Flood Risk Assessment for Planning

December 2025

Prepared for:

Float Shoreham

Location:

Jetty Opposite 31 and 33,
Riverside Road
Shoreham-by-Sea
West Sussex

Our reference:

96787-Rjsplanning-RiversideRd



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Contents

1. Key Facts....4
Flood Risk Posed:....4
Flood Risk Mitigation:....4
2. Introduction....5
3. Existing Site....6
Site Topography:....7
Existing Ground Conditions:....8
Nearby Watercourses / Drainage Features:....8
4. Development Proposal....9
5. Flood Risk Assessment....10
Flood Zones:....10
EA Flood Zones plus Climate Change:....11
Tidal (River Adur):....11
Detailed Flood Modelling:....12
Flood Storage Areas:....14
Flood Defences:....14
Residual Risk (breach or overtopping of flood defences):....15
Pluvial (Surface Water):....15
Groundwater:....17
Sewer:....17
Other Sources:....18
Historical Flood Events:....19
6. Flood Risk Management....20
Vulnerability to Flooding:....20
EA Standing Advice for Minor Extensions:....20
Physical Design Measures:....20
Safe Escape:....20
Flood Warning:....22
Flood Plan:....23
Off-Site Impacts:....24
Fluvial Floodplain Storage:....24
Surface Water Drainage:....24
7. Sequential and Exception Test....26
8. Discussion and Conclusion....27
In Summary:....28

1. Key Facts

Flood Risk Posed:

- Site is located within Flood Zone 3 according to the Environment Agency Flood Map for Planning (Rivers and Sea).
- There is no EA Flood Zones plus climate change (2070 to 2125) data available for this site.
- Risk would appear to be predominantly tidal and originate from the River Adur which runs adjacent to the site.
- Product 4 modelled flood levels and extents have been requested from the EA for use within this report.
- The design flood levels for planning are the 1:200 year with Higher Central, and Upper End climate change. The defended 1:200 year at the present day is 4.30mAOD. The modelled flood levels for the 1:200 year Higher Central and Upper End are 5.40mAOD and 5.78mAOD respectively.
- Comparison of the defended 1:200 year Higher Central flood level (5.40mAOD) with approximate topographic site levels (-0.65mAOD to 4.75mAOD) shows the site to be between 0.65m and 6.05m below the flood level.
- Comparison of the 1:200 Upper End flood level (5.78mAOD) with approximate site levels (-0.65mAOD to 4.75mAOD) shows the site is between 1.03m and 6.43m below the flood level.
- There are no Flood Storage Areas located in close proximity to the site.
- The River Adur is flanked by a wall in the area of the site.
- The maximum modelled water level for the 1:200 year plus climate change event is 5.40mAOD for the higher central and 5.78mAOD upper end for 2125.
- The EA Risk of Flooding from Surface Water Map suggests that there is “Very Low” chance on site during the present day and between 2040 - 2060.
- Risk to the site from groundwater, sewer surcharge and reservoir flooding would appear to be very low. No information has been provided to suggest that the site has flooded historically from these sources.
- The EA hold no records of historic flooding having affected the site or surrounding area.

Flood Risk Mitigation:

- The proposed planning application is for the retention of detached outbuilding for storage.
- Post development, the site will remain “less vulnerable” (storage outbuilding).
- There will be no introduction of residential or commercial units, increase to built footprint or impermeable areas.
- There will be no electricity, gas or water supply to the outbuilding.
- The boardwalk will be made of slip-resistant surfaces and the surface water drainage from the boardwalk areas will be designed to prevent ponding and direct runoff into appropriate water bodies.
- There will be no loss of fluvial floodplain storage.
- Due to the nature of the development, there will be no increases to surface water runoff.
- The applicant will register with the free Environment Agency Floodline Alert Direct service.

Assuming accordance with these flood risk management measures, Unda Consulting Limited consider the proposed application to be suitable in flood risk terms.

2. Introduction

2.1. Unda Consulting Limited have been appointed by Float Shoreham (hereinafter referred to as "the applicant") to undertake a Flood Risk Assessment for the proposed development at Jetty Opposite 31 and 33, Riverside Road, Shoreham-by-Sea, West Sussex (hereinafter referred to as "the site"). The FRA has been undertaken in accordance with the National Planning Policy Framework (NPPF) and the associated technical guidance.

2.2. This report presents our findings based on the readily available information and data relating to the site and surrounding drainage area.

2.3. The site appears to be located within Flood Zone 3 as defined by the Environment Agency (EA) on their Flood Map for Planning. Under the National Planning Policy Framework (NPPF), a FRA is required if a proposed development:

- Includes building or engineering works in Flood Zone 2 or 3;
- Includes building or engineering works on land classified by the Environment Agency as having critical drainage problem;
- Changes the use of land or buildings in a location at risk of flooding from rivers or the sea, or with critical drainage problems;
- Changes the use of land or buildings in a way that increases the flood vulnerability of the development where it may be subject to other sources of flooding;
- Is larger than 1 hectare.

2.4. The assessment should demonstrate to the Local Planning Authority (LPA) and EA how flood risk will be managed now and over the development's lifetime, taking climate change into account, and with regard to the vulnerability of its potential users.

- Whether the proposed development is likely to be affected by current or future flooding from any source;
- Whether it will increase flood risk elsewhere;
- Whether the measures proposed to deal with these effects and risks are appropriate.

3. Existing Site

3.1. The existing site is a jetty and associated land.

3.2. The surrounding area is characterised by residential properties.

3.3. Location plan is provided in the report Appendix.



Figure 1: Aerial imagery of site and surrounding area (Source: Google Earth)



Figure 2: Location Plan (Source: Applicant)

Site Topography:

3.4. Environment Agency LiDAR has been used to assess the topography across the site and wider area. Light Detection and Ranging (LiDAR) is an airborne mapping technique, which uses a laser to measure the distance between the aircraft and the ground surface. Up to 100,000 measurements per second are made of the ground, allowing highly detailed terrain models to be generated at high spatial resolutions. The EA's LiDAR data archive contains digital elevation data derived from surveys carried out by the EA's specialist remote sensing team. Accurate elevation data covers over 70% of England. The LiDAR technique records an elevation accurate to +/-5cm to 15cm with spatial resolutions ranging from 25cm to 2 metres. This dataset is derived from a combination of the full dataset which has been merged and re-sampled to give the best possible coverage. The dataset can be supplied as a Digital Surface Model (DSM) produced from the signal returned to the LiDAR (which includes heights of objects, such as vehicles, buildings and vegetation, as well as the terrain surface) or as a Digital Terrain Model (DTM) produced by removing objects from the Digital Surface Model. 1.0m horizontal resolution DTM LiDAR data has been used for the purposes of this study.

3.5. LiDAR remotely sensed digital elevation data suggests that the ground topography on site ranges from approximately -0.65mAOD to 4.75mAOD.

3.6. LiDAR remotely sensed digital elevation data suggests that the ground topography in the area of the proposed development ranges from approximately 2.80mAOD to 3.90mAOD.

Existing Ground Conditions:

3.7. The 1:50,000 BGS map shows that the bedrock underlying the site is Newhaven Chalk Formation – Chalk and Tarrant Chalk Member – Chalk.

3.8. The BGS mapping shows superficial deposits of Beach and Tidal Flat Deposits (Undifferentiated) – Clay, Silt, Sand and Gravel and Storm Beach Deposits – Gravel underlying the site.

3.9. The soil type taken from the UKSO Soil Map Viewer, shows the site to be located upon relatively deep soils of Quaternary Marine/Estuarine Sand and Silt parent material with a soil texture of Clay to Sandy Loam and Quaternary Marine/Estuarine Sand parent material with a soil texture of Sandy Loam.

Nearby Watercourses / Drainage Features:

3.10. The nearest watercourse to the site is the River Adur, which runs adjacent to the site.

4. Development Proposal

4.1. The proposed planning application is for the retention of detached outbuilding for storage.

4.2. The outbuilding is used for storage in connection with the use of an existing jetty and will be specifically used for the storage of tools and materials which cannot be stored externally.

4.3. It should be noted that prior to construction of the outbuilding, the tools were either stored on the ground or kept outside under tarpaulin.

4.4. There will be no electricity, gas or water supply to the outbuilding.

4.5. In addition, there will be no introduction of residential or commercial units, increase to built footprint or impermeable areas.

4.6. Proposed plans are provided in the report Appendix.

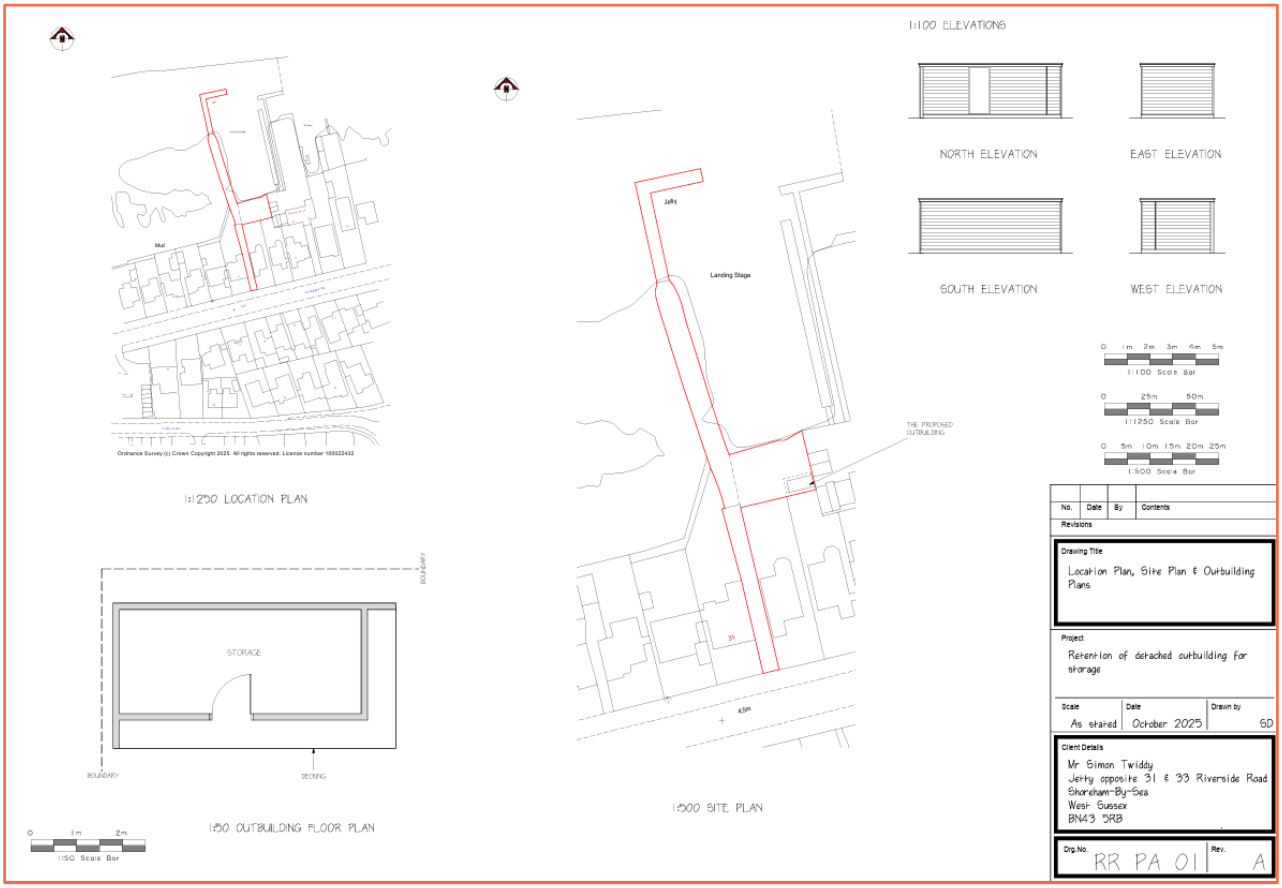


Figure 3: Location plan, site plan and outbuilding plans (Source: Applicant)

5. Flood Risk Assessment

Flood Zones:

5.1. Within planning, Flood Zones refer to the probability of river and sea flooding, ignoring the presence of defences. They are shown on the Environment Agency's Flood Map for Planning (Rivers and Sea), available on the Environment Agency's website.

Flood Zone	Definition
Zone 1 Low Probability	Land having a less than 0.1% annual probability of river or sea flooding. (Shown as 'clear' on the Flood Map for Planning – all land outside Zones 2, 3a and 3b)
Zone 2 Medium Probability	Land having between a 1% and 0.1% annual probability of river flooding; or land having between a 0.5% and 0.1% annual probability of sea flooding. (Land shown in light blue on the Flood Map)
Zone 3a High Probability	Land having a 1% or greater annual probability of river flooding; or Land having a 0.5% or greater annual probability of sea flooding. (Land shown in dark blue on the Flood Map)
Zone 3b The Functional Floodplain	This zone comprises land where water from rivers or the sea has to flow or be stored in times of flood. The identification of functional floodplain should take account of local circumstances and not be defined solely on rigid probability parameters. Functional floodplain will normally comprise: • land having a 3.3% or greater annual probability of flooding, with any existing flood risk management infrastructure operating effectively; or • land that is designed to flood (such as a flood attenuation scheme), even if it would only flood in more extreme events (such as 0.1% annual probability of flooding). Local planning authorities should identify in their Strategic Flood Risk Assessments areas of functional floodplain and its boundaries accordingly, in agreement with the Environment Agency. (Not separately distinguished from Zone 3a on the Flood Map)

Table 1: Environment Agency Flood Map for Planning (Rivers and Sea) (Source: EA)

5.2. The Flood Zones shown on the Environment Agency's Flood Map for Planning (Rivers and Sea) do not take account of the possible impacts of climate change and consequent changes in the future probability of flooding.

