



Flood Risk Assessment
AEG7937_BN44_Bramber_01

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Site Address: Sunny Croft
The Street
Bramber
West Sussex
BN44 3WE

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

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Document Issue Record

Project: Flood Risk Assessment

Prepared for: Mark Sargent

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Site Location: Sunny Croft, The Street, Bramber, West Sussex, BN44 3WE

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Table of Contents

Summary 1

1. Introduction 3

Site Overview 3

Planning Policy and Guidance 5

2. Planning Policy 7

National Planning Policy Framework (NPPF) 7

Local Plan 10

Sequential and Exception Tests 11

3. Consultation and Review 12

Consultation 12

Documents and Online Mapping 12

4. Sources of Flood Risk 15

Fluvial/Tidal 15

Canals 22

Pluvial 22

Reservoirs 27

Groundwater 29

Sewers 29

5. Flood Risk Mitigation 31

Fluvial/Tidal 31

Pluvial, Canal, Reservoirs, Groundwater and Sewers 32

Increase to Flood Risk Elsewhere 32

Flood Warnings 32

6. Conclusions.....33

Appendix A - Development Proposals.....35

Appendix B - Topo Survey 36

Summary

Development Description	Existing	Proposed
Development Type	Hotel	Change of use of part of hotel to residential dwelling (C3 use)
EA Vulnerability Classification	More Vulnerable	No Change
Ground Floor Level	Based on a topographic survey, External levels between 4.10m AOD and 2.6m AOD. Existing FFL – 4.19m AOD	No change
Level of Sleeping Accommodation	4no. ground floor bedrooms 4no. first floor bedrooms	0no. ground floor bedrooms 4no. first floor bedrooms
Surface Water Drainage	Existing building is positively drained via rainwater downpipes.	No change in built footprint – continue to discharge surface water runoff as per the existing drainage infrastructure.
Site Size	Approximately 1,200m^2	No change
Risk to Development	**Summary**	**Comment**
EA Flood Zone	Flood Zones 1, 2, and 3	Existing building located mostly within Flood Zone 1.
Flood Source	Tidal/Fluvial	River Arun
SFRA Available	Level 1 Strategic Flood Risk Assessment (Horsham District Council, 2024) and Crawley Borough and Upper Mole Catchment Level 1 Strategic Flood Risk Assessment (Crawley and Gatwick Sub-Region, 2023)	
Management Measures	**Summary**	**Comment**
Ground floor level above extreme flood levels	No	Given the nature of the development, it is not possible to raise finished floor levels above 4.19m AOD. However, proposal is a change of use from Hotel to Residential (no change in

		vulnerability) with a reduction in the number of bedrooms at ground floor, thus providing a betterment compared to existing.
Safe Access/Egress Route	Yes	The Street is located on the edge of the modelled design scenarios.
Flood Resilient Design	Yes	Flood resilience measures recommended.
Site Drainage Plan	Existing building is positively drained via rainwater downpipes.	No change in built footprint – continue to discharge surface water runoff as per the existing drainage infrastructure.
Flood Warning and Evacuation Plan	No	Recommended to sign up to the Environment Agency flood warning service.
Offsite Impacts	**Summary**	**Comment**
Displacement of floodwater	No	Internal alterations only
Increase in surface run-off generation	No	Internal alterations only
Impact on hydraulic performance of channels	None	No nearby channels

[1] not required for this assessment

[2] data not available.

1. Introduction

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

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

Site Overview

1.3. The site of the proposed development is Sunny Croft, The Street, Bramber, West Sussex, BN44 3WE (Figure 1).

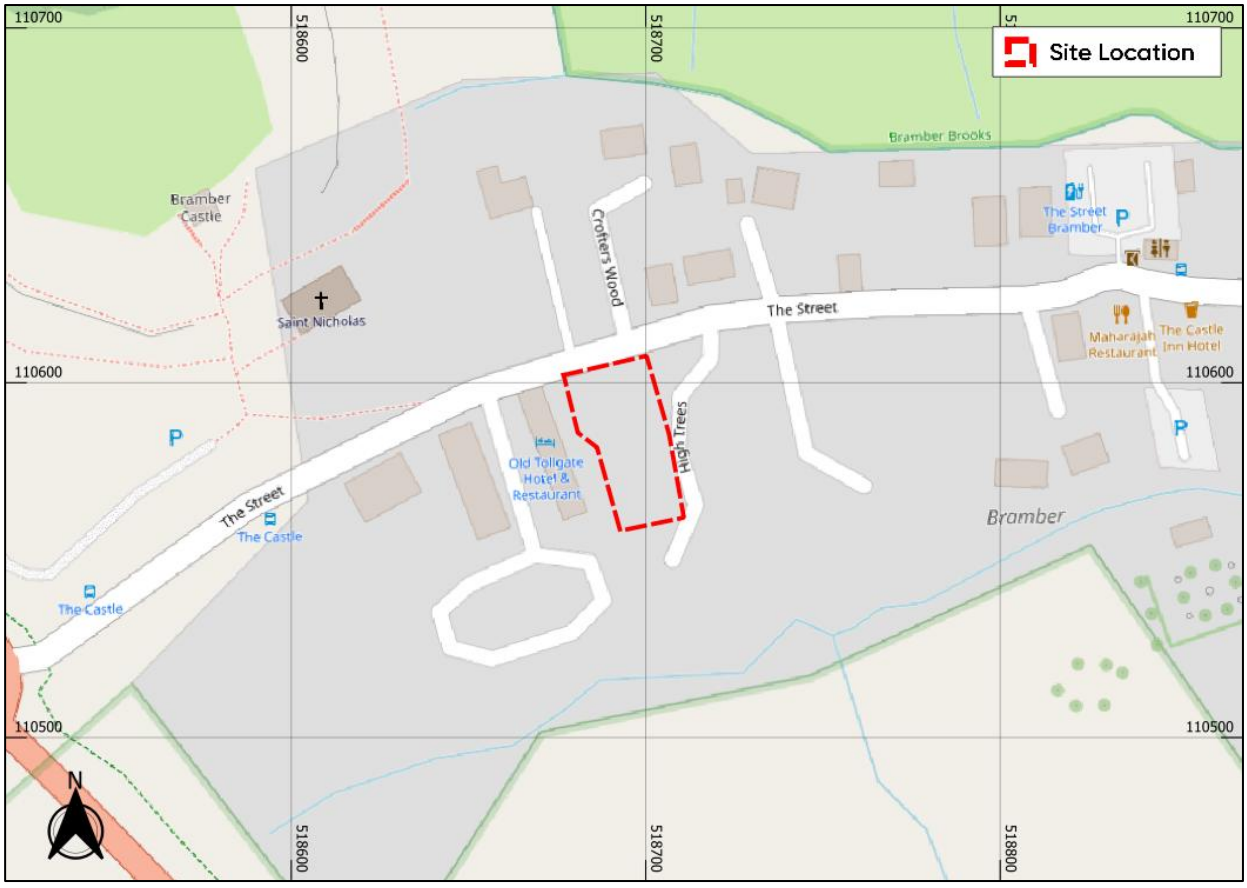


Figure 1: Site Location (Base map and data from OpenStreetMap and OpenStreetMap Foundation (CC-BY-SA). © https://www.openstreetmap.org and contributors)

1.4. It is understood that the proposed development is for a change of use planning application to convert part of the hotel (C1 use) to residential (C3). The property was historically used as a dwellinghouse but changed to be part of the hotel through an application in 2005. No external works are proposed, and the application is for change of use only. The existing hotel provides 4 bedrooms at ground floor in this part of the building, whereas as part of the proposals, 0 bedrooms will be at ground floor post-development, thus providing a betterment compared to the existing scenario. Development plans are included within Appendix A of this report.

1.5. A topographic survey has been undertaken of the site and surrounding area (Attached in Appendix B - Midland Survey Ltd., dated May 2023, drg no. H1745-1) Analysis of this data shows that the northern half of the site (where the existing building is located) is topographically higher at approximately 4.10m Above Ordnance Datum (AOD) and the southern half of the site is approximately 1.5m lower at 2.6m AOD. The existing finished floor level of the existing building is set at 4.19m AOD. Environment Agency Light Detection and Ranging (LiDAR) data Digital Terrain Model has been used to visualise topographic levels on site (Figure 2).

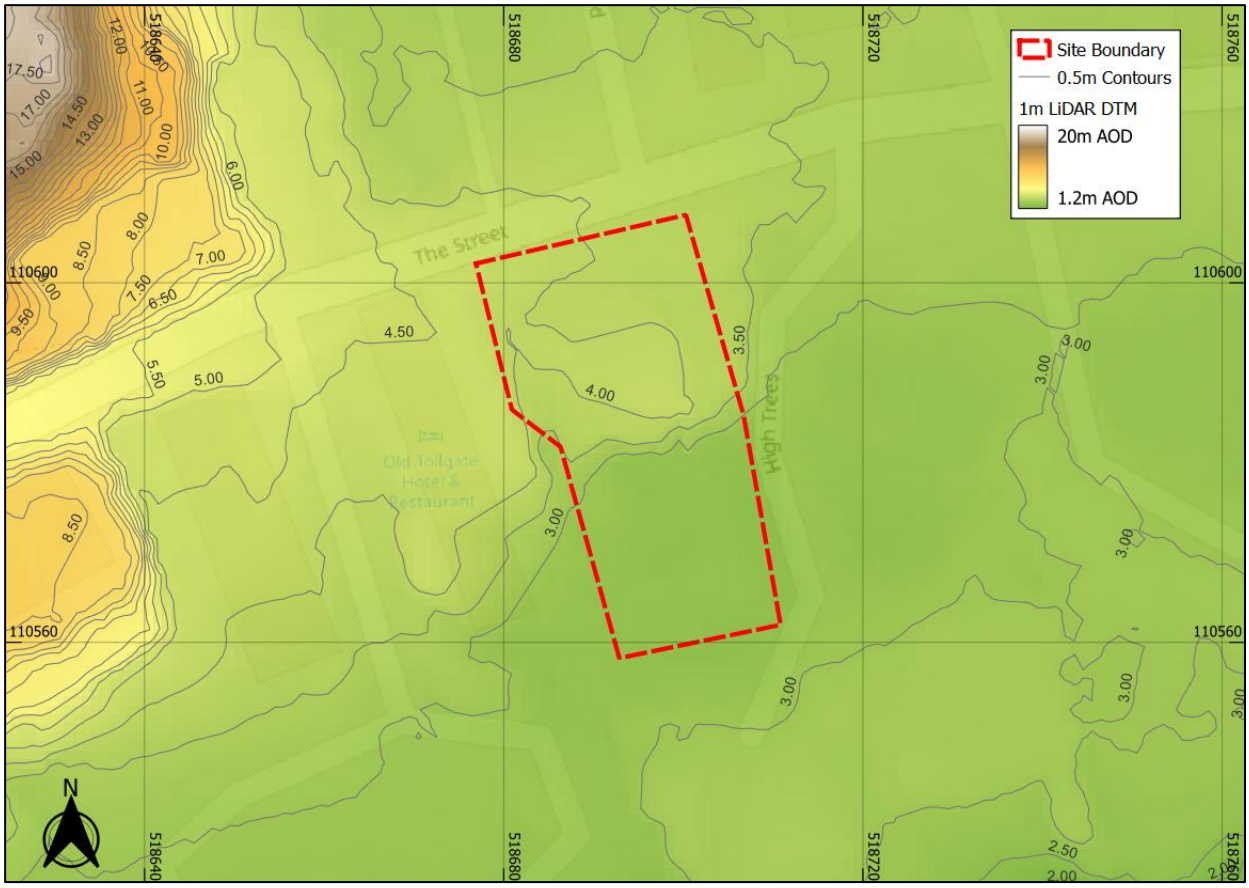


Figure 2: Site Topography (Base map and data from OpenStreetMap and OpenStreetMap Foundation (CC-BY-SA). © https://www.openstreetmap.org and contributors. Contains public sector information licensed under the Open Government Licence v3.0)

1.6. Horsham District Council and South Downs National Park Authority is the Local Planning Authority (LPA) for the site and West Sussex County Council is the designated Lead Local Flood Authority (LLFA). The site sits within the Environment Agency's Solent and South Downs region.

