



Consulting Civil Engineers

Flood Risk Assessment

27 Park Lane, Southwick, Brighton, BN42 4DL

Rev -

Reference **C4140**

Date **30.08.2026**

Revision	Status	Description	Date	Issued	Checked
-	Final v1	Issued for Approval	30.08.2026	RH	RH

1 SITE AND DEVELOPMENT OVERVIEW

DEVELOPMENT DESCRIPTION	EXISTING (PRE-DEVELOPMENT)	PROPOSED (POST-DEVELOPMENT)
Site Use	Existing Dwelling	Remodel and extensions to the existing dwelling
Development Use	Residential	Residential
Use Design Life		100 years
Number of Dwellings	1	1
EA Vulnerability Classification	More Vulnerable (ref: existing site vulnerability)	More Vulnerable (ref: proposed site vulnerability)
Development Class		Minor
County Planning Authority	West Sussex County Council (ref: County Council)	
District Planning Authority	Adur Council (ref: District Council)	
SITE CATCHMENT CHARACTERISTICS	DESCRIPTION	SOURCE
River Management Catchment	Adur and Ouse Management Catchment	https://environment.data.gov.uk/
KEY FLOOD RISK AND DATA SOURCES	DATA TYPE	SOURCE
EA Fluvial and Tidal Planning Data	UK Government Flood Maps for Planning (ref: FMP)	https://flood-map-for-planning.service.gov.uk/
EA Surface Water Data	DEFRA Risk of Flooding from Surface Water Sources GIS Data (ref: RoFSW)	https://environment.data.gov.uk/DefraDataDownload/?Mode=rofsw
EA Long term Flood Risk	UK Government Long term Flood Risk Maps (ref: LTFRM)	https://www.gov.uk/check-long-term-flood-risk
Environment Agency Product 4/5 Data	See Appendix 2	EA Detailed Flood Model
Historic Flood Risk Data	DEFRA Historic Flood Outlines GIS Data	https://environment.data.gov.uk/DefraDataDownload/?mapService=EA/HistoricFloodMap&Mode=spatial
Strategic Flood Risk Assessment Data	Adur District Council (ref SFRA)	Council Website
Topographic Information	DEFRA Opensource LIDAR Data	https://environment.data.gov.uk/DefraDataDownload/?Mode=survey
DESIGNATION	FLOOD RISK DESIGNATION	NOTE
EA/LLFA Designated Flood Zone	Flood Zone 3- High Risk	*Designation based on highest flood risk between River, Sea or Surface Water - Refer Section 3: Table 3
Sea Flood Risk Present	Low	Refer Section 3: Table 3
River Flood Risk Present	Low	Refer Section 3: Table 3
Surface Water Flood Risk Present	High	Refer Section 3: Table 3

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2 INTRODUCTION

- 3.1 The following report is a Phase 1 Flood Risk Assessment (FRA) for the development proposals at 27 Park Lane, Southwick, Brighton, BN42 4DL (see site location map, Figure 1).
- 3.2 This assessment is required under the National Planning Policy Framework (NPPF) and Local and District Councils given the location, scale and associated flood risks.

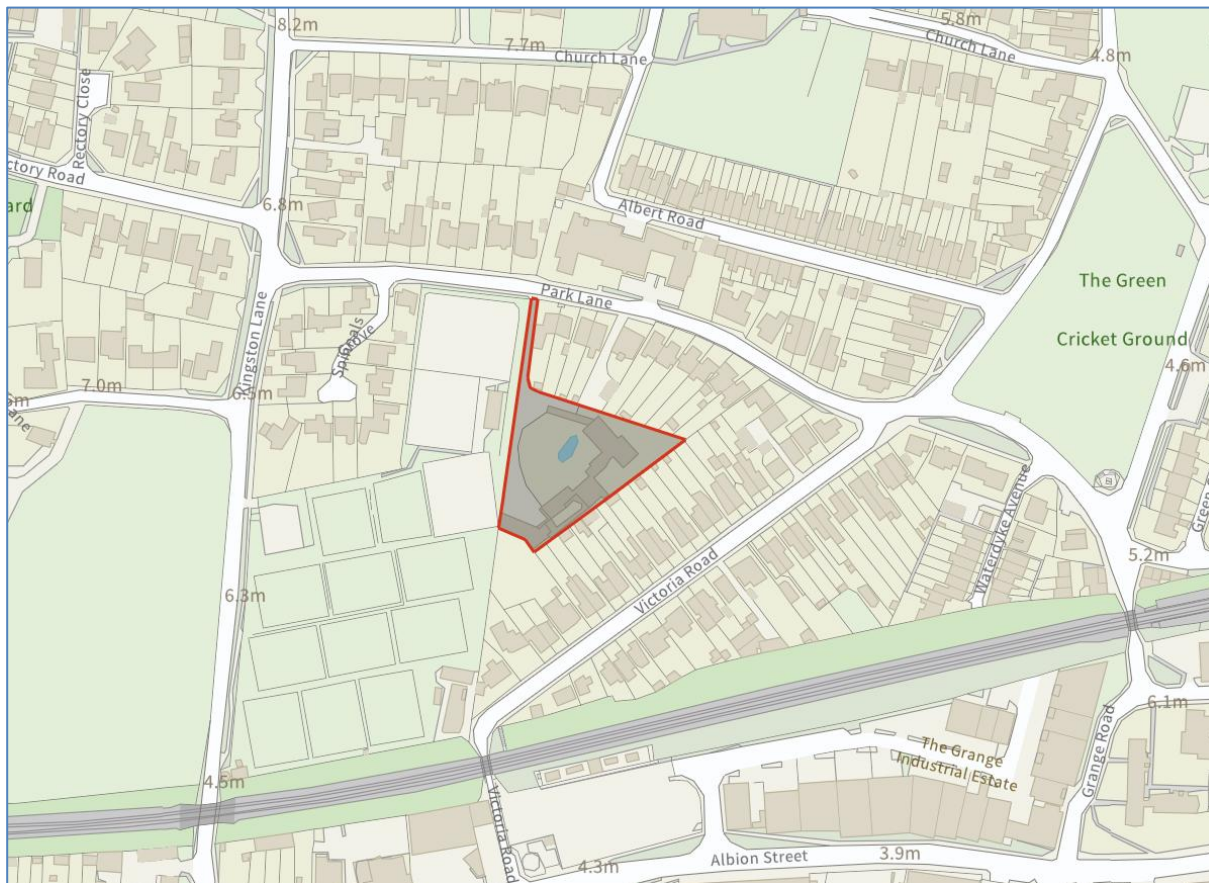


Figure 1 - Site Location Plan (site bordered red) Source: Location Map

- 3.3 This FRA has been written in general accordance with the National Planning Policy Framework (NPPF) and its Technical Guidance, Environment Agency (EA) Standing Advice, LFRMS, County SFRA and associated guidance. This FRA has relied upon publicly available information and data provided from the EA (where relevant). The interpretation of this data has been undertaken with an understanding of its accuracy and to a detail deemed suitable for this development type, location and relevant flood risk.

DEVELOPMENT PROPOSALS

- 3.4 The development proposals are for minor extensions and remodelling of the existing dwelling. The works are considered an extension of the existing use and not likely to materially affect existing flood risk. Architectural proposals are included in Appendix 1.

FLOOD RISK ASSESSMENT SCOPE

- 3.5 The purpose of this FRA is to inform the feasibility and appropriateness of the proposals and to ensure the development proposals incorporate flood resilient measures appropriate to its flood risk.
- 3.6 It should be noted, where up to date flood risk or climate change models are not available, best efforts have been made to assess these risks and extrapolate the available data where necessary. However, this approach may require

further detailed modelling if deemed necessary by the reviewing authorities. Detailed hydraulic modelling is deemed outside the scope of this report.

FLOOD RISK VULNERABILITY

- 3.7 This FRA has been undertaken with due regard to the statutory requirements of the NPPF and with reference to the Planning Practice Guidance (PPG) in relation to development and flood risk. This FRA has been undertaken to inform on the current flood risk to the site. Therefore, this FRA aims to ensure that the development proposals consider the site-specific flood risk and to avoid inappropriate development in areas potentially at risk of flooding.
- 3.8 Annex 3 of the NPPF Flood Risk Vulnerability Classification provides guidance on assigning development vulnerability. A summary of this information is provided in Table 1.

Table 1 – Extract from Annex 3 of the National Planning Policy Framework and Table 2: Flood risk vulnerability classification of PPG detailing Flood Risk Vulnerability Classification by use. (Existing Site Classification is Shaded Gray, Proposed Site specific classification shaded blue).

ESSENTIAL INFRASTRUCTURE	HIGHLY VULNERABLE	MORE VULNERABLE	LESS VULNERABLE	WATER-COMPATIBLE
Essential transport infrastructure	Police and ambulance stations; fire stations and telecom installations	Hospitals	Police, ambulance and fire stations which are not required to be operational during flooding.	Flood control infrastructure.
Essential utility infrastructure which has to be located in a flood risk area for operational reasons	Emergency dispersal points.	Residential institutions such as residential care homes, prisons and hostels.	Buildings used for commercial purposes and of a non-residential nature	Water transmission infrastructure and pumping stations.
Wind turbines.	Basement dwellings.	Buildings used for dwelling houses and sleeping, drinking establishments	Land and buildings used for agriculture and forestry.	Sewage transmission infrastructure and pumping stations.
Solar farms.	Caravans, mobile homes and park homes intended for permanent residential use.	Non-residential uses for health services, nurseries and educational uses	Waste treatment (except landfill* and hazardous waste facilities).	Sand and gravel working.
	Installations requiring hazardous substances consent.	Landfill* and sites used for waste management facilities for hazardous waste.	Minerals working and processing (except for sand and gravel working).	Docks, marinas and wharves and Navigation facilities.
		Sites used for holiday or short-let caravans and camping, subject to a specific warning and evacuation plan.	Water treatment and Sewage treatment works which do not need to remain operational during times of flood.	Ministry of Defence installations.

- 3.9 The site is presently considered 'More Vulnerable' in accordance with Table 1 and the NPPF.
- 3.10 The development proposals are considered 'More Vulnerable', maintaining the existing use and vulnerability. There will be no change in overall flood risk, as the proposals are considered a minor extension of the existing use.

3 FLOOD RISK ASSESSMENT APPLICATION

- 4.1 Flood risk as defined by the NPPF, is a combination of the probability and the potential consequences of flooding. Areas at risk of flooding are those at risk of flooding from any source, now or in the future. Sources include rivers and the sea, direct rainfall on the ground surface, rising groundwater, overwhelmed sewers and drainage systems, reservoirs, canals and lakes and other artificial sources. Flood risk also accounts for the interactions between these different sources. This term is key to the application of the presumption in favour of sustainable development in paragraph 11 of the National Planning Policy Framework (NPPF).
- 4.2 The NPPF requires flood risk to be considered on all sites, however more detailed site-specific FRA's are required when one or more of the following criteria apply to the site:
- Where a site is affected by the **Design Flood Event** (DFE) from any source (typically the 1% AEP) for all proposals of any new development (including minor development and change of use); or
 - Greater than 1 ha in size and located in Flood Zone 1; or
 - Located in Flood Zone 1 where there are critical drainage problems or within a designated Critical Drainage Area (CDA) as notified to the LPA by the Environment Agency; or
 - Subject to a change of use to a higher vulnerability classification which may be subject to other sources of flooding; or
 - A Major planning application (i.e. more than 10 residential dwellings).
- 4.3 The NPPF designates that the '**Design Flood Event**' (DFE) is used to assess the suitability of a development proposal against the criteria of the NPPF. The design flood, is a flood event of a given annual flood probability, but is generally taken as:
- River flooding likely to occur with a 1% annual probability (a 1 in 100 chance each year), typically shown as Flood Zone 3a as designated on the EA's Flood Map for Planning; or
 - Tidal flooding with a 0.5% annual probability (1 in 200 chance each year), typically shown as Flood Zone 3a as designated on the EA's Flood Map for Planning; or
 - Surface water flooding likely to occur with a 1% annual probability (a 1 in 100 chance each year), typically shown as the Medium Risk of Surface Water flooding as designated on the EA's Long Term Flood Risk mapping,
- 4.4 In addition to assessing present day risk, the DFE also must be assessed to include an appropriate allowance for climate change (refer to Section 5 for climate change allowances) based on the site's geographical location, vulnerability and design life.
- 4.5 For the purpose of this FRA, the worst case DFE (whether this be from tidal, river or surface water sources), has been used to steer the recommendations of this report. Consideration of extreme events above that of the DFE have not been considered further beyond identifying these as residual risks.
- 4.6 Table 1 of the NPPF provides definitions of the Flood Zones, from low to high probability of river and sea flooding and also in regards to surface water flood risk. These Flood Zone Classification for the purpose of this FRA are:
- Flood Zone 1 - land assessed as having a less than a 1 in 1,000 annual probability (<0.1%);
 - Flood Zone 2 - land assessed as having between a 1 in 100 and 1 in 1,000 annual probability of river (1% – 0.1%), 1:100 year or greater of surface water flooding (1% – 0.1%), or between a 1 in 200 and 1 in 1,000 annual probability of sea flooding (0.5% – 0.1%) in any year;
 - Flood Zone 3 - land assessed as having a 1 in 100 or greater annual probability of river flooding (>1%) or a 1 in 200 or greater annual probability of flooding from the sea (>0.5%) in any year. Flood Zone 3b is land have greater than 1 in 20 to 1 in 30 year annual probability of flooding.

4.7 Following an assessment from the various sources of flood risk for the DFE, this site-specific FRA has applied the key principles for decision making when flood risk is a consideration and includes in order of importance:

1. **Avoid** – This is to physically locating the development proposals to areas of lowest flood risk within the site and/or determined how to vertically place the proposals to such that more vulnerable uses are positioned above the design flood level (such as raising floor levels or placing more vulnerable uses on upper levels). Developers should refer to the BS 85500:2025-Flood resistant and resilient construction. Guide to improving the flood performance of buildings for applicable strategies);
2. **Control** - Planning authorities and developers can investigate measures to control the risk of flooding affecting the site (this may be through flood defences, flood gates, flood storage or other engineered solutions such as SUDS). This is rarely applied at the site level, and is mostly address through strategic and county level flood defence strategies. At this site level, typically this will be through applying a Water Exclusion or Water Entry strategy when designing a building or space.
3. **Mitigate** – Is the use of flood resistance and resilience measures to address any residual risks remaining after the use of the avoidance and control measures described above. Passive measures should be prioritised over active measures as they are likely to be more effective and more reliable. Flood Resilience is an approach to building design which aims to reduce flood damage and speed recovery and reoccupation following a flood. It uses a combination of flood resistance and recovery measures (referred to here as resilience measures), and is described in the industry-developed CIRIA Property Flood Resilience Code of Practice, which provides advice for both new-build and retrofit.
4. **Managing Residual Risk** – this will usually involve ensuring either safe access and egress is available from the safe in a DFE, Flood Warning Systems/Evacuation Plans are in place, safe refuge is on site during a DFE, the building is designed to account for flood loadings etc.
5. **Flood Risk is not increased elsewhere** – assuming all the above items can be address, it is critical that the development does not increase flood risk elsewhere as a result. Typically this is addressed by ensuring flood waters are not displaced (in surface water or river flood affected areas, the loss of floodplain storage is less likely to be a concern in areas benefitting from appropriate flood risk management infrastructure or where the source of flood risk is **solely** tidal.) or appropriate hydraulic modelling is provided in support of an application to demonstrate that flood risk is not increased outside of a site (such as through on site flood compensation or detailed site specific hydraulic modelling).

