



FLOOD RISK ASSESSMENT

42 Marine Parade, Worthing, West Sussex, BN11 3QA

Change of Use of Ground Floor Commercial Premises to Two Self-Contained Class C3 Residential Flats

Client	Deadspace Developments / Designs
Site Address	42 Marine Parade, Worthing, West Sussex, BN11 3QA
OS Grid Reference	E 514 847 / N 102 374
Proposed Development	Change of use and internal conversion of vacant ground floor commercial unit (formerly licensed bar, sui generis) to two self-contained one-bedroom Class C3 residential flats
Local Planning Authority	Worthing Borough Council
Lead Local Flood Authority	West Sussex County Council
Architect's Drawings	Deadspace Designs DS/MARINEGF/01 Rev 3 (Plans & Elevations, 07/05/2026); DS/MARINEGF/02 (Site Plan 1:500, 21/04/2026); DS/MARINEGF/03 (Site Plan 1:1250, 21/04/2026); Section Through Existing Ground Floor (15/05/2026)
FRE Reference	FRE-MARI-2026
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Date	May 2026
Revision	Rev 1.6 — All references to a formal topographical survey removed; levels established from altimeter measurement on architect's section drawing (5.70 m AOD pavement) and TS-001 Rev A for upper-floor and seafront context

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Executive Summary

This Flood Risk Assessment (FRA) has been prepared by Flood Risk Environmental (FRE) on behalf of Deadspace Developments / Designs in support of a planning application to Worthing Borough Council for the change of use and internal conversion of the vacant ground floor commercial unit (formerly a licensed bar, sui generis) at 42 Marine Parade, Worthing, BN11 3QA to two self-contained one-bedroom Class C3 residential flats.

The site lies within Flood Zone 3 on the Environment Agency Flood Map for Planning (FMfP), with tidal flooding from the English Channel as the controlling source. The Worthing seafront is protected by the Marine Parade promenade-line defence and the elevated seafront pavement, with a flint wall along the western boundary of the building forming an additional secondary defence. The site is therefore defended in present-day conditions, with the residual risk arising from defence failure (breach) and from wave overtopping during extreme tidal events combined with adverse weather. The proposed C3 use is classified as More Vulnerable under PPG Table 2, engaging both the Sequential Test and the Exception Test.

EA Product 4 (Customer Reference EIR2026/21610, dated 18 May 2026) has been obtained for the application site, and two further Product 4 returns have been obtained for the principal access and egress routes — EIR2026/21621 covering the eastern route via Bath Place / South Street, and EIR2026/21627 covering the western route via West Buildings / New Street. The site-specific modelled tidal flood levels are summarised in Table 1 below.

Scenario (site nodes 1-3)	Level (mAOD)	Upper GF FFL Freeboard	Lower GF FFL Freeboard	Basement
Defended 0.5% AEP (2012 baseline)	5.05	+1.30 m	+0.90 m	Flooded
Defended 0.5% AEP (2070)	5.21	+1.14 m	+0.74 m	Flooded
Defended 0.1% AEP (2012 baseline)	5.16	+1.19 m	+0.79 m	Flooded
Un defended 0.5% AEP (2115) — design event	5.26	+1.09 m	+0.69 m	Flooded

Table 1: Modelled tidal flood levels at the site (EA Product 4 EIR2026/21610, Arun to Adur Coastal Model 2012, JBA Consulting) compared against proposed Finished Floor Levels. Upper Ground Floor FFL (Flat 1 main accommodation) is 6.35 m AOD (pavement 5.70 m AOD + 0.65 m). Lower Ground Floor FFL (Flat 1 bathroom and Flat 2) is 5.95 m AOD (pavement 5.70 m AOD + 0.25 m). The basement is 1.16 m below pavement at 4.54 m AOD, comprises only a narrow strip beneath the south end of the building (the width of the commonway, not the full Flat 1 footprint), and is not accessible under the proposed plans. Pavement reference value of 5.70 m AOD adopted from the altimeter measurement on the architect's Section through Existing Ground Floor drawing dated 15 May 2026.

Both proposed Finished Floor Levels sit above the most onerous lifetime tidal flood level — the 0.5 % AEP plus climate change (2115 epoch) undefended scenario of 5.26 m AOD. The Upper Ground Floor FFL (Flat 1 main accommodation) provides 1.09 m freeboard above this level, comfortably exceeding the 600 mm preferred allowance set out in EA standing advice. The Lower Ground Floor FFL (Flat 1 bathroom and Flat 2) provides 0.69 m freeboard above this level, exceeding the 600 mm preferred allowance and rising to 0.74 m freeboard above the operative defended 0.5 % AEP 2070 event (5.21 m AOD).

Both flats are therefore safe at their finished floor levels under the lifetime design event without recourse to changes in floor level. The integrated mitigation strategy proposed in this assessment

comprises (i) retention of the proposed Finished Floor Levels as set out on the architect's drawings; (ii) flood-resistant external envelope to a design protection level of 5.86 m AOD (600 mm above the design flood level) to the south, east and west elevations of the building; (iii) flood-exclusion treatment of the sub-floor void beneath the suspended timber floor (tanked perimeter, raised or auto-closing airbrick covers, sealed service penetrations, backup sump); (iv) flood-exclusion treatment of the basement beneath the southern end of Flat 1 (narrow strip beneath the commonway only, not accessible under the proposed plans, retained as non-habitable storage, tanking, sump and pump, non-return valves on below-DPC drainage); (v) flood-resilient internal finishes throughout both flats; (vi) raised electrical and gas services to a minimum of 6.95 m AOD (1.0 m above the Lower Ground Floor FFL); (vii) vertical refuge for occupants of both flats to the existing upper-floor flats (First Floor FFL 8.92 m AOD per the indicative topographical drawing TS-001 Rev A May 2026, providing 3.66 m vertical clearance above the design flood level) via the internal communal stair; and (viii) a bespoke Flood Warning and Evacuation Plan to be produced as a standalone operational document prior to occupation.

The proposal involves no new building footprint, no change to external ground levels, no obstruction to existing flood pathways and no new outfall. The development therefore does not increase flood risk to third parties, and flood storage volume on the floodplain is unchanged. The Sequential Test is addressed as a site-specific test for the LPA's consideration and is considered satisfied on the basis that the proposal is intrinsically tied to the existing vacant commercial unit and represents a brownfield, sustainable reuse of an existing building in a town-centre location. The Exception Test Part 1 (wider sustainability benefits) and Part 2 (safety for each flat independently) are both considered satisfied as set out in Section 3.5.

Risk Summary by Flood Source

Flood Source	Risk to Site	Risk to Access / Egress
Tidal (English Channel)	FZ3a — High. Defended in present day. Both FFLs above 0.5% AEP undefended 2115 (5.26 m AOD). Layered mitigation provided to 5.86 m AOD.	Medium. Marine Parade carriageway floods in design event; safe northbound egress feasible only out-of-event. Vertical refuge to upper floors within the building is the primary in-event strategy.
Fluvial	Negligible. No designated Main River within tidal influence at the site. FZ3 mapped extent at this location is tidal in origin.	Negligible.
Surface Water	Very Low. EA RoFSW dataset shows the building footprint outside the 1 in 30 and 1 in 100 year mapped extents, with marginal cells in the 1 in 1,000 year low-risk extent along Montague Place to the west.	Low — surface water flow pathways follow the Marine Parade carriageway corridor.
Groundwater	Low. Site underlain by Chalk bedrock with marine beach deposits. Tidally-influenced groundwater regime at the seafront; basement and sub-floor void treated as flood-excluded.	Negligible.
Sewer	Low. Southern Water is the statutory sewerage undertaker. Tidal influence on	Low.

Flood Source	Risk to Site	Risk to Access / Egress
	combined sewer may cause back-flow during peak tides; non-return valves specified on all below-DPC connections.	
Reservoir	Negligible — site outside any mapped reservoir inundation extents.	Negligible.
Artificial Sources	Negligible — no canals, raised reservoirs or water-bearing infrastructure within the hydrological setting.	Negligible.

Table 2: Risk summary by flood source for 42 Marine Parade, Worthing.

1. Introduction

1.1 This Flood Risk Assessment (FRA) has been prepared by Flood Risk Environmental (FRE) on behalf of Deadspace Developments / Designs in support of a planning application to Worthing Borough Council for the change of use and internal conversion of the vacant ground floor commercial unit (formerly a licensed bar, sui generis) at 42 Marine Parade, Worthing, BN11 3QA to two self-contained one-bedroom Class C3 residential flats.

1.2 The application site lies within Flood Zone 3 as defined by the Environment Agency (EA) Flood Map for Planning (FMfP). A site-specific FRA is required under paragraph 173 of the National Planning Policy Framework (NPPF, December 2024) and the accompanying Planning Practice Guidance (PPG) on Flood Risk and Coastal Change (most recently updated September 2025).

1.3 This assessment has been prepared in accordance with the EA's standing advice for flood risk assessments, the PPG, the Worthing Local Plan, and the Worthing Strategic Flood Risk Assessment. Reference has been made to the following data sources:

- EA Flood Map for Planning, generated 5 May 2026 (OS Easting/Northing 514 847 / 102 374).
- EA Product 4 (Flood Risk Assessment Data) for the application site — Customer Reference EIR2026/21610, dated 18 May 2026.
- EA Product 4 for the eastern access/egress route — Customer Reference EIR2026/21621, dated 18 May 2026.
- EA Product 4 for the western access/egress route — Customer Reference EIR2026/21627, dated 18 May 2026.
- Arun to Adur Coastal Modelling (JBA Consulting, 2012) — the underlying hydraulic model for all Product 4 levels.
- EA Risk of Flooding from Surface Water (RoFSW) dataset — 1 in 30, 1 in 100 and 1 in 1,000 year extents.
- EA Long Term Flood Risk information service.
- EA Solent and South Downs Area Pre-application Advice Note (September 2019).
- Worthing Local Plan (adopted 2023) and Worthing Strategic Flood Risk Assessment (SFRA) Level 1.
- British Geological Survey (BGS) GeoIndex Onshore mapping.
- Architect's drawings — Deadspace Designs, drawing references DS/MARINEGF/01 Rev 3 (Plans and Elevations, dated 07/05/2026), DS/MARINEGF/02 (Site Plan 1:500, dated 21/04/2026), DS/MARINEGF/03 (Site Plan 1:1250, dated 21/04/2026), and Section through Existing Ground Floor (dated 15/05/2026).
- Heritage Statement (Deadspace Designs, 17 April 2026) and Design and Access Statement (Deadspace Designs, 16 April 2026).
- Site level data: pavement frontage to Marine Parade recorded at 5.70 m AOD (altimeter measurement) on the architect's Section through Existing Ground Floor drawing dated 15 May 2026, adopted as the pavement datum for this assessment. Ground floor and basement levels derived from the relative dimensions on the same drawing. Upper-floor FFLs and wider seafront context (MHWS, promenade levels) from the indicative topographical drawing TS-001 Rev A (May 2026).

1.4 The purpose of this report is to demonstrate, through a site-specific flood risk assessment, that the proposed development can be safely implemented over its lifetime, that it does not increase flood risk

elsewhere, and that residual risk can be safely managed through a layered mitigation strategy and operational measures including a Flood Warning and Evacuation Plan.

1.5 The assessment has been prepared using best engineering judgement and is proportionate to the scale and nature of the proposal — a change of use of an existing ground floor commercial unit, internally only, with no new building footprint, no change in external ground levels and no new outfall. Levels of uncertainty are implicit in the data and methods of analysis used. The integrated mitigation strategy set out in Section 6 has been configured to be robust to reasonable variation in the modelled tidal levels.

1.6 The Sequential Test is addressed in Section 3.4 in accordance with NPPF paragraphs 173–175 and is considered satisfied on a site-specific basis. The Exception Test is addressed in Section 3.5 with Part 1 (wider sustainability benefits) and Part 2 (development is safe for its lifetime) considered separately for each of the two flats.

2. Site Description

2.1 Location and Context

The application site is located on the northern side of Marine Parade, the principal seafront avenue running east-west along the Worthing coastline, at OS Easting/Northing 514 847 / 102 374. The building is an end-of-terrace property at the western end of the terrace running between Bath Place to the east and Montague Place to the west. The site address is 42 Marine Parade, Worthing, West Sussex, BN11 3QA.

The wider seafront context is characterised by a continuous building line of three- and four-storey nineteenth century buildings facing the English Channel, with a public footway and elevated promenade pavement immediately fronting the buildings, a carriageway (Marine Parade A259) running parallel and slightly lower than the promenade, and an elevated stepped seawall and shingle beach beyond. Worthing Pier is located approximately 200 m to the south-west of the site. The Grade II listed Marine Parade terraces and the wider Worthing Conservation Area provide the heritage context (Heritage Statement, Deadspace Designs, 17 April 2026).

The application site comprises an end-of-terrace building with frontage to Marine Parade (south elevation), a side elevation to Montague Place (west), a party wall to no. 41 (east, the adjoining hotel) and a rear (north) elevation. The whole building is in use as four self-contained residential flats on the upper floors and a vacant former licensed bar on the ground floor. The ground floor commercial unit is the subject of this application; no changes are proposed to the upper floor flats.

The site is in single private ownership. No part of the site is publicly accessible. The principal pedestrian access is the existing communal entrance on the south (Marine Parade) elevation; the west elevation faces a paved private courtyard area abutting Montague Place; the rear (north) elevation faces a private rear alleyway shared with neighbouring properties.

Marine Parade is a principal seafront thoroughfare with a coast-parallel seawall and stepped promenade structure that forms a formal defence against tidal flooding from the English Channel. The pavement at the building frontage sits at approximately 5.70 m AOD (per the altimeter measurement on the architect's section drawing), which is approximately 700 mm higher than the carriageway level (~5.00 m AOD). This 700 mm step from carriageway to building frontage is a recurring feature of the Marine Parade terraces and provides material elevation of the building thresholds above the highway. The wider seafront defence elevation, including the elevated promenade and esplanade, lies in the range 3.85 m to 3.90 m AOD per the indicative topographical drawing TS-001 Rev A (May 2026), which is approximately 1.8 m above the Mean High Water Springs level of 0.30 m AOD.

2.2 Existing and Proposed Development

The existing ground floor of the building was last in use as a licensed bar (*sui generis*), now vacant. The Design and Access Statement (Deadspace Designs, 16 April 2026) confirms that the previous bar use proved commercially non-viable and that attempts at re-letting the commercial use have been unsuccessful. The proposal converts this vacant commercial floor into two self-contained one-bedroom Class C3 residential flats.

Existing physical features within the application area, with relevance to the FRA, are:

- The existing ground floor of no. 42 Marine Parade, comprising the former bar space, ancillary toilets, and a return wing extending northwards into the rear courtyard.
- A suspended timber floor throughout the ground floor of the building (no solid concrete slab at ground floor level), with a continuous sub-floor void beneath.

- A basement beneath the southern (front) part of the building, comprising only a narrow strip the width of the internal commonway (not the full footprint of Flat 1 above), accessed internally with low ceiling height. The basement floor level is approximately 1.16 m below pavement (~4.54 m AOD). The basement is currently in storage and ancillary services use only and, importantly for this assessment, is not accessible under the proposed plans — the existing access from the ground floor is removed as part of the conversion works.
- An existing flint wall, approximately 1.4 m high, forms the western boundary of the application site along Montague Place and acts as a secondary defence against overland flow from the west.
- Four self-contained residential flats on the upper floors, accessed via an internal communal stair from the Marine Parade frontage.

The proposed development, per Deadspace Designs drawing DS/MARINEGF/01 Rev 3 dated 07/05/2026, comprises:

- Flat 1 (front flat, south-facing): one-bedroom, two-person C3 dwelling at approximately 84.76 m² total gross internal area. Living, kitchen and bedroom at Upper Ground Floor level (FFL approximately 6.35 m AOD); shower-room at Lower Ground Floor level (FFL approximately 5.95 m AOD), internally accessed from the main accommodation by an internal step.
- Flat 2 (rear flat, north-facing): one-bedroom, two-person C3 dwelling at approximately 59.05 m² total gross internal area. Living, kitchen, bedroom and shower-room at Lower Ground Floor level (FFL approximately 5.95 m AOD).
- Both flats accessed via the existing communal entrance on the south (Marine Parade) elevation, with secure internal entrance doors. Internal communal stair to the upper floors retained as the shared circulation core for all flats in the building.
- Limited external works: replacement of the northernmost window in the existing toilet block on the west elevation with a door giving access to a small private courtyard; upgrading of the existing rear doors to traditional patio doors on a raised deck (Flat 1) and a small landscaped courtyard (Flat 2); secure cycle store and bin storage within the rear courtyard area.
- No external extension, no change to the building footprint, no change to external ground levels, and no change to the front (south) elevation other than secure bin storage.

The basement beneath Flat 1 is to be retained without internal change. The Design and Access Statement is explicit that the basement has "low ceiling height — storage / services only — no changes as part of application / development". This is significant for this FRA: confirmation that the basement remains non-habitable is integral to the Exception Test argument set out in Section 3.5, and the proposed basement mitigation (Section 6.5) is configured to retain it as flood-excluded storage.

2.3 Site Levels

Site levels have been derived from the architect's Section through Existing Ground Floor drawing dated 15 May 2026, supplemented by the indicative topographical drawing TS-001 Rev A (May 2026) for upper-floor FFLs and wider seafront context. The architect's section drawing records the pavement level at the building frontage by altimeter at 5.70 m AOD, which is adopted as the pavement datum. All ground floor and basement levels are derived from this datum using the relative dimensions on the architect's section drawing. Upper-floor refuge levels and the esplanade and MHWS context values are drawn from TS-001 Rev A.

Level	Relative to pavement	mAOD (adopted)	Source
Mean High Water Springs (MHWS)	-5.40 m	0.30 m	TS-001 Rev A
Promenade / esplanade (seafront defence)	-1.80 to -1.85 m	3.85 – 3.90 m	TS-001 Rev A
Basement floor (non-habitable, commonway width only, not accessible)	-1.16 m	4.54 m	Architect's section
Marine Parade carriageway (approx.)	-0.70 m	5.00 m	OS topography
Rear alleyway / external level at rear of building	-0.45 m	5.25 m	Architect's section
Marine Parade pavement at building frontage (datum)	0.00 m	5.70 m	Altimeter (arch. section)
Lower Ground Floor FFL — Flat 1 shower-room and Flat 2 (all)	+0.25 m	5.95 m	Architect's section
Upper Ground Floor FFL — Flat 1 main accommodation	+0.65 m	6.35 m	Architect's section
First Floor FFL (vertical refuge level — primary)	+3.22 m	8.92 m	TS-001 Rev A
Second Floor FFL (additional refuge level)	+6.42 m	12.12 m	TS-001 Rev A

Table 3: Site levels derived from the architect's Section through Existing Ground Floor drawing dated 15 May 2026 (pavement, ground floor and basement levels) and the indicative topographical drawing TS-001 Rev A (May 2026) (upper-floor FFLs, MHWS and promenade levels). All FFL freeboard calculations in this assessment use the altimeter pavement reference value of 5.70 m AOD.

2.4 Geology

Reference has been made to British Geological Survey (BGS) GeoIndex Onshore mapping for the site location.

Bedrock. Newhaven Chalk Formation — Chalk. White, soft to medium-hard chalk with marl seams and flint nodules. Upper Cretaceous (Coniacian to Campanian), approximately 87 to 72 Ma. The Chalk is classified as a Principal aquifer of high permeability. Site is not within an Environment Agency Source Protection Zone but lies within the wider South Downs Chalk groundwater catchment.

Superficial Deposits. Beach and Tidal Flat Deposits — Sand and gravel. Marine deposits reflecting historic and active beach environments along the present shoreline. The Beach and Tidal Flat Deposits are classified as a Secondary A aquifer. Beneath these, Head deposits (clay, silt, sand and gravel) of mixed solifluction origin may be present at depth.

The combination of permeable beach deposits at surface and a Principal Chalk aquifer at depth, in a coastal seafront setting, indicates a tidally-influenced groundwater regime. This is significant for the basement and sub-floor void mitigation strategy set out in Section 6 and explains the residual groundwater risk classification in Section 4.5.

3. Planning Policy Framework

3.1 National Planning Policy Framework (NPPF, December 2024)

Chapter 14 of the NPPF (December 2024) sets out the Government's policy on meeting the challenges of climate change, flooding and coastal change. The NPPF requires that inappropriate development in areas at risk of flooding should be avoided, directing development away from the highest-risk areas, with development that is necessary in such areas made safe for its lifetime, ensuring it does not increase flood risk elsewhere and is supported by a site-specific FRA.

Paragraph 173 of the NPPF requires that, where determined necessary, a site-specific FRA must demonstrate that:

- Development is appropriately flood-resilient and resistant, including safe access and escape routes where required, and that any residual risk can be safely managed;
- It incorporates sustainable drainage systems unless there is clear evidence this would be inappropriate; and
- Any residual risk can be safely managed.

Paragraphs 167–172 set out the policy approach to applying the Sequential Test and Exception Test, with paragraphs 173 to 175 dealing specifically with the application of the Sequential Test and paragraph 176 dealing with the Exception Test.

3.2 Planning Practice Guidance — Flood Risk and Coastal Change

The PPG on Flood Risk and Coastal Change (most recently updated September 2025) establishes a risk-based approach to flood risk in planning. The proposed C3 dwellings fall within the More Vulnerable classification in PPG Table 2 (Flood Risk Vulnerability Classification).

Within Flood Zone 3a, More Vulnerable development requires both the Sequential Test and the Exception Test to be passed (PPG Table 3). The site is not designated as Flood Zone 3b (functional floodplain) within the Worthing SFRA at this location; were it so, More Vulnerable development would be incompatible with the flood zone and the proposal could not proceed.

The PPG (paragraphs 23, 27, 27a, 28) sets out climate change allowances for application to flood risk assessments, with peak tidal levels in coastal flood zones determined from the EA's UKCP18 sea level rise projections. The site lies within the Solent and South Downs Area; the relevant allowances applied in this assessment are summarised in Section 4.2.3.

3.3 Worthing Local Plan and SFRA

The development plan for Worthing Borough Council comprises the Worthing Local Plan 2020-2036 (formally adopted on 28 March 2023, superseding the Worthing Core Strategy 2011 and saved policies from the Worthing Local Plan 2003). The relevant policy is:

- Local Plan Policy DM20 (Flood Risk and Sustainable Drainage) — provides the overarching framework for flood risk and drainage in Worthing. The policy requires the application of the Sequential and Exception Tests in line with national policy, the demonstration that development will be safe for its lifetime taking account of the vulnerability of its uses without increasing flood risk elsewhere and where possible reducing flood risk overall, the incorporation of appropriate flood resilience and resistance measures, and the use of sustainable drainage systems. This FRA has been prepared to demonstrate the proposal's compliance with Policy DM20.

