GeoSmart Information

FloodSmart Plus

Flood Risk Assessment

Site Address

299 Brighton Road
Worthing
BN11 2HL

Grid Reference

516809, 103050

Report Prepared for

Anara Property

Date

07/02/2025

Report Status

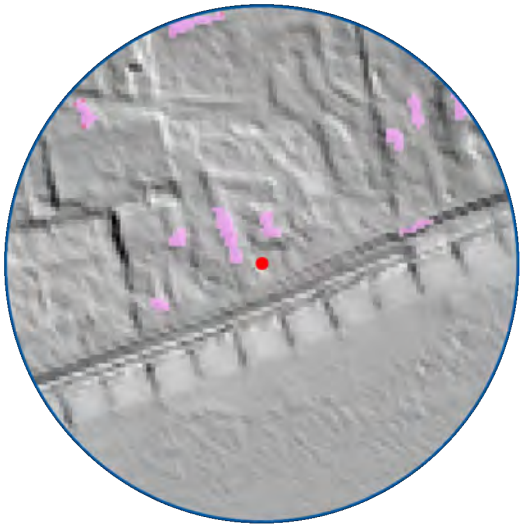
FINAL

Site Area

316 m^2

Report Reference

82901R1



RISK – Very Low to Medium

The Site is located in Flood Zones 1 (~93% of the Site) and 2 (~7% of the Site), this equates to a Low to Medium probability of flooding from rivers and the sea. Analysis of the EA's model data indicates the Site would be impacted by the 1 in 200 year (2125) climate change scenarios, however the proposed development is not thought to be at risk . Therefore, the tidal flood risk in the present day is considered to be Very Low to Low, and Very Low to Medium in the future climate change scenario. Surface water (pluvial) flood risks are Very Low. Groundwater flood risks are Low and flooding risks from artificial sources (i.e. canals, reservoirs and sewers) are Low. Mitigation measures are recommended in this report to reduce the risks to an acceptable level over the lifetime of the development (however, it is noted that the development proposals include ground floor sleeping accommodation within an existing building).

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1. Executive summary

A review has been undertaken of national environmental data sets to assess the flood risk to the Site from all sources of flooding in accordance with the National Planning Policy Framework (NPPF) (2024) and National Planning Practice Guidance (NPPG) (Published in 2014 and updated in August 2022). A site-specific flood risk assessment, to assess the flood risk to and from the development Site, is provided within this concise interpretative report written by an experienced GeoSmart consultant. Baseline flood risk and residual risks that remain after the flood risk management and mitigation measures are implemented are summarised in the table below.

Site analysis

Source of Flood Risk	Baseline[1]	After analysis[2]	After Mitigation[3]
River (fluvial) flooding	Very Low		N/A
Sea (coastal/tidal) flooding	Very Low / Low	Very Low / Low (present day) and Very Low / Medium (climate change)	Very Low / Low (present day) and Very Low / Medium (climate change)
Surface water (pluvial) flooding	Very Low		N/A
Groundwater flooding	Negligible	Low	Low
Other flood risk factors present	Yes (sewers)	Yes (sewers)	N/A
Is any other further work recommended?	Yes	Yes	Yes (see below)

1 BASELINE present day risks assigned for the whole Site, using national risk maps, including the benefit of EA flood defences. 2 AFTER ANALYSIS modification of risk assessment based on detailed site specific analysis including some or all of the following: flood model data, high resolution mapping, building location, access routes, topographic and CCTV surveys. Reasons for the change in classification are provided in the text. 3 AFTER MITIGATION risks include risks to proposed development / asset and occupants if mitigation measures recommended in this report are implemented, including the impacts of climate change. *N/A indicates where mitigation is not required.

Summary of existing and proposed development

The Site is currently used within a residential capacity as a semi-detached two-storey dwelling with a basement and an associated garden and parking. According to information provided

by the Client, the Finished Floor Levels (FFL) of the dwelling are 0.30 m above surrounding ground levels. Based on EA LiDAR data (2025), surrounding ground levels are between approximately 5.50 – 5.96 mAOD and therefore the FFL are estimated to be set to a minimum of 5.80 mAOD. It is understood the Site contains an existing basement. According to information provided by the Client, the existing basement is set c. 1.76 m bgl and therefore the basement is estimated to be at c. 3.74 mAOD.

Development proposals comprise the conversion of the single dwelling into two self-contained flats; one to be situated on the ground floor and one on the first floor. The proposals do not involve any external changes to the building or excavation works. It is understood the existing basement will remain as existing and used as storage space.

Summary of flood risks

The flood risks from all sources have been assessed as part of this report and are as follows:

- It is understood historical flooding related to the nearby coast has not previously occurred at/in the vicinity of the Site.

River (fluvial) and Sea (Estuarine/Coastal) flooding

- According to the Environment Agency's (EA) Flood Map for Planning Purposes, the Site is located partially within a tidal Flood Zone 1 (Low Probability) and Flood Zone 2 (Medium probability), with the majority of the Site (~93%), including the proposed development, within Flood Zone 1.
- The Site does not benefit from the presence of flood defences, however the nearest beach defences are located approximately 765 m east/northeast of the Site, with a minimum crest level of 7.10 mAOD. According to the EA (2024) the flood defences in place for this area are designed to defend up to a 1 in 200 year flood event.
- According to the EA's Risk of Flooding from Rivers and Sea (RoFRS) map, which considers the type, condition and crest height of flood defences, the Site has a risk of flooding ranging from Very Low to Low. from the sea.
    - When accounting for the impacts of climate change between 2036 and 2069, the Site has a risk of flooding ranging from Very Low to High, although it is noted that a modest area along the northern boundary of the Site is mapped as High risk. According to the mapping, the area proposed for development is at Very Low risk. (Note: the lifespan of the proposed development exceeds the climate change allowance (up to 2069)).
- Baseline mapping and a review of the flood model data and local topography indicates a Very Low to Low risk in the present day, however the risk in the future climate change scenario is considered to be Very Low to Medium.
- Buildings and important features on the Site are likely outside the mapped flood extents.
- Modelled flood data obtained from the EA has been analysed in line with the most up to date guidance on climate change (EA, 2022), to confirm a maximum "design" flood level at the Site.

During a 1 in 200 year 2125 (Higher Central) tidal flood event, the flood level at the Site would be 5.76 mAOD.

During a 1 in 200 year 2125 (Upper End) tidal flood event, the flood level at the Site would be 5.80 mAOD.

During these events, flood depths on Site could be between 0.57 and 0.61 m. However, the area proposed for development is not thought to be affected. As a precaution due to the inclusion of ground floor sleeping accommodation, flood mitigation measures have been recommended and are included in the next section

Emergency evacuation routes are available to the east of the Site. In the event of a flood, safe refuge can be taken on the 1st floor level as the Site is located mostly within a Flood Zone 1. However, it is noted that the proposals include ground floor sleeping accommodation and safe refuge may not be feasible on the first floor for these occupants.

Surface water (pluvial) flooding

- According to the EA's Risk of Flooding from Surface Water (pluvial) flood mapping, the Site has a Very Low risk of pluvial flooding.

  The Site is not impacted by surface water flooding up to and including the 1 in 1000 year (Low risk) plus climate change event. It is noted that as the lifetime of the proposed development (100 years) exceeds the climate change prediction (2040 – 2060), the 1 in 1000 year event has been used as a proxy for climate change.

  Flood depths of up to 0.3 m are anticipated adjacent to the north of the Site up to and including the 1 in 1000 year event

  Baseline mapping and a review of the flood model data and local topography indicates a Very Low risk.

Groundwater flooding

- Groundwater Flood Risk screening data indicates there is a Negligible potential risk of groundwater flooding at the surface in the vicinity of the Site during a 1 in 100 year event.

  It is understood the Site contains an existing basement. According to information provided by the Client, the existing basement is set c. 1.76 m bgl.

  According to a review of the hydrogeology (Section 3), the Site is underlain by potentially permeable superficial deposits of unknown thickness and lateral extent above a bedrock aquifer. The groundwater system is therefore considered to potentially be in continuity with the Site surface as the superficial deposits may not prevent groundwater rising from the bedrock in a seasonal response to sea level rise and/or prolonged rainfall recharge which may cause an unusually high peak in groundwater levels during some years.

  According to a review of the hydrogeology (Section 3), the nearby borehole (ref: TQ10SE210) located c. 115 m west of the Site encounter groundwater at 4.29 m bgl during its 7.16 m depth.

  Baseline mapping indicates a Negligible risk, however a review of the borehole data and additional information indicates the risk is likely to be Low.

Artificial sources of flooding

- The risk of flooding from artificial (man-made) sources such as reservoirs, sewers and canals has been assessed:
    - The EA's Risk of Flooding from Reservoir map confirms the Site is not at risk of reservoir flooding. The potential for a breach of a reservoir to occur and flooding affecting the Site is low.
    - Ordnance Survey (OS) data confirms there are no canals near to the Site.
    - Table 6-4 of the SFRA has identified 25 incidences or modelled incidences of flooding as a result of surcharging sewers within the BN11 2 postcode. However, it is recognised that this five digit postcode covers a large area and instances of flooding are not specific to the Site (JBA Consulting, 2024).

  The risk of flooding from artificial sources is considered to be Low.
- The risk to the development has been assessed over its expected 100-year lifetime, including appropriate allowances for the impacts of climate change which could increase the flood risk to the Site. Risks identified include sea level rise, although it is noted that a breach scenario and storm surge have not been modelled by the EA. Appropriate mitigation measures are proposed.

Although the application is not considered a 'Change of Use', the proposed development involves internal reconfigurations of the existing dwelling to create two self-contained flats. Therefore, as there is no increase in building footprint nor the creation of new buildings, the proposals may not be subject to the Sequential or Exception Tests.

Recommendations

Recommendations for flood mitigation are provided below, based upon the proposed development and the flood risk identified at the Site.

- There is a risk of flooding from tidal sources, where flood depths could be up to 0.61 m in depth on Site. However, the area which is currently proposed for development is not thought to be at risk of flooding due to raised FFL and slightly higher ground in the south of the Site (based on EA LiDAR data).

  As the raising of FFL's is constrained by the existing building and FFL's cannot be raised to the recommended level, and due to the uncertainty of flooding in the climate change scenarios and the inclusion of ground floor sleeping accommodation in the development proposals, standard flood resistance and resilient design measures included (see Section 7).

  A Site-specific topographic survey is recommended to determine accurate ground levels and FFL's, which will help to confirm whether internal flooding is likely to occur on-Site. Following the topographic survey, sleeping accommodation should not be situated in areas where internal flooding is anticipated.

  Additionally, the existing basement should not be used for habitation during the lifetime of the development. Further mitigation measures have been recommended below.

- As there is a risk of flooding from groundwater sources at the surface, it is possible the flood mitigation measures recommended for tidal risk will reduce the groundwater flood risk at the development. However specific additional groundwater measures have been recommended within section 7 of this report.
- A Flood Warning and Evacuation Plan (FWEP) is recommended to ensure persons using the Site can evacuate safely on receipt of a Flood Warning. However, it is noted that emergency access from the property may be compromised by extreme flooding and the proposed ground floor flat would not have an alternative to evacuation (it is likely that safe refuge could only be sought at first floor level in a worst-case scenario for the occupants of the first-floor flat). Therefore, the proposal may not meet the requirements for safe access and refuge.
    - Occupants of the Site should also be signed up to receive EA Flood Alerts and Flood Warnings.
- The ongoing management and maintenance of existing and any proposed drainage networks, under the riparian ownership of the developer, should be undertaken in perpetuity with the development.
- A Sustainable Drainage Strategy (SuDS) could be developed for the Site, for effective management of surface water runoff over the lifetime of the proposed development.

GeoSmart recommend the mitigation measures discussed within this report are considered as part of the proposed development where possible and evidence of this is provided to the Local Planning Authority as part of the planning application.

2. Introduction

Background and purpose

A site-specific flood risk assessment has been undertaken, to assess the flood risk to and from the development Site. This assessment has been undertaken by firstly compiling information concerning the Site and the surrounding area. The information gathered was then used to construct a 'conceptual site model', including an understanding of the appropriateness of the development as defined in the NPPF (2024) and the source(s) of any flood risk present, guided by the NPPG (Published in 2014 and updated in August 2022). Finally, a preliminary assessment of the steps that can be taken to manage flood risk to the development was undertaken.

This report has been prepared with reference to the NPPF (2024) and NPPG (2022).

"*The National Planning Policy Framework set out the Government's planning policies for England and how these are expected to be applied*" (NPPF, 2024).

The NPPF (2024) and NPPG (2022) promote a sequential, risk based approach to the location of development. This also applies to locating a development within a Site which has a variable risk of flooding.

"*The approach is designed to ensure that areas at little or no risk of flooding from any source are developed in preference to areas at higher risk. This means avoiding, so far as possible, development in current and future medium and high flood risk areas considering all sources of flooding including areas at risk of surface water flooding*" (Paragraph: 023. NPPG, 2022).

The purpose of this report is to provide clear and pragmatic advice regarding the nature and potential significance of flood hazards which may be present at the Site.

Report scope

In accordance with the requirements set out within NPPG 2022 (Paragraph: 021 Reference ID: 7-021-20220825), a thorough review of publicly and commercially available flood risk data and EA supplied data indicating potential sources of flood risk to the Site from rivers and coastal sources, surface run-off (pluvial), groundwater and reservoirs, including historical flood information and modelled flood extent. Appropriate measures are recommended to manage and mitigate the flood risk to the property.

Information obtained from the EA and a review of the Adur and Worthing Level 1 Strategic Flood Risk Assessment (SFRA) (JBA Consulting, 2024) is used to ascertain local flooding issues and, where appropriate, identify information to support a Sequential and/or Exception test required as part of the NPPF (2024).

The existing and future flood risk to and from the Site from all flood sources is assessed in line with current best practice using the best available data. The risk to the development has been assessed over its expected lifetime, including appropriate allowances for the impacts of climate change. Residual risks that remain after the flood risk management and mitigation

measures are implemented, are considered with an explanation of how these risks can be managed to keep the users of the development safe over its lifetime.

An indication of whether the Site will potentially increase flood risk elsewhere is provided, including where the proposed development increases the building footprint at the Site. A drainage strategy to control runoff can be commissioned separately if identified as a requirement within this report.

Report limitations

It is noted that the findings presented in this report are based on a desk study of information supplied by third parties. Whilst we assume that all information is representative of past and present conditions, we can offer no guarantee as to its validity and a proportionate programme of site investigations would be required to fully verify these findings.

The basemap used is the OS Street View 1:10,000 scale, however the Site boundary has been drawn using BlueSky aerial imagery to ensure the correct extent and proportion of the Site is analysed.

This report excludes consideration of potential hazards arising from any activities at the Site other than normal use and occupancy for the intended land uses. Hazards associated with any other activities have not been assessed and must be subject to a specific risk assessment by the parties responsible for those activities.

Datasets

The following table shows the sources of information that have been consulted as part of this report:

Table 1. Datasets consulted to obtain confirmation of sources of flooding and risk

Source of flooding	Datasets consulted			
	Commercial Flood Maps	Local Policy & Guidance Documents*	Environment Agency (Appendix B)	OS Data
Historical	X	X	X	
River (fluvial) / Sea (tidal/coastal)	X	X	X	

Source of flooding	Datasets consulted			
	Commercial Flood Maps	Local Policy & Guidance Documents*	Environment Agency (Appendix B)	OS Data
Surface water (pluvial)	X	X	X	
Groundwater	X	X		
Sewer		X		
Culvert/bridges		X		X
Reservoir		X	X	

*Local guidance and policy, referenced in Section 6, has been consulted to determine local flood conditions and requirements for flood mitigation measures.

Local policy and guidance

For this report, several documents have been consulted for local policy and guidance and relevant information is outlined below:

Adur and Worthing Level 1 Strategic Flood Risk Assessment (JBA Consulting, 2024):

8.4.2 Raised floor levels

The raising of internal floor levels within a development avoids damage occurring to the interior, furnishings and electrics in times of flood.

Minimum finished floor levels for development that does not include sleeping accommodation on the ground floor should normally be set to whichever is higher of the following:

- a minimum of 300mm above the design flood event level
- if finished floor levels cannot be raised in this way, additional flood resistance and resilience measures should be added to the property to protect it to at least 300mm above the estimated flood level.

Please note that the design flood level should be estimated as part of a site-specific Flood Risk Assessment.

Finished floor levels for vulnerable developments (e.g., dwellings and for sleeping accommodation) should be a minimum of whichever is higher of 300mm above the:

- average ground level of the site
- adjacent road level to the building
- estimated flood event level (1% AEP fluvial plus climate change or the 0.5% AEP tidal plus climate change)

14.1.8 Safe access and egress

Safe access and egress will normally need to be demonstrated at all development sites and emergency vehicular access should be possible during times of flood. Where development is located behind flood defences, consideration should be given to the potential safety of the development, finished floor levels and for safe access and egress in the event of rapid inundation of water due to a defence breach with little warning.

Where there is a residual risk of flooding (from any source) to properties within a development, residential and commercial minimum finished floor levels should be set at least 300mm above the 100-year plus climate change peak flood level, where the new climate change allowances have been used. An additional allowance may be required because of risks relating to blockages to the channel, culvert or bridge and should be considered as part of an FRA

If it is not practical to raise floor levels to those specified above, consultation with the Environment Agency will be required to determine alternative approaches.

Resilience measures will be required if buildings are situated in the flood risk area, and opportunities to enhance green infrastructure and reduce flood risk by making space for water should be sought.

Guidance

Strategic Flood Risk Assessments are carried out by local authorities, in consultation with the Environment Agency, to assess the flood risk to the area from all sources both now and in the future due to climate change. They are used to inform planning decisions to ensure inappropriate development is avoided (NPPF, 2024).

3. Site analysis

Site information

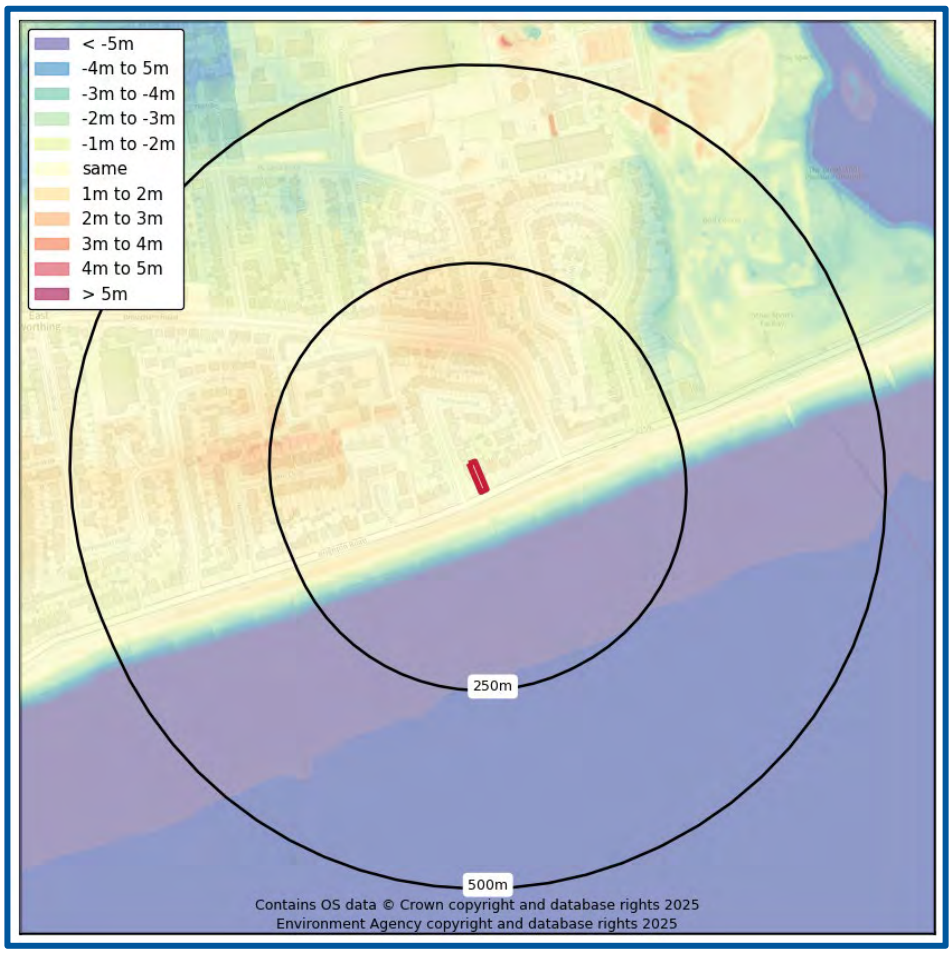
The Site is located in Brighton Road, Worthing, BN11 2HL in a setting of commercial and residential land use at National Grid Reference TQ 16813 03051.

Figure 1. Aerial imagery of the Site (Bluesky, 2025)



Figure 2 overleaf indicates ground levels within 500m of the Site are relatively level, falling in a southerly direction towards the coast.

Figure 2. Site Location and Relative Elevations (GeoSmart, 2025)



Development

The Site is currently used within a residential capacity as a semi-detached two-storey dwelling with a basement and an associated garden and parking. According to information provided by the Client, the Finished Floor Levels (FFL) of the dwelling are 0.30 m above surrounding ground levels. Based on EA LiDAR data (2025), surrounding ground levels are between approximately 5.50 – 5.96 mAOD and therefore the FFL are estimated to be set to a minimum of 5.80 mAOD. It is understood the Site contains an existing basement. According to information provided by the Client, the existing basement is set c. 1.76 m bgl and therefore the basement is estimated to be at c. 3.74 mAOD.

