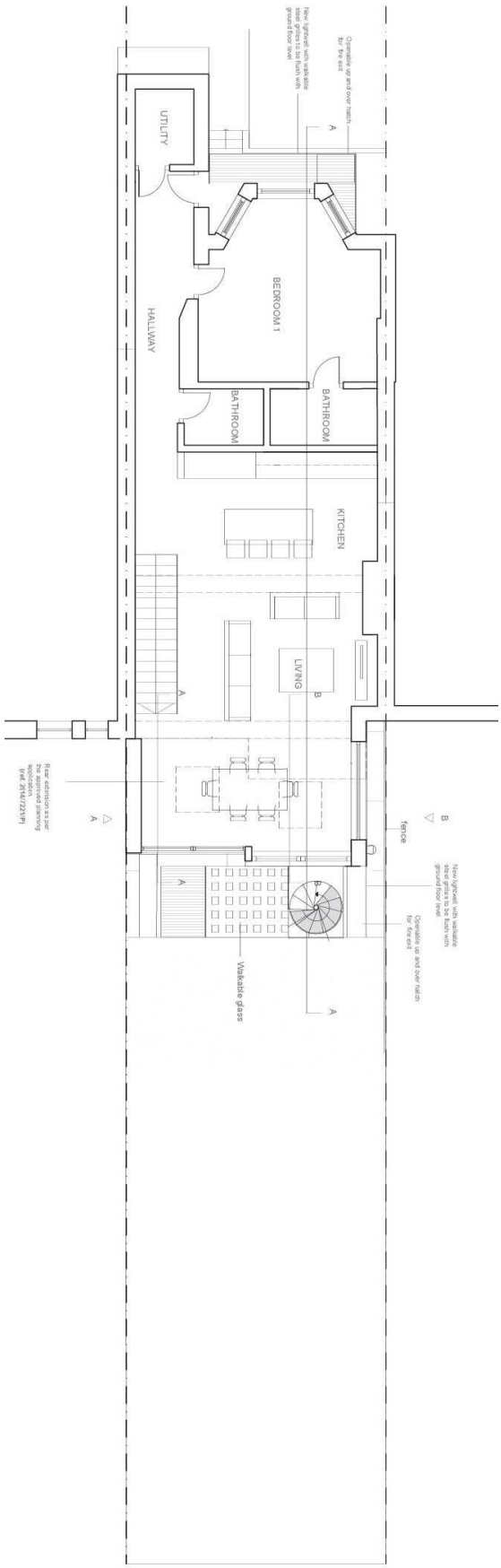
FIGURE 6
Rev 2

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



Existing Ground Floor Plan





Proposed basement

Proposed ground floor with garden

Environment Agency

Flood map for planning

Your reference	Location (easting/northing)	Created
44 Goldhurst	**526233/184320**	**24 Apr 2018 9:13**

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

This means:

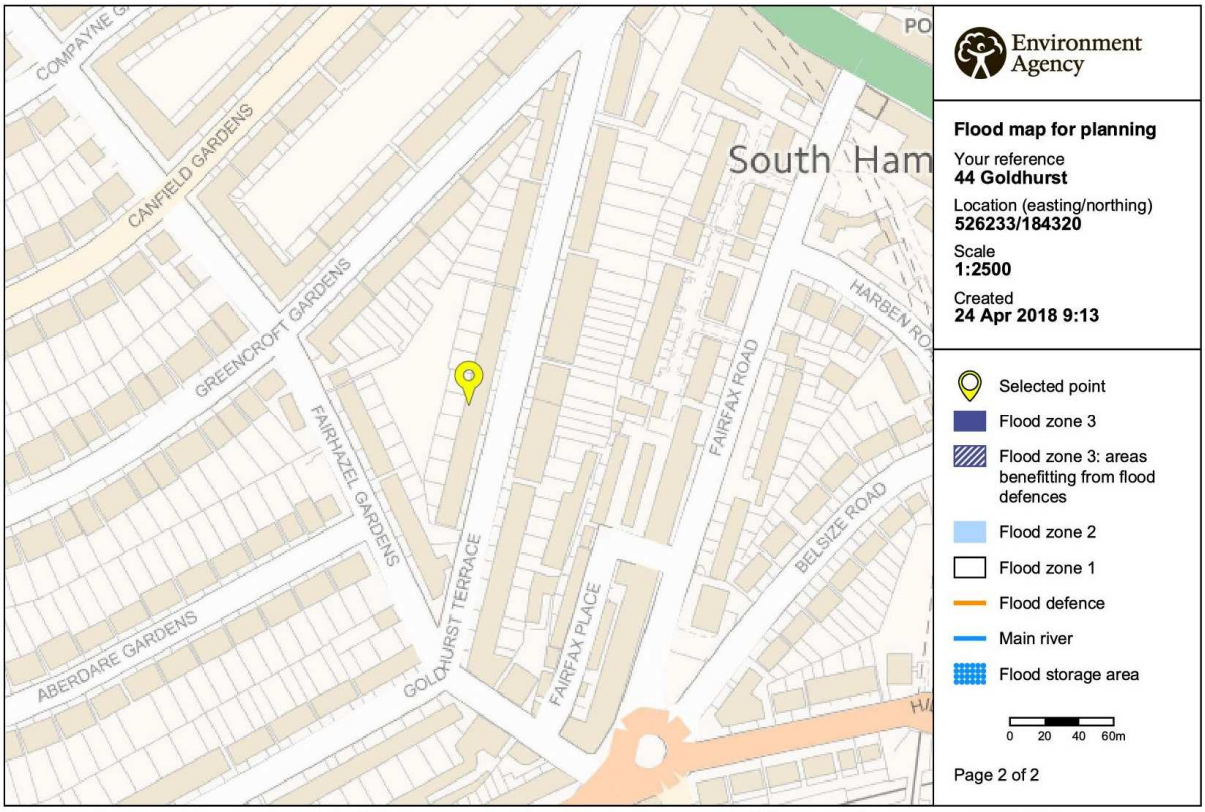
- you don't need to do a flood risk assessment if your development is smaller than 1 hectare and not affected by other sources of flooding
- you may need to do a flood risk assessment if your development is larger than 1 hectare or affected by other sources of flooding or in an area with critical drainage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

The Open Government Licence sets out the terms and conditions for using government data.
https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/