Planning Policy and Guidance

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

- *in flood zone 2 or 3 including minor development and change of use*

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

- *more than 1 hectare (ha) in flood zone 1*
- *less than 1 ha in flood zone 1, including a change of use in development type to a more vulnerable class (for example from commercial to residential), where they could be affected by sources of flooding other than rivers and the sea (for example surface water drains, reservoirs)*
- *in an area within flood zone 1 which has critical drainage problems as notified by the Environment Agency*

1.8. The site is located within Flood Zone 3 and therefore an FRA is required to be submitted as per the NPPF.

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

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

2. Planning Policy

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

National Planning Policy Framework (NPPF)

2.2. The National Planning Policy Framework[2] (NPPF) (MHCLG, 2024) which includes UK Government policy on development and flood risk states:

> *170. Inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk (whether existing or future). Where development is necessary in such areas, the development should be made safe for its lifetime without increasing flood risk elsewhere.*
>
> *181. When determining any planning applications, local planning authorities should ensure that flood risk is not increased elsewhere. Where appropriate, applications should be supported by a site-specific flood-risk assessment. Development should only be allowed in areas at risk of flooding where, in the light of this assessment (and the sequential and exception tests, as applicable) it can be demonstrated that:*
>
> *a) within the site, the most vulnerable development is located in areas of lowest flood risk, unless there are overriding reasons to prefer a different location;*
>
> *b) the development is appropriately flood resistant and resilient such that, in the event of a flood, it could be quickly brought back into use without significant refurbishment;*
>
> *c) it incorporates sustainable drainage systems, unless there is clear evidence that this would be inappropriate;*

[2] https://www.gov.uk/guidance/national-planning-policy-framework, **last updated Dec 2024**

d) any residual risk can be safely managed; and

e) safe access and escape routes are included where appropriate, as part of an agreed emergency plan.

176. Applications for some minor development and changes of use should also not be subject to the sequential test, nor the exception test [set out below], but should still meet the requirements for site-specific flood risk assessments set out in footnote 63.

2.3. Footnote 63 of the NPPF states:

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

2.4. Flood Zones in England are defined as follows:

Table 1: Flood Zone Definitions

Flood Zone	Definition
Zone 1 Low Probability	Land having less than 1 in 1,000 annual probability of river or sea flooding (all land outside Zones 2 and 3).
Zone 2 Medium Probability	Land having between a 1 in 100 and 1 in 1,000 annual probability of river flooding; or land having between a 1 in 200 and 1 in 1,000 annual probability of sea flooding.
Zone 3a High Probability	Land having a 1 in 100 or greater annual probability of river flooding; or Land having a 1 in 200 or greater annual probability of sea flooding.
Zone 3b The Functional Floodplain	This zone comprises land where water from rivers or the sea has to flow or be stored in times of flood. The identification of functional floodplain should take account of local circumstances and not be defined solely on rigid probability parameters. Functional floodplain will normally comprise: land having a 3.3% or greater annual probability of flooding, with any existing flood risk management infrastructure operating effectively; or land that is designed to flood (such as a flood attenuation scheme), even if it would only flood in more extreme events (such as 0.1% annual probability of flooding). Local planning authorities should identify in their Strategic Flood Risk Assessments areas of functional floodplain and its boundaries accordingly, in agreement with the Environment Agency. (Not separately distinguished from Zone 3a on the Flood Map)

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

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

Local Plan

2.7. The Local Plan prepared by the Local Planning Authority, Horsham District Council, sets out the policies for development in the local area.

2.8. Policy 38 Flooding outlines the requirements for new development within the area. It states:

> *1. Development proposals will follow a sequential approach to flood risk management, giving priority to development sites with the lowest risk of flooding and making required development safe without increasing flood risk elsewhere. Development proposals will;*
>
> *- a. take a sequential approach to ensure most vulnerable uses are placed in the lowest risk areas.*
>
> *- b. avoid the functional floodplain (Flood zone 3b) except for water-compatible uses and essential infrastructure.*
>
> *- c. only be acceptable in Flood Zone 2 and 3 following completion of a sequential test and exceptions test if necessary.*
>
> *- d. require a site-specific Flood Risk Assessments for all developments over 1 hectare in Flood Zone 1 and all proposals in Flood Zone 2 and 3.*
>
> *2. Comply with the tests and recommendations set out in the Horsham District Strategic Flood Risk Assessment (SFRA).*
>
> *3. Where there is the potential to increase flood risk, proposals must incorporate the use of sustainable drainage systems (SuDS) where technically feasible, or incorporate water management measures which reduce the risk of flooding and ensure flood risk is not increased elsewhere.*
>
> *4. Consider the vulnerability and importance of local ecological resources such as water quality and biodiversity when determining the suitability of SuDS. New development should undertake more detailed assessments to consider the most appropriate SuDS methods for each site. Consideration should also be given to amenity value and green infrastructure.*

5. Utilise drainage techniques that mimic natural drainage patterns and manage surface water as close to its source as possible will be required where technically feasible.

6. Be in accordance with the objective of the Water Framework Directive, and accord with the findings of the Gatwick Sub Region Water Cycle Study in order to maintain water quality and water availability in rivers and wetlands and wastewater treatment requirements.

Sequential and Exception Tests

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

2.10. The proposed development is viewed as a change of use. In accordance with NPPF paragraph 176, changes of use should not be subject to the sequential or exception tests but should still meet the requirements for site-specific flood risk assessments set out in footnote 63.

3. Consultation and Review

Consultation

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

3.2. Aegaea have obtained a Product 5 and 6 datasets from the Environment Agency (EA) for the River Adur Intertidal Model Updates (2022). Aegaea have used these outputs including flood level, depth and hazard grids for a range of return periods and scenarios to inform this FRA.

Documents and Online Mapping

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

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

- Flood Map for Planning on the Environment Agency website *https://flood-map-for-planning.service.gov.uk/*
- Long Term Flood Risk Information on the Environment Agency website *https://www.gov.uk/check-long-term-flood-risk*
- National Planning Policy Framework (NPPF) (Ministry of Housing, Communities and Local Government, 2024)
- Planning Practice Guidance - Flood Risk and Coastal Change (Ministry of Housing, Communities and Local Government, 2022)
- Geoindex Onshore (British Geological Survey, 2024)

- Horsham District Local Plan 2023 - 2040, Regulation 19 (Horsham District Council, emerging 2024)[3] and Horsham District Planning Framework (Horsham District Council, 2015)[4]
- West Sussex Preliminary Flood Risk Assessment[5] (West Sussex County Council, 2011)
- Level 1 Strategic Flood Risk Assessment (Horsham District Council, 2024)[6] and Crawley Borough and Upper Mole Catchment Level 1 Strategic Flood Risk Assessment (Crawley and Gatwick Sub-Region, 2023)[7]
- West Sussex Local Flood Risk Management Strategy[8] (2013-2018) (West Sussex County Council, 2014)

Preliminary Flood Risk Assessment (PFRA)

3.5. The PFRA, published in 2011 and 2017 (addendum), is a high-level appraisal of flood risk across Lead Local Flood Authority West Sussex County Council. The flood risk from all sources, including fluvial, surface water, groundwater, and surcharged sewers is evaluated. It is the basis upon which the Local Flood Risk Management Strategy is produced.

3.6. The PFRA summarises historical flood incidents in West Sussex County Council. The site is not recorded as having been affected by any flood event.

Strategic Flood Risk Assessment (SFRA)

3.7. The SFRA, published in 2023 and 2024, provides the evidence base for the Local Planning Authority Horsham District Council Local Plan and guidance for consideration when determining planning applications. The SFRA seeks to place new development into areas of lower flood risk

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[3] https://horsham.moderngov.co.uk/documents/s25850/Appendix%201%20-%20Horsham%20District%20Local%20Plan%20Regulation%2019%20Dec%202023.pdf

[4] https://www.horsham.gov.uk/__data/assets/pdf_file/0016/60190/Horsham-District-Planning-Framework-November-2015.pdf

[5] https://www.westsussex.gov.uk/media/1626/west_sussex_pfra.pdf

[6] https://www.horsham.gov.uk/__data/assets/pdf_file/0003/139584/Horsham-Level-1-SFRA_FINAL_Report.pdf

[7] https://crawley.gov.uk/sites/default/files/2023-11/PS.ES_.EP_.17%20Strategic%20Flood%20Risk%20Assessment%2C%20November%202023.pdf

[8] https://www.westsussex.gov.uk/media/1595/local_flood_risk_management_strategy.pdf

taking into account current flood risk, future flood risk, and the effect a proposed development would have on the risk of flooding.

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

Local Flood Risk Management Strategy (LFRMS)

3.9. The Local Flood Risk Management Strategy sets out roles and responsibilities for flood risk management, assesses the risk of flooding in the area, where funding can be found to manage flood risk, and the policies, objectives, and actions of the Lead Local Flood Authority.

3.10. The West Sussex County Council LFRMS is used within this report to identify any flood management infrastructure and historical incidences of flooding.

4. Sources of Flood Risk

Fluvial/Tidal

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

4.2. Tidal flooding occurs when a high tide and high winds combine to elevate sea levels. An area behind coastal flood defences can still flood if waves overtop the defences or break through them. Tidal flooding can also occur a long way from the coast by raising river levels. Water may overtop the river bank or river defences when tide levels are high

4.3. The site is located within Flood Zones 1, 2, and 3 (Figure 3). The existing building is located on the topographically higher part of the site (mostly within Flood Zone 1). Interrogation of the datasets shows that the flood zone is influenced by both fluvial and tidal sources.

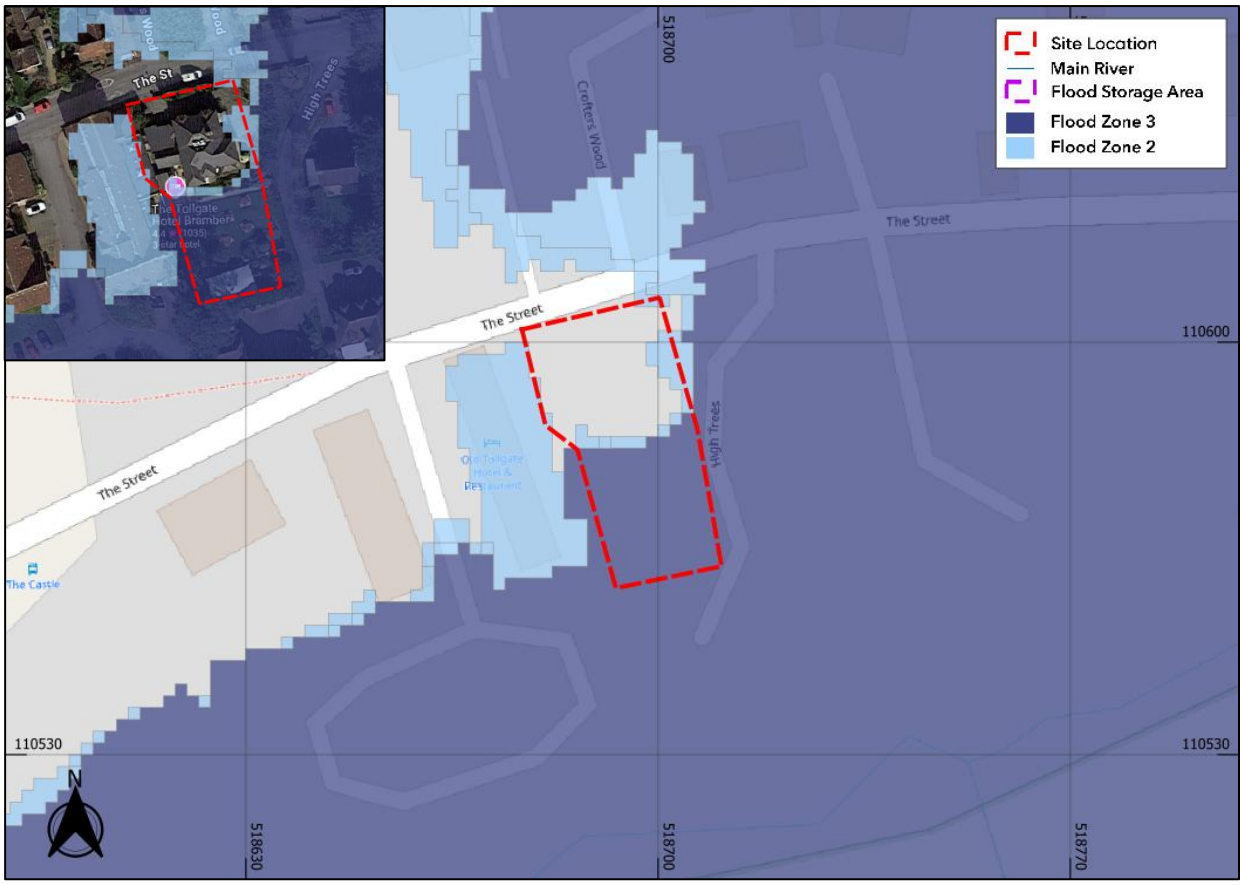


Figure 3: EA Flood Map for Planning (Base map and data from OpenStreetMap and OpenStreetMap Foundation (CC-BY-SA). © https://www.openstreetmap.org and contributors. Google Hybrid © Contains public sector information licensed under the Open Government Licence v3.0)

4.4. The site's hydrology is influenced by several local watercourses. The nearest watercourse is an unnamed ordinary watercourse, situated approximately 45m to the south. Additionally, several other unnamed ordinary watercourses are located to the north. All of these smaller watercourses serve as tributaries to the River Adur. The River Adur itself, classified as an EA Main River, lies approximately 500m to the east of the site at its closest proximity.