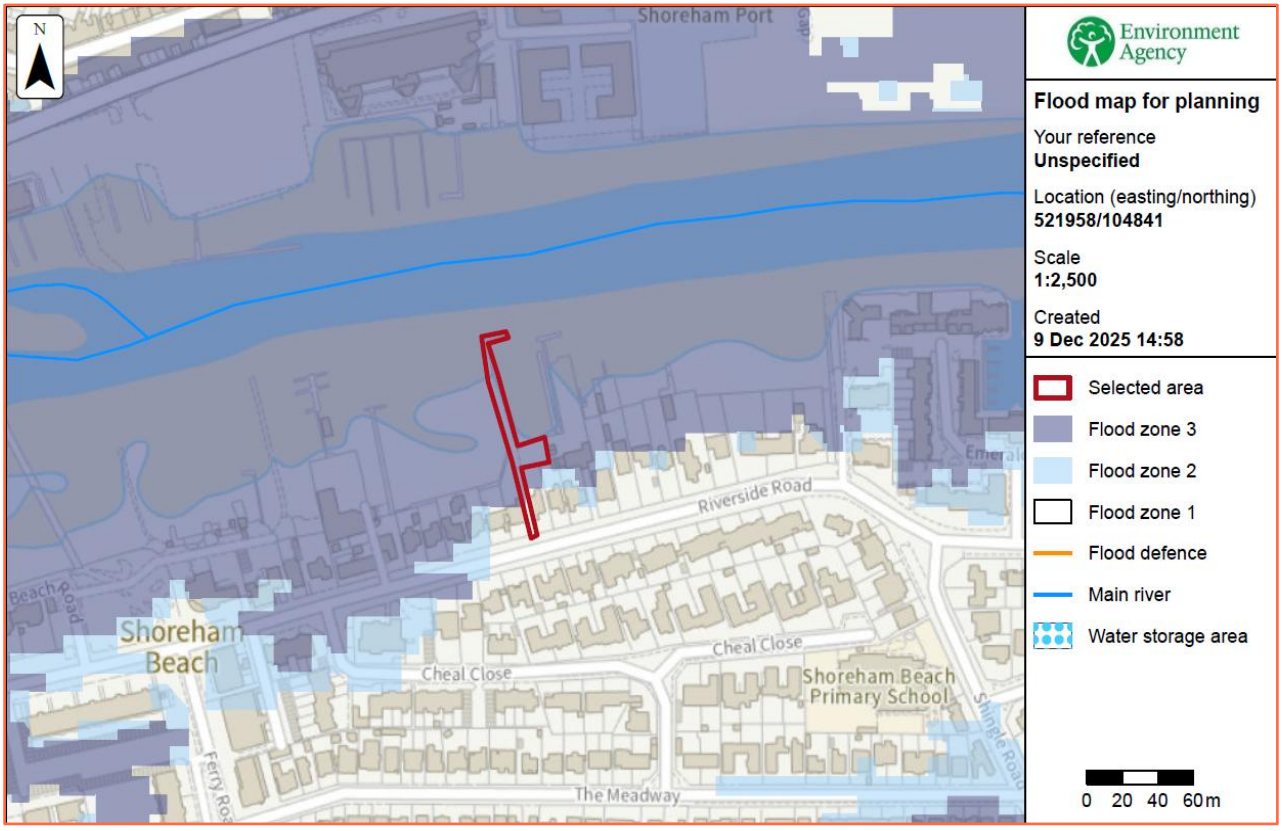


Figure 4: Environment Agency Flood Map for Planning (Rivers and Sea) (Source: EA)

5.3. The site is located within Flood Zone 3 (High Probability), defined as land having a 1 in 100 or greater annual probability of river flooding; or Land having a 1 in 200 or greater annual probability of sea flooding.

5.4. The risk would appear to be predominantly tidal and originate from the River Adur which runs adjacent to the site.

EA Flood Zones plus Climate Change:

5.5. The Flood Zones plus climate change dataset shows how the combined extent of Flood Zones 2 and 3 could increase with climate change over the next century, ignoring the benefits of any existing flood defences. The EA have assumed no changes to flood defences or land-use that could occur in future. The effects of climate change on flood risk which may be seen in the future could be different to those currently considered.

5.6. The climate change allowances are based on the latest UK Climate Projections (UKCP18) from the Met Office, using the Representative Concentration Pathway (RCP) 8.5.

5.7. The datasets shown on Flood Map for Planning are aimed at supporting planners and developers to make long-term decisions about the location and design of development and the use of land. Such decisions need to account for the full anticipated lifetime of the development being planned.

5.8. The EA have therefore chosen:

- The 'Central' allowance for the 2080s epoch (2070-2125) for risk of flooding from rivers
- The 'Upper End' allowance for risk of flooding from the sea, accounting for cumulative sea level rise to 2125

5.9. The Flood Zones plus climate change dataset is created using local flood model outputs, recorded flood outlines and national flood model information, and by adding climate change scenarios from local and national modelling, using the maximum extents from:

- Rivers and sea with defences 3.3%, 1%/0.5% and 0.1% AEPs
- Rivers and sea without defences 1%/0.5% and 0.1% AEPs

5.10. The extents are merged to create a single outline.

5.11. There is no EA Flood Zones plus climate change (2070 to 2125) data available for this site.

Tidal (River Adur):

5.12. Adur is a river in Sussex, England. The river is 32 km long and is designated an Environment Agency Main River. The Adur begins as two separate branches, the western Adur and the eastern Adur, which meet 2km west of Henfield.

5.13. The western Adur rises at Slinfold from where it flows around Coolham and then through Shipley, where it meets Lancing Brook and flows on to West Grinstead and Knepp Castle. The western Adur is tidal as far north as Bines Bridge near Bines Green, south of West Grinstead.

5.14. The eastern Adur rises at Ditchling Common, in East Sussex, from where it crosses into West Sussex and meets another major stream at Twineham. At Shermanbury, the eastern Adur is fed by the Cowfold Stream. The Normal Tidal Limit is just below this at the footbridge near Shermanbury Church although a weir just above the confluence with the Western Adur means that only the highest tides reach here.

5.15. From west of Henfield, the two branches of the river meet, before flowing between Upper Beeding and Bramber, past Coombes, through a gap in the South Downs near Lancing College where the Adur is fed by the Ladywell Stream. The river continues on to the English Channel at Shoreham-by-Sea. The mouth of the Adur is now 3 km from the town centre of Shoreham due to longshore drift.

Detailed Flood Modelling:

5.16. Product 4 modelled flood levels and extents have been requested from the EA for use within this report.

5.17. The EA has provided modelled flood data from the Adur Coastal model completed in 2012 by JBA and the Adur Tidal Walls Scheme modelling completed in 2018.

5.18. Site specific flood levels have been extracted for a range of return periods:

	1:200 yr	1:1000 yr
Maximum undefended modelled flood level	4.25mAOD	4.47mAOD

Table 2: Modelled flood levels – Adur Coastal Model (Source: EA)

	1:200 yr	1:1000 yr
Maximum defended modelled flood level	4.30mAOD	No data provided

Table 3: Modelled flood levels – Adur Tidal Walls Scheme Modelling (Source: EA)

5.19. The Adur Tidal Walls Modelling, 2018 defended 1:200 year flood level will be used for this assessment as it represents worst-case scenario.

5.20. LiDAR remotely sensed digital elevation data suggests that the ground topography on site ranges from approximately -0.65mAOD to 4.75mAOD.

5.21. LiDAR remotely sensed digital elevation data suggests that the ground topography in the area of the proposed development ranges from approximately 2.80mAOD to 3.90mAOD.

5.22. The site is located within Flood Zone 3, and is classified as “less vulnerable”. The Flood Risk Assessments: climate change allowances guidance – updated May 2022, states for flood risk assessments both the Higher Central and Upper End allowances should be assessed.

5.23. The ‘Flood Risk Assessments: climate change allowances’ guidance for the South East area of England provides the following sea level allowances:

Area of England		2000 to 2035 (mm)	2036 to 2065 (mm)	2066 to 2095 (mm)	2096 to 2125 (mm)	Cumulative rise 2000 to 2125 / metres (m)
South East	**Higher Central**	5.7	8.7	11.6	13.1	1.2
South East	**Upper End**	6.9	11.3	15.8	18.2	1.6

Table 4: Sea Level Allowances for the South East River Basin District for each epoch in mm per year (Source: 'Flood risk assessments: climate change allowances)

Area of England		2018 to 2035 (mm)	2036 to 2065 (mm)	2066 to 2095 (mm)	2096 to 2125 (mm)	Cumulative rise 2018 to 2125 / metres (m)
Site	**Higher Central**	103	261	348	393	1.10
Site	**Upper End**	124	339	474	546	1.48

Table 5: Sea Level Allowances for the site for each epoch in mm per year (Source: 'Flood risk assessments: climate change allowances)

5.24. The design flood levels for planning are the 1:200 year with Higher Central, and Upper End climate change. The defended 1:200 year at the present day is 4.30mAOD.

5.25. Based on the current climate change allowance guidance, the cumulative rise for the Higher Central and Upper End allowances (from 2018 which is the model baseline year) is 1.10m and 1.48m respectively.

	Defended	
	2125 Higher Central	**2125 Upper End**
1:200 year	5.40mAOD	5.78mAOD
1:1000 year	No data provided	No data provided

Table 6: Modelled defended climate change flood levels

5.26. Comparison of the defended 1:200 year Higher Central flood level (5.40mAOD) with approximate topographic site levels (-0.65mAOD to 4.75mAOD) shows the site to be between 0.65m and 6.05m below the flood level.

5.27. Comparison of the 1:200 Upper End flood level (5.78mAOD) with approximate site levels (-0.65mAOD to 4.75mAOD) shows the site is between 1.03m and 6.43m below the flood level.

5.28. Comparison of the defended 1:200 year Higher Central flood level (5.40mAOD) with approximate topographic levels in the area of the proposed development (2.80mAOD to 3.90mAOD) shows the site to be between 1.50m and 2.60m below the flood level.

5.29. Comparison of the 1:200 Upper End flood level (5.78mAOD) with approximate topographic levels in the area of the proposed development (2.80mAOD to 3.90mAOD) shows the site is between 1.88m and 2.98m below the flood level.

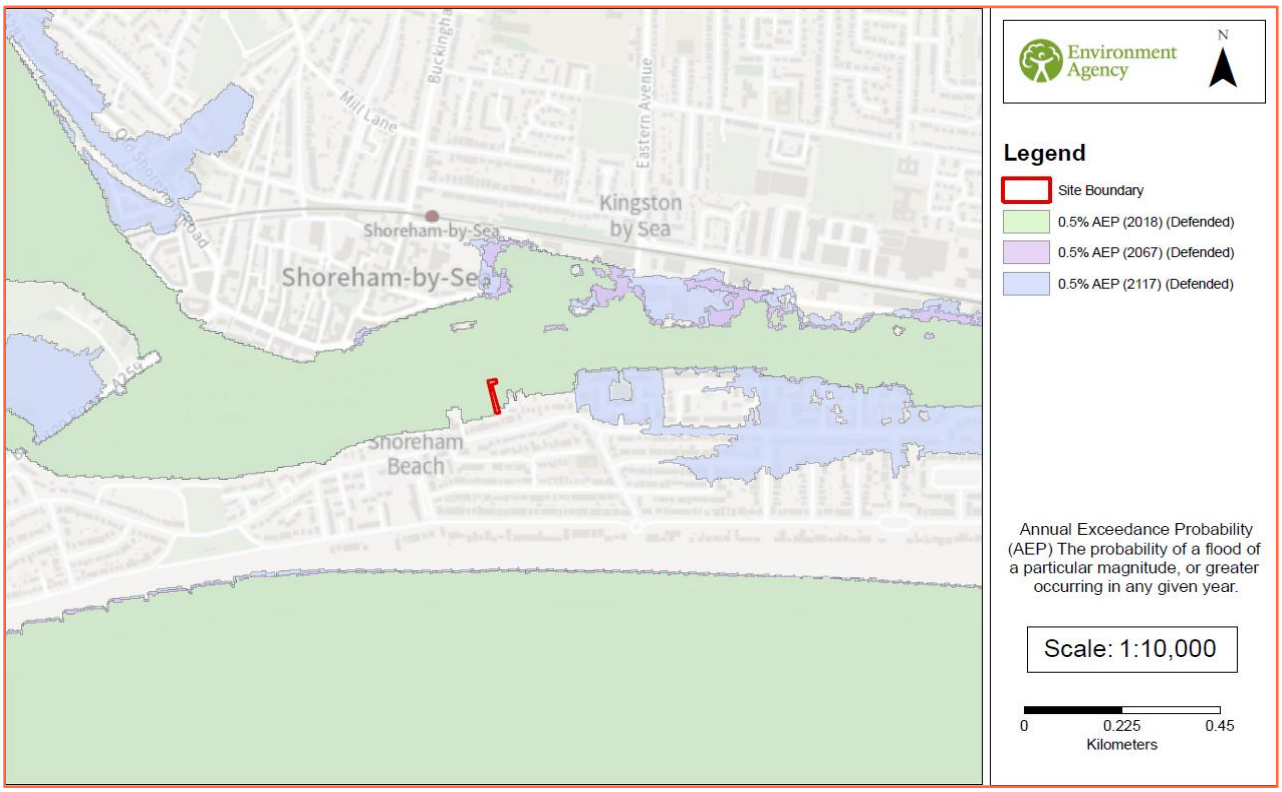


Figure 5: Modelled defended flood extents – Adur Tidal Walls Scheme Modelling (Source: EA)