Development proposals comprise the conversion of the single dwelling into two self-contained flats; one to be situated on the ground floor and one on the first floor. The proposals do not involve any external changes to the building or excavation works. It is understood the existing basement will remain as existing and used as storage space. Site plans are included within Appendix A.

The effect of the overall development will result in an increase in number of occupants and/or users of the building but will not result in the change of use, nature or times of occupation. According to Annex 3 of the NPPG (2022), the vulnerability classification of the existing

development is More Vulnerable and proposed development is More Vulnerable. The estimated lifespan of the development is 100 years.

Hydrological features

According to Ordnance Survey (OS) mapping included in the following figure, a single surface water feature is located within 500 m of the Site.

Figure 3. Surface water features (EA, 2025)



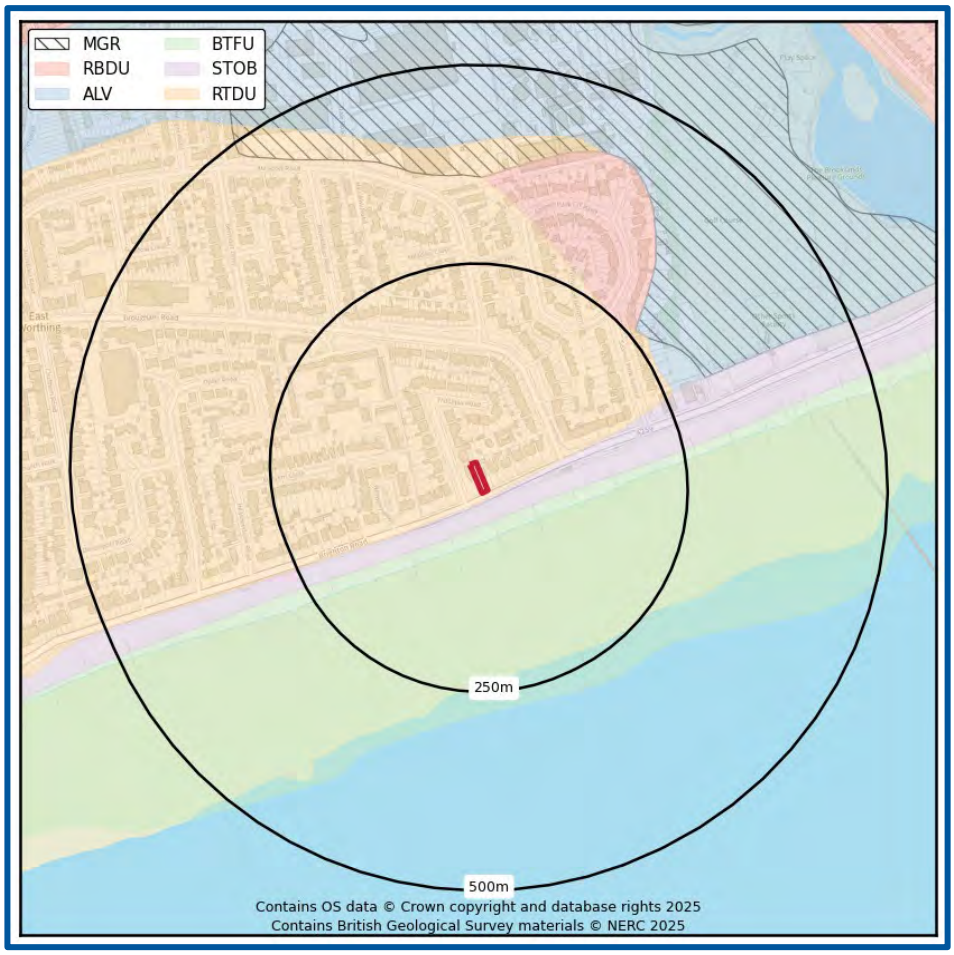
The coastline of the English Channel is c. 20 m south of the Site.

Brooklands Lake is located c. 590 m northeast.

Hydrogeological features

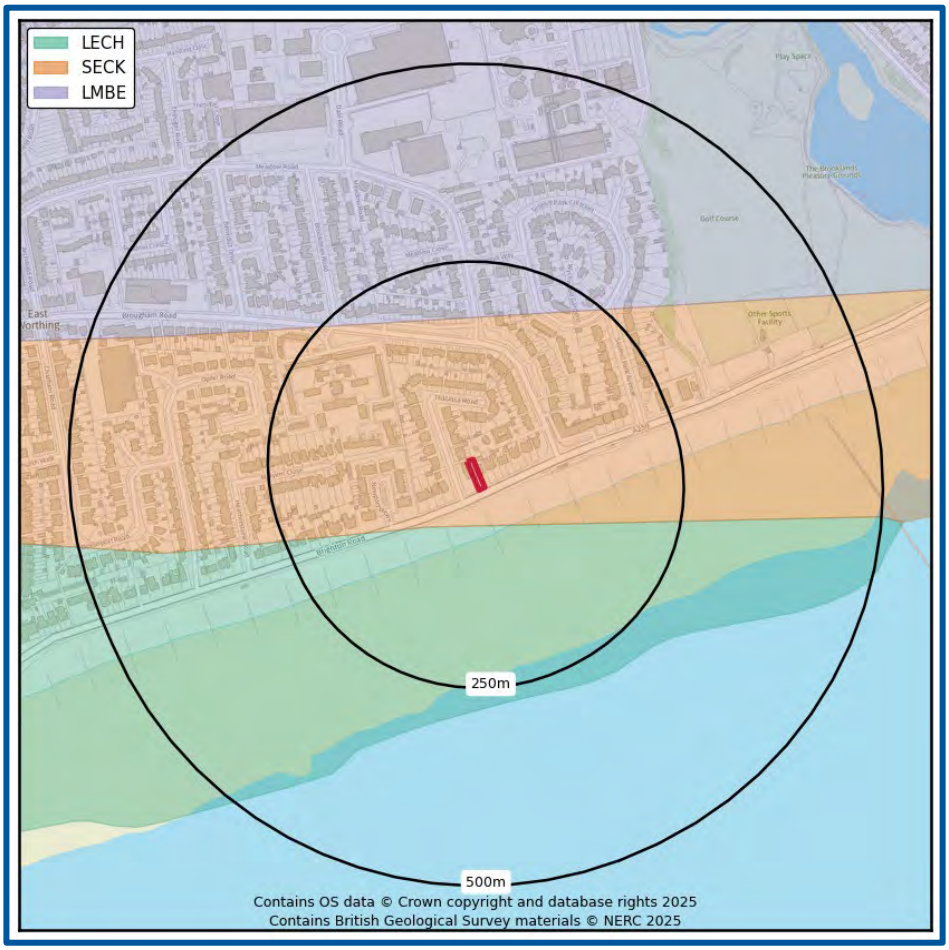
British Geological Survey (BGS) mapping indicates the underlying superficial geology (Figure 4) consists of River Terrace Deposits (Undifferentiated) (sand, silt and clay) (RTDU) (BGS, 2025) and is classified as a Secondary (B) Aquifer (EA, 2025).

Figure 4. Superficial Geology (BGS, 2025)



BGS mapping indicates the underlying bedrock geology (Figure 5) consists of the Seaford Chalk Formation (SECK) (BGS, 2025) and is classified as a Principal Aquifer (EA, 2025).

Figure 5. Bedrock Geology (BGS, 2025)



Geological conditions

A review of the BGS borehole database (BGS, 2025) indicates the nearest and most relevant borehole to the Site (ref: TQ10SE210) is located c. 115 m to the west of the Site boundary at an elevation of c. 5.54 mAOD. Although limited information is available, the borehole record indicates the underlying geology to consist of drift and 'Woolwich and Reading beds' (Lambeth Group) to unspecified depths below ground level (bgl) overlying Upper Chalk to a depth of 7.16 m bgl, where the borehole record ends.

Groundwater

Groundwater levels are recorded at 4.29 m bgl on 24/09/1895, subject to seasonal variations.

4. Flood risk to the development

Historical flood events

According to the EA's Historical Flood Map (Figure 6) and Appendix A of the SFRA (JBA Consulting, 2024; Appendix D of this report), there have been no flooding events affecting the Site.

The purpose of historical flood data is to provide information on where and why flooding may have occurred in the past. The absence of any recorded events does not mean flooding has never occurred on-Site or that flooding will never occur at the Site.

Figure 6. EA Historic Flood Map (EA, 2025)



Rivers (fluvial) / Sea (coastal) / Estuarine (tidal) flooding

The Site is located in a coastal location and the predominant risk at the Site is from flooding from the sea, termed as coastal and/or tidal processes.

Coastal flooding is caused by extreme coastal conditions that occur because of three main mechanisms, either individually or in combination. These are:

- High tide levels – variations in tidal levels due to gravitational effects of the sun and moon can result in higher sea levels – there is an approximate twice daily variation between high and low tide, onto which is superimposed a spring-neap tide cycle when extra high and low tides occur.
- Surge – an increase in sea level above tidal level caused by low atmospheric pressure which may be exacerbated by the wind acting on the sea.
- Wave action – dependent on wind speed and direction, local topography and exposure.

According to the EA's Flood Map for Planning Purposes (Figure 7), the Site is mostly located within tidal Flood Zone 1 (~93% of the total Site area). The northern boundary of the Site (~7% of the total Site area) is located within Flood Zone 2, and Flood Zone 3 is mapped along the southern Site boundary. The Site is therefore classified as having a Low to Medium probability of tidal (coastal) flooding from the sea.

It is noted that Appendix C of the SFRA (JBA Consulting, 2024; Appendix D of this report) indicates Flood Zone 3b is mapped on the southern Site boundary, however the Site itself is not mapped within this extent. Furthermore, the Site is shown to not be impacted by the 1 in 20 year flood event (Figure 10).

Figure 7. EA Flood Map for Planning Purposes (EA, 2025)



Guidance

As defined in the NPPF (2024):

Ignoring the presence of any defences, land located in a Flood Zone 1 is considered to have a Low probability of flooding, with less than a 1 in 1000 annual probability of fluvial or coastal flooding in any one year.

Development of all uses of land is appropriate in this zone (see glossary for terminology).

Ignoring the presence of any defences, land located in a Flood Zone 2 is considered to have a Medium probability of flooding, with between a 1 in 100 and 1 in 1000 annual probability of fluvial flooding or between a 1 in 200 and 1 in 1000 annual probability of coastal flooding in any one year.

Development of "Water-Compatible" and "Less Vulnerable" land uses are suitable for this zone with "More Vulnerable" and "Essential Infrastructure" requiring an Exception test to be passed prior to development taking place. (see glossary for terminology).

Flood defences

Guidance

Sites that are located close to flood defences are likely to be zones where rapid inundation will occur in the event of the flood defences being overtopped or breached. A Site located close to flood defences (within 250 m) may require a more detailed FRA subject to local topography.

Existing flood defences

- The Site is not located in an area benefiting from flood defences.
- There are no formal flood defences within 250 m of the Site.
- There are no proposed flood defences within 250 m of the Site.

Information from the EA relating to the flood defences is outlined below.

According to information from the EA (Appendix B), the nearest beach defences are located approximately 765 m east/northeast of the Site, with a minimum crest level of 7.10 mAOD. According to the EA (2024) the flood defences in place for this area are designed to defend up to a 1 in 200 year flood event.

According to the Adur and Worthing Council (2024), the Shoreham beach frontage from Western Road in the west to the harbour arm comprises 33 rock groynes and provides a standard flood defence of a 1 in 100 year storm event.

The Beachy Head to Selsey Bill Shoreline Management Plan (SMP2) designation for defence lines at Shoreham Harbour to Worthing (Policy Unit 4D15) is to "Hold the Line" over the long term period to 2105, which means that the proposed development should remain protected by flood defences over its 100 year lifetime (South Downs Coastal Group, 2006). It is assumed the defences will continue to be maintained thereafter until 2125. According to the EA, the actions for this unit include Capital Maintenance works to the defences (groynes, shingle beach) to maintain 1/200 storm defence for the next 10 years to allow larger groyne replacement scheme to be developed and beach nourishment.

Model data

As the Site is located within the EA's tidal floodplain, modelled flood elevation data was obtained from the EA and has been used to assess flood risk and to provide recommendations for mitigation for the proposed development. The data is provided in Table 2 below and included with Appendix B.

Modelled flood level data have been taken from the Arun to Adur Flood Modelling Report (JBA Consulting, 2012) to assess flood risk and provide recommendations for mitigation measures. The flood level data have been taken from 4 on-Site node points provided by the EA (Figure 8) and the EA's 2D floodplain grid data. According to the modelling report (JBA Consulting, 2012), breach modelling has not been undertaken for the study area. Modelled outputs have been received for both the defended and undefended scenarios and it is understood that

only the defended scenario includes wave overtopping (JBA Consulting, 2012). Mapping from the EA indicates the Site is not impacted by flooding in the undefended scenario (Appendix B), therefore the outputs from the defended scenario have been included below.

Figure 8. Location of on-Site EA node points (EA, 2024)

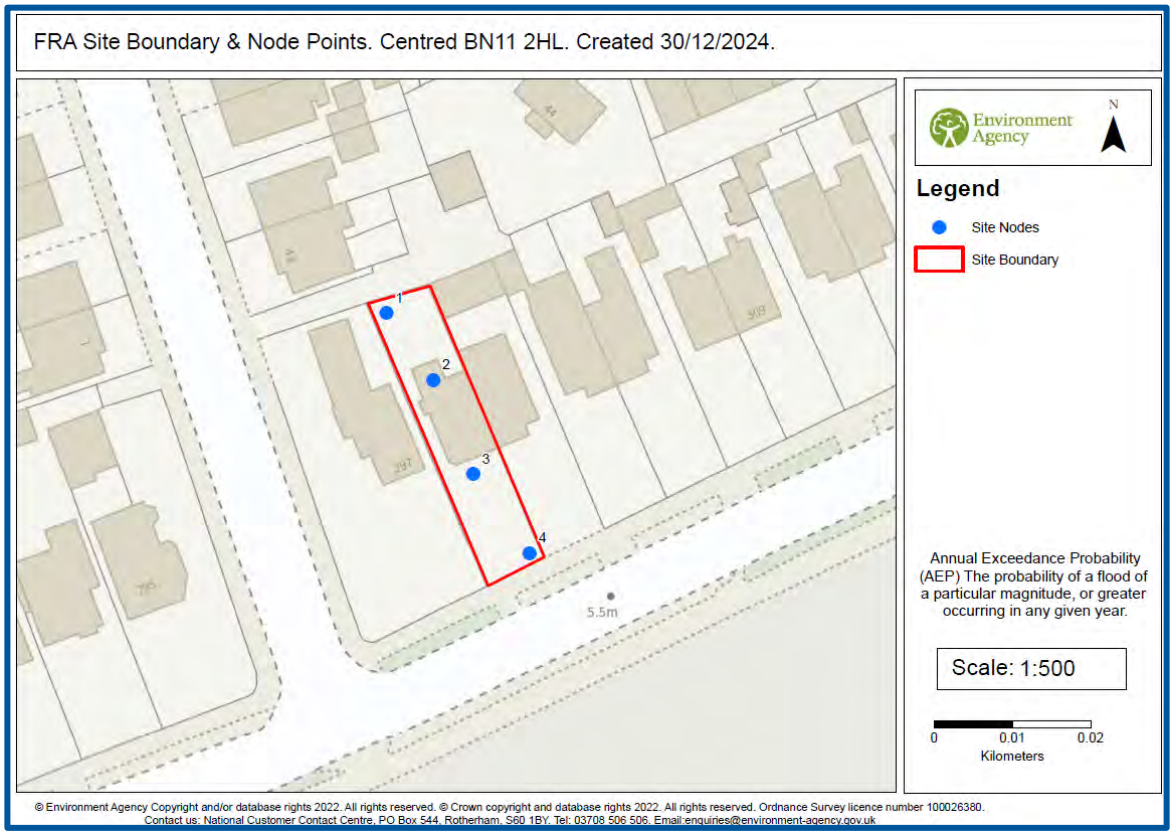


Table 2. Modelled Flood Levels (defended)

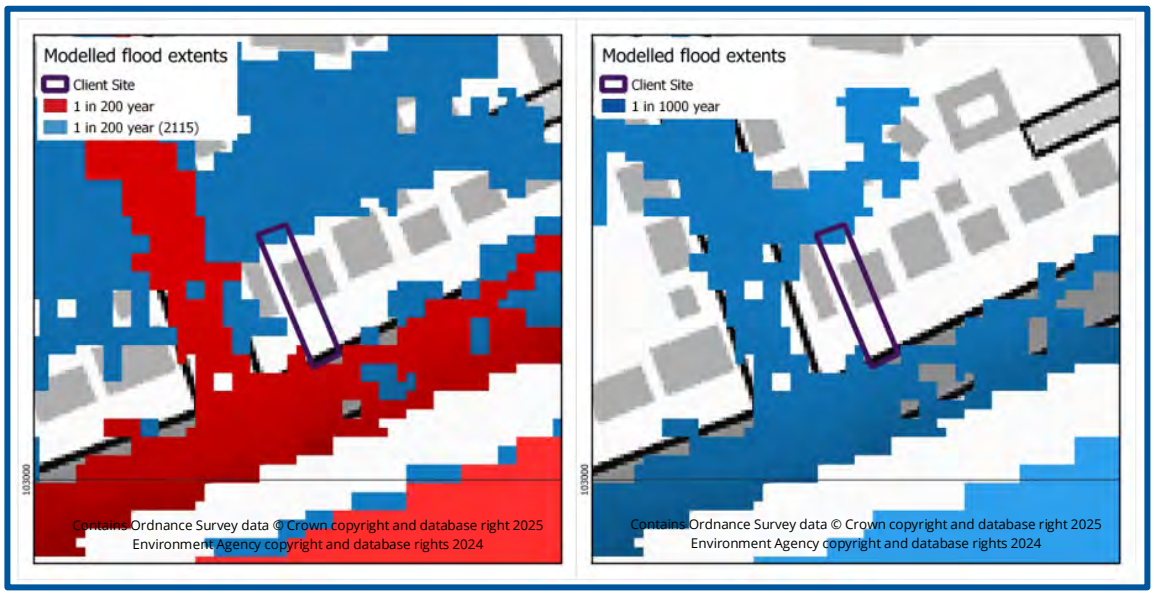
Ground levels on-Site (mAOD)	Modelled flood levels (mAOD)			
	Node point reference	1 in 200 year	1 in 200 year (2115)*	1 in 1000 year
5.19 and 6.19	1	-	5.49	5.28
	2	-	-	-
	3	-	-	-
	4	5.57	5.60	5.57
	Flood depths (m)	Up to 0.38	Up to 0.41	Up to 0.38

*** The flood risk data provided is based on existing EA hydraulic models with an allowance for climate change. Please note the climate change allowances provided are not up to date. These were updated on 27 July 2021.**

Although modest areas of the Site are modelled to flood up to and including the 1 in 1000 year scenario, the existing building is not within the flooding extent (node points 2 and 3). Flooding is contained to the northern and southern boundaries. Furthermore, it is understood that the FFL of the existing building are set at 0.30 m above surrounding ground levels. Based on EA lidar data (2025), surrounding ground levels are between approximately 5.50 – 5.96 mAOD and therefore the FFL are estimated to be set to a minimum of 5.80 mAOD.

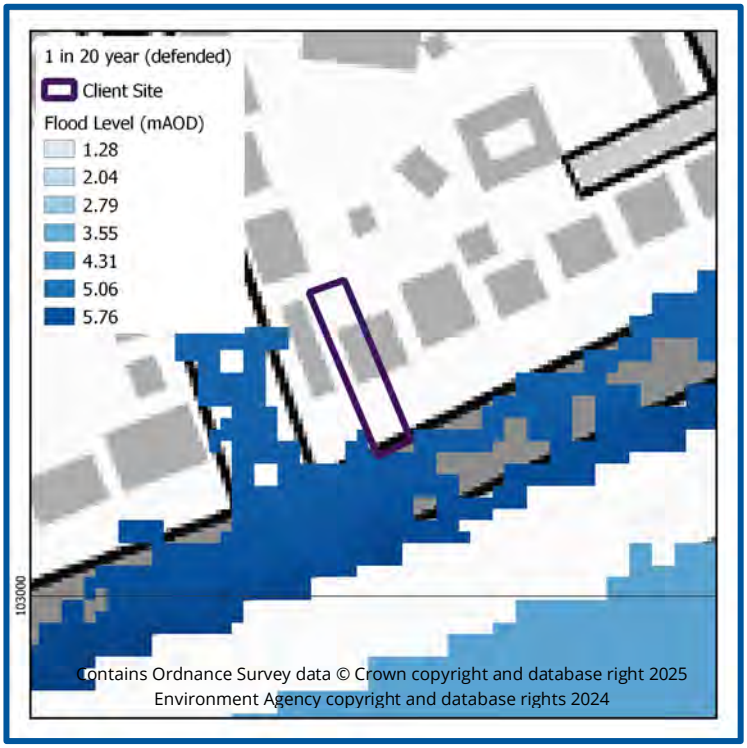
Figure 9 overleaf confirms the flood extents associated with the modelled flooding scenarios within table 2.