The supporting flood risk evidence base for the Worthing Local Plan comprises the 2024 Adur and Worthing Level 1 Strategic Flood Risk Assessment (JBA Consulting on behalf of Adur District Council and Worthing Borough Council, which supersedes the 2020 Level 1 SFRA and was prepared to be compliant with the revised 2023 NPPF and updated 2022 PPG), the 2020 Adur and Worthing Level 2 Strategic Flood Risk Assessment (which remains the operative Level 2 document for site-level detail until updated), the Adur and Worthing SFRA Sequential Test Methodology (July 2024), and the Adur and Worthing SFRA Drainage Water Management Plans (DWMP) Review (Southern Water, December 2023). The site is mapped in Flood Zone 3 in respect of tidal flooding from the English Channel on the SFRA mapping, consistent with the EA Flood Map for Planning. The SFRA mapping has been examined for any separate Flood Zone 3b (functional floodplain) designation at the site location; no FZ3b designation is identified at the building frontage on Marine Parade. The applicable designation is therefore Flood Zone 3a (High Probability). The Worthing SFRA notes that the Worthing seafront is identified as an Overtopping Area in the Solent and South Downs Shoreline Management Plan (SMP) and the Adur to Worthing Strategy, with the SMP policy at this location being Hold the Line (HTL) over the short, medium and long term — i.e. the existing line of defences is to be maintained for the foreseeable future.

This Hold the Line policy is significant for the lifetime safety assessment in this FRA. It provides confidence that the existing defences will be retained and maintained over the 100-year lifetime of the residential development, although the defences themselves are not formal raised flood defences in the EA's Asset Management database and the EA has confirmed in EA Product 4 that "no formal flood defences" are recorded in the area for the purpose of the modelling. The assessment in Section 4.2.4 (Wave Overtopping) considers the operational reality of the seafront defences and addresses the residual overtopping risk consistent with the SMP policy.

3.4 Sequential Test

The Sequential Test, set out in NPPF paragraphs 173 to 175 and amplified in PPG and EA standing advice, requires the LPA to be satisfied that there are no reasonably available sites in areas with a lower probability of flooding (i.e. Flood Zone 1 or 2) that would be appropriate for the proposed development.

The PPG (paragraph 27) is clear that the Sequential Test is the responsibility of the Local Planning Authority. The applicant is not required to undertake the Sequential Test; however, the supporting information in this section is provided to assist the LPA's consideration.

It is acknowledged that the proposed development creates two new C3 dwellings within the existing building footprint. The development is therefore engaged with the Sequential Test, although it benefits from several site-specific factors that mean the Test should be considered to be satisfied:

- The proposal is intrinsically tied to the existing vacant ground floor commercial unit at 42 Marine Parade. The development consists of internal conversion only, retaining the existing building fabric, footprint and external envelope (save for minor sympathetic alterations to secondary elevations, as set out in the Design and Access Statement). The development cannot be relocated to alternative land at lower flood risk because it depends on the specific existing commercial premises which form its subject.
- The development reuses an existing built structure on previously developed land within an established town-centre seafront location. This is a sustainability outcome strongly favoured by the NPPF (paragraph 11 — sustainable development), the PPG, and the Worthing Local Plan.
- The previous use of the ground floor as a licensed bar (sui generis) had proved commercially non-viable, and attempts at re-letting the commercial use have been unsuccessful (per the

Design and Access Statement). The vacant commercial unit therefore represents an inactive use within the streetscape; its conversion to residential use returns the unit to active occupancy and removes the night-time disturbance previously associated with the licensed use. The Heritage Statement (Deadspace Designs, 17 April 2026) notes that the change of use is a "betterment" for the immediate neighbours.

- The proposal contributes modestly but materially to Worthing's housing land supply. Worthing Borough Council, like most local authorities in the South-East, faces an acknowledged shortfall against its objectively assessed housing need. The provision of two additional homes through the reactivation of a long-vacant commercial unit on the seafront is consistent with the objectives of the Worthing Local Plan and the NPPF.
- No greenfield land is taken; no functional floodplain is encroached upon; no flood storage volume is displaced. The proposal has zero flood-displacement effect.
- The proposal does not introduce a new principal residential building onto undeveloped land — the C3 use is already established on the upper floors of the building (four flats), and the change of use of the ground floor extends an existing residential use within the same building rather than creating a new residential planning unit on previously undeveloped land.

On the basis that the proposal is intrinsically site-specific (tied to the existing vacant commercial unit at 42 Marine Parade), that no reasonably available alternative sites at lower flood risk could deliver the same proposal (the reactivation of this specific vacant unit), and that the proposal delivers clear sustainability and amenity benefits, the Sequential Test is considered to be satisfied. The applicant invites the LPA to confirm this position as part of the determination of the application.

3.5 Exception Test

As the site is in Flood Zone 3a and the proposed use is More Vulnerable, the Exception Test must be applied. The Exception Test requires demonstration that:

- Part 1: The development provides wider sustainability benefits to the community that outweigh flood risk; and
- Part 2: The development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall.

Both Parts of the Exception Test are addressed below for each of the two proposed flats independently, in accordance with the principle that Flat 1 and Flat 2 have different finished floor levels and different access arrangements and may not therefore be safely assessed under a single combined finding.

3.5.1 Exception Test Part 1 — Wider Sustainability Benefits

The proposed conversion delivers a range of wider sustainability benefits to the community that, taken together, outweigh the residual flood risk at the site:

- **Housing supply.** Two additional Class C3 homes (84.76 m² and 59.05 m², both meeting or exceeding the National Space Standards) are delivered through the conversion. These homes contribute to Worthing's housing land supply within an area of acknowledged housing need.
- **Brownfield reuse and retention of embodied carbon.** The proposal reuses an existing built structure with no external extension, retaining the existing embodied carbon in line with NPPF Chapter 14 climate change adaptation objectives. The proposal generates no additional construction emissions associated with new build, save for minor internal works.

- **Removal of a vacant unit from the seafront streetscape.** The former bar use was commercially non-viable and the premises has been unsuccessfully marketed for alternative commercial use. The seafront frontage at Worthing is a heritage-sensitive streetscape (Worthing Conservation Area; Marine Parade and Hinterland character area) where active uses are particularly desirable. The reactivation of the vacant unit as residential use restores active occupancy to the building frontage.
- **Amenity improvement for neighbouring residents.** The Heritage Statement (Deadspace Designs, 17 April 2026) and Design and Access Statement (Deadspace Designs, 16 April 2026) record that the previous bar use was historically associated with noise, footfall and night-time disturbance to the existing upper-floor residents of the same building and to neighbouring residents in the same terrace. The transition to residential use removes this disturbance, providing a clear and direct amenity benefit to all existing residents and neighbouring properties.
- **Sustainable location.** The site is in a highly sustainable town-centre seafront location within walking distance of Worthing Town Centre and Worthing Railway Station. Public transport, services and amenities are readily accessible without reliance on private vehicles, supporting sustainable patterns of development.
- **No greenfield encroachment, no floodplain displacement.** No greenfield land is lost; no functional floodplain storage is displaced; no obstruction to flood flows is introduced. The development has a zero net effect on regional flood risk to third parties.
- **Heritage preservation.** The Heritage Statement confirms that the proposal preserves the character and scale of the building within the Worthing Conservation Area, with no external changes to the principal (south) elevation beyond secure bin storage. The proposal is therefore consistent with NPPF Chapter 16 (Conserving and enhancing the historic environment).

On the basis of the above, the Exception Test Part 1 (wider sustainability benefits) is considered to be satisfied for both Flat 1 and Flat 2.

3.5.2 Exception Test Part 2 — Development is Safe for its Lifetime

Exception Test Part 2 is addressed for each of the two proposed flats independently. The lifetime of residential development is taken as 100 years (per EA standing advice and the PPG).

Flat 1 (front, south-facing, FFL 6.35 m AOD main accommodation; 5.95 m AOD shower-room only). Flat 1's main accommodation (living, kitchen, bedroom) is at Upper Ground Floor level FFL 6.35 m AOD, providing 1.09 m freeboard above the modelled 0.5% AEP plus climate change undefended 2115 tidal flood level (5.26 m AOD per EA Product 4 EIR2026/21610). The shower-room is at Lower Ground Floor level FFL 5.95 m AOD, providing 0.69 m freeboard above the same scenario, exceeding the 600 mm preferred allowance in EA standing advice. Both areas of Flat 1 are therefore comfortably above the lifetime undefended design flood level. The flat is rendered safe over its lifetime by virtue of (i) FFLs above the lifetime undefended design flood level with freeboard exceeding the 600 mm preferred allowance, (ii) flood-resistant external envelope of the building to 5.86 m AOD (south, west and north elevations) protecting both Upper and Lower Ground Floor accommodation, (iii) flood-exclusion treatment of the suspended timber sub-floor void beneath both Upper and Lower Ground Floor accommodation, (iv) flood-exclusion treatment of the basement beneath the southern end of Flat 1 (narrow strip beneath the commonway only, not accessible under the proposed plans — Section 6.5), (v) wet-proof internal finishes throughout, (vi) raised electrical services to a minimum of 6.95 m AOD, (vii) vertical refuge to the existing upper-floor flats (First Floor FFL 8.92 m AOD per indicative topographical drawing TS-001 Rev A — 3.66 m vertical clearance above the design flood level) via the

internal communal stair, accessed from within Flat 1 without passing through any flood-affected external space, and (viii) bespoke Flood Warning and Evacuation Plan. Flat 1 is considered safe over its lifetime.

Flat 2 (rear, north-facing, FFL 5.95 m AOD throughout). Flat 2's full accommodation (living, kitchen, bedroom and shower-room) is at Lower Ground Floor level FFL 5.95 m AOD, providing 0.69 m freeboard above the modelled 0.5% AEP plus climate change undefended 2115 tidal flood level (5.26 m AOD per EA Product 4 EIR2026/21610) and 0.74 m freeboard above the defended 0.5% AEP 2070 scenario (5.21 m AOD — the operative design event with defences intact). Both freeboards exceed the 600 mm preferred allowance in EA standing advice; Flat 2 is therefore comfortably above the lifetime design flood level, both with and without defences. The flat is rendered safe over its lifetime by virtue of (i) FFL above the lifetime undefended design flood level with freeboard exceeding the 600 mm preferred allowance, (ii) flood-resistant external envelope of the building to 5.86 m AOD (south, west and north elevations) protecting all of Flat 2's accommodation, (iii) flood-exclusion treatment of the suspended timber sub-floor void beneath Flat 2, (iv) wet-proof internal finishes throughout, (v) raised electrical services to a minimum of 6.95 m AOD, (vi) vertical refuge to the existing upper-floor flats (First Floor FFL 8.92 m AOD per indicative topographical drawing TS-001 Rev A — 3.66 m vertical clearance above the design flood level) via the internal communal corridor and stair, the corridor and stair landings of which sit above the design flood level and are accessed directly from within Flat 2 without passing through Flat 1 and without passing through any flood-affected external space, and (vii) bespoke Flood Warning and Evacuation Plan. Flat 2 is considered safe over its lifetime.

On the basis of the above, the Exception Test Part 2 (development is safe for its lifetime) is considered to be satisfied for both Flat 1 and Flat 2 independently.

The proposal does not increase flood risk elsewhere because: (i) the development is contained entirely within the existing building footprint with no extension; (ii) no change is made to external ground levels; (iii) no obstruction is introduced to existing flood pathways; (iv) no new outfall is proposed; (v) no flood storage volume is displaced — the existing building already occupies its floodplain footprint and the conversion does not change this; and (vi) no change is made to roof areas or surface water drainage arrangements (the existing surface water drainage arrangement is retained). The development therefore has a zero net effect on flood risk to third parties.

The Exception Test is therefore considered to be satisfied for both Flat 1 and Flat 2 independently.

4. Flood Risk to the Site

4.1 Flood Zone Classification

The EA Flood Map for Planning, accessed on 5 May 2026 at OS Easting/Northing 514 847 / 102 374, confirms that the site lies within Flood Zone 3 — "Your selected location is in flood zone 3, an area with a high probability of flooding." The FMfP confirms that this designation arises from flooding from the sea and that an FRA is required for development at this location.

Flood Zone	Definition	Site Status
Flood Zone 1	Low probability — less than 0.1% AEP (greater than 1 in 1,000 year)	No
Flood Zone 2	Medium probability — between 0.1% and 0.5% AEP for tidal flooding	No
Flood Zone 3a	High probability — greater than 0.5% AEP for tidal flooding	YES — confirmed
Flood Zone 3b	Functional floodplain — land where water must flow or be stored in times of flood	Not designated at this location

Table 4: Flood Zone definitions and the application site's classification, per the EA Flood Map for Planning (5 May 2026) and confirmed by the Worthing SFRA.

The EA's revised flood risk service ("Flood map for planning" replacing the earlier NaFRA and Risk of Flooding from Rivers and Sea outputs) was reviewed for present-day and future climate change extents. The site lies within both the present-day Flood Zone 3 extent and the climate change (2070–2125) extent. Examination of the wider area shows that the climate change envelope extends inland of Marine Parade well beyond the immediate building line, confirming the importance of consideration of climate change uplift over the 100-year lifetime in the design flood level (Section 4.2.3). The mapped extent at the application site is illustrated at Figure 1 below.

4.2 Tidal Flood Risk

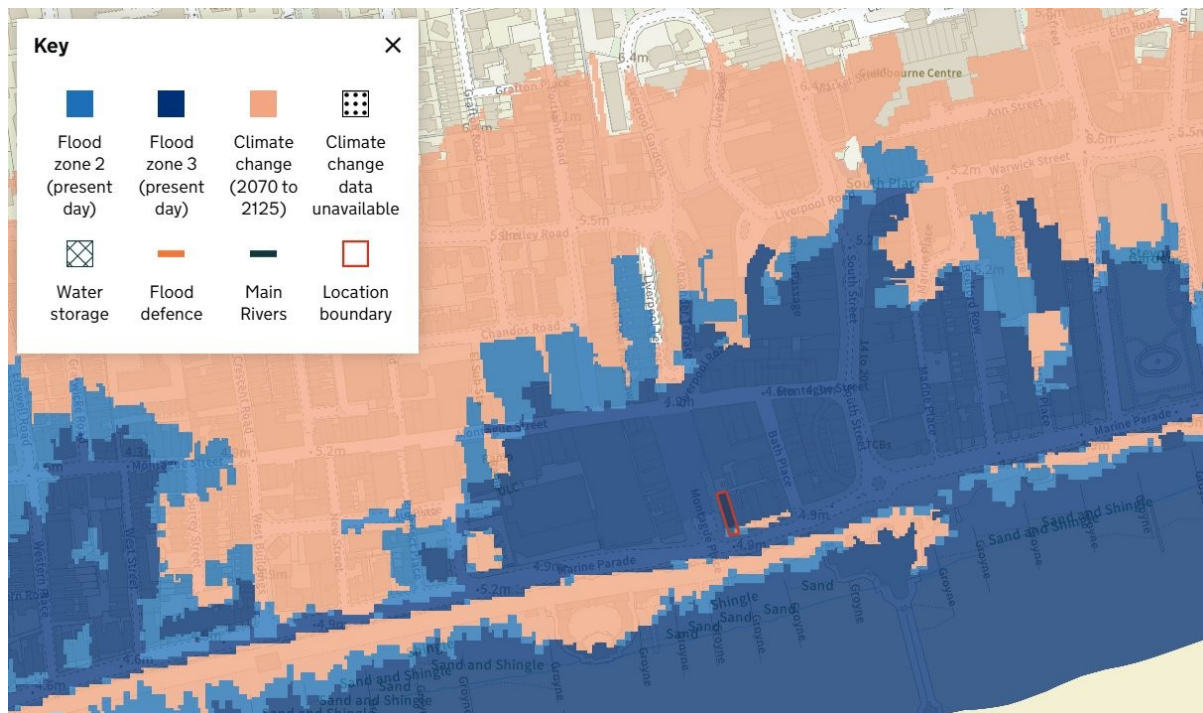


Figure 1: Environment Agency Flood Map for Planning extract at the application site (red outline, 42 Marine Parade). The site sits within Flood Zone 3 (dark blue — high probability of flooding from rivers and the sea, present-day). The orange hatched shading north of the building line indicates the Climate Change (2070 to 2125) extent showing the inland progression of the tidal flood envelope over the development lifetime. The shingle beach and groynes to the south of the site are visible on the OS basemap. The flat-roofed building line of Marine Parade is the elevated pavement frontage at approximately 5.70 m AOD. Source: Environment Agency Flood Map for Planning, generated 5 May 2026 (OS E/N 514 847 / 102 374). Full A4 extract at Appendix C.

4.2.1 Sources, Defences and Hydraulic Context

The site lies on the Worthing seafront, approximately 100 m from the Mean High Water Spring tide line and approximately 40 m from the back of the shingle beach. The principal source of flood risk is tidal flooding from the English Channel, with extreme still-water tidal levels driven by combinations of (i) astronomical tide, (ii) storm surge associated with low pressure systems and onshore winds, and (iii) wave run-up against the seawall and pavement structure. Sea level rise associated with climate change is incorporated as a separate allowance per EA guidance (Section 4.2.3).

The Worthing seafront is protected by a continuous line of coast-parallel sea defences comprising (south to north): the shingle beach (operational defence under the Worthing beach management regime), groynes (clearly visible on the OS mapping), the elevated stepped seawall and revetment, the elevated promenade and esplanade at approximately 3.85–3.90 m AOD (per indicative topographical drawing TS-001 Rev A May 2026 — approximately 3.55–3.60 m above Mean High Water Springs of 0.30 m AOD), the elevated building-frontage pavement at approximately 5.70 m AOD at the application site, and the carriageway-level Marine Parade itself. The line of defence is identified in the Solent and South Downs Shoreline Management Plan as "Hold the Line" over the short, medium and long term, providing confidence that the defences will be maintained over the 100-year design lifetime of the residential development.

EA Product 4 EIR2026/21610 (dated 18 May 2026, document reference EIR2026/21610) confirms that no formal flood defences are recorded in the EA's Asset Management database for the immediate area of the site. This is an important nuance: the Marine Parade promenade and seawall function as

operational defences but are not formally registered as raised flood defences for the purposes of EA modelling. The "defended" scenario in the EA Product 4 represents the modelled behaviour of the system with the existing seafront features (revetment, beach, promenade) in place, while the "undefended" scenario represents the hypothetical case where these features are entirely removed. The undefended scenario is the more conservative case and is used as the design event in this assessment (Section 4.2.3).

The west boundary of the building features an existing flint wall approximately 1.4 m high. This wall acts as a secondary defence against overland flow approaching the building from the west during overtopping events. The Heritage Statement notes that the wall is to be retained and repaired as practical upon inspection.

4.2.2 EA Product 4 — Site Modelled Levels

EA Product 4 (Customer Reference EIR2026/21610, dated 18 May 2026) was obtained for the application site. The underlying hydraulic model is the Arun to Adur Coastal Model (JBA Consulting, 2012), which represents the coastal frontage from Climping Beach to Brighton Marina and includes the Worthing reach. The Product 4 includes four site nodes — three within the site curtilage (Nodes 1, 2, 3 within the proposed building footprint) and one at the south-east corner of the site at the pavement edge (Node 4).

The Product 4 returns modelled flood levels for four scenarios: 0.5% AEP (1 in 200 year) baseline, 0.5% AEP plus climate change to the 2070 epoch (the 2070 epoch under the previous EA tidal climate change methodology), 0.5% AEP plus climate change to the 2115 epoch (the 2080s epoch under the previous EA tidal climate change methodology), and 0.1% AEP (1 in 1,000 year) baseline. Each scenario is modelled both with defences in place ("defended") and with defences removed ("undefended"). The full Product 4 is presented at Appendix B; the key modelled levels are reproduced below.

Node	0.5% AEP (2012) mAOD	0.5% AEP (2070) mAOD	0.5% AEP (2115) mAOD	0.1% AEP (2012) mAOD
Node 1 (E 514843 / N 102389) DEFENDED	5.05	5.21	5.01	5.16
Node 2 (E 514846 / N 102379) DEFENDED	5.05	5.21	5.01	5.16
Node 3 (E 514849 / N 102370) DEFENDED	5.05	5.21	5.01	5.16
Node 1 (E 514843 / N 102389) UNDEFENDED	—	—	5.26	—
Node 2 (E 514846 / N 102379) UNDEFENDED	—	—	5.26	—
Node 3 (E 514849 / N 102370) UNDEFENDED	—	—	5.26	—

Table 5: Modelled tidal flood levels at the application site (mAOD). Source: EA Product 4 EIR2026/21610, derived from the Arun to Adur Coastal Model (JBA Consulting, 2012). Node 4 (south-east corner at the pavement edge) returned no modelled levels in any scenario, indicating that the pavement at this location is above the modelled flood envelope for all scenarios. Climate change allowances within the Product 4 use the EA July 2021 methodology and are accordingly to be considered alongside the current EA climate change allowances guidance (paragraph 4.2.3 below).

Modelled flood depths at Node 2 (which falls under the proposed building footprint) range from 0.06 m at the defended 0.5% AEP 2012 baseline to 0.51 m at the defended 0.5% AEP 2070 scenario, and to 0.56 m at the undefended 0.5% AEP 2115 scenario. These depths reflect the elevation of the modelled flood level above the existing internal floor level (the suspended timber floor and the basement void beneath); they do not reflect depths at the proposed FFLs, which are higher than the existing internal floor level.

The single design flood level adopted for this assessment is the most onerous level returned across the three building-internal nodes (Nodes 1, 2, 3) for the most onerous scenario (0.5% AEP plus climate change to the 2115 epoch, undefended). This is 5.26 m AOD. This level is used throughout the remainder of this assessment as the design event against which freeboard, dry-proof envelope height and mitigation are configured.

4.2.3 Climate Change and Design Flood Level

In accordance with the EA's Flood risk assessments: climate change allowances guidance (most recent update February 2025) and PPG paragraphs 27 and 28, climate change allowances for tidal flooding are derived from UKCP18 sea level rise projections by river basin district and decade. The site falls within the Southern River Basin District and the Solent and South Downs Area.

The lifetime of residential development is taken as 100 years. Sea level rise is therefore considered from a baseline of approximately 2026 to approximately 2126. The EA's Product 4 returns include modelled levels for the 2070 and 2115 epochs based on the EA's July 2021 climate change methodology. The 2115 epoch is the most onerous epoch within the design lifetime represented in the Product 4 dataset and is therefore adopted as the design epoch.

The 0.5% AEP plus climate change (2115) undefended modelled level of 5.26 m AOD has been adopted as the design flood level. This represents:

- The 0.5% Annual Exceedance Probability tidal event (1 in 200 year return period) — the present-day extreme event for Flood Zone 3 tidal flooding;
- Uplifted to the 2115 epoch using the EA's published methodology for sea level rise (incorporating UKCP18 mid-emissions central allowance for sea level rise) — capturing climate change over the design lifetime;
- In the undefended configuration — the conservative case in which the existing seafront defences are assumed to be entirely absent or to have failed.

