



Flood Risk Assessment

3 - 4 Liverpool Buildings, Worthing BN11 1SY

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1. Introduction

The following document is a Flood Risk Assessment carried out by Eco 360, and includes details of the site, vulnerability classification, flood linkages and an evaluation of risk.

1.1 Project Overview

The proposed development comprises a change of use and internal reconfiguration to create a single two bedroom residential unit at first floor level within the existing building at 3–4 Liverpool Buildings, Liverpool Road, Worthing, West Sussex (BN11 1SY).

The proposed development does not involve any increase in building footprint, land raising, excavation, basement accommodation, or ground floor habitable accommodation. The FRA therefore considers whether the proposed change of use can be made safe for its lifetime, taking account of climate change, without increasing flood risk elsewhere.

1.2 Purpose of Investigation

The objectives of the Flood Risk Assessment were to:

- develop a detailed assessment of the site;
- determine whether the Sequential Test and, where relevant, the Exception Test apply to the proposed development;
- identify potential flood sources, receptors and pathways at the site;
- assess the level of potential flood risk;
- evaluate whether the proposed development can be made safe for its lifetime, taking account of climate change; and
- determine the requirement or scope of further investigations, mitigation, flood resilience measures, or emergency planning measures.

1.3 Scope of Work

- Brief introductory information has been noted to provide context to the report and include an Introduction, Project Overview, Scope of Work and Limitations.
- To develop a detailed assessment of the site and apply the Sequential Test and Exception Test, desk studies have been carried out to collate information obtained from sources including the Environment Agency, Local & National Authorities, Strategic Flood Risk Assessments and Digital Terrain Model (DTM) LiDAR topographical surveys.
- This information has been used to identify potential flood sources, receptors and pathways at the site, as part of an initial Conceptual Site Model.
- To assess the level of potential flood risk, a Conceptual Site Model has been produced to categorise the potential severity of the impact of the flood linkage on the receptor and the probability of the flood linkage being present.
- Following the assessment of flood linkages, an evaluation of flood risk, mitigation measures, surface water management and safe access and egress has been conducted to determine the requirement or scope of further investigations.
- Supporting appendix include photographs, maps, and plans of the site.

1.4 Limitations

Eco 360 has exercised such professional skill, care and diligence as may reasonably be expected of a properly qualified and competent consultant when undertaking works of this nature. This report is only valid when used in its entirety and any information or advice contained within the report should not be relied upon until considered in the context of the whole report. Eco 360 disclaims any responsibility to the client, as named on the front of this report ("the client"), and others in respect of any matters outside the scope of this work. Any comments made on the basis of information obtained from the client or other third parties are given in good faith on the assumption that the information is accurate. This report has been prepared solely for the benefit of the client and any other party using or placing reliance upon any information contained in this report does so at their own risk. Eco 360 accepts no responsibility or liability for the contents of this report being used for any purpose or project for which it was not commissioned. Eco 360 accepts no liability whatsoever for any loss or damage arising from the interpretation or use of this report and in no event shall the company be liable for any punitive, exemplary or other special damages, or for any indirect, incidental or consequential damages, including with respect to the performance or non-performance of any services, whether arising under breach of contract, tort or any other legal theory, and regardless of whether the company has been advised of, knew of, or should have known of the possibility of such damages. Furthermore, Eco 360 does not accept any liability for the consequences of any legislative changes or the release of subsequent guidance documentation and following delivery of the report has no obligation to advise the client or any other party of such changes or their repercussions.

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. Eco 360 does not warrant or guarantee that the site is free of hazardous or potentially hazardous materials or conditions. It should be noted that this report has been produced for environmental purposes only.

2. Site

The following section provides a description of the site, location, proposed development and vulnerability classification, utilising information obtained from the client and publicly available sources.

2.1 Site Description and Location

The site is located at 3–4 Liverpool Buildings, Liverpool Road, Worthing, West Sussex, BN11 1SY, within the administrative area of Worthing Borough Council. The site comprises an existing mixed use building, with commercial use at ground floor level and upper floors historically used for residential purposes.

The site is situated within a town centre area, characterised by continuous frontage buildings, commercial premises at ground floor level, and residential accommodation above. Liverpool Road is a principal route within Worthing town centre, and the surrounding area comprises a mix of retail, commercial and residential uses.

The site lies within an area influenced by coastal and tidal flood mechanisms, given its proximity to the seafront and the low lying coastal topography of the surrounding area.

A LiDAR derived Digital Terrain Model (DTM) has been reviewed to understand local ground levels across the site. The analysis indicates that ground levels across the site are relatively uniform, with levels of approximately 5.48 mAOD. This confirms that the site is effectively flat, with no significant local gradients that would materially influence overland surface water flow routing at the site scale.

National Grid Reference (OSGB36 / British National Grid): TQ 14883 02580

Easting / Northing: 514883 , 102580

2.2 Proposed Development

The proposed development comprises a change of use and internal reconfiguration to facilitate the creation of a single two bedroom residential unit at first floor level within the existing building at 3–4 Liverpool Buildings.

The proposals do not involve any extension, increase in building footprint, ground level alteration, excavation or land raising. No basement accommodation is proposed, and no habitable or sleeping accommodation is proposed at ground floor level. The development is therefore confined entirely within the existing built form, with residential accommodation located at first floor level only.

The existing arrangement includes external rear stair access to the first floor level. Under the proposed development, this access arrangement is altered, with access to the proposed first floor residential unit provided internally. The proposed layout therefore removes reliance on the existing external rear staircase and locates the residential accommodation at first floor level only, with no habitable or sleeping accommodation proposed at ground floor level.

2.3 Vulnerability Classification

The vulnerability classification of the proposed development has been assessed in accordance with Annex 3 of the National Planning Policy Framework (NPPF) and the Flood Risk and Coastal Change Planning Practice Guidance (PPG).

The proposed development comprises a change of use and internal reconfiguration within an existing building to provide residential accommodation at first-floor level only. No habitable accommodation is proposed at ground floor level, and no basement accommodation is proposed.

Buildings used as dwelling houses are classified as 'More Vulnerable' development under Annex 3 of the NPPF. In accordance with PPG guidance, where a development contains different elements of vulnerability, the highest vulnerability classification has been applied.

The proposed residential accommodation will:

- be occupied year round,
- include sleeping accommodation located solely at first floor level.

- be occupied on a 24-hour basis, consistent with typical residential use.

The development is intended for general residential occupation and is not designed for institutional use, assisted living, or occupation by persons requiring continuous care. Access to the proposed residential accommodation will be provided internally via the proposed stair arrangement, as shown on the proposed ground-floor and first-floor plans.

The proposal constitutes a change of use which increases the vulnerability classification of the relevant part of the building from a less vulnerable/non-residential use to a more vulnerable residential use. In accordance with national planning guidance on changes of use in flood risk areas, this assessment considers whether the proposal can be made safe for its lifetime, taking account of climate change, without increasing flood risk elsewhere.

The proposal does not involve:

- any increase in building footprint;
- any ground level raising or excavation;
- any loss of floodplain storage; or
- the introduction of habitable accommodation at ground or basement level.

Given that all residential accommodation is located above ground floor level, and that the proposals do not result in additional floodplain encroachment or loss of flood storage, the development is considered to adopt a sequentially preferable arrangement within the existing building.

The purpose of this Flood Risk Assessment is therefore to demonstrate that the proposed development can be delivered safely for its lifetime, taking account of climate change, and in accordance with national and local flood risk policy.

It should be noted that Flood Zones shown on the Environment Agency Flood Map for Planning do not take account of the presence or performance of flood defences, residual flood risk mechanisms, or site-specific mitigation measures. These matters are considered further within this assessment.

Table 1: Flood Risk Vulnerability Classification table from National Planning Policy Framework Technical Guidance

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	×	Exception Test required	•	•
Zone 3b	Exception Test required	×	×	×	•

Key: • Development is appropriate
 × Development should not be permitted

2.4 Lifetime of Development

In accordance with Planning Practice Guidance on Flood Risk and Coastal Change, residential development is generally assumed to have a design lifetime of 100 years.

This assessment has therefore been undertaken on the basis that the proposed residential use at first-floor level must remain safe from flooding over this period, taking account of the potential effects of climate change.