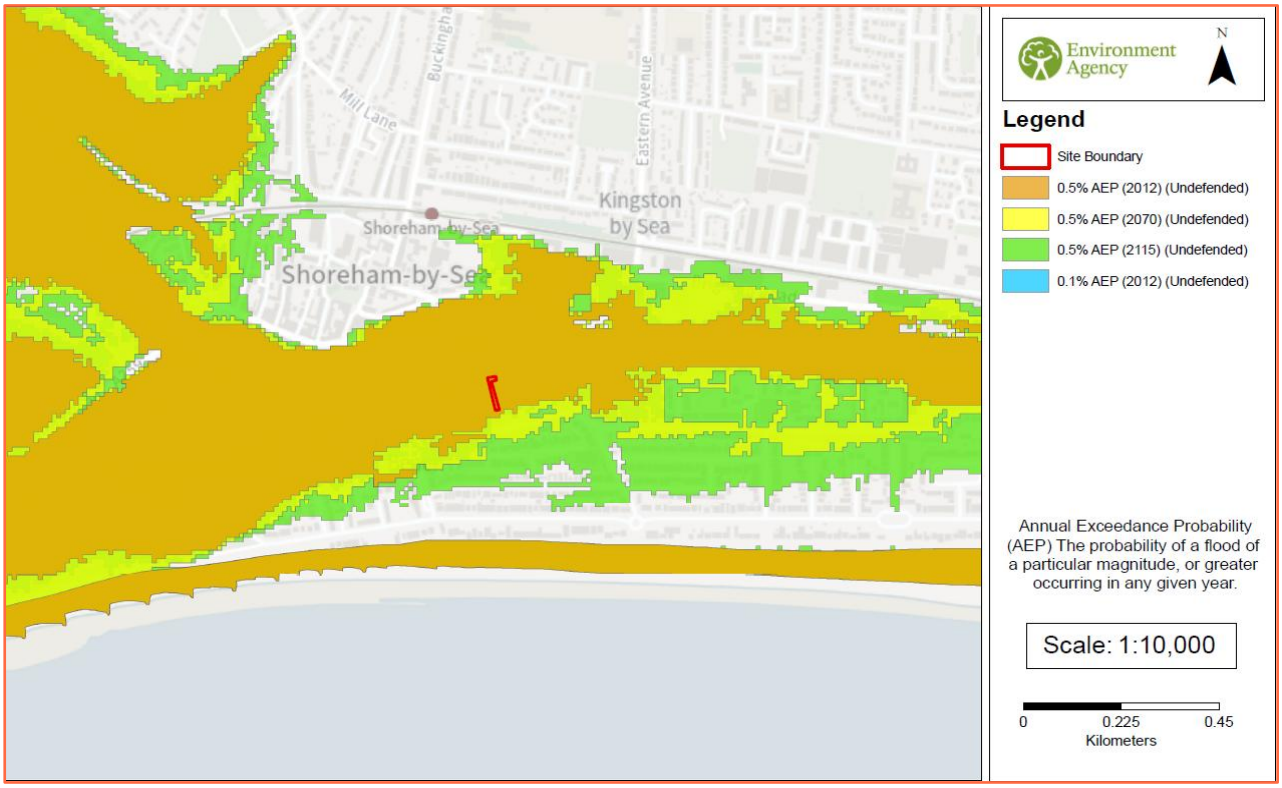


Figure 6: Modelled undefended flood extents – Adur Coastal Model (Source: EA)

Flood Storage Areas:

5.30. Flood Storage Areas are areas that act as a balancing reservoir, storage basin or balancing pond. Their purpose is to attenuate an incoming flood peak to a flow level that can be accepted by the downstream channel. It may also delay the timing of a flood peak so that its volume is discharged over a longer time interval. Flood storage areas do not completely remove the chance of flooding and can be overtopped or fail in extreme weather conditions.

5.31. According to EA data, there are no Flood Storage Areas located in close proximity to the site.

Flood Defences:

5.32. Flood defences are typically raised structures that alter natural flow patterns and prevent floodwater from entering property in times of flooding. They are generally categorised as either 'formal' or 'informal' defences. A 'formal' flood defence is a structure that was built specifically for the purpose of flood defence, and is maintained by its respective owner, which could be the EA, Local Authority, or an individual. An 'informal' flood defence is a structure that has not been specifically built to retain floodwater, and is not maintained for this specific purpose, but may afford some protection against flooding.

5.33. Asset inspections are undertaken on average every six months, although some critical assets are assessed on a more regular basis. It is possible that adjacent assets are inspected on different dates, which may result in two assets of a similar state of repair having different condition ratings. It is unclear when both assets were last inspected.

5.34. Condition ratings of assets may also be affected by the time of year the surveys are conducted, as vegetation may obscure the asset in the summer months, or accessibility may be an issue during winter months. These factors would not usually affect the recorded condition rating of an asset unless the asset is on a borderline between two ratings

5.35. The River Adur is flanked by a wall in the area of the site.

Residual Risk (breach or overtopping of flood defences):

5.36. Breaching of flood defences can cause rapid inundation of areas behind flood defences as flow in the river channel discharges through the breach. A breach can occur with little or no warning, although they are much more likely to occur with extreme river levels or tides when the stresses on flood defences are highest. Flood water flowing through a breach will normally discharge at a high velocity, rapidly filling up the areas behind the defences, resulting in significant damage to buildings and a high risk of loss of life. Breaches are most likely to occur in soft defences such as earth embankments although poorly maintained hard defences can also be a potential source of breach.

5.37. Overtopping of flood defences occurs when water levels exceed the protection level of raised flood defences. The worst case occurs when the fluvial or tidal levels exceed the defence level as this can lead to prolonged flooding. Less severe overtopping can occur when flood levels are below defence levels, but wave action causes cyclic overtopping, with intermittent discharge over the crest level of the defence. Flood defences are commonly designed with a freeboard to provide protection against overtopping from waves. The risk from overtopping due to exceedance of the flood defence level is much more significant than the risk posed by wave overtopping. Exceedance of the flood defence level can lead to prolonged and rapid flooding with properties immediately behind the defences at highest risk.

5.38. The maximum modelled water level for the 1:200 year plus climate change event is 5.40mAOD for the higher central and 5.78mAOD upper end for 2125.

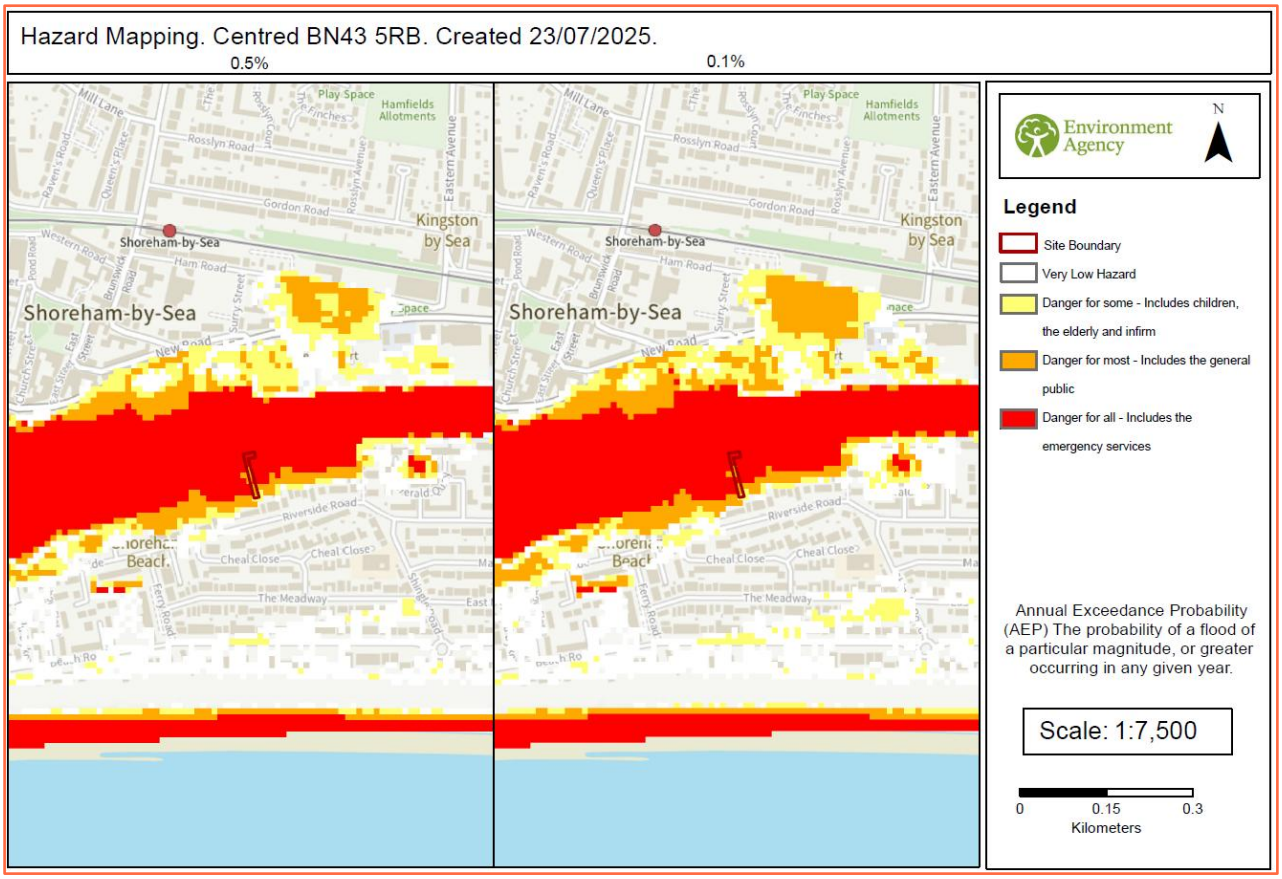


Figure 7: Hazard Mapping (Source: EA)

Pluvial (Surface Water):

5.39. Pluvial (surface water) flooding occurs when rainwater does not drain away through the normal drainage systems or soak into the ground, but lies on or flows over the ground instead.

5.40. The mapping below shows the Risk of Flooding from Surface Water (RoFSW). Please note that the EA do not consider this information suitable to be used to identify the risk to individual properties or sites. It is useful to raise awareness in areas which may be at risk and may require additional investigation. This information tells you the flood risk of the land around a building, not the building itself.

5.41. The RoFSW products are an assessment of where surface water flooding may occur.

5.42. The mapping shows the following likelihood categories, for the present day risk of flooding from surface water, and the climate change scenarios have been produced to indicate the predicted impacts of climate change on future flood risk.

- High - greater than or equal to 1 in 30 (3.3%) chance of flooding in any year.
- Medium – Less than 1 in 30 (3.3%) but greater than or equal to 1 in 100 (1%) chance of flooding in any given year.
- Low – Less than 1 in 100 (1%) but greater than or equal to 1 in 1000 (0.1%) chance of flooding in any given year.

5.43. The climate change allowances are based on the latest UK Climate Projections (UKCP18) from the Met Office, using the Representative Concentration Pathway (RCP) 8.5. A near-term epoch (2040 – 2060 "2050s" epoch) and central allowances are being used initially, to support short and medium-term decisions informed by the highest flood likelihood projections.

5.44. The EA Risk of Flooding from Surface Water Map suggests that the site is located within an area at "Very Low" chance of flooding from surface water.

5.45. The EA Risk of Flooding from Surface Water mapping shows the site to be at "Very Low" chance of flooding between 2040 and 2060.