This is a conservative but proportionate design event for a More Vulnerable development in Flood Zone 3 behind a Hold-the-Line defence, and is consistent with EA standing advice that the design flood level should incorporate climate change over the lifetime of the development and should not rely solely on the continued performance of defences.

The current EA climate change allowances guidance (February 2025) updates the methodology used in the 2021 dataset embedded in the Product 4. The Product 4 notes that the climate change allowances embedded in the modelled levels were updated on 27 July 2021 and that "You should refer to 'Flood risk assessments: climate change allowances' for the most up to date allowances." In this case the difference between the July 2021 sea level rise allowance and the current February 2025 allowance for the Southern River Basin District is within the modelling tolerance of the underlying coastal model (which itself dates from 2012); the additional precaution afforded by the 0.69–1.09 m of freeboard provided by the proposed FFLs at the design event is sufficient to envelope this difference. No update to the design flood level is therefore proposed on the basis of the methodology change.

Parameter	Value (mAOD)	Source / Reference
Marine Parade pavement at building frontage (datum, altimeter)	5.70	Architect's section (15/05/2026)
0.5% AEP (2012) defended	5.05	EA Product 4 Nodes 1-3
0.1% AEP (2012) defended	5.16	EA Product 4 Nodes 1-3
0.5% AEP (2070) defended	5.21	EA Product 4 Nodes 1-3
0.5% AEP (2115) undefended — design flood level	5.26	EA Product 4 Nodes 1-3 (adopted)
Freeboard (EA standing advice — preferred)	+0.60	EA standing advice
Design protection level (external dry-proof envelope)	5.86	Section 6.3 — Dry-proofing target
Upper Ground Floor FFL — Flat 1 main accommodation	6.35	Architect's section drawing
Lower Ground Floor FFL — Flat 1 shower-room and Flat 2	5.95	Architect's section drawing

Table 6: Design flood level derivation and freeboard analysis for 42 Marine Parade. The design flood level of 5.26 m AOD (0.5% AEP plus climate change 2115, undefended) is the most onerous scenario returned by the EA Product 4 across the three building-internal nodes and is adopted as the design event for the lifetime of the development.

4.2.4 Wave Overtopping

In addition to the still-water flood levels described in Section 4.2.2, wave overtopping of the seawall and promenade during extreme tidal events combined with onshore winds can deliver flood water and spray onto the carriageway and pavement at Marine Parade. The Worthing seafront is identified in the Worthing SFRA as an Overtopping Area, with overtopping events historically recorded during periods of combined astronomical high tides, low pressure systems and strong south-westerly to south-easterly winds.

Detailed wave overtopping calculations would require commissioning a coastal modelling specialist with access to the relevant offshore wave climate data, beach and seawall transect surveys, and the EurOtop methodology. This is beyond the scope of the present site-specific FRA, which addresses an internal change of use of an existing building with no new external works. For a development of this scale and nature, it is considered appropriate to address wave overtopping through:

- Reliance on the still-water modelled levels in EA Product 4 as the design event, which inherently incorporate the modelled effect of the seawall on tidal level propagation.
- Treatment of the undefended scenario as the design event (Section 4.2.3) — this represents a conservative envelope that effectively bounds wave-driven flooding by assuming defence absence.
- Flood-resistant external envelope dry-proofing of the south (seafront-facing) elevation to the design protection level of 5.86 m AOD (Section 6.3), providing resilience to wave run-up and spray penetration.
- Retention of the existing flint boundary wall along Montague Place (west elevation), which provides secondary protection against overland flow approaching from the west.

If, at the planning consultation stage, the EA or Worthing Borough Council require a detailed wave overtopping assessment, this can be procured separately. The integrated layered defence strategy in

Section 6, particularly the dry-proof envelope to 5.86 m AOD on the south elevation, is considered to provide robust mitigation against wave overtopping effects up to the design event.

4.2.5 Flood History

The EA Product 4 (EIR2026/21610) confirms that no past flooding data is held for the application site at 42 Marine Parade itself. The EA cautions that flooding may have occurred for which no records exist. The Worthing seafront has historically experienced overtopping events during extreme storm tides, most notably during the storm events of October 2000, March 2008 and December 2013–February 2014. Public records indicate that these events resulted in floodwater on Marine Parade carriageway and the lower seafront pavement, with limited reports of internal flooding to seafront buildings. The application building is not known to have been internally flooded in any of these events.

Notwithstanding the historical record, the site remains within Flood Zone 3 and is in the operational defended condition; future events of equal or greater magnitude must be anticipated. The mitigation strategy in Section 6 is designed to manage this residual risk.

4.3 Fluvial Flood Risk

The site lies within the catchment of the Adur River system to the east (3 km away at Lancing) and the Ferring Rife system to the west (4 km away at Goring). There is no Main River within the immediate hydrological influence of the site. The EA Flood Map for Planning extent at this location, although classified as Flood Zone 3, is wholly tidal in origin (per the EA Product 4 model attribution to the Arun to Adur Coastal Model, 2012). The fluvial flood risk to the application site is therefore Negligible.

4.4 Surface Water Flood Risk

The EA Risk of Flooding from Surface Water (RoFSW) dataset has been reviewed for the application site for the 1 in 30, 1 in 100 and 1 in 1,000 year return period extents. The mapped findings are:

- 1 in 30 year (3.3% AEP — "High Risk" category): the application site building footprint is unaffected. The only mapped surface water cells in this scenario fall on the Marine Parade carriageway and within the Multistorey Car Park on the western side of Montague Place.
- 1 in 100 year (1% AEP — "Medium Risk" category): the application site building footprint is unaffected. Mapped cells remain within the Marine Parade carriageway corridor and the Multistorey Car Park area; an isolated cell pattern emerges in the open area between the building and the Bank to the north.
- 1 in 1,000 year (0.1% AEP — "Low Risk" category): the application site is largely unaffected with marginal cells along the western boundary (Montague Place) and through the building footprint on a single small cluster, reflecting the very extreme rainfall scenario.

This pattern indicates that the dominant overland flow pathways during extreme rainfall events are along the Marine Parade carriageway corridor (which slopes east toward the existing seafront drainage outfalls) and into the Multistorey Car Park area to the west. The application site building footprint, by virtue of its elevated pavement-level threshold and its position on a continuous building line, is largely outside the active surface water flow pathway. The flint boundary wall along Montague Place provides further protection against any overland flow approaching from the west during extreme rainfall.

Surface water flood risk to the proposed building footprint is therefore assessed as Very Low. The dry-proof envelope and flood-resilient construction specified in Section 6 provide ample resilience to any residual surface water ingress.



Figure 2: EA Risk of Flooding from Surface Water — 1 in 30 year (3.3% AEP) extent. The application site (red outline) is unaffected by mapped surface water at this return period. Flooding is confined to the Marine Parade carriageway corridor and the Multistorey Car Park area on the western side of Montague Place. Source: gov.uk/check-long-term-flood-risk, extracted 5 May 2026.



Figure 3: EA Risk of Flooding from Surface Water — 1 in 100 year (1% AEP) extent. The application site building footprint remains unaffected at this return period. Mapped extent widens along Montague Street and includes the open area between the building and the Bank to the north, with continued involvement of the Marine Parade carriageway and Multistorey Car Park. Source: gov.uk/check-long-term-flood-risk, extracted 5 May 2026.

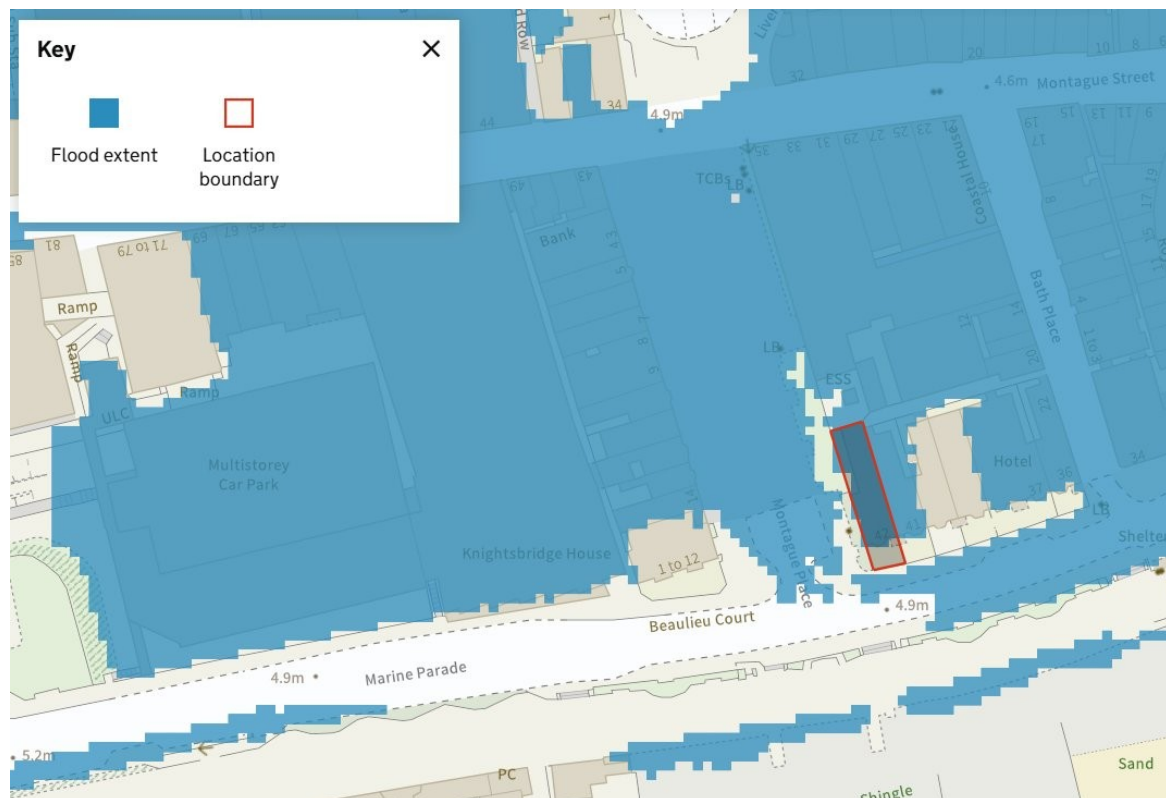


Figure 4: EA Risk of Flooding from Surface Water — 1 in 1,000 year (0.1% AEP) extent. The extreme rainfall scenario shows mapped surface water across the wider area including parts of the application site curtilage. The proposed Finished Floor Levels (Lower Ground Floor 5.95 m AOD; Upper Ground Floor 6.35 m AOD) sit substantially above the carriageway level (~5.00 m AOD) and provide ample freeboard against this extreme pluvial scenario, with the flood-resistant envelope (Section 6.3) and flood-resilient internal finishes (Section 6.6) providing further resilience. Source: gov.uk/check-long-term-flood-risk, extracted 5 May 2026.

4.5 Groundwater Flood Risk

Groundwater flooding is most prevalent in areas underlain by permeable bedrock or thick superficial sands and gravels. The site is underlain by the Newhaven Chalk Formation (Principal Chalk aquifer) with marine Beach and Tidal Flat Deposits at the surface. The Worthing SFRA does not identify the site as being within an area of significant groundwater flood risk.

However, the seafront position of the site means that the groundwater regime in the Beach and Tidal Flat Deposits and the upper Chalk is tidally influenced — groundwater levels in the near-shore zone fluctuate with the tide and may rise toward the surface during periods of high tide combined with sustained rainfall. This is a recognised mechanism by which water can enter sub-floor voids and basements in seafront buildings without surface flood waters reaching the building.

The proposed sub-floor void treatment (Section 6.4) and basement treatment (Section 6.5) — both configured as flood-excluded with tanked perimeter, sump and pump, sealed service penetrations, and non-return valves on below-DPC drainage — provide robust protection against tidally-influenced groundwater ingress. Groundwater flood risk to the habitable accommodation is therefore assessed as Low.

4.6 Sewer Flood Risk

Southern Water is the statutory sewerage undertaker for this area. There is no evidence of historic sewer flooding at this location reported on the Southern Water DG5 register publicly. Where this

position changes at the detailed design stage, the applicant will engage with Southern Water to confirm the local sewer flooding history and any consequential mitigation.

In coastal town centres such as Worthing, the combined sewer network can experience tidally-induced back-flow during peak tides, particularly when local pumping stations are overwhelmed by tidal levels at the discharge headwall. This may lead to local sewer surcharge and the risk of sewer flooding through ground-floor sanitary fittings. The proposed development addresses this residual risk through the installation of non-return valves on all below-DPC foul drainage connections from the new accommodation. Sewer flood risk to the proposed accommodation is therefore assessed as Low.

The development does not increase the foul water load on the public network materially — it converts a single licensed bar use (capable of generating high peak loads during operational hours) to two domestic flats (generating modest steady-state domestic loads, in line with Sewers for Adoption 8th Edition methodology). No new connection to the public sewer is required as the existing foul connection to the public combined sewer in Marine Parade is retained for the building.

4.7 Reservoir Flood Risk

The EA Reservoir Flood Maps have been reviewed via the EA's long-term flood risk service. The site does not lie within the Maximum Reservoir Flood Extent or the Reservoir Inundation Extent for any large raised reservoir governed under the Reservoirs Act 1975. There is no credible reservoir flood risk to the development. Risk rating: Negligible.

4.8 Other Sources

Ordinary Watercourses. There are no open ordinary watercourses in the immediate vicinity of the site that present a credible flood risk to the development.

Artificial Sources / Canals. There are no canals or other artificial water-bearing infrastructure within the immediate hydrological setting of the site. Risk rating: Negligible.

5. Flood Risk from the Development

5.1 This section addresses the third statutory FRA requirement: demonstrating that the proposed development does not increase flood risk elsewhere. The proposal involves the change of use and internal conversion of the vacant ground floor commercial unit at 42 Marine Parade to two C3 residential flats. No external extension is proposed; no change is made to the building footprint; no change is made to external ground levels; no new outfall is introduced; no change is made to surface water drainage arrangements; no obstruction is introduced to existing flood flow pathways; and no flood storage volume is displaced.

5.2 By comparison with the FRE Eastwood template approach (where new external building footprint and floodplain compensation calculations were necessary), no slice-by-slice floodplain volume calculation or compensation is required at 42 Marine Parade. The existing building footprint already occupies the floodplain footprint that it will continue to occupy after the change of use. The internal conversion to two flats does not change this baseline.

5.3 The development has zero net effect on:

- Flood storage volume on the floodplain (no change to building footprint, no change to external ground levels);
- Flood flow pathways and conveyance (no change to building geometry external to the existing fabric save for the like-for-like upgrading of windows and rear doors which do not project beyond the existing footprint, and no change to the flint boundary wall along Montague Place);
- Surface water runoff volumes and peak flows (no change to roof areas; no change to impermeable surfaces; existing surface water drainage arrangements retained);
- Foul water discharge to the public sewer (existing connection retained; change from single sui generis bar use to two domestic dwellings represents a modest steady-state load increase that is well within the receiving combined sewer's spare capacity, per Sewers for Adoption 8th Edition methodology). Indicative additional foul flow: 2 dwellings × 2.4 persons/dwelling × 110 l/p/d = 528 l/d average dry weather flow, peaked at 0.03 l/s — negligible at the public sewer scale.

5.4 There is no increase in flood risk to surrounding properties or third parties as a result of this development.

6. Residual Risk and Mitigation Strategy

6.1 Layered Defence Approach

The site lies within Flood Zone 3 on the EA FMfP, defended in present-day conditions by the operational Worthing seafront defences (shingle beach, groynes, stepped seawall, elevated promenade pavement). The Shoreline Management Plan policy at this location is Hold the Line over the short, medium and long term, providing confidence that the defences will be maintained over the 100-year design lifetime of the residential development. Notwithstanding the defences and the SMP policy, the residual risk to occupants of the proposed flats from extreme tidal events (including breach and overtopping scenarios) must be managed through a layered defence approach. This is consistent with EA standing advice (most recently updated October 2025) and BS 85500:2015 Flood-Resistant and Resilient Construction.

The integrated mitigation strategy adopted in this assessment comprises eight layers of defence, configured to protect both Flat 1 and Flat 2 independently:

- Layer 1 — Existing seafront defences (shingle beach, seawall, promenade pavement) — operational defences maintained under the Hold the Line SMP policy.
- Layer 2 — Existing secondary defences at the building (1.4 m flint boundary wall on the west elevation; raised pavement frontage at 5.70 m AOD providing 0.44 m relative elevation above the design flood level).
- Layer 3 — Proposed Finished Floor Levels above the design flood level (Upper Ground Floor 6.35 m AOD; Lower Ground Floor 5.95 m AOD — see Section 6.2).
- Layer 4 — Flood-resistant (dry-proof) external envelope of the building to 5.86 m AOD (600 mm above the design flood level — see Section 6.3).
- Layer 5 — Flood-exclusion treatment of the suspended timber sub-floor void beneath both flats (Section 6.4) and of the basement beneath Flat 1 (Section 6.5).
- Layer 6 — Flood-resilient (wet-proof) internal construction and finishes throughout both flats (Section 6.6).
- Layer 7 — Vertical refuge for occupants of both flats to the existing upper-floor flats via the internal communal stair (Section 7).
- Layer 8 — Operational measures including a bespoke Flood Warning and Evacuation Plan, registration for EA Flood Warnings Direct, and pre-event evacuation (Section 8).

Each layer is configured to be effective independently, so that failure of any single layer does not compromise the safety of either flat. Sections 6.2 to 6.7 describe the technical specification of each layer in turn.

6.2 Finished Floor Levels — Compliance Analysis

The proposed Finished Floor Levels (as set out on the architect's Section through Existing Ground Floor drawing dated 15 May 2026) are:

- Upper Ground Floor FFL — 6.35 m AOD (Flat 1 main accommodation — living, kitchen, bedroom);
- Lower Ground Floor FFL — 5.95 m AOD (Flat 1 shower-room and the whole of Flat 2).

EA standing advice (most recently updated October 2025) recommends finished floor levels of a minimum of 600 mm above the estimated flood level, reducing to 300 mm where there is a high level of certainty about the estimated flood level. The certainty in the present case is high — the EA Product

4 returns specific modelled tidal levels from the JBA Arun to Adur Coastal Model (2012) with the climate change uplift to 2115 explicitly tabulated. The 300 mm minimum is therefore the relevant threshold for compliance, with the 600 mm preferred allowance applied as a higher standard where achievable.

Flat / Element	FFL (mAOD)	Design (2115 undefended) 5.26 mAOD	Defended 2070 5.21 mAOD	Defended 2012 5.05 mAOD	Status
Flat 1 — Upper Ground Floor (main accommodation)	6.35	+1.09 m	+1.14 m	+1.30 m	Pass — exceeds 600mm preferred
Flat 1 — Lower Ground Floor (shower-room only)	5.95	+0.69 m	+0.74 m	+0.90 m	Pass — exceeds 600mm preferred
Flat 2 — Lower Ground Floor (all rooms)	5.95	+0.69 m	+0.74 m	+0.90 m	Pass — exceeds 600mm preferred
Basement floor (non-habitable, commonway width only, not accessible under proposed plans)	4.54	-0.72 m	-0.67 m	-0.51 m	Below DFL — treated as flood-excluded (Section 6.5)

Table 7: FFL compliance analysis against EA standing advice freeboard requirements (300 mm minimum / 600 mm preferred). All habitable areas of both flats comfortably exceed the 600 mm preferred allowance against the most onerous lifetime undefended design event (5.26 m AOD). The Upper Ground Floor accommodation of Flat 1 exceeds 1.0 m freeboard. The Lower Ground Floor accommodation (Flat 1 shower-room and the whole of Flat 2) exceeds 600 mm preferred against all scenarios including the operative defended 2070 event (the most likely future scenario given the SMP Hold the Line policy). The basement, which is below the design flood level in all scenarios, is retained as non-habitable, narrow-strip storage and is treated as flood-excluded by tanking and pumping (Section 6.5). The basement is not accessible under the proposed plans, removing any residual occupancy risk.

On this analysis, the proposed FFLs are fully compliant with EA standing advice. No change to the proposed floor levels is required to achieve compliance with the freeboard requirement. The internal step from the Upper Ground Floor to the Lower Ground Floor (400 mm vertical drop) is an existing feature of the building, retained as part of the conversion; this is appropriately treated under Building Regulations Approved Document M (Access) using contrasting nosings, edge protection and adequate lighting per the architect's detailed design.

6.3 Flood-Resistant Construction (Dry-Proofing)

In accordance with BS 85500:2015 Flood-Resistant and Resilient Construction and CIRIA C790 Living with Water, flood-resistant (dry-proof) construction is specified for the external envelope of the building up to a design protection level of 5.86 m AOD. This represents 600 mm above the modelled design flood level of 5.26 m AOD (0.5% AEP plus climate change 2115 undefended) and provides resilience against a flood event reaching the building external wall.

The dry-proof envelope is applied to the south (Marine Parade frontage), east (party wall with no. 41 — internal to the terrace), west (Montague Place elevation) and north (rear elevation facing the rear alleyway) elevations of the building. The specific elements specified are:

- **External walls (where exposed).** Existing masonry walls retained. External wall faces below 5.86 m AOD treated with a proprietary cementitious tanking system (or equivalent) applied to

the external face, with detailing of the joint between tanking and Damp Proof Course (DPC) appropriate to the existing wall construction. Cavity-tray detailing if appropriate to the existing wall fabric. Internal hydrophobic plaster or hydrophobic render finish on internal face below 5.86 m AOD. Conservation considerations within Worthing Conservation Area to be addressed by architect to ensure visual integrity is maintained.

- **External doors below 5.86 m AOD.** The communal entrance door on the south (Marine Parade) elevation; the upgraded rear (north) patio doors to Flat 1; the new west-facing access door to the courtyard (from the converted toilet block window); and any other doors below 5.86 m AOD: all to be flood-resistant doors certified to BSI Kitemark / PAS 1188-1 standards, with permanent threshold seals and removable demountable barrier capability for the principal door openings. The Marine Parade frontage door is the principal point of vulnerability and is specified as a Kitemarked PAS 1188-1 flood door with 600 mm protection rating.
- **External windows below 5.86 m AOD.** Existing windows that fall below 5.86 m AOD (limited in number given the elevated pavement level) to be replaced with or upgraded to flood-resistant glazed units with sealed reveals and aprons; the level of lowest window cill is recorded on the architect's section drawing at approximately 1.6 m above ground level on the front elevation, equating to approximately 7.20 m AOD — well above the dry-proof target — so this measure principally applies to any small windows on the basement or sub-floor void zone.
- **Air bricks and ventilation.** All air bricks providing ventilation to the suspended timber sub-floor void to be replaced with flood-resistant self-closing air bricks (Smart Air Brick or equivalent) certified to PAS 1188-2 standards. These will provide normal ventilation under dry conditions and automatically seal under flood conditions. Where existing air bricks are located below the design protection level of 5.86 m AOD and ventilation cannot reasonably be provided through replacement units at higher level, the self-closing flood-resistant pattern shall be the default specification.
- **Service entries.** All service entry points (electric, water, BT, gas if retained) below 5.86 m AOD to be sealed with proprietary flood-resistant gaiter sleeves at the wall penetration. New service connections to be configured to enter the building above 5.86 m AOD where practicable.
- **West flint boundary wall.** The existing 1.4 m high flint wall along the west boundary (Montague Place) is to be retained and repaired upon inspection. Any sections found to be unsound at detailed survey stage are to be rebuilt to match. The wall provides a secondary defence against overland flow approaching from the west during overtopping events.