As the proposed development is confined to the existing building envelope and does not involve any new building footprint, land raising, basement accommodation, or ground-floor habitable accommodation, the assessment focuses on whether the proposed change of use can be made safe for its lifetime without increasing flood risk

elsewhere.

2.5 Planning Policy Context

The application site lies within the administrative boundary of Worthing Borough Council, which is the Local Planning Authority.

Flood risk policy and development management decisions relevant to the site are informed by the following guidance and policy framework:

- National Planning Policy Framework (NPPF);
- Planning Practice Guidance: Flood Risk and Coastal Change;
- Environment Agency flood risk standing advice;
- Environment Agency Flood Map for Planning;
- Environment Agency climate change allowances for flood risk assessments;
- Adur and Worthing Level 1 Strategic Flood Risk Assessment; and
- Adur and Worthing Level 2 Strategic Flood Risk Assessment, where relevant.

This Flood Risk Assessment has been prepared to demonstrate that the proposed development can be made safe for its lifetime, taking account of climate change, without increasing flood risk elsewhere.

3. Sequential Test

3.1 Introduction

The Environment Agency Flood Map for Planning indicates that the application site is located within Flood Zone 3, defined as land having a high probability of flooding from tidal or fluvial sources.

In accordance with the National Planning Policy Framework (NPPF) and associated Planning Practice Guidance (PPG), development should be directed to areas with the lowest probability of flooding where reasonably available sites exist.

The proposed development at 3–4 Liverpool Buildings, Liverpool Road, Worthing, BN11 1SY comprises a change of use and internal reconfiguration within an existing building to provide a single two bedroom residential unit at first floor level only. No new building footprint is proposed, and no habitable or sleeping accommodation is proposed at ground floor or basement level.

Residential development is classified as 'More Vulnerable' in accordance with Annex 3 of the NPPF.

3.2 Proportionate Application of the Sequential Test

Planning Practice Guidance confirms that the Sequential Test should be applied in a proportionate manner, taking account of the scale, nature and location of the proposal.

In this instance, the proposal does not relate to a new site allocation, new build development, or an extension of the existing building. The development is intrinsically linked to the existing building at 3–4 Liverpool Buildings and comprises only a change of use and internal reconfiguration within the established built form.

The proposal does not involve:

- any increase in building footprint;
- any land raising or excavation;
- any encroachment into the functional floodplain;
- any loss of floodplain storage;
- any basement accommodation; or
- any ground floor habitable or sleeping accommodation.

Given the nature of the proposal, there is no realistic flexibility to relocate the development to an alternative site at a lower probability of flooding. A conventional Sequential Test involving the identification and comparison of alternative sites is therefore not considered applicable or proportionate in this case.

Nevertheless, the proposal adopts a sequential approach within the site by locating all habitable and sleeping accommodation at first floor level, thereby reducing exposure to potential flood risk.

3.3 Sequential Risk Context

The Environment Agency Flood Map for Planning indicates that the site lies within Flood Zone 3. The 2024 Adur and Worthing Level 1 Strategic Flood Risk Assessment confirms that the site is not located within Flood Zone 3b Functional Floodplain.

The proposed development is confined to the existing building envelope and does not increase the built footprint, alter ground levels, or reduce floodplain storage. All residential accommodation is located at first-floor level only, with no ground-floor or basement residential accommodation proposed.

Residual flood risks associated with extreme events, climate change, surface water flooding, or defence exceedance are considered further within this Flood Risk Assessment. These risks are proposed to be managed through the vertical arrangement of accommodation, flood warning registration, and proportionate flood-risk management measures.

3.4 Sequential Test Conclusion

The site is located within Flood Zone 3 and comprises an existing building within an established urban town centre setting.

Having regard to:

- the change of use nature of the proposal;
- the absence of any increase in building footprint;
- the absence of ground-floor or basement habitable accommodation;
- the location of all residential accommodation at first floor level;
- the site not being located within Flood Zone 3b Functional Floodplain; and
- the ability to manage flood risk through layout and proportionate mitigation measures;

The proposal comprises a change of use and is therefore exempt from the Sequential Test under Environment Agency standing advice, except where the change of use is to caravan, camping, chalet, mobile home or park home use. Notwithstanding this, the FRA applies a sequential approach within the building by locating all residential accommodation at first-floor level only.

Flood risk considerations are therefore appropriately addressed through this site-specific Flood Risk Assessment, which demonstrates that the proposed development can be made safe for its lifetime, taking account of climate change, without increasing flood risk elsewhere.

3.5 Exception Test

In accordance with the NPPF and Planning Practice Guidance, residential development is classified as 'More Vulnerable'. Where More Vulnerable development is proposed within Flood Zone 3a, the Exception Test is required.

The first part of the Exception Test requires the development to provide wider sustainability benefits to the community that outweigh flood risk. The proposal would make effective use of an existing building within Worthing town centre, support the reuse of previously developed land, and provide residential accommodation in a sustainable urban location with access to existing services, public transport, employment opportunities and local facilities.

The second part of the Exception Test requires the development to be safe for its lifetime, taking account of the vulnerability of its users, without increasing flood risk elsewhere and, where possible, reducing flood risk overall.

The proposed development is contained entirely within the existing building envelope and does not involve any increase in building footprint, land raising, excavation, or loss of floodplain storage. No basement accommodation is proposed, and no habitable or sleeping accommodation is proposed at ground floor level. All residential accommodation is located at first floor level only.

This Flood Risk Assessment demonstrates that residual flood risk can be managed through the proposed internal layout and proportionate mitigation measures, including flood warning registration and the provision of flood safety advice to future occupants.

On this basis, the development is considered capable of satisfying the Exception Test, as it can be made safe for its lifetime, taking account of climate change, without increasing flood risk elsewhere.

4. Flood Risk Assessment

The following section outlines the potential flood sources, pathways and receptors relevant to the site, utilising information gathered from the Environment Agency, West Sussex County Council, published flood mapping, and the 2024 Adur and Worthing Level 1 Strategic Flood Risk Assessment (SFRA), to develop an initial conceptual site model.

4.1 Potential Flood Sources

Tidal and Sea Flooding

The site is located within the coastal zone and is influenced by tidal processes associated with the English Channel. The Environment Agency Flood Map for Planning indicates that the site lies within Flood Zone 3, defined as land having a high probability of flooding from rivers or the sea.

Flood Zone 3 represents a strategic-scale planning classification and does not take account of the presence, standard or performance of flood defences, site-specific ground levels, local topography, residual flood risk mechanisms, or proposed mitigation measures.

The 2024 Adur and Worthing Level 1 SFRA confirms that the site is not located within Flood Zone 3b Functional Floodplain.

Review of available SFRA fluvial and tidal modelling, including climate change allowances, indicates that the site does not fall within the mapped 1% annual exceedance probability fluvial flood extent or the 0.5% annual exceedance probability tidal flood extent, including relevant climate change scenarios.

The site is located within an established urban area and the proposed development does not involve any increase in building footprint, ground level alteration, land raising, or loss of floodplain storage. No ground-floor or basement habitable accommodation is proposed.

Accordingly, while the site is located within Flood Zone 3 for planning purposes, the actual tidal flood risk to the proposed first floor residential accommodation is considered to be low and manageable. Residual risk associated with extreme events, climate change, defence exceedance or defence failure is considered further within this assessment.

Surface Water

Surface water flooding occurs where rainfall intensity exceeds the capacity of local drainage infrastructure, resulting in overland flow and localised ponding in low-lying areas.

The Environment Agency Risk of Flooding from Surface Water mapping has been reviewed for the site. The mapping indicates that parts of the site or its immediate surroundings may be susceptible to surface water flooding during extreme rainfall events, including the 1 in 100 year and 1 in 1000 year rainfall scenarios.

The mapped surface water risk is associated with modelled overland flow routes and localised shallow ponding during intense rainfall events. The proposed development does not introduce basement accommodation or ground-floor habitable accommodation and does not materially increase the impermeable area of the site.

As the development is confined to the existing building envelope, surface water runoff rates and volumes are expected to remain broadly unchanged from the existing condition. The proposal is therefore not expected to increase surface water flood risk elsewhere.

On this basis, surface water flood risk to the proposed development is considered to be low to manageable.