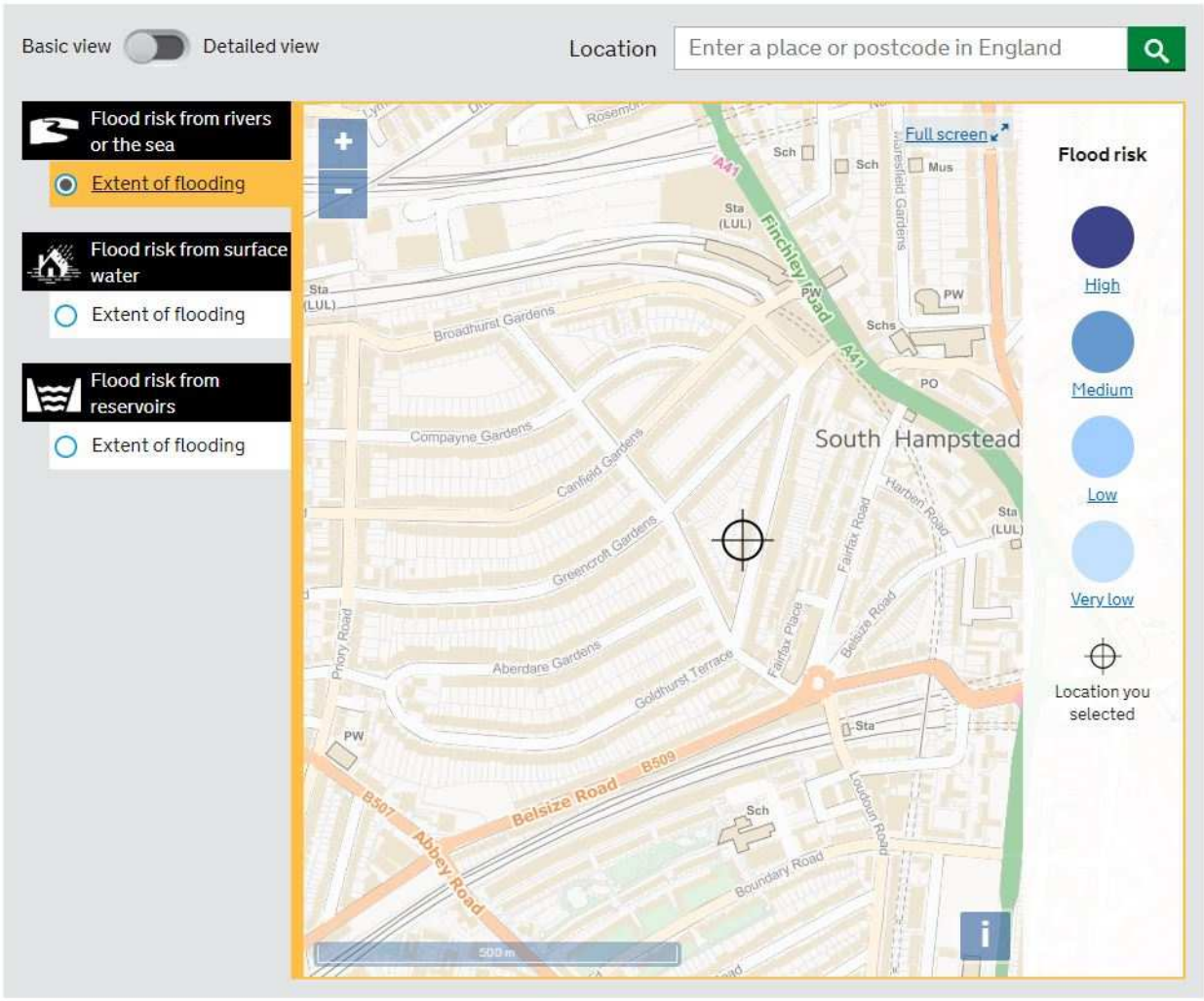


Streets at risk of surface water flooding

Abbey Road	1975
Aberdare Gardens	1975
Achilles Road	2002
Adamson Road	2002
Agamemnon Road	2002
Ajax Road	2002
Aldred Road	2002
Arkwight Road	1975 and 2002
Arkwright Road	1975 and 2002
Avenue Road	2002
Belsize Lane	1975 and 2002
Belsize Park Gardens	1975
Belsize Road	1975 and 2002
Boundary Road	1975
Broadhurst Gardens	1975
Broomsleigh Street	1975
Bullbarrow, Abbey Road Estate	1975
Canfield Gardens	1975 and 2002
Cannon Hill	1975 and 2002
Caversham Road	2002
Chalcot Gardens	1975
Chesterford Gardens	2002
Cotleigh Road	1975
Dennington Park Road	1975 and 2002
Edis Street	1975
Egbert Street	1975
Fairfax Road	2002
Fairhazel Gardens	1975 and 2002
Fellows Road	1975
Ferncroft Avenue	1975
Finchley Road	2002
Fleet Road	2002
Fordwych Road	1975
Frognal Gardens	1975
Gaisford Street	2002
Glenhurst Avenue	2002
Gloucester Avenue	1975
Goldhurst Terrace	1975 and 2002
Gospel Oak Estate	1975
Greencroft Gardens	1975 and 2002
Hampstead Lane N6	1975
Harben Road	2002
Harley Road	1975
Hawley Road	1975
Heath Street	1975
Hemstal Road	1975
Highgate Road	1975
Hillfield Road	1975 and 2002
Holmdale Road	1975 and 2002
Ingestre Road	2002
Inglewood Road	2002