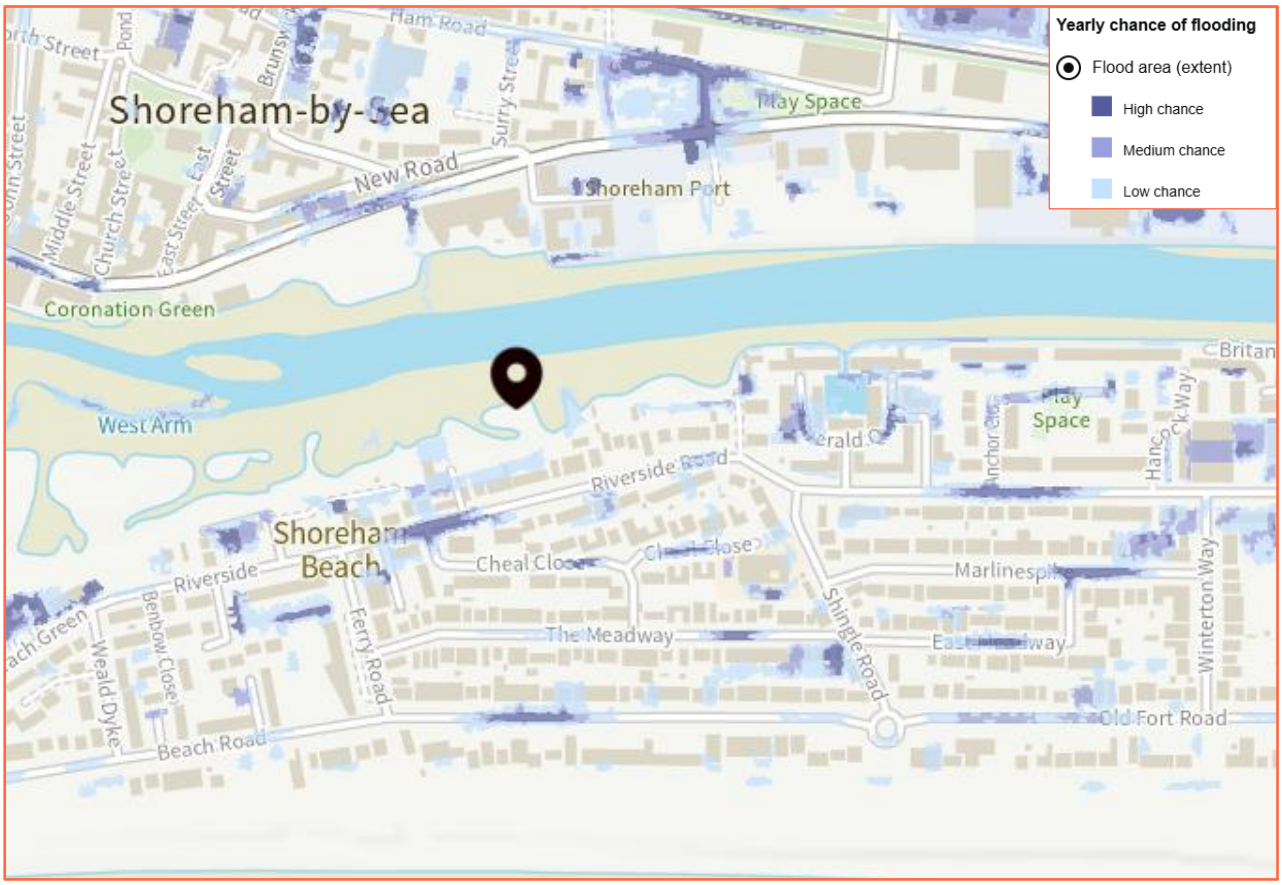


Figure 8: Extract from 2025 EA Risk of Flooding from Surface Water mapping – present day (Source: EA)

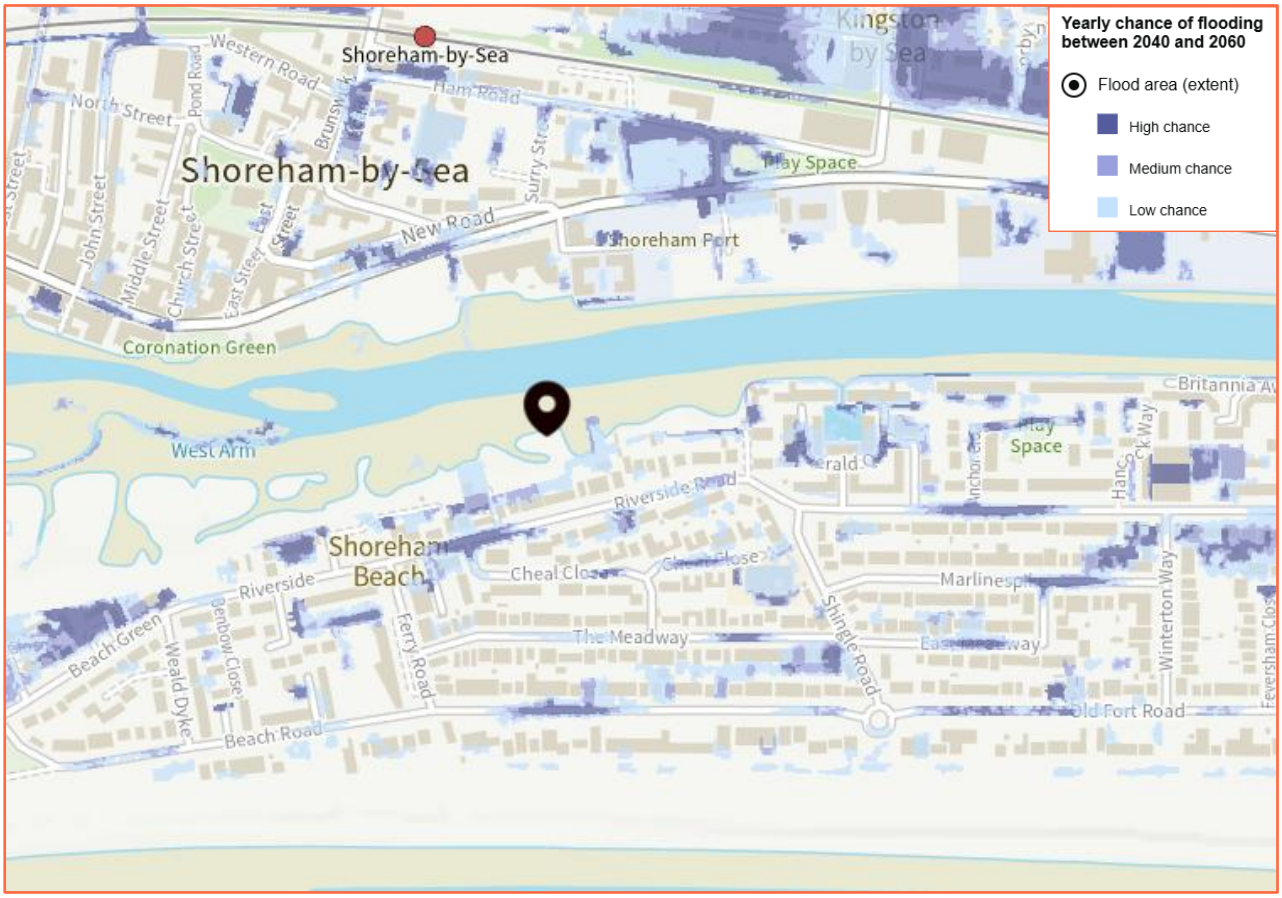


Figure 9: Extract from Environment Agency RoFSW map – between 2040 and 2060 (Source: EA)

Groundwater:

5.46. Groundwater flooding occurs as a result of water rising up from the underlying rocks or from water flowing from abnormal springs. This tends to occur after much longer periods of sustained high rainfall. Higher rainfall means more water will infiltrate into the ground and cause the water table to rise above normal levels. Groundwater tends to flow from areas where the ground level is high, to areas where the ground level is low. In low-lying areas the water table is usually at shallower depths anyway, but during very wet periods, with all the additional groundwater flowing towards these areas, the water table can rise up to the surface causing groundwater flooding.

5.47. Groundwater flooding is most likely to occur in low-lying areas underlain by permeable rocks (aquifers). These may be extensive, regional aquifers, such as chalk or sandstone, or may be localised sands or river gravels in valley bottoms underlain by less permeable rocks. Groundwater flooding takes longer to dissipate because groundwater moves much more slowly than surface water and will take time to flow away underground.

5.48. The 2024 Adur and Worthing Level 1 Strategic Flood Risk Assessment (SFRA) shows the site is not at risk from groundwater flooding on the JBA Groundwater Mapping and is located in Zone GW 1 and 2. However due to the nature of the development the site is not at risk of groundwater flooding.

5.49. The EA advise that flooding from groundwater is unlikely in this area.

5.50. No information has been provided to suggest that the site has flooded historically due to groundwater.

Sewer:

5.51. Sewer flooding occurs when the sewer network cannot cope with the volume of water that is entering it. It is often experienced during times of heavy rainfall when large amounts of surface water overwhelm the sewer network

causing flooding. Temporary problems such as blockages, siltation, collapses and equipment or operational failures can also result in sewer flooding.

5.52. All Water Companies have a statutory obligation to maintain a register of properties/areas which have reported records of flooding from the public sewerage system, and this is shown on the DG5 Flood Register. This includes records of flooding from foul sewers, combined sewers and surface water sewers which are deemed to be public and therefore maintained by the Water Company. The DG5 register records of flood incidents resulting in both internal property flooding and external flooding incidents. Once a property is identified on the DG5 register, water companies can typically put funding in place to address the issues and hence enable the property to be removed from the register. It should be noted that flooding from land drainage, highway drainage, rivers/watercourses and private sewers is not recorded within the register.

5.53. According to the 2024 Adur and Worthing Level 1 SFRA shows the site's postcode area (BN43 5) has had 8 recorded flood incidents of sewer flooding.

5.54. No further information has been presented to suggest that the site is susceptible to sewer flooding.

Other Sources:

5.55. Reservoirs with an impounded volume in excess of 25,000 cubic metres (measured above natural ground level) are governed by the Reservoirs Act and are listed on a register held by the Environment Agency. The site is located outside the maximum inundation extent on the EA Reservoir Inundation Map. The EA also advise on their website that reservoir flooding is extremely unlikely. There has been no loss of life in the UK from reservoir flooding since 1925. All major reservoirs have to be inspected by specialist dam and reservoir Engineers. In accordance with the Reservoirs Act 1975 in England, these inspections are monitored and enforced by the EA themselves. The risk to the site from reservoir flooding is therefore minimal and is far lower than that relating to the potential for fluvial / tidal flooding to occur. The Environment Agency Reservoir Flood Map illustrated below, illustrates the largest area that might be flooded if the storage area were to fail and release the water it is designed to hold during a flood event.

5.56. Records of flooding from reservoirs and canals are erratic as there is no requirement for the Environment Agency to provide information on historic flooding from canals and raised reservoirs on plans. In particular, the NPPF does not require flood risk from canals and raised reservoirs to be shown on the Environment Agency flood zones.

5.57. Overflows from canals can be common as they are often fed by land drainage, and often do not have controlled overflow spillways. Occasionally, major bank breaches also occur, leading to rapid and deep flooding of adjacent land.

5.58. No information has been provided to suggest that the site is susceptible to flooding from other sources.

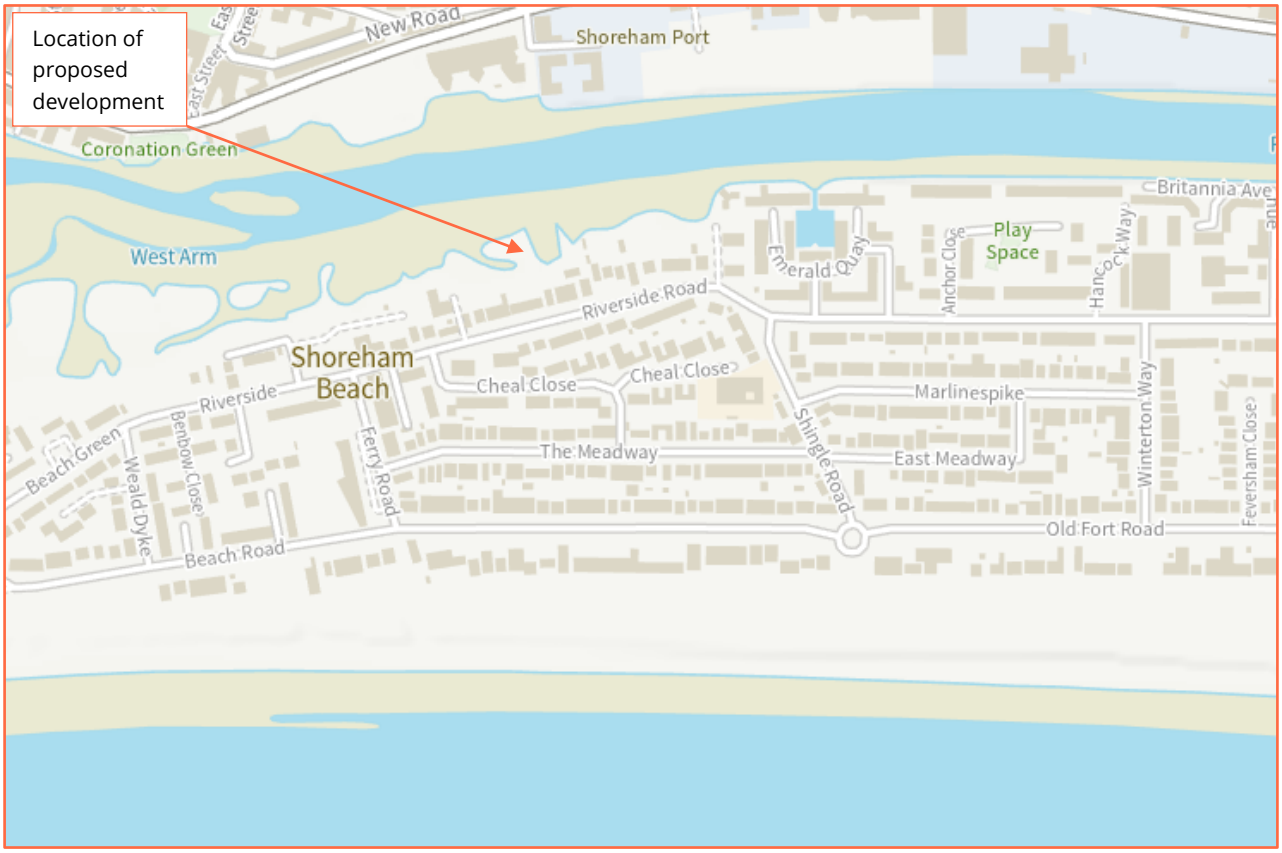


Figure 10: Extract from Environment Agency Reservoir Flood Map (Source: EA)

Historical Flood Events:

5.59. The EA hold records of historic flood events from rivers and the sea. The EA map flooding to land, not individual properties. Their historic flood event record outlines are an indication of the geographical extent of an observed flood event. Their historic flood event outlines do not give any indication of flood levels for individual properties. They also do not imply that any property within the outline has flooded internally.