Groundwater

Groundwater flooding can occur where groundwater levels rise to or above ground level following prolonged rainfall, tidal influence, or seasonal recharge. This form of flooding typically develops gradually and may result in prolonged saturation rather than rapid inundation.

The site is underlain by the Lewes Nodular Chalk Formation, with River Terrace Deposits comprising undifferentiated sands, silts and clays present locally. River Terrace Deposits can be associated with increased groundwater permeability where extensive and hydraulically connected to nearby watercourses or tidal systems.

Available SFRA and Environment Agency groundwater susceptibility mapping indicate that the site is

located within an area of low susceptibility to groundwater flooding, with groundwater levels typically more than 5 m below ground level.

There are no recorded incidents of groundwater flooding affecting the site or its immediate surroundings within the available SFRA historic flooding datasets. In addition, the proposed development does not include basement accommodation or other below-ground habitable space that would be particularly vulnerable to groundwater ingress.

On this basis, the risk of groundwater flooding to the proposed development is considered to be low.

Historical Flooding

Available historic flooding information, including Environment Agency recorded flood outlines, West Sussex County Council records, and the 2024 Adur and Worthing Level 1 SFRA, does not identify any recorded historic flooding incidents affecting the site or its immediate surroundings.

It should be noted that the absence of recorded flood events does not necessarily confirm that flooding has never occurred. However, based on the available evidence, there is no indication of significant historic flooding affecting the site.

Sewers

Sewer flooding can occur where drainage systems become surcharged during periods of intense rainfall, where blockages or structural failures occur, or where high tidal conditions restrict discharge from sewer outfalls.

The site is located within the Southern Water sewerage catchment. Review of available SFRA information and publicly available data does not identify any site-specific sewer flooding incidents affecting the site or its immediate surroundings.

The proposed development does not introduce basement accommodation, does not increase the building footprint, and does not materially increase impermeable area. It is therefore unlikely to increase pressure on the local sewer network.

On this basis, the risk of sewer flooding to the proposed development is considered to be low.

Reservoirs

Reservoir flooding may occur in the highly unlikely event of failure or overtopping of an upstream impounding structure. Review of the Environment Agency Risk of Flooding from Reservoirs mapping indicates that the site may be affected in the highly unlikely event of reservoir failure. However, such events are rare due to the statutory inspection, maintenance and management regimes applied to reservoir infrastructure in England. On this basis, the residual risk from reservoir flooding is considered very low.

4.2 Potential Flood Receptors

Given the proposed development comprises a change of use and internal reconfiguration to provide a single residential unit at first floor level within an existing mixed-use building, the following potential flood risk receptors have been identified:

- future residential occupants of the proposed first-floor dwelling;
- visitors to the site;
- the existing building fabric, including the proposed first-floor residential accommodation;
- ground-floor access and entrance areas serving the residential unit;
- site access and egress routes, including Liverpool Road and surrounding pedestrian routes;
- vehicles within the vicinity of the site;
- adjacent commercial and residential properties;
- local infrastructure, including highways, drainage systems and utilities; and

- the surrounding water environment and downstream receptors.

No habitable or sleeping accommodation is proposed at ground floor or basement level. The proposed residential accommodation is located solely at first-floor level, reducing the exposure of future occupants to direct flood impacts at ground level.

4.3 Potential Flood Pathways

Potential pathways by which flooding could affect the identified receptors have been considered with reference to site-specific flood mapping, local topography, published flood risk information and the surrounding urban drainage context.

Potential flood pathways relevant to the site include:

- tidal flooding from the sea during extreme events, including residual mechanisms such as overtopping, exceedance or failure of flood defences;
- overland surface water runoff during periods of intense or prolonged rainfall, which may follow localised topographic flow routes along highways and hardstanding areas;
- temporary ponding within low-lying areas of the wider locality during extreme rainfall events;
- residual flood risk associated with exceedance of local drainage systems;
- local public sewer network surcharge during extreme rainfall events or restricted outfall conditions; and
- localised groundwater emergence during prolonged wet periods, although the assessed groundwater risk is considered low.

The assessment therefore focuses on potential pathways that could connect off site flood sources to on-site receptors, including residual flood risk associated with extreme events, drainage exceedance and defence exceedance.

Flood pathways between off-site flood sources and off-site receptors are outside the scope of this site specific assessment, except where they may be affected by the proposed development. As the proposal does not involve any increase in building footprint, land raising, excavation, or increase in impermeable area, it is not expected to alter flood pathways or increase flood risk elsewhere.

4.4 Climate change

In accordance with the National Planning Policy Framework and Environment Agency climate change allowance guidance, future increases in sea levels, tidal flood risk and peak rainfall intensity may influence flood risk over the lifetime of the development.

The proposed development comprises a change of use and internal reconfiguration within an existing building to provide a single residential unit at first-floor level only. The proposal does not involve any increase in building footprint, land raising, excavation, basement accommodation, ground-floor habitable accommodation, or material alteration to existing flood flow pathways or surface water runoff characteristics.

The site lies within Flood Zone 3 for planning purposes; however, the site is not identified as being within Flood Zone 3b Functional Floodplain. Residual risks associated with climate change, extreme tidal events, surface water flooding and defence exceedance are therefore considered within this assessment.

Subject to the proposed layout and proportionate flood risk management measures, including first floor only residential accommodation, no ground floor or basement habitable accommodation, flood awareness advice and registration with the Environment Agency Flood Warning Service, the development is considered capable of remaining safe over its assumed lifetime, taking account of climate change, without increasing flood risk elsewhere.

4.5 Risk Assessment Methodology

The potential level of risk posed by a particular source is determined by assessing the potential severity of the impact of the flood linkage on the receptor, if it is assumed to be present, and the probability of the flood linkage being present.

Severities are categorised from Minor to Severe and probabilities are categorised from Unlikely to High Likelihood to give a potential level of risk output.

Table 2: Risk Matrix

Probability	Severity of Consequence			
	Severe	Medium	Mild	Minor
High Likelihood	Very High Risk	High Risk	Moderate Risk	Low / Moderate Risk
Likely	High Risk	Moderate Risk	Low / Moderate Risk	Low Risk
Low Likelihood	Moderate Risk	Low / Moderate Risk	Low Risk	Very Low Risk
Unlikely	Low / Moderate Risk	Low Risk	Very Low Risk	Very Low Risk

Very High Risk

There is a high probability that severe harm could arise to a designated receptor from an identified source; or there is evidence that severe harm to a designated receptor is currently happening.

High Risk

Harm is likely to arise to a designated receptor from an identified source.

Moderate Risk

It is possible that harm could arise to a designated receptor from an identified source. It is relatively unlikely that any such harm would be severe or if any harm were to occur it is more likely that the harm would be relatively mild.

Low Risk

It is possible that harm could arise to a designated receptor from an identified source, however, it is likely that this harm, if realised, would normally be mild.

Very Low Risk

There is a low possibility that harm could arise to a receptor. In the event of such harm being realised it is not likely to be severe.

4.6 Conceptual Site Model

The information presented in the preceding sections has been used to develop an initial conceptual site model outlining the potential flood sources, pathways and receptors at the site. The level of risk has been categorised by considering both the potential severity of flood impacts and the probability of occurrence, in accordance with the risk assessment methodology described above.

Table 3: Conceptual site model

Sources	Pathways	Receptors	Severity	Probability	Potential Level of Risk	
Tidal and Sea Flooding	Coastal/tidal inundation		Moderate	Low Likelihood	Low to Moderate	Site is in Flood Zone 3 but not Flood Zone 3b; accommodation is first floor only.
Surface Water Flooding	Overland flow and ponding		Minor	Low Likelihood	Low	Proposal does not increase impermeable area.

Groundwater Flooding	Localised emergence	Occupants, building and access routes	Minor	Low Likelihood	Low	Groundwater susceptibility is low and no basement accommodation is proposed.
Sewer Flooding	Sewer surcharge		Minor	Unlikely	Very Low	No site-specific sewer flooding incidents are identified..
Reservoir Flooding	Reservoir breach / overtopping		Minor	Unlikely	Very Low	Reservoir failure is highly unlikely.
Climate Change	Increased sea levels and rainfall		Moderate	Likely	Low to Moderate	First-floor layout and mitigation reduce vulnerability.