4.5. Based on the EA Historic Flood Map and Recorded Outlines, there is no history of flooding from fluvial or tidal sources on site or in the surrounding area (Figure 4).

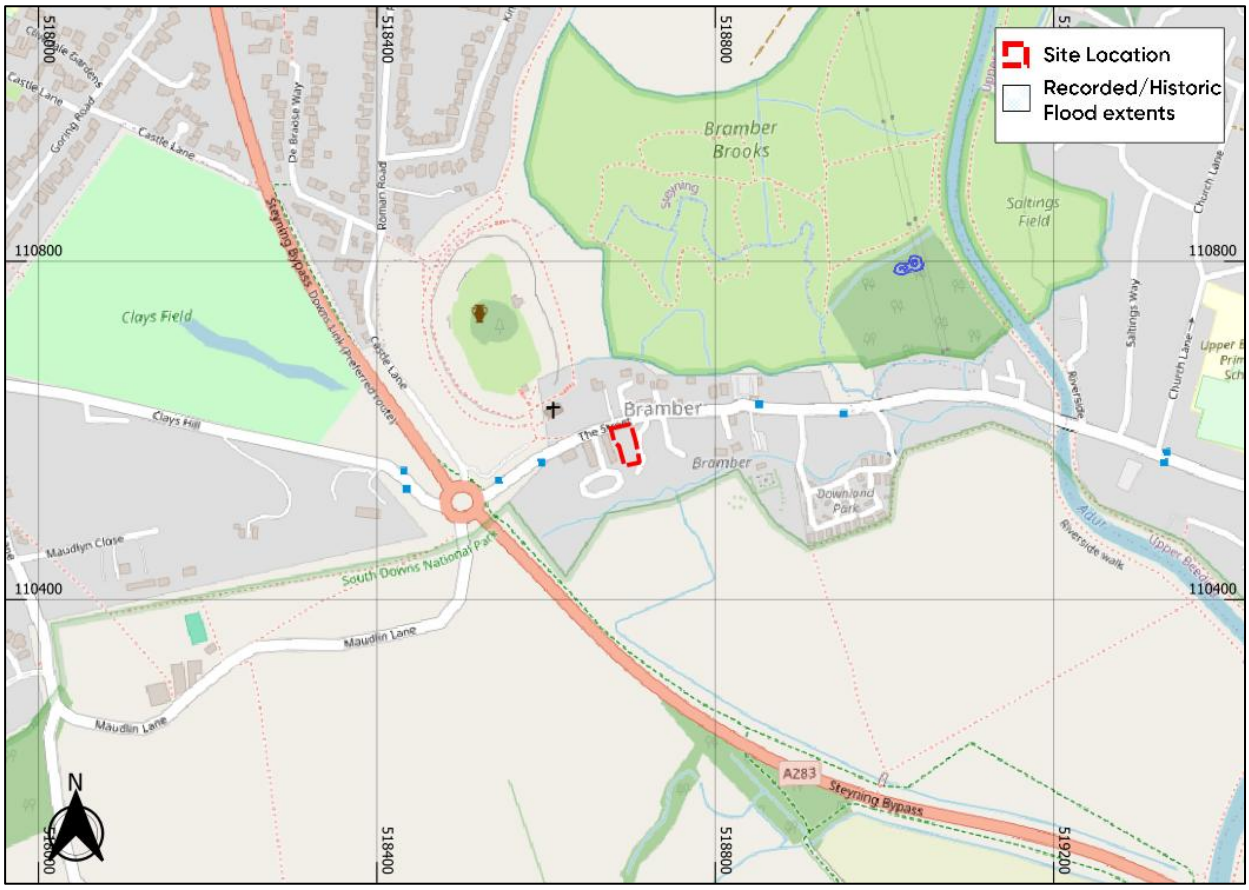


Figure 4: EA Historic Flood Mapping (Base map and data from OpenStreetMap and OpenStreetMap Foundation (CC-BY-SA). © https://www.openstreetmap.org and contributors. Contains public sector information licensed under the Open Government Licence v3.0)

4.6. The River Adur has significant flood defence infrastructure both upstream and downstream of the site. The flood management infrastructure includes an embankment with a design standard of protection of 150 years and a design crest level of 4.42m AOD based on the EA asset management database.

Adur Intertidal Model (2022)

4.7. Aegaea have been provided with a Product 5 and Product 6 (raw data) for this area by the Environment Agency which has been used to inform this FRA. This information is based on the Adur Intertidal Model, dated 2022. This is understood to be the best available information for this area.

4.8. Data provided in the product 6 is as follows:

- **Fluvial undefended:** 20%, 5%, 1.33%, 1% and 0.1% AEP events. These have all been modelled with a Mean High Water Spring (MHWS) tidal boundary.
- **Fluvial defended:** 20%, 5%, 1.33% and 1% AEP events. These have all been modelled with a Mean High Water Spring (MHWS) tidal boundary.
- **Fluvial climate change (defended and undefended):** Three climate change scenarios have been completed for the 1% AEP event (defended and undefended) based on the latest Environment Agency fluvial climate change guidance (July 2021) for the South East River Basin District, Adur and Ouse management catchment, using the 2080s (2070 to 2115) climate change factors of 37% (central), 55% (higher central) and 107% (upper end).
- **Tidal undefended:** MHWS, 20%, 5%, 1.33%, 0.5% and 0.1%. These have been modelled with a baseflow fluvial boundary, based on the initial flows applied to the fluvial model.
- **Tidal defended:** MHWS, 20%, 5%, 1.33% and 0.5%. These have been modelled with a baseflow fluvial boundary, based on the initial flows applied to the fluvial model.
- **Tidal climate change (defended and undefended):** Three climate change scenarios have been completed for the 0.5% AEP event.

4.9. The analysis within the report focuses on the design (i.e. 1in100/200) defended present day and climate change scenarios; although it should be noted at this stage that the site is not affected in the present day defended 1in30 year defended extents from NaFRA2 and thus the site is not considered to be in Flood Zone 3b.

Present Day - Fluvial

4.10. Analysis of the modelled present day 1in100 year flood extent shows that topographically lower southern parts of the site may be affected by flooding (Figure 5). The modelled flood level associated with this scenario is 3.85m AOD.

4.11. Comparison with the topographic levels on site show that the existing building (FFLs of 4.19m AOD) will remain unaffected by flooding and the lower parts of the rear garden (located at 2.60m AOD) may experience flood depths of 1.25m.

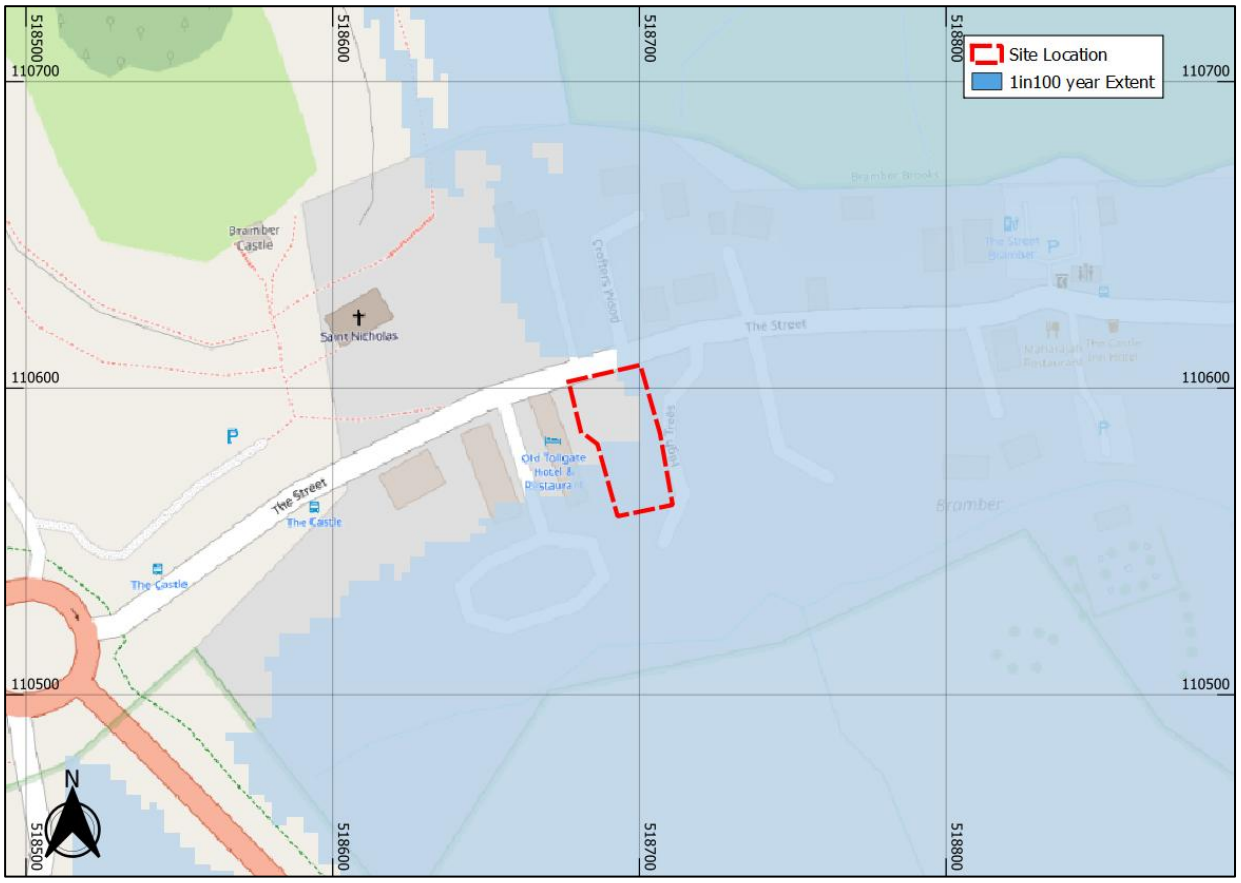


Figure 5: 1in100 year Fluvial Extent – Adur Intertidal Model (Base map and data from OpenStreetMap and OpenStreetMap Foundation (CC-BY-SA). Contains public sector information licensed under the Open Government Licence v3.0)

Present Day - Tidal

4.12. Analysis of the modelled present day 1in200 year flood extent shows that the site would remain unaffected by flooding (Figure 6).