6.4 Sub-Floor Void (Suspended Timber Floor)

A key feature of 42 Marine Parade — and a key feature of many nineteenth-century seafront terraces of this type — is the use of a suspended timber floor at ground floor level, with a continuous sub-floor void beneath. This is distinct from the concrete slab construction typical of newer residential buildings, and requires specific consideration in the flood mitigation design.

The sub-floor void at 42 Marine Parade extends across both the Upper Ground Floor and Lower Ground Floor zones, with the void depth varying with the changing FFL above. The void provides essential through-ventilation to the timber joists, preventing rot. However, it also represents a potential water ingress pathway from below (groundwater or sewer back-flow rising into the void) and from the sides (overtopping water entering through air bricks).

The sub-floor void is therefore treated as a FLOOD-EXCLUDED zone — i.e. a zone configured to actively exclude water rather than to accept water and rely on resilience. This is the same treatment

philosophy applied to the basement beneath Flat 1 (Section 6.5) and is consistent with BS 85500:2015 Annex A guidance on flood-excluded sub-floor voids in retrofit conversions. The treatment comprises:

- **Tanked perimeter.** Continuous waterproof tanking applied to the internal face of all external walls bounding the sub-floor void, from the underside of the suspended timber floor to a minimum of 150 mm below existing ground level outside, or to the existing footing level where lower. Tanking specification per BS 8102:2022 Type A or Type C waterproofing.
- **Air brick treatment.** All existing air bricks providing ventilation to the sub-floor void to be replaced with flood-resistant self-closing air bricks (Smart Air Brick or equivalent) located as high in the wall as practicable. Where air bricks must be retained below 5.86 m AOD, they shall be of the self-closing pattern certified to PAS 1188-2. Additional ventilation to be provided through PVC ducting to high-level external grilles above 5.86 m AOD where this is practicable in the architect's detailed design.
- **Sealed service penetrations.** Any pipework, cabling, conduit or other service penetrations through the sub-floor envelope to be sealed with proprietary flood-resistant gaiter sleeves and intumescent fire seals appropriate to the building penetration class.
- **Sump and backup pump.** A sump pit at the lowest point of the sub-floor void, fitted with a submersible pump on float switch, connected to a discharge line that discharges either externally (above 5.86 m AOD) or to the foul drainage system upstream of a non-return valve. The pump is intended primarily for the management of any residual seepage during extreme events and for the management of any residual groundwater ingress in dry conditions; it is not relied upon as a primary flood defence. Battery backup or generator backup specified to ensure operability during power outages.
- **Damp Proof Membrane and floor build-up.** Existing suspended timber floor build-up retained. Underside of new floor joist/zone insulation upgrade to be hydrophobic closed-cell rigid insulation (where the existing build-up is being modified to upgrade thermal performance as part of the conversion). Continuous Damp Proof Membrane (DPM) to the underside of the floor build-up, sealed and lapped at all junctions.

The integrated effect of these measures is to create a sub-floor void that is sealed against water ingress from below, from the sides and through services, with residual pumped drainage for any seepage. This protects the integrity of the suspended timber floor and prevents the void from becoming a flood propagation pathway during extreme events.

6.5 Basement Beneath Flat 1

The application building includes a basement beneath the southern (front) part of the ground floor, beneath what will be Flat 1's living/bedroom area. Per the client's confirmation of 1 May 2026, the basement does not cover the full footprint of Flat 1 — it is a narrow strip the width of the internal commonway only, located beneath the southern end of the building. The basement is retained without internal change as part of this application but, critically, is not accessible under the proposed plans: the existing access from the ground floor is removed as part of the conversion works. The basement floor level is approximately 4.54 m AOD (1.16 m below pavement), which is below all of the modelled tidal flood levels (Section 4.2.2).

The basement is to be retained as NON-HABITABLE — for incidental storage and services only. This is critical to the safety case set out in Section 3.5 (Exception Test Part 2). The basement is NOT proposed as part of either Flat 1's or Flat 2's habitable accommodation. The Design and Access Statement is explicit on this point: "low ceiling height — storage / services only — no changes as part of application / development."

The basement is treated as a FLOOD-EXCLUDED zone, with the following specification:

- **Confirmation of non-habitable status.** The basement is confirmed by the client as retained for incidental non-habitable storage only and is not accessible under the proposed plans (existing access removed during the conversion works). Any future proposal to convert the basement to habitable accommodation would require a fresh FRA addressing the sub-design-flood-level occupancy.
- **Tanking.** Continuous waterproof tanking applied to all internal faces of the basement (walls and floor), per BS 8102:2022 Type A or Type C waterproofing, to provide active exclusion of groundwater and any tidal back-flow.
- **Sump and pump.** Sump pit at the lowest point of the basement floor, fitted with submersible pump on float switch, connected to a discharge line above 5.86 m AOD. Backup pump or battery backup specified. The pump is intended for the management of residual groundwater seepage and any minor ingress; it is not relied upon to manage active flood inflow.
- **Non-return valves.** All foul drainage and surface water drainage connections from the basement (or passing through the basement) to be fitted with mechanical non-return valves of an approved type, to prevent tidal back-flow from the public sewer entering the basement.
- **Sealed access.** Access between the basement and Flat 1 above to be sealed by a flood-resistant access hatch/door, with the basement only accessed for inspection, maintenance and managed storage of items. The architect's drawings show "door to basement staircase" — this is to be detailed as a flood-resistant access door.
- **Electrical and services.** Electrical services within the basement to be limited to those essential for inspection lighting and pump operation, all installed to a minimum of 1.0 m above basement floor level (5.44 m AOD), separately switched at consumer unit level above, to allow isolation during flood events. No habitable services (gas, central heating, ground floor electrical) shall be installed within the basement zone.
- **Acknowledged residual risk.** The basement, by virtue of being below the design flood level, is expected to flood from groundwater seepage or breach scenarios over the design lifetime. This is acceptable on the basis that the basement is non-habitable and contains no occupants. Items stored in the basement should be valued on the basis that they may be lost during a flood event; insurance arrangements should reflect this. The flood-excluded specification minimises the frequency of ingress but does not eliminate it.

The integrated effect of these measures is to retain the basement as a non-habitable, narrow-strip storage zone with active flood exclusion through tanking, pumping and non-return valves. The non-accessibility of the basement under the proposed plans (existing access removed during the conversion works) reduces the residual occupancy risk to zero — no occupant can be present in the basement under the proposed arrangement. This ensures that flood-related risk to the basement does not propagate upwards into Flat 1's habitable accommodation, which sits at FFL 6.35 m AOD (Upper Ground Floor) — 1.81 m above the basement floor level — with the floor build-up itself acting as a further physical barrier.

6.6 Flood-Resilient Construction (Wet-Proofing)

Recognising that no flood-resistant strategy can be considered absolute, internal finishes throughout the habitable accommodation of both flats are specified to be flood-resilient (wet-proof), allowing for rapid drying, cleaning and reinstatement should water ingress occur. The wet-proof specification applies to all surfaces below 1.0 m above the relevant FFL — i.e. below 6.95 m AOD for Flat 2 and the Lower Ground Floor of Flat 1, and below 7.35 m AOD for the Upper Ground Floor of Flat 1.

- **Floors.** Tile, sealed concrete or vinyl finish on hydrophobic substrate; no carpet at Lower Ground Floor or Upper Ground Floor levels. Skirting tiles or sealed-joint PVC skirtings.
- **Walls.** Hydrophobic plaster or cement render below 1.0 m above FFL. Gypsum plasterboard above 1.0 m above FFL, fixed horizontally to allow lower portions to be replaced if damaged; alternatively, cement-bonded particle board such as Aquapanel below 1.0 m above FFL.
- **Skirting boards.** PVC, hardwood or tiled skirting with sealed joints. Removable mechanical fixings to allow easy replacement if damaged.
- **Doors and frames.** Solid timber or PVC. Avoidance of MDF and chipboard, which absorb water and swell. Architraves to match.
- **Kitchen units / built-in furniture.** Stainless steel, PVC or moisture-resistant carcass material where practicable, on plinth feet to facilitate inspection and drying. Avoidance of standard MDF kitchen carcasses below 0.5 m above FFL.
- **Electrical installation.** All sockets, light switches and consumer-unit elements raised to a minimum of 1.0 m above FFL — i.e. minimum 6.95 m AOD for Flat 2 and Lower Ground Floor; minimum 7.35 m AOD for Upper Ground Floor of Flat 1. Ground floor circuits separately switchable to allow isolation. Consumer unit to be installed at high level (>1.5 m above FFL) and on the first-floor side of any internal partition where practicable, to facilitate continued operation during pre-emergency electrical isolation of ground floor circuits.
- **Gas, central heating and plant.** Gas boilers, MVHR units, hot water cylinders, electricity meters and other vulnerable plant to be located at high level — either within a sealed plant cupboard at minimum 1.0 m above FFL, or at first-floor level (with appropriate cold-water feed routes). Avoidance of basement plant locations.

6.7 Mitigation Schedule by Location

The integrated mitigation strategy is summarised in the schedule below, organised by location within the building to facilitate the architect's detailed design process. The schedule is BS 85500-aligned and provides sufficient detail for the design team to incorporate the measures into the construction drawings.

Location / Element	Specification	Target Level / Standard
External envelope — Marine Parade (south) frontage	Dry-proof external face. Cementitious tanking system. PAS 1188-1 Kitemarked flood door to communal entrance. Existing windows (cill $\geq$ 7.2 m AOD) retained. Service entries sealed with gaiter sleeves.	5.86 m AOD (BS 85500 / CIRIA C790)
External envelope — west (Montague Place) elevation	Dry-proof external face. Cementitious tanking system. Existing 1.4 m flint boundary wall retained as secondary defence. New PAS 1188-1 flood door at converted toilet-block window position.	5.86 m AOD (BS 85500 / CIRIA C790)
External envelope — rear (north) elevation	Dry-proof external face. Cementitious tanking system. PAS 1188-1 flood door / French door specification on rear patio doors. Existing rear door blocked-up per architect's elevation Rev 3.	5.86 m AOD (BS 85500 / CIRIA C790)
Sub-floor void (suspended timber floor — both flats)	FLOOD-EXCLUDED. Tanked perimeter (BS 8102 Type A or C). Self-closing flood-resistant air bricks (PAS 1188-2) on existing ventilation positions. Sealed service penetrations. Sump pit with backup-powered submersible pump. Continuous DPM to floor	Active exclusion (BS 85500 Annex A)

Location / Element	Specification	Target Level / Standard
	underside.	
Basement (beneath Flat 1)	FLOOD-EXCLUDED. Retained as non-habitable storage and services only (commonway-width strip, not accessible under proposed plans). Tanked internally (BS 8102). Sump pit and backup-powered pump. Non-return valves on all drainage. Flood-resistant access hatch to Flat 1 above. Restricted electrical services >1.0 m above basement floor; separately isolated.	Active exclusion. Non-habitable use integral to the Exception Test Part 2 safety case.
Finished Floor Levels — Upper Ground Floor (Flat 1 main)	Retained at 6.35 m AOD per architect's section. Provides 1.09 m freeboard above design flood level (5.26 m AOD).	FFL 6.35 m AOD (+1.09 m freeboard)
Finished Floor Levels — Lower Ground Floor (Flat 1 shower-room and Flat 2)	Retained at 5.95 m AOD per architect's section. Provides 0.69 m freeboard above design flood level (5.26 m AOD) and 0.74 m above defended 2070 event. Exceeds 600 mm preferred allowance in all scenarios.	FFL 5.95 m AOD (+0.69 m freeboard)
Internal finishes — both flats, below 1.0 m above FFL	WET-PROOF. Tile / sealed concrete / vinyl floor on hydrophobic substrate. Hydrophobic plaster or cement render walls. PVC / tiled skirtings. PVC / solid timber doors and frames. Moisture-resistant kitchen carcasses.	Resilient (BS 85500 / CIRIA C790)
Electrical services — both flats	All sockets, switches and consumer-unit elements at minimum 1.0 m above FFL (6.95 m AOD Lower GF; 7.35 m AOD Upper GF). Ground floor circuits separately switchable. Consumer unit at high level.	≥1.0 m above FFL
Foul drainage — below DPC (both flats)	Mechanical non-return valves on all below-DPC connections to public combined sewer. Anti-flood toilets / drains on basement connections.	Non-return valves to BS EN 13564
Operational — both flats	Registration with EA Flood Warnings Direct prior to occupation (strongly encouraged). Bespoke Flood Warning and Evacuation Plan to be produced as a standalone document prior to occupation — framework provided at Section 8. Vertical refuge route to upper-floor flats via internal communal stair maintained free of obstruction.	EA FWD / FWEP (Section 8)

Table 8: BS 85500-aligned flood mitigation schedule by location for 42 Marine Parade. This schedule supports the architect's detailed design process and provides the technical specification for the mitigation measures described in Section 6. All mitigation measures listed are achievable within the constraints of the existing building fabric and the Worthing Conservation Area heritage context.

7. Safe Access, Egress and Vertical Refuge

During a tidal flood event, occupants of the proposed flats must have access to a safe means of egress from the property and / or a safe vertical refuge within the building. Both are provided by this design. The two strategies are complementary: vertical refuge is the primary in-event strategy and is available to occupants of both flats; egress is the pre-event strategy and the post-event reinstatement route, with limited applicability during the design event due to modelled depths along the carriageway.

7.1 Vertical Refuge — Strategy by Flat

The proposed change of use retains the existing internal communal stair from the Marine Parade frontage to the upper-floor flats. The stair forms the principal vertical refuge route in the event of a flood event exceeding the design level. Each of the two new flats has independent access to this stair, and the stair provides access to the four existing upper-floor flats. Per the indicative topographical drawing TS-001 Rev A (May 2026), the First Floor FFL is approximately 8.92 m AOD and the Second Floor FFL is approximately 12.12 m AOD — both well above any conceivable tidal flood level over the 100-year design lifetime. The communal stair landings rise progressively between the Ground Floor and First Floor levels, with the lowest landing above the Ground Floor FFL and the principal First Floor landing at approximately 8.92 m AOD, providing 3.66 m of vertical clearance above the modelled 0.5% AEP plus climate change 2115 undefended design flood level (5.26 m AOD).

7.1.1 Flat 1 — Vertical Refuge

Flat 1 (front flat) accesses the vertical refuge via the following route:

- From within Flat 1's Upper Ground Floor accommodation (FFL 6.35 m AOD — main living/bedroom/kitchen) — directly to the internal communal stair lobby.
- From the communal stair lobby, the existing stair rises to the First Floor Front flat (FFL approximately 8.92 m AOD per indicative topographical drawing TS-001 Rev A May 2026) and then to the Second Floor (FFL approximately 12.12 m AOD) and Third Floor flats above.
- The route is fully internal to the building and is not exposed to any external flood-affected space.
- Flat 1's lower-level shower-room (FFL 5.95 m AOD) is within the same flat envelope and is accessed by an internal step from the main accommodation. In an extreme event with water at the design level (5.26 m AOD), the shower-room would remain dry by virtue of its 0.69 m freeboard (exceeding the 600 mm preferred allowance), and the occupants would in any event move to the higher main accommodation and from there to the upper-floor refuge.

The vertical refuge route for Flat 1 is therefore robust, internal, and provides escape from the design flood level to a refuge at 8.92 m AOD or higher — a vertical clearance of 3.66 m above the design flood level.

7.1.2 Flat 2 — Vertical Refuge

Flat 2 (rear flat) is wholly at Lower Ground Floor FFL 5.95 m AOD. The vertical refuge for Flat 2 is accessed via the existing internal corridor connecting Flat 2 to the communal stair, then up the communal stair to the upper-floor flats. The client has confirmed (correspondence 18 May 2026) that this internal corridor and the communal stair landings sit above the design flood level (5.26 m AOD), so the refuge route is not flood-affected at any point along its length. The critical design considerations for Flat 2 are that:

- Flat 2 occupants must NOT need to pass through Flat 1 to reach the refuge route, since Flat 1 is a separate dwelling and access cannot be guaranteed.

- Flat 2 occupants must NOT need to pass through any external space (e.g. the rear courtyard or the front pavement) to reach the refuge route, since external space may be flood-affected during the event.

The architect's drawing DS/MARINEGF/01 Rev 3 shows that Flat 2 has direct access to the existing internal communal stair via the existing internal corridor and lobby arrangement. This corridor and lobby is wholly internal to the building, runs along the north side of Flat 1 without entering Flat 1's habitable space, and connects directly to the communal stair lobby on the south side of the building. The route is therefore fully internal and independent of Flat 1.

It is recommended that the architect confirms this internal route remains unobstructed by any internal subdivisions added during the conversion works, and that the route is retained free of internal locked doors that would prevent emergency access by Flat 2 occupants. A fire/security door between Flat 2 and the communal corridor is appropriate and indeed required by Building Regulations Approved Document B, but this door must be openable from inside Flat 2 without a key (per Building Regulations Approved Document M and Approved Document B fire egress requirements) and must remain operational in the event of power loss.

The vertical refuge route for Flat 2 is therefore robust, internal, independent of Flat 1, and provides escape from the design flood level to a refuge at the First Floor (8.92 m AOD) and Second Floor (12.12 m AOD) — a vertical clearance of 3.66 m above the design flood level (5.26 m AOD) to the First Floor, and 6.86 m above the design flood level to the Second Floor, with the corridor and stair landings between Flat 2 and the First Floor also confirmed by the client as above the design flood level.

7.1.3 Pre-arranged Use Agreement with Upper Floor Residents

As the vertical refuge route relies on access to the existing upper-floor flats' communal stair and landings, a pre-arranged use agreement between the new ground floor occupants and the upper-floor residents is recommended. In practice this is no different from the existing arrangement (the upper-floor flats already share the communal stair as their primary fire escape route, and the ground floor occupants of the previous bar use also used the same stair as fire escape). The proposed FWEP (Section 8) will record this shared arrangement and confirm to all occupants that the upper-floor stair landings constitute legitimate vertical refuge during a tidal flood event.

7.2 Safe Egress Routes

Egress from the application site is principally via the communal entrance on Marine Parade (south elevation, at FFL 6.35 m AOD with pavement at 5.70 m AOD). On stepping out onto the pavement, occupants would find themselves on the elevated pavement at 5.70 m AOD; the immediate Marine Parade carriageway lies approximately 700 mm below the pavement at approximately 5.00 m AOD.

Two egress routes have been assessed against the EA Product 4 modelled depths along each route:

- **Eastern route:** From Marine Parade, eastwards approximately 50 m to Bath Place; northwards along Bath Place / South Street; continuing northwards across Warwick Street; further northwards along Chapel Road to the dry refuge zone (Ambrose Place / Christ Church area at approximately 5.90 m AOD).
- **Western route:** From Marine Parade, westwards along the seafront pavement to West Buildings; northwards along West Buildings / New Street; turning eastwards along Shelley Road; continuing to the dry refuge zone (Salisbury Road / Westbrooke at approximately 6.00 m AOD).

Both routes ultimately lead to dry ground; however, the modelled depths along the routes during the design event mean that walking egress is not safe during the design event. Egress is therefore

configured as a PRE-EVENT activity — occupants leave the building in advance of forecast flood events, in response to EA Flood Warnings. The detailed depth analysis along each route is provided in Section 7.3 below.

7.3 Modelled Levels Along Access Routes

EA Product 4 EIR2026/21621 (eastern route, dated 18 May 2026) and EIR2026/21627 (western route, dated 18 May 2026) provide modelled flood levels and depths at nodes along each route. The full Product 4 returns are presented at Appendix B. The key modelled depths are reproduced below.

7.3.1 Eastern Route — Bath Place / South Street / Warwick Street / Chapel Road

Node (along route, south to north)	Defended 0.5% AEP (2012) depth	Defended 0.5% AEP (2070) depth	Undefended 0.5% AEP (2115) depth	Safe to wade?
Node 1 (E 514833 / N 102398, Bath Place south)	—	0.33 m	0.38 m	Marginal
Node 2 (E 514848 / N 102354, Marine Parade)	0.06 m	0.22 m	0.27 m	Marginal
Node 3 (E 514908 / N 102373, Marine Parade east)	0.13 m	0.29 m	0.37 m	Marginal
Node 4 (E 514956 / N 102397, South Street south)	0.05 m	0.08 m	0.32 m	Marginal
Node 5 (E 514938 / N 102460, South Street / Liverpool Road)	0.60 m	0.76 m	0.81 m	NO
Node 6 (E 514939 / N 102527, Liverpool Road / Warwick St)	0.57 m	0.73 m	0.78 m	NO
Node 7 (E 514924 / N 102604, Chapel Road / Warwick St N)	Dry	Dry	Dry	REFUGE
Node 8 (E 514897 / N 102703, Chapel Road)	Dry	Dry	Dry	REFUGE
Node 9 (E 514875 / N 102786, Chapel Road / Ambrose Pl)	Dry	Dry	Dry	REFUGE

Table 9: Modelled flood depths along the eastern egress route (EA Product 4 EIR2026/21621). Nodes 1-4 in the immediate site vicinity show marginal depths (0.05-0.38 m) — at the upper end of these depths, wading is not safe per EA guidance. Nodes 5 and 6 (the Liverpool Road / Warwick Street junction) show DEEP flooding (0.6-0.81 m) — wading is unsafe at any depth in this range. Nodes 7, 8 and 9 (Chapel Road north of Warwick Street) are DRY in all modelled scenarios and constitute the dry refuge zone, approximately 200 m north of the application site.

The eastern route therefore provides a dry refuge zone in the vicinity of Chapel Road / Ambrose Place (Nodes 7-9), but requires passage through a zone of deep flooding (Nodes 5-6) to reach it. Walking egress along this route during the design event is NOT safe in line with EA guidance (300 mm depth limit for adult wading). Egress along this route is therefore feasible only as a PRE-EVENT activity (before flood waters rise) or as a POST-EVENT activity (after flood waters recede).