5. Hydraulic Modelling Data review

Hydraulic modelling outputs have been obtained from the Environment Agency as part of the Product 4 Flood Risk Assessment data for the site. The data relates to the site at approximately 514878 / 102574 and was produced under customer reference EIR2026/26520.

The modelling data is derived from the Arun Coastal Model, 2012, prepared by JBA Consulting. The Environment Agency data confirms that the selected location lies within Flood Zone 3 for planning purposes. Flood Zone 3 represents land at risk of flooding in an undefended scenario and does not take account of the presence of defences or the potential impacts of climate change.

The Environment Agency Product 4 data includes the following tidal modelling scenarios:

- defended modelled tidal scenario;
- defences removed modelled tidal scenario;
- defended climate change modelled tidal scenario; and
- defences removed climate change modelled tidal scenario.

The EA Product 4 includes defended and defences-removed tidal model scenarios. However, the Product 4 data does not provide flood defence locations or defence attributes for the immediate area. The defended scenario has therefore been used as strategic model output, rather than as confirmation of a site-specific defence standard or reliance on a particular local flood defence.

The relevant modelled flood levels and depths provided for the site nodes are summarised below.

Table 4: Summary of EA Product 4 Modelled Tidal Flood Levels and Depths

Scenario	Node	AEP / Event	Modelled Flood Level	Modelled Flood Depth
Tidal Undefended	1	0.5% AEP 2115 climate change	5.25 mAOD	0.02 m
Tidal Undefended	2	0.5% AEP 2115 climate change	5.24 mAOD	0.00 m
Tidal Defended	1	0.5% AEP 2070 climate change	5.21 mAOD	0.00 m
Tidal Defended	2	Available defended scenarios	No level provided	No depth provided

5.1 Defended Scenario

The defended tidal modelling represents the Environment Agency's strategic modelled scenario for flood risk from the sea where defences are represented within the model. As noted above, this should not be interpreted as confirmation that the site benefits from a specific local flood defence or a defined standard of protection.

The EA Product 4 data provides a defended climate change level at Node 1 of 5.21 mAOD for the 0.5% AEP 2070 scenario, with a corresponding modelled flood depth of 0.00 m.

No defended flood level or depth is provided at Node 2. The available defended modelling therefore indicates no effective modelled tidal flood depth at the site nodes under the reported defended scenario.

5.2 Undefended / Defence Removed Scenario

The undefended, or defences removed, tidal modelling represents the Environment Agency's strategic residual risk scenario. This scenario is useful for considering potential flood risk where flood defences are not represented, or where residual risk associated with defence exceedance, failure or absence of effective protection is considered.

The EA Product 4 data indicates modelled undefended tidal flood levels of 5.25 mAOD at Node 1 and 5.24 mAOD at Node 2 for the 0.5% AEP 2115 climate change scenario. The corresponding modelled depths are 0.02 m at Node 1 and 0.00 m at Node 2.

This indicates that, even under the reported undefended 2115 climate change scenario, modelled tidal flood depths at the site nodes are negligible to very shallow.

5.3 Residual Risk and Hydraulic Modelling Summary

The EA data includes defended and undefended climate change tidal scenarios. The available modelled results indicate negligible to very shallow flood depths at the site nodes, with the maximum reported depth being 0.02 m under the undefended 0.5% AEP 2115 climate change scenario.

The site lies within Flood Zone 3 for planning purposes. However, the EA Product 4 hydraulic modelling indicates negligible to very shallow tidal flood depths at the site nodes under the reported defended and undefended climate change scenarios.

The proposed development comprises a first-floor residential unit within an existing building, with no ground-floor or basement habitable accommodation. On this basis, tidal flood risk to the proposed residential accommodation is considered low.

Residual flood risk should nevertheless be managed through proportionate measures, including flood awareness advice, registration with the Environment Agency Flood Warning Service where available, and consideration of safe access and egress during extreme events.

6. Conclusions

6.1 Risk Evaluation

Based on the assessment of flood sources, pathways and receptors, the following residual flood risks have been identified:

- low residual risk to future residential occupants from tidal flooding, noting that the site lies within Flood Zone 3 but is not located within Flood Zone 3b Functional Floodplain;
- low to manageable risk from surface water flooding during extreme rainfall events, particularly in relation to localised overland flow, ponding and access/egress routes within the surrounding highway network;
- low risk from groundwater flooding, based on available groundwater susceptibility information and the absence of recorded groundwater flooding incidents affecting the site;
- low risk from sewer flooding, with no site-specific recorded incidents identified and no increase in impermeable area proposed;
- very low residual risk from reservoir flooding,; and
- low to moderate residual risk when climate change is considered, primarily in relation to increased sea levels, rainfall intensity and potential drainage exceedance.

The proposed development comprises a change of use and internal reconfiguration to provide a single two-bedroom residential unit at first-floor level within an existing mixed-use building. No habitable or sleeping accommodation is proposed at ground-floor or basement level.

The proposal does not involve any increase in building footprint, ground level alteration, land raising, excavation, or increase in impermeable area. It will therefore not result in the loss of floodplain storage or materially alter existing flood flow routes or surface water runoff characteristics.

Environment Agency Product 4 hydraulic modelling indicates negligible to very shallow modelled tidal flood depths at the site nodes under the reported defended and undefended climate change scenarios. On this basis, tidal flood risk to the proposed first-floor residential accommodation is considered low and manageable.

Residual flood risk is therefore primarily associated with extreme tidal events, climate change, localised surface water flooding and potential temporary effects on ground-floor access and nearby pedestrian routes.

6.2 Proposed Flood Mitigation Measures

Given the nature of the proposed development, flood risk is managed primarily through the layout and nature of the proposal rather than through new structural flood defence works.

The key flood risk mitigation measures are:

- all residential accommodation is located at first-floor level only;
- no habitable or sleeping accommodation is proposed at ground-floor or basement level;
- no basement accommodation is proposed;
- no increase in building footprint is proposed;
- no land raising, excavation or loss of floodplain storage is proposed;
- no increase in impermeable area is proposed;
- future occupants should be provided with flood awareness advice;
- future occupants should be encouraged to register with the Environment Agency Flood Warning Service where available; and

- a mapped safe access and egress route should be provided, with advice to avoid walking or driving through floodwater.

These measures are considered proportionate to the nature of the development and the identified level of flood risk.

6.3 Surface Water Management

The proposed development does not involve external extensions, new hardstanding, or an increase in impermeable area. Surface water runoff rates and volumes are therefore expected to remain broadly unchanged from the existing condition.

The proposal is not expected to increase surface water flood risk on site or elsewhere. Existing drainage arrangements should be retained and maintained to ensure that surface water continues to be managed appropriately.

Surface water flood risk in the surrounding area is primarily associated with localised overland flow and temporary ponding during extreme rainfall events. This risk is considered manageable through flood awareness advice, avoidance of flooded routes and provision of a mapped safe access and egress route.

6.4 Safe Access and Egress

Safe access and egress has been considered with reference to tidal flood risk, surface water flood risk, local topography and the proposed first-floor-only residential layout.

The proposed residential accommodation is located at first-floor level only, with no habitable or sleeping accommodation at ground-floor or basement level. This provides vertical separation between the proposed dwelling and any potential ground-level flooding.

Environment Agency tidal modelling indicates negligible to very shallow modelled tidal flood depths at the site nodes. However, the site remains within Flood Zone 3 for planning purposes and residual flood risk must still be considered.

Environment Agency surface water mapping indicates that parts of the surrounding highway network may be susceptible to surface water flooding during extreme rainfall events. A mapped safe access and egress route should therefore be provided as part of the FRA appendix, showing the preferred route from the building entrance to areas of lower flood risk, avoiding mapped surface water flow paths and ponding areas as far as reasonably practicable.

The proposal also alters the access arrangement to the first-floor residential unit. The existing external rear stair access is removed, and access to the proposed residential unit is provided internally. This should be read alongside the proposed ground-floor and first-floor plans included in the appendices.