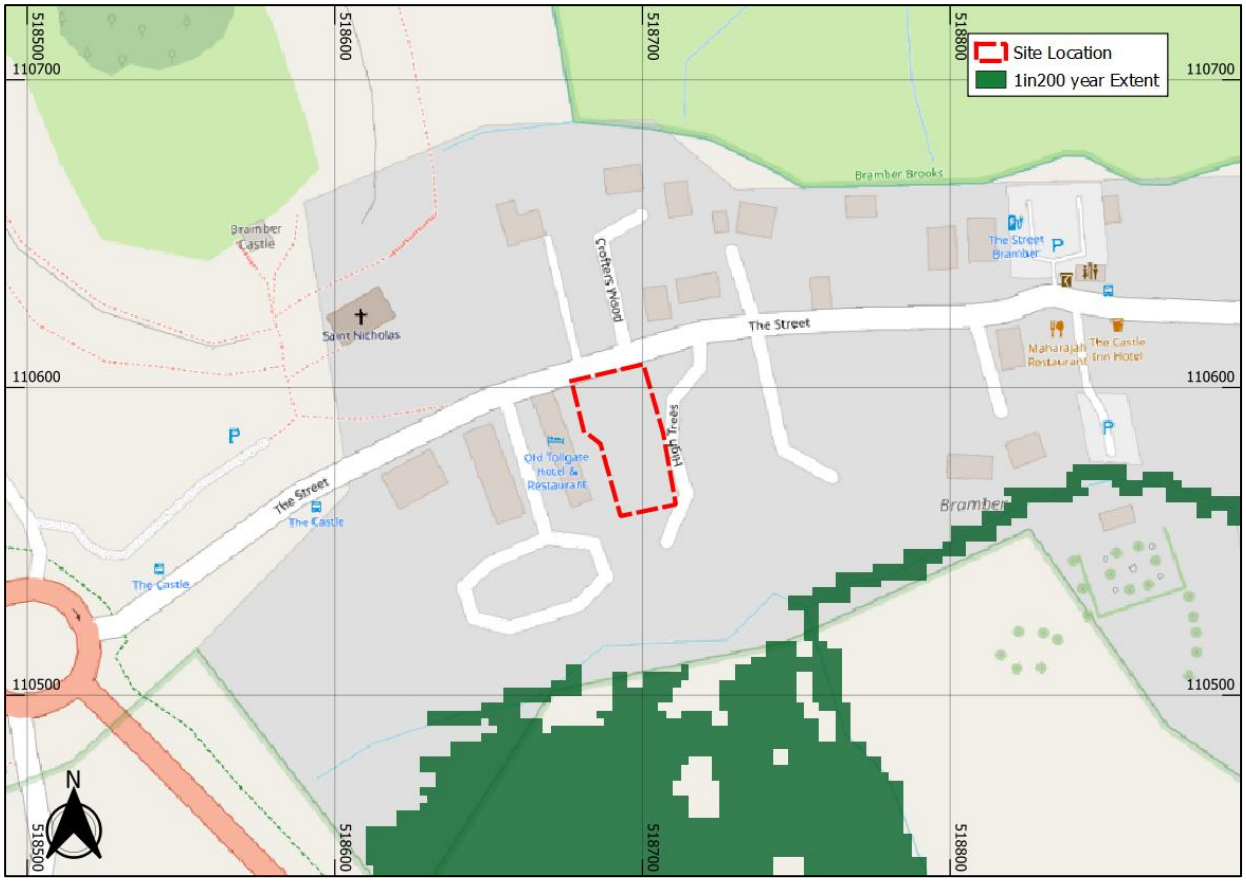


Figure 6: 1in200 year Tidal Extent – Adur Intertidal Model (Base map and data from OpenStreetMap and OpenStreetMap Foundation (CC-BY-SA). Contains public sector information licensed under the Open Government Licence v3.0)

Climate Change - Fluvial

4.13. The site is located within the 'Adur and Ouse' Management Catchment. Guidance suggests that 'More Vulnerable' developments in Flood Zone 2 or 3a should utilise the 'central' climate change allowance. The increase in peak river flow for the 2080's epoch for the 'central' allowance is +37%.

4.14. Data has been provided from the Adur Intertidal Model (2022) for the 1in100+37%CC event, which is considered the 'design' scenario.

4.15. Analysis of the modelled 1in100+37%CC flood extent shows that the majority of the site may be affected by flooding (Figure 7). The modelled flood level associated with this scenario is 4.61m AOD.

4.16. Comparison with the topographic levels on site show that the existing building (FFL at 4.19m AOD) may experience flood depths of 0.42m and the lower parts of the rear garden (located at 2.60m AOD) may experience flood depths of 2.01m.

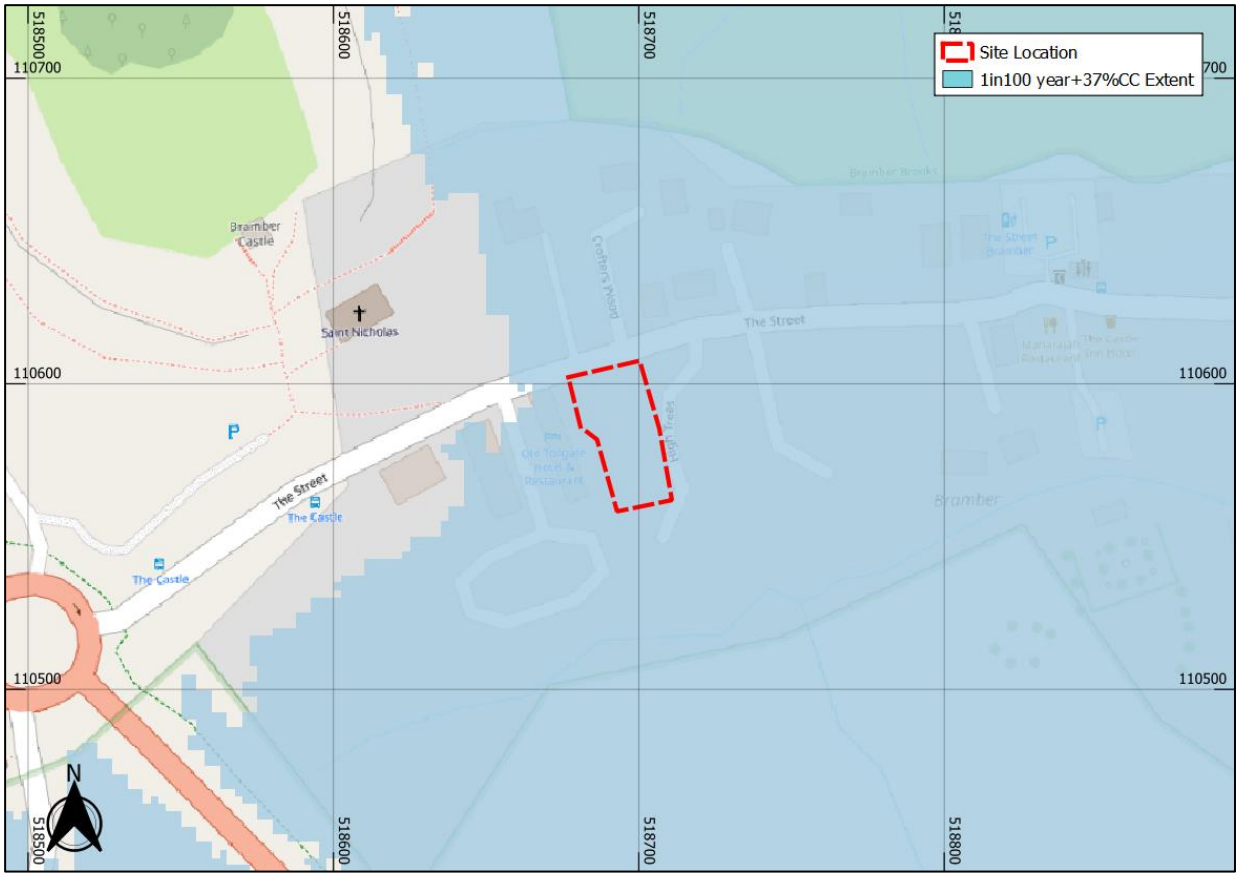


Figure 7: 1in100 year+37%CC Fluvial Extent – Adur Intertidal Model (Base map and data from OpenStreetMap and OpenStreetMap Foundation (CC-BY-SA). Contains public sector information licensed under the Open Government Licence v3.0)

Climate Change - Tidal

4.17. Tidal uplift values have been included within the Adur Intertidal Model (2022), these include 1in200 year + central estimate, higher central estimate and upper end estimates. Current guidance indicates that Flood Risk Assessments should utilise the higher central allowance as a design event and consider the upper end allowance, where appropriate. Given the proposals are for a small-scale internal change of use, the Higher Central allowance (HC) has been deemed appropriate.

4.18. Analysis of the modelled 1in200+CC(HC) flood extent shows that the site may be affected by flooding (Figure 8). The modelled flood level associated with this scenario is 4.76m AOD.

4.19. Comparison with the topographic levels on site show that the existing building (located at 4.19m AOD) may experience flood depths of 0.57m and the lower parts of the rear garden (located at 2.60m AOD) may experience flood depths of 2.16m.

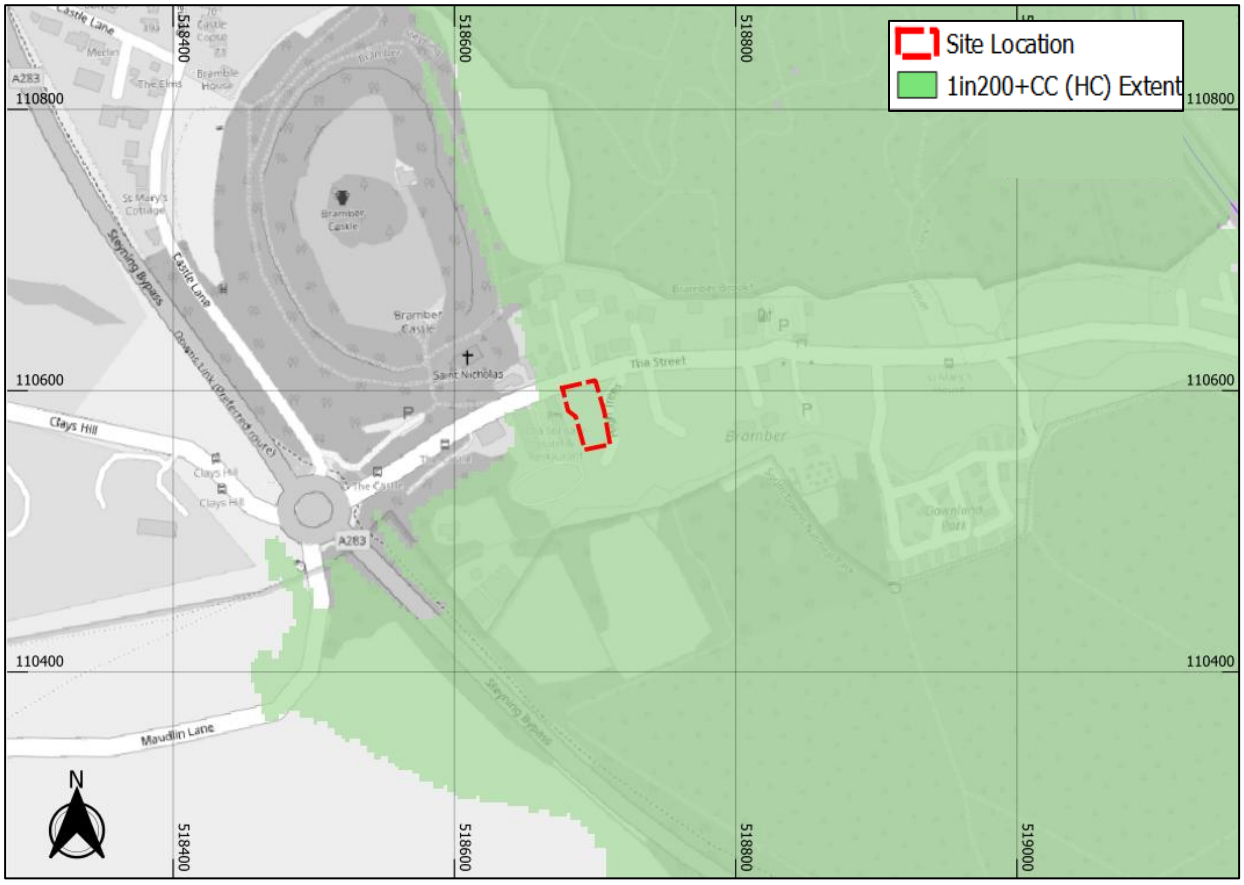


Figure 8: 1in200+CC (HC) Tidal Extent – Adur Intertidal Model (Base map and data from OpenStreetMap and OpenStreetMap Foundation (CC-BY-SA). Contains public sector information licensed under the Open Government Licence v3.0)

4.20. Given the presence of significant flood defences infrastructure and the fact that site remains unaffected by flooding during both the fluvial and tidal present day scenarios, if the current flood defence infrastructure is maintained and upgraded in the future (to retain its current 150 year standard of protection) then it is anticipated that the site will likely continue to remain at low risk of flooding.

4.21. Based on the analysis above, the site can be considered to be at low risk of flooding from present day fluvial and tidal scenarios. When climate change is accounted for, the risk of flooding can be considered to be moderate to high for both fluvial and tidal sources.

Canals

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

4.23. Flooding can also occur where a canal is impounded above surrounded ground levels, and the retaining structure fails.