7.3.2 Western Route — West Buildings / New Street / Shelley Road

Node (along route)	Defended 0.5% AEP (2012) depth	Defended 0.5% AEP (2070) depth	Undefended 0.5% AEP (2115) depth	Safe to wade?
Node 10 (E 514846 / N 102381, Marine Parade at site)	0.35 m	0.51 m	0.56 m	NO
Node 9 (E 514814 / N 102345, Marine Parade west)	0.10 m	0.20 m	0.25 m	Marginal
Node 8 (E 514713 / N 102329, Marine Parade further west)	0.17 m	0.29 m	0.35 m	Marginal
Node 7 (E 514596 / N 102304, Marine Parade / West Buildings)	0.04 m	0.13 m	0.28 m	Marginal
Node 6 (E 514505 / N 102310, West Buildings)	Dry	Dry	0.31 m	Marginal
Node 5 (E 514499 / N 102395, New Street south)	Dry	Dry	0.26 m	Marginal
Node 4 (E 514490 / N 102476, New Street)	Dry	Dry	Dry	REFUGE
Node 3 (E 514479 / N 102558, Shelley Road)	Dry	Dry	Dry	REFUGE
Nodes 1-2 (Westbrooke / Salisbury Road)	Dry	Dry	Dry	REFUGE

Table 10: Modelled flood depths along the western egress route (EA Product 4 EIR2026/21627). The western route shows shallower depths than the eastern route. The defended scenarios (the most likely future scenarios under the SMP Hold the Line policy) are wholly within the safe wading depth limit of 300 mm from Node 9 westwards (i.e. once approximately 30 m west of the application site). Nodes 4 and onwards (New Street north, Shelley Road, Westbrooke, Salisbury Road) are DRY in all modelled scenarios and constitute a dry refuge zone approximately 350 m north-west of the application site.

The western route is preferable to the eastern route for in-event egress: shallower depths along the route generally, no zone of deep flooding equivalent to the eastern route's Liverpool Road / Warwick Street junction, and the dry refuge zone is reached at approximately Node 4 (Shelley Road via New Street). However, the immediate exit from the building (Node 10 at the building frontage) shows 0.51 m depth in the defended 2070 scenario, which is too deep for safe wading.

The combined conclusion is that walking egress during the design event is NOT a safe in-event activity along either route. The primary in-event strategy is vertical refuge to the upper-floor flats via the internal communal stair (Section 7.1). The secondary strategy is PRE-EVENT egress — leaving the building in advance of the flood event in response to EA Flood Warnings — which is the role of the Flood Warning and Evacuation Plan in Section 8.

7.4 Egress Route Summary

Strategy	Description
Primary in-event refuge	Vertical refuge to upper-floor flats (First Floor FFL 8.92 m AOD per indicative topographical drawing TS-001 Rev A; Second Floor 12.12 m AOD) via internal communal stair. Available to occupants of both flats, accessed from within each

Strategy	Description
	flat without passing through external space or through the other flat. Corridor and stair landings confirmed above the design flood level.
Secondary pre-event egress	Walking or vehicular egress in advance of forecast events (>2 hours' lead time provided by EA Flood Alerts and Warnings). Preferred route: westwards along Marine Parade to West Buildings / New Street / Shelley Road dry zone (~350 m). Alternative route: north-eastwards via Bath Place / South Street to Chapel Road / Ambrose Place dry zone (~200 m).
Tertiary in-event egress (extreme circumstances only)	Where vertical refuge is for any reason not available (e.g. structural concerns about the building), in-event egress to be undertaken westwards along Marine Parade to West Buildings, accepting the marginal wading conditions. Westward route preferred over north-eastern route due to absence of the deep Liverpool Road / Warwick Street zone. Occupants advised NOT to attempt wading where depth is uncertain or exceeds 300 mm.
Post-event reinstatement	Walking egress along either route once flood waters have receded. Building re-occupation only after building safety and electrical safety are confirmed, per the FWEP.

Table 11: Egress strategy summary. The primary in-event safety strategy is vertical refuge within the building; egress is the pre-event evacuation strategy.

It should be noted that the architect's Rev 3 plans show the existing rear fire-exit door on the north elevation "blocked up" as part of the conversion works. The professional view of this assessor is that the rear fire-exit blocking has limited adverse flood-safety effect for the following reasons: the rear alleyway at level 5.15 m AOD lies below the design flood level (5.26 m AOD) and would flood before the front pavement; the rear alleyway terminates in an enclosed yard arrangement with no through-route to Bath Place or Montague Place at the design flood level (per the OS topography); and the primary in-event safety strategy is vertical refuge to the upper-floor flats via the internal stair, accessed independently of any rear exit. The blocking up of the rear fire-exit is therefore not a flood-safety concern for this FRA. (It may, however, have implications for Building Regulations Approved Document B compliance — a separate matter for the architect to resolve with the local Building Control office.)

8. Flood Warning and Evacuation Plan Framework

A bespoke Flood Warning and Evacuation Plan (FWEP) forms the operational layer of the integrated mitigation strategy (Layer 8 of the layered defence — see Section 6.1) for the proposed development. The FWEP records the procedures and trigger points for action by the occupants of the two new flats in response to EA Flood Alerts and Warnings, and is to be made available to occupants and tenants on permanent display within each flat. It is appropriate for the FWEP to be produced as a standalone document, separate from this FRA, prior to first occupation.

The framework for the FWEP is set out below to inform the production of the standalone FWEP document.

8.1 Registration with EA Flood Warnings Direct

The applicant and future occupants should register with the EA Flood Warnings Direct service (free of charge) via www.gov.uk/sign-up-for-flood-warnings or by calling Floodline on 0345 988 1188. The site is within the EA's coastal flood warning area for the West Sussex coast (covering Worthing seafront). Both Flat 1 and Flat 2 occupants should be registered separately.

8.2 Trigger Levels and Actions

EA Warning Stage	Recommended Occupant Action
Flood Alert ("Be prepared")	Check EA online flood information for latest update. Identify position of demountable flood barriers and ensure no obstruction. Move valuables to high level. Identify route to vertical refuge (upper-floor flats) and rehearse with all occupants. Confirm registration details with EA FWD are current.
Flood Warning ("Flooding is expected — immediate action required")	Decision point: either evacuate (preferred if lead time permits) or shelter in place. If evacuating: walk westwards along Marine Parade or drive away from the seafront. Take essential documents, medications, mobile phones and chargers. If sheltering: deploy demountable flood barriers at front entrance, ensure all flood doors are closed, isolate ground floor electrical circuits, move all occupants and pets to a flat on an upper floor (pre-arranged with upper-floor occupants), maintain mobile phone contact with EA Floodline.
Severe Flood Warning ("Severe flooding — danger to life")	Move all occupants to upper-floor refuge IMMEDIATELY. Call 999 if life is in immediate danger. Remain in upper-floor refuge until advised by emergency services that it is safe to descend. Do NOT attempt wading egress in a Severe Flood Warning situation.
Flood Warning Withdrawn / Post-Event	Wait for flood waters to recede fully before descending from refuge. Do NOT re-occupy ground floor until building safety is checked (structural integrity, electrical safety, contamination). Document damage with photographs for insurance. Pump out any residual water from basement / sub-floor void using the installed sump pump. Contact building management agent and insurance.

Table 12: FWEP trigger levels and recommended actions. The FWEP document will provide expanded guidance on each action with emergency contact details, building manager contact, and a printable summary suitable for permanent display within each flat.

9. EA Standing Advice Checklist

The following table demonstrates compliance with the EA's site-specific flood risk assessment checklist for development in flood risk areas (per the EA's standing advice for flood risk assessments, most recently updated October 2025).

Checklist Item	Response / Reference
Has the flood risk to the site been assessed from all sources?	Yes — Sections 4.2 (tidal), 4.3 (fluvial), 4.4 (surface water), 4.5 (groundwater), 4.6 (sewer), 4.7 (reservoir), 4.8 (artificial / canals / ordinary watercourses).
Is the site in Flood Zone 2 or 3? Is an FRA required?	Yes — Flood Zone 3 confirmed (EA FMfP, 5 May 2026). FRA required and provided.
Has the Sequential Test been applied?	Yes — Section 3.4. Test is the LPA's responsibility. Site-specific test considered satisfied. LPA invited to confirm.
Is the Exception Test required and satisfied?	Yes — More Vulnerable in FZ3a requires both parts of the Exception Test. Both Parts considered satisfied for both Flat 1 and Flat 2 independently (Section 3.5).
Has flood risk vulnerability been assessed?	Yes — C3 dwellings classified as More Vulnerable (PPG Table 2).
Has climate change been considered?	Yes — Design flood level 5.26 m AOD adopted as 0.5% AEP plus climate change to 2115 epoch (undefended). Lifetime considered as 100 years. Sea level rise per UKCP18 / EA February 2025 allowances guidance (Section 4.2.3).
Has the design been flood resilient and resistant?	Yes — Layered mitigation: FFLs above lifetime design flood level (Section 6.2); flood-resistant external envelope to 5.86 m AOD (Section 6.3); flood-excluded sub-floor void and basement (Sections 6.4 and 6.5); flood-resilient internal finishes (Section 6.6); raised electrical services; non-return valves; vertical refuge to upper-floor flats (Section 7).
Has safe access and egress been considered?	Yes — Section 7. Primary strategy is vertical refuge to upper floors via internal communal stair (available to both flats independently). Secondary strategy is pre-event egress in response to EA Flood Warnings. Western egress route preferred (West Buildings / Shelley Road, ~350 m).
Has the impact on flood risk elsewhere been assessed?	Yes — Section 5. No new building footprint, no change to external ground levels, no obstruction to flood pathways, no new outfall, no flood storage displacement. The development has a zero net effect on regional flood risk. No floodplain compensation is required.
Has surface water drainage been addressed?	Yes — Section 4.4 and Section 5.3. No change to roof area or impermeable surfaces. Existing surface water drainage arrangement retained. No new SuDS works required for this internal conversion.
Has a Flood Emergency Plan been provided?	Yes — FWEP framework provided at Section 8. A bespoke FWEP should be produced as a standalone document prior to occupation, as part of the operational mitigation strategy (Layer 8 of the layered defence approach). EA Flood Warnings Direct registration is strongly encouraged for both flat occupants.
Riparian responsibilities / Flood Risk	Not applicable — no Main River within tidal influence at the site; no

Checklist Item	Response / Reference
Activities?	in-channel or bankside works proposed; no new outfall. Site not within 16 m of any registered tidal defence in the EA Asset Management database.
Wave overtopping considered?	Yes — Section 4.2.4. Proportionate treatment in the context of an internal conversion with no external works; dry-proof envelope to 5.86 m AOD provides resilience to wave run-up and spray penetration. Detailed coastal wave overtopping assessment to be procured separately if requested by EA at planning consultation stage.
Non-habitable basement treatment?	Yes — Section 6.5. Basement is a narrow strip beneath the southern end of Flat 1 (width of the commonway only), not accessible under the proposed plans (existing access removed), retained as non-habitable, treated as flood-excluded by tanking, sump and pump, non-return valves. The non-habitable use is integral to the Exception Test Part 2 safety case.
FWEP and vertical refuge strategy for each unit independently?	Yes — Sections 7.1.1 (Flat 1) and 7.1.2 (Flat 2). Each flat has an independent internal route to the communal stair without passing through the other flat or through external space. Communal corridor and stair landings confirmed by client (correspondence 18 May 2026) as above the design flood level.
Suitability of flood risk datasets appraised? (EA standing advice October 2025)	Yes — Section 4.2.2 and Section 1.3. Primary dataset is EA Product 4 EIR2026/21610 (dated 18 May 2026, JBA Arun to Adur Coastal Model 2012) — confirmed as the current operative model for the Worthing seafront and supplied by the EA in response to a formal data request. Climate change methodology reviewed against current EA February 2025 allowances guidance (Section 4.2.3). The Adur and Worthing Level 1 SFRA (2024 update) and Level 2 SFRA (July 2020) consulted for local context. EA FMfP queried at NaFRA2-equivalent currency (5 May 2026). Dataset combination considered fit for purpose for this site and proposal.
All levels stated in Ordnance Datum? (EA standing advice October 2025)	Yes — All levels in this assessment are stated in metres Above Ordnance Datum (m AOD Newlyn). See Section 2.3 (site levels), Section 4.2.2 (flood levels), Section 6.2 (FFL compliance) and the Site Levels table at Table 3. Pavement datum adopted at 5.70 m AOD from altimeter measurement on the architect's section drawing.

Table 13: EA Standing Advice Checklist completion record for 42 Marine Parade. All applicable items addressed.

10. Conclusions

This Flood Risk Assessment has been prepared by Flood Risk Environmental on behalf of Deadspace Developments / Designs in support of a planning application to Worthing Borough Council for the change of use and internal conversion of the vacant ground floor commercial unit (formerly a licensed bar, sui generis) at 42 Marine Parade, Worthing, BN11 3QA to two self-contained one-bedroom Class C3 residential flats. The key findings are:

- The site lies within Flood Zone 3 on the EA Flood Map for Planning, with tidal flooding from the English Channel as the controlling source. The Worthing seafront is protected by an operational defence line (shingle beach, seawall, elevated promenade pavement) under a Shoreline Management Plan policy of "Hold the Line" over the short, medium and long term, providing confidence that the defences will be maintained for the 100-year design lifetime of the residential development.
- EA Product 4 (EIR2026/21610, dated 18 May 2026) returns modelled flood levels at three building-internal nodes for the 0.5% AEP and 0.1% AEP scenarios both in defended and undefended configurations and for the 2070 and 2115 climate change epochs. The most onerous lifetime tidal flood level is the 0.5% AEP plus climate change (2115) undefended scenario at 5.26 m AOD, which is adopted as the design flood level for this assessment.
- The proposed Finished Floor Levels of 6.35 m AOD (Upper Ground Floor — Flat 1 main accommodation) and 5.95 m AOD (Lower Ground Floor — Flat 1 shower-room and the whole of Flat 2) both sit above the design flood level. The Upper Ground Floor provides 1.09 m freeboard (comfortably exceeding the 600 mm EA preferred allowance). The Lower Ground Floor provides 0.69 m freeboard above the undefended 2115 design event and 0.74 m freeboard above the operative defended 0.5% AEP 2070 event, with both freeboards exceeding the 600 mm EA preferred allowance.
- Risks from fluvial flooding, surface water flooding, groundwater flooding, sewer flooding, reservoir flooding and artificial sources are individually assessed as Negligible, Very Low, Low, Low, Negligible and Negligible respectively.
- The proposed C3 dwellings are classified as More Vulnerable. The Sequential Test is the LPA's responsibility and is considered satisfied on a site-specific basis (intrinsically tied to the existing vacant commercial unit; brownfield reuse; no greenfield encroachment). The Exception Test Part 1 (wider sustainability benefits — housing supply, embodied carbon retention, reactivation of vacant unit, amenity improvement for neighbours, sustainable town-centre location) and Part 2 (development is safe for its lifetime — for both Flat 1 and Flat 2 independently, by virtue of FFLs above design flood level, layered mitigation strategy, vertical refuge to upper floors, FWEP) are both considered satisfied.
- An integrated, layered flood mitigation strategy is proposed (Section 6), comprising: (i) FFLs retained as set out on the architect's drawings; (ii) flood-resistant external envelope to 5.86 m AOD (south, west, north elevations); (iii) flood-exclusion treatment of the suspended timber sub-floor void (tanked perimeter, self-closing air bricks, sealed services, sump and pump); (iv) flood-exclusion treatment of the basement (retained as non-habitable, tanked, sump and pump, non-return valves on drainage); (v) flood-resilient internal finishes throughout both flats; (vi) raised electrical services to ≥ 1.0 m above FFL; (vii) vertical refuge for occupants of both flats to the existing upper-floor flats via the internal communal stair; and (viii) a bespoke Flood Warning and Evacuation Plan.

On the basis of the above, and subject to the implementation of the flood risk mitigation measures set out in Section 6, the proposed development is acceptable in flood risk terms and is consistent with the

requirements of the NPPF (December 2024), the PPG on Flood Risk and Coastal Change, Policy DM20 (Flood Risk and Sustainable Drainage) of the Worthing Local Plan 2020-2036 (adopted 28 March 2023), the 2024 Adur and Worthing Level 1 Strategic Flood Risk Assessment supported by the 2020 Level 2 SFRA, the Solent and South Downs Shoreline Management Plan, and the Environment Agency's standing advice for development within Flood Zone 3 (most recently updated 22 October 2025).

11. References

The following data sources, guidance documents and policy instruments have been referenced in the preparation of this Flood Risk Assessment:

Statutory Planning Documents

- National Planning Policy Framework (NPPF), December 2024. Ministry of Housing, Communities and Local Government.
- Planning Practice Guidance — Flood Risk and Coastal Change (most recent update September 2025). Ministry of Housing, Communities and Local Government.
- Worthing Local Plan 2020-2036, formally adopted 28 March 2023. Worthing Borough Council. Relevant policy: DM20 (Flood Risk and Sustainable Drainage).
- Adur and Worthing Level 1 Strategic Flood Risk Assessment, 2024 (JBA Consulting on behalf of Adur District Council and Worthing Borough Council). Supersedes the 2020 Level 1 SFRA.
- Adur and Worthing Level 2 Strategic Flood Risk Assessment, July 2020 (JBA Consulting on behalf of Adur District Council and Worthing Borough Council). Site-specific Level 2 evidence base supporting the Worthing Local Plan.
- Adur and Worthing SFRA Sequential Test Methodology, July 2024.
- Adur and Worthing SFRA Drainage Water Management Plans (DWMP) Review — Southern Water, December 2023.

EA Guidance and Data Products

- EA Flood Map for Planning, generated 5 May 2026 (OS E/N 514 847 / 102 374).
- EA Product 4 (Flood Risk Assessment Data) — Customer Reference EIR2026/21610, dated 18 May 2026 (site).
- EA Product 4 — Customer Reference EIR2026/21621, dated 18 May 2026 (eastern access/egress route).
- EA Product 4 — Customer Reference EIR2026/21627, dated 18 May 2026 (western access/egress route).
- EA Risk of Flooding from Surface Water (RoFSW) dataset.
- EA Long Term Flood Risk service.
- EA Reservoir Flood Maps.
- EA Recorded Flood Outlines (Past Floods data).
- EA Solent and South Downs Area Pre-application Advice Note, September 2019.
- EA Flood Risk Assessments: Climate Change Allowances Guidance, most recent update February 2025.
- EA Standing Advice for Flood Risk Assessments, most recent update October 2025.
- Solent and South Downs Shoreline Management Plan (SMP).

Hydraulic Models and Datasets

- Arun to Adur Coastal Modelling, JBA Consulting (2012).
- UKCP18 sea level rise projections (UK Climate Projections, Met Office).

Technical Standards and Guidance

- BS 85500:2015 — Flood-Resistant and Resilient Construction. British Standards Institution.
- BS 8102:2022 — Code of practice for protection of below ground structures against water from the ground. British Standards Institution.
- BS EN 13564 — Anti-flooding devices for buildings.
- PAS 1188-1 — Flood Protection Products — Building apertures.
- PAS 1188-2 — Flood Protection Products — Building skirts.
- CIRIA C790 — Living with Water (2018).
- CIRIA C753 — The SuDS Manual (2015).
- Sewers for Adoption, 8th Edition (or equivalent — current Water UK / Code for Adoption).

Site-Specific Documents

- **Architect's Drawings — Deadspace Designs:**
 - DS/MARINEGF/01 Rev 3 — Plans and Elevations, dated 07/05/2026.
 - DS/MARINEGF/02 — Site Plan 1:500, dated 21/04/2026.
 - DS/MARINEGF/03 — Site Plan 1:1250, dated 21/04/2026.
 - Section through Existing Ground Floor, dated 15/05/2026.
 - Indicative Topographical Drawing TS-001 Rev A, May 2026 (held as supporting context; not relied upon for technical purposes per client instruction).
- Heritage Statement — Deadspace Designs, 17 April 2026.
- Design and Access Statement — Deadspace Designs, 16 April 2026.

Geological Data

- British Geological Survey (BGS) GeoIndex Onshore mapping.

Document Control

Revision	Date	Status	Prepared by	Reviewed by
Rev 1.0	May 2026	Initial Issue	Antony Riozzi BEng (Hons)	Antony Riozzi BEng (Hons)
Rev 1.1	May 2026	Surveyed altimeter datum (5.70 m AOD) adopted; indicative topographical drawing TS-001 Rev A incorporated; upper-floor refuge levels confirmed; basement scope clarified (commonway-width only, not accessible under proposed plans); Flat 2 internal corridor confirmed above design flood level.	Antony Riozzi BEng (Hons)	Antony Riozzi BEng (Hons)
Rev 1.2	May 2026	Pre-issue QA: policy citation corrected from generic SP1/DM10/DM11 to Worthing Local Plan Policy DM20 (Flood Risk and Sustainable Drainage); SFRA reference updated to 2024 Adur and Worthing Level 1 SFRA plus 2020 Level 2 SFRA and July 2024 Sequential Test Methodology; two checklist items added (dataset suitability appraisal and AOD levels) per EA standing advice 22 October 2025 update; Local Plan adoption date clarified (28 March 2023).	Antony Riozzi BEng (Hons)	Antony Riozzi BEng (Hons)
Rev 1.3	May 2026	Flood map figures inserted into Section 4 of the report: Figure 1 (EA Flood Map for Planning) in §4.2; Figures 2, 3 and 4 (EA Risk of Flooding from Surface Water at 1 in 30, 1 in 100 and 1 in 1,000 year return periods) in §4.4. Appendix structure restructured (A–G) and each appendix appended as a full-size PDF separated by a branded title page.	Antony Riozzi BEng (Hons)	Antony Riozzi BEng (Hons)
Rev 1.4	May 2026	Section 10 simplified to Conclusions only — recommendations section removed. FWEP repositioned as operational mitigation (Layer 8); §8.3 indicative condition wording offered for LPA's use.	Antony Riozzi BEng (Hons)	Antony Riozzi BEng (Hons)

Revision	Date	Status	Prepared by	Reviewed by
Rev 1.5	May 2026	All planning condition language removed throughout the report.	Antony Riozzi BEng (Hons)	Antony Riozzi BEng (Hons)
Rev 1.6	May 2026	All references to a formal topographical survey pending or being commissioned removed. Levels established from altimeter measurement on architect's section drawing (5.70 m AOD pavement datum) and TS-001 Rev A for upper-floor refuge levels and seafront context.	Antony Riozzi BEng (Hons)	Antony Riozzi BEng (Hons)

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Signed: _____

Antony Riozzi BEng (Hons)

Flood Risk Environmental

Date: May 2026

Appendices

The following appendices supplement this Flood Risk Assessment and are appended to this report as full-size PDF attachments. Each appendix is preceded by a title page for ease of reference at planning submission.

Appendix A — Site Location Plan and Site Plan

Site Location Plan (1:1250) and Site Plan (1:500) identifying the application site at 42 Marine Parade, Worthing BN11 3QA in its wider context on the Worthing seafront.

Appendix B — Architect's Drawings

Deadspace Designs drawings showing the existing ground floor arrangement and the proposed conversion to two C3 flats, including the Section through Existing Ground Floor which is the source of the surveyed pavement, FFL, basement and roof levels used in Section 2.3 of this assessment:

- DS/MARINEGF/01 Rev 3 — Plans and Elevations (Proposed Conversion), dated 07/05/2026
- Section through Existing Ground Floor, dated 15/05/2026

Appendix C — EA Flood Map for Planning

Environment Agency Flood Map for Planning report generated 5 May 2026, OS Easting/Northing 514 847 / 102 374, confirming the application site lies within Flood Zone 3 (high probability of flooding from rivers and the sea). This is the source of Figure 1 in Section 4.2.