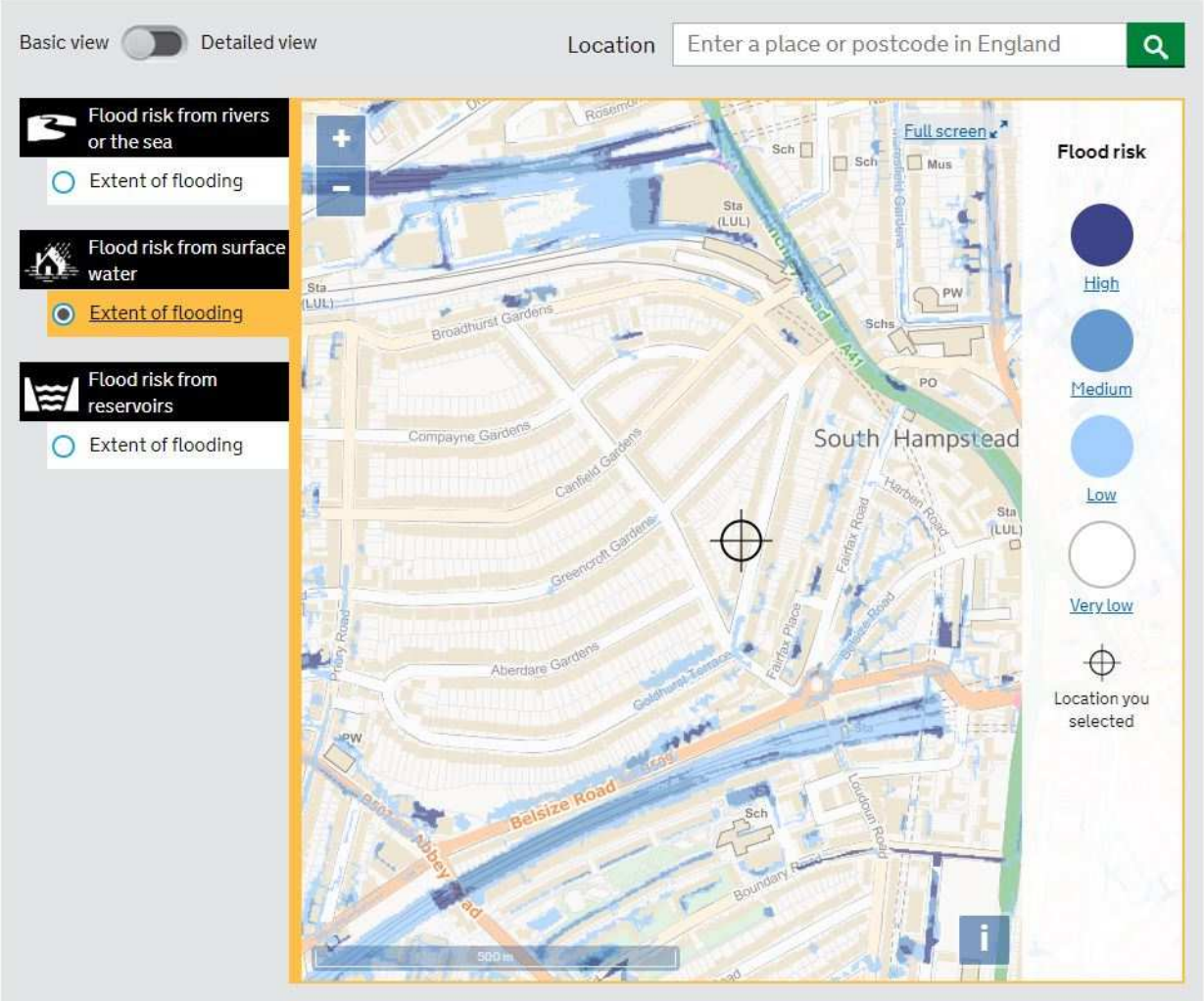
Jeffreys Street	2002
Kelly Street	1975 and 2002
Kentish Town Road	1975
Kidderpore Gardens	1975
Kilburn High Road	1975
Kilburn Priory	1975
Kingdon Road	2002
Kingsgate Road	1975
Lady Margaret Road	2002
Lambolle Road	1975
Lancaster Drive	2002
Lancaster Grove	1975 and 2002
Langland Gardens	1975
Lowfield Road	1975
Lyncroft Gardens	2002
Lyndurst Gardens	1975
Mansfield Road	1975
Maygrove Road	1975
Menelik Road	2002
Messina Avenue	1975
Mill Lane	1975 and 2002
Nassington Road	2002
Oak Village	1975
Ornan Road	2002
Pandora Road	1975 and 2002
Park End	1975
Parkhill Road	1975 and 2002
Parliament Hill	2002
Platt's Lane	1975 and 2002
Primrose Hill Road	1975 and 2002
Prince of Wales Road	2002
Princess Road	1975
Priory Road	2002
Priory Terrace	1975
South End Road	2002
South Hill Park	2002
South Hill Park Gardens	2002
Sumatra Road	1975 and 2002
Swains Lan	1975
Tanza Road	2002
Templewood Avenue	2002
Templewood Gardens	2002
Wendling, Haverstock Road	2002
West End Lane	2002
Westbere Road	2002
Willow Road	1975 and 2002
Winchester Road	1975
Windmill Hill	1975
Woodchurch Road	2002
Woodsome Road	1975
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.