5.60. The EA hold no records of historic flooding having affected the site or surrounding area.

5.61. The EA historical flood records are not comprehensive, and they advise that further enquiries locally are made with specific reference to flooding at the location.

6. Flood Risk Management

Vulnerability to Flooding:

6.1. The NPPF classifies property usage by vulnerability to flooding.

6.2. The existing site usage is classified as “less vulnerable” (jetty and associated land).

6.3. Post development, the site will remain “less vulnerable” (storage outbuilding) as the application is for the retention of detached outbuilding for storage.

6.4. The outbuilding is used for storage in connection with the use of an existing jetty and will be specifically used for the storage of tools and materials which cannot be stored externally.

6.5. It should be noted that prior to construction of the outbuilding, the tools were either stored on the ground or kept outside under tarpaulin.

6.6. In addition, there will be no introduction of residential or commercial units, increase to built footprint or impermeable areas.

6.7. Accordingly, it is considered that the vulnerability of the site as a whole will not increase post development.

EA Standing Advice for Minor Extensions:

6.8. EA Standing Advice guidance is for domestic extensions and non-domestic extensions where the additional footprint created by the development does not exceed 250m^2. It should not be applied if an additional dwelling is being created, e.g. a self-contained annexe or additional commercial unit.

6.9. The application is for the retention of detached outbuilding for storage.

Physical Design Measures:

6.10. The site is located within Flood Zone 3 according to the EA Flood Map for Planning (Rivers and Sea).

6.11. The EA Risk of Flooding from Surface Water Map suggests that the site is located within an area at “Very Low” chance of flooding from surface water for the present day and between 2040 – 2060.

6.12. The purpose of the outbuilding is to provide a safe, dry and secure space for materials to be stored which are associated with the routine maintenance of the jetty and the applicants boats.

6.13. There will be no electricity, gas or water supply to the outbuilding.

6.14. The boardwalk will be made of slip-resistant surfaces and the surface water drainage from the boardwalk areas will be designed to prevent ponding and direct runoff into appropriate water bodies.

Safe Escape:

6.15. The NPPF requires a route of safe escape for all residents and users to be provided from new residential properties in Flood Zone 3. Safe escape is usually defined as being through slow moving flood water no deeper than 25cm during the 1:200 year plus allowance for climate change flood event.

6.16. Only hazard data has been provided for the Adur Coastal model, 2012 and therefore will be used for this assessment.

6.17. Based on the hazard map provided, a route of safe escape within the Very Low hazard category cannot be provided during the 1:200 year 2125 climate change event. Owners, occupants and tenants should exit the site onto Riverside Road and then travel west to Ferry Road which is flood free after approximately 420m.

6.18. Flood warning notices will be erected around the site to inform site users of the risk of flooding, and the flood warning and evacuation measures. It is recommended that in the event of an extreme flood warning, site users will be advised not to attend the site until the extreme flood warning is lifted, or until advised it is safe to do so by the Emergency Services or the Council's Emergency Planners.

6.19. As such, safe escape will be provided by a formal flood warning and evacuation plan, which will be prepared in liaison with the Council's Emergency Planners and tied in with the emergency plans for the local area.

6.20. Owners, occupants, tenants and site users will follow the Flood Warning and Evacuation Plan detailed in the following section.

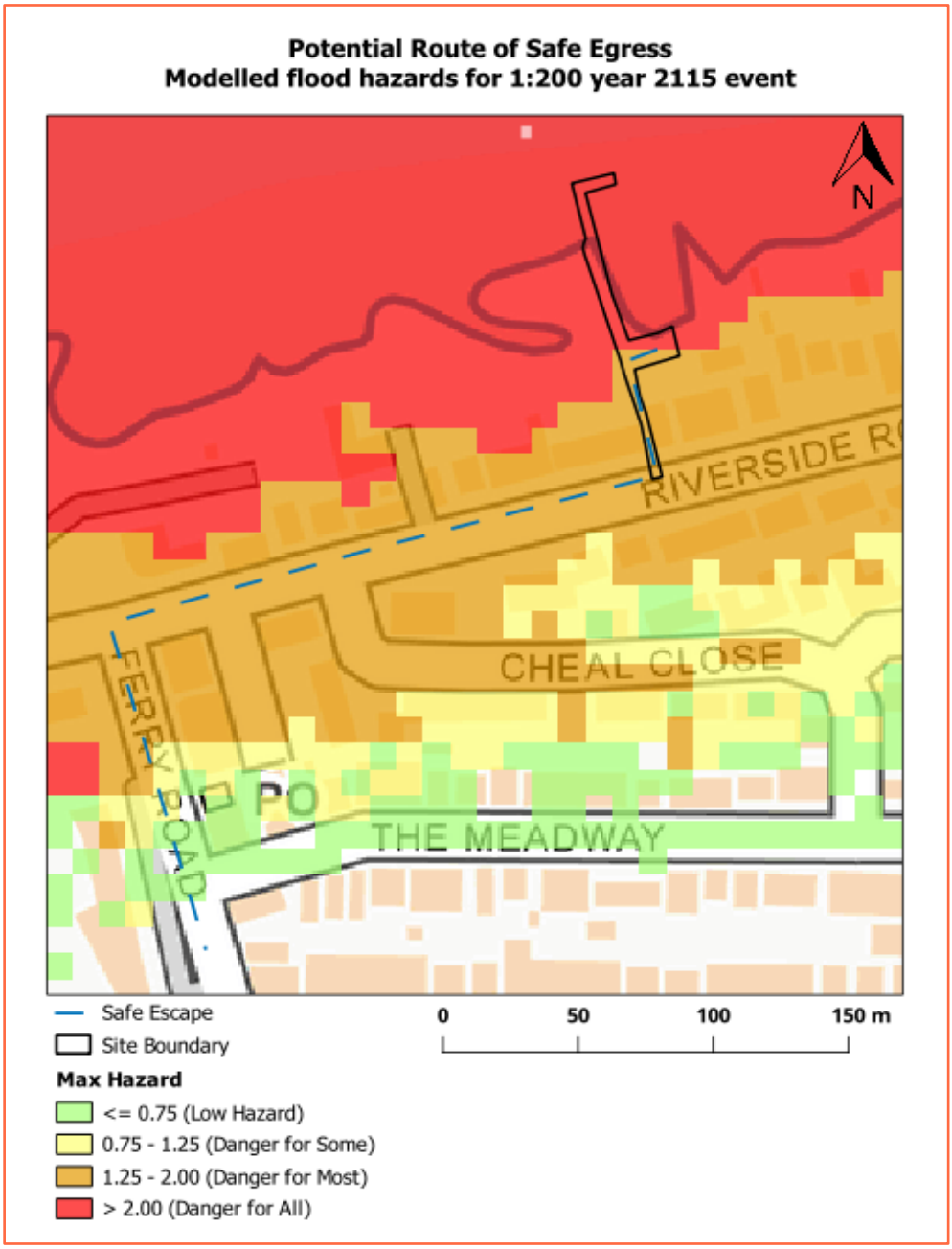


Figure 11: Potential route of safe egress - Adur Coastal model, 2012 (Source: EA)

Flood Warning:

6.21. The EA is responsible for issuing flood warnings. Flood warnings are issued to the emergency services and local authorities. Both private individuals and organisations can sign-up to receive warnings via phone, text or email. This system of receiving warnings is currently voluntary.

6.22. Advice regarding severe flood warnings will generally be given during weather forecasts on local radio and TV. In the case of extreme events, warnings can also be disseminated via door to door visits by the police or locally appointed flood wardens.

6.23. The applicant has agreed to subscribe to the EA's flood warning service.

6.24. The EA issue flood warnings/alerts to specific areas when flooding is expected. The site lies within the Shoreham Harbour Flood Warning Area.

Flood Warning	Flood Alert	Flood Warning	Severe Flood Warning
			
What it means?	Flooding is possible. Be prepared.	Flooding is expected. Immediate action required.	Severe flooding. Danger to life.
When it's used?	Two hours to two days in advance of flooding.	Half an hour to one day in advance of flooding.	When flooding poses a significant threat to life.
What to do?	Be prepared to act on your flood plan. Prepare a flood kit of essential items. Monitor local water levels and the flood forecast on our website.	Move family, pets and valuables to a safe place. Turn off gas, electricity and water supplies if safe to do so. Put flood protection equipment in place.	Stay in a safe place with a means of escape. Be ready should you need to evacuate from your home. Co-operate with the emergency services. Call 999 if you are in immediate danger.

Table 7: EA Flood Warning Service

Flood Plan:

6.25. It is recommended that the applicant and future owners, occupiers and Landlords of the property prepare a flood plan to protect life and property during a flood event:

Action	
Before a flood	• Prepare and keep a list of all your important contacts to hand or save them on your mobile phone. • Think about what items you can move now and what you would want to move to safety during a flood. • Know how to turn off electricity and water supplies to the site. • Prepare a flood kit of essential items and keep it handy. It can include copies of important documents, a torch, a battery-powered or wind-up radio, blankets and warm clothing, waterproofs, rubber gloves and a first aid kit including all essential medication.
During a flood	• Activate the evacuation plan and evacuate the site. • Remove cars from the site if there is sufficient warning and the water levels are not rising rapidly. • Switch off water and electricity for the site. • Tune into your local radio station on a battery or wind-up radio. • Listen to the advice of the emergency service and evacuate if told to do so. • Avoid walking or driving through flood water. Six inches of fast-flowing water can knock over an adult and two feet of water can move a car.
After a flood	• If you have flooded, contact your insurance company as soon as possible. • Take photographs and videos of your damaged property as a record for your insurance company. • If you don't have insurance, contact your local authority for information on grants and charities that may help you. • Flood water can contain sewage, chemicals and animal waste. Always wear waterproof outerwear, including gloves, wellington boots and a face mask. • Have your electrics and water checked by qualified engineers before switching them back on.

Table 8: Flood plan

Off-Site Impacts:

Fluvial Floodplain Storage:

6.26. The NPPF requires that where development is proposed in undefended areas of floodplain, which lie outside of the functional floodplain, the implications of ground raising operations for flood risk elsewhere needs to be considered. Raising existing ground levels may reduce the capacity of the floodplain to accommodate floodwater and increase the risk of flooding by either increasing the depth of flooding to existing properties at risk or by extending the floodplain to cover properties normally outside of the floodplain. Flood storage capacity can be maintained by lowering ground levels either within the curtilage of the development or elsewhere in the floodplain, in order to maintain at least the same volume of flood storage capacity within the floodplain.

6.27. In undefended tidal areas, raising ground levels is unlikely to impact on maximum tidal levels so the provision of compensatory storage should not be necessary.

6.28. For development in a defended flood risk area, the impact on residual flood risk to other properties needs to be considered. New development behind flood defences can increase the residual risk of flooding if the flood defences are breached or overtopped by changing the conveyance of the flow paths or by displacing flood water elsewhere. If the potential impact on residual risk is unacceptable then mitigation should be provided.

6.29. The site is located within Flood Zone 3 according to the Environment Agency Flood Map for Planning (Rivers and Sea). The proposed application is for the retention of detached outbuilding for storage and the site is located within an area of tidal risk. Therefore, there will be no loss of fluvial floodplain storage.

Surface Water Drainage:

6.30. The development will utilise Sustainable drainage systems (SuDS) design in accordance with the NPPF for Planning Applications and the drainage hierarchy as follows:

1. Store rainwater for later use;
2. Infiltration techniques;
3. Attenuate rainwater by storing in tanks for gradual release;
4. Discharge rainwater direct into watercourse;
5. Discharge rainwater into surface water sewer;
6. Discharge rainwater into a combined sewer.

6.31. Due to the nature of the development (retention of detached outbuilding for storage), there will be no increase to the built footprint, no change to the impermeable coverage, and therefore no increase to surface water runoff generation. The existing surface water drainage arrangements for the site will continue to be utilised.

7. Sequential and Exception Test

7.1. The Sequential Test aims to ensure that development does not take place in areas at high risk of flooding when appropriate areas of lower risk are reasonably available.

7.2. The Sequential Test is applied to developments in areas identified as being at risk of any source of flooding now or in the future. The Sequential Test ensures that a sequential, risk-based approach is followed to steer new development to areas with the lowest risk of flooding, taking all sources of flood risk and climate change into account.

7.3. The sequential 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. Other forms of flooding need to be treated consistently with river and tidal flooding in mapping probability and assessing vulnerability, so that the sequential approach can be applied across all areas of flood risk.