Appendix D — EA Product 4: Application Site (EIR2026/21610)

Environment Agency Flood Risk Assessment Data (Product 4) return for the application site at 42 Marine Parade, dated 18 May 2026. Modelled tidal levels at four site nodes (defended and undefended scenarios) from the Arun to Adur Coastal Model (JBA Consulting, 2012). This is the source of Tables 5 and 6 in Section 4.2.2.

Appendix E — EA Product 4: Eastern Access/Egress Route (EIR2026/21621)

Environment Agency Flood Risk Assessment Data (Product 4) return for the eastern access/egress route (Marine Parade / Bath Place / South Street / Warwick Street / Chapel Road / Ambrose Place), dated 18 May 2026. Modelled tidal levels and depths at nine route nodes used in the safe egress analysis at Section 7.2.

Appendix F — EA Product 4: Western Access/Egress Route (EIR2026/21627)

Environment Agency Flood Risk Assessment Data (Product 4) return for the western access/egress route (Marine Parade west / West Buildings / New Street / Shelley Road / Salisbury Road / Westbrook), dated 18 May 2026. Modelled tidal levels and depths at ten route nodes used in the safe egress analysis at Section 7.2.

Appendix G — EA Solent and South Downs Pre-application Advice Note

Environment Agency Solent and South Downs Area Pre-application Advice Note for Flood Risk Assessments (September 2019). Standing pre-application guidance from the regional EA office

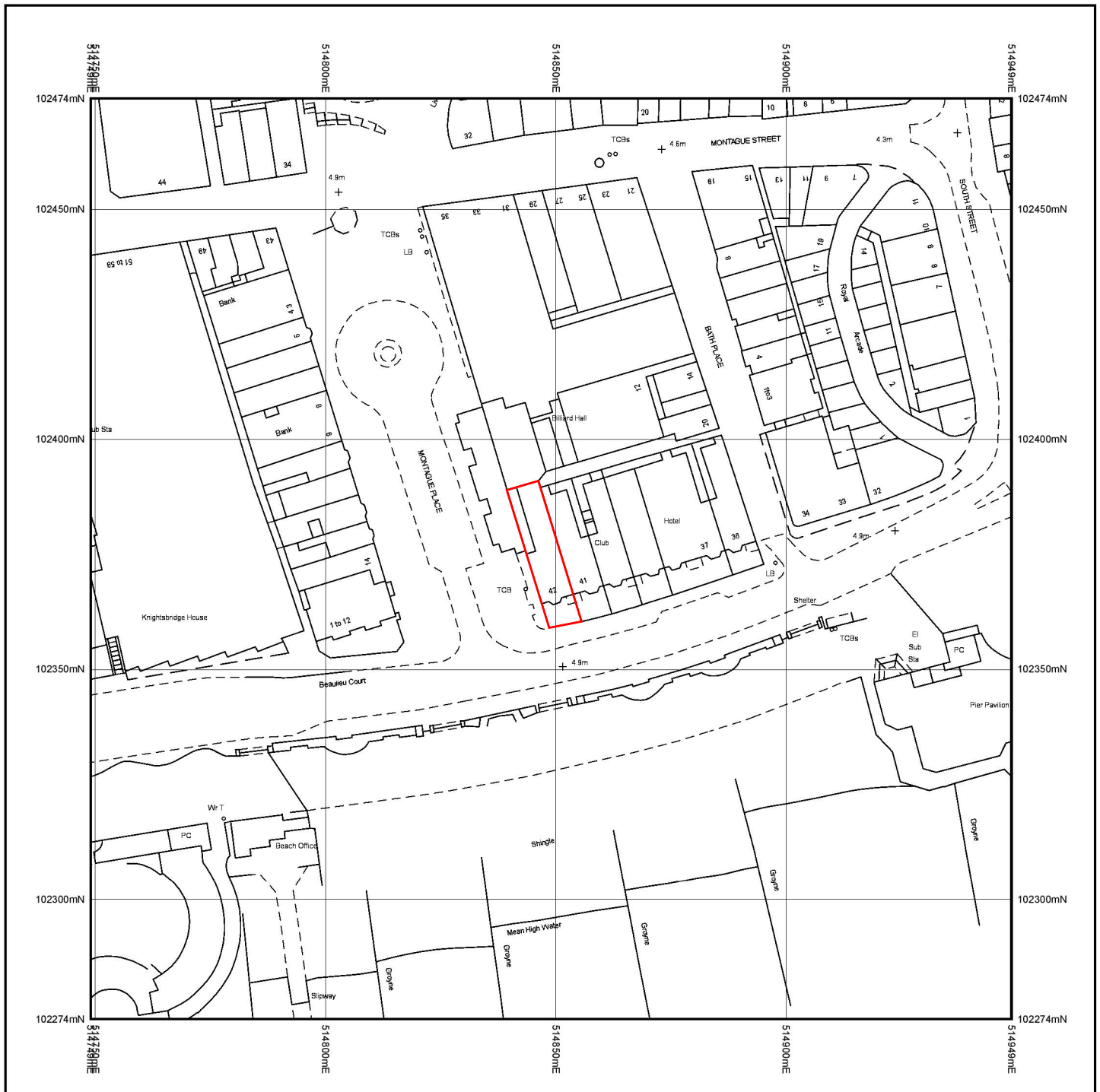
covering tidal flood risk, climate change allowances for the Southern River Basin District, and the EA's expectations for Flood Risk Assessments along the Sussex coast.

APPENDIX A

Site Location Plan and Site Plan

Site Location Plan (1:1250) and Site Plan (1:500) identifying the application site at 42 Marine Parade, Worthing BN11 3QA. The Site Location Plan shows the wider context on the Worthing seafront; the Site Plan shows the building footprint and immediate curtilage. Source: Deadspace Designs (DS/MARINEGF/02 and DS/MARINEGF/03).





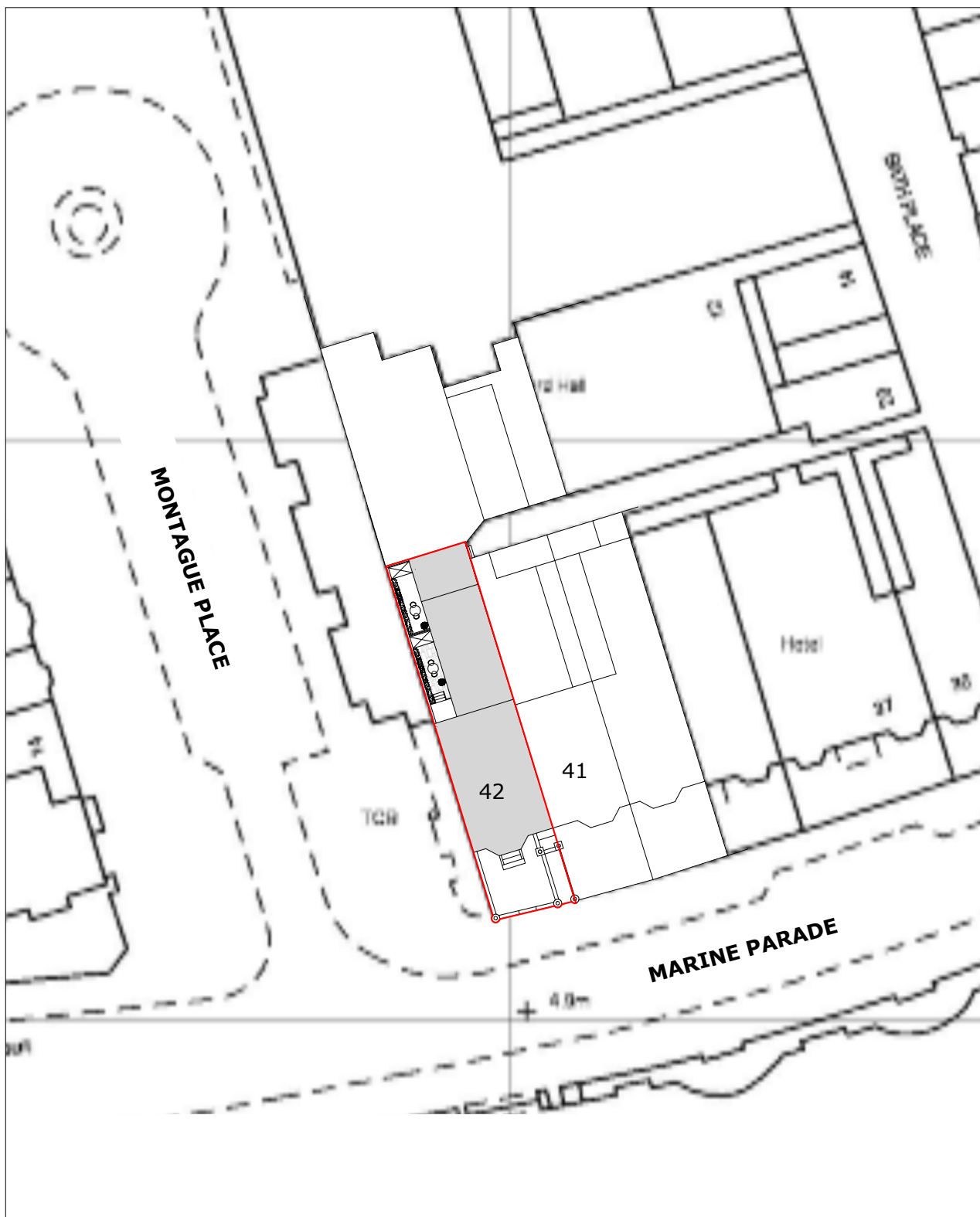
© Crown Copyright and database rights 2015 Ordnance Survey 100048957. The representation of road, track or path is no evidence of a boundary or right of way. The representation of features as lines is no evidence of a property boundary.

SITE PLAN 1:1250 @ A4 PAPER SIZE

Ground floor
42 Marine Parade
Worthing
West Sussex
BN11 3QA

DRWG No: DS/MARINEGF/03

21/04/2026



SITE PLAN 1:500 @ A4 PAPER SIZE

**Ground floor
42 Marine Parade
Worthing
West Sussex
BN11 3QA**

DRWG No: DS/MARINEGF/02

21/04/2026



NORTH

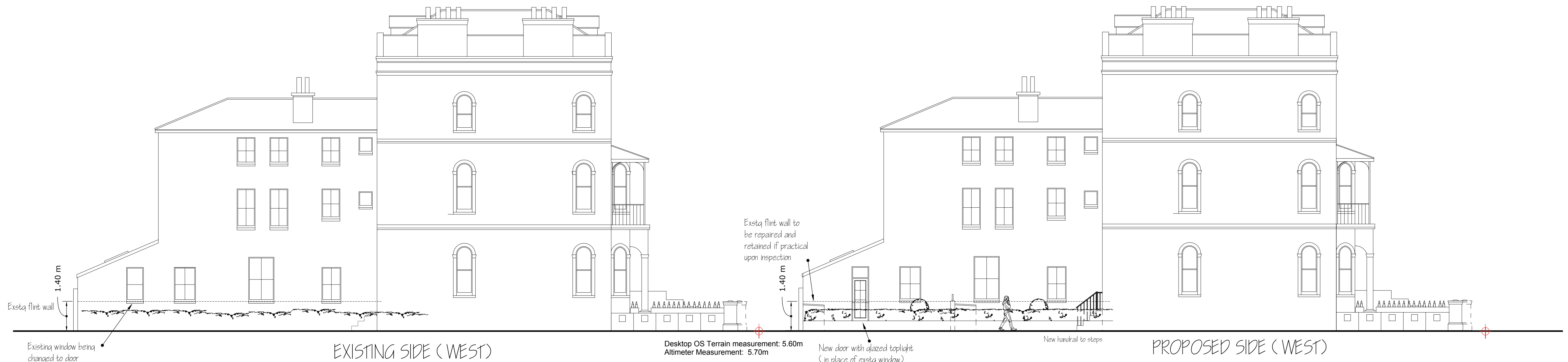
0 5 10 15 20 25m

APPENDIX B

Architect's Drawings

Deadspace Designs drawings showing the existing ground floor arrangement and the proposed conversion to two self-contained C3 flats, including the architect's Section through Existing Ground Floor which is the source of the surveyed pavement, FFL, basement and roof levels used in Section 2.3 of this assessment.





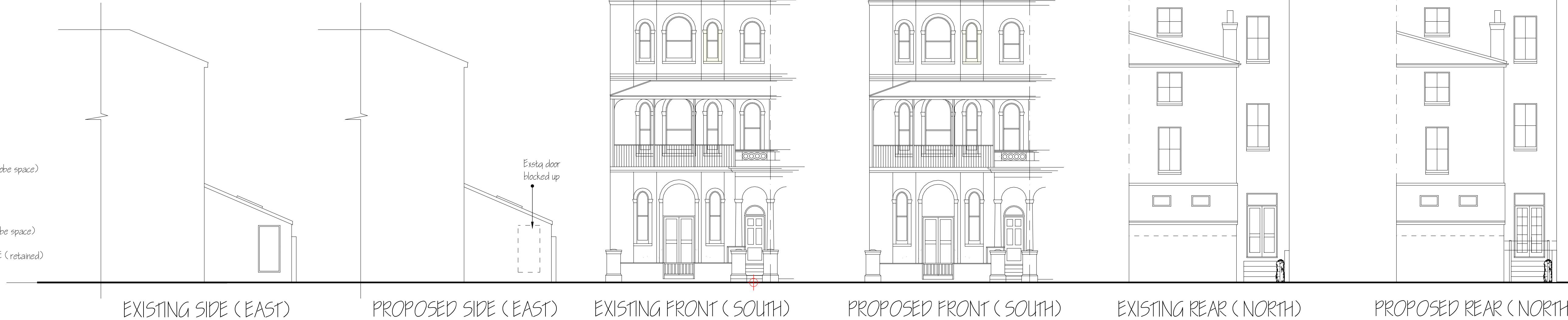
PROPOSED CONVERSION FROM
EXISTING BAR INTO 2x1 BEDROOM
GROUND FLOOR FLATS
(Existing flats upstairs unaffected)

EXISTING TOTAL SITE AREA = 216.19m²

GFF 1 = 54.76m² TOTAL GIA
BEDROOM = 14.10m² - DOUBLE
OUTSIDE SPACE (side) = 14.50m²
OUTSIDE SPACE (front) = 26.08m²
STORAGE = 1.54m² (incl allowable wardrobe space)

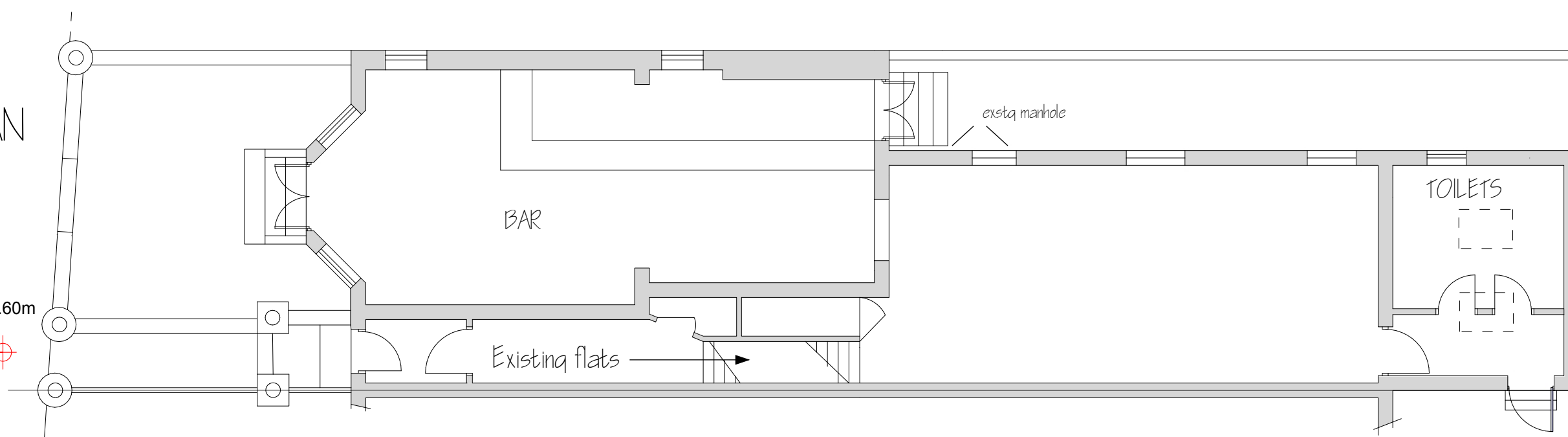
GFF 2 = 55.05m² TOTAL GIA
BEDROOM = 15.05m² - DOUBLE
OUTSIDE SPACE (side) = 11.10m²
STORAGE = 1.61m² (incl allowable wardrobe space)

EXISTING FLATS UPSTAIRS - NO CHANGE (retained)



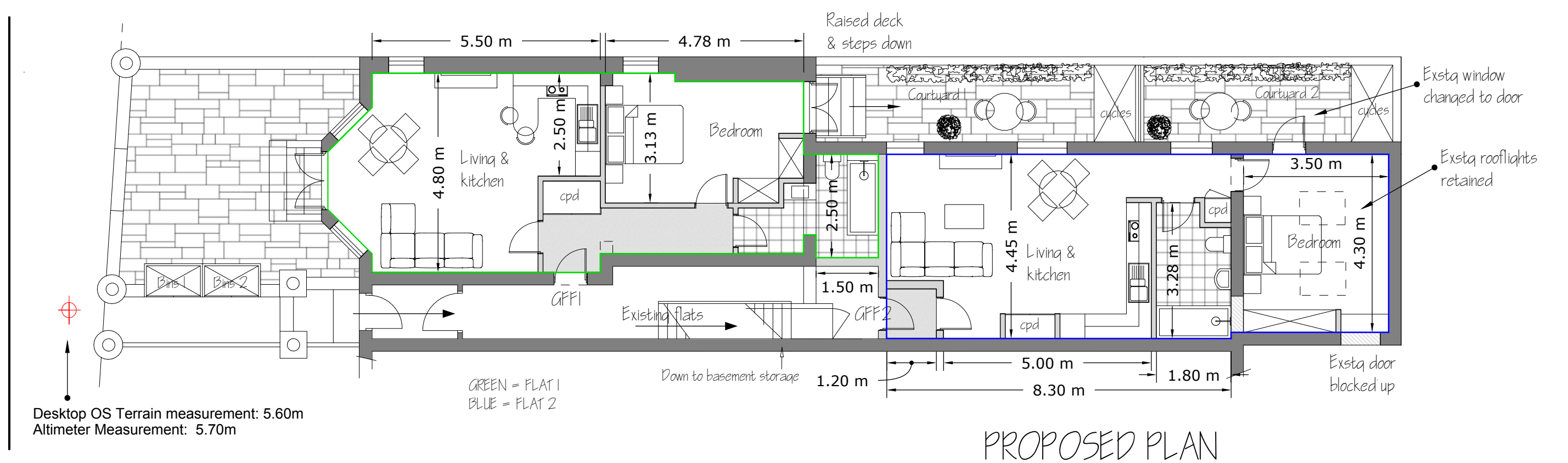
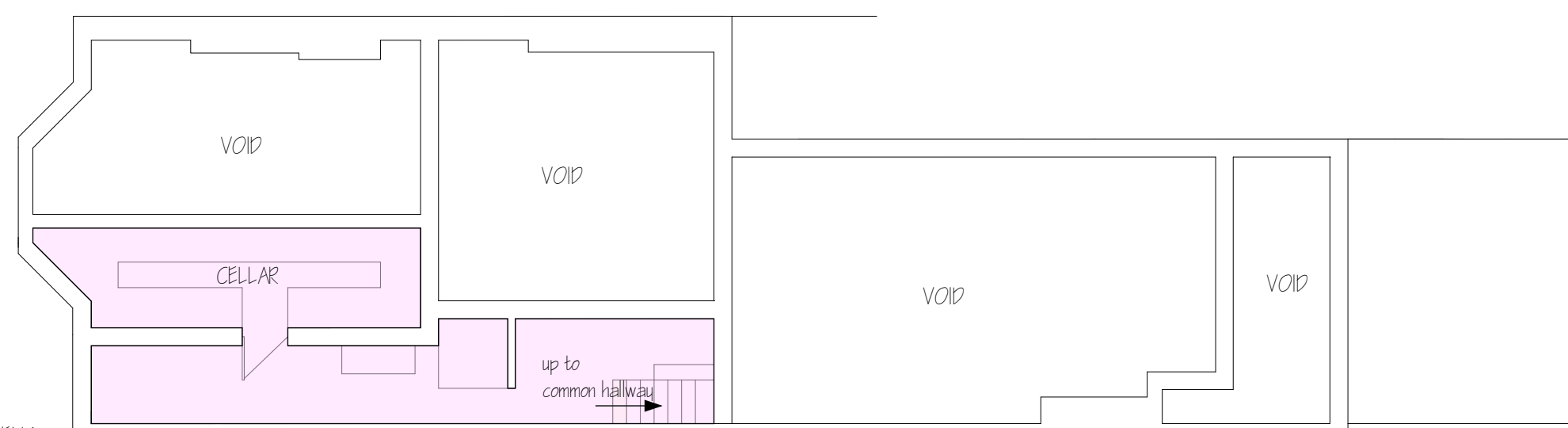
EXISTING PLAN

Desktop OS Terrain measurement: 5.60m
Altimeter Measurement: 5.70m

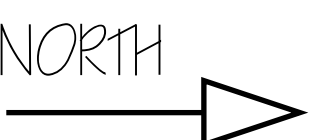


BASEMENT

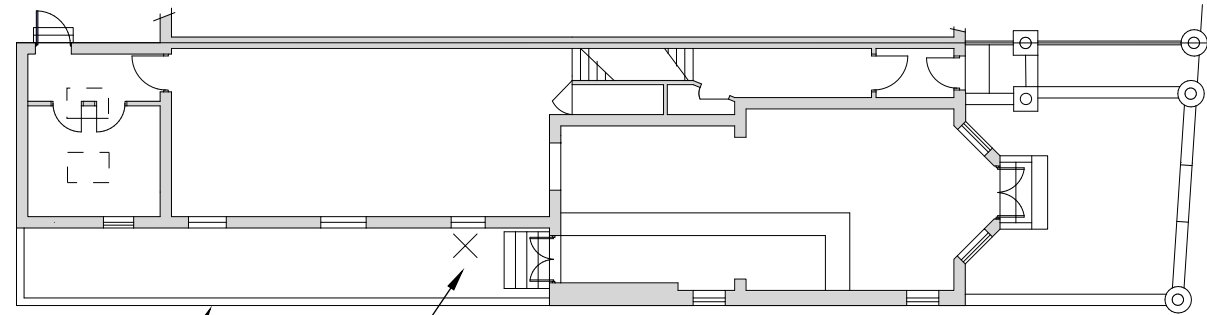
LOW CEILING HEIGHT - STORAGE / SERVICES ONLY
NO CHANGES AS PART OF APPLICATION / DEVELOPMENT



PROPOSED PLAN



EXSTG GF PLAN 1:200 @ A3



Desktop OS Terrain measurement: 5.60m
Altimeter Measurement: 5.70m

1.4m high
flint wall

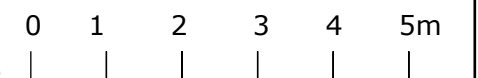
manhole



SECTION THROUGH EXISTING GROUND FLOOR

1:100 @ A3 paper size

SCALE BAR 1:100 @ A3 paper size



APPENDIX C

EA Flood Map for Planning

Environment Agency Flood Map for Planning report generated 5 May 2026, OS Easting/Northing 514 847 / 102 374, confirming the application site lies within Flood Zone 3 (high probability of flooding from rivers and the sea). This document is the source of Figure 1 in Section 4.2 of this assessment.



