

# Flood Risk Assessment for Planning

17 HIGH STREET, BOGNOR REGIS, PO21 1RL  
KNIGHT CONSULTING

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# 1. Key Facts

## 1.1 Flood Risk Posed:

- Site is entirely within Flood Zone 1.
- The site is not located within a 'dry island'
- No Flood Storage Areas in close proximity to the site.
- No historical flooding has been recorded at the site.
- Risk of pluvial flooding in the areas of the proposed development would appear to be "Low" to "Medium".
- According to the 2016 Arun District Council SFRA, the site is located within an area where there is a  $\leq 75\%$  susceptibility to groundwater flooding. However, according to the EA flooding from groundwater is unlikely in this area. No further information has been provided to suggest that the site has flooded from groundwater flooding previously.
- Risk of reservoirs and sewer surcharge flooding would appear to be low.

## 1.2 Flood Risk Management:

- We acknowledge that residential uses proposed at ground floor (and first also at the rear) however the site is continuously masonry surrounded, and the only access will contain a flood gate.
- Ground floor residents will have the opportunity to use the residential stair to move to higher parts should the need arise.
- Safe escape will be provided by a formal flood warning and evacuation plan, which will be prepared in liaison with the Emergency Planners and tied in with the existing Emergency Plans for the area.
- The applicant will register with the Environment Agency Floodline Alert/Warnings Direct service and Met office National Severe Weather Warning Service.
- Flood proofing of the building will be incorporated as appropriate.
- Due to the nature of the development, existing drainage arrangements will be retained. However, anti-backflow devices will be utilised, and all services will be dropped from above rather than rising and a solid ground floor will be used.

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

## 2. Introduction

This report is a Site Specific Flood Risk Assessment (FRA) for the planning application at 17 High Street, Bognor Regis, P021 1RL (hereinafter referred to as "the site"). The FRA has been undertaken in accordance with the National Planning Policy Framework (NPPF) and the associated technical guidance.

The site appears to be partially located within Flood Zone 1 as defined by the Environment Agency (EA) on their Flood Map for Planning. Under the National Planning Policy Framework (NPPF), a FRA is required if a proposed development:

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

Given that the proposed development is located in Flood Zone 1 (Low Risk of flooding from rivers or the sea) and the site is under 1ha in area, a FRA would not normally be required under the NPPF. However, it is understood that the site falls within an area at potential risk of surface water flooding. The assessment should demonstrate to the Local Planning Authority (LPA) and EA how flood risk will be managed now and over the development's lifetime, taking climate change into account, and with regard to the vulnerability of its potential users.

The objectives of a FRA to support a planning application are to establish:

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

# 3. Existing Situation

## 3.1 Site Usage:

The site is believed to be a Class E former bank, now vacant, with 3 two-storey flats on the first and second floor. The building to the rear of the site (south) has a basement, a kitchen on the ground floor and toilets on the first floor.

The existing plans are provided in the report Appendix.



Figure 1: Site Location Plan (Source: Knight Consulting)