Future occupants should be provided with flood safety information advising them:

- to register for flood warnings where available;
- to monitor weather warnings during periods of heavy rainfall;
- not to walk or drive through floodwater;
- to avoid routes affected by surface water flooding;
- to remain at first-floor level where safe to do so if temporary surface water flooding affects the immediate access route; and
- to follow advice from the emergency services during flood events.

On this basis, safe access and egress is considered manageable for the proposed development, subject to the provision of a mapped access/egress route and flood safety advice for future occupants.

6.5 Flood Risk Emergency Plan

A Flood Risk Emergency Plan should be implemented for the proposed first-floor residential unit and retained for the lifetime of the development. The plan should be provided to future occupants and should consider all relevant sources of flooding, including tidal flooding, surface water flooding,

groundwater flooding, sewer flooding, reservoir flooding and residual risks associated with extreme events, climate change and drainage exceedance.

The plan should include the following measures:

- future occupants should register with the Environment Agency Flood Warning Service where available;
- future occupants should monitor Met Office weather warnings and local flood alerts during periods of severe rainfall, storms or coastal/tidal flood risk;
- occupants should not walk or drive through floodwater, including shallow surface water flooding, due to the potential presence of hidden hazards, contaminants, debris and uncertainty regarding flood depth and velocity;
- occupants should use the mapped safe access and egress route where it is clear and safe to do so;
- where temporary surface water flooding affects the immediate access route, occupants should remain at first floor level where safe to do so and follow advice from the emergency services;
- emergency contact details and flood safety advice should be retained within the property;
- future owners and occupiers should be made aware of the residual flood risk and the requirement to follow the Flood Risk Emergency Plan; and
- the Flood Risk Emergency Plan should be reviewed periodically and updated where necessary.

These measures provide an additional layer of risk management and support the conclusion that residual flood risk to future occupants can be managed appropriately for the lifetime of the development.

6.6 Overall Conclusion

This site specific Flood Risk Assessment demonstrates that:

- the site is located within Flood Zone 3 but is not within Flood Zone 3b Functional Floodplain;
- the proposed development is limited to a first floor residential unit within an existing building;
- no ground floor or basement habitable accommodation is proposed;
- the development will not increase the building footprint, impermeable area, or floodplain encroachment;
- Environment Agency hydraulic modelling indicates negligible to very shallow modelled tidal flood depths at the site nodes;
- surface water flood risk is localised and manageable through flood awareness and safe access/egress planning;
- residual flood risks can be managed through the proposed layout and proportionate flood risk management measures; and
- the development will not increase flood risk on site or elsewhere.

Accordingly, subject to the implementation of the recommendations set out in this assessment, including flood awareness advice, flood warning registration where available, provision of a mapped safe access and egress route, and implementation of a Flood Risk Emergency Plan, the proposed development is considered capable of remaining safe for its lifetime, taking account of climate change, without increasing flood risk elsewhere.

7. References

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Adur District Council and Worthing Borough Council (2020). Level 2 Strategic Flood Risk Assessment (SFRA).

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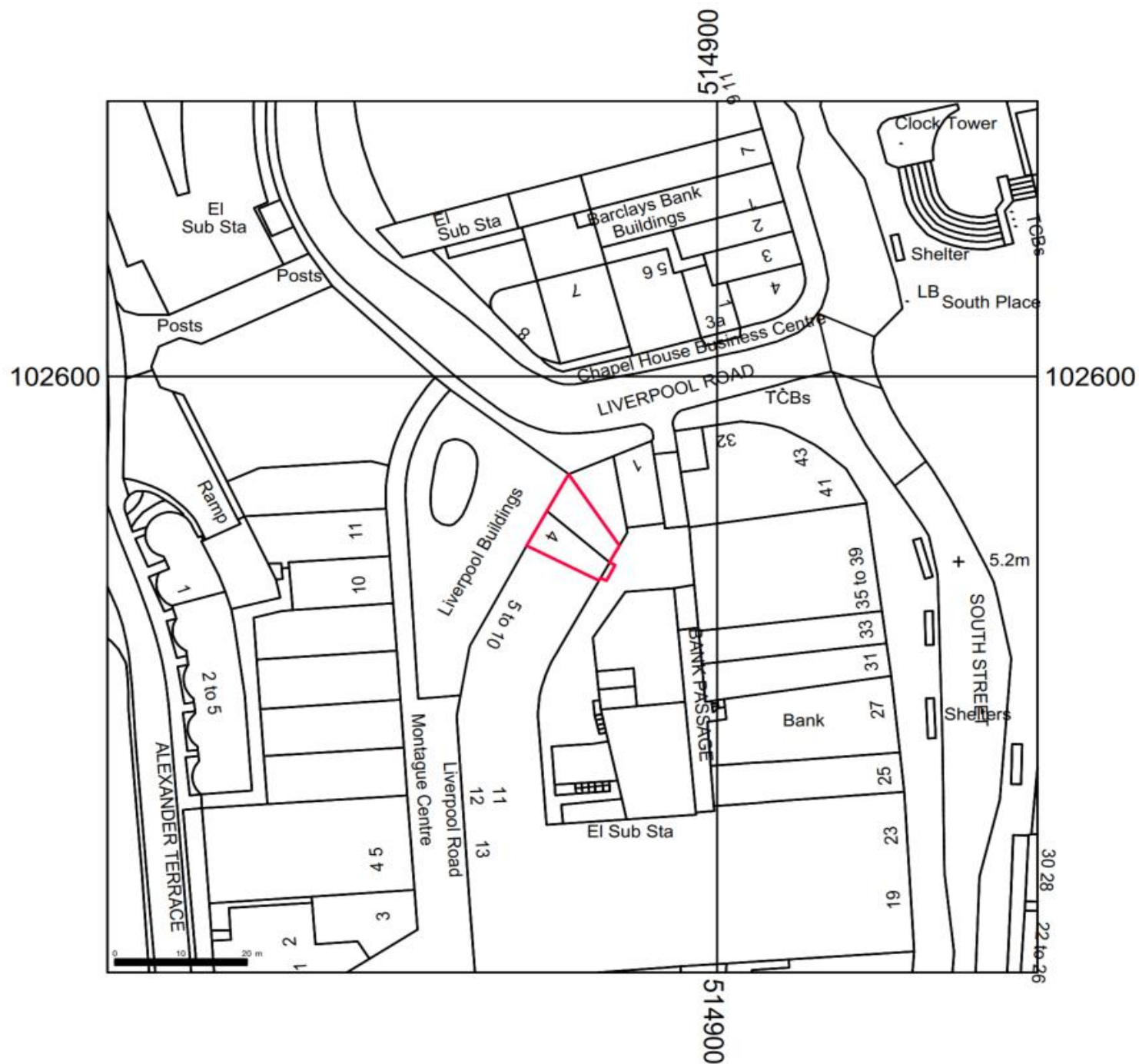
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Appendix A - Site Maps & Plans	
Description	
Site location plan	
Sources	
Enhance Architecture	
Key	
	Site boundary
	North