Flood map for planning

Your reference
Unspecified

Location (easting/northing)
514847/102374

Created
5 May 2026 16:23

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>)

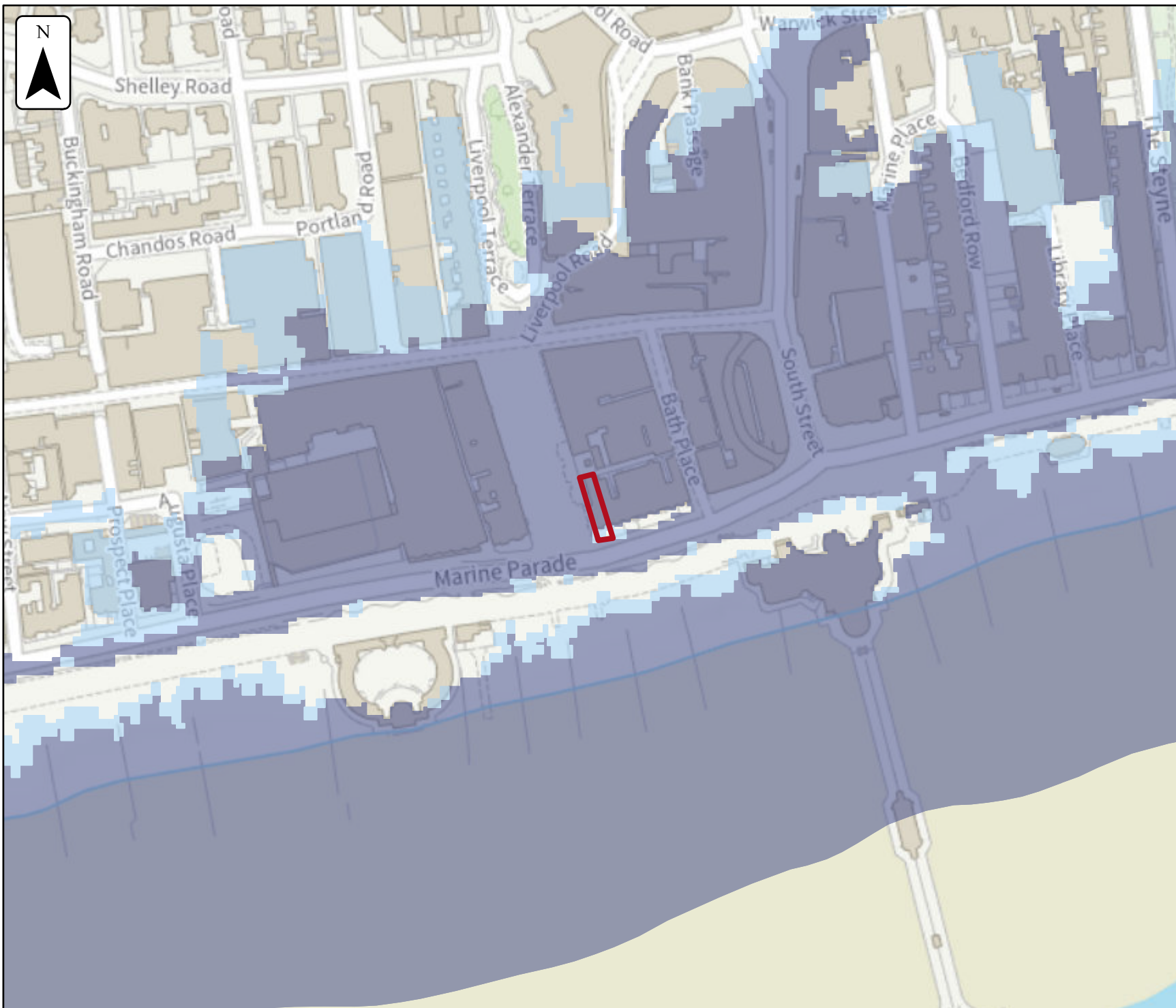
Notes

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 2026 AC0000807064. <https://flood-map-for-planning.service.gov.uk/os-terms>



Flood map for planning

Your reference

Unspecified

Location (easting/northing)
514847/102374

Scale
1:2,500

Created
5 May 2026 16:23

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


0 20 40 60m

APPENDIX D

EA Product 4: Application Site (EIR2026/21610)

Environment Agency Flood Risk Assessment Data (Product 4) return for the application site at 42 Marine Parade, dated 18 May 2026. Modelled tidal levels at four site nodes — three within the building footprint (Nodes 1, 2, 3) and one at the south-east corner of the site at pavement edge (Node 4) — for defended and undefended scenarios from the Arun to Adur Coastal Model (JBA Consulting, 2012). This document is the source of Tables 5 and 6 in Section 4.2.2 of this assessment.



Flood risk assessment data



Location of site: 42 Marine Parade, Worthing, BN11 3QA

Document created on: 18 May 2026

This information was previously known as a product 4.

Customer reference number: EIR2026/21610

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)
- modelled data
- modelled climate change 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
- flood defence locations and attributes

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 flooding 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.

We aren't able to display flood defence locations and attributes as there are no formal flood defences in the area of interest.

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

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

Terminology used

Annual exceedance probability (AEP)

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



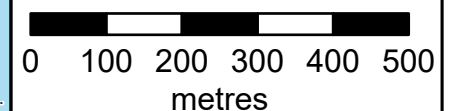
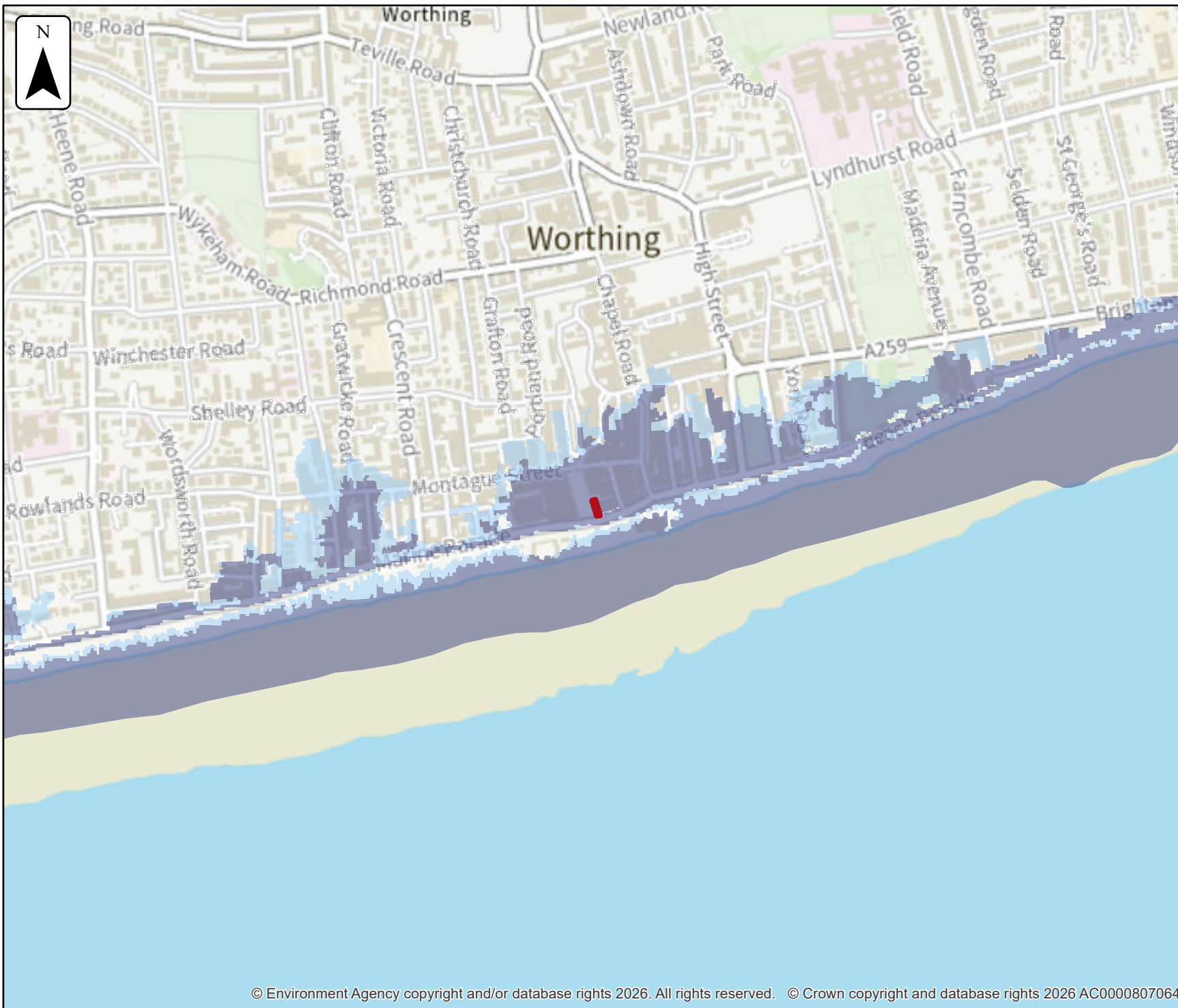
Flood map for planning

Location (easting/northing)
514847/102374

Scale
1:10,000

Created
18 May 2026

-  Selected area
-  Flood Zone 3
-  Flood Zone 2



Modelled data

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

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

Climate change

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

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

Modelled scenarios

The following scenarios are included:

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



Environment Agency



Legend

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

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

Scale: 1:10,000


0 0.225 0.45
Kilometers





Environment
Agency

N
▲

Legend

Site Boundary

0.5% AEP (2012) (Un defended)

0.5% AEP (2070) (Un defended)

0.5% AEP (2115) (Un defended)

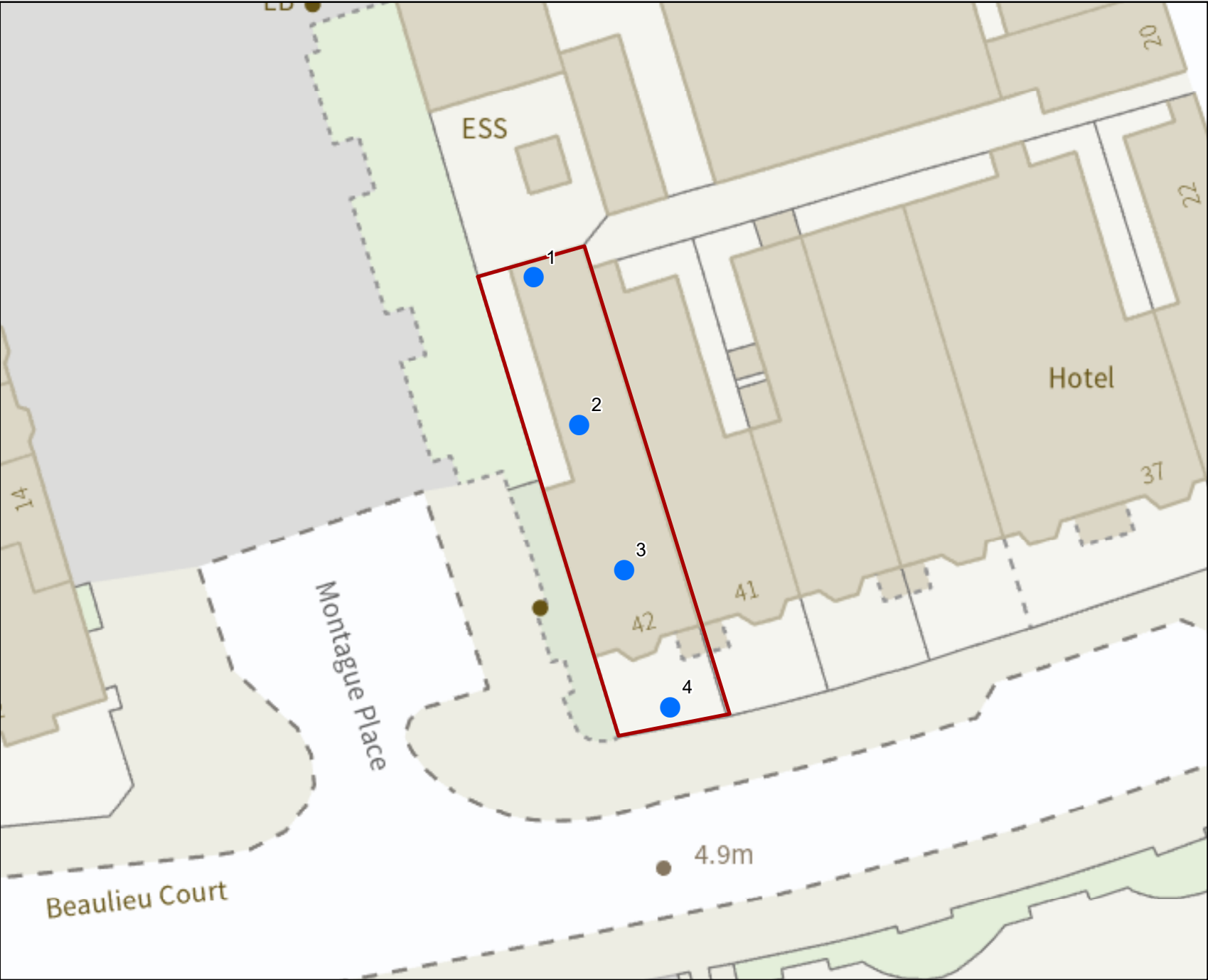
0.1% AEP (2012) (Un defended)

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

Scale: 1:10,000

00.2250.45

Kilometers





Environment
Agency

N
▲

Legend

- Site Nodes
- ▭ Site Boundary

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

Scale: 1:350

00.00750.015

Kilometers

Product 4 Flood Risk Data Requested by: Antony Riozzi

Site: 42 Marine Parade, Worthing, BN11 3QA

Table 1: Water Levels: Tidal Undefended

Node Ref	NGR		Modelled Flood Levels in Metres AOD			
	Eastings	Northings	Undefended Annual Exceedance Probability			
			0.5%	0.5% (2070)*	0.5% (2115)*	0.1%
1	514843	102389	-	-	5.26	-
2	514846	102379	-	-	5.26	-
3	514849	102370	-	-	5.26	-
4	514852	102361	-	-	-	-

Table 2: Water Levels: Tidal Defended

Node Ref	NGR		Modelled Flood Levels in Metres AOD			
	Eastings	Northings	Defended Annual Exceedance Probability			
			0.5%	0.5% (2070)*	0.5% (2115)*	0.1%
1	514843	102389	5.05	5.21	5.01	5.16
2	514846	102379	5.05	5.21	5.01	5.16
3	514849	102370	5.05	5.21	5.01	5.16
4	514852	102361	-	-	-	-

Table 3: Water Depths: Tidal Undefended

Node Ref	NGR		Modelled Flood Depths in Metres			
	Eastings	Northings	Undefended Annual Exceedance Probability			
			0.5%	0.5% (2070)*	0.5% (2115)*	0.1%
1	514843	102389	-	-	0.56	-
2	514846	102379	-	-	0.56	-
3	514849	102370	-	-	0.28	-
4	514852	102361	-	-	-	-

Table 4: Water Depths: Tidal Defended

	NGR		Modelled Flood Depths in Metres			
			Defended Annual Exceedance Probability			
Node Ref	Eastings	Northings	0.5%	0.5% (2070)*	0.5% (2115)*	0.1%
1	514843	102389	0.26	0.42	0.22	0.37
2	514846	102379	0.35	0.51	0.32	0.46
3	514849	102370	0.10	0.23	0.08	0.18
4	514852	102361	-	-	-	-

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

Produced on: 18/05/2026

*** 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

APPENDIX E

EA Product 4: Eastern Access/Egress Route (EIR2026/21621)

Environment Agency Flood Risk Assessment Data (Product 4) return for the eastern access and egress route from the application site (Marine Parade / Bath Place / South Street / Warwick Street / Chapel Road / Ambrose Place), dated 18 May 2026. Modelled tidal levels and depths at nine nodes along the route used in the safe access and egress analysis at Section 7.2 of this assessment.



Flood risk assessment data



Location of site: 514934,102380 (shown as easting and northing coordinates)

Document created on: 18 May 2026

This information was previously known as a product 4.

Customer reference number: EIR2026/21621

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)
- modelled data
- modelled climate change 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
- flood defence locations and attributes

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 flooding 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.

We aren't able to display flood defence locations and attributes as there are no formal flood defences in the area of interest.

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

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

Terminology used

Annual exceedance probability (AEP)

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



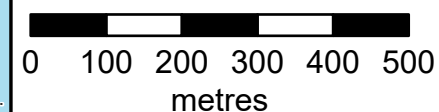
Flood map for planning

Location (easting/northing)
514934/102380

Scale
1:10,000

Created
18 May 2026

-  Selected area
-  Flood Zone 3
-  Flood Zone 2



Modelled data

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

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

Climate change

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

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

Modelled scenarios

The following scenarios are included:

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

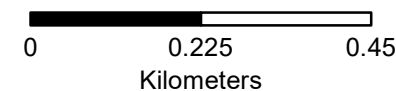


Legend

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

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

Scale: 1:10,000





 Environment Agency



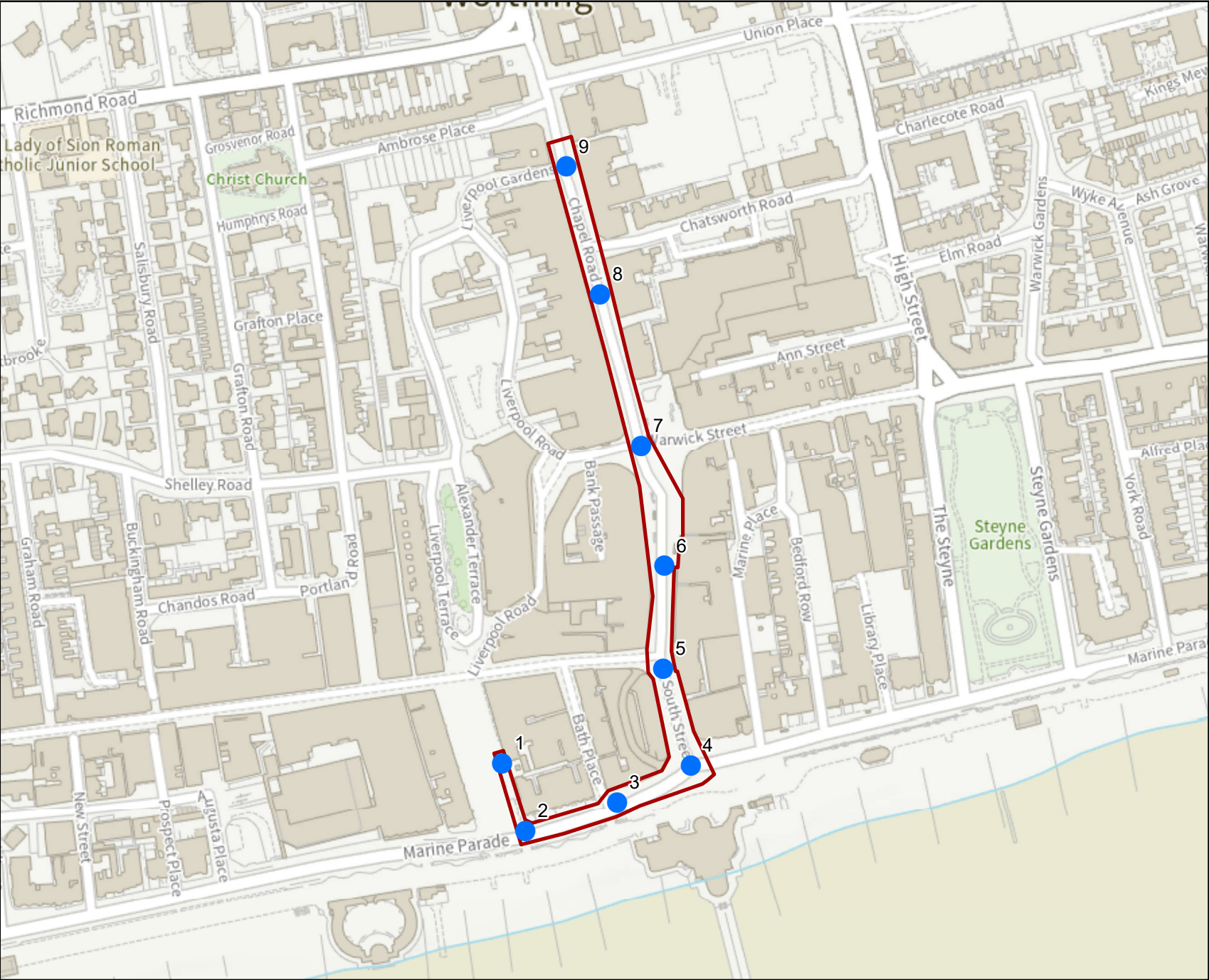
Legend

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

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

Scale: 1:10,000


0 0.225 0.45
Kilometers





Environment
Agency



N

Legend

 Site Nodes

 Site Boundary

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

Scale: 1:3,500

0

0.075

0.15

Kilometers

Product 4 Flood Risk Data Requested by: Antony Riozzi

Site: 514934,102380 (easting and northing coordinates)

Table 1: Water Levels: Tidal Undefended

Node Ref	NGR		Modelled Flood Levels in Metres AOD			
	Eastings	Northings	Undefended Annual Exceedance Probability			
			0.5%	0.5% (2070)*	0.5% (2115)*	0.1%
1	514833	102398	-	-	5.26	-
2	514848	102354	-	-	5.26	-
3	514908	102373	-	-	5.26	-
4	514956	102397	-	-	5.26	-
5	514938	102460	-	4.62	5.26	-
6	514939	102527	-	4.63	5.26	-
7	514924	102604	-	-	-	-
8	514897	102703	-	-	-	-
9	514875	102786	-	-	-	-

Table 2: Water Levels: Tidal Defended

Node Ref	NGR		Modelled Flood Levels in Metres AOD			
	Eastings	Northings	Defended Annual Exceedance Probability			
			0.5%	0.5% (2070)*	0.5% (2115)*	0.1%
1	514833	102398	-	5.21	-	5.16
2	514848	102354	5.05	5.21	5.01	5.16
3	514908	102373	5.05	5.21	5.01	5.16
4	514956	102397	5.05	5.21	5.01	5.16
5	514938	102460	5.05	5.21	5.01	5.16
6	514939	102527	5.05	5.21	5.01	5.16
7	514924	102604	-	-	-	-
8	514897	102703	-	-	-	-
9	514875	102786	-	-	-	-

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	514833	102398	-	-	0.38	-
2	514848	102354	-	-	0.27	-
3	514908	102373	-	-	0.37	-
4	514956	102397	-	-	0.32	-
5	514938	102460	-	0.17	0.81	-
6	514939	102527	-	0.14	0.78	-
7	514924	102604	-	-	-	-
8	514897	102703	-	-	-	-
9	514875	102786	-	-	-	-

Table 4: Water Depths: Tidal Defended

	NGR		Modelled Flood Depths in Metres			
			Defended Annual Exceedance Probability			
Node Ref	Eastings	Northings	0.5%	0.5% (2070)*	0.5% (2115)*	0.1%
1	514833	102398	-	0.33	-	0.28
2	514848	102354	0.06	0.22	0.04	0.17
3	514908	102373	0.13	0.29	0.09	0.24
4	514956	102397	0.05	0.08	0.04	0.07
5	514938	102460	0.60	0.76	0.56	0.71
6	514939	102527	0.57	0.73	0.53	0.68
7	514924	102604	-	-	-	-
8	514897	102703	-	-	-	-
9	514875	102786	-	-	-	-

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

Produced on: 18/05/2026

*** 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

APPENDIX F

EA Product 4: Western Access/Egress Route (EIR2026/21627)

Environment Agency Flood Risk Assessment Data (Product 4) return for the western access and egress route from the application site (Marine Parade west / West Buildings / New Street / Shelley Road / Salisbury Road / Westbrooke), dated 18 May 2026. Modelled tidal levels and depths at ten nodes along the route used in the safe access and egress analysis at Section 7.2 of this assessment.