4.8 It should be noted, where up-to date flood risk or climate change models are not available, best efforts have been made to assess these risks and extrapolate the available data where necessary. However, this approach may require further detailed modelling if deemed necessary by the reviewing authorities. Detailed hydraulic modelling is deemed outside the scope of this report.

APPLICABILITY OF THE SEQUENTIAL TEST

- 4.9 The Sequential Test is the risk-based mechanism set out in the NPPF and Planning Practice Guidance for steering new development towards areas with the lowest probability of flooding. Its applicability depends on the Flood Zone of the site, the vulnerability classification of the proposed use, and the nature of the planning application.
- 4.10 The Sequential Test is required where the site lies within Flood Zone 2 or Flood Zone 3 on the EA Flood Map for Planning, or where the site lies in Flood Zone 1 but is identified by the Strategic Flood Risk Assessment (SFRA) as being at risk from other sources of flooding such as surface water, groundwater, sewers or reservoirs. It is also required where the development proposes a use of a higher vulnerability classification than is permitted in the Flood Zone without an Exception Test, and for plan-making where the Local Planning Authority is allocating new sites.
- 4.11 The Sequential Test is not required where the site lies wholly within Flood Zone 1 and the SFRA does not identify the site as being at risk from other sources of flooding, where the application is for a minor development or change

of use as defined in the PPG (including householder extensions, non-residential extensions of less than 250 square metres and most changes of use that do not involve a more vulnerable use), where the development is Water Compatible in any Flood Zone, or where the site has already been allocated for the proposed use through a plan-making process that has itself applied the Sequential Test.

- 4.12 Where the Sequential Test is passed but the proposed use and Flood Zone combination still requires further justification under PPG Table 3, the Exception Test must also be applied. The Exception Test has two parts: the development must deliver wider sustainability benefits that outweigh the flood risk, and a site-specific FRA must demonstrate that the development will be safe for its lifetime, will not increase flood risk elsewhere and, where possible, will reduce flood risk overall.

Surface Water Flood Risk Exemption to the Sequential Test

- 4.13 Where a site lies within Flood Zone 1 and the SFRA does not identify the site as being at risk from surface water (or from groundwater, sewers or reservoirs), the Sequential Test is not required and surface water risk alone does not trigger it. The proposal is addressed through a proportionate FRA (where one is required) and an appropriate Sustainable Drainage Systems (SuDS) strategy.
- 4.14 However, where a site lies within Flood Zone 1 but the SFRA (or other reasonably available evidence, most commonly the EA Risk of Flooding from Surface Water (RoFSW) mapping) identifies the site as being at risk from surface water flooding, the NPPF and PPG require that a risk-based approach to be applied, ensuring that the proposed use can be made safe (including access and egress), and there is no adverse impact on external flood risk. Therefore, when required the proposals may be required to undertake additional hydraulic modelling (considered outside of the scope of this FRA) that to demonstrate there is no external adverse flood impacts as a result of development.
- 4.15 For the purpose of this assessment, the application of the Sequential Test has been broken down into three levels. Passing the Sequential Test at the strategic level is a weighting of the risks versus benefit of a development against a wider criterion (such as meeting other sustainability targets, housing needs or other strategic planning goals) than just purely avoiding flood risk issues. However, the Sequential Test can also be applied at the site level, where development is steered towards lower areas of flood risk within a site boundary, and is much more objective in its assessment. For the purpose of this FRA, the assessment 'Level' of the Sequential Test is considered to be:

Level 1 - At the high-level, this test is first implemented by local planning authorities (LPA) at the strategic planning scale. The Sequential Test is applied to steer local planning policy by directing particularly vulnerable new developments (e.g., residential, hospitals, mobile homes etc.) outside of the floodplain and for designating new land uses and future development areas.

Level 2 - At the second instance, the Sequential Test is implemented for a specific development at the request of the LPA to assess other sites within an area defined by the LPA, this type of Sequential Test is present where there is a significant conflict between a proposed development and flood risk.

Level 3 - The third instance is where the Sequential Test is applied with the confines of the site, namely by steering development proposals to **avoid** areas of flood risk within a site itself.

- 4.16 Application of the first and second level of the Sequential Test is deemed outside the scope of this report.

CONSIDERATION OF FLOOD DEFENCES AND THE SEQUENTIAL TEST

- 4.17 The EA's Flood Map for Planning shows flood risk on an undefended basis, meaning that the mapped Flood Zones deliberately ignore the presence of any flood defences and represent the worst-case extent of flooding that could occur if defences did not exist or failed. This approach provides a consistent and conservative baseline for applying the Sequential Test across all sites.

- 4.18 As a result, a site that is physically protected by flood defences will still be classified as Flood Zone 2 or Flood Zone 3 on the Flood Map for Planning if the underlying (undefended) probability of flooding is greater than 0.1% annually. The Sequential Test is therefore always applied on the undefended Flood Zone classification, and the presence of defences cannot be used to place a site into a lower Flood Zone or to avoid the Sequential Test. Where a sequentially preferable site is reasonably available, development at a defended but higher-risk site would ordinarily be refused.
- 4.19 Flood defences are legitimately considered at the Exception Test and FRA stage, where they form part of the evidence base for demonstrating that a development can be made safe for its lifetime without increasing flood risk elsewhere. The FRA considers residual risk from overtopping in events that exceed the defence's Standard of Protection, residual risk from breach or failure, the defence's type, crest level and condition (drawn from the EA AIMS dataset), its ownership and maintenance regime, its remaining service life relative to the development's design life, and the relevant Catchment Flood Management Plan or Shoreline Management Plan policy (for example Hold the Line versus Managed Realignment or No Active Intervention).
- 4.20 Even where defences are present and in good condition, they are treated as a factor within the FRA rather than as a determinative consideration. The assessment must demonstrate that finished floor levels, safe access and egress, flood-resistant and resilient construction, emergency planning and, where relevant, compensatory floodplain storage, together provide safety in residual (defended plus climate change, overtopping and breach) scenarios. Defences provide protection up to their design standard; beyond that standard the development itself must be designed to be safe.
- 4.21 Where a site lies wholly within Flood Zone 1 and is not reliant on defences for its flood-risk performance, the Sequential Test is passed at Flood Zone 1, and the Exception Test is not engaged. The considerations above are included for completeness and to evidence the policy framework that has informed this assessment.

ENVIRONMENT AGENCY FLOOD RISK DESIGNATION

- 4.22 Table 2 below presents a helpful guide in identifying the suitability of a site prior to applying Level 1 and 2 of the Sequential Tests and identifies when the Exception Test is required.

Table 2 - The Sequential Test: Flood Risk Vulnerability and Flood Zone 'Compatibility' Table as specified by NPPF. Shaded cells denote the proposed re-development. Please note: ✓ means development is appropriate; x means the development should not be permitted and should be subject to a full sequential test. Refer to Table 3 for selected Flood Zone Designation

FLOOD RISK VULNERABILITY CLASSIFICATION		ESSENTIAL INFRASTRUCTURE	WATER COMPATIBLE	HIGHLY VULNERABLE	MORE VULNERABLE	LESS VULNERABLE
Flood Zone	Zone 1	✓	✓	✓	✓	✓
	Zone 2	✓	✓	Exception Test Required	✓	✓
	Zone 3a	Exception Test Required	✓	x	Exception Test Required	✓
	Zone 3b Functional Floodplain	Exception Test Required	✓	x	x	x

- 4.23 Based on the principles above, a development (being an extension of the existing use with no change to flood risk) of this nature is considered appropriate and acceptable and full application of the Sequential Test is not deemed necessary at this time. Therefore, this FRA presents the findings of the Exception Test and recommendations for incorporation of flood resilient measures to improve long term flood resilience of the proposals. The following sections undertake further analysis of the data available from the Local and District Council and EA data sets relating to flooding from a number of sources.
- 4.24 Table 3 summarises the sites primary flood risk classifications and the source for the DFE. This designation is based on the EA's Risk of Flooding from Rivers and Sea - Climate Change (RoFRS) (extract provided in Figure 2) and the EA's Long Term Flood Risk Maps (LTFRM): Risk of Flooding from Surface Water – Climate Change (RoFSW) (extract provided in Figure 3). These maps indicate flood extents, further assessment in the proceeding sections review

flood hazard from each associated source, and only where flood hazard exceeds acceptable thresholds is flood risk considered unsuitable for purposes of development.

- 4.25 Other sources of flooding have been considered in Section 6 below (such as groundwater and sewer flooding), but these are typically considered to be 'minor' sources of flood risk.

Table 3 - Summarises the overall Flood Zone designation based on the highest rated flood risk from either rivers and sea or surface water including an allowance for climate change.

FLOOD ZONE AND SOURCE IDENTIFICATION SUMMARY			
	FLOOD ZONES AFFECTING THE SITE		DOMINANT SOURCE FOR THE DESIGN FLOOD EVENT (DFE)
	Flood Zone 2 (medium risk)	Flood Zone 3 (high risk)	Source
River	No	No	Surface Water Flood Risk
Sea	No	No	
Surface Water	Yes	Yes	

**Flood Zone Designation for assessment is based on the highest flood risk from river, sea or surface water flooding taken from EA's Flood Map for Planning and EA's RoFSW*

- 4.26 Based on the EA's Flood Maps for Planning data, SFRA and Product 4 request, confirm that the site is at very low risk of flooding from fluvial and tidal sources. However, the EAs RoFSW show that the site is at high risk of flooding from Surface Water flooding, with primary risk related to ponding of surface water runoff through the southern area of the site. As such surface water flood risk is considered to be the dominant source of flooding.
- 4.27 As fluvial and tidal flood risk considered to be low, flooding from these sources are not considered further.

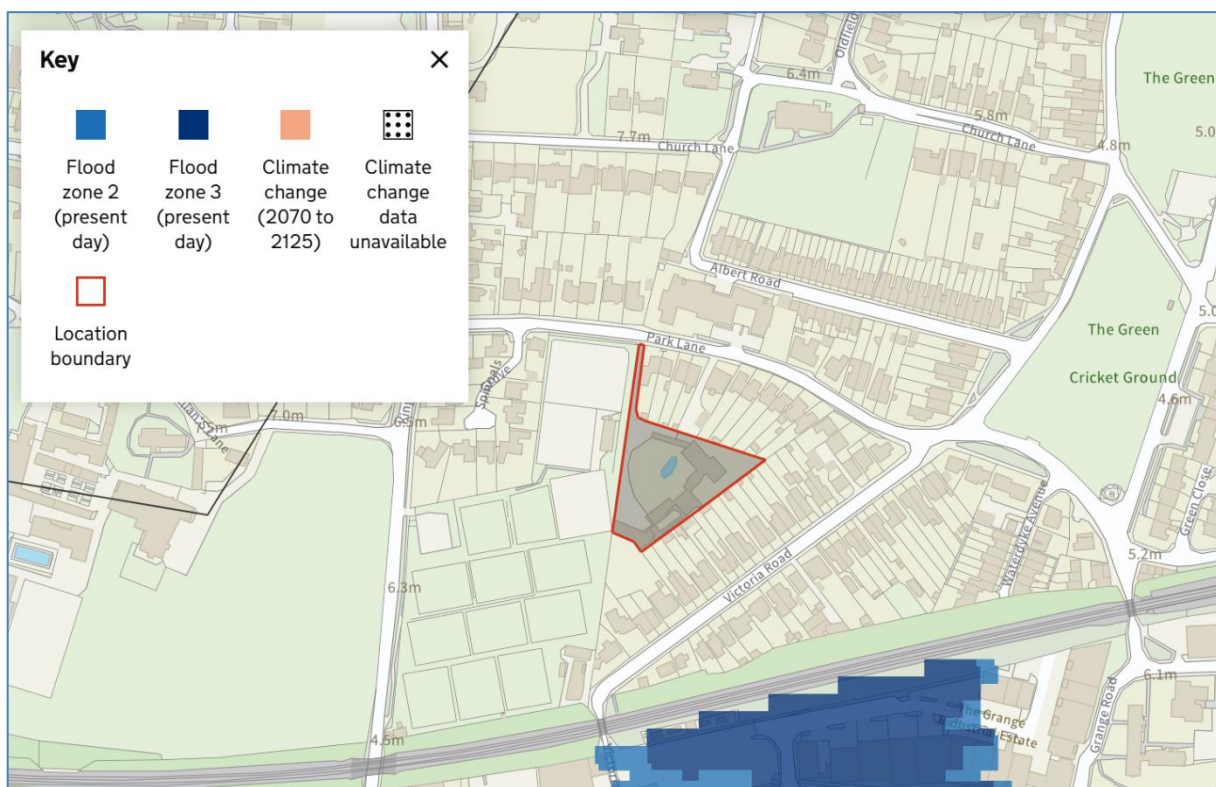


Figure 2 extract from EA Flood Maps for Planning (FMfP) (Source: DEFRA)

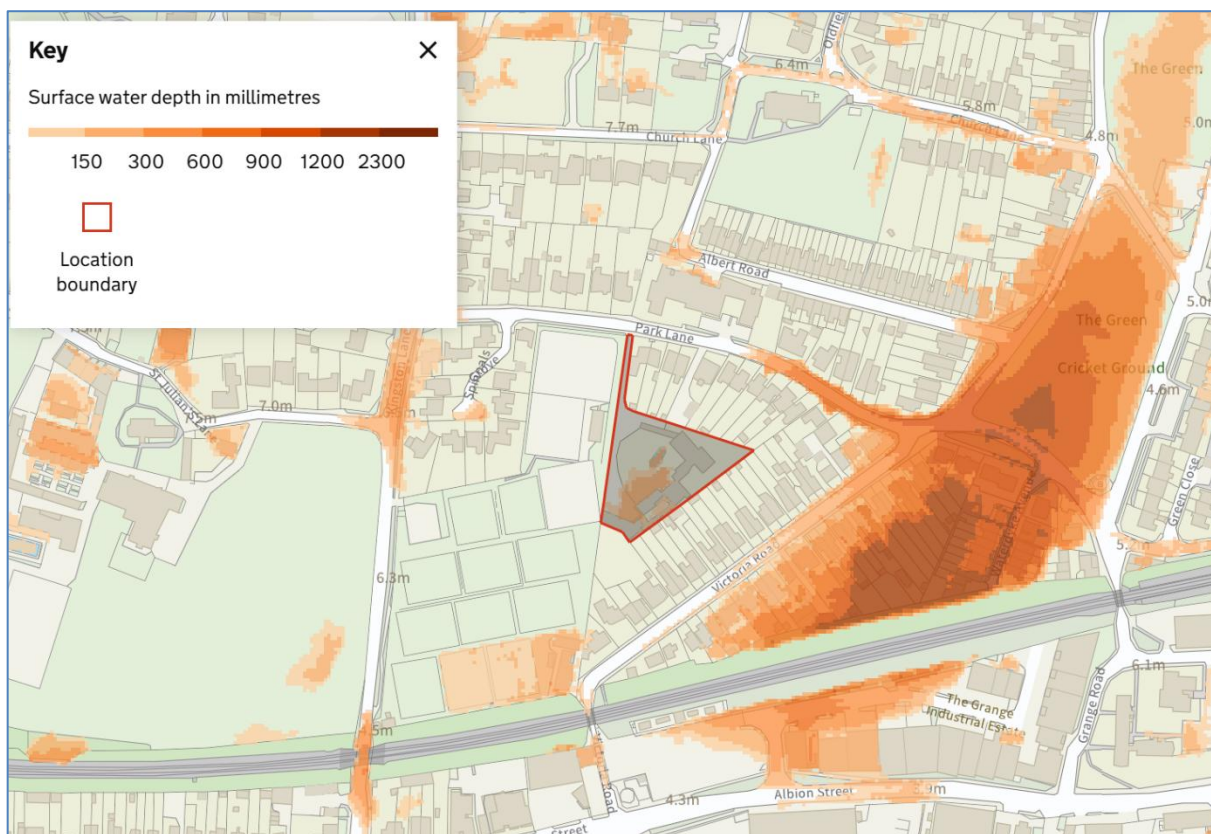


Figure 3 - extract from the FMfP Risk of Flooding Surface Water (RoFSW) 1 in 100 year plus climate flood extents and depths

4 LOCAL FEATURES

SITE DESCRIPTION

- 4.28 The property comprises a large, irregularly shaped (broadly triangular) residential plot at 27 Park Lane, Southwick. The site has two vehicular frontages at opposite corners: a gated frontage onto Park Lane to the north-east, and a long private driveway extending south-west to a secondary access off Victoria Road. The plot is bounded on its remaining sides by adjoining residential properties. A substantial detached dwelling with multiple wings occupies the centre of the site, surrounded by formal and informal gardens, hard landscaping (paved terraces, courtyards and a circular driveway/turning area), an outdoor swimming pool, an ornamental pond and stream feature, and, to the south, a kitchen garden with greenhouses and a shed.