4.24. There are no canals that have been identified within a 1km radius on review of the CRT Network mapping[9].

4.25. The risk of flooding to this site from canals is considered to be low.

Pluvial

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

4.27. The new National Flood Risk Assessment (NaFRA2), published in Jan 2025, has updated the Risk of Flooding from Surface Water (RoFSW) products which show the chance of flooding from surface water to areas of land.

4.28. The RoFSW products are an assessment of where surface water flooding may occur when rainwater does not drain away through the normal drainage systems or soak into the ground but lies on or flows over the ground instead. It includes information about flooding extents and depths including the potential impact of climate change on flood risk, based on the latest UK Climate Projections (UKCP18).

4.29. Risk is displayed as one of three likelihood categories:

- 'High Risk'; >3.3% AEP (annual probability greater than 1 in 30).
- 'Medium Risk'; 1.1% to 3.3% AEP (annual probability between 1 in 100 and 1 in 30).
- 'Low Risk'; 0.1% to 1% AEP (annual probability between 1 in 1000 and 1 in 100).

[9] **https://canalrivertrust.org.uk/canals-and-rivers**

4.30. The new RoFSW depth mapping shows the annual chance of flooding (based on the three risk categories listed above) beyond a specific depth, for depths at the following intervals from 20cm to 120cm (i.e. 0.2m, 0.3m, 0.6m, 0.9m, and 1.20m).

4.31. As well as present day risk of flooding from surface water, climate change scenarios have been produced to indicate the predicted impacts of climate change on future flood risk. The climate change allowances are based on the latest UK Climate Projections (UKCP18) from the Met Office, using the Representative Concentration Pathway (RCP) 8.5. A near-term epoch (2040 – 2060 "2050s" epoch) and central allowances are being used initially, to support short and medium-term decisions informed by the highest flood likelihood projections.

RoFSW Present Day Scenario

4.32. The EA Online 'Flood Risk from Surface Water' map (Jan 2025) indicates that the existing building (located on topographically higher ground) is not at risk of flooding. There are areas of 'low' and 'medium' risk located to the southern side of the site; however this does not directly affect the building (Figure 9).

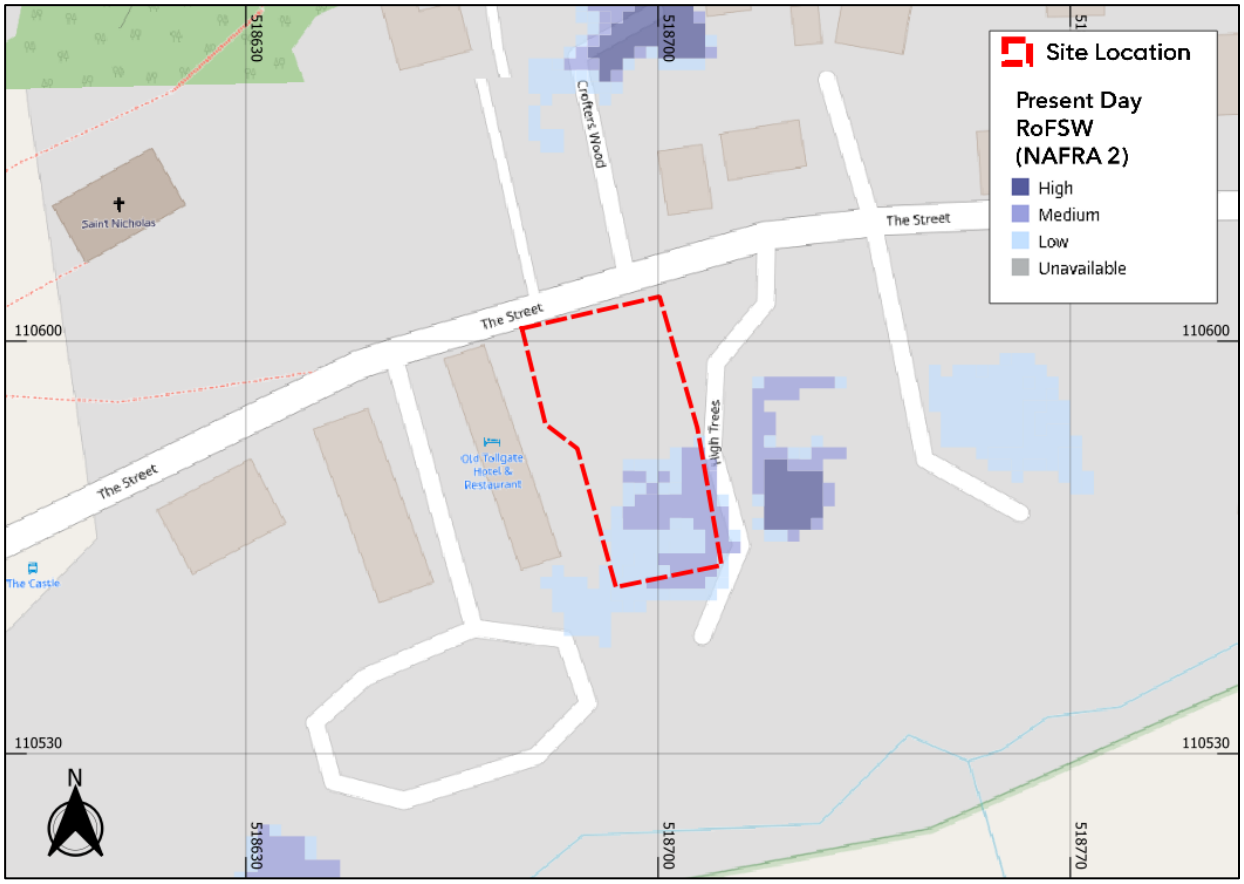


Figure 9: EA Surface Water Flood Risk Mapping (Base map and data from OpenStreetMap and OpenStreetMap Foundation (CC-BY-SA). © https://www.openstreetmap.org and contributors. Contains public sector information licensed under the Open Government Licence v3.0)

4.33. Analysis of the present day RoFSW flood depth map for the likelihood of flood depths exceeding 0.3m shows that the site would not experience flood depths greater than 0.3m (Figure 10).

4.34. Analysis of the other flood depth intervals mapping (0.6m, 0.9m and 1.2m) shows the site is outside all likelihood categories.

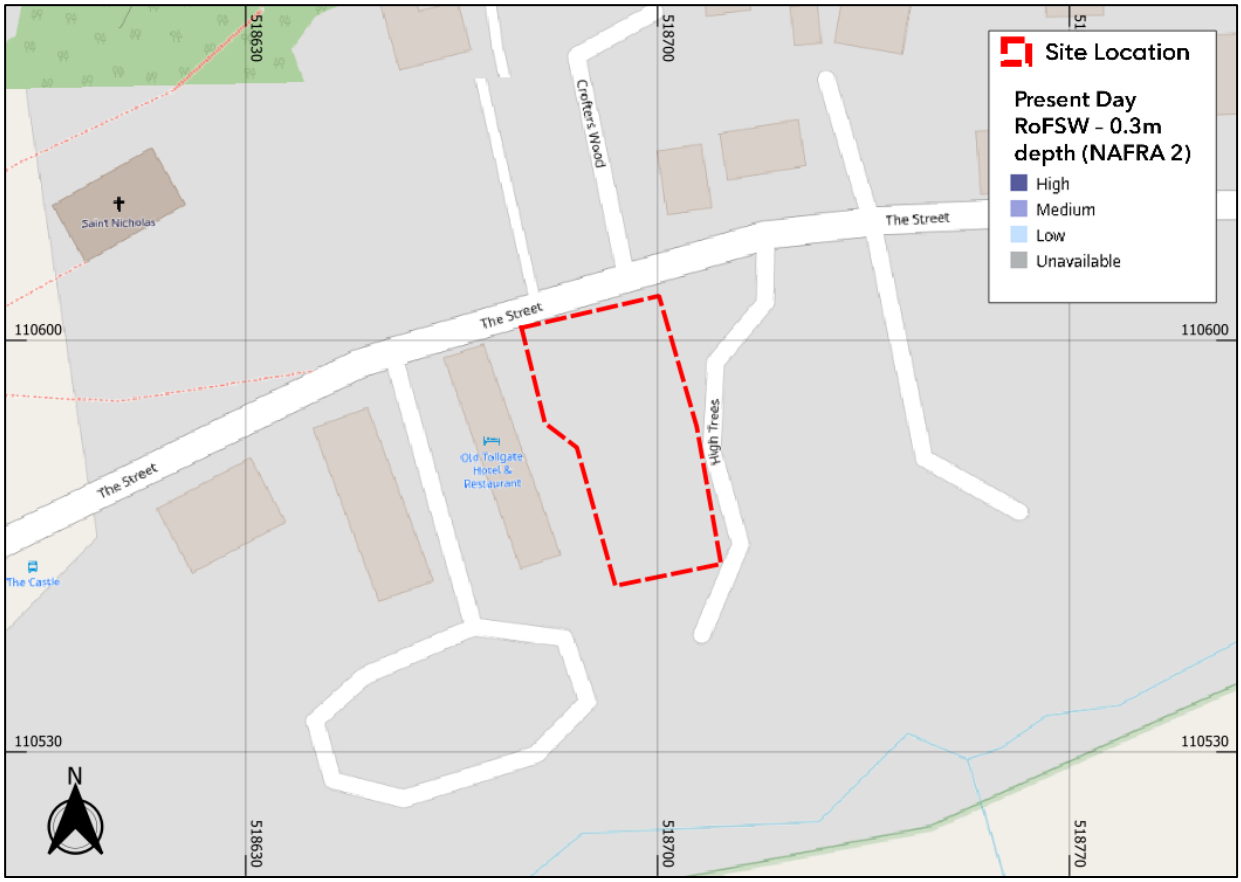


Figure 10: EA Surface Water Flood Risk – Depths Exceeding 0.3m (Base map and data from OpenStreetMap and OpenStreetMap Foundation (CC-BY-SA). © https://www.openstreetmap.org and contributors. Contains public sector information licensed under the Open Government Licence v3.0)

RoFSW Climate Change Scenario

4.35. The EA Online 'Flood Risk from Surface Water – Climate Change' map (Jan 2025) shows a similar pattern of flooding with the existing building remaining unaffected by flooding and the topographically lower areas in the rear garden shown to be at 'medium' and 'high' risk (Figure 11).

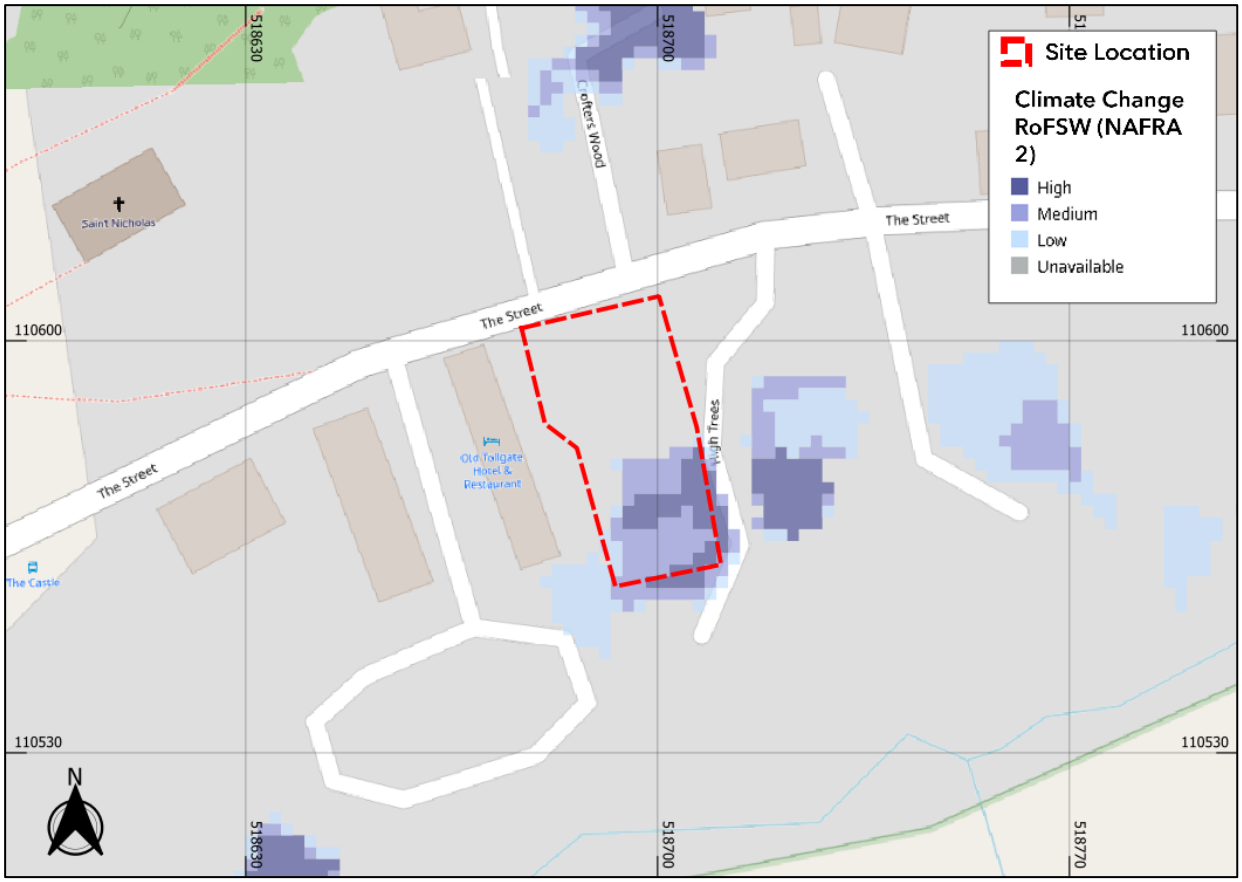


Figure 11: EA Climate Change Surface Water Flood Risk Mapping (Base map and data from OpenStreetMap and OpenStreetMap Foundation (CC-BY-SA). © https://www.openstreetmap.org and contributors. Contains public sector information licensed under the Open Government Licence v3.0)

4.36. Analysis of the climate change RoFSW flood depth map for the likelihood of flood depths exceeding 0.3m shows that the site would not experience flood depths greater than 0.3m (Figure 12).