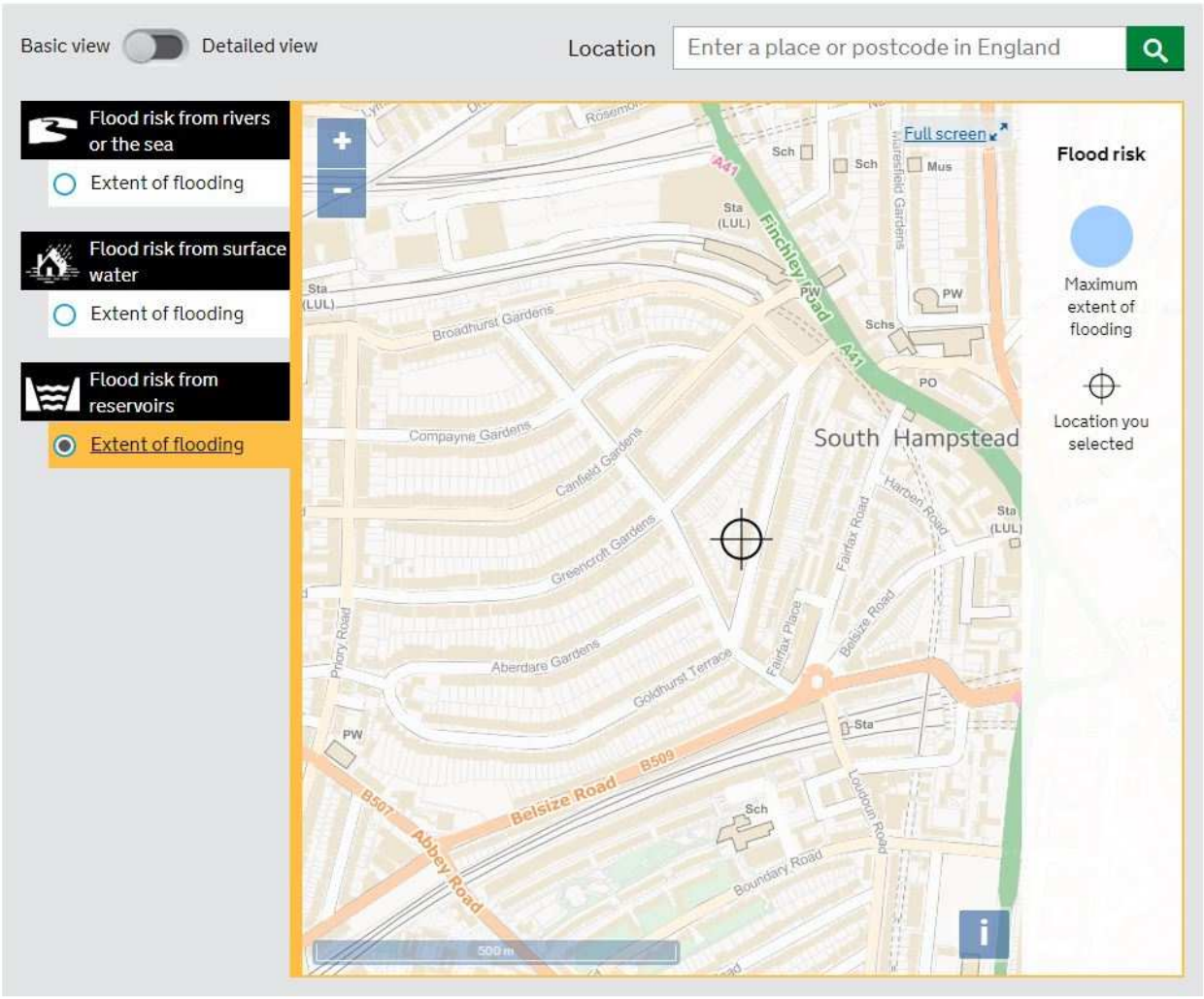
Flood risk from rivers or the sea

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

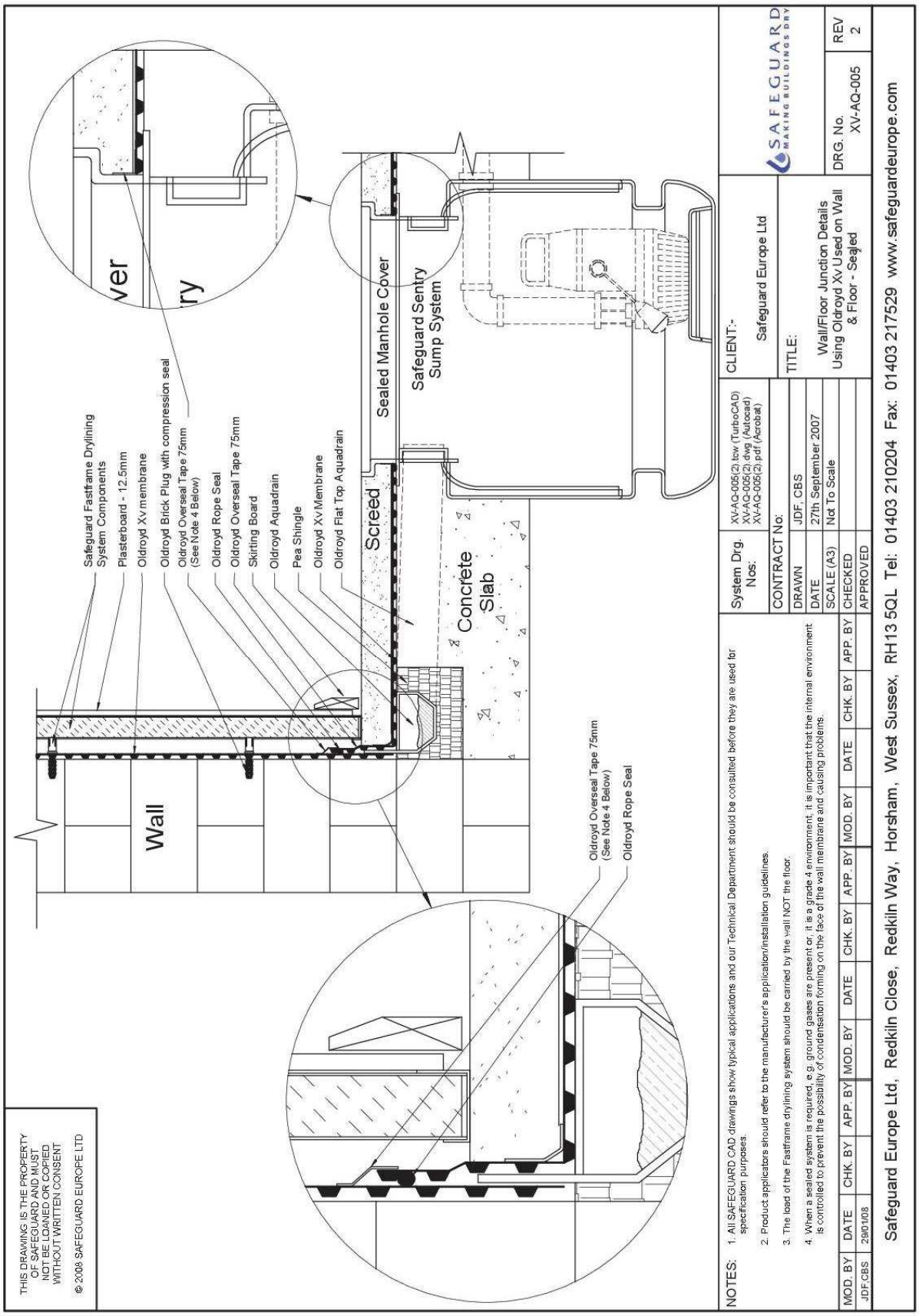
Very low risk means that each year this area has a chance of flooding of less than 0.1%. Flooding from surface water is difficult to predict as rainfall location and volume are difficult to forecast. In addition, local features can greatly affect the chance and severity of flooding.