Figure 9. Modelled defended flooding scenarios (EA, 2024)



According to Appendix C of the SFRA (JBA Consulting, 2024) indicates Flood Zone 3b is mapped on the southern Site boundary, however the Site itself is not mapped within this extent. Furthermore, the Site is shown to not be impacted by the 1 in 20 year flood event (Figure 10 below).

Figure 10. Modelled 1 in 20 year defended scenario (EA, 2024)



Climate change factors

The EA's *Flood risk assessments: climate change allowances* guidance (Published 19 February 2016 and updated May, 2022) has been used to inform a suitable increase in sea level and to allow for surge and wave action for the proposed development. The updated guidance confirms 'More Vulnerable' developments are required to undertake a Basic assessment approach.

As the Site is located within the South East River Basin, the Higher Central and Upper End allowances have been used to determine a suitable climate change factor to apply to sea levels.

The climate change allowances provided for the defended scenario by the modelling report are not up to date (i.e. only provide up to 2115), and therefore in order to assess the full 100 year lifespan of the proposed development up to 2125, the EA's most up-to-date guidance on climate change impacts has been used.

In order to assess the Higher Central allowance, an additional 13.1 mm (or 1.31 cm) has been added for each year (10 years). To assess the Upper End allowance an additional 18.2 mm (or 1.82 cm) has been added for each year. A 10% allowance for wave action has been included and an additional 2 mm a year (above the 2115 allowance) has been added for each year (10 years) to allow for storm surge. As such, an additional 0.16 m and 0.20 m of flooding has been added for the Higher Central and Upper End scenarios, respectively (see table below).

Table 3. Modelled flood levels plus climate change allowances

Ground levels on-Site (mAOD)	Modelled flood levels (mAOD)		
	1 in 200 year (2115) scenario	1 in 200 year (2125) scenario (Higher Central)	1 in 200 year (2125) scenario (Upper End)
5.19 and 6.19	5.60	5.76	5.80
Flood depths (m)	Up to 0.38	Up to 0.57	Up to 0.61

*The climate change allowances have been added onto the flood levels associated with node point 4, in the south of the Site, to account for a worst-case scenario as this node point is associated with the most significant flood levels.

Although the Site is modelled to flood in the climate change scenarios, the existing building would potentially not be impacted internally in the Higher Central allowance scenario. Based on EA LiDAR data (2025), surrounding ground levels are between approximately 5.50 – 5.96 mAOD and therefore the FFL are estimated to be set to a minimum of 5.80 mAOD. Additionally, according to EA lidar data (2025), node point 3, situated to the front of the dwelling, is at an elevation of 5.85 mAOD.

Flood risk including the benefit of defences

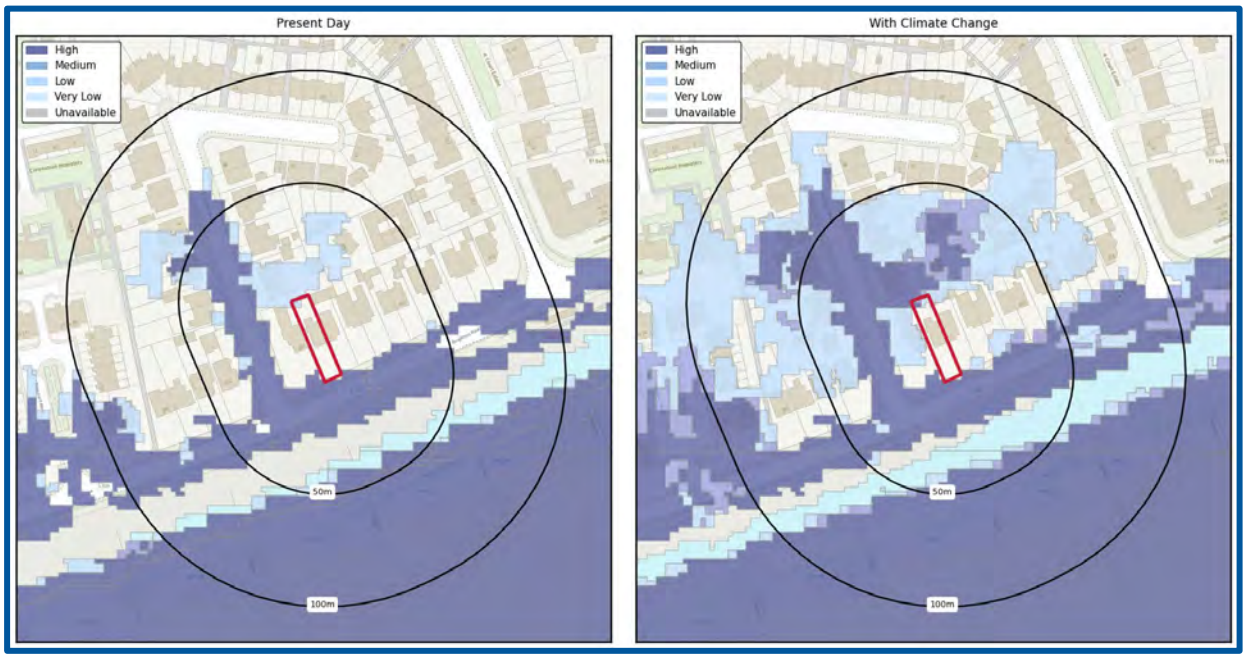
The type and condition of existing flood defences influence the 'actual' risk of fluvial flooding to the Site, albeit the long-term residual risk of flooding (ignoring the defences) should be considered when proposing new development.

According to the EA's Risk of Flooding from Rivers and Sea (RoFRS) map (Figure 11), which considers the type, condition and crest height of flood defences, the Site has a risk of flooding ranging from Very Low to Low from the sea.

When accounting for the impacts of climate change between 2036 and 2069, the Site has a risk of flooding ranging from Very Low to High, although it is noted that a modest area along the northern boundary of the Site is mapped as High risk. According to the mapping, the area proposed for development remains at Very Low risk.

Further analysis of Site ground levels and modelled flood data indicates the Site would be impacted in the 1 in 200 year (2125) scenarios, with significant flood depths exceeding 0.3 m anticipated on Site. The existing building would potentially not be impacted by internal flooding (however, this cannot be confirmed without a topographic survey). The risks to the proposed development in the present day scenario are considered to be Very Low/Low, however in the future climate change scenario they are considered to be Very Low to Medium.

Figure 11. Risk of Flooding from Rivers and Sea map (EA, 2025)



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Surface water (pluvial) flooding

Surface water flooding occurs when intense rainfall exceeds the infiltration capacity of the ground and overwhelms the drainage systems. It can occur in most locations even at higher elevations and at significant distances from river and coastal floodplains.

According to the EA's Risk of Flooding from Surface Water (pluvial) flood mapping (Figure 12, overleaf), the Site has a Very Low risk of pluvial flooding[1].

Guidance
According to EA's surface water flood risk map the Site is at: • Very Low risk - chance of flooding of less than 1 in 1000 (0.1%).

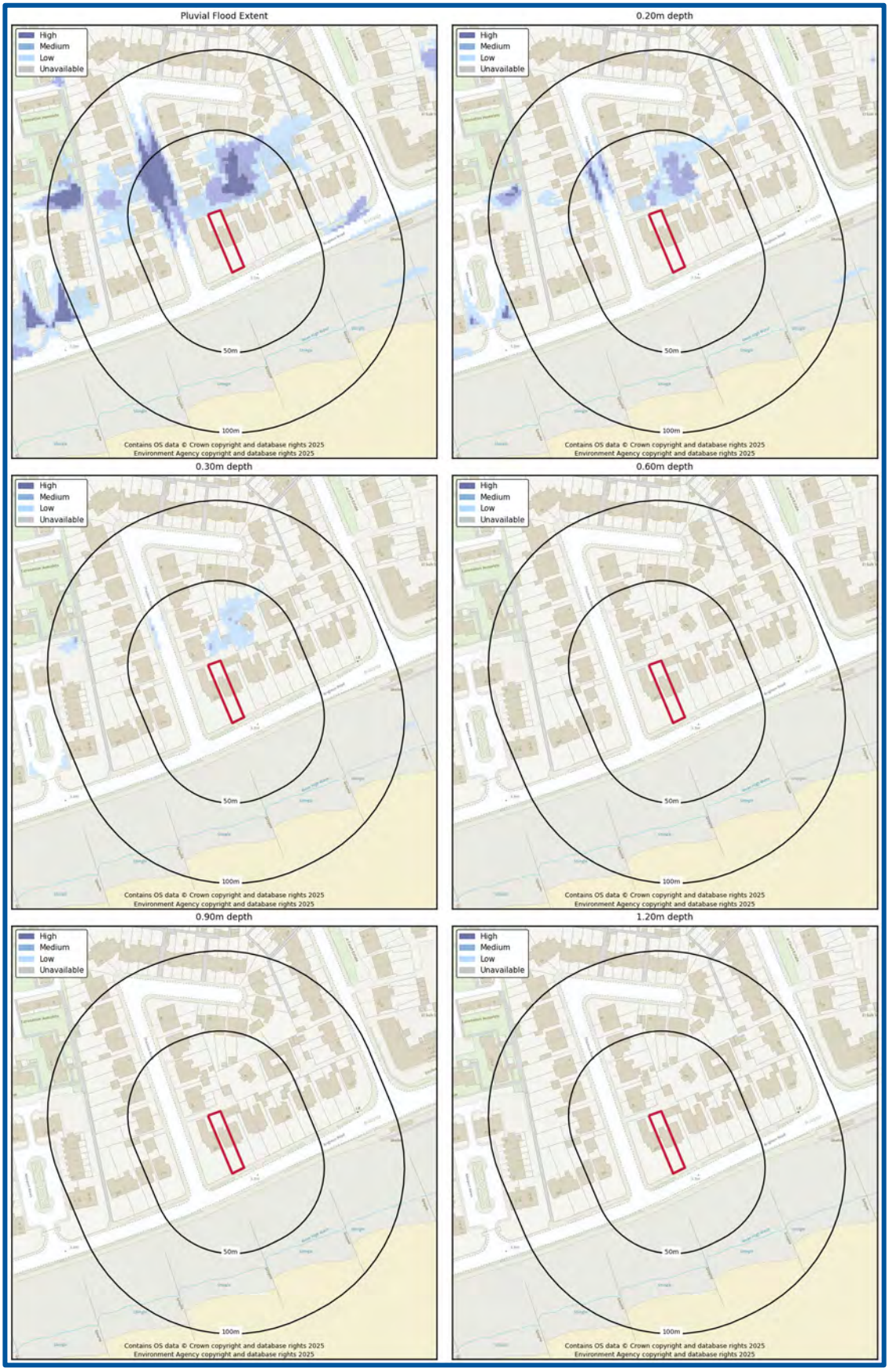
The SFRA does not indicate reported incidents of historical surface water flooding within 100 m of the Site and does not confirm the Site is located within a Critical Drainage Area (CDA)[2] (JBA Consulting, 2024).

Figure 12 confirms the extent and depth of flooding in multiple modelled flood scenarios. The Site is not impacted by surface water flooding up to and including the 1 in 1000 year (Low risk) event. However, it is noted that flooding in the 1 in 100 year and 1 in 1000 year events is mapped adjacent to the northern Site boundary, with flood depths of up to 0.30 m.

[1] Environment Agency. April 2019. What is the Risk of Flooding from Surface Water map? Version 2.0. Accessed from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/842485/What-is-the-Risk-of-Flooding-from-Surface-Water-Map.pdf

[2] A Critical Drainage Area (CDA) is an area that has critical drainage problems and which has been notified to the local planning authority as such by the Environment Agency in line with the National Planning Policy Framework (NPPF, 2024). CDA's are specific to Flood Zone 1, defined as areas where runoff can and may have historically contributed to flooding downstream, although they are not necessarily areas where flooding problems may occur. Where a Site is located in Flood Zone 1 and within a CDA, a Flood Risk Assessment (FRA) is required and the Council may also request Sustainable Drainage Scheme (SuDS) features to be included within the proposed development.

Figure 12. EA surface water flood extent and depth map (EA, 2025)



Climate change factors

Paragraph 002 of the National Planning Practice Guidance (August, 2022) requires consideration of the 1% AP (1 in 100 year) event, including an appropriate allowance for climate change.

As the Site is located within the Adur and Ouse Management Catchment and the proposed development is classed as More Vulnerable, where the proposed lifespan is approximately 100 years, the Central (25%) allowance is required to determine a suitable climate change factor to apply to rainfall data.

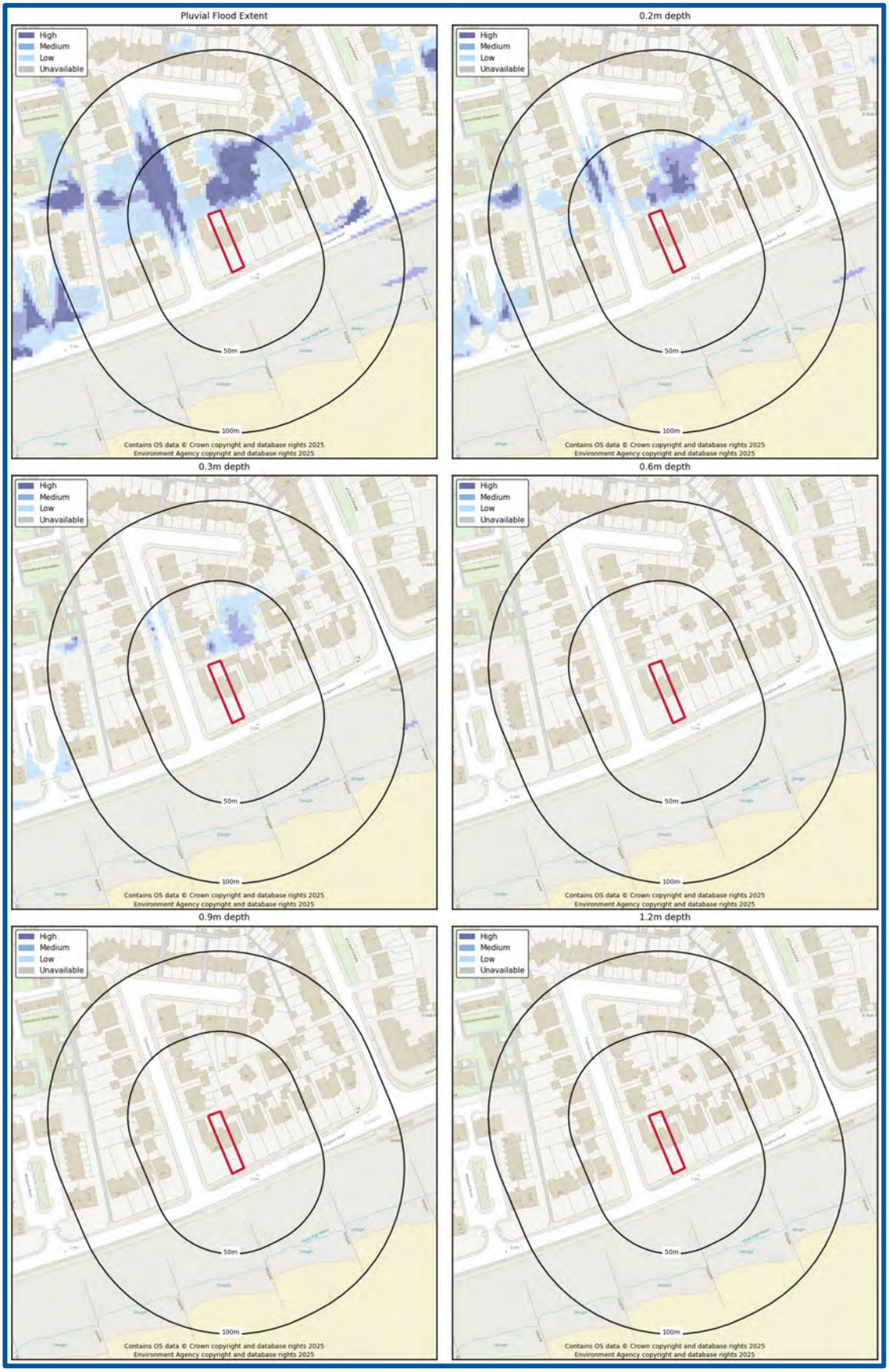
Figure 13 overleaf confirms the extent and depth of flooding in multiple modelled flood scenarios including an allowance for climate change (between 2040 and 2060). The Site is not impacted by surface water flooding up to and including the 1 in 1000 year (Low risk) plus climate change event. It is noted that as the lifetime of the proposed development (100 years) exceeds the climate change prediction (2040 – 2060), the 1 in 1000 year event has been used as a proxy for climate change.

Flood depths of up to 0.3 m are anticipated adjacent to the north of the Site up to and including the 1 in 1000 year event.

Surface water flooding flow routes

Analysis of OS mapping, ground elevation data and the EA's pluvial flow route mapping in the 1 in 1000 year (Low probability) event confirms the Site is not located on a potential overland flow route.

Figure 13. EA surface water flood extent and depth map (EA, 2025)

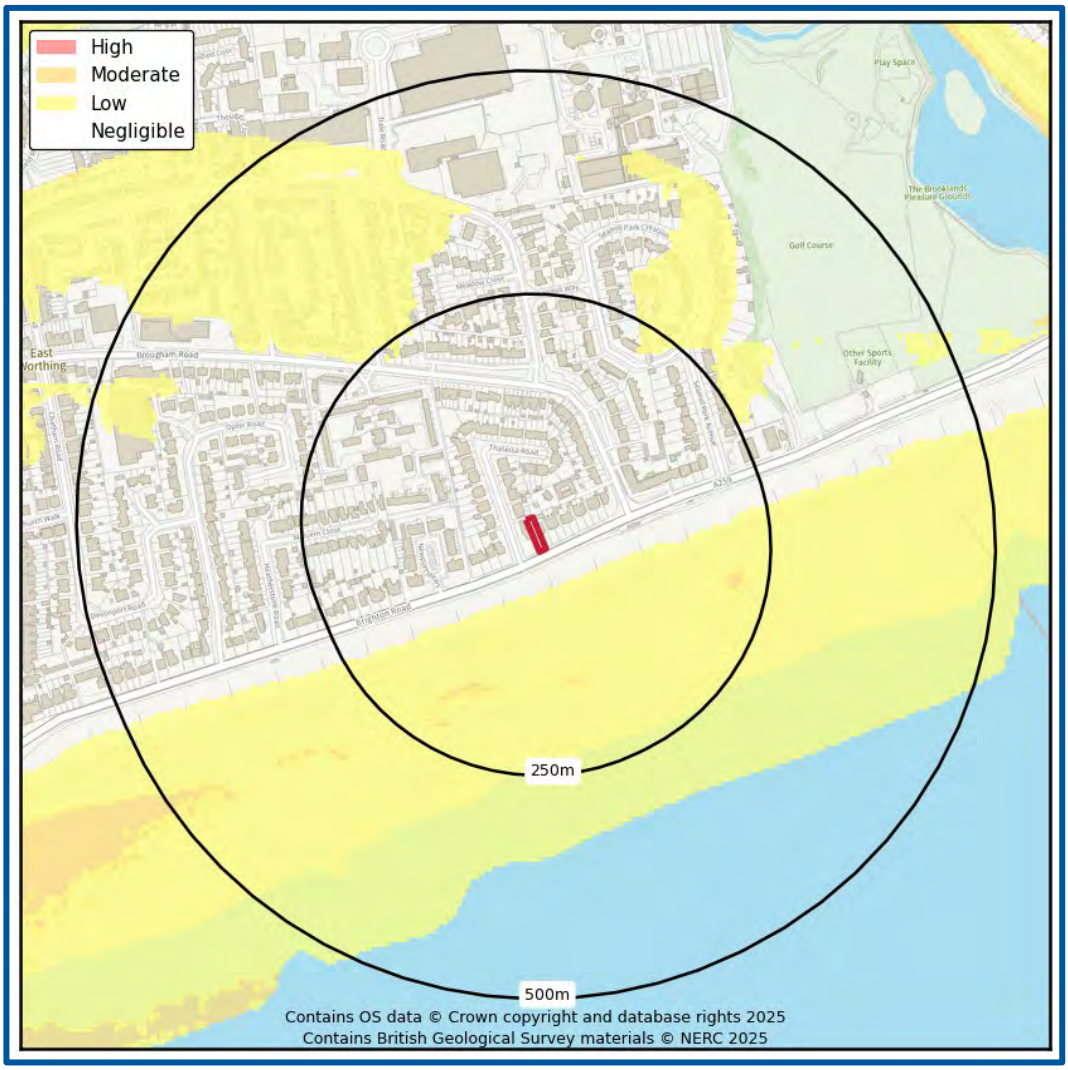


Groundwater flooding

Groundwater flooding occurs when sub-surface water emerges from the ground at the surface or into Made Ground and structures. This may be as a result of persistent rainfall that recharges aquifers until they are full; or may be as a result of high river levels, or tides, driving water through near-surface deposits. Flooding may last a long time compared to surface water flooding, from weeks to months. Hence the amount of damage that is caused to property may be substantially higher.

Groundwater Flood Risk screening data (Figure 13) indicates there is a Negligible risk of groundwater flooding at surface in the vicinity from regional scale mechanisms during a 1 in 100 year event.

Figure 14. GeoSmart GW5 Groundwater Flood Risk Map (GeoSmart, 2025)



Mapped classes within the screening map combine likelihood, possible severity and the uncertainty associated with predicting the subsurface system. The map is a national scale screening tool to prompt site-specific assessment where the impact of groundwater flooding would have significant adverse consequences. Mapping limitations and a number of local

factors may reduce groundwater flood risk to land and property even where it lies within mapped groundwater flood risk zones, which do not mean that groundwater floods will occur across the whole of the risk area.