4.37. Analysis of the other flood depth intervals mapping (0.6m, 0.9m and 1.2m) shows the site is outside all likelihood categories.

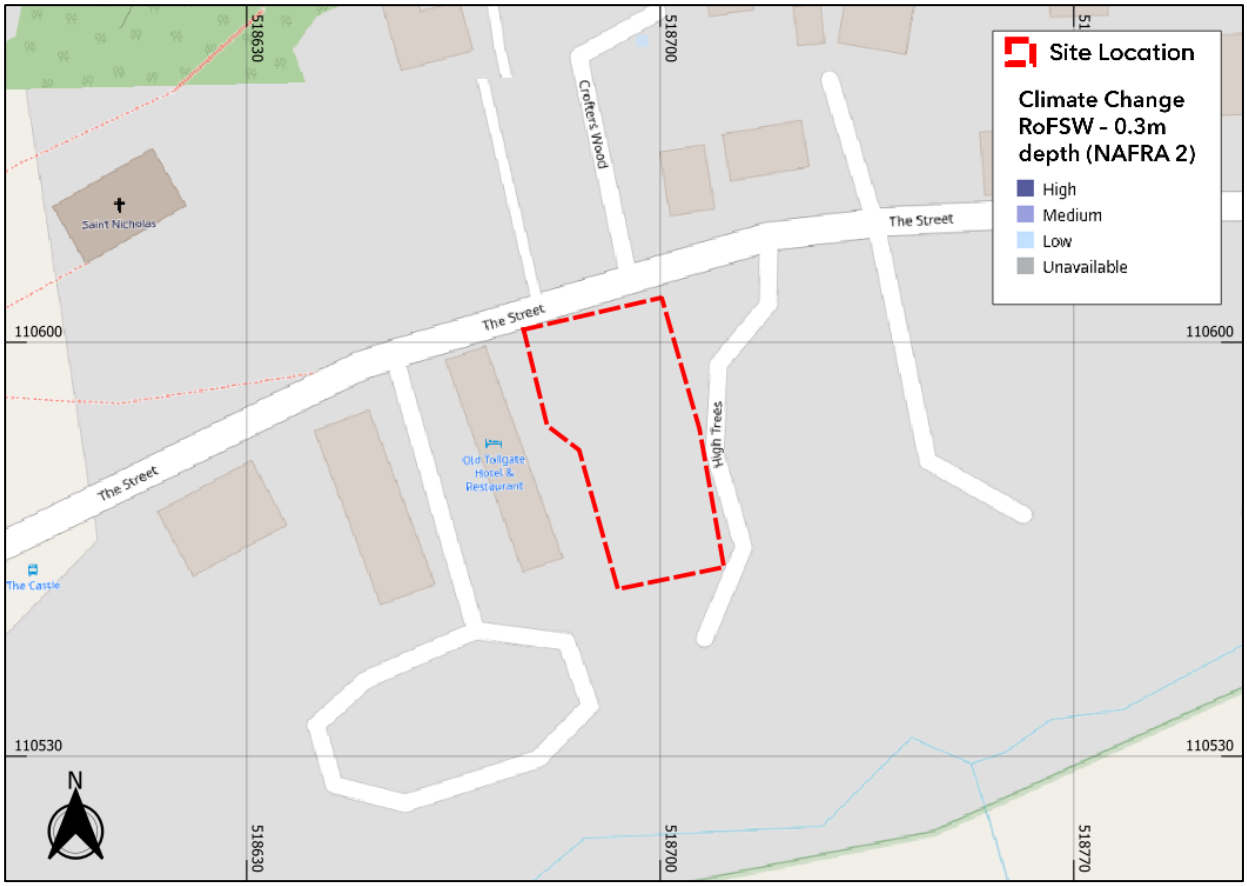


Figure 12: RoFSW Climate Change Likelihood of Depths Exceeding 0.3m (Base map and data from OpenStreetMap and OpenStreetMap Foundation (CC-BY-SA). © https://www.openstreetmap.org and contributors. Contains public sector information licensed under the Open Government Licence v3)

4.38. The SFRA provides mapping of historical surface water flood incident records kept by the local authority. No historical surface water incidents have been recorded in the vicinity of the site.

4.39. Based on the analysis, the proposed dwelling is considered to be at low risk of flooding from pluvial sources.

Reservoirs

4.40. Large waterbodies or reservoirs that have walls built above the surrounding ground level pose a risk of flooding. Walls could fail due to old age, accident, or because excess flood water has been added to the reservoir. Although a breach is unlikely the consequences would be significant, leading to rapid inundation of the downstream floodplain.

4.41. According to the EA's Flood Risk from Reservoirs mapping the site is at risk of flooding in the event of a reservoir breach; although the existing building on higher land on site, may remain

unaffected. The reservoir failure model is a 'wet day' scenario (Figure 13). This scenario predicts how much worse the flooding might be if a river is already experiencing an extreme flood.

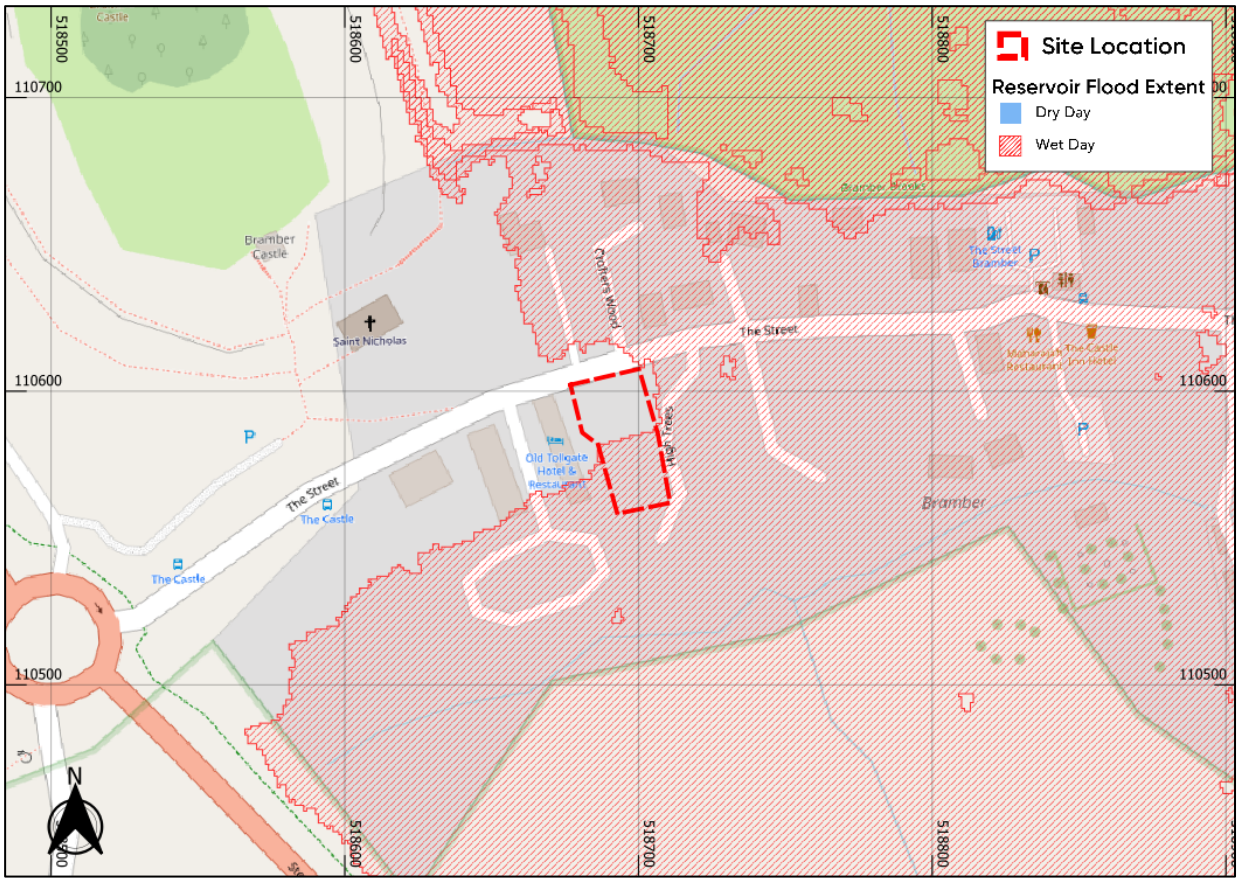


Figure 13: EA Reservoir Flood Risk Mapping (Base map and data from OpenStreetMap and OpenStreetMap Foundation (CC-BY-SA). ©https://www.openstreetmap.org and contributors. Contains public sector information licensed under the Open Government Licence v3.0)

4.42. All large reservoirs must be inspected and supervised by reservoir panel engineers as detailed by the Reservoirs Act 1975 in England and Wales. The EA are responsible to ensure that reservoirs are regularly inspected, and essential safety work carried out. As reservoirs are highly managed the maximum flood extent provided in the EA Risk of Flooding from Reservoirs mapping is considered a worst-case scenario.

4.43. As reservoir flooding is unlikely and the modelled flood depths are based on the worst-case scenario, flooding from this source may be considered as a relatively low risk.

Groundwater

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

4.45. The British Geological Survey's (BGS) mapping shows superficial deposits of alluvium consisting of clay, silt, sand and peat. The underlying bedrock geology is classified as the Zig Zag Chalk Formation consisting of chalk.

4.46. Alluvium is commonly found in river valleys and floodplains. These low-lying areas are naturally where the water table is closer to the ground surface. This means Alluvium deposits are often hydraulically well-connected to nearby rivers. When river levels rise (e.g., due to heavy rainfall), the increased stage can propagate into the permeable alluvial deposits, causing groundwater levels to rise and emerge at the surface.

4.47. The SFRA presents the GeoSmart 2019 national groundwater flood risk dataset to provide groundwater flood risk data. This dataset provides a preliminary indication of groundwater flood risk on a 5m grid and shows areas of potential groundwater emergence.

4.48. Areas of Class 3 (Low Risk) and Class 2 (Moderate Risk) are shown to align with the River Arun and River Adur, however these areas of higher risk are primarily confined to the channels and their immediate floodplains. Class 2 and 3 are defined as the following:

- Class 2 – Moderate Risk: Represents a chance of greater than 1% annual probability of occurrence.
- Class 3 – Low Risk: Signifies a chance of greater than 1% annual probability of occurrence.

4.49. As the development proposals do not include any proposed basements, nor any change to the foundations or fabric of the existing building the risk from groundwater to the development is considered to be low.

Sewers

4.50. Foul or surface water sewers can be a cause of flooding if the drainage network becomes overwhelmed, either by blockage or due to local development beyond the designed capabilities of the drainage system.