RIVERS AND WATERCOURSES

- 4.29 The topographical survey of the site (HB Surveys Ltd, Job No. 26031, Drawing No. 26031-02-T-E, Sheet 1 of 8) records a designed, ornamental water feature within the northern part of the rear garden, comprising a meandering channel labelled 'STREAM' discharging into a shaped 'POND' set within a landscaped rockery/flowerbed area. Recorded water/edge levels for this feature are approximately 5.8–6.0 m AOD.
- 4.30 By its form, scale and position — entirely contained within the private garden, with no inlet or outlet shown connecting to any off-site channel, ditch or main river — this reads as an artificial, self-contained landscape feature rather than a natural watercourse or a designated Ordinary Watercourse. No main river, ditch, culvert, or other off-site watercourse is shown entering, leaving, or crossing the site on the survey. An outdoor swimming pool is also present in the central/southern garden; as a sealed, engineered structure it is not treated here as a watercourse but is noted for completeness.
- 4.31 The River Adur is the principal watercourse of the wider area. It rises from two headwater branches near Slinfold and Ditchling Common, which converge near Henfield, and flows south for around 20 miles to reach the English Channel at Shoreham-by-Sea. The lower river is tidal — historically tidal as far upstream as Bramber, with the modern tidal limit further downstream — and its estuary/lower reaches, downstream of Old Shoreham Bridge, form Shoreham Harbour. Longshore drift has shifted the river mouth so that it now discharges to the sea around two miles from Shoreham town centre.
- 4.32 The Adur is therefore a tidal, estuarine watercourse rather than a small inland river, and flood risk associated with it in this area is predominantly tidal/coastal in nature (exacerbated by storm surge and rising sea levels) rather than fluvial flashiness from upstream rainfall alone.
- 4.33 Immediately to the south of Southwick village lies the Southwick Ship Canal, a c. 1.75-mile (c. 2.8 km) tidal waterway that forms part of Shoreham Harbour. The canal occupies what was originally the River Adur's own channel: when a new river mouth was cut through the shingle bank further west in 1816, the abandoned former course was impounded behind lock gates (Prince George Lock, 1933; a larger lock opened in 1958) and converted into the harbour that serves the Port of Shoreham today. As a locked, tidal harbour connected directly to the Adur estuary and the sea, it is subject to the same tidal/coastal flood mechanisms as the river and coastline generally.

TOPOGRAPHY

- 4.34 Recorded spot heights taken from the HB Surveys Ltd for Mr & Mrs Paxford (Job No. 26031, Drawing No. 26031-02-T-E, Sheet 1 of 8, scale 1:200 @ A0, surveyed by KR, checked by HB, dated June 2026) show levels across the site range from approximately 4.5 m AOD, at the Victoria Road driveway entrance in the south-western corner, up to approximately 6.5 m AOD, in the northern part of the garden close to the Park Lane boundary. The great majority of external ground levels across the garden, terraces and courtyards fall within a narrower band of roughly 5.2–6.3 m AOD.

- 4.35 The site exhibits a gentle, fairly consistent fall from north-east to south-west — i.e. from the Park Lane frontage down towards the Victoria Road access — of the order of 1.0–1.5 m across the full length of the plot. There is no evidence on the survey of steep gradients, terracing, or engineered cut/fill slopes; the site reads as gently undulating rather than steeply sloping, consistent with a garden that has been landscaped around a relatively flat plot.
- 4.36 Figure 4 below provides an extract of the survey, with Appendix 1 including the full drawing.

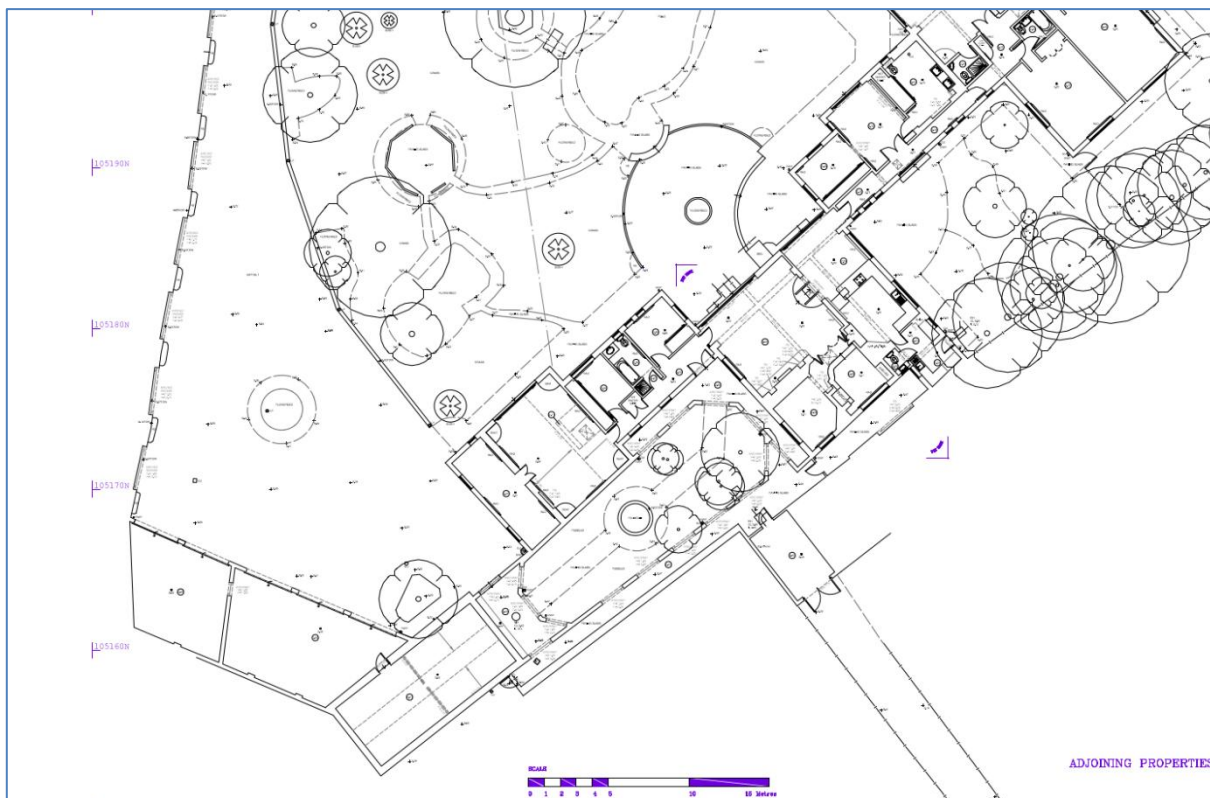


Figure 4 – Extract from Site Survey

GEOLOGY & HYDROGEOLOGY

- 4.37 The online British Geological Survey (BGS) shows the site to be underlain by 1:50 000 scale bedrock geology description: Tarrant Chalk Member-Chalk. Superficial Head-Clay, silt, sand and gravel and River Terrace Deposits (Undifferentiated)-Sand, silt and clay deposits recorded.
- 4.38 The BGS GeoIndex: Borehole Records provides publicly available borehole data at locations around England. These can provide general information relating to groundwater and can provide greater insight into site specific ground conditions. The closest BGS ID: 583380 : BGS Reference: TQ20NW83, approximately 400m to the west, shows a groundwater level at approximately 2mAOD. An extract of this borehole is shown below in Figure 5.



**British
Geological
Survey**

BGS ID: 583380 : BGS Reference: TQ20NW83
British National Grid (27700) : 523460,105140

No. on map 2346. 0514
1" : 318

DISCORD OF WELL
6 inches diameter to 35
ft depth

Town or Village Shoreham
County Sussex
Six-inch County Sheet 65 SK 1
Six-inch National Grid sheet and reference TQ 20 NW 83
For Source: Water Authority Source: River and Water Division
State whether owner, tenant, builder, contractor, consultant, etc. —
Address (if different from above) Julian Brighton BN1 9PY

Level of ground surface above sea level (O.D.) 23 ft (7 m) above
If well top is not at ground level, state how far above* 7 ft (2.1 m)
SHAFT 7 1/2 ft (2.3 m); diameter 8 in (203 mm)
HEADINGS (please attach details—dimensions and directions)
BORE 6 3/4 ft (2.1 m); diameter at top 8 in (203 mm); at bottom 7 1/2 in (190 mm)
Full details of permanent lining tubes (position, length, diameter, plain, slotted, etc.)
8 1/2 ft 4 in of 8 inch tube cement grouted up to surface, see sketch
Water struck at depth of 16 ft (5 m) below well top
Rest level of water 5 ft (1.5 m) above* well top. Suction at 16 ft (5 m) below* well top.

TQ 20 NW 83

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N. N. 474

Figure 5 - extract from nearby BGS Index borehole records used to estimate groundwater levels

- 4.39 Based on a site level of circa 5.2mAOD, this would place groundwater levels at more than 2m below surface level. However, the BGS data should be taken as only indicative and should not be relied upon for detailed design of surface water management systems and during construction. Details of groundwater levels and soil permeability are unknown and should be confirmed. The design permeability should be investigated further for the purpose of surface water management on the site.

FLOOD DEFENCES

- 4.40 The Environment Agency releases a range of flood asset information as Open Data through their AIMS Defence (Spatial Flood Defences) GIS mapping. They are the only comprehensive and up-to-date group of datasets in England that show flood defences currently owned, managed or inspected by the EA.
- 4.41 Southwick lies on the West Sussex coast, with the open sea (English Channel) beyond the harbour frontage to the south. Coastal and tidal flood risk in this stretch of coastline is an established concern for the wider Shoreham/Southwick area: Adur & Worthing Councils have progressed a flood defence scheme for Shoreham town centre (a steel-piled wall and flood gates along the Brighton Road/Sussex Yacht Club frontage) specifically to address River Adur tidal flooding under rising sea levels and severe weather. This confirms that parts of the wider settlement, close to the river/harbour frontage, are recognised by the local authority as being at tidal flood risk requiring active management — although this defended frontage is located to the west of Southwick, closer to the Adur's tidal reach at Shoreham town centre, not at the application site itself.
- 4.42 Figure 6 provides an extract from EA AIMS Defence data.

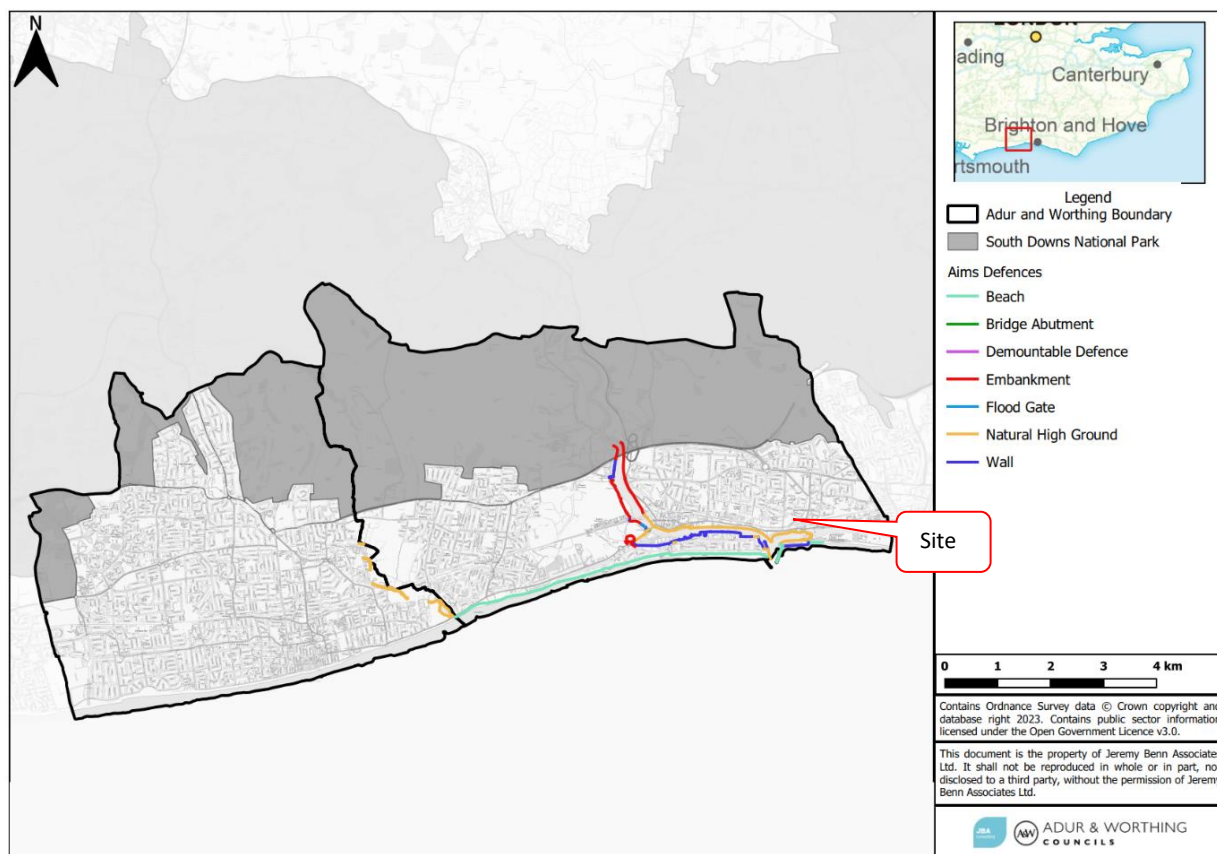


Figure 6 - Extract from EA AIMS Defence Dataset.

5 CLIMATE CHANGE

- 5.1 In 2022, the EA issued updated guidance on the impacts of climate change on flood risk in the UKCP18 to support the NPPF. This guidance sets out that peak rainfall intensity, sea level, peak river flow; offshore wind speed and extreme wave heights are all expected to increase in the future as a result of climate change.
- 5.2 The guidance acknowledges that in relation to certain factors there is considerable uncertainty with respect to the absolute level of change that is likely to occur. As such, in these instances, the guidance provides estimates of possible changes that reflect a range of different emission scenarios (Table 4).