A site-specific assessment has been undertaken to refine the groundwater risk screening information on the basis of site-specific datasets (see Section 3) including BGS borehole data, and the EA's fluvial and tidal floodplain data (where available) to develop a conceptual groundwater model. The risk rating is refined further using the vulnerability of receptors including occupants and the existing and proposed Site layout, including the presence of basements and buried infrastructure. The presence of any nearby or on-Site surface water features such as drainage ditches, which could intercept groundwater have also been considered.

It is understood the Site contains an existing basement. According to information provided by the Client, the existing basement is set c. 1.76 m bgl and therefore is estimated to be at c. 3.74 mAOD.

The risks are higher for basements, buried infrastructure and soakaway systems which may be affected by high groundwater levels.

According to a review of the hydrogeology (Section 3), the nearby borehole (ref: TQ10SE210) located c. 115 m west of the Site encounter groundwater at 4.29 m bgl during its 7.16 m depth, which is below the level the existing basement is estimated to be set to.

According to a review of the hydrogeology (Section 3), the Site is underlain by potentially permeable superficial deposits of unknown thickness and lateral extent above a bedrock aquifer. The groundwater system is therefore considered to potentially be in continuity with the Site surface as the low permeability superficial deposits may not prevent groundwater rising from the bedrock in a seasonal response to prolonged rainfall recharge which may cause an unusually high peak in groundwater levels during some years.

Groundwater levels may also rise in the bedrock and superficial aquifers in response to high tidal events due to the potential hydraulic continuity with the nearby coast.

Despite the presence of an aquifer the Site would only be at risk of groundwater flooding if the water table reaches the base of the Site development or the ground surface when groundwater seepage could lead to overland flow and ponding.

Appendix J of the SFRA indicates the Site is located in an area where groundwater levels are indicated to be between 0.025 and 5 m below the surface (JBA Consulting, 2024; Appendix D).

Spring lines have not been identified in close proximity to the Site.

The hydrogeological characteristics suggest there is potential for a groundwater table beneath the Site.

The baseline groundwater flood risk rating is Negligible, but as the existing building contains a basement, the groundwater flood risk has been raised to be Low.

Guidance

Low Risk - There will be a remote possibility that incidence of groundwater flooding could lead to damage to property or harm to other sensitive receptors at, or near, this location.

Climate change predictions suggest an increase in the frequency and intensity of extremes in groundwater levels. Rainfall recharge patterns will vary regionally resulting in changes to average groundwater levels. A rise in peak river levels will lead to a response of increased groundwater levels in adjacent aquifers subject to the predicted climate change increases in peak river level for the local catchment. Sea level rises of > 1m are predicted by 2125, leading to a rise in average groundwater levels in the adjacent coastal aquifer systems, and potential increases in water levels in the associated drainage systems. The 'backing up' of groundwater levels from both coast and tidal estuary locations may extend a significant distance inland and affect infrastructure previously constructed above average groundwater levels.

The impact of climate change on groundwater levels beneath the Site is linked to the predicted rise in average sea level.

Flooding from artificial sources

Artificial sources of flood risk include waterbodies or watercourses that have been amended by means of human intervention rather than natural processes. Examples include reservoirs (and associated water supply infrastructure), docks, sewers and canals. The flooding mechanism associated with flood risk from artificial sources is primarily related to breach or failure of structures (reservoir, lake, sewer, canal, flood storage areas, etc.)

Sewer flooding

Table 6-4 of the SFRA has identified 25 incidences or modelled incidences of flooding as a result of surcharging sewers within the BN11 2 postcode. However, it is recognised that this five digit postcode covers a large area and instances of flooding are not specific to the Site (JBA Consulting, 2024).

Guidance

Properties classified as "at risk" are those that have suffered, or are likely to suffer, internal flooding from public foul, combined or surface water sewers due to overloading of the sewerage system either once or twice in the ten year reference period. Records held by the sewage utility company provide information relating to reported incidents, the absence of any records does not mean that the Site is not at risk of flooding.

Canal failure

According to Ordnance Survey (OS) mapping, there are no canals within 500 m of the Site.

Water supply infrastructure

Water supply infrastructure is comprised of a piped network to distribute water to private houses or industrial, commercial or institution establishments and other usage points. In urban areas, this represents a particular risk of flooding due to the large amount of water supply infrastructure, its condition and the density of buildings. The risks of flooding to properties from burst water mains cannot be readily assessed.

If more information regarding the condition and history of the water supply infrastructure within the vicinity of the Site is required, then it is advisable to contact the local water supplier (Southern Water).

Culverts and bridges

The blockage of watercourses or structures by debris (that is, any material moved by a flowing stream including vegetation, sediment and man-made materials or refuse) reduces flow capacity and raises water levels, potentially increasing the risk of flooding. High water levels can cause saturation, seepage and percolation leading to failure of earth embankments or other structures. Debris accumulations can change flow patterns, leading to scour, sedimentation or structural failure.

Culverts and bridges have not been identified within 50 m of the Site.

The SFRA has not identified any historic drainage issues within the Site area (JBA Consulting, 2024).

Reservoir flooding

According to the EA's Risk of Flooding from Reservoir mapping the Site is not at risk of flooding from reservoirs (Figure 15) (EA, 2025).

Figure 15. EA Risk of Reservoir Flooding (EA, 2025)



Guidance

The risk of reservoir flooding is related to the failure of a large reservoir (holding over 25,000 m^3 of water) and is based on the worst-case scenario. Reservoir flooding is extremely unlikely to occur (EA, 2025).

5. Flood risk from the development

Floodplain storage

Where flood storage from any source of flooding is to be lost as a result of development, on-Site level-for-level compensatory storage, accounting for the predicted impacts of climate change over the lifetime of the development, should be provided. Where it is not possible to provide compensatory storage on site, it may be acceptable to provide it off-site if it is hydraulically and hydrologically linked.

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.

The development is located within a tidal Flood Zones 1, 2 and 3, and does not involve an increase in building footprint. Therefore, there would be no displacement of flood water and compensatory flood storage is not required.

Drainage and run-off

Based on the topography and low surface water flood risk in the vicinity, interference or interaction with overland flow paths and inflows from off-Site is considered unlikely.

The development proposals are for the conversion of internal areas of the dwelling and will not involve the alteration of any external features (or any changes to existing impermeable and permeable areas), an estimation of surface water runoff is not considered to be required.

Any changes to the existing drainage system will be undertaken in accordance with best practice and care will be taken to ensure the new development does not overload/block any existing drainage or flow pathways to/from the Site.

6. Suitability of the proposed development

The information below outlines the suitability of proposed development in relation to national and local planning policy.

National policy and guidance

The aims of the national planning policies are achieved through application of the Sequential Test and in some cases the Exception Test.

Guidance

Sequential test: The aim of this test is to steer new development towards areas with the lowest risk of flooding (NPPF, 2024). Reasonably available sites located in Flood Zone 1 should be considered before those in Flood Zone 2 and only when there are no reasonably available sites in Flood Zones 1 and 2 should development in Flood Zone 3 be considered.

Exception test: In some cases, this may need to be applied once the Sequential Test has been considered. For the exception test to be passed it must be demonstrated that the development would provide wider sustainability benefits to the community that outweigh flood risk and a site-specific FRA must demonstrate that the development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall.

Suitability of the proposed development, and whether the Sequential and Exception Tests are required, is based on the Flood Zone the Site is located within and the flood risk vulnerability classification of the existing and proposed development. Some developments may contain different elements of vulnerability and the highest vulnerability category should be used, unless the development is considered in its component parts.

This report has been produced to assess all development types, prior to any development. The vulnerability classification and Flood Zones are compared within the table overleaf (Table 2 of the NPPG (2022)).

As the Site is located almost entirely within Flood Zone 1 (with Flood Zone 2 mapped on the northern Site boundary), all types of development listed within the Table overleaf are acceptable according to National Policy.

Although the application is not considered a 'Change of Use', the proposed development involves internal reconfigurations of the existing dwelling to create two self-contained flats. Therefore, as there is no increase in building footprint nor the creation of new buildings, the proposals may not be subject to the Sequential or Exception Tests.

Table 4. Flood risk vulnerability and flood zone 'incompatibility (taken from NPPG, 2022)

Flood risk vulnerability classification		Essential infrastructure	Water compatible	Highly vulnerable	More vulnerable	Less vulnerable
Flood Zone	Zone 1 – low probability	✓	✓	✓	✓	✓
	Zone 2 – medium probability	✓	✓	Exception test required	✓	✓
	Zone 3a - high probability	Exception test required	✓	X	Exception test required	✓
	Zone 3b – functional flood plain	Exception test required	✓	X	X	X

EA Flood Risk Standing Advice for vulnerable developments located in Flood Zones 2 or 3 (February, 2022)

For all relevant vulnerable developments (i.e. more vulnerable, less vulnerable and water compatible), advice on the points should be followed:

- Surface water management;
- Access and evacuation; and
- Floor levels.

Surface water management

Plans for the management of surface water need to meet the requirements set out in either the local authority's:

- Surface water management plan where available; OR
- Strategic flood risk assessment.

They also need to meet the requirements of the approved building regulations Part H: drainage and water disposal. Read section H3 rainwater drainage.

Planning permission is required to use a material that can't absorb water (e.g. impermeable concrete) in a front garden larger than 5m^2.

Access and evacuation

Details of emergency escape plans should be provided for any parts of a building that are below the estimated flood level:

Plans should show:

- Single storey buildings or ground floors that don't have access to higher floors can access a space above the estimated flood level, e.g. higher ground nearby;
- Basement rooms have clear internal access to an upper level, e.g. a staircase;
- Occupants can leave the building if there's a flood and there's enough time for them to leave after flood warnings.

Floor levels

The following should be provided:

- average ground level of your site
- ground level of the access road(s) next to your building
- finished floor level of the lowest room in your building

Finished floor levels should be a minimum of whichever is higher of 300mm above the:

- average ground level of the site
- adjacent road level to the building
- estimated river or sea flood level

You should also use construction materials that have low permeability up to at least the same height as finished floor levels.

If you cannot raise floor levels to meet the minimum requirement, you will need to:

- raise them as much as possible
- consider moving vulnerable uses to upper floors
- include extra flood resistance and resilience measures

When considering the height of floor levels, you should also consider any additional requirements set out in the SFRA. Flood water can put pressure on buildings causing structural issues. If your design aims to keep out a depth of more than 600mm of water, you should get advice from a structural engineer. They will need to check the design is safe.

Extra flood resistance and resilience measures

Follow the guidance in this section for developments in flood risk areas where you cannot raise the finished floor levels to the required height. You should design buildings to exclude flood water where possible and to speed recovery in case water gets in.

Make sure your flood resilience plans for the development follow the guidance in the CIRIA Property Flood Resilience Code of Practice. Please note that the code of practice uses the term 'recovery measures'. In this guide we use 'resilience measures'.

Flooding can affect the structural stability of buildings. If your building design would exclude more than 600mm of flood water, you should get advice from a structural engineer. They will need to check the design is safe. Only use resistance measures that will not cause structural stability issues during flooding. If it is not possible to safely exclude the estimated flood level, exclude it to the structural limit then allow additional water to flow through the property.

The design should be appropriately flood resistant and resilient by:

- using flood resistant materials that have low permeability to at least 600mm above the estimated flood level
- making sure any doors, windows or other openings are flood resistant to at least 600mm above the estimated flood level
- using flood resilient materials (for example lime plaster) to at least 600mm above the estimated flood level
- by raising all sensitive electrical equipment, wiring and sockets to at least 600mm above the estimated flood level
- making it easy for water to drain away after flooding such as installing a sump and a pump
- making sure there is access to all spaces to enable drying and cleaning
- ensuring that soil pipes are protected from back-flow such as by using non-return valves

Temporary or demountable flood barriers are not appropriate for new buildings. Only consider them for existing buildings when:

- there is clear evidence that it would be inappropriate to raise floor levels and include passive resistance measures
- an appropriate flood warning or other appropriate trigger is available

If proposals involve the development of buildings constructed before 1919, refer to Flooding and Historic Buildings guidance produced by Historic England.

7. Resilience and mitigation

Based on the flood risk identified at the Site, the national and local policies and guidance and proposed development, the mitigation measures outlined within this section of the report are likely to help protect the development from flooding.

Sea (coastal/tidal) flood mitigation measures

The Site is located within an area which is affected by flooding from the sea, the following table confirms the flood depths associated with the area proposed for development.

Table 5. Flood levels compared to ground levels on Site

Ground levels on-Site (mAOD)	Modelled flood levels (mAOD)		
	1 in 200 year (2115) scenario	1 in 200 year (2125) scenario (Higher Central)	1 in 200 year (2125) scenario (Upper End)
5.19 and 6.19	5.60	5.76	5.80
Flood depths (m)	Up to 0.38	Up to 0.57	Up to 0.61

*The climate change allowances have been added onto the flood levels associated with node point 4, in the south of the Site, to account for a worst-case scenario as this node point is associated with the most significant flood levels.

Raising minimum floor levels

The vulnerability classification of the Site and the Flood Zone means proposals for the Site fall under the EA's Flood Risk Standing Advice (FRSA) for more vulnerable developments.

It is understood that existing FFL are set to 0.30 m above surrounding ground levels. Based on EA LiDAR data (2025), surrounding ground levels are between approximately 5.50 – 5.96 mAOD and therefore the FFL are estimated to be set to a minimum of 5.80 mAOD. As the proposed development is for internal reconfigurations of the existing building, it is likely not feasible to further raise FFL. Furthermore, it is noted that the existing dwelling is potentially not internally impacted by flooding in the climate change scenarios.

Due to the uncertainty of flooding in the climate change scenarios and the inclusion of ground floor sleeping accommodation in the development proposals, a Site-specific topographic survey is recommended to determine accurate ground levels and FFL's, which will help to confirm whether internal flooding is likely to occur on-Site. Following the topographic survey, sleeping accommodation should not be situated in areas where internal flooding is anticipated. Additionally, the existing basement should not be used for habitation during the lifetime of the development. Further mitigation measures have been recommended below.

Alternative Mitigation

Although the existing dwelling is not anticipated to be affected by internal flooding, the following water exclusion strategies should be considered. However, it is noted that as the development proposals are for internal configuration of the existing building, options for mitigation measures are limited.

- Passive flood door systems;
- Temporary flood barriers;
- Air brick covers (manual or automatic closing);
- Non-return flap valves on sewer outfalls.
- Landscaping to divert water away from the property;
- Sustainable Drainage Systems (SuDS) to store/intercept flood water;

Avoidance and resistance measures are unlikely to completely prevent floodwater entering a property, particularly during longer duration flood events. Therefore, it is recommended that the following flood resilience measures are also considered.

- Flood resilient materials and designs:
    - Hard flooring and flood resilient metal staircases;
    - The use of internal lime plaster/render or where plasterboards are used these should be fitted horizontally instead of vertically and/or using moisture resistant plasterboard at lower levels;
    - Communications wiring: wiring for telephone, TV, Internet and other services should be protected by suitable insulation in the distribution ducts to prevent damage.

If these mitigation measures are implemented this could ensure the flood risk to the development is somewhat reduced. However, occupants of the ground floor flat would still be at Medium risk in an extreme flooding scenario.

Rivers (fluvial) flood mitigation measures

As the Site is not identified as being at risk of flooding from fluvial sources, mitigation measures are not required.

Surface water (pluvial) flood mitigation measures

As the Site is not identified as being at risk of pluvial flooding, mitigation measures are not required.

Groundwater flood mitigation measures

As there is an existing basement on the Site, the proposed development is considered to be at Low risk of flooding.

It is possible the flood mitigation measures recommended for tidal risk will reduce the groundwater flood risk at the development. However, specific additional groundwater measures that may also be considered for the Low risk identified include:

- Waterproof tanking of the ground floor and basement;
- Interceptor drains;
- Automatic sump to extract flood water; and
- Non-return flap valves on the proposed foul and surface water sewer lines.

If these mitigation measures are implemented this could further reduce the flood risk to the development. It is noted that the existing use of the basement will be retained and will not be inhabited.

Reservoir flood mitigation measures

The Site is not a risk of flooding from reservoirs; therefore, mitigation measures are not required.

Other flood risk mitigation measures

As the Site is not identified as at risk from other sources, mitigation measures are not required.

Residual flood risk mitigation measures

The risk to the Site has been assessed from all sources of flooding and appropriate mitigation and management measures proposed to keep the users of the development safe over its lifetime. There is, however, a residual risk of flooding associated with the potential for failure of mitigation measures if regular maintenance and upkeep isn't undertaken. If mitigation measures are not implemented or maintained, the risk to the development will remain as the baseline risk.

Further flood mitigation information

More information on flood resistance, resilience and water entry can be found here: http://www.planningportal.gov.uk/uploads/br/flood_performance.pdf

www.knowyourfloodrisk.co.uk

Emergency evacuation - safe access / egress and safe refuge

Emergency evacuation to land outside of the floodplain should be provided if feasible. Where this is not possible, more vulnerable' developments and, where possible, development in general (including basements), should have internal stair access to an area of safe refuge within the building to a level higher than the maximum likely water level. An area of safe refuge

should be sufficient in size for all potential users and be reasonably accessible to the emergency services.

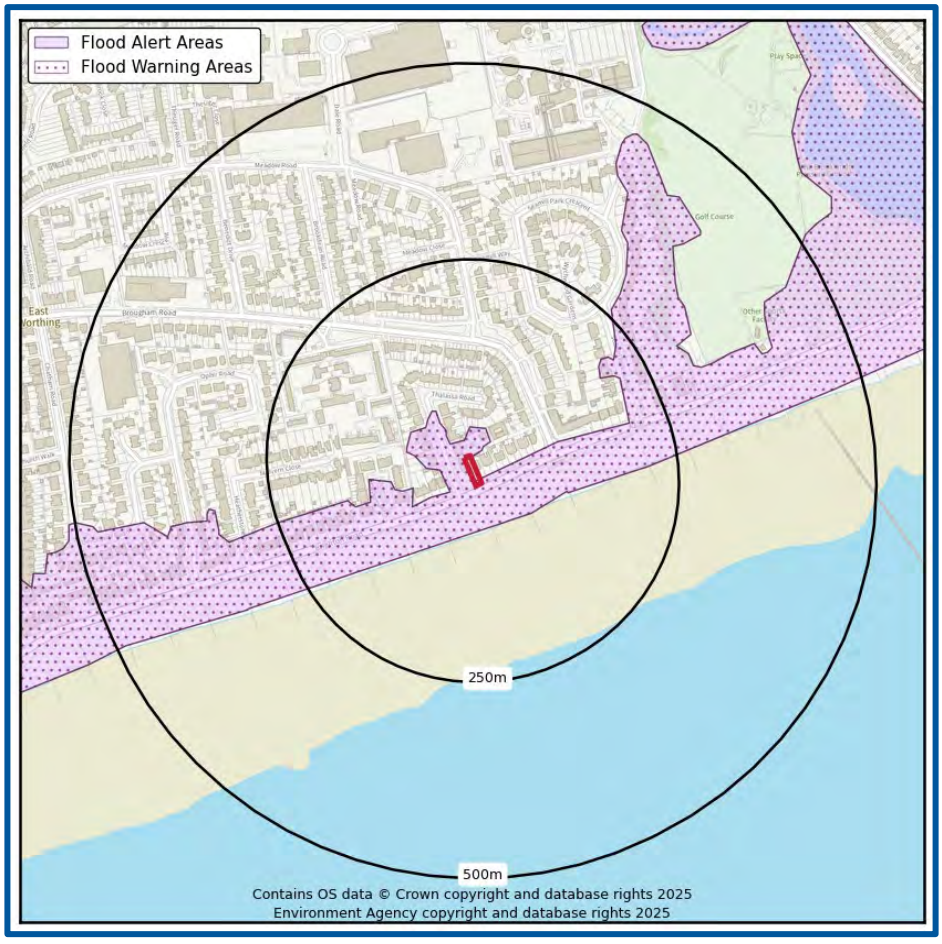
Emergency evacuation from the development and the Site should only be undertaken in strict accordance with any evacuation plans produced for the Site, with an understanding of the flood risks at the Site including available mitigation, the vulnerability of occupants and preferred evacuation routes.

Flood warnings

The EA operates a flood warning service in all areas at risk of flooding; this is available on their website: https://www.gov.uk/check-flood-risk. The Site is located within an EA Flood Alerts/Warning coverage area (ref: 065WAC407 and 065FWC2801, respectively) so is able to receive alerts and warnings (Figure 16). All warnings are also available through the EA's 24 hour Floodline Service 0345 988 1188.

The EA aims to issue Flood Warnings 2 hours in advance of a flood event. Flood Warnings can provide adequate time to enable protection of property and evacuation from a Site, reducing risk to life and property.

Figure 16. EA Flood Warning Coverage for the local area (EA, 2025).



Emergency evacuation and on-Site refuge

Where possible, a safe access and egress route with a 'very low' hazard rating from areas within the floodplain to an area wholly outside the 1 in 100 year flood event including an allowance for climate change should be demonstrated.

Based on the EA's Flood Zone Map the Site, including the area of development, is largely within Flood Zone 1. The closest dry evacuation area within Flood Zone 1 outside of the Site boundary is along Broughham Road (c. 95 m east – direct measurement). It is advised that evacuation from the premises would be the preferred option in a flood event if safe to do so. It is recommended that residents prepare to evacuate as soon as an EA Flood Warning is issued in order to completely avoid flood waters.