4.51. As part of the SFRA, Southern Water provided data from their DG5 Flood Register, which records historic internal and external sewer flooding events. Due to data protection requirements the data has not been provided at individual property level; rather the register comprises the number of properties within four-digit postcode areas that have experienced flooding either internally or externally for the 10 years prior to publication of the SFRA (i.e. 2014-2024). However, it should be noted that Southern Water focus their efforts on removing properties from the DG5 register and therefore this information may not accurately represent those properties currently at risk.

4.52. The figure shows that there is a high frequency of sewer flooding incidents in the Horsham District Council study area. Each of the 6 postcodes within the SFRA area have experienced upwards of 21 sewer flooding incidents, with the postcodes occupying most of the district boundary (RH12, RH13 and RH20) having experienced between 41 and 120 sewer flooding incidents.

4.53. There is no record to indicate that the site has been previously affected by flooding from this source. Therefore, the development is therefore considered to be at low risk of flooding from sewers.

5. Flood Risk Mitigation

Fluvial/Tidal

5.1. The site is located within Flood Zones 1, 2, and 3. The existing building is located on the topographically higher part of the site (wholly within Flood Zone 1). Interrogation of the datasets shows that the flood zone is considered to be influenced by both fluvial and tidal sources.

5.2. The modelled 1in100+37%CC fluvial flood level is 4.61m AOD. The modelled 1in200+CC(HC) tidal flood level is 4.76m AOD. The existing finished floor level is set at 4.19m AOD which means the development could experience depths of 0.42m and 0.57m of flooding, respectively.

5.3. Given the proposals (change of use) it is not possible to raise finished floor levels above their current level due to floor to ceiling heights and window levels. However, the vulnerability of the site will not increase post-development as hotel use and residential uses are both considered 'More Vulnerable'.

5.4. It should also be noted that betterment is being provided as 4 of the existing bedrooms currently located on the ground floor are to be moved to the upper floors, above modelled flood levels.

5.5. Given the presence of significant flood defences infrastructure and the fact that site remains unaffected by flooding during both the fluvial and tidal present day scenarios, if the current flood defence infrastructure is maintained and upgraded in the future (to retain its current 150 year standard of protection) then it is anticipated that the site will likely continue to remain at low risk of flooding. However, the following mitigation measures are recommended:

- Internal Access from the ground floor to the upper floors to be maintained for the lifetime of the development.
- Non-return valves should be installed on all new drainage.
- All new plumbing insulation to be of closed cell design.
- Watertight sealing of external pipes/wires entering the building through the brickwork.
- Owners to investigate the possible use of property level protection measures such as demountable flood doors.

Pluvial, Canal, Reservoirs, Groundwater and Sewers

5.6. Flood risk from other analysed flood sources is considered to be low, therefore mitigation is not required.

Increase to Flood Risk Elsewhere

5.7. It is understood that the proposed development is for a change of use planning application to convert part of the hotel (C1 use) to residential (C3). The property was historically used as a dwellinghouse but changed to be part of the hotel through an application in 2005. No external works are proposed, and the application is for change of use only

5.8. Given there is no alterations to the built footprint, the proposed development will have a negligible impact on flood risk elsewhere and no additional flood compensatory storage is required.

Flood Warnings

5.9. The site is in the Environment Agency 'Upper Beeding and Bramber on the River Adur' flood warning service area. This service allows site owners to register an address along with contact details so that, in the event of a flood being forecast, they are sent an alert. As a further precaution and risk reduction, the owner of the site should sign up.

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

6. Conclusions

6.1. This FRA has been undertaken with reference to the requirements of NPPF and Planning Practice Guidance with respect to the development at Sunny Croft, The Street, Bramber, West Sussex, BN44 3WE. It has been written to support a planning application and prepared with due consideration to the nature of the proposed development to provide the appropriate level of detail.

6.2. An assessment of the risk of flooding from all sources has been undertaken and is summarised in the table below:

Source of Flooding	Flood Risk Summary
Fluvial/Tidal	The site is located within Flood Zone 2 and 3, however its proposed vulnerability according to government guidelines ("more Vulnerable"), is considered appropriate for the Flood Zone. The River Adur has significant flood defence infrastructure both upstream and downstream of the site. The flood management infrastructure includes an embankment with a design standard of protection of 150 years and a design crest level of 4.42m AOD. The modelled 1in100+37%CC fluvial flood level is 4.61m AOD. The modelled 1in200+CC(HC) tidal flood level is 4.76m AOD. The existing finished floor level is set at 4.19m AOD which means the development could experience depths of 0.42m and 0.57m of flooding, respectively. Given the presence of significant flood defences infrastructure and the fact that site remains unaffected by flooding during both the fluvial and tidal present day scenarios, if the current flood defence infrastructure is maintained and upgraded in the future (to retain its current 150 year standard of protection) then it is anticipated that the site will likely continue to remain at low risk of flooding. Based on the analysis above, the site can be considered to be at low risk of flooding from present day fluvial and tidal scenarios. When climate change is accounted for, the risk of flooding can be considered to be moderate to high for both fluvial and tidal sources.
Pluvial Reservoirs	The site is considered to be at low risk from other sources.