Table 4 - Extract from NPPF designating Flood Risk Climate Change Allowances by Flood Zone and Use. The developments required climate change probability scenario is highlighted blue

FLOOD ZONE	ESSENTIAL INFRASTRUCTURE	HIGHLY VULNERABLE	MORE VULNERABLE	LESS VULNERABLE	WATER COMPATIBLE
1/2	Higher Central and Upper End	Higher Central and Upper End	Central and Higher Central	Central	None of these allowances
3a	Upper End	Development should not be permitted	Higher Central and Upper End	Central and Higher Central	Central
3b	Upper End	Development should not be permitted	Development should not be permitted	Development should not be permitted	Central

INCREASES IN SURFACE WATER FLOODING AND RAINFALL ALLOWANCES

- 5.3 When considering climate change impacts to surface water (pluvial) flooding, The DEFRA peak climate change rainfall allowances detail predicted rainfall increase due to climate change in different regions around England. For all developments with a design epoch up to (and presently beyond) 2070, the NPPF states developments should adopt the Upper End and Central allowances. The development has a stated design life of 100 years; the 2070s epoch allowances in Table 5 are adopted as the minimum design case, and the RoFSW climate change mapping assessed in Section 6 extends the review of surface water risk to 2125. The site-specific climate change allowances based on the DEFRA data is summarised in Table 5 below and should also be adopted for the purposes of surface water drainage design.

Table 5 - Summary of Table 2: peak rainfall intensity allowance in small catchments (less than 5km²) or urban drainage

Design Epoch	3.3% Annual Exceedance Probability Event	1% Annual Exceedance Probability Event
2070s	25%	45%

- 5.4 The EA, through their RoFSW Climate Change mapping, presents the risk which takes account for climate change in the near term up to 2125 and based on the latest UK Climate Projections (UKCP18) from the Met Office, using the Representative Concentration Pathway (RCP) 8.5 associated with the Central Allowance. This data can be considered suitable for assessing short to long term development and understanding the sensitivity of a catchment to increases in rainfall.
- 5.5 All Councils consider the implementation of SuDS as an essential element of reducing future flood risk to both the site and its surroundings. Indeed, reducing the rate of discharge from sites is one of the most effective ways of reducing and managing flood risk. SuDS can effectively be used to minimise the potential increase of risk to the property and users in the future. In accordance with the NPPF, the sites surface water drainage should account for minimum 45% climate change allowance to site rainfall profiles, to ensure climate change is appropriately considered.

- 5.6 SUDS should try to achieve an infiltration solution, however careful consideration of the underlying geology and its principal nature as an aquifer needs to be considered in the water quality and treatment aspects of the drainage design.

6 SOURCES OF FLOOD RISK

- 6.1 In order to assist the implementation of the Governments NPPF, the EA has undertaken national scale flood risk mapping. This mapping considers a range of sources including flooding from rivers, sea, surface water and reservoir breach. Furthermore, each Council produces a Strategic (county scale) Flood Risk Assessments (SFRA) that aim to specifically identify local flood risk issues (such as critical drainage areas and local groundwater flooding).
- 6.2 As all developments are required to assess climate change impacts at the end of a developments design life cycle, this FRA has only reviewed future flood risk as the determining DFE.

PLUVIAL (SURFACE WATER)

- 6.3 Surface water flooding is the term applied to flooding when intense rainfall overwhelms the ability of the land to infiltrate water, or in urban areas for the sewers and road drains to drain the water away, resulting in surface water runoff and consequent flooding. It is a particular problem in urban areas where the excess water will often travel along streets and paths, between and through buildings and across open space.
- 6.4 RoFSW is created by combining best available flood models, including locally produced detailed flood model information from LLFA's, and national flood modelling. These are used to generate the probability of flood risk for each 2m grid square of land, with the aim of using the best available flood risk information in any one location. The RoFSW maps are built off remotely sensed LiDAR data instead of site-specific topography. This LiDAR data has been edited to remove buildings, trees and other features to produce a terrain profile. As a result, this editing process results in a slightly un-even surface profile, which can result in the production of small depressions that fill with water but in reality, is not at risk of surface water flooding. As such, when surface water flooding is isolated, it is not considered to pose a risk to a development as these areas can be managed within the confines of the site. This should be considered where very localised areas of flooding are evident and are independent of wider surface water flood flows and routes.
- 6.5 Figure 3 shows the EA's Long-Term Risk of Flooding from Surface Water (RoFSW) map for the yearly chance of flooding between 2060 and 2125. This dataset presents the risk which takes account for climate change in the near term up to 2125 and based on the latest UK Climate Projections (UKCP18) from the Met Office, using the Representative Concentration Pathway (RCP) 8.5 associated with the Central Allowance. For developments with a design life up to the year 2125, this data is considered suitable to assess surface water flood risk.
- 6.6 RoFSW is a probabilistic product, meaning that it shows the overall risk, rather than the risk associated with a specific event or scenario. In externally published versions of this dataset, risk is displayed as one of four likelihood bandings:
 - ⇒ High - greater than or equal to 3.3% chance in any given year (1 in 30)
 - ⇒ Medium - less than 3.3% (1 in 30) but greater than or equal to 1% (1 in 100) chance in any given year
 - ⇒ Low - less than 1% (1 in 100) but greater than or equal to 0.1% (1 in 1000) chance in any given year
 - ⇒ Very Low - less than 0.1% (1 in 1000) chance in any given year
- 6.7 For most development, the surface water DFE is equivalent to the 1% AEP or Medium Risk event plus an allowance for climate change, which is currently represented within the RoFSW data.
- 6.8 Figure 7 shows surface water flooding for the high risk 1 in 30 year climate change event.

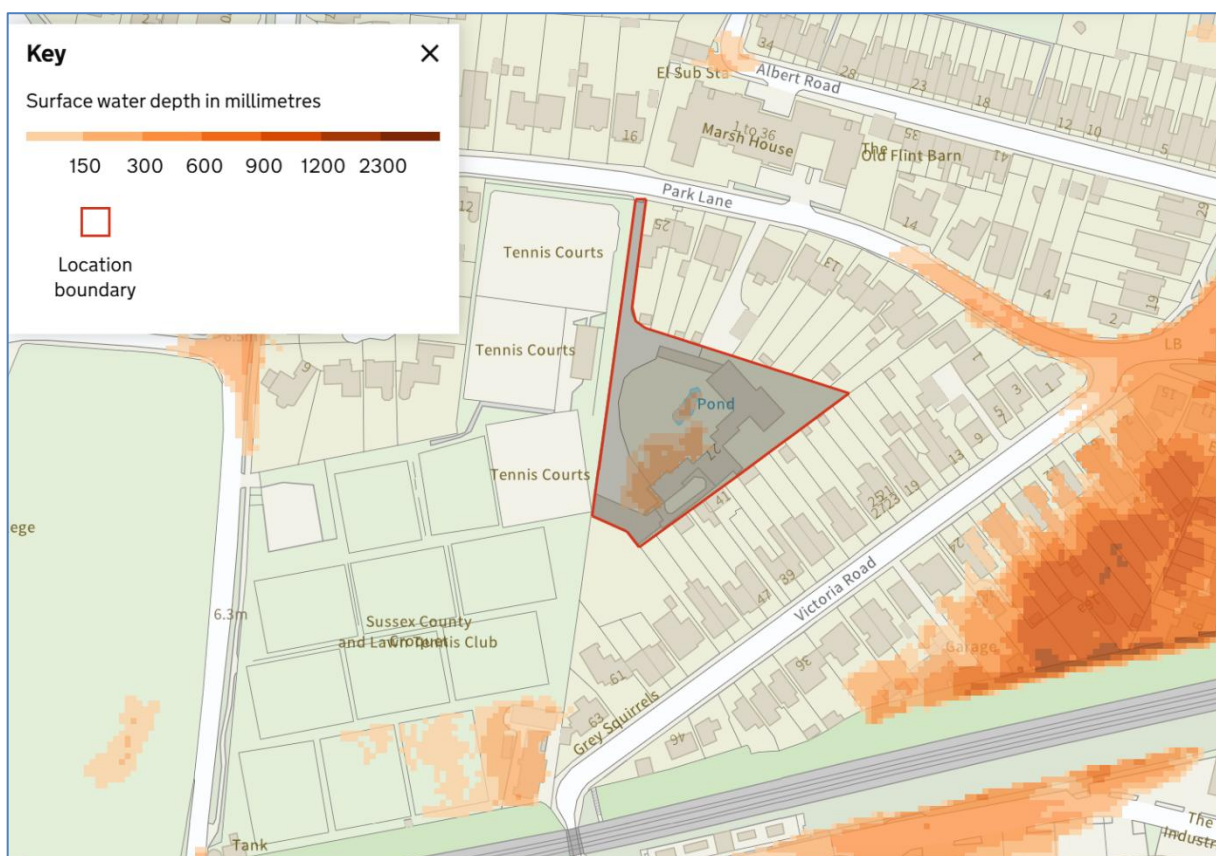


Figure 7 - extract from FMfP RoFSW maps for the Yearly chance of flooding between 2060 and 2125, 1 in 30 year event, site bordered red

6.9 Figure 8 shows surface water flood extents for the medium risk event being the 1 in 100 year plus climate change.

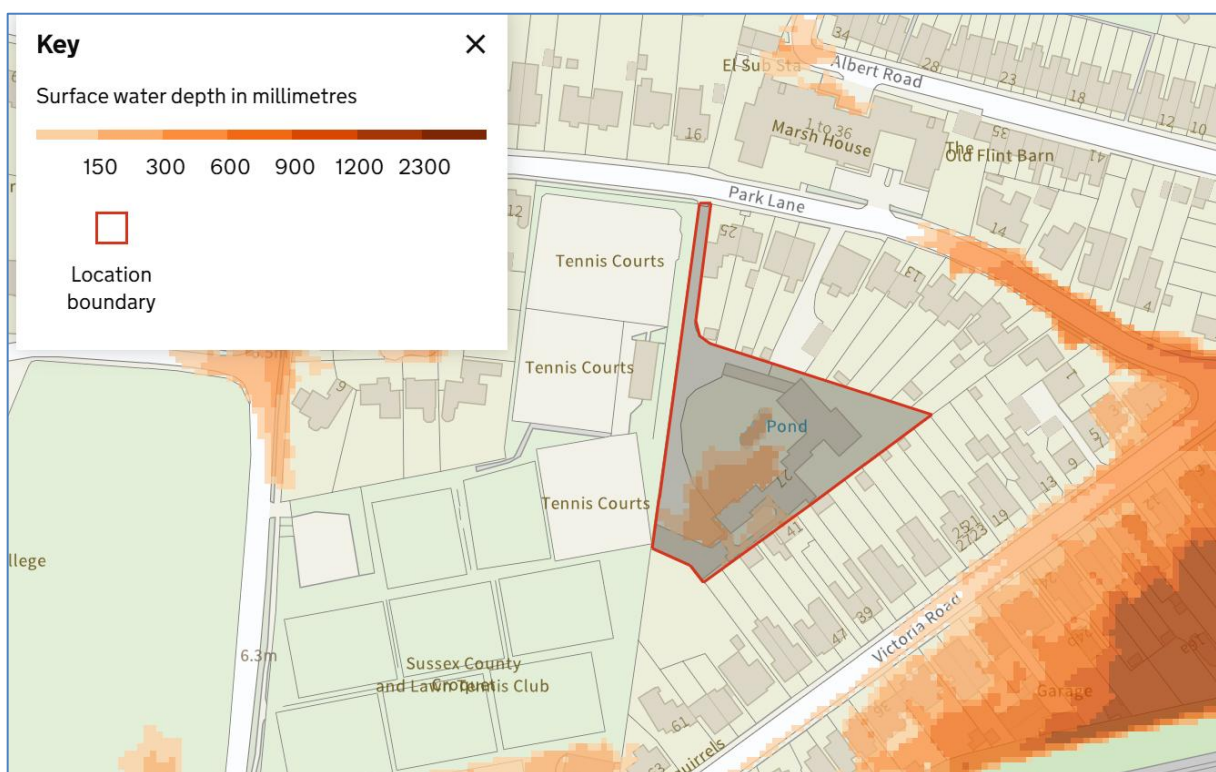


Figure 8 - extract from FMfP RoFSW maps for the Yearly chance of flooding between 2060 and 2125, 1 in 100 year event, site bordered red.

- 6.10 Figure 9 shows surface water flood extents for the 1 in 1000 year event plus climate change allowance. It should be noted that the 1 in 1000 year event flood mapping is only used to steer development mitigation measures (such as finish floor levels), and are not used to define developable areas of a site.

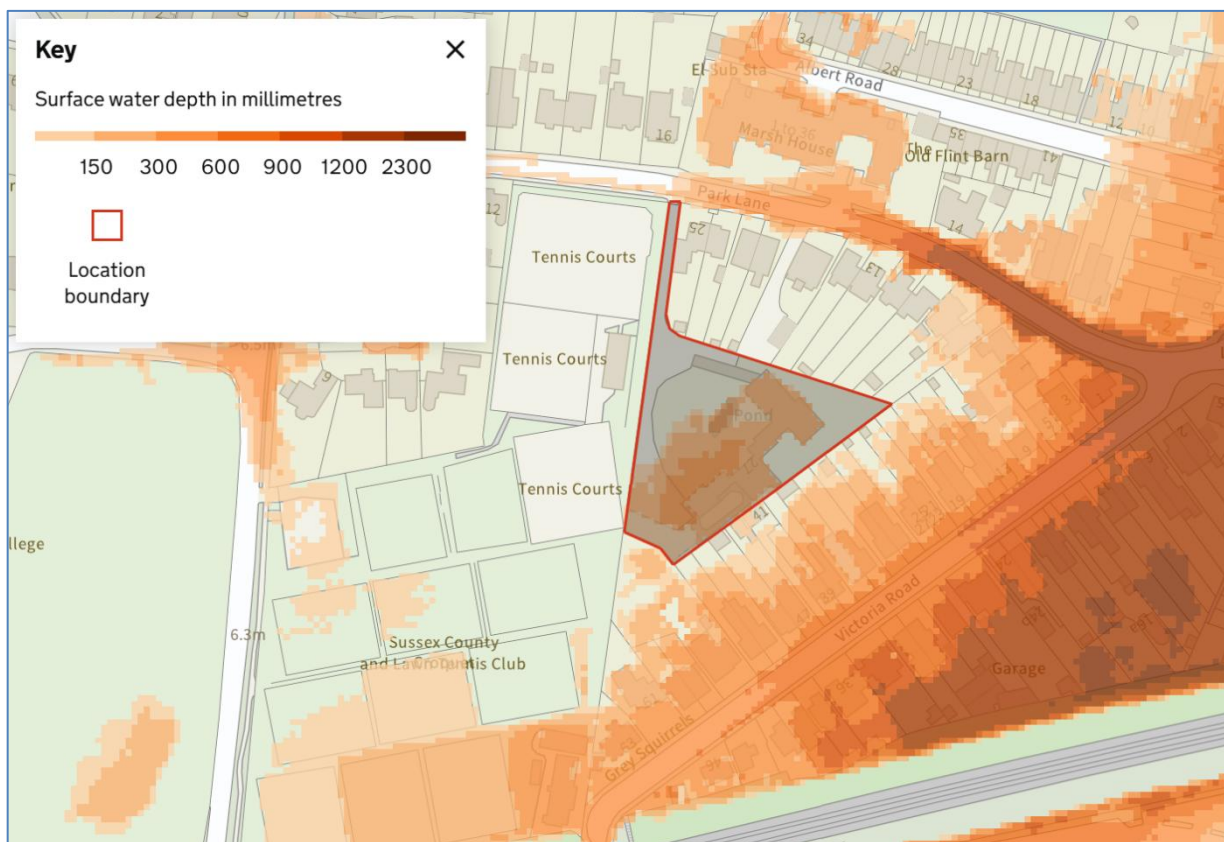


Figure 9 - extract from FMfP RoFSW maps for the Yearly chance of flooding between 2060 and 2125, 1 in 1000 year event, site bordered red.