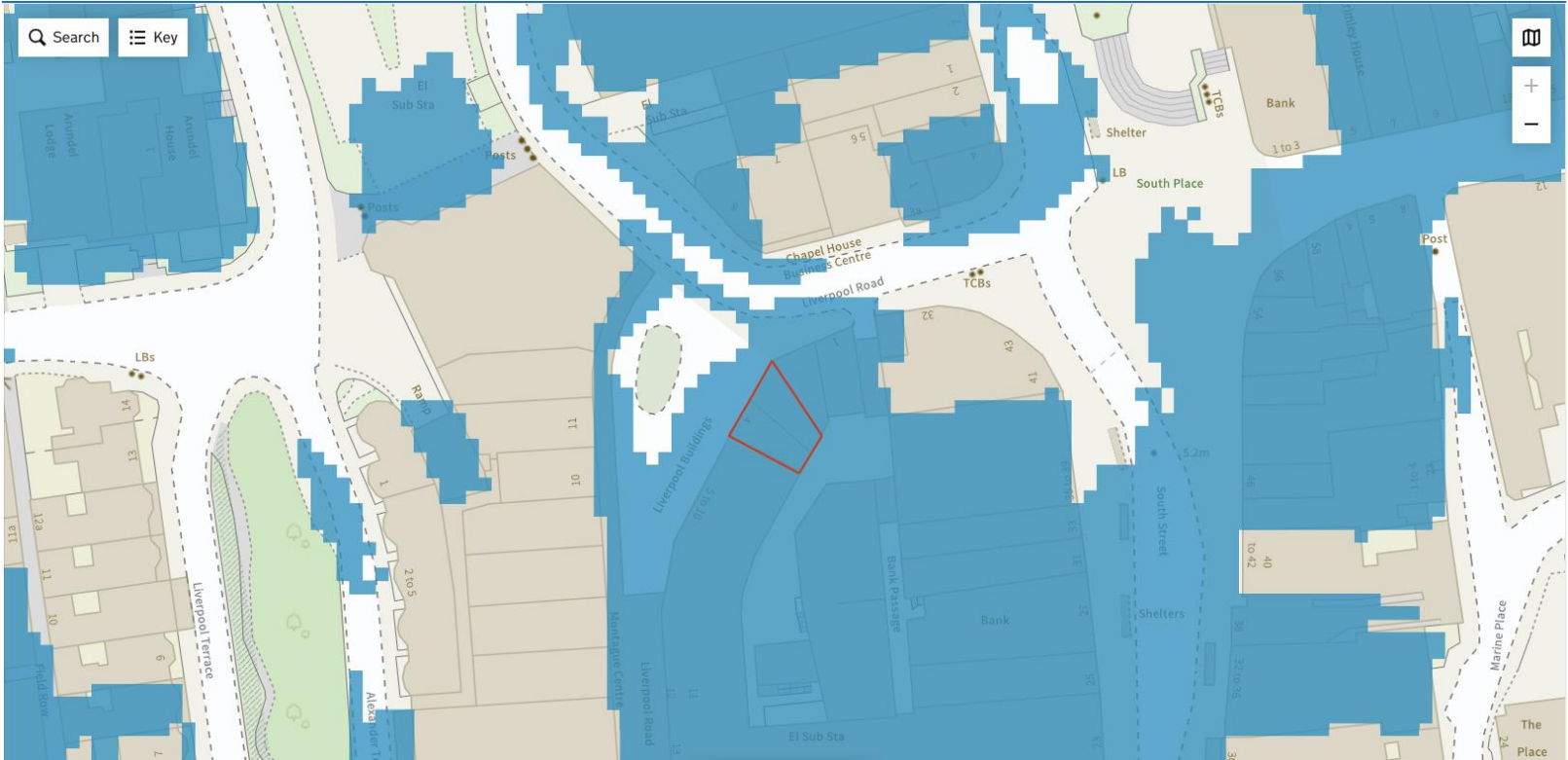


Appendix B – Flood Risk Maps	
Description	
Flood map for planning	
Sources	
Environment Agency OS data © Crown copyright and database rights	
Key	
	Site boundary
	Flood Zone 1
	Flood Zone 2
	Flood Zone 3
	Main river
	Flood defence
	North



Appendix C - Flood Risk Maps

Description	
Environment Agency map showing the predicted extent of surface water flooding for a 1 in 100 year (1% Annual Exceedance Probability) rainfall event. The mapping indicates areas susceptible to surface water ponding and overland flow during intense rainfall events.	
Sources	
Environment Agency OS data © Crown copyright and database rights	
Key	
	Site boundary
	Surface water flood risk
	North

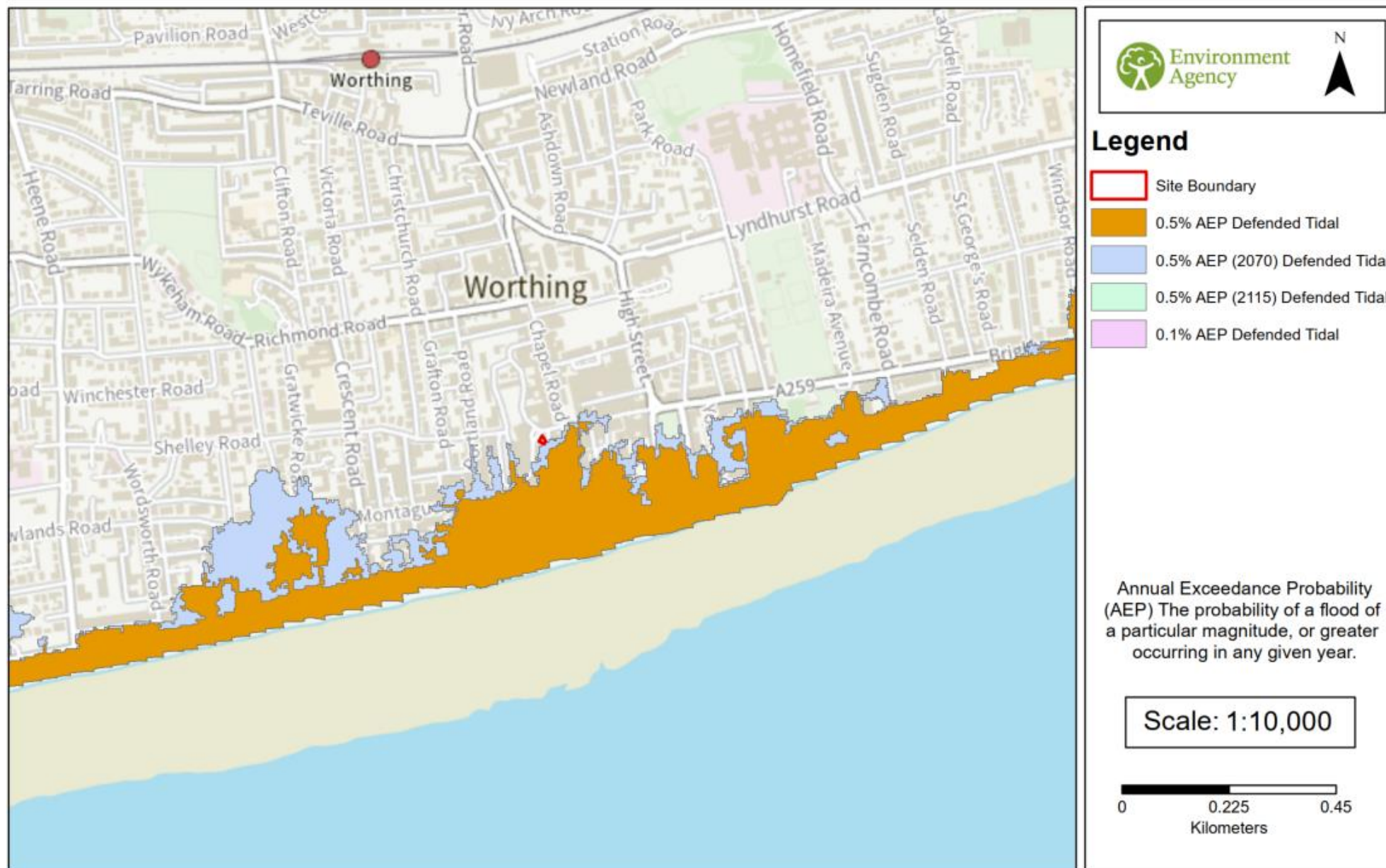


Appendix D - Flood Risk Maps

Description	
Environment Agency map showing the predicted extent of surface water flooding for a 1 in 1000 year (0.1% Annual Exceedance Probability) rainfall event. The mapping identifies areas that could be susceptible to surface water ponding and overland flow during extreme rainfall events.	
Sources	
Environment Agency OS data © Crown copyright and database rights	
Key	
	Site boundary
	Surface water flood risk
	North

Appendix E: Modelled Flood Outlines – Tidal Defended Scenario
 Environment Agency Product 4 data showing defended tidal flood extents for the site and surrounding area.