Evacuation should be the primary action in preference, however, emergency access from the property may be compromised by extreme flooding and the proposed ground floor flat would not have an alternative to evacuation (it is likely that safe refuge could only be sought at first floor level in a worst-case scenario for the occupants of the first-floor flat). Therefore, the proposal may not meet the requirements for safe access and refuge.

Other relevant information

A Flood Warning and Evacuation Plan (FWEP) is recommended, and occupants should be signed up to receive EAs Flood Alerts and Warnings.

Registration to the Environment Agency's flood warning scheme can be done by following this link: https://www.gov.uk/sign-up-for-flood-warnings.

It is recommended that main communication lines required for contacting the emergency services, electricity sockets/meters, water supply and first aid stations and supplies are not compromised by flood waters. Where possible these should all be raised above the extreme flood level.

8. Conclusions and recommendations

Table 6. Risk ratings following Site analysis

Source of Flood Risk	Baseline[1]	After analysis[2]	After Mitigation[3]
River (fluvial) flooding	Very Low		N/A
Sea (coastal/tidal) flooding	Very Low / Low	Very Low / Low (present day) and Very Low / Medium (climate change)	Very Low / Low (present day) and Very Low / Medium (climate change)
Surface water (pluvial) flooding	Very Low		N/A
Groundwater flooding	Negligible	Low	Low
Other flood risk factors present	Yes (sewers)	Yes (sewers)	N/A
Is any other further work recommended?	Yes	Yes	Yes (see below)

1 BASELINE present day risks assigned for the whole Site, using national risk maps, including the benefit of EA flood defences.

2 AFTER ANALYSIS modification of risk assessment based on detailed site specific analysis including some or all of the following: flood model data, high resolution mapping, building location, access routes, topographic and CCTV surveys. Reasons for the change in classification are provided in the text.

3 AFTER MITIGATION risks include risks to proposed development / asset and occupants if mitigation measures recommended in this report are implemented, including the impacts of climate change.

*N/A indicates where mitigation is not required.

The table below provides a summary of where the responses to key questions are discussed in this report. Providing the recommended mitigation measures are put in place it is possible that flood risk to this Site will be reduced to an acceptable level.

Table 7. Summary of responses to key questions in the report

Key sources of flood risks identified	Tidal and groundwater (see Section 4).
Are standard mitigation measures likely to provide protection from flooding to/from the Site?	Yes (see Section 7).
Is any further work recommended?	Yes (See exec summary and section 7)

9. Further information

The following table includes a list of additional products by GeoSmart:

Additional GeoSmart Products			
✓	Additional assessment: SuDSmart Report		The SuDSmart Report range assesses which drainage options are available for a Site. They build on technical detail starting from simple infiltration screening and work up to more complex SuDS Assessments detailing alternative options and designs. Please contact info@geosmartinfo.co.uk for further information.
✓	Additional assessment: EnviroSmart Report		Provides a robust desk-based assessment of potential contaminated land issues, taking into account the regulatory perspective. Our EnviroSmart reports are designed to be the most cost effective solution for planning conditions. Each report is individually prepared by a highly experienced consultant conversant with Local Authority requirements. Ideal for pre-planning or for addressing planning conditions for small developments. Can also be used for land transactions. Please contact info@geosmartinfo.co.uk for further information.

10. References and glossary

References

British Geological Survey (BGS) (2025). GeoIndex Onshore. Accessed from: https://mapapps2.bgs.ac.uk/geoindex/home.html on 14/01/25.

Defra/Environment Agency (2005). Flood Risk Assessment Guidance for New Development. *Phase 2 Framework and Guidance for Assessing and Managing Flood Risk for New Development – Fill Documentation and Tools*. R & D Technical Report FD232-/TR2.

Environment Agency [EA] (2022). Flood risk assessments: climate change allowances. Accessed from: https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances on 14/01/25.

Environment Agency [EA] (2025). MagicMap. Accessed from: http://magic.defra.gov.uk/MagicMap.aspx on 14/01/25.

Environment Agency [EA] (2025). Flood map for planning. Accessed from https://flood-map-for-planning.service.gov.uk/ on 14/01/25.

Environment Agency [EA] (2025). Long term flood risk assessment for locations in England. Accessed from https://flood-warning-information.service.gov.uk/long-term-flood-risk on 29/01/25.

GeoSmart (2025). GeoSmart groundwater flood risk (GW5) map (version 2.4).

JBA Consulting (2024). Adur and Wothing Level 1 Strategic Flood Risk Assessment. Accessed from: https://www.adur-worthing.gov.uk/media/Media,171789,smxx.pdf on 14/01/25.

Ministry of Housing, Communities & Local Government (2024). National Planning Policy Framework (NPPF). Accessed from: https://assets.publishing.service.gov.uk/media/675abd214cbda57cacd3476e/NPPF-December-2024.pdf f on 14/01/25.

Ministry of Housing, Communities & Local Government (2022). Planning Practice Guidance (NPPG). Flood Risk and Coastal Change. Accessed from https://www.gov.uk/guidance/flood-risk-and-coastal-change on 14/01/25.

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LiDAR Survey Open Data (2025). Accessed from: https://environment.data.gov.uk/DefraDataDownload/?Mode=survey on 14/01/25.

Glossary

General terms

BGS	British Geological Survey
EA	Environment Agency
GeoSmart groundwater flood risk model	GeoSmart's national groundwater flood risk model takes advantage of all the available data and provides a preliminary indication of groundwater flood risk on a 50m grid covering England and Wales. The model indicates the risk of the water table coming within 1 m of the ground surface for an indicative 1 in 100 year return period scenario.
Dry-Island	An area considered at low risk of flooding (e.g. In a Flood Zone 1) that is entirely surrounded by areas at higher risk of flooding (e.g. Flood Zone 2 and 3)
Flood resilience	Flood resilience or wet-proofing accepts that water will enter the building, but through careful design will minimise damage and allow the re-occupancy of the building quickly. Mitigation measures that reduce the damage to a property caused by flooding can include water entry strategies, raising electrical sockets off the floor, hard flooring.
Flood resistance	Flood resistance, or dry-proofing, stops water entering a building. Mitigation measures that prevent or reduce the likelihood of water entering a property can include raising flood levels or installation of sandbags.
Flood Zone 1	This zone has less than a 0.1% annual probability of river flooding
Flood Zone 2	This zone has between 0.1 and 1% annual probability of river flooding and between 0.1% and 0.5 % annual probability sea flooding
Flood Zone 3	This zone has more than a 1% annual probability of river flooding and 0.5% annual probability of sea flooding
Functional Flood Plain	An area of land where water has to flow or be stored in times of flood.
Hydrologic model	A computer model that simulates surface run-off or fluvial flow. The typical accuracy of hydrologic models such as this is ±0.25m for estimating flood levels at particular locations.
OS	Ordnance Survey
Residual Flood Risk	The flood risk remaining after taking mitigating actions.
SFRA	Strategic Flood Risk Assessment. This is a brief flood risk assessment provided by the local council

SuDS	A Sustainable drainage system (SuDS) is designed to replicate, as closely as possible, the natural drainage from the Site (before development) to ensure that the flood risk downstream of the Site does not increase as a result of the land being developed. SuDS also significantly improve the quality of water leaving the Site and can also improve the amenity and biodiversity that a Site has to offer. There are a range of SuDS options available to provide effective surface water management that intercept and store excess run-off. Sites over 1 Ha will usually require a sustainable drainage assessment if planning permission is required. The current proposal is that from April 2014 for more than a single dwelling the drainage system will require approval from the SuDS Approval Board (SABs).

Aquifer Types

Principal aquifer	These are layers of rock or drift deposits that have high intergranular and/or fracture permeability - meaning they usually provide a high level of water storage. They may support water supply and/or river base flow on a strategic scale.
Secondary A aquifer	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers.
Secondary B aquifer	Predominantly lower permeability layers which may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering.
Secondary undifferentiated	Has been assigned in cases where it has not been possible to attribute either category A or B to a rock type due to the variable characteristics of the rock type.
Unproductive Strata	These are rock layers or drift deposits with low permeability that has negligible significance for water supply or river base flow.

NPPF (2024) terms

Exception test	Applied once the sequential test has been passed. For the exception test to be passed it must be demonstrated that the development provides wider sustainability benefits to the community that outweigh flood risk and a site-specific FRA must demonstrate that the development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall.
Sequential test	Aims to steer new development to areas with the lowest probability of flooding.
Essential infrastructure	Essential infrastructure includes essential transport infrastructure, essential utility infrastructure and wind turbines.

Water compatible	Water compatible land uses include flood control infrastructure, water-based recreation and lifeguard/coastal stations.
Less vulnerable	Less vulnerable land uses include police/ambulance/fire stations which are not required to be operational during flooding and buildings used for shops/financial/professional/other services.
More vulnerable	More vulnerable land uses include hospitals, residential institutions, buildings used for dwelling houses/student halls/drinking establishments/hotels and sites used for holiday or short-let caravans and camping.
Highly vulnerable	Highly vulnerable land uses include police/ambulance/fire stations which are required to be operational during flooding, basement dwellings and caravans/mobile homes/park homes intended for permanent residential use.

Data Sources

Aerial Photography	Contains Ordnance Survey data © Crown copyright and database right 2025 BlueSky copyright and database rights 2025
Bedrock & Superficial Geology	Contains British Geological Survey materials © NERC 2025 Ordnance Survey data © Crown copyright and database right 2025
Flood Risk (Flood Zone/RoFRS/Historic Flooding/Pluvial/Surface Water Features/Reservoir/ Flood Alert & Warning)	Environment Agency copyright and database rights 2025 Ordnance Survey data © Crown copyright and database right 2025
Flood Risk (Groundwater)	GeoSmart, BGS & OS GW5 (v2.4) Map (GeoSmart, 2025) Contains British Geological Survey materials © NERC 2025 Ordnance Survey data © Crown copyright and database right 2025
Location Plan	Contains Ordnance Survey data © Crown copyright and database right 2025
Topographic Data	OS LiDAR/EA Contains Ordnance Survey data © Crown copyright and database right 2025 Environment Agency copyright and database rights 2025

11. Appendices

GeoSmart Information

Appendix A

Site plans

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Notes

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It is the contractors responsibility to ensure compliance with Building Regulations.



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PROPOSED BLOCK PLAN 1:500 @ A1



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LOCATION PLAN 1:1250 @ A1

LEGEND

- SITE BOUNDARY LINE
- SITE SHARED BOUNDARY LINE
- SUBJECT BUILDING
- NEIGHBOURING BUILDINGS
- PROPOSED NEW STRUCTURE
- REMOVED STRUCTURE
- EXISTING TREE (APPLICABLE)
- REMOVED TREE

LIFE SIZE
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studio@lifesizearchitecture.co.uk
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description:	date:	revision:
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title:

EXISTING & PROPOSED LOCATION & BLOCK PLANS

project no: **23006BR**

drawing no: **EX01**

drawing status: **PLANNING**

client: ANARA PROPERTY

project: 299 BRIGHTON ROAD, WORTHING
DIVISION INTO TWO FLATS

date:	scale:	drawn:	checked:
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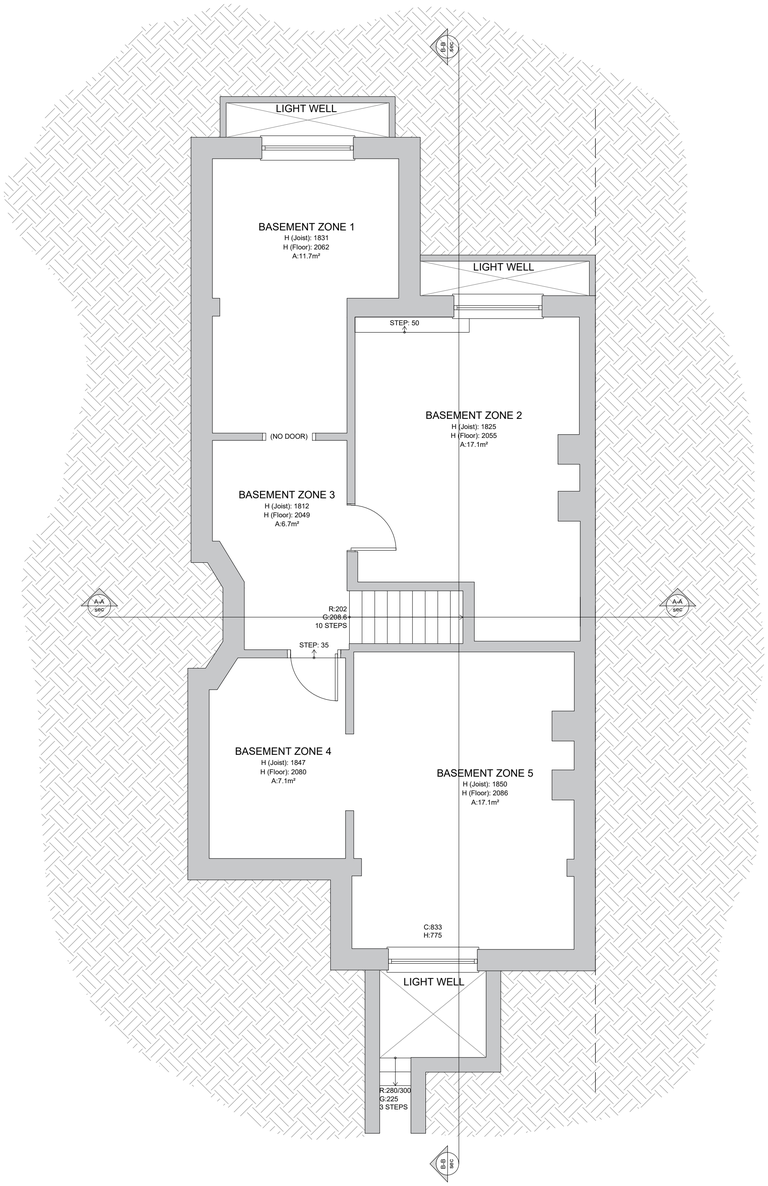

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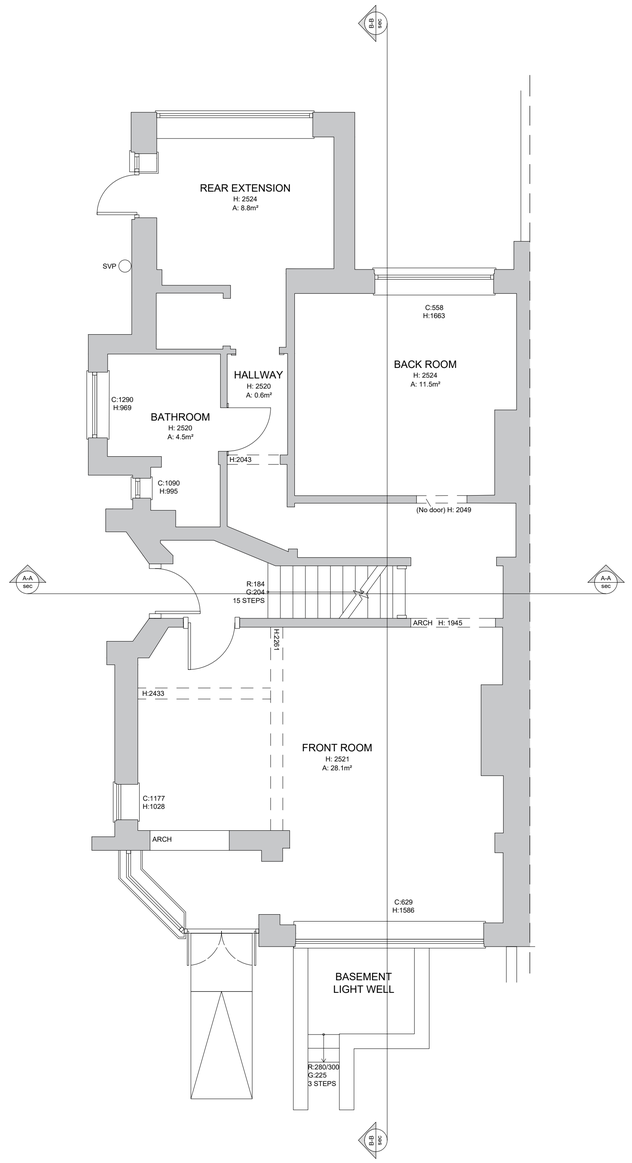

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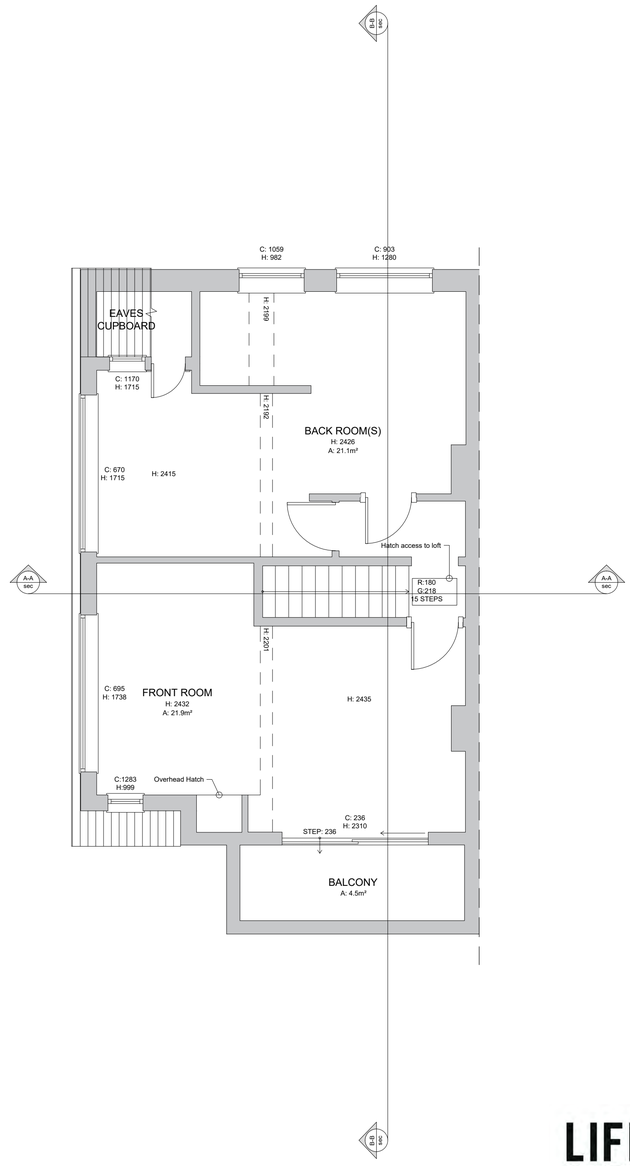

AS EXISTING FIRST FLOOR PLAN 1:50 @ A1

LEGEND

- GAS METERS
- ELECTRICAL METERS
- BOILER
- CONSUMER UNIT
- MEGAFLOW UNIT
- RAD — RADIATOR
- HTR — HEATED TOWEL RAIL
- DIRECTION OF ROOF FALL
- IC INV:311 — INSPECTION CHAMBER
- SVP — SOIL VENTILATION STACK
- SS — STUB STACK
- RWP — RAINWATER PIPE
- GUL — GULLEY
- W/FD — WATER FEED/OR TAPS
- PENDANT LIGHT FITTING
- WALL MOUNTED LIGHT FITTING
- SPOT/ DOWN LIGHT FITTING
- UP LIGHT FITTING
- EXT — EXTERNAL LIGHT FITTING
- CEILING FAN
- FD30 — 30MIN FIRE RATED DOOR
- SD — SMOKE DETECTOR
- HD — HEAT DETECTOR
- CD — CARBON MONOXIDE DETECTOR
- TG — TOUGHENED SAFETY GLASS
- OG — OBSCURE GLAZING
- 30L/S MECHANICAL VENTILATION
- 60L/S MECHANICAL VENTILATION
- BESPOKE MECHANICAL VENTILATION
- KV — KITCHEN VENTILATION FLUE
- BV — BATHROOM VENTILATION FLUE
- UV — UTILITY ROOM VENTILATION FLUE
- BF — BOILER VENTILATION FLUE
- TV — TUMBLE DRYER VENTILATION

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scale in metres

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client: ANARA PROPERTY

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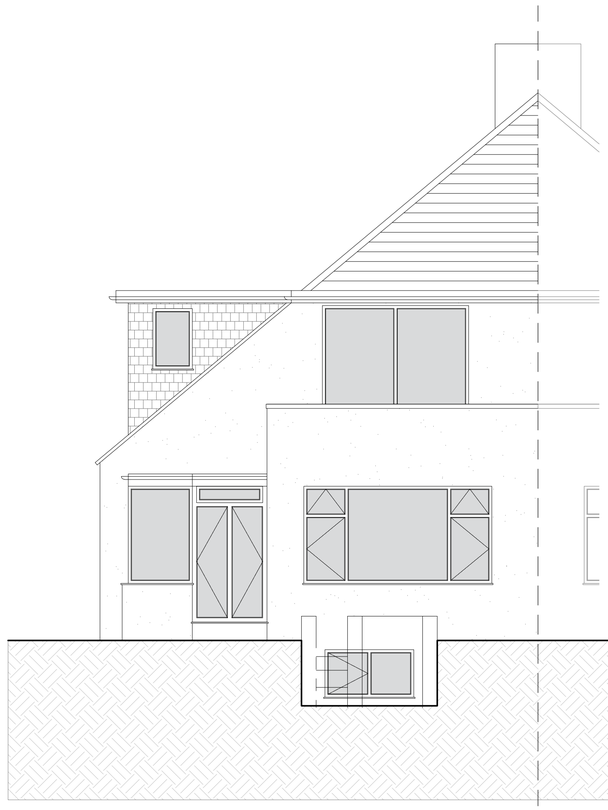