7.4. The site is located within Flood Zone 3 according to the Environment Agency Flood Map for Planning (Rivers and Sea). The EA Risk of Flooding from Surface Water Map suggests that the site lies in an area of "Very Low" chance of flooding from surface water.

7.5. Post development, the site will remain "less vulnerable" (storage outbuilding) as the application is for the retention of detached outbuilding for storage.

	Flood Risk Vulnerability Classification				
Flood Zones	**Essential Infrastructure**	**Highly Vulnerable**	**More Vulnerable**	**Less Vulnerable**	**Water Compatible**
Zone 1	✓	✓	✓	✓	✓
Zone 2	✓	Exception Test required	✓	✓	✓
Zone 3a	Exception Test required	X	Exception Test required	✓	✓
Zone 3b	Exception Test required	X	X	X	✓

Table 9: Flood risk vulnerability and flood zone 'compatibility' (Source: NPPF Table 3 Technical Guidance)

7.6. Using the table above, the proposed application ("less vulnerable") is considered to be suitable within Flood Zone 3.

8. Discussion and Conclusion

8.1. Unda Consulting Limited have been appointed by Float Shoreham (hereinafter referred to as "the applicant") to undertake a Flood Risk Assessment for the proposed development at Jetty Opposite 31 and 33, Riverside Road, Shoreham-by-Sea, West Sussex. The purpose of the study is to support a planning application for the proposed development.

8.2. The existing site is a jetty and associated land. The surrounding area is characterised by residential properties.

8.3. The proposed planning application is for the retention of detached outbuilding for storage.

8.4. The outbuilding is used for storage in connection with the use of an existing jetty and will be specifically used for the storage of tools and materials which cannot be stored externally.

8.5. It should be noted that prior to construction of the outbuilding, the tools were either stored on the ground or kept outside under tarpaulin.

8.6. In addition, there will be no introduction of residential or commercial units, increase to built footprint or impermeable areas.

8.7. There will be no electricity, gas or water supply to the outbuilding.

8.8. The existing site usage is classified as "less vulnerable" (jetty and associate land). Post development, the site will remain "less vulnerable" (storage outbuilding). Accordingly, it is considered that the vulnerability of the site as a whole will not increase post development.

8.9. The site is located within Flood Zone 3 (High Probability), defined as land having a 1 in 100 or greater annual probability of river flooding; or Land having a 1 in 200 or greater annual probability of sea flooding. The risk would appear to be predominantly tidal and originate from the River Adur which runs adjacent to the site.

8.10. There is no EA Flood Zones plus climate change (2070 to 2125) data available for this site.

8.11. Product 4 modelled flood levels and extents have been requested from the EA for use within this report.

8.12. The EA has provided modelled flood data from the Adur Coastal model completed in 2012 by JBA and the Adur Tidal Walls Scheme modelling completed in 2018.

8.13. The design flood levels for planning are the 1:200 year with Higher Central, and Upper End climate change. The defended 1:200 year at the present day is 4.30mAOD. The modelled flood levels for the 1:200 year Higher Central and Upper End are 5.40mAOD and 5.78mAOD respectively.

8.14. LiDAR remotely sensed digital elevation data suggests that the ground topography on site ranges from approximately -0.65mAOD to 4.75mAOD.

8.15. LiDAR remotely sensed digital elevation data suggests that the ground topography in the area of the proposed development ranges from approximately 2.80mAOD to 3.90mAOD.

8.16. Comparison of the defended 1:200 year Higher Central flood level (5.40mAOD) with approximate topographic site levels (-0.65mAOD to 4.75mAOD) shows the site to be between 0.65m and 6.05m below the flood level.

8.17. Comparison of the 1:200 Upper End flood level (5.78mAOD) with approximate site levels (-0.65mAOD to 4.75mAOD) shows the site is between 1.03m and 6.43m below the flood level.

8.18. Comparison of the defended 1:200 year Higher Central flood level (5.40mAOD) with approximate topographic levels in the area of the proposed development (2.80mAOD to 3.90mAOD) shows the site to be between 1.50m and 2.60m below the flood level.

8.19. Comparison of the 1:200 Upper End flood level (5.78mAOD) with approximate topographic levels in the area of the proposed development (2.80mAOD to 3.90mAOD) shows the site is between 1.88m and 2.98m below the flood level.

8.20. According to EA data, there are no Flood Storage Areas located in close proximity to the site.

8.21. The River Adur is flanked by a wall in the area of the site.

8.22. The maximum modelled water level for the 1:200 year plus climate change event is 5.40mAOD for the higher central and 5.78mAOD upper end for 2125.

8.23. The EA Risk of Flooding from Surface Water Map suggests that there is "Very Low" chance on site during the present day and between 2040 - 2060.

8.24. Risk to the site from groundwater, sewer surcharge and reservoir flooding would appear to be very low. No information has been provided to suggest that the site has flooded historically from these sources.

8.25. The EA hold no records of historic flooding having affected the site or surrounding area.

In Summary:

- The proposed planning application is for the retention of detached outbuilding for storage.
- Post development, the site will remain "less vulnerable" (storage outbuilding).
- There will be no introduction of residential or commercial units, increase to built footprint or impermeable areas.
- There will be no electricity, gas or water supply to the outbuilding.
- The boardwalk will be made of slip-resistant surfaces and the surface water drainage from the boardwalk areas will be designed to prevent ponding and direct runoff into appropriate water bodies.
- There will be no loss of fluvial floodplain storage.
- Due to the nature of the development, there will be no increases to surface water runoff.
- The applicant will register with the free Environment Agency Floodline Alert Direct service.

Assuming accordance with these flood risk management measures, Unda Consulting Limited consider the proposed application to be suitable in flood risk terms.

Unda Consulting Limited
December 2025

Appendix

A – Development Plans:

- Site location, existing and proposed plans – Applicant.

B – EA Flood Map for Planning:

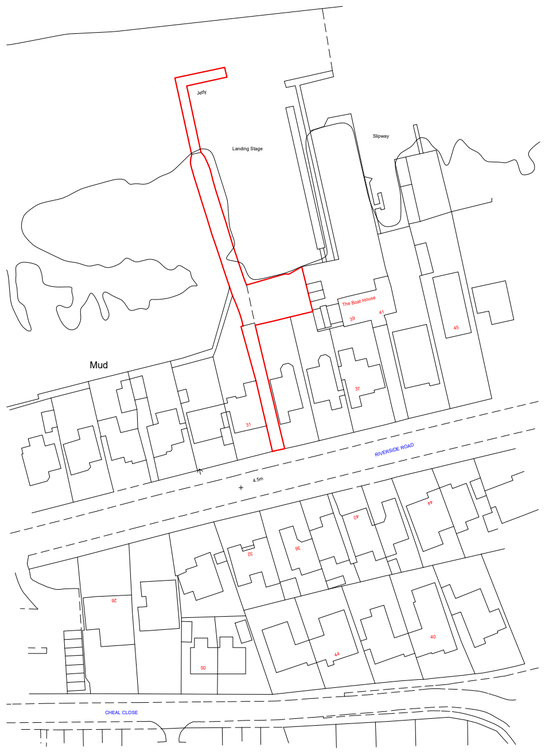
- Flood Map for Planning – Environment Agency.

C – EA Product 4:

- Environment Agency Product 4.

D – NPPF Annex 3:

- NPPF Annex 3: Flood risk vulnerability classification table.



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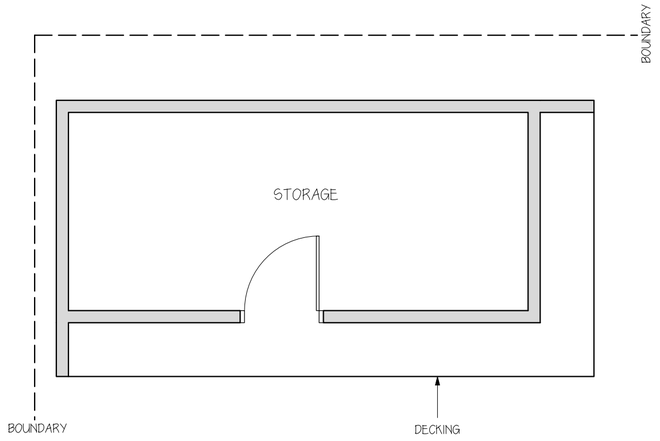
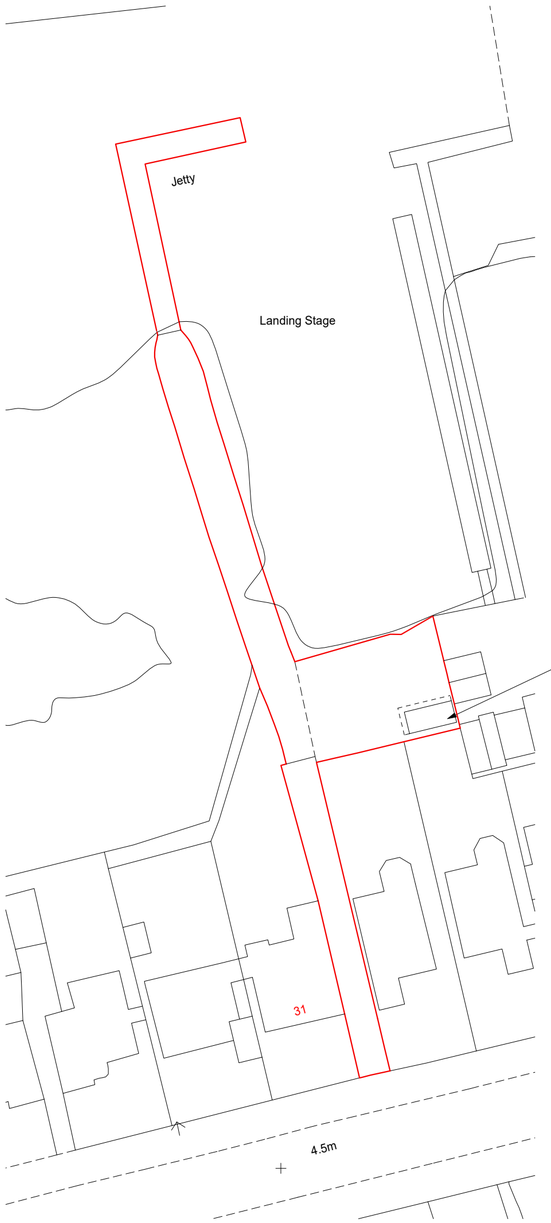
1:1250 LOCATION PLAN



1:50 OUTBUILDING FLOOR PLAN

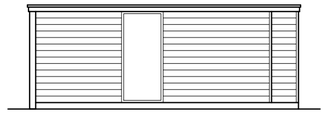
0 1m 2m

1:50 Scale Bar

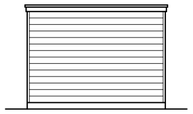


1:500 SITE PLAN

1:100 ELEVATIONS



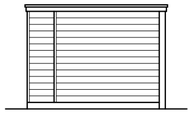
NORTH ELEVATION



EAST ELEVATION



SOUTH ELEVATION



WEST ELEVATION

0 1m 2m 3m 4m 5m

1:100 Scale Bar

0 25m 50m

1:1250 Scale Bar

0 5m 10m 15m 20m 25m

1:500 Scale Bar

No.	Date	By	Contents

Revisions

Drawing Title

Location Plan, Site Plan & Outbuilding Plans

Project

Retention of detached outbuilding for storage

Scale	Date	Drawn by
As stated	October 2025	SD

Client Details

Mr Simon Twiddy
Jetty opposite 31 & 33 Riverside Road
Shoreham-By-Sea
West Sussex
BN43 5RB

Drg.No.	Rev.
RR PA 01	A

Flood map for planning

Your reference	Location (easting/northing)	Created
Unspecified	**521958/104841**	**9 December 2025 14:58**

Your selected location is in flood zone 3, an area with a high probability of flooding.