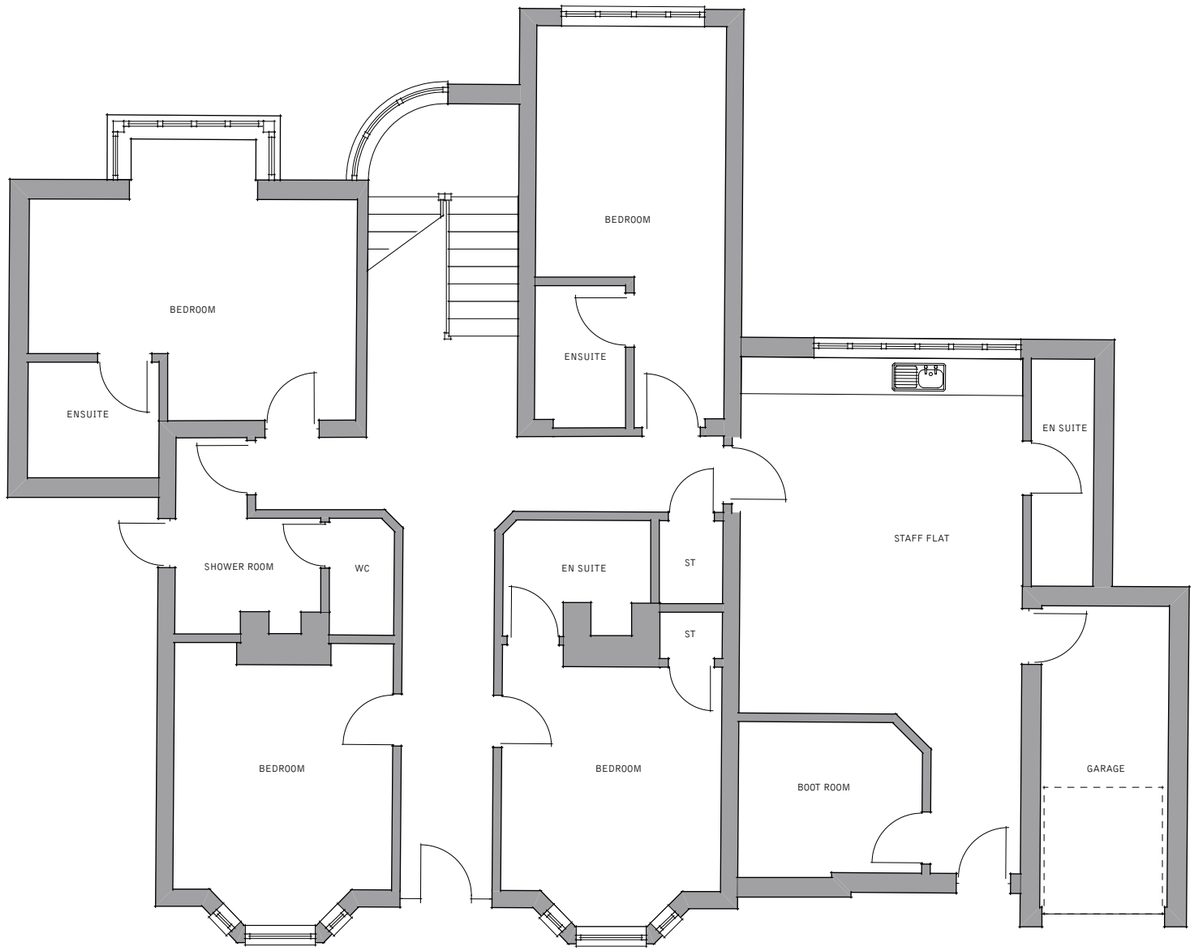
Groundwater Sewers Canals	

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

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

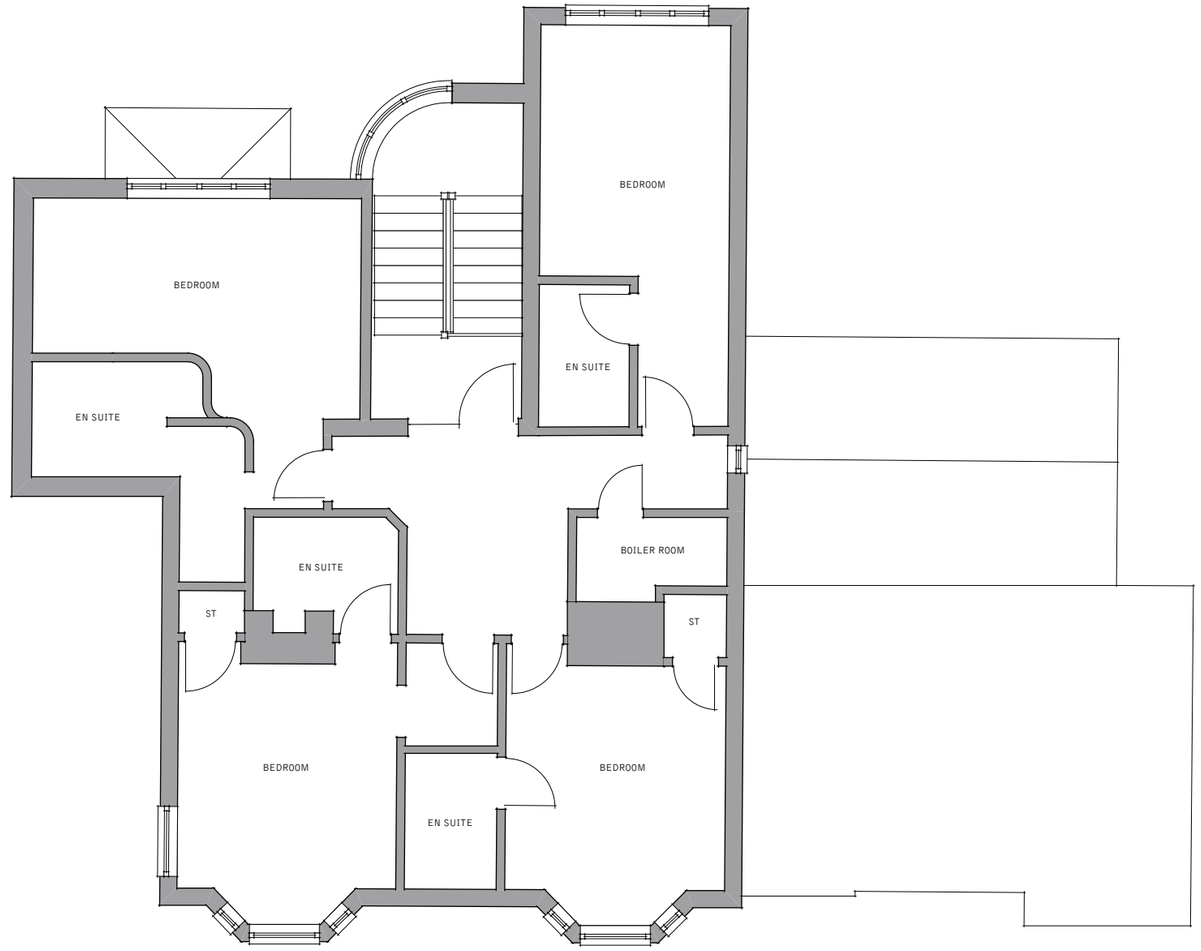
Appendix A - Development Proposals

Appendix B - Topo Survey



1 GF Plan
Scale: 1:100

0 1 2 3 4 5 m



2 1F Plan
Scale: 1:100

REV	DATE	DESCRIPTION

RIGHTFUL PLACE
architectural design
07810 016251 | info@rightfulplacead.co.uk

PROJECT:
Sunny Croft, BN44 3WE
Change of Use

CLIENT:
M. Sargent

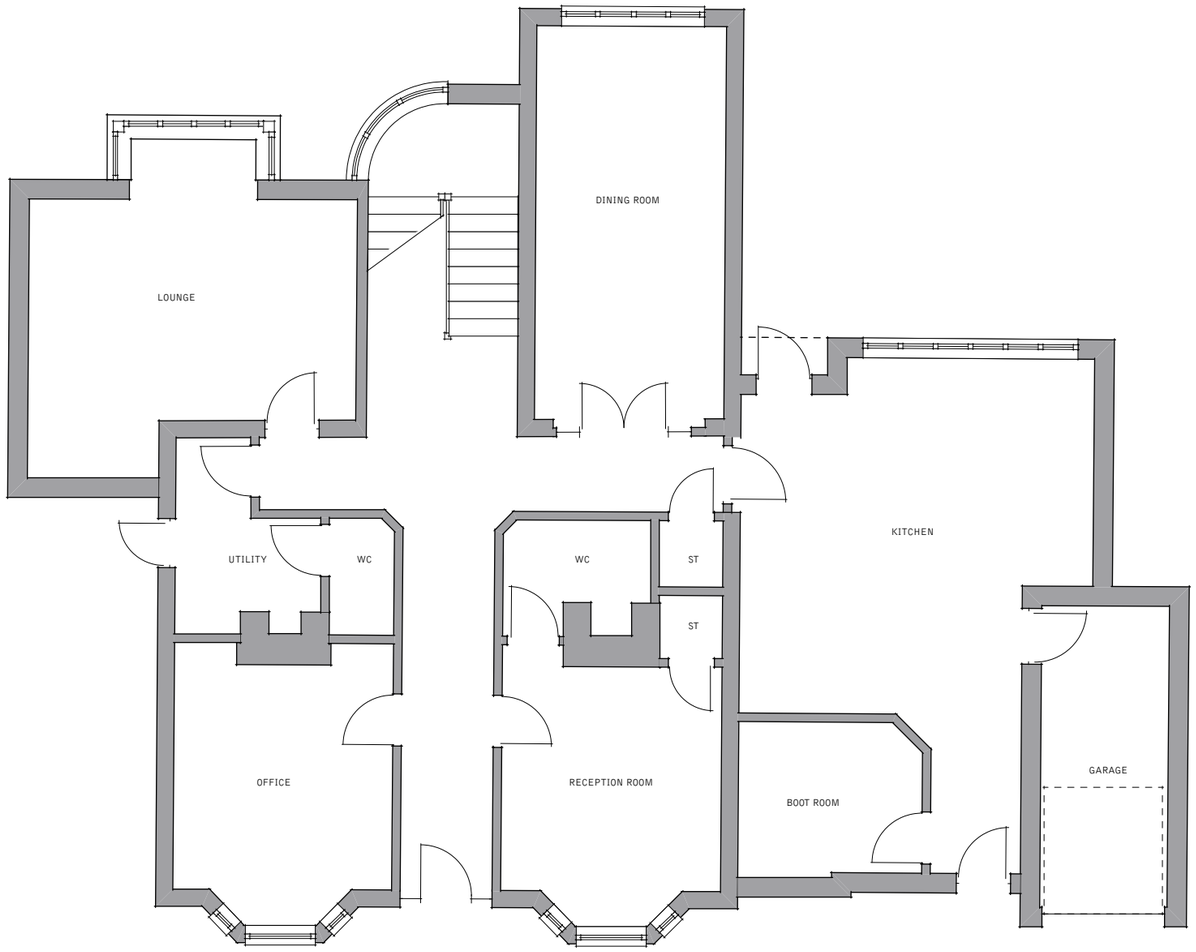
SUBJECT:
Existing arrangement
Floor Plans

DATE: 05/25

PROJECT NR:	DRAWING NR:	REVISION:	SCALE:
0161	P002	A	1:100 @ A3

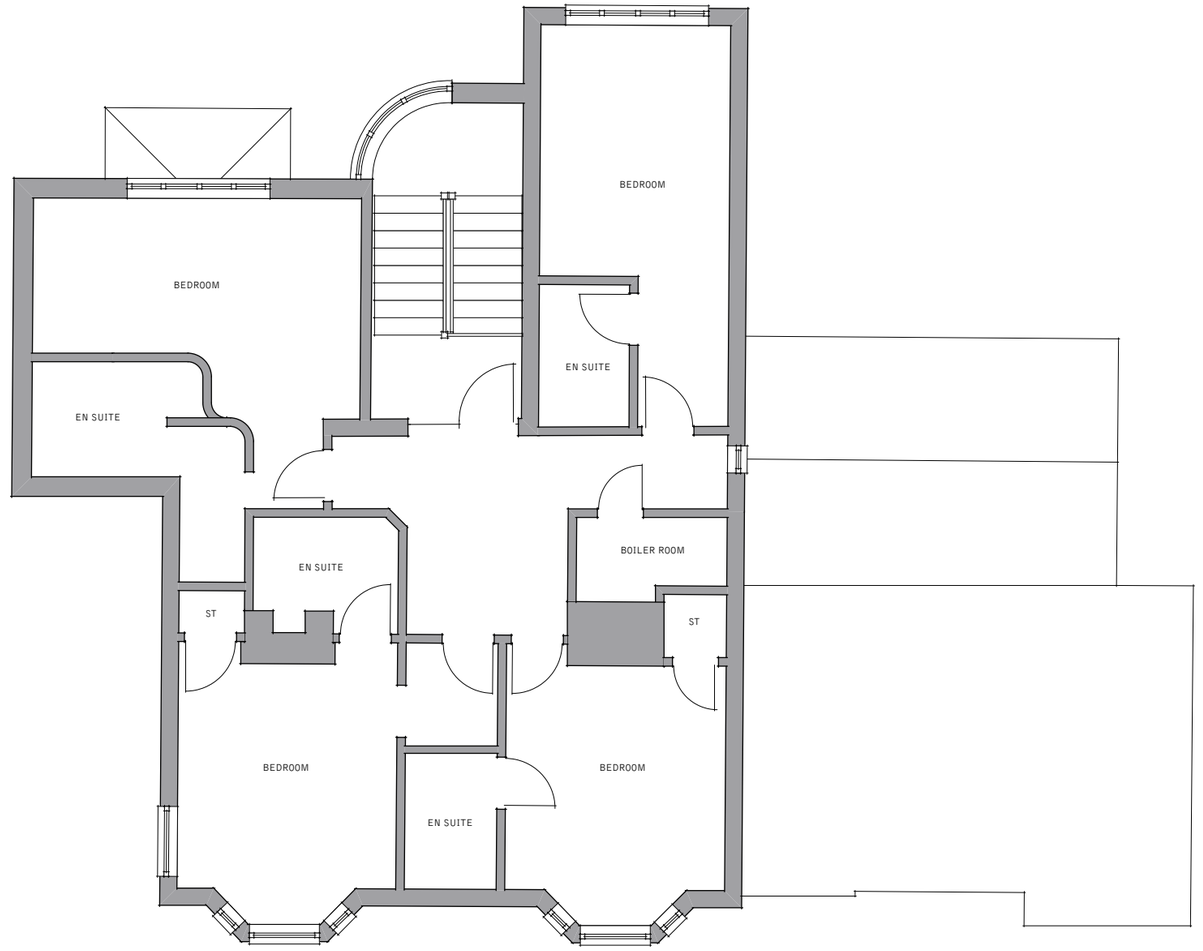
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1 GF Plan
Scale: 1:100

0 1 2 3 4 5 m



2 1F Plan
Scale: 1:100

REV	DATE	DESCRIPTION

RIGHTFUL PLACE
architectural design

07810 016251 | info@rightfulplacead.co.uk

PROJECT:
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M. Sargent

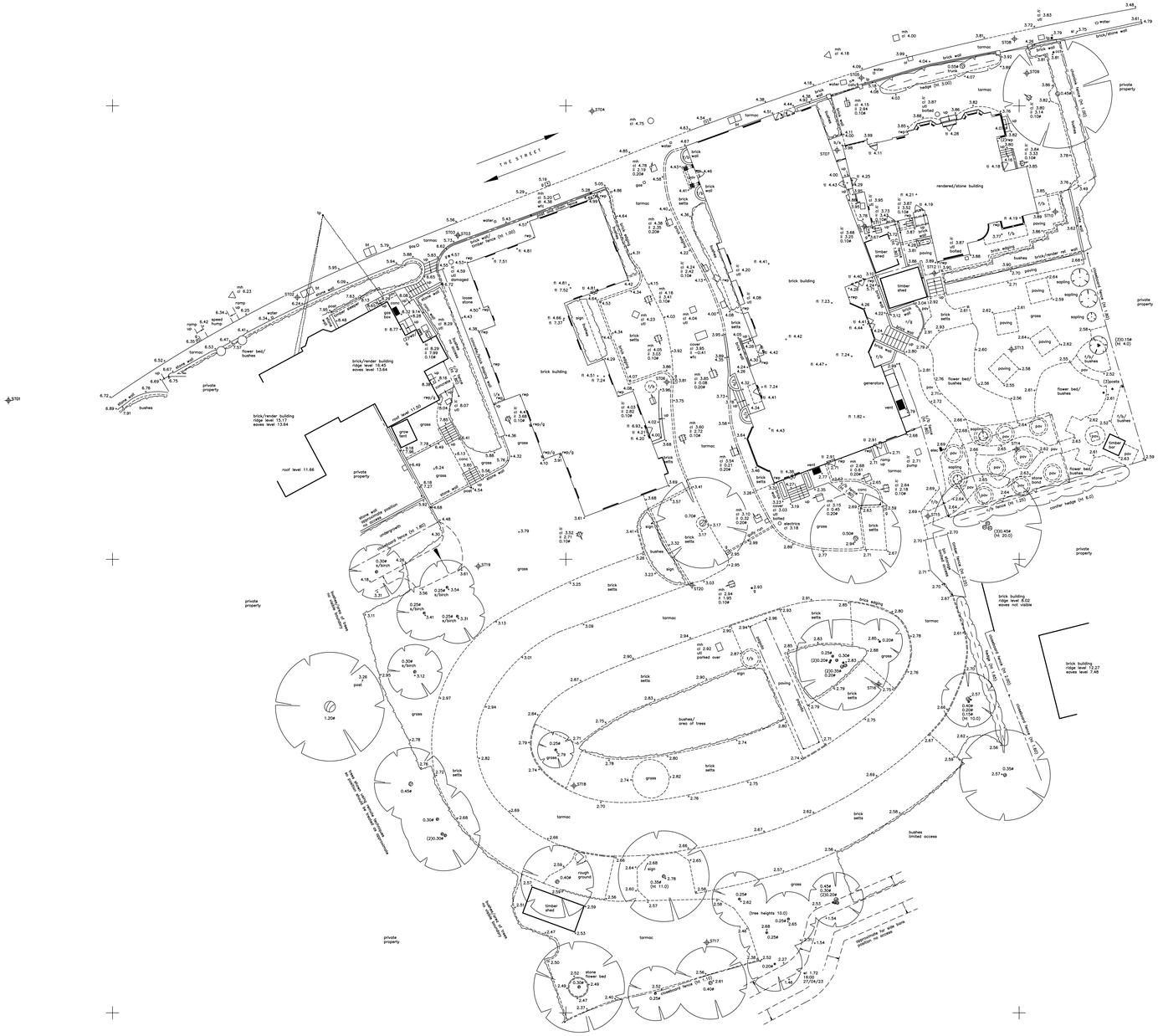
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Proposed arrangement
Floor Plans

DATE:
05/25

PROJECT NR:	DRAWING NR:	REVISION:	SCALE:
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THE STREET
private property
brick/render building ridge level 15.17 eaves level 13.64
brick/render building ridge level 16.45 eaves level 13.64
roof level 11.86
brick building
renderes/stone building
generators
timber shed
brick building ridge level 8.02 eaves not visible
brick building ridge level 12.27 eaves level 7.48
tarmac
brick setts
gross
bushes/ ores of trees
bushes limited access
flower bed/ bushes
poor condition hedge (H. 6.00)
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