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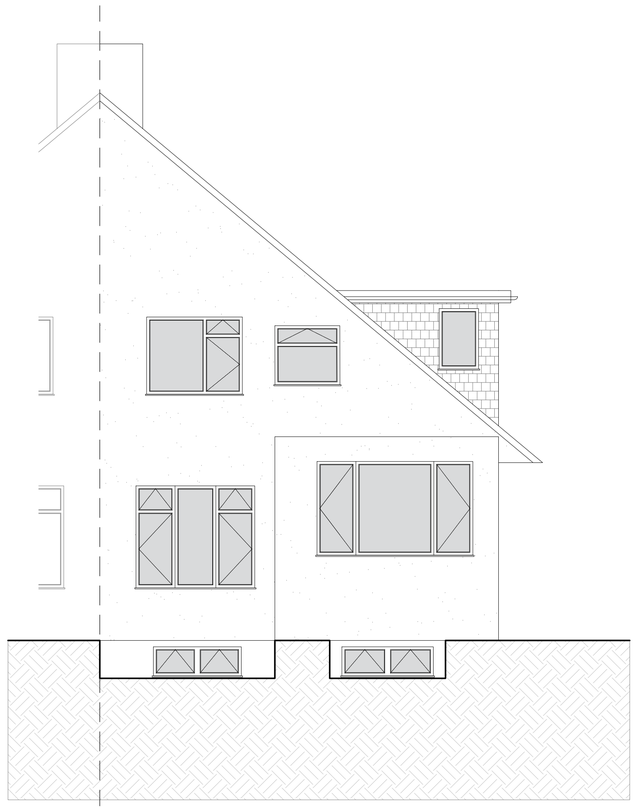

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project no:
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drawing status:
PLANNING

client:
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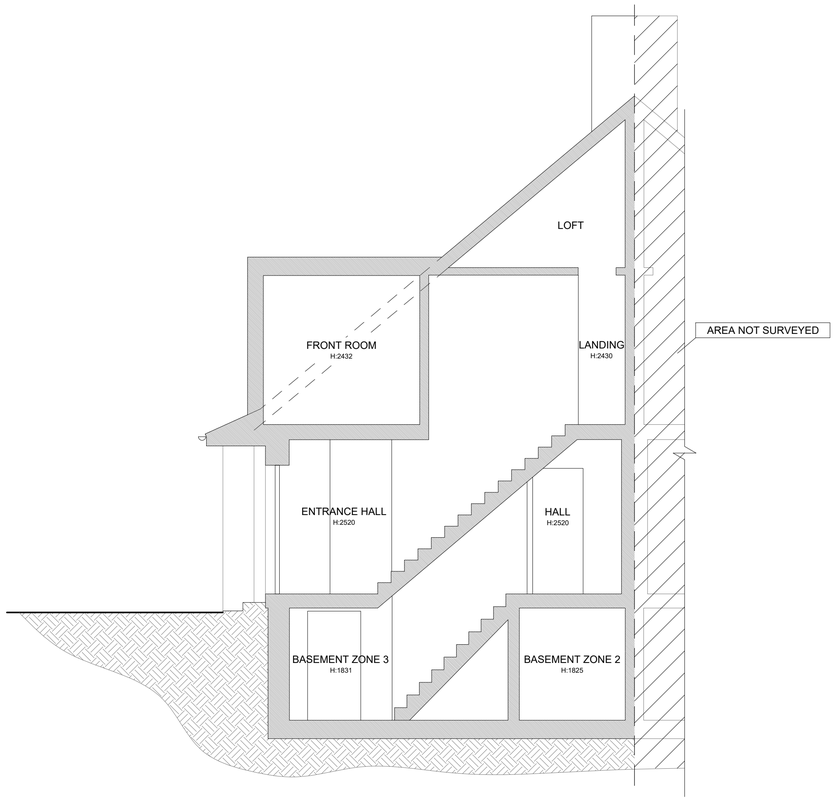

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AS EXISTING SECTION B-B 1:50 @ A1



scale in metres

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AMENDED FOR PLANNING	08/05/24	A

title:

EXISTING SECTIONS

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drawing no:
EX04

drawing status:
PLANNING

client:
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project:
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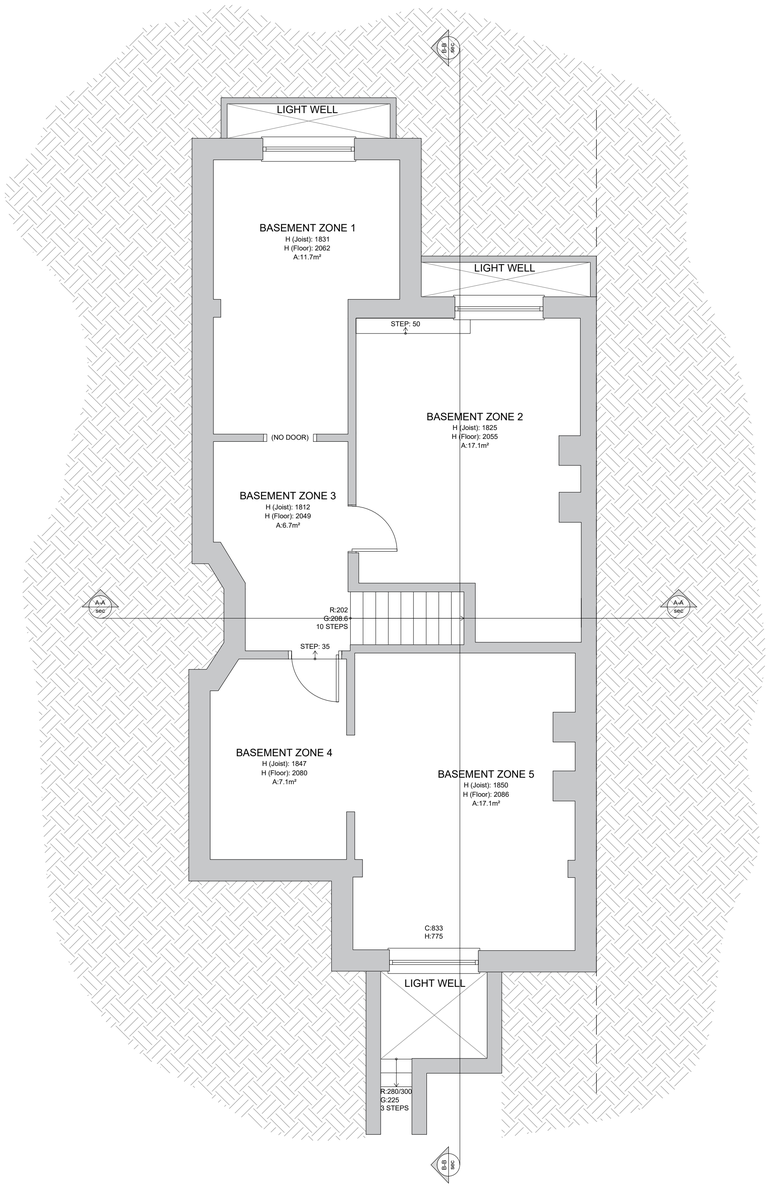
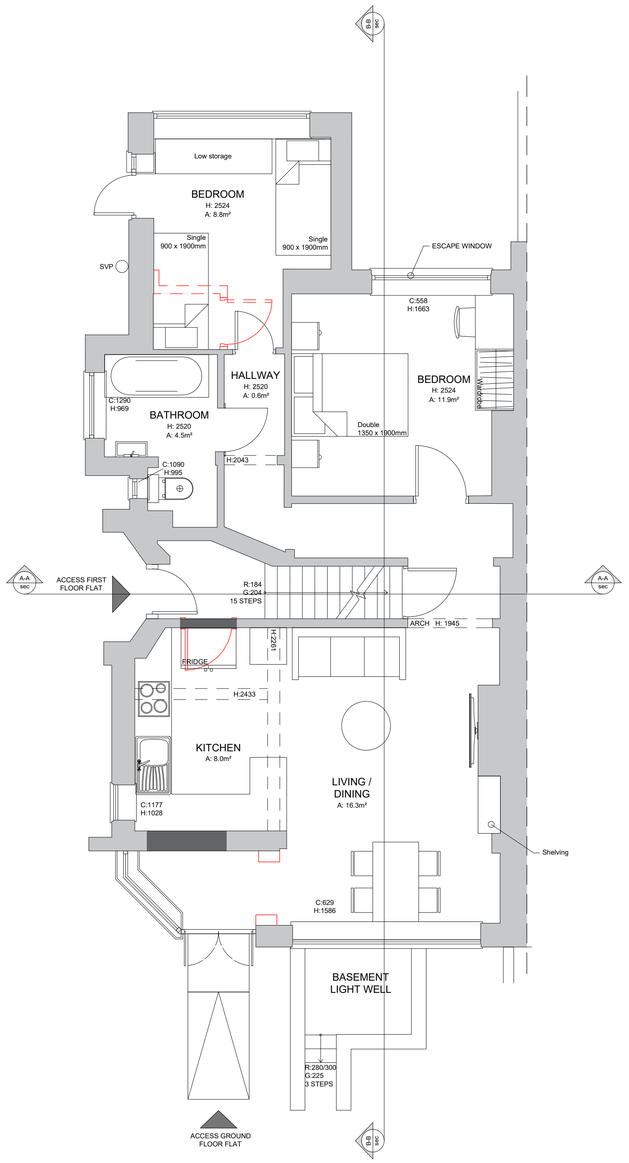


PROPOSED BASEMENT FLOOR PLAN 1:50 @ A1



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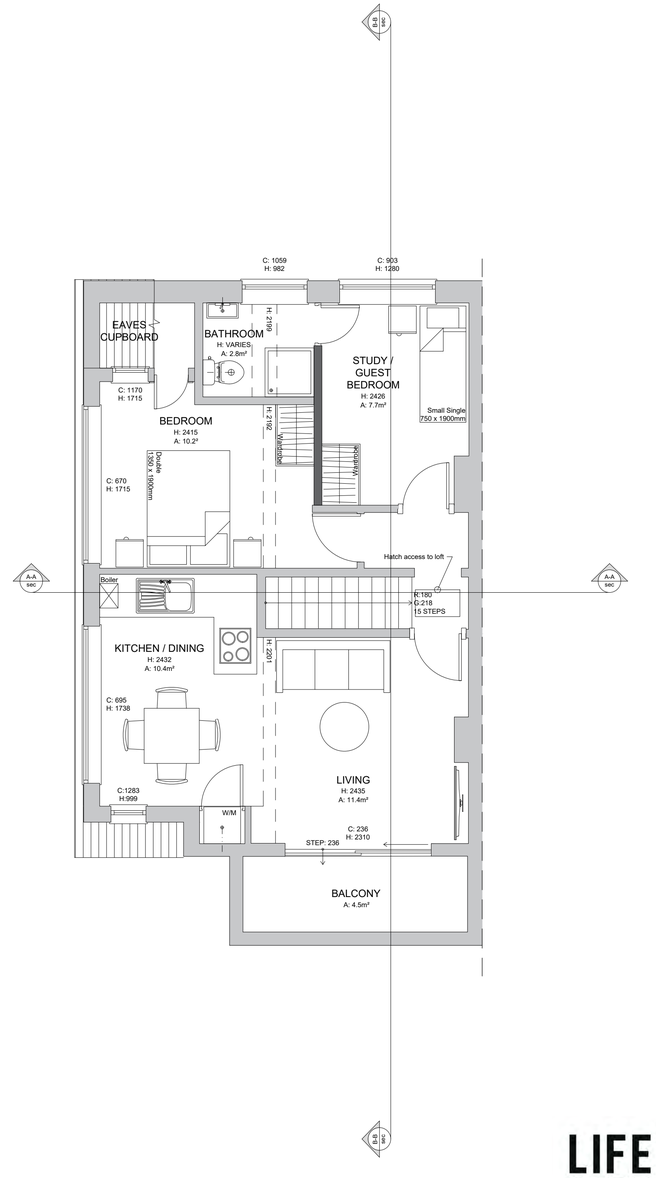

PROPOSED FIRST FLOOR PLAN 1:50 @ A1

LEGEND

- GAS — GAS METERS
- ELE — ELECTRICAL METERS
- BOILER
- CONSUMER UNIT
- M/F — MEGAFLOW UNIT
- RAD — RADIATOR
- HTR — HEATED TOWEL RAIL
- DIRECTION OF ROOF FALL
- IC INV:311 — INSPECTION CHAMBER
- SVP — SOIL VENTILATION STACK
- SS — STUB STACK
- RWP — RAINWATER PIPE
- GUL — GULLEY
- W/FD — WATER FEED/OR TAPS
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- WALL MOUNTED LIGHT FITTING
- SPOT/ DOWN LIGHT FITTING
- UP LIGHT FITTING
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- BF — BOILER VENTILATION FLUE
- TV — TUMBLE DRYER VENTILATION

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scale in metres

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title:

PROPOSED FLOOR PLANS

project no: **23006BR**

drawing no: **PR01**

drawing status:

PLANNING

client:
ANARA PROPERTY

project:
299 BRIGHTON ROAD, WORTHING
DIVISION INTO TWO FLATS

date:	scale:	drawn:	checked:
10/04/24	1:50 @ A1	CD	RB

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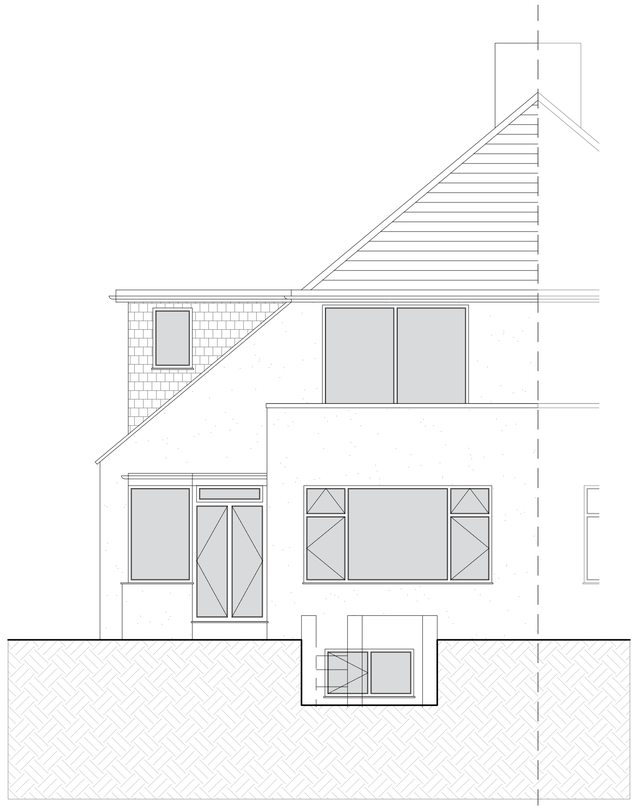

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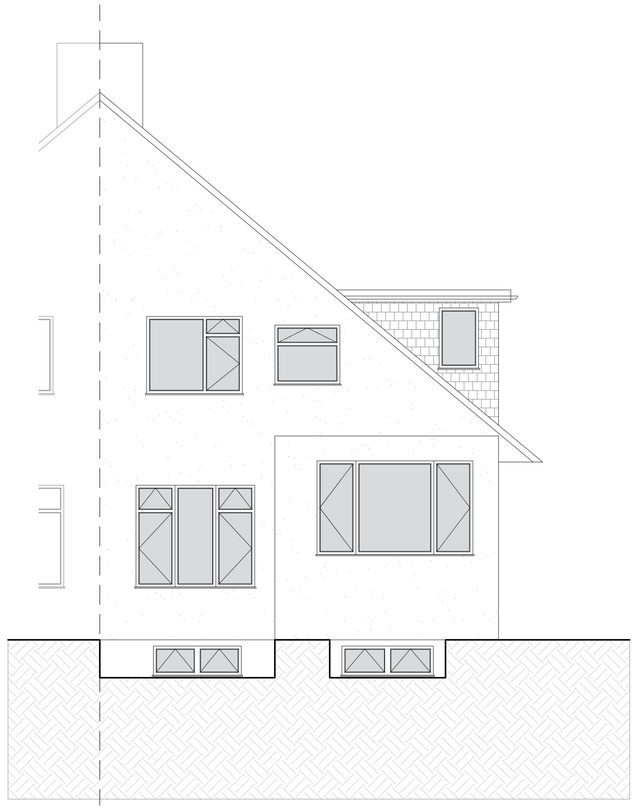

PROPOSED REAR ELEVATION (NW) 1:50 @ A1

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scale in metres

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title:
PROPOSED ELEVATIONS

project no:
23006BR

drawing no:
PR02

drawing status:
PLANNING

client:
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project:
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DIVISION INTO TWO FLATS

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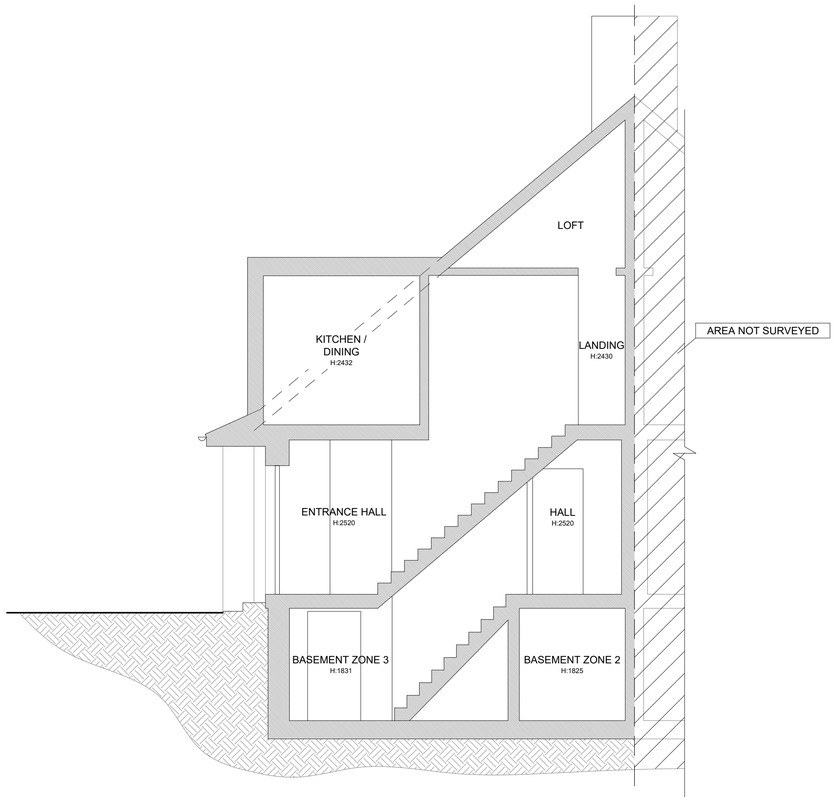
Notes

All measurements are to be taken from site prior to the commencement of works.

It is the contractors responsibility to ensure compliance with Building Regulations.