- 6.11 The figures above show that the surface water flood risk within the site is likely due to ponding due to the localised depression in the topography and fed by an overland flow path. The dwelling has an FFL approximately 200mm above the courtyard levels, this affords the existing dwelling protection against flooding in the 1 in 100 year event as flood depths do not appear to exceed 200mm in depth through the site. However, in the 1 in 1000 year event, flooding is shown to exceed 300mm in depth, and in which case is likely to begin inundating the dwelling up to 200-300mm.
- 6.12 In summary, the RoFSW mapping indicates that existing buildings are likely to remain unaffected by flooding in the DFE but could be more significantly affected by surface water flooding in the 1 in 1000 year climate change event. To ensure the development proposals do not increase flood risk to the existing buildings, the extensions and remodelling should have FFLs no lower than existing and incorporate flood resilient measures (as detailed in Section 7 below).

HISTORICAL, SEWERS AND DRAINAGE

- 6.13 A common source of flooding is a result of sewer or other drainage infrastructure becoming surcharged and flooding.
- 6.14 The SFRA does not directly present any records relating to sewer flooding directly impacting the site, however, does highlight that the site is located in a potential area that could experience heightened surface water flood risk and drainage issues due to extreme tides (Figure 10 below). This risk can be reflected in the RoFSW mapping which doesn't account for any active surface water drainage systems that would naturally manage runoff from the site in a storm or tide locked outfall event.

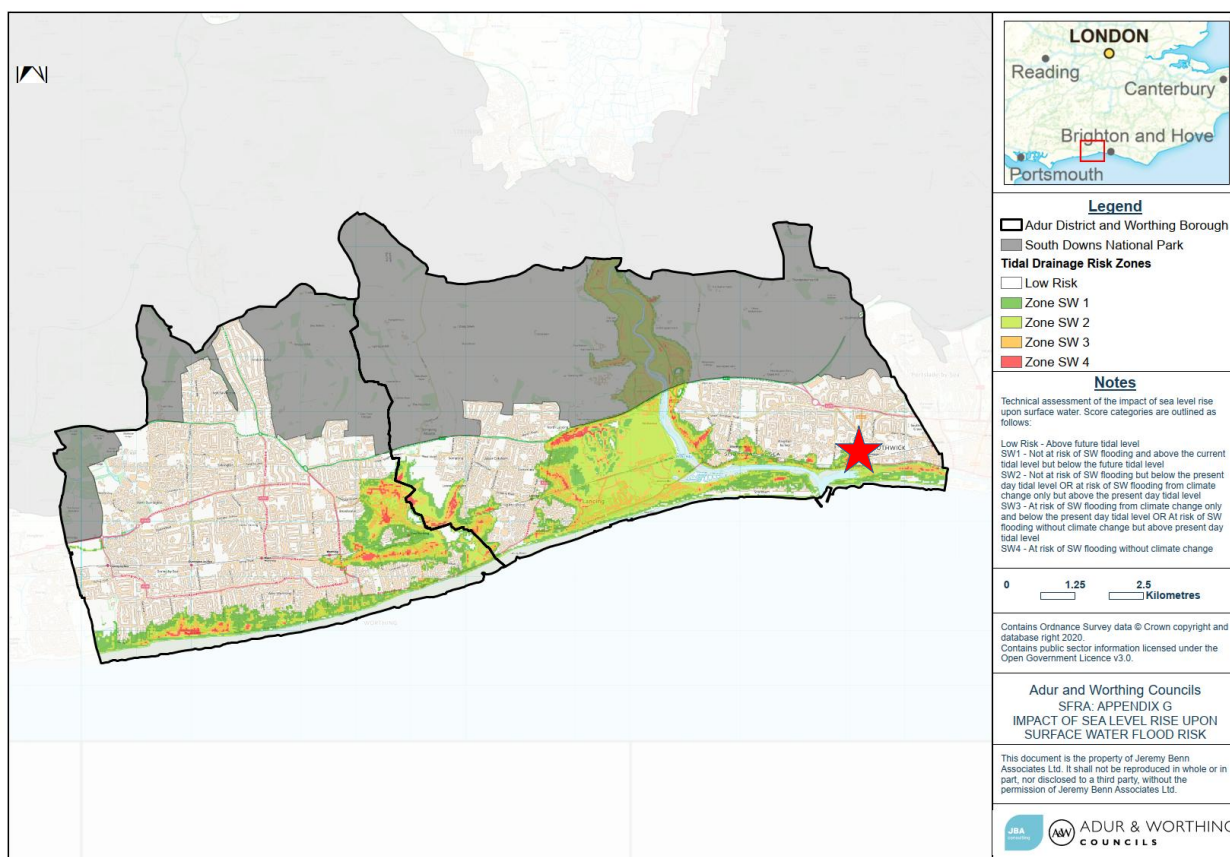


Figure 10 - Extract from Appendix G Impact Of Sea Level Rise Upon

- 6.15 The EA have confirmed that there are no historical records of flooding affecting the site directly.
- 6.16 There have been no other noted flood events specifically at the site, however this does not directly indicate that the site has not flooded in the past or may flood in the future.
- 6.17 Therefore, it is considered the risk of sewer flooding to the site is considered low, assuming that any new development flows include appropriate protective measures to manage runoff and not increase the risk of sewer flooding.

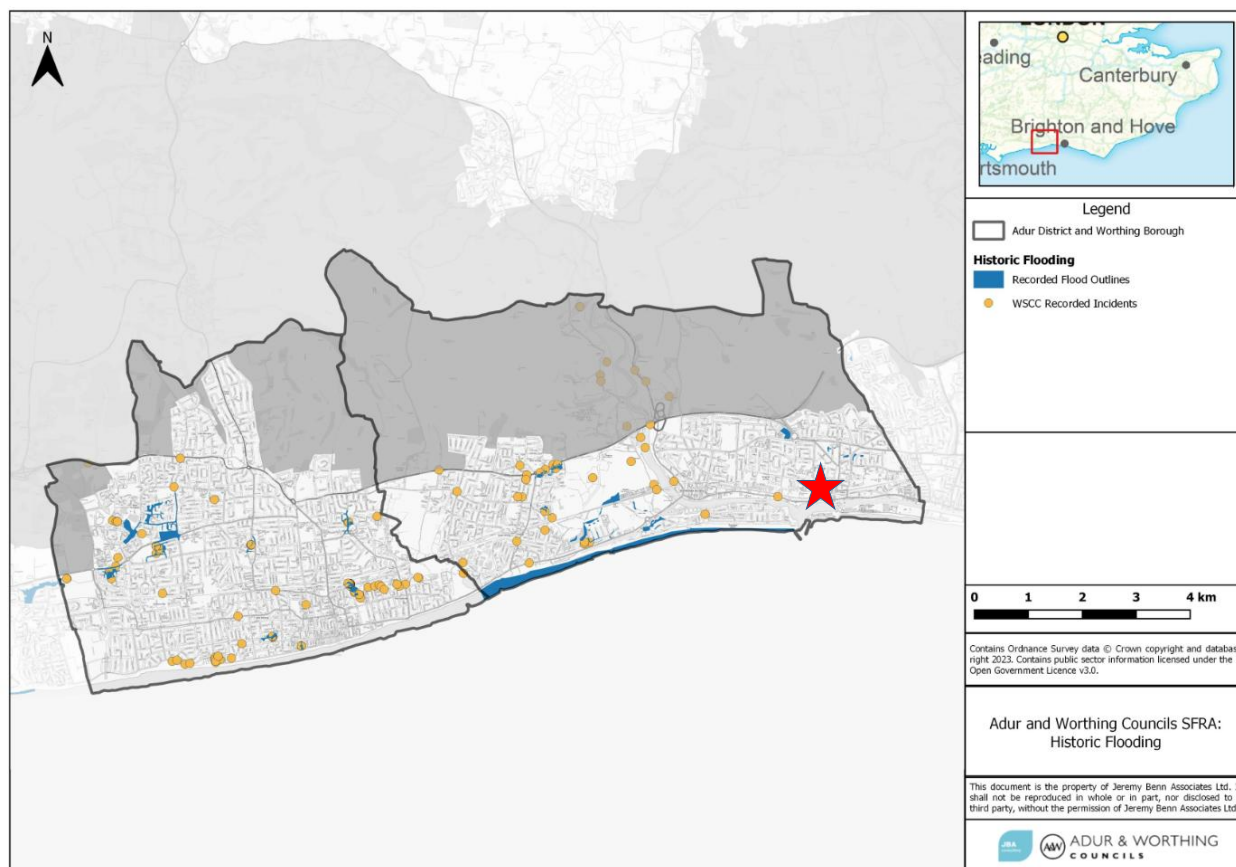


Figure 11 - extract from SFRA - Historical Flooding (star marks approximate site location).

GROUNDWATER

- 6.18 Groundwater flooding is the emergence of groundwater at the ground surface or into subsurface voids arising as a result of:
- ⇒ abnormally high groundwater heads or flows;
 - ⇒ the introduction of an obstruction to groundwater flow; or
 - ⇒ the rebound of previously depressed groundwater levels.
- 6.19 Groundwater flooding usually occurs following a prolonged period of low intensity rainfall. As groundwater flow is much slower than surface flow, the flooding may not recede for long periods of time, typically weeks or even months. It is important to recognise the risk of groundwater flooding is typically highly variable and heavily dependent upon local geology, topography and weather conditions, as well as local abstraction regimes. Groundwater flooding is hard to predict and challenging to mitigate.
- 6.20 Groundwater susceptibility maps are typically designed for planners, identifying areas where groundwater flooding might be an issue. The computer models used to classify areas produces maps with a pixel size of approximately 50 metres. Because of this coarse resolution it is possible that the actual susceptibility at your property may be different due to small-scale variations in rock and soil type and local landscape. It is important to note that Susceptibility is not the same as risk. These maps show where there is the potential for groundwater flooding but do not give any indication of the probability that it will occur.
- 6.21 The SFRA, shows that the site is in an area where ground water levels are expected to be more than 0.5m below ground level and in a region above the tidal level (see Figure 12). Appendix H of the SFRA also suggests that the existing dwelling is in a 'No Risk' groundwater flood area, with the western part of the site in an area where

Groundwater levels are likely to be between 0.025m and 0.5m below the ground surface. The BGS data of nearby borehole records suggest groundwater is likely to be more than 2m below surface levels. Nonetheless, the data would still suggest that overall groundwater flood risk is likely to be low to the site.

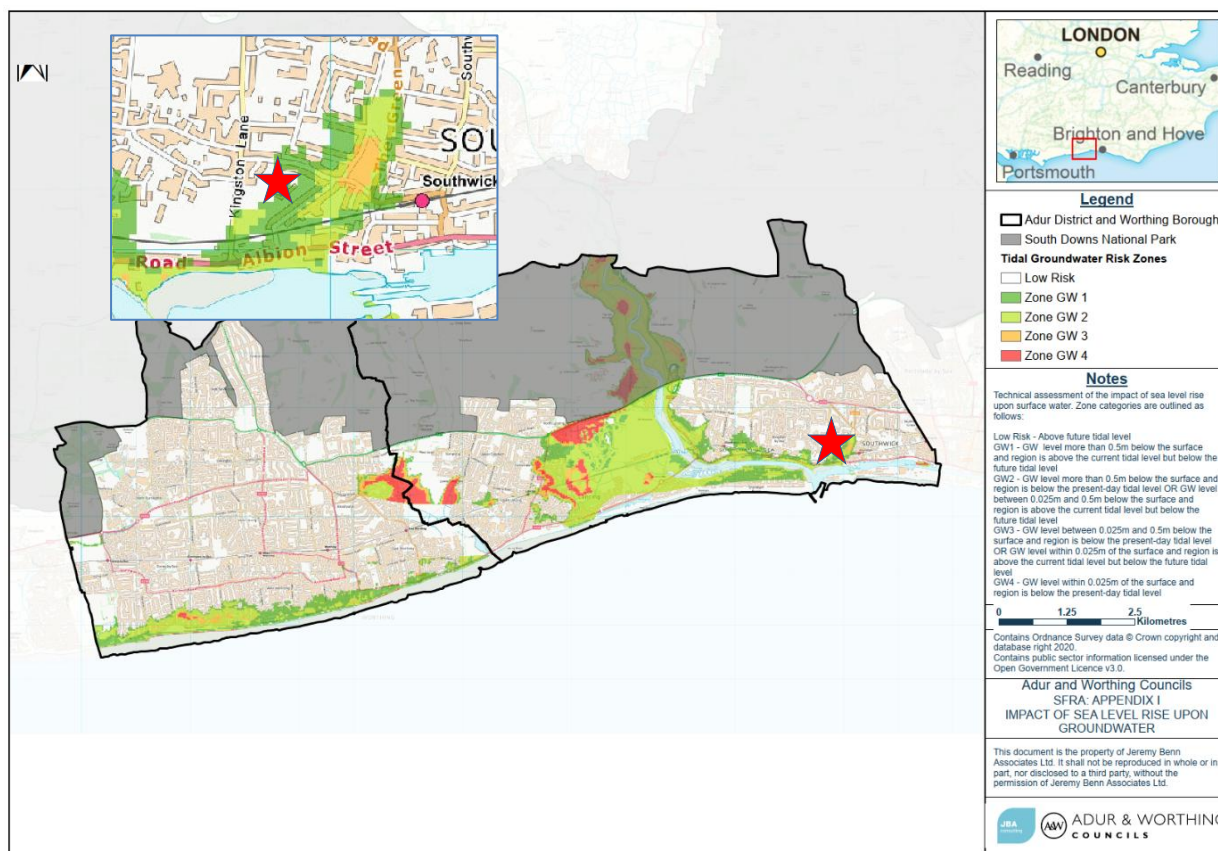


Figure 12 extract from SFRA Groundwater flood map risks (star marks approximate site location).

- 6.22 The maps can be used to highlight an area at risk; it is not designed to be used as a sole indicator of groundwater flooding susceptibility and risk at individual properties. The BGS and SFRA recommend the following for assessing site specific risk:
1. Review BGS geological maps and BGS (or site specific) borehole records for information on water strikes and groundwater levels. Where underlying geology of is sufficiently permeable, this may allow groundwater to rise more freely and frequently
 2. Review the RoFSW mapping, should groundwater emerge at surface, its flow path can be estimated by looking at the RoFSW mapping. However, it should be noted that groundwater flows at surface are a lot lower than surface water runoff events, however groundwater flows may occur over a longer period. Therefore, the risk event assessed for the DFE for groundwater flooding is the high-risk surface water event (or the 1 in 30 year event).
 3. Review historical records and SFRA mapping, for example, if a specific property has experienced groundwater related flood risk in the past. This is often the best indicator of site-specific risk for groundwater flooding and can carry the most weighting in assess risk.
- 6.23 Table 6 below provides a summary of groundwater flood risk indicators as advised by the BGS. It is considered that if any of these risk indicators are negative (or not present), then the overall risk of groundwater emergence is likely to be low. The building design should account for groundwater being present and account for this in the construction and waterproofing of the building.