Flood risk assessment data



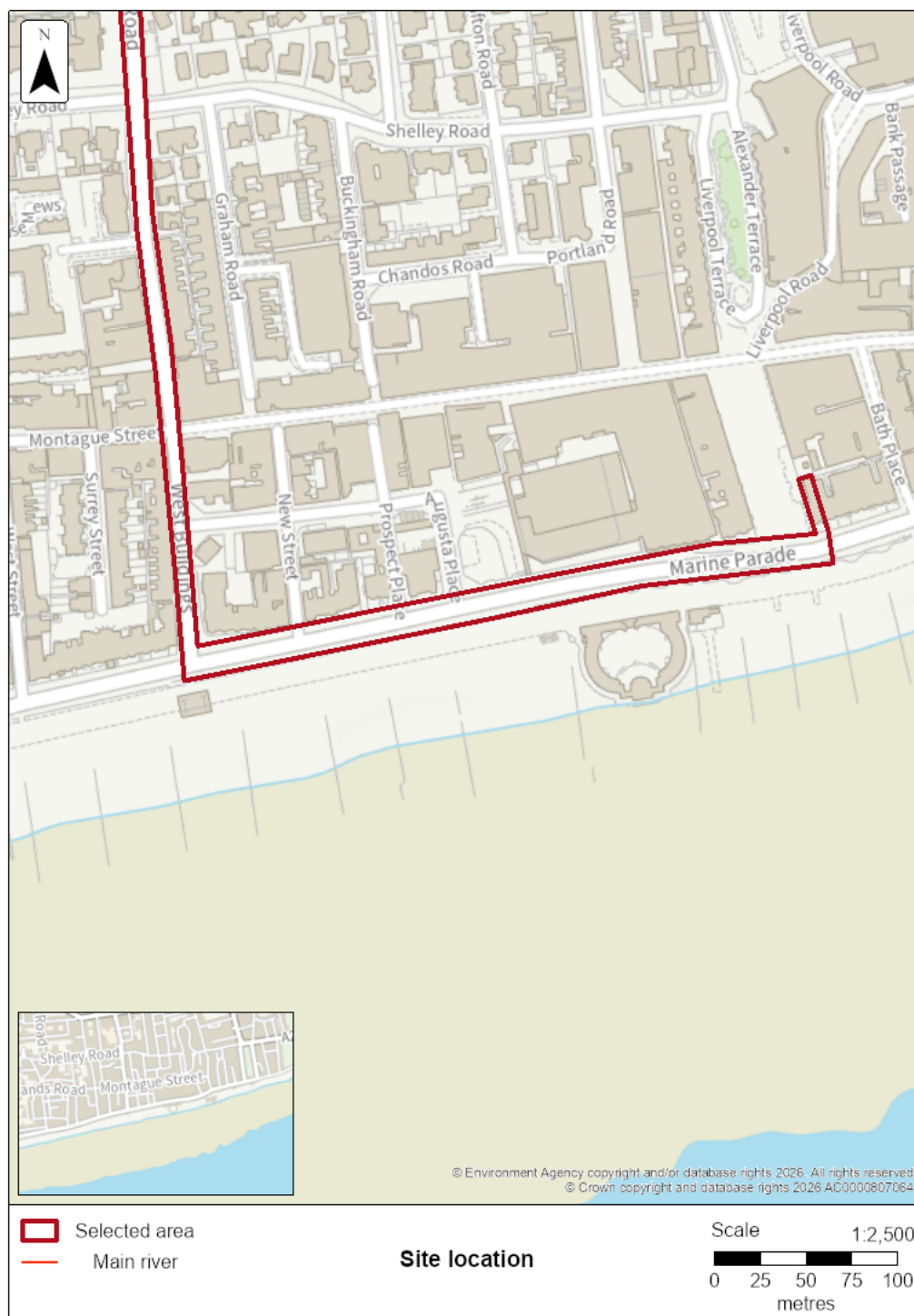
Location of site: 514658,102318 (shown as easting and northing coordinates)

Document created on: 18 May 2026

This information was previously known as a product 4.

Customer reference number: EIR2026/21627

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)
- modelled data
- modelled climate change 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
- flood defence locations and attributes

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 flooding 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.

We aren't able to display flood defence locations and attributes as there are no formal flood defences in the area of interest.

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

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

Terminology used

Annual exceedance probability (AEP)

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



Flood map for planning

Location (easting/northing)
514658/102318

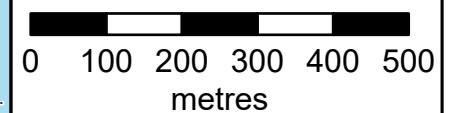
Scale

1:10,000

Created

18 May 2026

-  Selected area
-  Flood Zone 3
-  Flood Zone 2



Modelled data

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

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

Climate change

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

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

Modelled scenarios

The following scenarios are included:

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

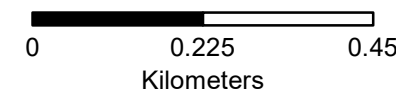


Legend

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

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

Scale: 1:10,000



Modelled Flood Outlines (Un defended Tidal). Centred 514658,102318. Created 18/05/2026.

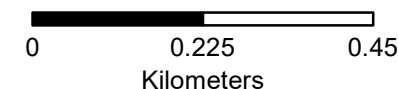


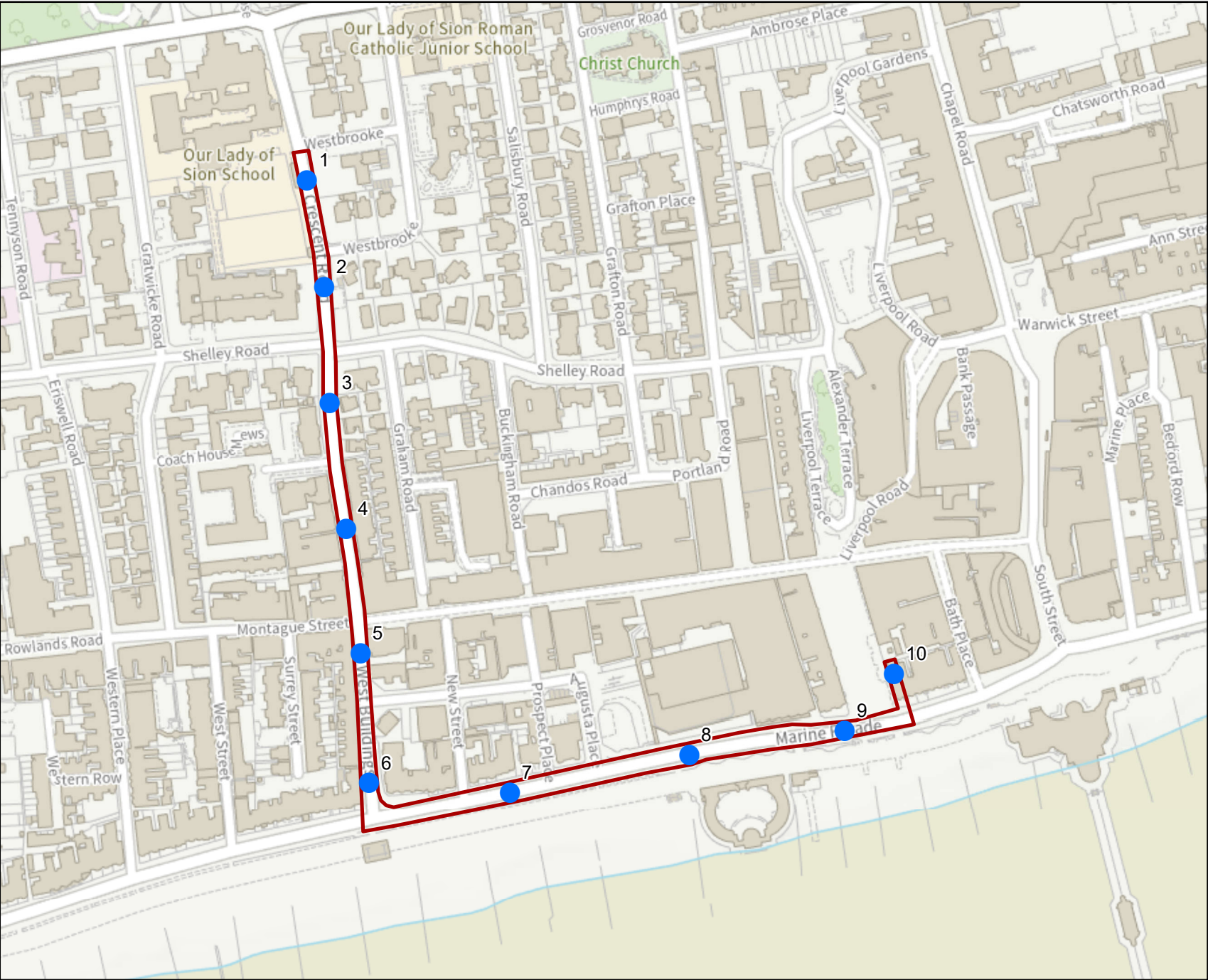
Legend

- 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







Environment
Agency



N

Legend

 Site Nodes

 Site Boundary

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

Scale: 1:3,500

0

0.075

0.15

Kilometers

Product 4 Flood Risk Data Requested by: Antony Riozzi

Site: 514658,102318 (easting and northing coordinates)

Table 1: Water Levels: Tidal Undefended

Node Ref	NGR		Modelled Flood Levels in Metres AOD			
	Eastings	Northings	Undefended Annual Exceedance Probability			
			0.5%	0.5% (2070)*	0.5% (2115)*	0.1%
1	514464	102702	-	-	-	-
2	514476	102633	-	-	-	-
3	514479	102558	-	-	-	-
4	514490	102476	-	-	-	-
5	514499	102395	-	-	5.24	-
6	514505	102310	-	-	5.24	-
7	514596	102304	-	-	5.25	-
8	514713	102329	-	-	5.25	-
9	514814	102345	-	-	5.26	-
10	514846	102381	-	-	5.26	-

Table 2: Water Levels: Tidal Defended

Node Ref	NGR		Modelled Flood Levels in Metres AOD			
	Eastings	Northings	Defended Annual Exceedance Probability			
			0.5%	0.5% (2070)*	0.5% (2115)*	0.1%
1	514464	102702	-	-	-	-
2	514476	102633	-	-	-	-
3	514479	102558	-	-	-	-
4	514490	102476	-	-	-	-
5	514499	102395	-	-	-	-
6	514505	102310	-	-	5.00	-
7	514596	102304	5.00	5.10	5.01	5.04
8	514713	102329	5.09	5.21	5.09	5.16
9	514814	102345	5.11	5.21	5.11	5.16
10	514846	102381	5.05	5.21	5.01	5.16

Table 3: Water Depths: Tidal Undefined

	NGR		Modelled Flood Depths in Metres			
			Undefined Annual Exceedance Probability			
Node Ref	Eastings	Northings	0.5%	0.5% (2070)*	0.5% (2115)*	0.1%
1	514464	102702	-	-	-	-
2	514476	102633	-	-	-	-
3	514479	102558	-	-	-	-
4	514490	102476	-	-	-	-
5	514499	102395	-	-	0.26	-
6	514505	102310	-	-	0.31	-
7	514596	102304	-	-	0.28	-
8	514713	102329	-	-	0.35	-
9	514814	102345	-	-	0.25	-
10	514846	102381	-	-	0.56	-

Table 4: Water Depths: Tidal Defended

	NGR		Modelled Flood Depths in Metres			
			Defended Annual Exceedance Probability			
Node Ref	Eastings	Northings	0.5%	0.5% (2070)*	0.5% (2115)*	0.1%
1	514464	102702	-	-	-	-
2	514476	102633	-	-	-	-
3	514479	102558	-	-	-	-
4	514490	102476	-	-	-	-
5	514499	102395	-	-	-	-
6	514505	102310	-	-	0.08	-
7	514596	102304	0.04	0.13	0.05	0.07
8	514713	102329	0.17	0.29	0.17	0.24
9	514814	102345	0.10	0.20	0.10	0.15
10	514846	102381	0.35	0.51	0.32	0.46

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

Produced on: 18/05/2026

*** 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

APPENDIX G

EA Solent and South Downs Pre-application Advice Note

Environment Agency Solent and South Downs Area Pre-application Advice Note for Flood Risk Assessments (September 2019). Regional EA pre-application standing guidance covering tidal flood risk along the Sussex coast, climate change allowances for the Southern River Basin District, and the EA's expectations for the content and structure of FRAs supporting planning applications in coastal locations.



Solent & South Downs Area

Pre-application Advice Note

September 2019

This document sets out the environmental issues we will consider when providing our planning application consultation advice to Local Councils. It can be used by applicants, developers and consultants at the pre-planning stage.

Fluvial Flood Risk

Development must be safe and should not increase the risk of flooding.

You can view a site's flood zone on the Flood Map for Planning on our website: <https://flood-map-for-planning.service.gov.uk>

If your proposed development is located within flood zone 2 or 3 you should consult the Flood Risk and Coastal Change pages of the National Planning Policy Guidance (NPPG)
<http://planningguidance.communities.gov.uk/blog/guidance/flood-risk-and-coastal-change/>

Here you can determine whether the flood risk vulnerability of your proposed development and the flood zone are compatible. You can also establish if there are flood risk sequential test and exception test requirements for your proposed development. In the first instance we recommend the developer/applicant liaises with the Local Planning Authority (LPA) to undertake the Sequential Test in accordance with the National Planning Policy Framework (NPPF).

If your proposed development is located within flood zone 2 or 3 and its vulnerability and flood zone are considered acceptable under the NPPG then a site specific Flood Risk Assessment (FRA) is required to support any subsequent planning application. This is required by paragraph 163 of the NPPF: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/6077/2116950.pdf

Guidance on the content of a site specific FRA can be found in the NPPG and online: <https://www.gov.uk/guidance/flood-risk-assessment-for-planning-applications>

More detailed flood risk modelling data is available to help you produce a FRA please contact our Customers and Engagement team at SSDenquiries@environment-agency.gov.uk.

Climate Change Allowances

On 19 February 2016, we published new guidance for planners and developers on how to use climate change allowances in a site-specific FRA: <https://www.gov.uk/guidance/flood-risk-assessments-climatechange-allowances>

Groundwater Quality

Development must not cause pollution to the water environment.

Source Protection Zones

We have defined Source Protection Zones (SPZs) for 2000 groundwater sources such as wells, boreholes and springs used across the country for public drinking water supply. These zones are more sensitive to contamination from activities that might cause pollution in the area. The closer the activity, the greater the risk.



SPZ1s are the areas designated as most at risk from contamination and development activities and in these areas we may consider it inappropriate for development to discharge foul or surface water into the ground.

To see if your proposed development is located within a Source Protection Zone, please use our online map: <https://magic.defra.gov.uk/>

Contaminated Land

The NPPF takes a precautionary approach to land contamination. Before the principle of development can be determined, land contamination should be investigated to see whether it could preclude certain development due to environmental risk or cost of remediation. Where contamination is known or suspected, a desk study, site investigation, remediation and other works may be required to enable safe development.

Pollution

If the proposed development use has the potential to pollute ground or surface water receptors then an assessment to establish whether the risk of pollution is acceptable or can be mitigated will be required within any planning application.

Foul Drainage

When drawing up wastewater treatment proposals for any development, the first presumption is to provide a system of foul drainage discharging into a public sewer to be treated at a public sewage treatment works (those provided and operated by the water and sewerage companies). This should be done in consultation with the sewerage company of the area prior to the submission of a formal planning application.

If connection to a public sewage treatment plant is not feasible, a package sewage treatment plant may be considered. If you would like further advice please call 03708 506 506.

Cemeteries

The development of new cemeteries in areas where groundwater vulnerability is high should be avoided, except where the thickness and nature of the unsaturated zone, or the impermeable formations beneath the site, protect groundwater; or where the long-term risk is mitigated by appropriate engineering methods.

Main Rivers

Ecology

In accordance with the National Planning Policy Framework (NPPF), any development proposal should avoid significant harm to biodiversity and seek to protect and enhance it. Opportunities to incorporate biodiversity in and around the development will be encouraged.

Your scheme should be designed with a naturalised buffer zone of at least 8 metres from the main river to protect and enhance the conservation value of the watercourse and ensure access for flood defence maintenance.

This buffer zone should be managed for the benefit of biodiversity for example by the planting of locally appropriate, UK native species. The buffer zone should be undisturbed by development with no fencing, footpaths or other structures. This buffer zone will help provide more space for flood waters, provide improved habitat for local biodiversity and allows access for any maintenance requirements.

To identify any Main Rivers in proximity to your proposed development please see our Main Rivers Consultation Map: <http://apps.environment-agency.gov.uk/wiyby/151293.aspx>

customer service line
03708 506 506

www.gov.uk/environment-agency

incident hotline
0800 80 70 60

floodline
0345 988 1188

Culverting

The Environment Agency is likely to oppose culverting as it is damaging to the ecological integrity of the river channel and its corridor and acts as a barrier to the movement of wildlife, including fish and may also increase flood risk. If the proposal will impact an existing culvert the Environment Agency may oppose planning consent for development either over, or within 8 metres of an existing culvert. Wherever possible, existing culverts should be removed and the river channel and bankside habitat reinstated to restore the ecological continuity of the river channel and its corridor.

Water Framework Directive (WFD)

Any marine works below MHWS require an assessment of possible impacts on Water Framework Directive (WFD). The assessment should include all elements of the works that fall within, or have the potential to affect, a WFD water body and any of the protected areas therein (including Bathing Waters and Shellfish Waters).

The WFD assessment should follow the 'Clearing the Waters for All' guidance available at <https://www.gov.uk/guidance/water-framework-directive-assessment-estuarine-and-coastal-waters>

Where appropriate, a WFD Assessment should assess any potential impacts and demonstrate that the required enhancements will be delivered. In some cases the requirements of a WFD assessment can be incorporated into an Environmental Impact Assessment (EIA). Any development that has the potential to cause deterioration in classification under WFD or that precludes the recommended actions from being delivered in the future is likely to be considered unacceptable to us.

Permits & Consents

Environmental Permitting Regulations

To see if your proposed development requires an Environmental Permit under the Environmental Permitting Regulations please refer to our website: <https://www.gov.uk/guidance/check-if-you-need-an-environmental-permit>

From 6 April 2016 an Environmental Permit is required for any proposed works or structures, in, under, over or within 8 metres of the top of the bank of designated Main River, and within 16 metres of a tidal defence.

Ordinary Watercourse Consent

The prior written consent of the relevant Lead Local Flood Authority is required for the erection of any flow control structures, culverting or diversion of ordinary watercourses, including streams, land drains and ditches.

Marine Licence

A marine licence may be required for any activities at the mean high water spring tide up to the territorial limit. This also includes the waters of every estuary, river or channel where the tide flows at mean high water spring tide.

Any development must demonstrate how adverse impacts on migratory fish, bathing waters, shellfish waters, designated sites, protected and priority species and habitats will be avoided, minimised, mitigated and if necessary compensated for. Works within or affecting a Water Framework Directive (WFD) waterbody will need to demonstrate that compliance with WFD objectives will be achieved. 'Clearing the Waters for All' provides guidance on how the impacts on WFD should be addressed, and should be used when preparing an assessment, including the screening and scoping of activities. <https://www.gov.uk/guidance/water-framework-directive-assessment-estuarine-and-coastal-waters>

Further pre-application options

The information provided above details generic information which may or may not be applicable to your development. We are able to provide more detailed and bespoke advice and answer technical questions for a charged fee of £100 per person per hour +VAT.

If you are interested in finding out more about this service, please email:

planningssd@environment-agency.gov.uk

We can explain this service and provide you with a bespoke quote for further pre-application advice that you may require please see .gov - <https://www.gov.uk/government/publications/pre-planning-application-enquiry-form-preliminary-opinion>

Please note

Please note that the view expressed in this letter by the Environment Agency is in response to the enquiry only and does not represent our final view in relation to any future planning application made in relation to this site.

We reserve the right to change our position in relation to any such application.

As part of this preliminary response we have not technically reviewed any documents. This opinion is based on the information submitted and current planning policy and guidance.

If you have any questions please contact the Solent & South Downs Sustainable Places team:

planningssd@environment-agency.gov.uk

To make a request for data

Please submit your request for data to ssdenquiries@environment-agency.gov.uk. You should get the information within 20 working days. We will tell you when to expect the information if we need more time.

There are many datasets available online at www.data.gov.uk including flood maps, historic landfill, waste exemptions, consented discharges to controlled waters, and much more.

customer service line
03708 506 506

www.gov.uk/environment-agency

incident hotline
0800 80 70 60

floodline
0345 988 1188