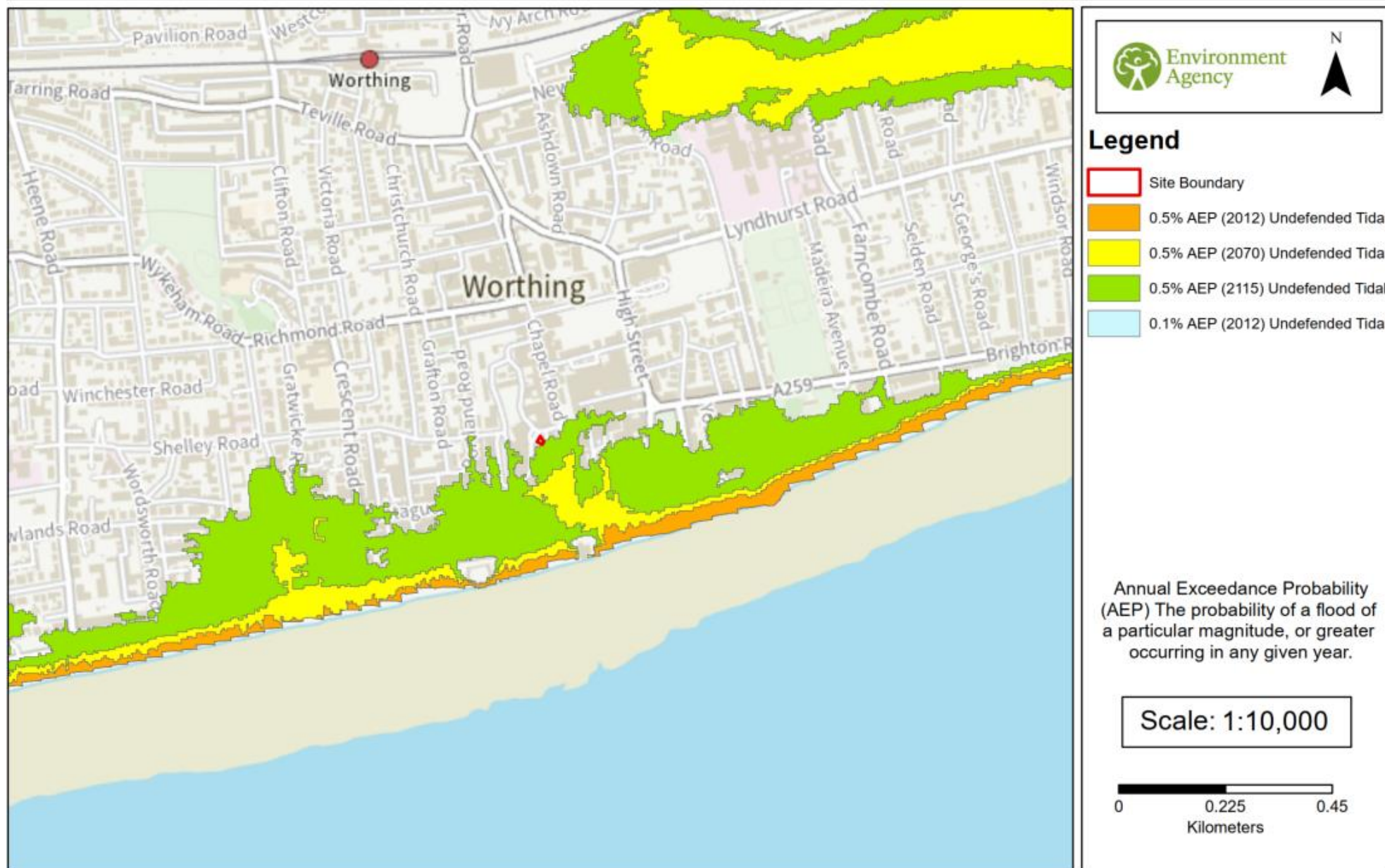
Modelled Flood Outlines Tidal (Defended). Centred BN11 1SY. Created 10/06/2026.



Appendix F: Modelled Flood Outlines – Tidal Undefended Scenario

Environment Agency Product 4 data showing undefended / defences removed tidal flood extents for the site and surrounding area.

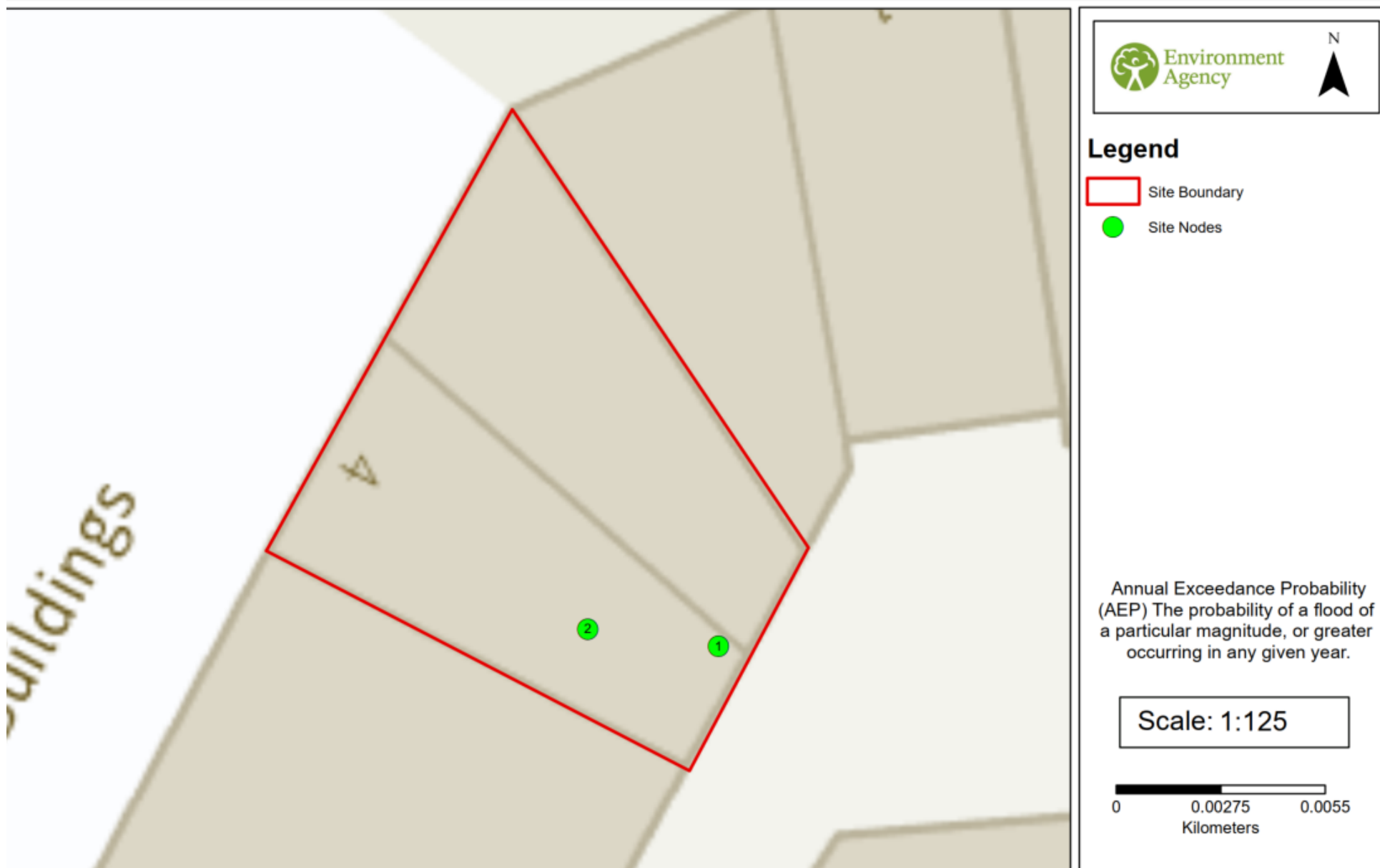
Modelled Flood Outlines Tidal (Undefended). Centred BN11 1SY. Created 10/06/2026.



Appendix G: FRA Site Boundary and Environment Agency Model Node Points

Site boundary and hydraulic model node locations used for the Environment Agency Product 4 flood level and depth data.

FRA Site Boundary and Node Points. Centred BN11 1SY. Created 10/06/2026.



Appendix H: Environment Agency Product 4 Modelled Tidal Flood Levels and Depths
Summary table of modelled tidal flood levels and depths at the site nodes.