Table 6 - Summary of groundwater flood risk indicators to the site

GROUNDWATER FLOOD RISK SUMMARY		
Data Source	Risk Indicator	Risk Present
BGS Geological Maps	Is the underlying geology permeable (such as gravels and sands) and may allow free flow of groundwater	Yes
BGS/Site Borehole Data	Is the depth to Groundwater less than 1m	No
Surface Water Flood Risk	Is there surface water flood risk present in the high-risk 1 in 30 year event	Yes
Historical Records	Does the SFRA include any records of groundwater flooding occurring at the site	No
SUMMARY OF GROUNDWATER FLOOD RISK		LOW

- 6.24 The potential effects of climate change on groundwater levels are uncertain. Greater seasonality in groundwater level fluctuation is a potential outcome under a pattern of higher winter rainfall and less summer rainfall. Broad predictions of the impacts of climate change on groundwater levels are difficult to make at the present time

RESERVOIR

- 6.25 Reservoir flooding is very different from other forms of flooding. It may happen with little or no warning and evacuation will need to happen immediately. The likelihood of such flooding is difficult to estimate, but it is less likely than flooding from rivers or surface water. It may not be possible to seek refuge upstairs from floodwater as buildings could be unsafe or unstable due to the force of water from the reservoir breach or failure. The risk of inundation to the study area as a result of reservoir breach or failure of a number of reservoirs within the area was assessed as part of the National Inundation Reservoir Mapping (NIRIM) study.
- 6.26 The EA has undertaken failure scenarios of the UK reservoirs and summarised these extents through their Long-Term Flood Risk Maps for Reservoir Flooding. This data shows the individual flood extents for all large, raised reservoirs in the event that they were to fail and release the water held on a “wet day” when local rivers had already overflowed their banks. Flood extents are not included for smaller reservoirs or for reservoirs commissioned after the reservoir modelling programme began in October 2016.
- 6.27 It represents a prediction of a credible worst-case scenario, however it’s unlikely that any actual flood would be this large. The data gives no indication of likelihood or probability of reservoir flooding, with the mapping showing that the site is unaffected by reservoir failure risk.

RESIDUAL RISKS

- 6.28 Residual risks are those remaining after applying the sequential approach to the location of development and taking mitigating actions. Examples of residual flood risk include:
- the failure of flood management infrastructure such as a breach of a raised flood defence, blockage of a surface water conveyance system, overtopping of an upstream storage area, or failure of a pumped drainage system;
 - failure of a reservoir, or;
 - a severe flood event that exceeds a flood management design standard, such as a flood that overtops a raised flood defence, or an intense rainfall event which the drainage system cannot cope with.
- 6.29 Given that the site is not located behind flood defences or in a reservoir failure area, the primary risk to the site is residual failure of onsite drainage or an extreme exceedance event.

OFFSITE IMPACTS OF DEVELOPMENT

- 6.30 In accordance with Policy F7 of the National Planning Policy Framework (NPPF), development should ensure that it does not increase flood risk elsewhere and that any residual risk can be safely managed, including by providing safe access and escape routes where appropriate, in accordance with Policy F7(1) and F7(2)(c) of the NPPF. The proposed development has been designed and assessed to ensure full compliance with these requirements.
- 6.31 It is recommended that post-development runoff rates be limited to no greater than existing site discharge rates, in line with Planning Practice Guidance: Flood Risk and Coastal Change (Reference ID: 7-050-20220825). Sustainable drainage measures should be incorporated to attenuate stormwater on-site for all events up to and including the 1 in 100 year + climate change allowance, ensuring no increase in the volume or rate of surface water leaving the site.
- 6.32 Furthermore, as required by Policy F7 of the NPPF (August 2026) and PPG guidance, the design ensures that flood risk will not be transferred to adjacent land or downstream receptors. This is ensured by the following:
- The development proposals will not displace existing flood plain volumes, managing all runoff within the site boundary.
 - The development proposals are not shown to intercept existing surface water overland flow paths. The proposed drainage strategy will be designed to manage post development runoff up to the DFE.
 - The sites drainage will be required to operate effectively during extreme events, preventing exceedance flows from leaving the site in an uncontrolled manner.
- 6.33 The development therefore satisfies the NPPF and PPG policy tests by:
- ⇒ Managing runoff on-site through appropriately designed attenuation and discharge control;
 - ⇒ Incorporating exceedance routing to direct flows away from vulnerable receptors;
 - ⇒ Ensuring no increase in flood risk to third-party land under current or future climate scenarios.
 - ⇒ Refer to Section 8 for demonstration of “safe” access and egress.
- 6.34 To prevent flooding from failure of the local urban drainage system, regular maintenance should be undertaken of the gullies, sewers and laterals within, and in the vicinity of, the site.
- 6.35 The long-term maintenance of the surface water sewers and surface drainage within the site will be the responsibility of the developer, landowner or a management company which may be set up to maintain the site.

7 BUILDING MATERIAL MITIGATIONS

7.1 The final step in the flood risk management hierarchy is to mitigate through building design. NPPF considers this as the least preferred option and should not be used in place of the sequential approach to land use planning on a site. The Department for Communities and Local Government has published guidance on improving the flood performance of new buildings, since superseded for design purposes by BS 85500:2025 – Flood resistant and resilient construction. The guide identifies a hierarchy of building design which fits within step 5 of the flood risk management hierarchy of NPPF (assess, avoid, substitute, control and mitigate). This is set out below:

- ⇒ **Flood avoidance:** Constructing a building and its surrounds (at site level) to avoid it being flooded (e.g. by raising it above the flood level).
- ⇒ **Flood resistance:** Constructing a building in such a way to prevent flood water entering the building and damaging its fabric.
- ⇒ **Flood resilience:** Constructing a building in such a way that although flood water may enter the building its impact is reduced (i.e. no permanent damage is caused, structural integrity is maintained and drying and cleaning are facilitated).
- ⇒ **Flood repairable:** Constructing a building in such a way that although flood water enters a building, elements that are damaged by flood water can be easily repaired or replaced.

7.2 The EA Guidance on Flood Risk Assessment: Local Planning Authorities sets out to help the designer determine the best option or design strategy for flood management at the building site level, based on knowledge of basic flood parameters (e.g. depth, duration and frequency). Depending on these parameters (in particular depth) and after utilising options for flood avoidance at site level, designers may opt for a water exclusion strategy or a water entry strategy, as illustrated in Figure 13.

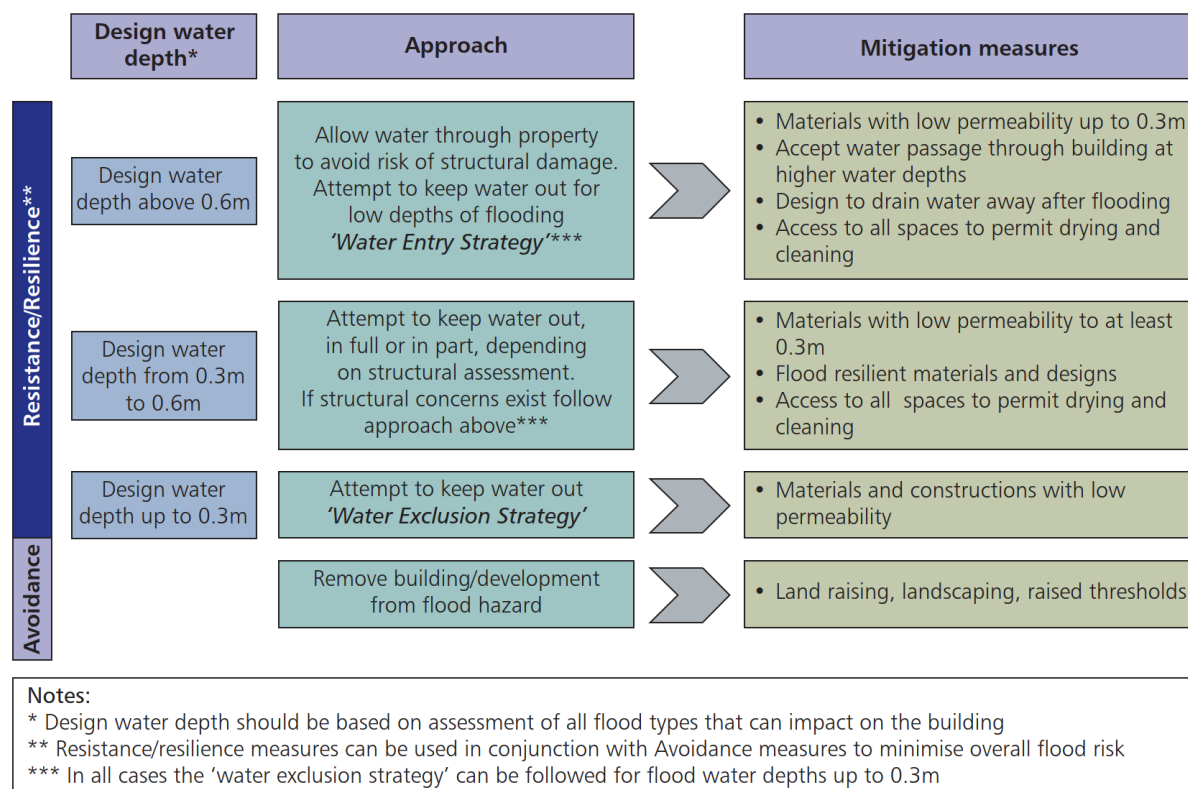


Figure 13 - Flexible and risk averse approaches to flood risk management and safe development (source: Figure taken from "Improving the Flood Performance of New Buildings – Flood Resilient Construction")

7.3 The adoption of either Water Exclusion or Water Entry is based on the expected flood depth that may affect a building or site. These are summarised below:

- ⇒ **Water exclusion strategy** is when the emphasis is placed on minimising water entry whilst maintaining structural integrity, and on using materials and construction techniques to facilitate drying and cleaning. This strategy is favoured when low flood water depths are involved (not more than 0.3m). According to the definitions adopted in this Guidance, this strategy can be considered as a resistance measure, but it is part of the aim to achieve overall building resilience
- ⇒ **Water entry strategy** is when the emphasis is placed on allowing water into the building, facilitating draining and consequent drying. Standard masonry buildings are at significant risk of structural damage if there is a water level difference between outside and inside of about 0.6m or more. This strategy is therefore favoured when high flood water depths are involved (greater than 0.6m) by utilising resilient materials, and construction methods.
- ⇒ **Flood resistant measures** are incorporated where it is considered feasible to prevent floodwater entering the building and take the form of flood barriers. Many flood resistant products/barriers are only suitable to typical maximum height being 0.68m, before the risk of structural damage is incurred.
- ⇒ **Flood resilient measures** are incorporated where it is accepted that, in severe flood events, water may enter parts of the building so it is necessary to ensure the building will remain useable after the floodwater has receded and the area has been cleaned. Therefore, materials should be incorporated that retain their structural integrity and have good drying and cleaning properties or are waterproof, and services and sockets etc. are located as high as practical to minimise flood damage.

7.4 Given the primary risk is related to surface water flooding most likely from an exceedance event or failure of onsite drainage, it is considered that some key principles of the **Water Exclusion Strategy** should be adopted for the buildings on the site. Some simple construction measures can greatly protect buildings during such an event without incurring large additional construction costs. Some recommendations include:

- Finish floor levels should be no lower than existing (to prevent new flood pathways being created into the dwelling as a result of the extension works);
- Where possible, utilise flood barriers (permanent or demountable) at entrances to the dwelling (particularly to the western elevation of the middle and southern parts of the site);
- Include SuDS that improve the overall surface water management within the site, reducing and controlling the existing surface water flood risk where possible;
- The route of all electrical services will run from ceilings at ground floor (where possible), down toward sockets;
- All plumbing insulation to be of closed-cell design;
- Non-return valves to be fitted to all drain and sewer outlets;
- External ground levels are graded to direct exceedance runoff around buildings and building thresholds.

7.5 Further detail can be found at <https://assets.publishing.service.gov.uk/> and within BS 85500:2025-Flood resistant and resilient construction. Some building design examples have also been provided in Appendix 3.

8 FLOOD EVACUATION PLANNING

- 8.1 If in the worst-case scenario, flooding has begun and depths appear anywhere along the escape routes appear to be greater than 25cm, it is advised that the occupants seek refuge within the dwelling on the first floor.
- 8.2 The Environment Agency usually issues a flood alert between 2 and 12 hours before flooding. Flood alerts are usually issued during waking hours where possible.

FLOOD HAZARD PREVENTION

- 8.3 It is recommended that the residential occupants are aware of the emergency procedures and local evacuation and contact points.
- 8.4 Each occupant of the site should be made fully aware of the flood risks and made aware of the required evacuation route away from the site and to Flood Zone 1.
- 8.5 Each occupant **MUST** be registered for flood alerts and warnings.

WARNING PROCEDURES

- 8.6 This section contains general information on the types of flood warning available to site owners and occupants, as well as suggested actions in the event of these warnings being enacted.
- 8.7 The EA operates a 24-hour telephone service on 0345 988 1188 that provides frequently updated flood warnings and associated floodplain information.
- 8.8 The site owner(s) **MUST** register for this service. It is advised that all residents/occupants also register for this service, as site owner(s) may not be on site at the time of a flood event. It is the responsibility of the site owner to make this service available to all users.
- 8.9 Further information can be found on <https://www.gov.uk/sign-up-for-flood-warnings> and <https://www.adur-worthing.gov.uk/>. Floodline Warnings Direct is a free service operated by the EA that provides flood warnings direct to occupants by telephone, mobile phone, fax or pager.
- 8.10 It is the responsibility of the site owner(s) to keep the evacuation routes and areas of safe refuge known to all occupants and clear at all times.
- 8.11 Upon receipt of a flood warning, and following liaison and agreement with the Emergency Services, the site should be evacuated.
- 8.12 All occupants should be advised not to return to the site until the site is deemed to be safe for return by the Emergency Services / EA. If flood waters have receded the site can be accessed provided it is safe to do so.
- 8.13 Site owners will be responsible for informing future occupants and site owners of the risk posed from flooding.

THE EVACUATION PROCEDURE

- 8.14 It is the property owner's responsibility to liaise with the Emergency Services in relation to the decision to evacuate all occupants.
- 8.15 The Emergency Services will become the lead agencies in respect to the flood incident. Emergency Services will lead on the decision to evacuate and any subsequent evacuation of the development. The site owner(s) will be responsible for making contact with all occupants and site users as required during an evacuation event.
- 8.16 Once the decision to evacuate has been made, it is the site owner's responsibility to make contact with occupants as required during an evacuation event. If any occupants cannot or will not evacuate the Emergency Services are required to be informed immediately.