This means:

- you must complete a flood risk assessment for development in this area
- you should follow the Environment Agency's standing advice for carrying out a flood risk assessment (see https://www.gov.uk/guidance/flood-risk-assessment-standing-advice)

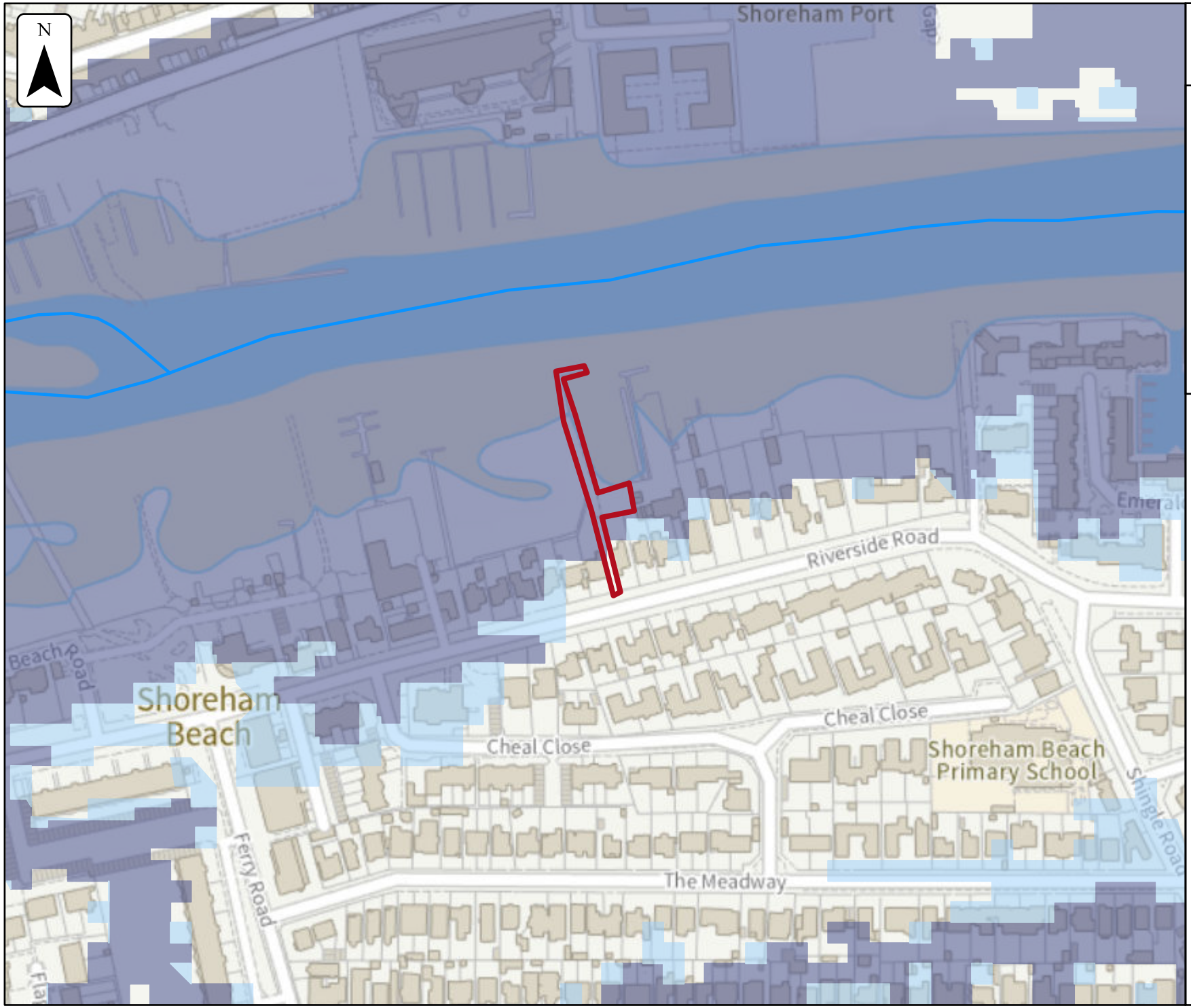
Notes

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

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

Flood risk data is covered by the Open Government Licence which sets out the terms and conditions for using government data. https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3

Use of the address and mapping data is subject to Ordnance Survey public viewing terms under Crown copyright and database rights 2025 AC0000807064. https://flood-map-for-planning.service.gov.uk/os-terms



Environment Agency

Flood map for planning

Your reference
Unspecified

Location (easting/northing)
521958/104841

Scale
1:2,500

Created
9 Dec 2025 14:58

- Selected area
- Flood zone 3
- Flood zone 2
- Flood zone 1
- Flood defence
- Main river
- Water storage area

0 20 40 60 m

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Flood risk assessment data

Location of site: 521949 / 104874 (shown as easting and northing coordinates)
Document created on: 15 July 2025
This information was previously known as a product 4.
Customer reference number: 727URP16EWHF/ EIR2025/16760

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)
- 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
- information about strategic flood risk assessments
- information about this data
- information about flood risk activity permits
- help and advice

Information that's unavailable

This document **does not** contain:

- past floods

We do not have past flooding data for this location.

Please note that:

- flooding may have occurred that we do not have records for
- flooding can come from a range of different sources
- we can only supply flood risk data relating to floodng from rivers or the sea

You can contact your Lead Local Flood Authority or Internal Drainage Board to see if they have other relevant local flood information. Please note that some areas do not have an Internal Drainage Board.

Surface water and other sources of flooding

When using the surface water map on the check your long term flood risk service the following considerations apply:

- surface water extents are suitable for use in planning
- surface water climate change scenarios may help to inform risk assessments, but the available data fall short of what is required to assess planned development
- surface water depth information should not be used for planning purposes

To find out about other factors that might affect the flood risk of this location, you should also check:

- reservoir flood risk
- groundwater flood risk - you could use the British Geological Survey groundwater flooding data, groundwater: current status and flood risk and the guide on mining and groundwater constraints for development - further information may be available from the lead local flood authority (LLFA)
- your local planning authority's SFRA, which includes future flood risk

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: Adur Coastal Model, 2012
Scenario(s): Defended tidal, defences removed tidal, defended climate change tidal, defences removed climate change tidal
Date: 20 August 2012

Model name: Adur Tidal Walls Scheme modelling
Scenario(s): Defended Tidal
Date: 2018

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:

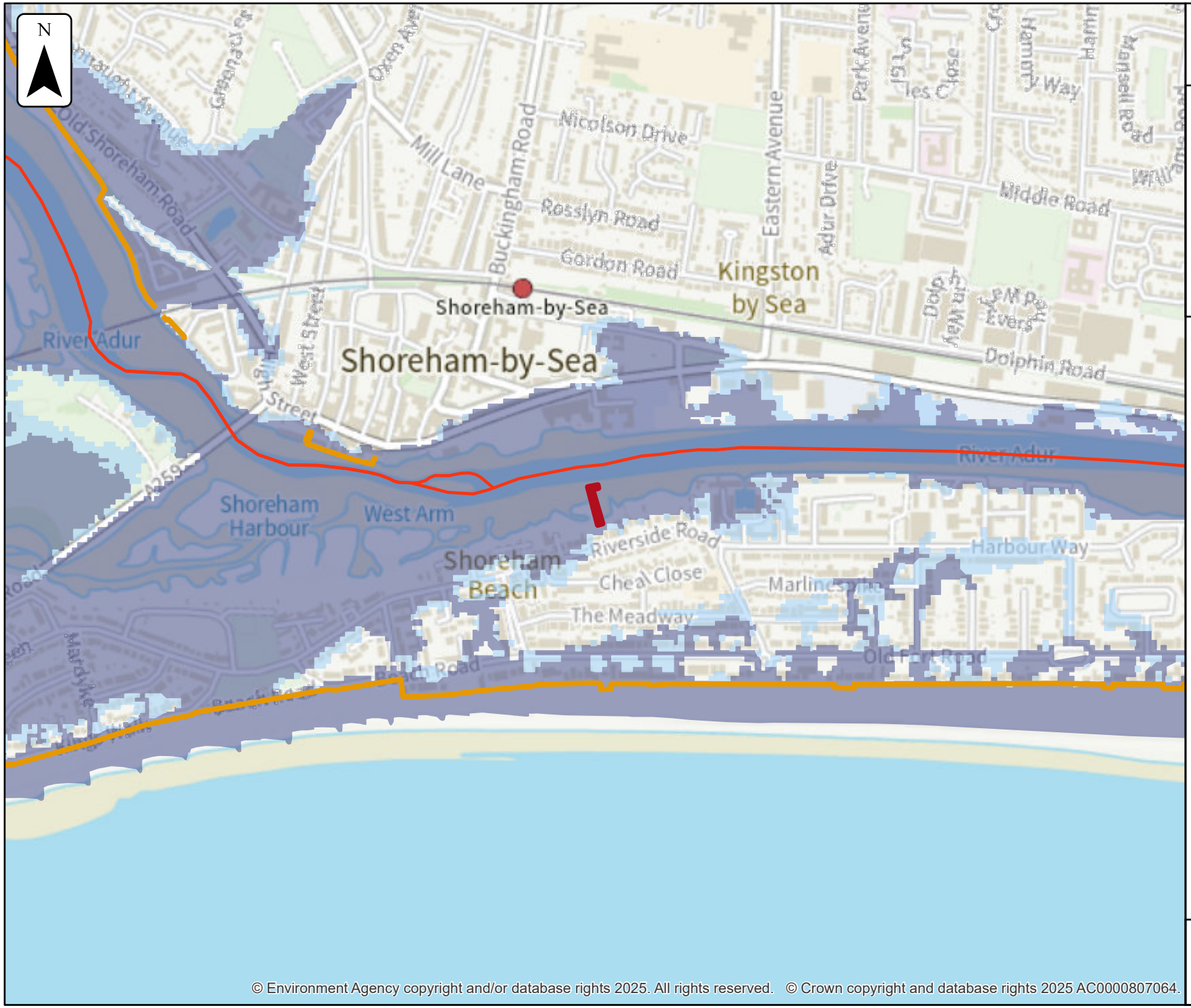
- 0.5% or greater probability of occurring in any year for flooding from the sea
- 1% or greater probability of occurring in any year for fluvial (river) flooding

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



Environment Agency

Flood map for planning

Location (easting/northing)
521949/104874

Scale
1:10,000

Created
15 Jul 2025

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

0 100 200 300 400 500
metres

Flood defences and attributes

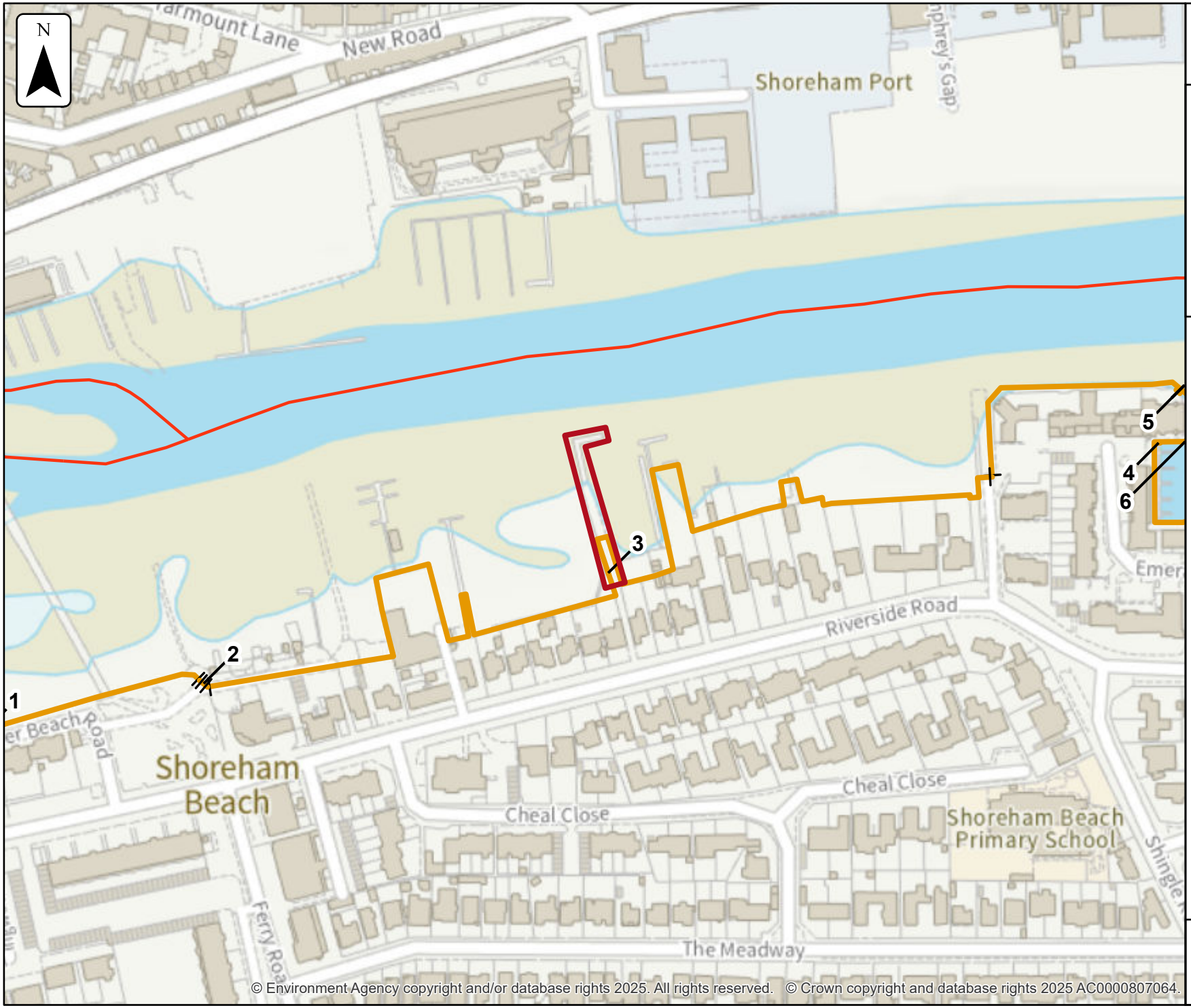
The flood defences map shows the location of the flood defences present.

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



Environment Agency

Flood defences

Location (easting/northing)
521949/104874

Scale
1:2,500

Created
15 Jul 2025

Selected area
Main river
Flood defence

0 25 50 75 100
metres

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	143312	Wall	15		4.21	4.13	
2	761196	Flood Gate	300	Very good			
3	172967	Wall	2				
4	762561	Flood Gate	300				
5	762555	Demountable Defence					
6	172966	Wall	2		4.84	3.87	

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 fluvial: risk of flooding from rivers where there are flood defences
- 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
- Defended climate change modelled fluvial: risk of flooding from rivers where there are flood defences, including estimated impact of climate change
- Defended climate change modelled tidal: risk of flooding from the sea where there are flood defences, including estimated impact of climate change
- Defences removed climate change modelled tidal: risk of flooding from the sea where flood defences have been removed, including estimated impact of climate change

Modelled Flood Outlines (Defended Tidal). Centred BN43 5RB. Created 15/07/2025.