Product 4 Flood Risk Data Requested by:

Site: 514879,102574 (easting and northing coordinates)

Table 1: Water Levels: Tidal Undefended

Node Ref	NGR		Modelled Flood Levels in Metres AOD			
			Undefended Annual Exceedance Probability			
	Eastings	Northings	0.5%	0.5% (2070)*	0.5% (2115)*	0.1%
1	514883	102570	-	-	5.25	-
2	514879	102570	-	-	5.24	-

Table 2: Water Levels: Tidal Defended

Node Ref	NGR		Modelled Flood Levels in Metres AOD			
			Defended Annual Exceedance Probability			
	Eastings	Northings	0.5%	0.5% (2070)*	0.5% (2115)*	0.1%
1	514883	102570	-	5.21	-	-
2	514879	102570	-	-	-	-

Table 3: Water Depths: Tidal Undefended

Node Ref	NGR		Modelled Flood Depths in Metres			
			Undefended Annual Exceedance Probability			
	Eastings	Northings	0.5%	0.5% (2070)*	0.5% (2115)*	0.1%
1	514883	102570	-	-	0.02	-
2	514879	102570	-	-	0.00	-

Table 4: Water Depths: Tidal Defended

Node Ref	NGR		Modelled Flood Depths in Metres			
			Defended Annual Exceedance Probability			
	Eastings	Northings	0.5%	0.5% (2070)*	0.5% (2115)*	0.1%
1	514883	102570	-	0.00	-	-
2	514879	102570	-	-	-	-

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

Produced on: 10/06/2026

Appendix I: Existing Ground Floor Plan

Existing ground floor arrangement showing the previous access arrangement and its relationship with the rear access/stair area.

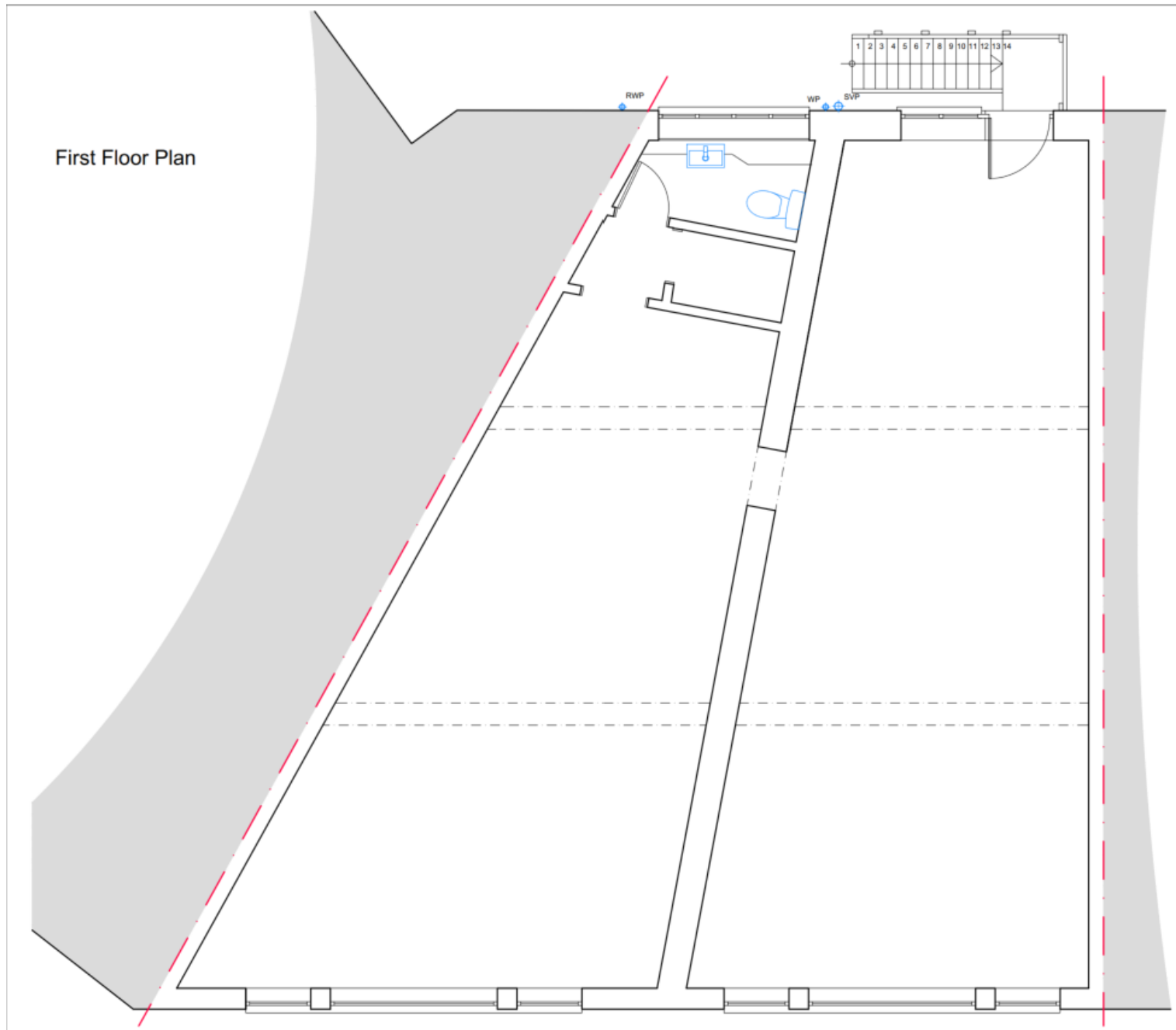
Source: Enhance Architecture



Appendix J: Existing First-Floor Plan

Existing first floor arrangement showing the previous upper floor layout and stair access arrangement.

Source: Enhance Architecture



Appendix K: Existing Rear Elevation

Existing rear elevation showing the external rear staircase serving the upper-floor level.

Source: Enhance Architecture



Rear Elevation

Appendix L: Existing Front Elevation

Existing front elevation of 3–4 Liverpool Buildings, showing the ground floor commercial frontage and upper floor windows.

Source: Enhance Architecture



Front Elevation

Appendix M: Proposed Ground Floor Plan

Proposed ground floor arrangement showing the revised internal access arrangement to the first floor residential unit and absence of ground floor residential accommodation.

Source: Enhance Architecture



Appendix N: Proposed First Floor Plan

Proposed first floor arrangement showing the residential accommodation, including bedrooms, kitchen lounge diner, shower room, utility area and internal access arrangement.

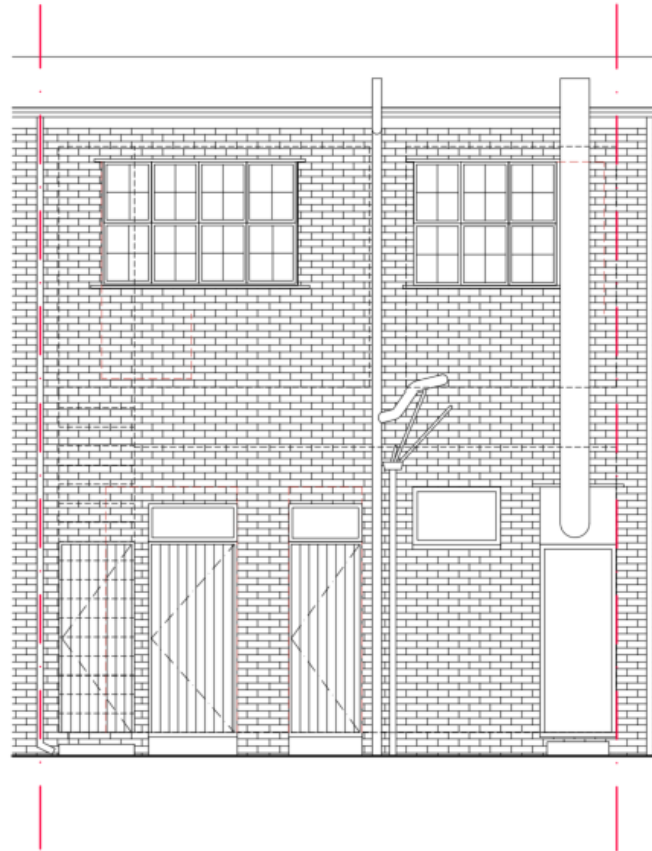
Source: Enhance Architecture



Appendix O: Proposed Rear Elevation

Proposed rear elevation of 3–4 Liverpool Buildings, showing the removal of the external rear staircase and rear elevation arrangement.

Source: Enhance Architecture



Rear Elevation