PROPOSED SECTION A-A 1:50 @ A1



PROPOSED SECTION B-B 1:50 @ A1

0 1.0 2.0 3.0 4.0 5.0 10.0

scale in metres

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description:	date:	revision:
AMENDED FOR PLANNING	08/05/24	A

title:

PROPOSED SECTIONS

project no:
23006BR

drawing no:
PR03

drawing status:
PLANNING

client:
ANARA PROPERTY

project:
299 BRIGHTON ROAD, WORTHING
DIVISION INTO TWO FLATS

date:	scale:	drawn:	checked:
10/04/24	1:50 @ A1	CD	RB

GeoSmart Information

Appendix B

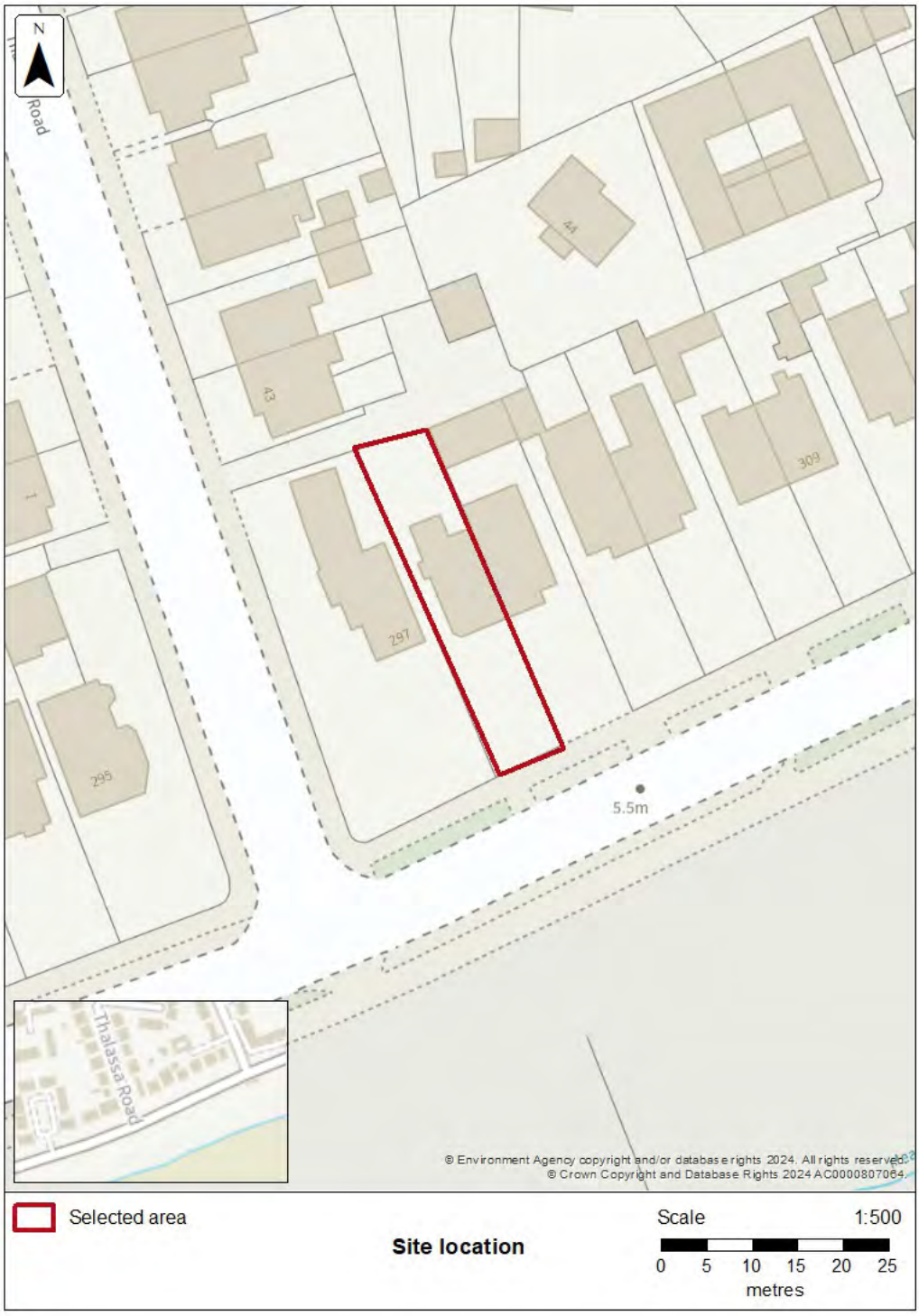


Environment Agency data

Flood risk assessment data

Location of site: 299 Brighton Road, Worthing, BN11 2HL
Document created on: 30 December 2024
This information was previously known as a product 4.
Customer reference number: SSD389003

Map showing the location that flood risk assessment data has been requested for.



How to use this information

You can use this information as part of a flood risk assessment for a planning application. To do this, you should include it in the appendix of your flood risk assessment.

We recommend that you work with a flood risk consultant to get your flood risk assessment.

Included in this document

In this document you'll find:

- how to find information about surface water and other sources of flooding
- information on the models used
- definitions for the terminology used throughout
- flood map for planning (rivers and the sea)
- past floods
- flood defences and attributes
- information to help you assess if there is a reduced flood risk from rivers and the sea because of defences
- modelled data
- climate change modelled data
- information about strategic flood risk assessments
- information about this data
- information about flood risk activity permits
- help and advice

Surface water and other sources of flooding

Use the long term flood risk service to find out about the risk of flooding from:

- surface water
- ordinary watercourses
- reservoirs

Or you can contact your Lead Local Flood Authority for further information.

Your Lead Local Flood Authority is West Sussex County.

For information about sewer flooding, contact the relevant water company for the area.

About the models used

Model name: Arun Coastal Model, 2012
Scenario(s): Defended tidal, Undefended tidal
Date: 20 August 2012

These models contain the most relevant data for your area of interest.

Terminology used

Annual exceedance probability (AEP)

This refers to the probability of a flood event occurring in any year. The probability is expressed as a percentage. For example, a large flood which is calculated to have a 1% chance of occuring in any one year, is described as 1% AEP.

Metres above ordnance datum (mAOD)

All flood levels are given in metres above ordnance datum which is defined as the mean sea level at Newlyn, Cornwall.

Flood map for planning (rivers and the sea)

Your selected location is in flood zone 3.

Flood zone 3 shows the area at risk of flooding for an undefended flood event with a:

- 0.5% or greater probability of occurring in any year for flooding from the sea
- 1% or greater probability of occurring in any year for fluvial (river) flooding

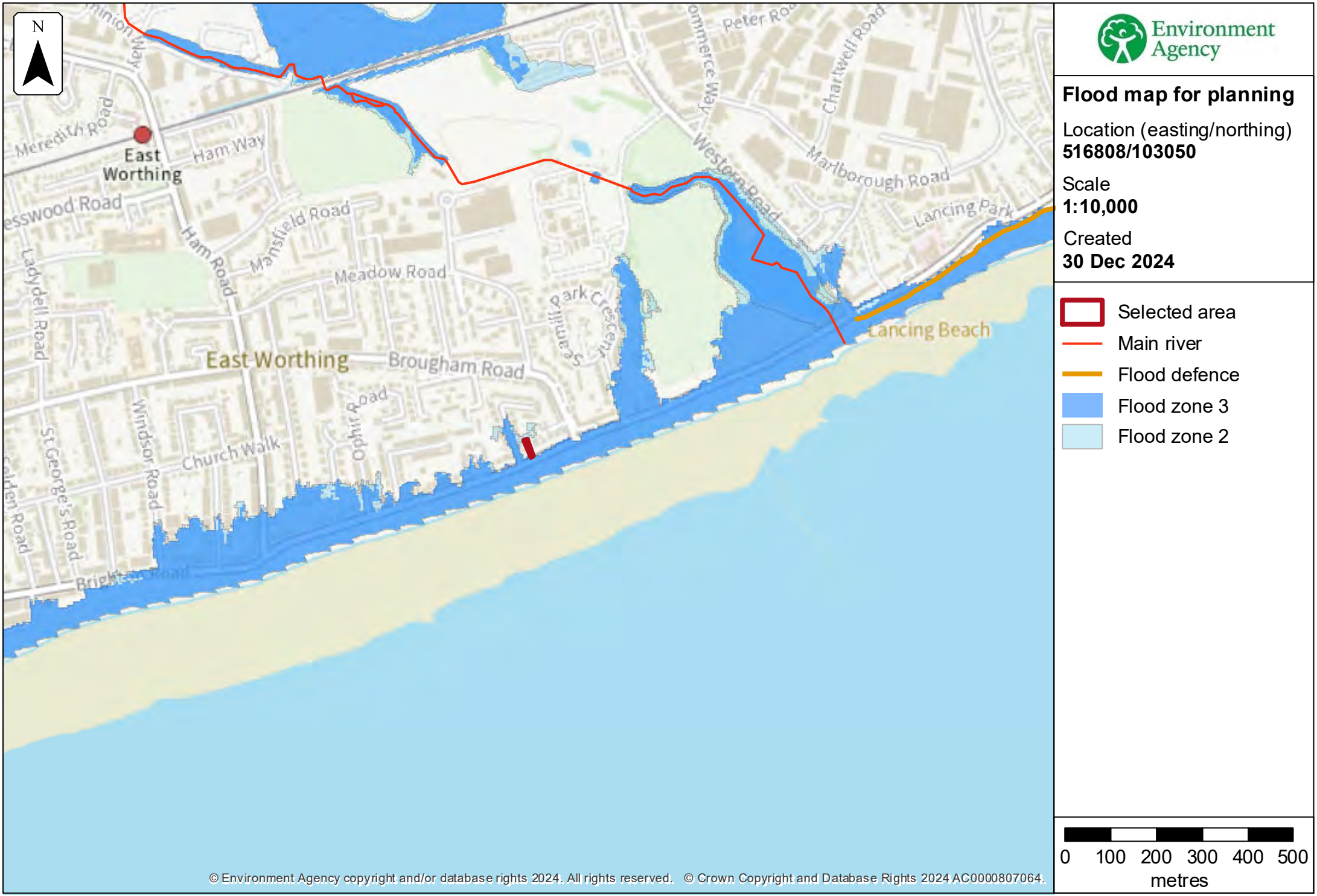
Flood zone 2 shows the area at risk of flooding for an undefended flood event with:

- between a 0.1% and 0.5% probability of occurring in any year for flooding from the sea
- between a 0.1% and 1% probability of occurring in any year for fluvial (river) flooding

It's important to remember that the flood zones on this map:

- refer to the land at risk of flooding and do not refer to individual properties
- refer to the probability of river and sea flooding, ignoring the presence of defences
- do not take into account potential impacts of climate change

The flood zones are not currently being updated. The last update was in November 2023. Some of the flood zones may have changed, however all source data is included in the models below.



Environment Agency

Flood map for planning

Location (easting/northing)
516808/103050

Scale
1:10,000

Created
30 Dec 2024

- Selected area
- Main river
- Flood defence
- Flood zone 3
- Flood zone 2

0 100 200 300 400 500
metres

Past floods

Past flood events included in this document

The recorded flood outlines included in this document are for areas of land local to your site location that have been flooded by any of these sources:

- ephemeral water
- main rivers
- ordinary watercourses
- the sea

Data limitations

The outlines do not include flooding from:

- drainage where rainfall has led to surface water ponding or overland runoff
- artificial, water-bearing sewer, water supply and wastewater treatment pipelines

Changes to flood defences

The defences (also known as assets) that were in place may also have changed. For example, assets may have been built more recently than the last recorded flood outline.

What the recorded flood outlines dataset is

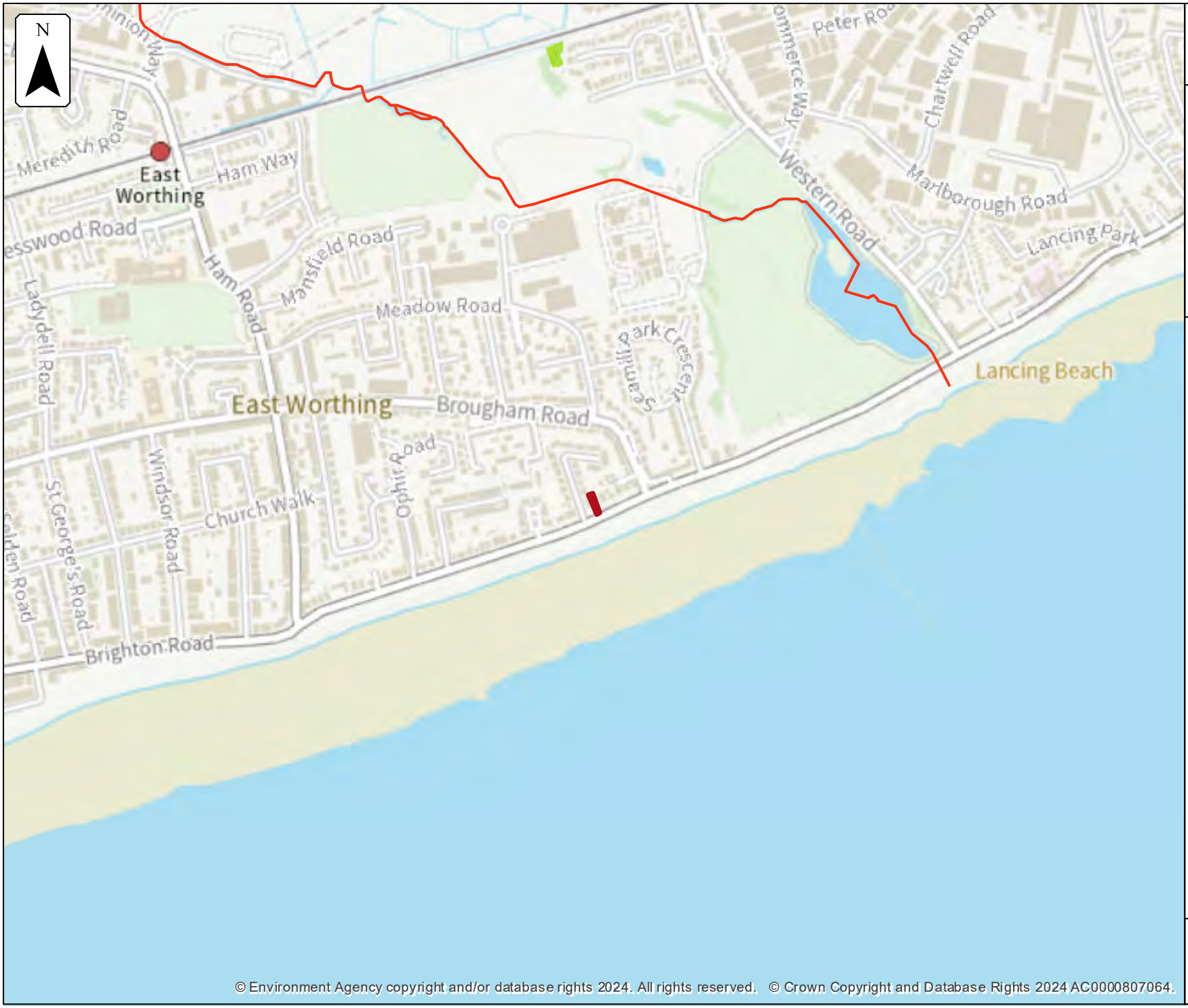
The recorded flood outlines are a geographical information system (GIS) data layer that show our verified records of areas that have flooded in the past from:

- rivers
- the sea
- groundwater
- surface water

Download the complete recorded flood outlines dataset, which includes data quality flags for outlines recorded after April 2020. This indicates the confidence we have in an outline.

Get flood information from other organisations

Contact West Sussex County Lead Local Flood Authority (LLFA) and your drainage board to get information about past flooding caused by surface water or drainage systems.



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Environment Agency

Past floods

Location (easting/northing)
516808/103050

Scale
1:10,000

Created
30 Dec 2024

Selected area

Main river

Date of flood event

September, 1980

0 100 200 300 400 500
metres

Data on past flood events

Start date	End date	Source of flood	Cause of flood	Affects location
20 September 1980	20 September 1980	main river	obstruction/blockage - channel	No

Flood defences and attributes

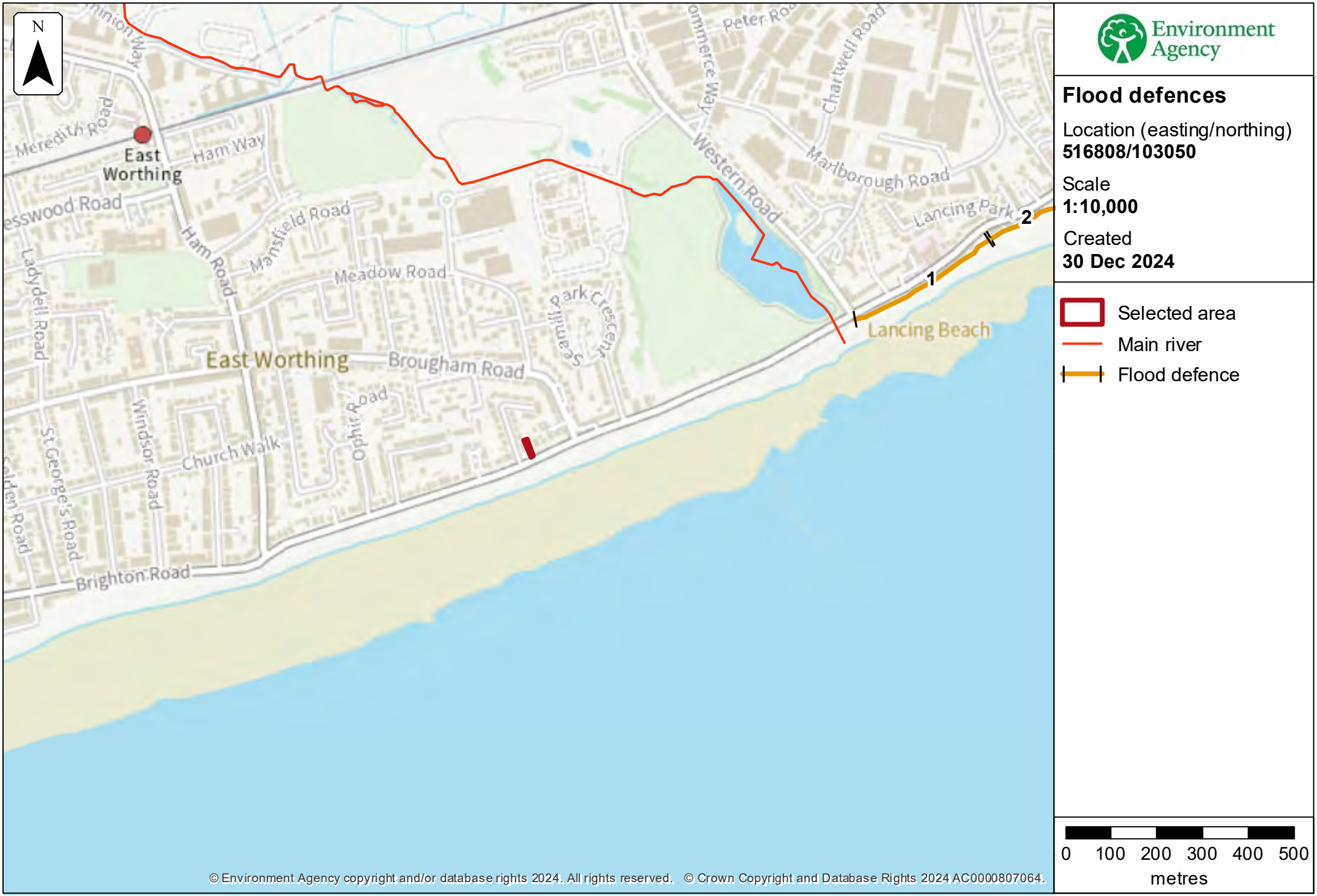
The flood defences map shows the location of the flood defences present.

The flood defences data table shows the type of defences, their condition and the standard of protection. It shows the height above sea level of the top of the flood defence (crest level). The height is In mAOD which is the metres above the mean sea level at Newlyn, Cornwall.

It's important to remember that flood defence data may not be updated on a regular basis. The information here is based on the best available data.

Use this information:

- to help you assess if there is a reduced flood risk for this location because of defences
- with any information in the modelled data section to find out the impact of defences on flood risk


N
East Worthing
Ham Way
Meredith Road
Ham Road
Mansfield Road
Meadow Road
Ladydell Road
East Worthing
Brougham Road
Church Walk
Windsor Road
St George's Road
Brighton Road
Ophir Road
Seamill Park Crescent
Western Road
Marlborough Road
Lancing Park
Lancing Beach
1
2
Environment Agency
Flood defences
Location (easting/northing)
516808/103050
Scale
1:10,000
Created
30 Dec 2024
Selected area
Main river
Flood defence
0 100 200 300 400 500
metres
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Flood defences data

Label	Asset ID	Asset Type	Standard of protection (years)	Current condition	Downstream actual crest level (mAOD)	Upstream actual crest level (mAOD)	Effective crest level (mAOD)
1	167783	Beach	200				7.10
2	148399	Beach	100				7.10

Any blank cells show where a particular value has not been recorded for an asset.

Modelled data

This section provides details of different scenarios we have modelled and includes the following (where available):

- outline maps showing the area at risk from flooding in different modelled scenarios
- map(s) showing the approximate water levels for the return period with the largest flood extent for a scenario and table(s) of sample points providing details of the flood risk for different return periods

Climate change

The climate change data included in the models may not include the latest flood risk assessment climate change allowances. Where the new allowances are not available you will need to consider this data and factor in the new allowances to demonstrate the development will be safe from flooding.

The Environment Agency will incorporate the new allowances into future modelling studies. For now, it's your responsibility to demonstrate that new developments will be safe in flood risk terms for their lifetime.

Modelled scenarios

The following scenarios are included:

- Defended modelled tidal: risk of flooding from the sea where there are flood defences
- Defences removed modelled tidal: risk of flooding from the sea where flood defences have been removed

Modelled Flood Outlines (Defended Tidal). Centred BN11 2HL. Created 30/12/2024.