Environment Agency

N

Legend

- Site Boundary
- 0.5% AEP (2018) (Defended)
- 0.5% AEP (2067) (Defended)
- 0.5% AEP (2117) (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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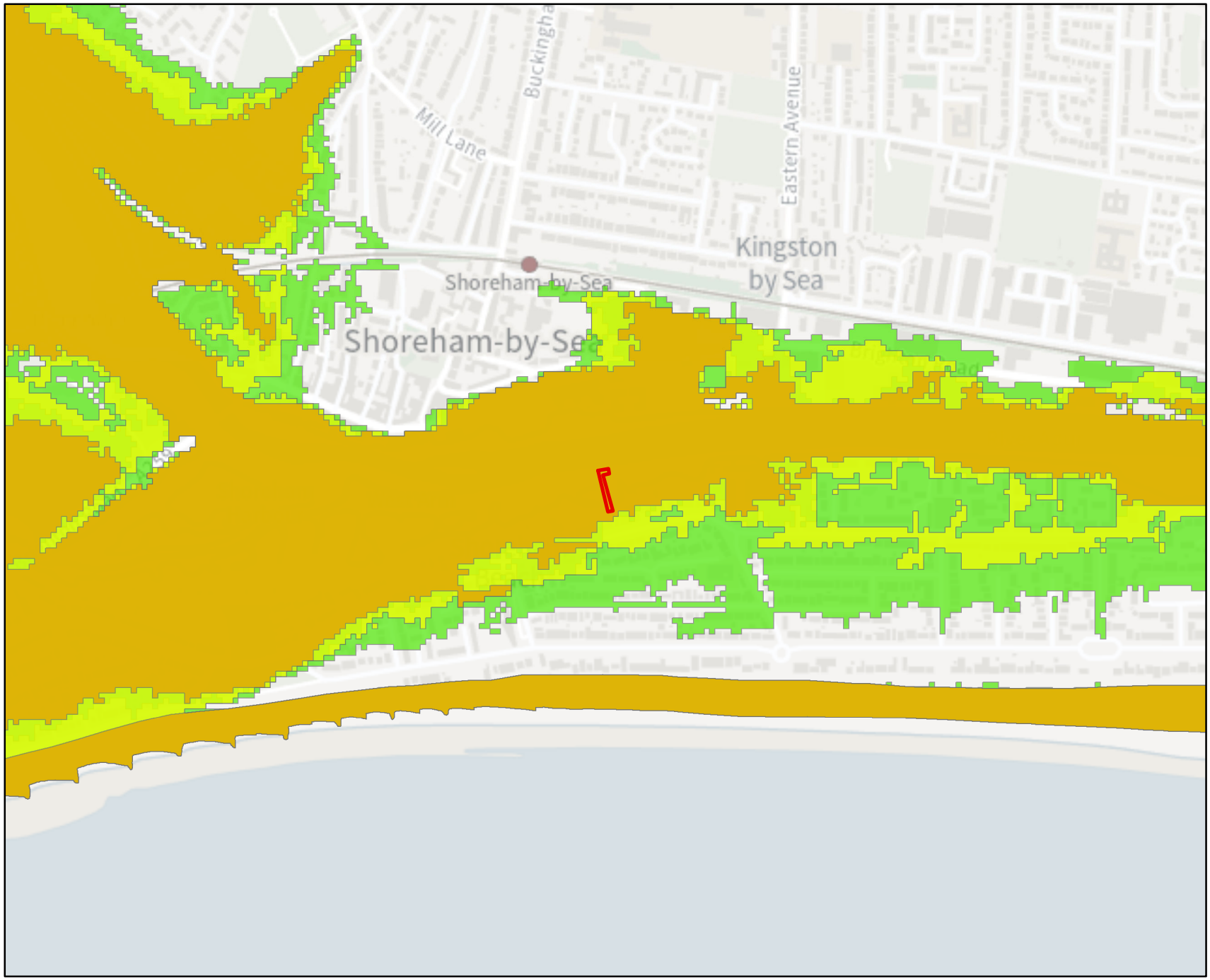
Contact us: National Customer Contact Centre, PO Box 544, Rotherham, S60 1BY. Tel: 03708 506 506. Email:enquiries@environment-agency.gov.uk

Modelled Flood Outlines (Undefended Tidal). Centred BN43 5RB. Created 15/07/2025.



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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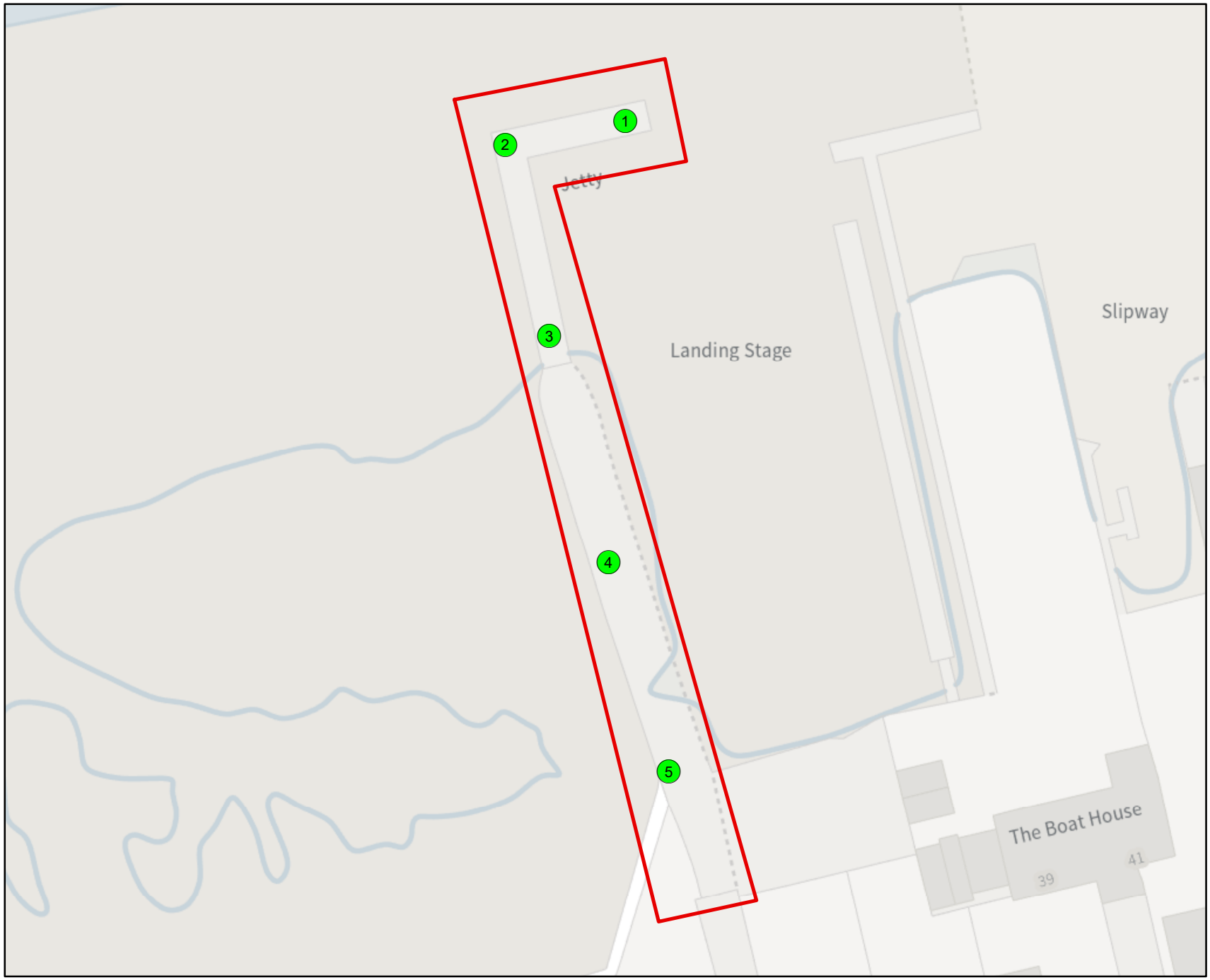
FRA Site Boundary and Node Points. Centred BN43 5RB. Created 15/07/2025.



Environment Agency

N

Legend

Site Boundary

Site Nodes

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: Anthony Rousou

Site: Jetty Opposite 31 And 33, Riverside Road, Shoreham-by-sea, West Sussex, BN43 5RB

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	521952	104907	4.25	4.78	5.38	4.47
2	521940	104905	4.25	4.78	5.38	4.47
3	521945	104887	4.25	4.78	5.38	4.47
4	521950	104866	4.25	4.78	5.38	4.47
5	521956	104847	4.25	4.78	5.38	4.47

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% (2067)*	0.5% (2117)*
1	521952	104907	4.30	4.56	4.92
2	521940	104905	4.30	4.56	4.92
3	521945	104887	4.30	4.56	4.92
4	521950	104866	4.30	4.56	4.91
5	521956	104847	-	-	-

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	521952	104907	5.07	5.61	6.21	5.30
2	521940	104905	5.47	6.01	6.61	5.70
3	521945	104887	2.61	3.15	3.74	2.83
4	521950	104866	0.47	1.00	1.60	0.69
5	521956	104847	1.05	1.58	2.18	1.27

Office Address: Guildbourne House, Chatsworth Road, Worthing BN11 1LD.
Customer services line: 03708 506 506. Email: enquiries@environment-agency.gov.uk
www.gov.uk/government/organisations/environment-agency

Table 4: Water Depths: Tidal Defended

	NGR		Modelled Flood Depths in Metres Defended Annual Exceedance Probability		
Node Ref	Eastings	Northings	0.5%	0.5% (2067)*	0.5% (2117)*
1	521952	104907	4.84	5.11	5.46
2	521940	104905	4.89	5.16	5.51
3	521945	104887	2.84	3.10	3.46
4	521950	104866	0.54	0.81	1.16
5	521956	104847	-	-	-

All levels taken from: Arun to Adur Coastal Modelling (2012), completed by JBA Consulting, with updated defended scenarios taken from the Adur Tidal Walls Scheme modelling (2018).

Produced on: 15/07/2025

*** 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

Annex 3: Flood Risk Vulnerability Classification	
Essential Infrastructure:	• Essential transport infrastructure (including mass evacuation routes) which has to cross the area at risk. • Essential utility infrastructure which has to be located in a flood risk area for operational reasons, including infrastructure for electricity supply including generation, storage and distribution systems; including electricity generating power stations, grid and primary substations storage; and water treatment works that need to remain operational in times of flood. • Wind turbines. • Solar farms.
Highly Vulnerable:	• Police and ambulance stations; fire stations and command centres; telecommunications installations required to be operational during flooding. • Emergency dispersal points. • Basement dwellings. • Caravans, mobile homes and park homes intended for permanent residential use. • Installations requiring hazardous substances consent. (Where there is a demonstrable need to locate such installations for bulk storage of materials with port or other similar facilities, or such installations with energy infrastructure or carbon capture and storage installations, that require coastal or water-side locations, or need to be located in other high flood risk areas, in these instances the facilities should be classified as 'Essential Infrastructure'.)
More Vulnerable: * Landfill is as defined in Schedule 10 of the Environmental Permitting (England and Wales) Regulations 2010	• Hospitals. • Residential institutions such as residential care homes, children's homes, social services homes, prisons and hostels. • Buildings used for dwelling houses, student halls of residence, drinking establishments, nightclubs and hotels. • Non–residential uses for health services, nurseries and educational establishments. • Landfill* and sites used for waste management facilities for hazardous waste. • Sites used for holiday or short-let caravans and camping, subject to a specific warning and evacuation plan.
Less Vulnerable:	• Police, ambulance and fire stations which are not required to be operational during flooding. • Buildings used for shops; financial, professional and other services; restaurants, cafes and hot food takeaways; offices; general industry, storage and distribution; non-residential institutions not included in the 'more vulnerable' class; and assembly and leisure. • Land and buildings used for agriculture and forestry. • Waste treatment (except landfill* and hazardous waste facilities). • Minerals working and processing (except for sand and gravel working). • Water treatment works which do not need to remain operational during times of flood. • Sewage treatment works, if adequate measures to control pollution and manage sewage during flooding events are in place. • Car parks.
Water-Compatible Development:	• Flood control infrastructure. • Water transmission infrastructure and pumping stations. • Sewage transmission infrastructure and pumping stations. • Sand and gravel working. • Docks, marinas and wharves. • Navigation facilities. • Ministry of Defence installations. • Ship building, repairing and dismantling, dockside fish processing and refrigeration and compatible activities requiring a waterside location. • Water-based recreation (excluding sleeping accommodation). • Lifeguard and coastguard stations. • Amenity open space, nature conservation and biodiversity, outdoor sports and recreation and essential facilities such as changing rooms. • Essential ancillary sleeping or residential accommodation for staff required by uses in this category, subject to a specific warning and evacuation plan.

National Planning Policy Framework Annex 3: Flood risk vulnerability classification