- 8.17 The residents should continue to liaise with the Emergency Services and Emergency Planners throughout the evacuation procedure and will report to them once the evacuation has been successful so as to avoid unnecessary strain on the resources of the Emergency Services.
- 8.18 If feasible, occupants should inform supervisors, close relatives and friends of their safe evacuation, this will also help avoid unnecessary strain on the resources of the Emergency Services.
- 8.19 As flood hazard is a combination of the depth and velocity of floodwater, evacuees should **not** enter floodwater unless:
 - Emergency Services are present as part of an assisted / supervised evacuation,
 - **or if the depths are below 25cm before evacuating.**
- 8.20 The Emergency Services, including but not limited to the Police and the Fire Brigade will be the lead agencies in respect of flood evacuation.
- 8.21 Evacuees should ensure that their chosen action and route is suitable to all members of their party (i.e. the elderly, very young, or disabled).

SAFE REFUGE PROCEDURES

- 8.22 Safe refuge is considered a last resort but is available within the dwelling on the first floor. The existing finished floor level sits approximately 200mm above adjacent courtyard levels, which affords protection in the 1 in 100 year plus climate change DFE, although shallow inundation of the ground floor is possible in the 1 in 1000 year event. Safe refuge is advised when flood waters are perceived to be deeper than 250mm (25cm) along a proposed access route (unless directed by emergency services), and instead occupants should seek safe refuge within the building.
- 8.23 To facilitate making an informed decision during a flooding event, it is recommended that the site owners/ occupants sign up to the EA flood alert service and monitor weather reports as per the EA guidance.

9 FLOOD MITIGATION MEASURES

- 9.1 The proposals allow the opportunity to improve flood resilience of the site by incorporating a number of flood mitigation measures, both through the incorporation of flood resilient building materials, surface water drainage improvements and signing up to the EA Flood Warning/Alert System.
- 9.2 Table 7 presents the key flood mitigation measures based the critical DFE on the NPPF and PPG decision making principles:

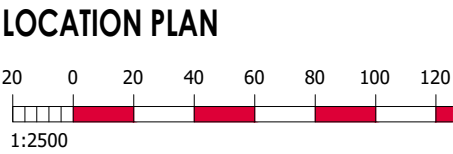
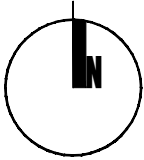
Table 7 - Key Decision Making principles and measures applied to avoid, control, mitigate, and manage flood risk

DECISION MAKING: ORDER OF PRIORITY	PROPOSED MEASURES
1. Avoid	The development proposals should ensure that for any extensions to the existing dwelling, the FFLs should be no lower than existing to avoid increasing existing flood risk or creating new flood pathways into the dwelling.
2. Control	Surface Water Drainage systems should be designed to accommodate the 1 in 100 year plus climate change DFE.
3. Mitigate	Recommend that the developer incorporates the recommendations of BS 85500:2025 - Flood resistant and resilient construction. Refer to Section 7 for recommended Building Measures
4. Manage residual flood risk	Safe Access and Egress is deemed possible. Refer to Section 8 for assessment of Access and Egress (Flood Evacuation Planning).
5. Flood Risk is not increased elsewhere	Any new drainage should be designed in accordance with Building Regulations Part H, SuDS Manual and 'DCG' guidance, ensuring drainage proposals include an allowance for climate change. Any additional flows to be directed into the Local Sewer Authorities public sewers or water courses to receive confirmation of capacity and connection approvals prior to detailed design and construction.

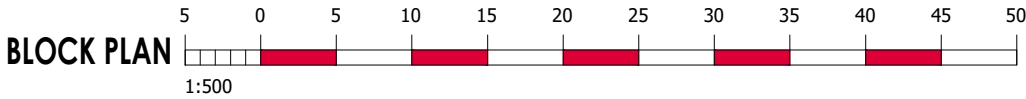
10 CONCLUSION

- 10.1 This assessment is required under the National Planning Policy Framework (NPPF) and Local and District Councils given the location, scale and associated flood risks.
- 10.2 Table 3 summarises the sites primary flood risk classifications and the source for the DFE. This designation is based on the EA's Flood Map for Planning (Figure 2) and the EA's Long Term Flood Risk Maps (LTFRM): Risk of Flooding from Surface Water (RoFSW) (Figure 3), which together confirm surface water as the dominant source of flood risk to the site.
- 10.3 Based on the information available at the time of writing, this FRA has confirmed the site is at very low risk of flooding from fluvial and tidal sources, and at low risk from groundwater and sewer or drainage flooding, with the site unaffected by reservoir failure. However, the EA's RoFSW mapping shows the site to be at high risk of surface water flooding (including an allowance for climate change), the risk arising from ponding within the site due to topographic levels. Surface water is therefore the dominant source of flood risk and the basis of the DFE. The existing dwelling has a finished floor level approximately 200mm above courtyard levels, which affords protection in the 1 in 100 year plus climate change event; in the 1 in 1000 year event flood depths are shown to exceed 300mm, and inundation of the dwelling to 200-300mm is possible.
- 10.4 Table 7 summarises how this FRA has applied the PPG's key decision making principles to avoid, control, mitigate, manage residual risk and to ensure the development proposals do not increase flood risk post development. Based on the PPG and NPPF, and assuming the recommendations of this FRA are followed, it is considered that the proposed remodelling of and extensions to the existing dwelling should be considered appropriate at this location.
- 10.5 To assist in mitigating the present flood risk to the site's users based on the development proposals, a number of recommendations have been discussed, the core of these include:
 - Extensions and remodelling should have finished floor levels no lower than existing, to avoid increasing flood risk to the existing dwelling or creating new flood pathways into it.
 - The sites drainage should be designed in accordance with Building Regulations Part H, SuDS Manual and 'DCG' guidance, ensuring drainage proposals include an allowance for climate change and that there is no additional strain placed on downstream infrastructure.
 - Any additional flows to be directed into the Local Sewer Authorities public sewers to receive confirmation of capacity and connection approvals prior to detailed design and construction.
 - Users sign up to the EA Flood Warning and Alert System.
 - Adopt the flood resistant and resilient construction measures (as applicable) of BS 85500:2025, as set out in Section 7 and Appendix 3.
- 10.6 This report demonstrates that the proposals could be accommodated within the site in accordance with the EA guidance, Council SFRA, and the NPPF. It is considered that as long as the development follows the advice presented in this report, that the development proposals may be considered appropriate at this location.

APPENDIX 1 – ARCHITECTURAL PROPOSALS

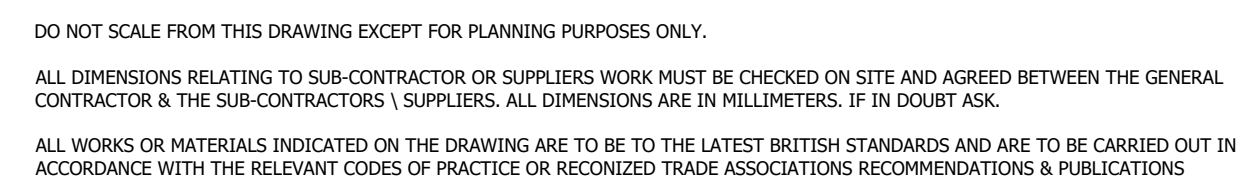


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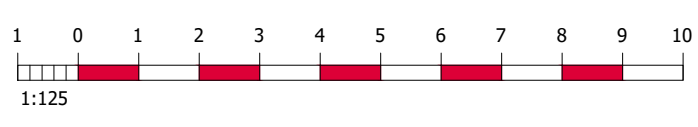


David Seaman - DLS: ARCH Mobile: 07776 304714 Email: david.seaman@dlsarch.co.uk	Project	27, Park Lane, Southwick.		Date	july 2026	Drawn by	
	Drawing	Location + Block Plan		Scales	1:500/2500 @A3	Suitability	planning
				Doc No	DLS-184-PL-12		Revision

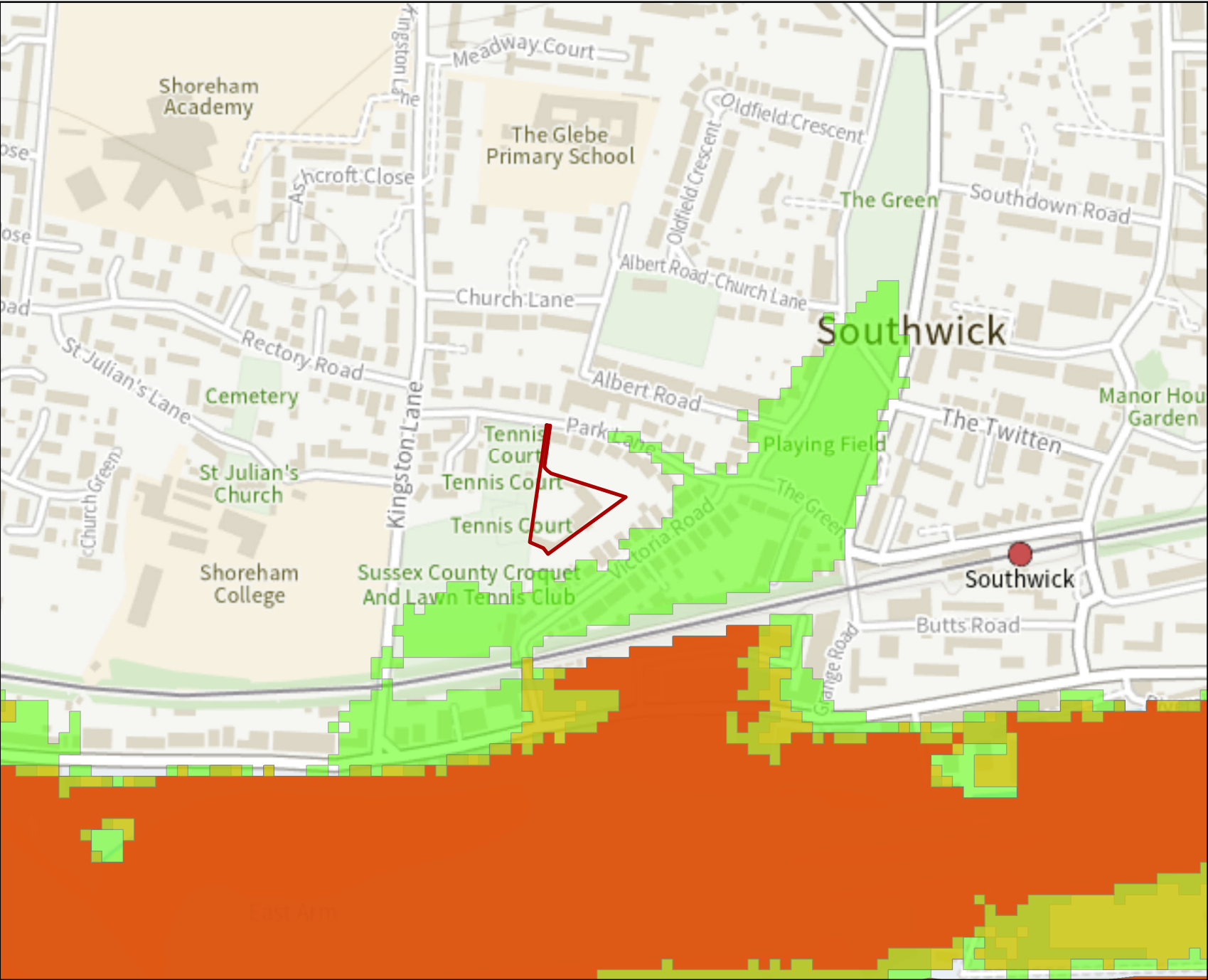


[illegible]

David Seaman - DLS: ARCH
Mobile: 07776 304714
Email: david.seaman@dlsarch.co.uk



APPENDIX 2 – FLOOD DATA





Environment
Agency

N
▲

Legend

Site Boundary

0.5% AEP (2012) (Un defended)

0.5% AEP (2070) (Un defended)

0.5% AEP (2115) (Un defended)

0.1% AEP (2012) (Un defended)

Annual Exceedance Probability (AEP) The probability of a flood of a particular magnitude, or greater occurring in any given year.

Scale: 1:5,000

00.10.2

Kilometers

Our reference: **EIR2026/27182**

Date: **18/06/2026**

Dear Ryan,

Thank you for your request of 7 June 2026 to use Environment Agency Product 4 data for the site at **27 Park Lane, Southwick, Brighton, BN42 4DL**.

Response to your request

The Environment Agency's records indicate that the above site is located in Flood Zone 1 (land assessed as having less than 0.1% (1 in 1,000) chance of flooding in any given year from **rivers or the sea**). Therefore, the likelihood of flooding from rivers and sea in this area is estimated as 'very low'.

Proximity to Flood Zones 2 or 3

The above site is approximately 96 metres away from Flood Zone 2/3. We are therefore unable to provide data from our detailed fluvial or tidal models which is relevant to your site.

More information on Flood Zones can be found on the GOV.UK website:

<http://planningguidance.planningportal.gov.uk/blog/guidance/flood-risk-and-coastal-change/flood-zone-and-flood-risk-tables/table-1-flood-zones/>

Surface water flooding

Our mapping indicates that this site is at **High Risk** of surface water flooding.

For information on flooding from all other sources, such as surface water, please contact the Lead Local Flood Authority, which in this case is **West Sussex County Council**. A link to their information available online is shown below:

<https://www.westsussex.gov.uk/fire-emergencies-and-crime/dealing-with-extreme-weather/dealing-with-flooding/flood-risk-management/local-flood-risk-management-strategy/>

Please note that the above is a link to an external website which the Environment Agency does not control or maintain. Therefore, the link may not be the most up-to-date at the date of this letter. If the link does not work, and you are unable to find the information about surface water flooding on the relevant website, please contact the authority named above directly.

Where you can find further information

- Detailed long-term flood information and maps can be found on the GOV.UK website:
<https://flood-warning-information.service.gov.uk/long-term-flood-risk/>
- Flood maps for planning can be found on the GOV.UK website:
<https://flood-map-for-planning.service.gov.uk/>
- Please be aware that in February 2016 the Environment Agency updated its guidance on climate change allowances. The standard allowance of adding 20% to peak flows – as per previous guidance in the National Planning Policy Framework, may not be applicable for the purposes of informing development proposals. It is possible that our current modelling has under estimated flood risk when taking climate change into consideration. This does not however have an effect on Flood Zones 2 or 3. For further information please visit:
<https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances>
- Further details about the Environment Agency information supplied can be found on the GOV.UK website:
<https://www.gov.uk/browse/environment-countryside/flooding-extreme-weather>
- If you have requested this information to help inform a development proposal, then you should note the information on GOV.UK on the use of Environment Agency information for Flood Risk Assessments:
<https://www.gov.uk/planning-applications-assessing-flood-risk>
<https://www.gov.uk/government/publications/pre-planning-application-enquiry-form-preliminary-opinion>

If you have any queries or would like to discuss the content of this letter further please call us on 03708 506 506, or reply to the email sent to you with this letter attached.

Please get in touch if you have any further queries or contact us within two (2) months if you would like us to review the information we have sent.