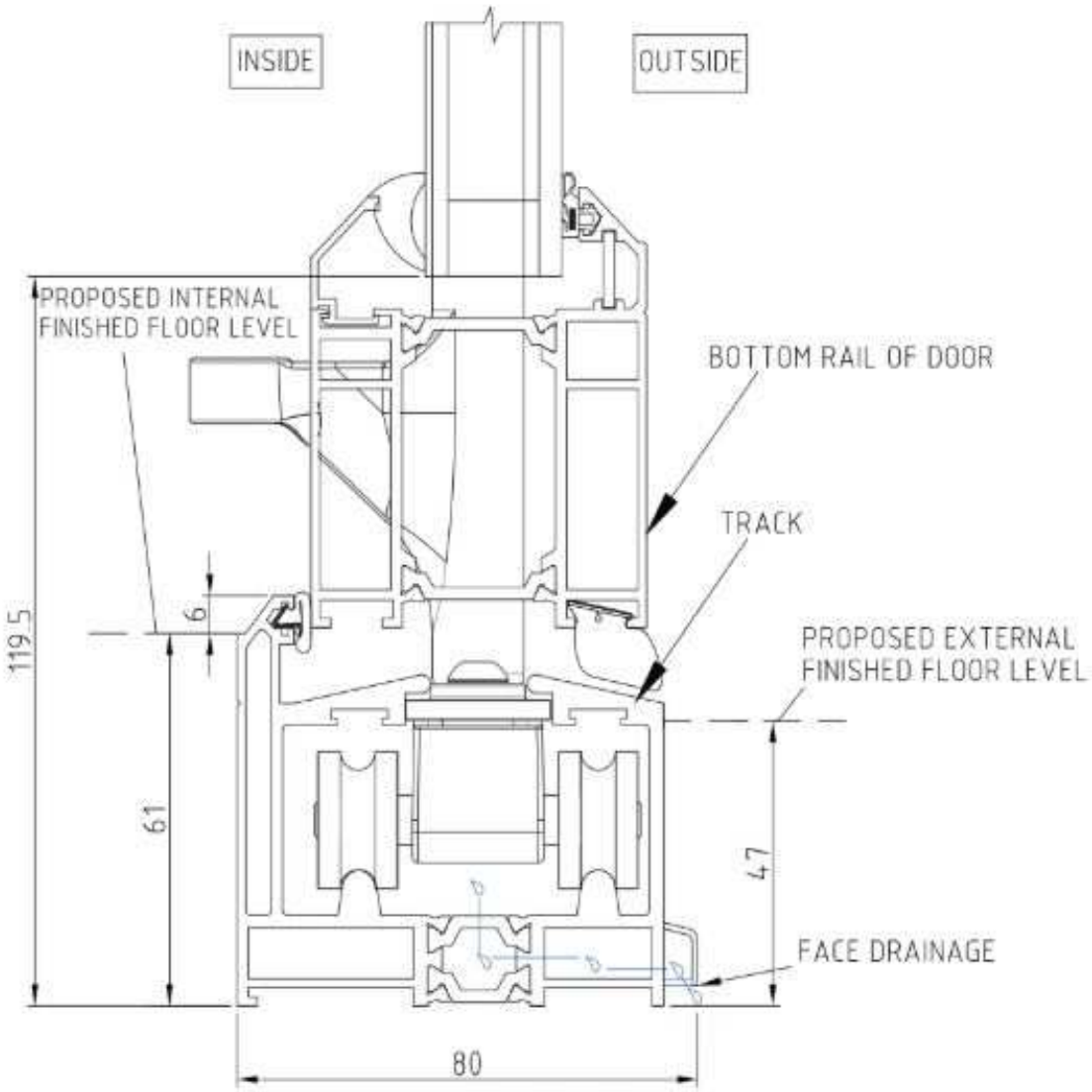
Flood risk from reservoirs

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



Typical weathered threshold detail