Environment Agency

N

Legend

- Site Boundary
- 0.5% AEP (2012) (Defended)
- 0.5% AEP (2070) (Defended)
- 0.5% AEP (2115) (Defended)
- 0.1% AEP (2012) (Defended)

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

Scale: 1:10,000

0 0.225 0.45
Kilometers

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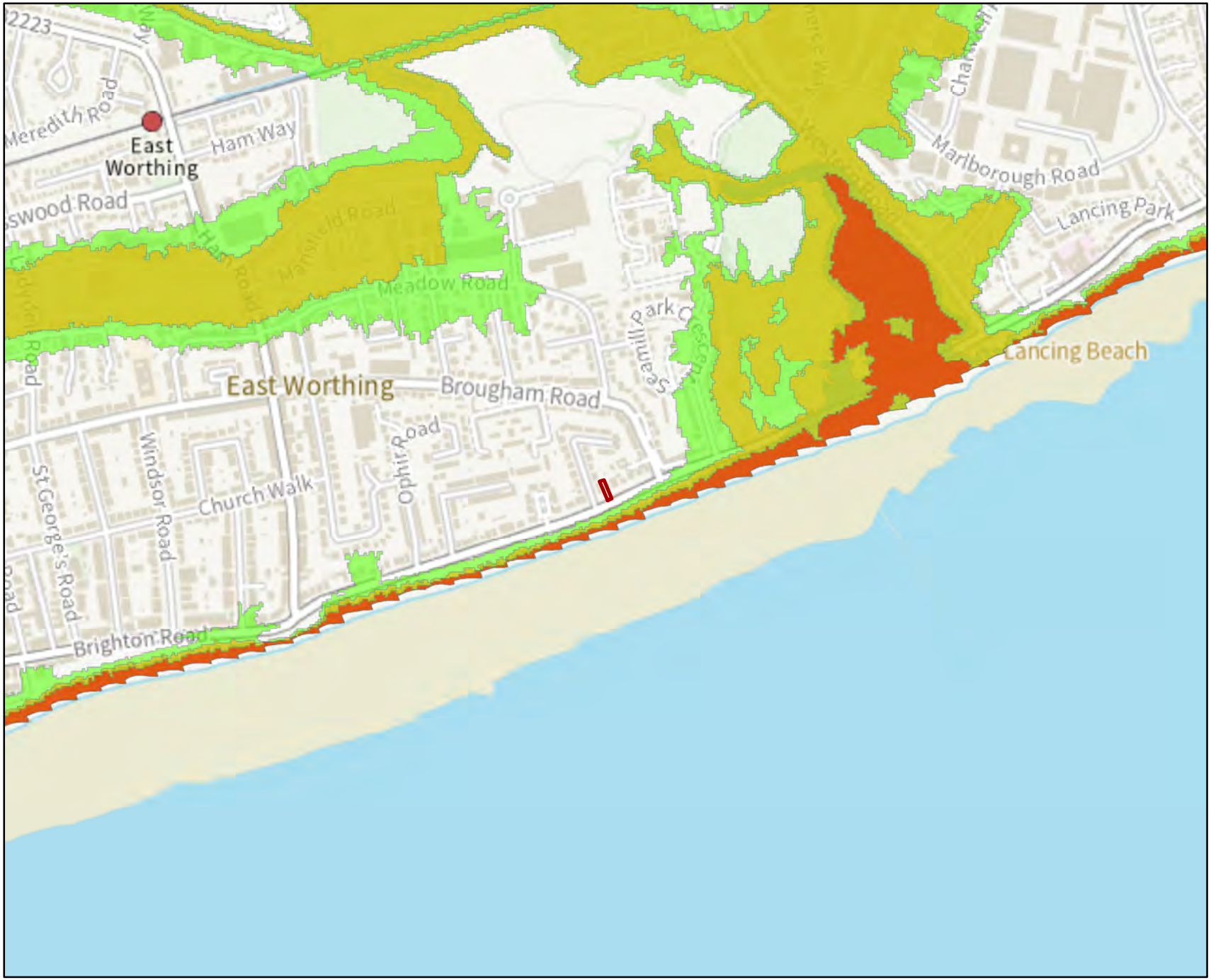
Contact us: National Customer Contact Centre, PO Box 544, Rotherham, S60 1BY. Tel: 03708 506 506. Email:enquiries@environment-agency.gov.uk

Modelled Flood Outlines (Undefended Tidal). Centred BN11 2HL. Created 30/12/2024.



Environment Agency

N

Legend

- Site Boundary
- 0.5% AEP (2012) (Undefended)
- 0.5% AEP (2070) (Undefended)
- 0.5% AEP (2115) (Undefended)
- 0.1% AEP (2012) (Undefended)

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

Scale: 1:10,000

0 0.225 0.45
Kilometers

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Contact us: National Customer Contact Centre, PO Box 544, Rotherham, S60 1BY. Tel: 03708 506 506. Email:enquiries@environment-agency.gov.uk

FRA Site Boundary & Node Points. Centred BN11 2HL. Created 30/12/2024.



Environment Agency

N

Legend

- Site Nodes
- Site Boundary

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

Scale: 1:500

0 0.01 0.02
Kilometers

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Product 4 Flood Risk Data Requested by: GeoSmart

Site: 299 Brighton Road, Worthing, BN11 2HL

Table 1: Water Levels: Tidal Undefended

	NGR		Modelled Flood Levels in Metres AOD Undefended Annual Exceedance Probability			
Node Ref	Eastings	Northings	0.5%	0.5% (2070)*	0.5% (2115)*	0.1%
1	516800	103066	-	-	-	-
2	516806	103057	-	-	-	-
3	516811	103045	-	-	-	-
4	516818	103035	-	-	-	-

Table 2: Water Levels: Tidal Defended

	NGR		Modelled Flood Levels in Metres AOD Defended Annual Exceedance Probability			
Node Ref	Eastings	Northings	0.5%	0.5% (2070)*	0.5% (2115)*	0.1%
1	516800	103066	-	5.29	5.49	5.28
2	516806	103057	-	-	-	-
3	516811	103045	-	-	-	-
4	516818	103035	5.57	5.57	5.60	5.57

Table 3: Water Depths: Tidal Undefended

	NGR		Modelled Flood Depths in Metres Undefended Annual Exceedance Probability			
Node Ref	Eastings	Northings	0.5%	0.5% (2070)*	0.5% (2115)*	0.1%
1	516800	103066	-	-	-	-
2	516806	103057	-	-	-	-
3	516811	103045	-	-	-	-
4	516818	103035	-	-	-	-

Table 4: Water Depths: Tidal Defended

	NGR		Modelled Flood Depths in Metres			
			Defended Annual Exceedance Probability			
Node Ref	**Eastings**	**Northings**	**0.5%**	**0.5% (2070)***	**0.5% (2115)***	**0.1%**
1	516800	103066	-	0.01	0.18	0.01
2	516806	103057	-	-	-	-
3	516811	103045	-	-	-	-
4	516818	103035	0.01	0.01	0.02	0.01

All levels taken from: Arun to Adur Coastal Modelling (2012), completed by JBA Consulting.

Produced on: 30/12/2024

*** The flood risk data provided is based on existing EA hydraulic models with an allowance for climate change. Please note the climate change allowances provided are not up to date. These were updated on 27 July 2021.**

You should refer to 'Flood risk assessments: climate change allowances' for the most up to date allowances. You will need to undertake further assessment of future flood risk using different allowances to ensure your assessment of future flood risk is based on best available evidence.

There is no additional information or health warnings for these levels/depths or the model from which they have been produced.

Strategic flood risk assessments

We recommend that you check the relevant local authority's strategic flood risk assessment (SFRA) as part of your work to prepare a site specific flood risk assessment.

This should give you information about:

- the potential impacts of climate change in this catchment
- areas defined as functional floodplain
- flooding from other sources, such as surface water, ground water and reservoirs

Your Lead Local Flood Authority is West Sussex County.

About this data

This data has been generated by strategic scale flood models and is not intended for use at the individual property scale. If you're intending to use this data as part of a flood risk assessment, please include an appropriate modelling tolerance as part of your assessment. The Environment Agency regularly updates its modelling. We recommend that you check the data provided is the most recent, before submitting your flood risk assessment.

Flood risk activity permits

Under the Environmental Permitting (England and Wales) Regulations 2016 some developments may require an environmental permit for flood risk activities from the Environment Agency. This includes any permanent or temporary works that are in, over, under, or nearby a designated main river or flood defence structure.

Find out more about flood risk activity permits

Help and advice

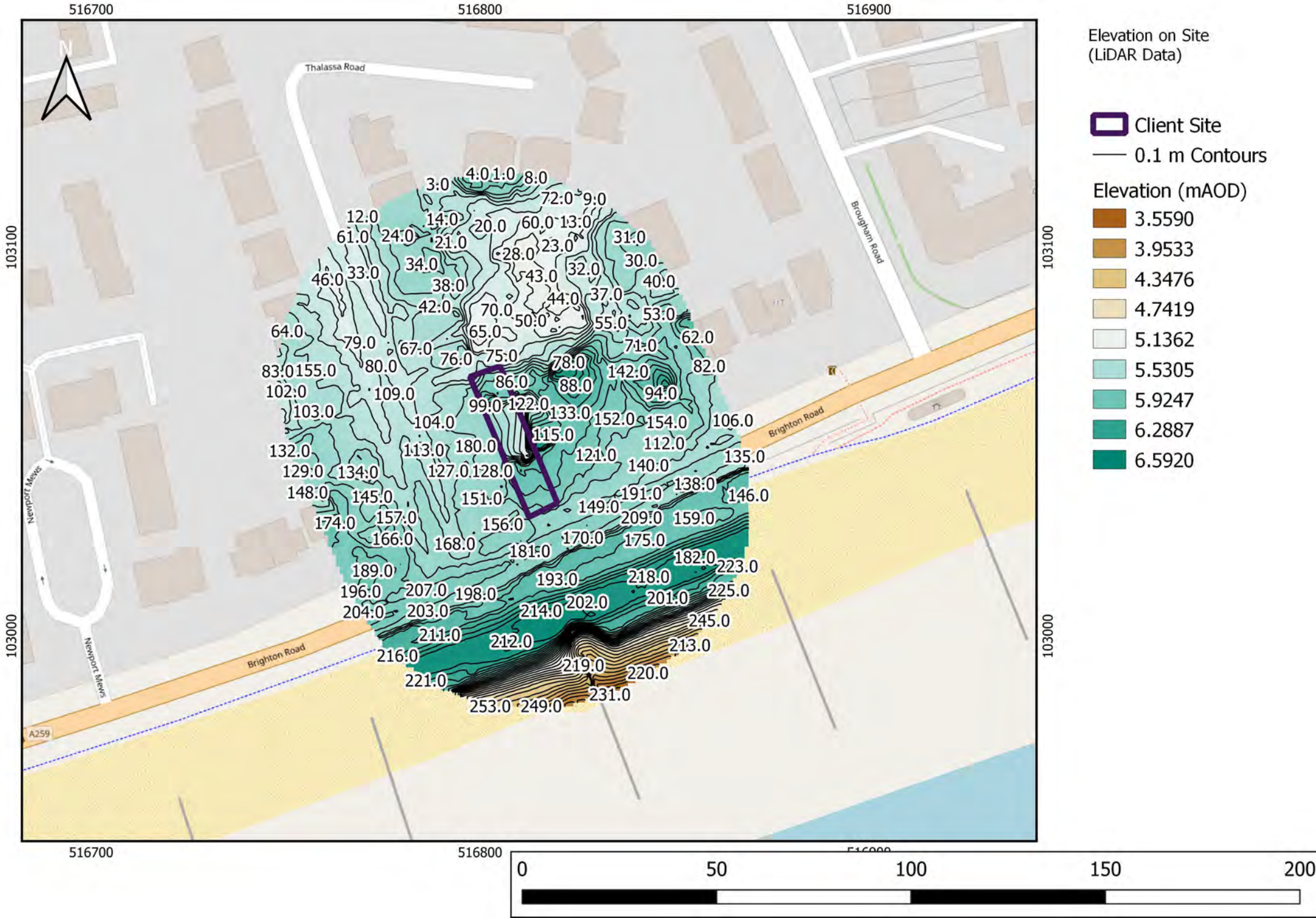
Contact the Solent and South Downs Environment Agency team at ssdenquiries@environment-agency.gov.uk for:

- more information about getting a product 5, 6, 7 or 8
- general help and advice about the site you're requesting data for

GeoSmart Information

Appendix C

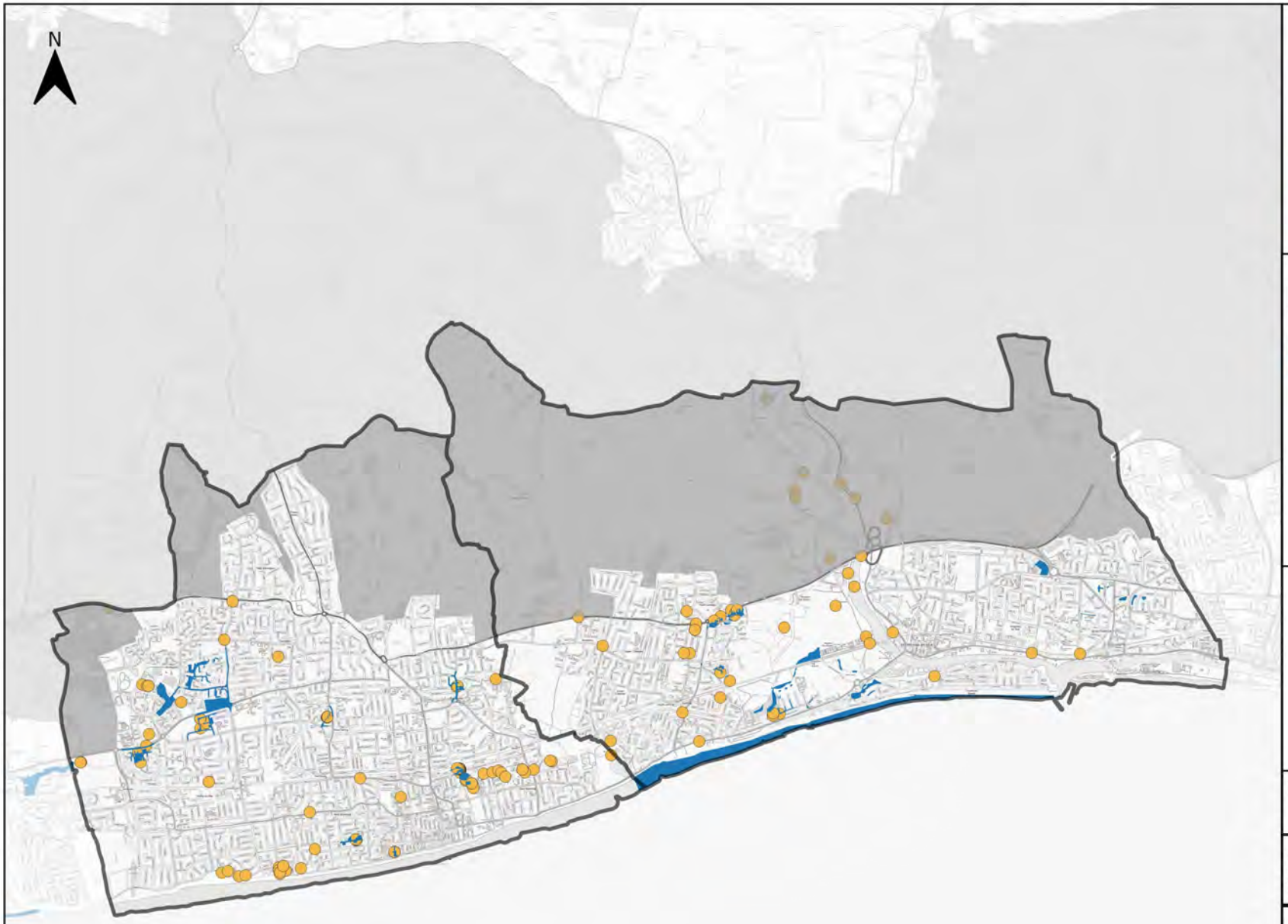
Environment Agency LiDAR ground elevation data

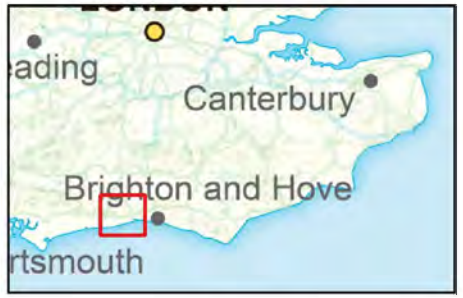

516700
516800
516900
103100
103000
N
Thalassa Road
Broughamn Road
Brighton Road
Newport Mews
A259
Elevation on Site
(LiDAR Data)
Client Site
0.1 m Contours
Elevation (mAOD)
3.5590
3.9533
4.3476
4.7419
5.1362
5.5305
5.9247
6.2887
6.5920
0
50
100
150
200 m

GeoSmart Information

Appendix D

Local Council document mapping





Legend

Adur District and Worthing Borough

Historic Flooding

Recorded Flood Outlines

WSCC Recorded Incidents

0 1 2 3 4 km

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Adur and Worthing Councils SFRA: Historic Flooding

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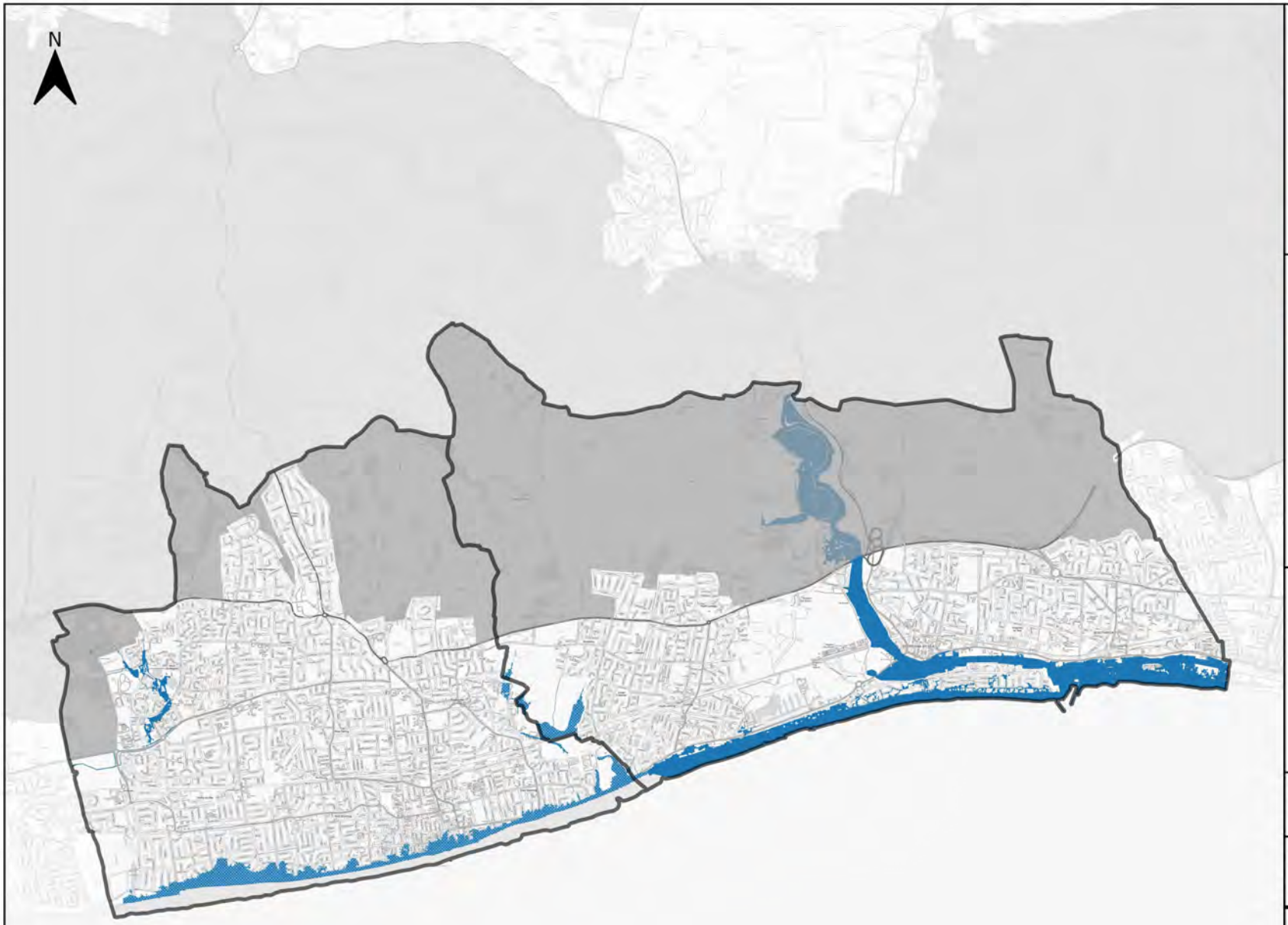
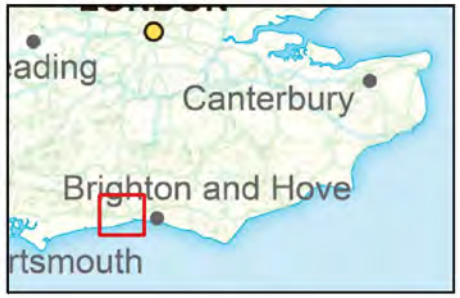
ADUR & WORTHING COUNCILS





Legend

- Adur District and Worthing Borough
- Flood Zone 3b
- Flood Zone 3 used as proxy

0 1 2 3 4 km

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Adur and Worthing Councils SFRA: Flood Zone 3b

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Email: info@geosmartinfo.co.uk

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TPOs contact details:

The Property Ombudsman scheme

Milford House

43-55 Milford Street

Salisbury

Wiltshire SP1 2BP

Tel: 01722 333306

Fax: 01722 332296

Email: admin@tpos.co.uk

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- Acknowledge it within 5 working days of receipt.
- Normally deal with it fully and provide a final response, in writing, within 20 working days of receipt.
- Keep you informed by letter, telephone or e-mail, as you prefer, if we need more time.
- Provide a final response, in writing, at the latest within 40 working days of receipt.
- Liaise, at your request, with anyone acting formally on your behalf.

If you are not satisfied with our final response, or if we exceed the response timescales, you may refer the complaint to The Property Ombudsman scheme (TPOs): Tel: 01722 333306, E-mail: admin@tpos.co.uk.

We will co-operate fully with the Ombudsman during an investigation and comply with his final decision. Complaints should be sent to:

Martin Lucass

Commercial Director

GeoSmart Information Limited

Suite 9-11, 1st Floor,

Old Bank Buildings,

Bellstone, Shrewsbury, SY1 1HU

Tel: 01743 298 100

martinlucass@geosmartinfo.co.uk

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