For information on what you can expect from us and our full service commitment to you, please click on this link:

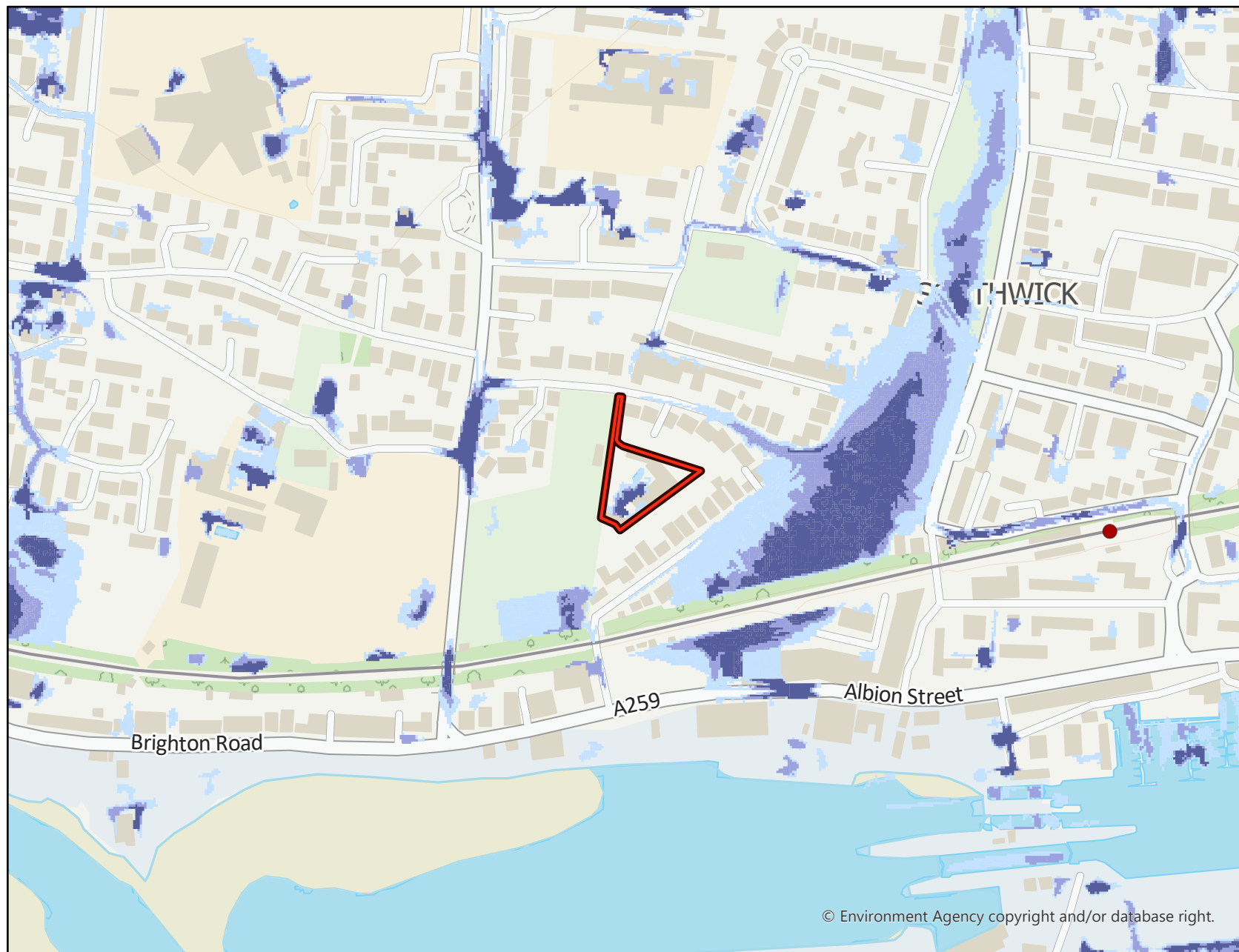
<https://www.gov.uk/government/publications/environment-agency-customer-service-commitment--2/environment-agency-customer-service-commitment>

Yours sincerely,

Amy O'Donnell

**Partnership and Strategic Overview West Sussex, Solent and South Downs
Environment Agency | Teville Gate House, Teville Road, Worthing, West Sussex, BN11 1UR**

Risk of Flooding from Surface Water. Centred 523854,105211. Created 18/06/2026.



Risk of Flooding from Surface Water

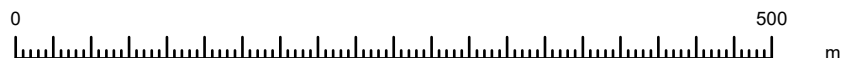
- High ($\geq 3.3\%$)
- Medium (3.3% - 1%)
- Low (1% - 0.1%)
- Very Low

Likelihood of flooding from Surface Water

- High: Greater than or equal to 3.3% (1 in 30) chance in any given year
- Medium: Less than 3.3% (1 in 30) but greater than 1% (1 in 100) chance in any given year
- Low: Less than 1% (1 in 100) but greater than 0.1% (1 in 1000) chance in any given year
- Very Low: Less than 0.1% (1 in 1000) chance in any given year

This information is shown on the Risk of Flooding from Surface Water map on GOV.UK

Contact us:
National Customer Contact Centre
PO Box 544
Rotherham
S60 1BY
Tel. 03708 506 506 (Mon-Fri 8-6)
Email: enquiries@environment-agency.gov.uk



APPENDIX 3 – FLOOD RESISTANT AND RESILIENT CONSTRUCTION

FOUNDATION DESIGN

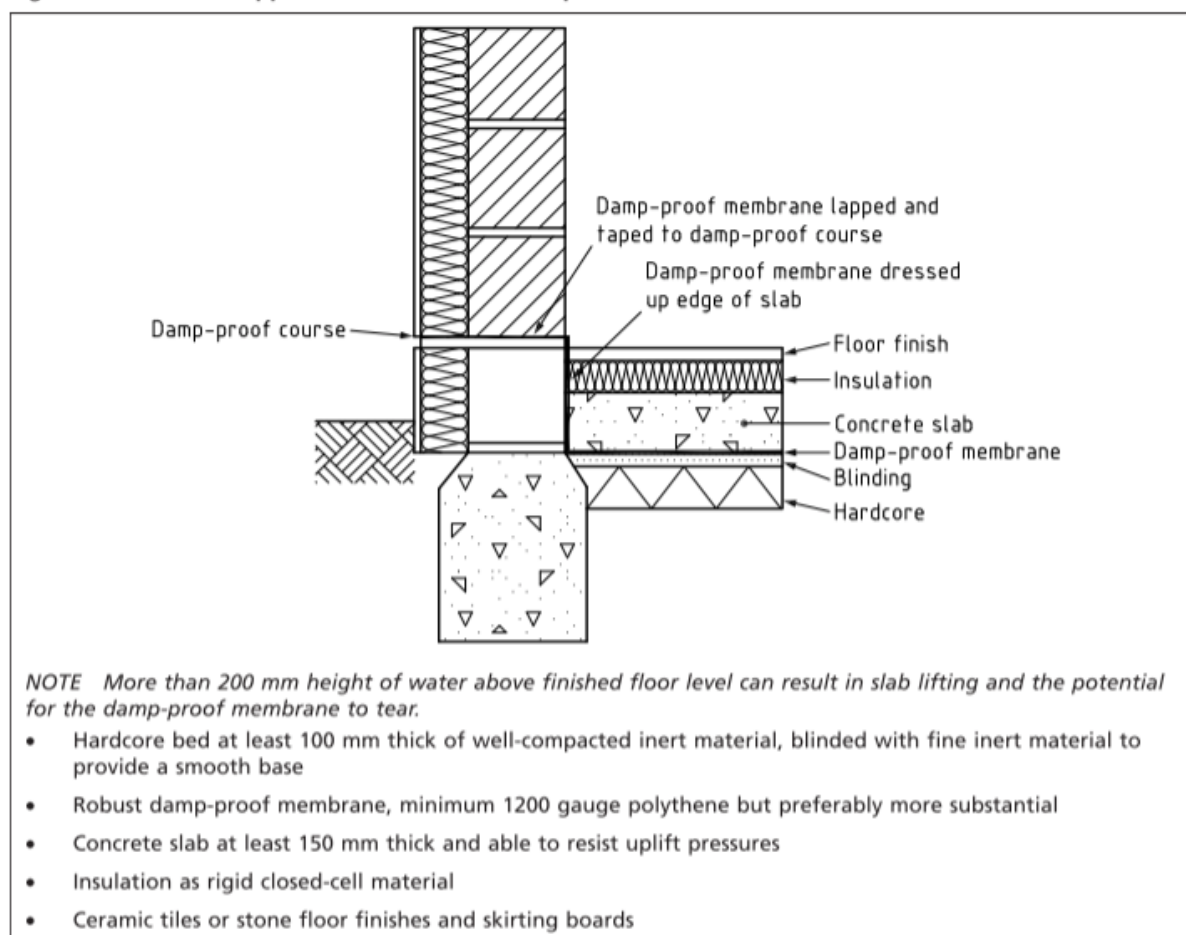
Sealed Foundations

- 10.9 **Material:** Use **waterproof concrete** (integral with waterproof admixtures) or **epoxy-based sealants** for additional water resistance.
- 10.10 **Design:** Incorporate an **integral tanking system** with reinforced concrete slabs. Waterproof membranes (e.g., HDPE membranes) can be added below and around the foundation to act as a barrier against groundwater seepage

Rising Walls and Damp-Proof Courses

- 10.11 **Material:** Install **bituminous damp-proof courses** or **plastic damp-proof membranes (DPM)** to block water rising through capillary action.
- 10.12 **Design:** Extend the damp-proof membrane up the internal wall by at least 150 mm above the external ground level.
- 10.13 A recommended slab on ground floor detail is provided below from BS 85500:2025.

Figure 5 Ground-supported floor – Preferred option



WALL CONSTRUCTION

Waterproof Materials

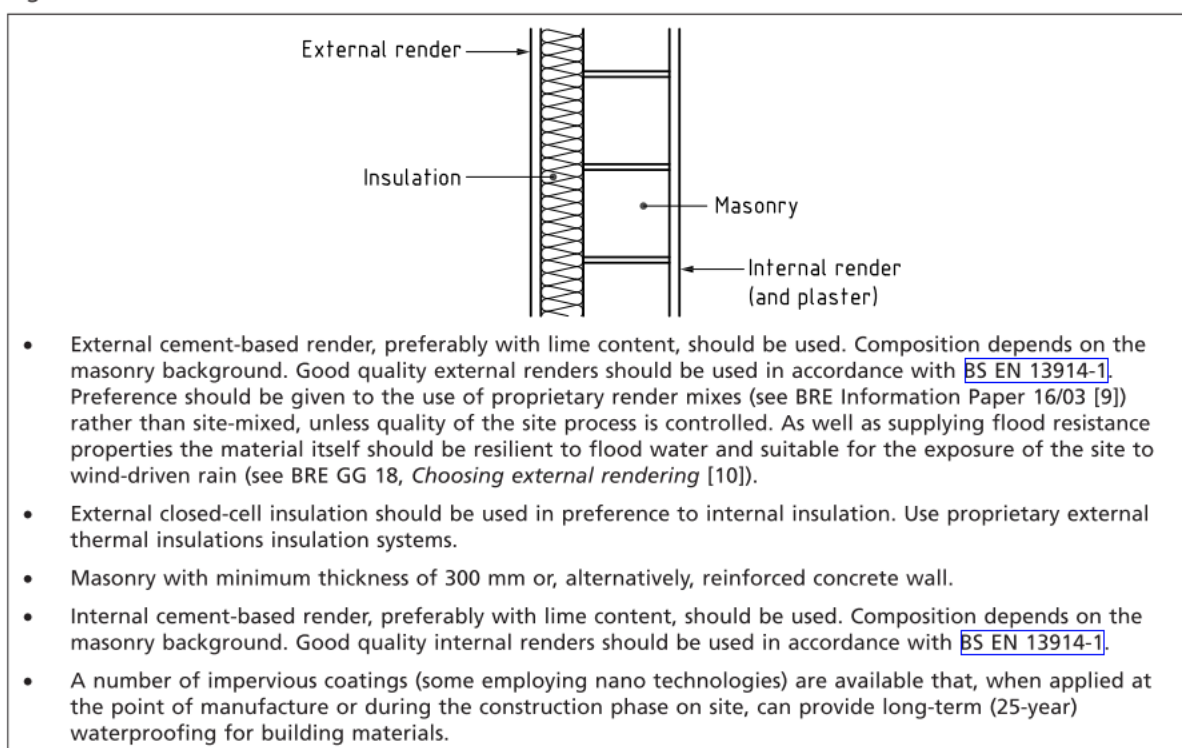
- 10.14 **Material:** Use **engineered concrete blocks**, **hydrophobic bricks**, or bricks treated with a **silane-siloxane-based waterproofing agent** up to at least 600mm above ground level.

- 10.15 **Design:** Incorporate **render finishes** made with waterproof cement or **waterproof lime plasters** to create an impermeable outer layer.

Walls

- 10.16 **Material:** Construct cavity walls with **thermalite blocks** for the inner leaf and waterproof bricks for the external leaf. Include a **DPC (Damp-Proof Course)** in the cavity and install **cavity trays**.
- 10.17 **Design:** Use **stainless-steel wall ties** with drips to prevent water bridging the cavity and integrate a **drainage membrane** inside the cavity to direct water to external weep holes.
- 10.18 **There are multiple options for different wall constructions for a water exclusion strategy depending on the required outcomes and preferences of the client.** The architect and building designer should adopt 1 of the 4 recommended wall constructions listed in Section 7.4 of BS 85500:2025. An example of Solid External Wall detail is provided below for reference.

Figure 7 Solid external walls



OPENINGS AND PENETRATIONS

Seal All Openings

- 10.19 **Material:** Install **airbrick flood covers** or **automatic airbricks** that seal during flooding. For pipe penetrations, use **EPDM rubber seals** or **expanding foam sealants**.
- 10.20 **Design:** Apply **non-shrink grout** or epoxy coatings around utility penetrations to prevent leaks.
- 10.21 The architect should refer to Section 9.2 of BS 85500:2025 for material details for Windows, Doors and Air Vents.

FLOOR DESIGN

Impermeable Floors

- 10.22 **Material:** Use **waterproof concrete** slabs coated with **epoxy resin** or a **polyurethane sealant** for an impermeable finish.

10.23 **Design:** Install **integrated drainage layers** below the concrete slab to manage water and prevent seepage into the interior.

Raised Thresholds

10.24 **Material:** Use **precast concrete threshold blocks** or durable **UPVC threshold kits**.

10.25 **Design:** Raise thresholds at all external doors by 150–300 mm above the external ground level to prevent water ingress.

10.26 For protection against residual impacts, the architect can choose to adopt the recommendations in Section 7.3.3 of BS 85500:2025

DRAINAGE AND LANDSCAPING

10.27 **Material:** Use **topsoil, clay bunds, and engineered green slopes** to channel water away from the building.

10.28 **Design:** refer to Landscape General Arrangement Plan and SUDS plan for recommended surface drainage measures and ground levels to direct overland runoff around the building.

MAINTENANCE AND MONITORING

10.29 **Material:** Ensure routine inspections include checking **sealants, membranes, and drainage systems**. Use **infrared cameras** to detect water penetration.

10.30 **Design:** Maintain an **inspection plan** for early detection of system failures.

INTEGRATED SUDS (SUSTAINABLE DRAINAGE SYSTEMS)

10.31 All site runoffs should be tied back into the surface water drainage system. Typical measures include permeable paving, rainwater harvesting, rain gardens, soakaways and attenuation. These elements typically need to be designed by a specialist and can be found in a **SUDS Drainage Scheme**.

MATERIAL SELECTION

10.32 **Material:** Use **PVC skirting boards, tile flooring, and non-absorbent insulation (e.g., closed-cell foam)**.

10.33 **Design:** Ensure materials are non-porous and easy to clean post-flooding.

These measures above provide examples of simple construction measures that can be implemented to improve general building resilience, combining structural design, material selection, and drainage techniques tailored to various flood scenarios.