Figure 2: Existing Basement, Ground Floor, First Floor and Second Floor

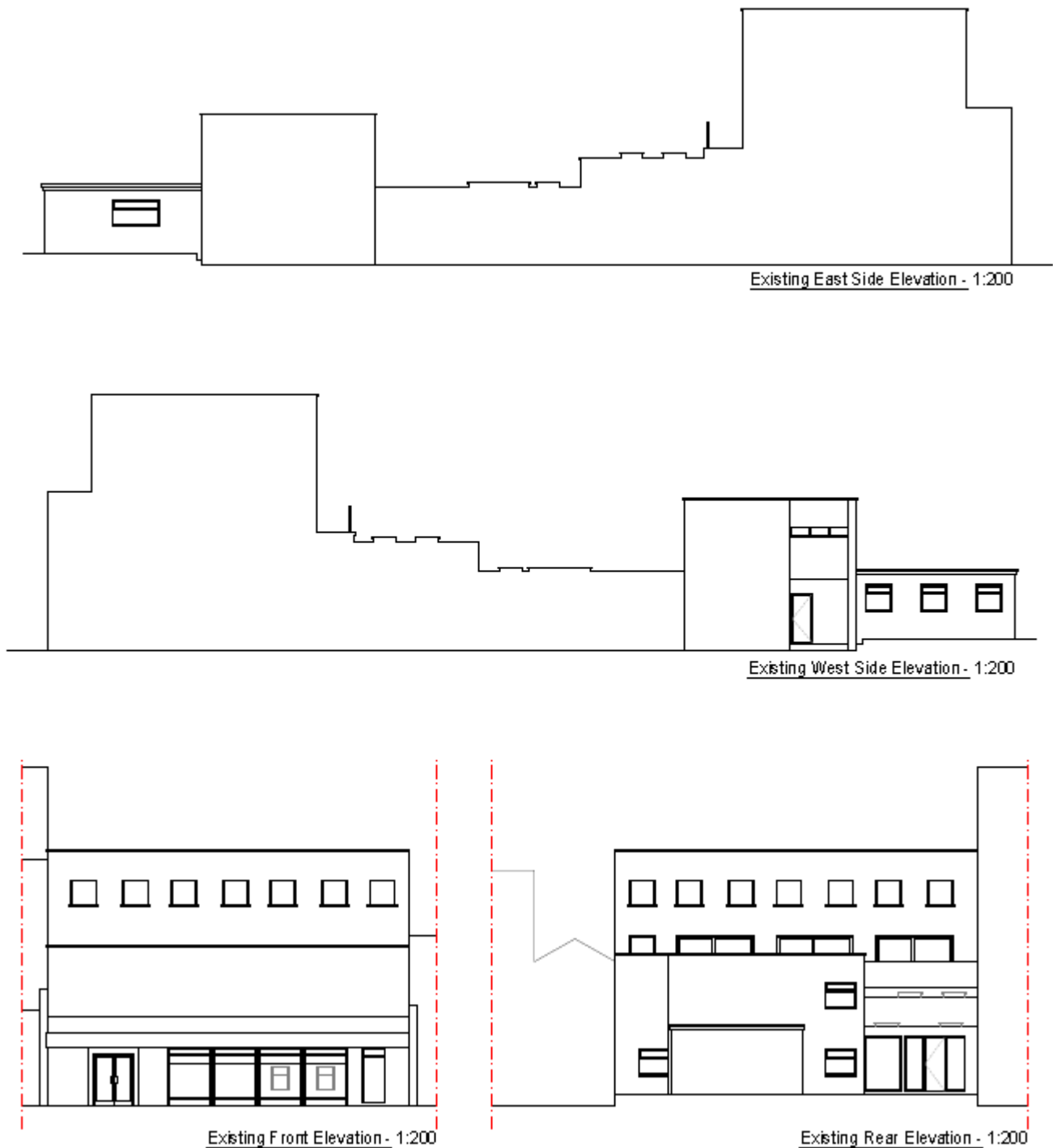


Figure 3: Existing Elevations

## 3.2 Topography & Geography

Environment Agency LiDAR has been used to assess the topography across the site and wider area. Light Detection and Ranging (LIDAR) is an airborne mapping technique, which uses a laser to measure the distance between the aircraft and the ground surface. Up to 100,000 measurements per second are made of the ground, allowing highly detailed terrain models to be generated at high spatial resolutions. The EA's LIDAR data archive contains digital elevation data derived from surveys carried out by the EA's specialist remote sensing team. Accurate elevation data is available for over 70% of England. The LiDAR technique records an elevation accurate to

±0.3m every 2m. This dataset is derived from a combination of our full dataset which has been merged and re-sampled to give the best possible coverage. The dataset can be supplied as a Digital Surface Model (DSM) produced from the signal returned to the LIDAR (which includes heights of objects, such as vehicles, buildings and vegetation, as well as the terrain surface) or as a Digital Terrain Model (DTM) produced by removing objects from the Digital Surface Model. 1.0m horizontal resolution DTM LiDAR data has been used for the purposes of this study.

1m LiDAR remotely sensed digital elevation data suggests that the ground topography on site ranges from approximately 4.85mAOD to 5.14mAOD.



Figure 4: Aerial view of the site and immediate surround area (Source: Google Maps)

### 3.3 Geology and Soils

The British Geological Survey (BGS) Map indicates that the bedrock underlying the site is London Clay Formation - Clay, Silt and Sand.

The BGS map indicates that the superficial deposits underlying the site is River Terrace Deposits (Undifferentiated) - Sand, Silt and Clay.

The soil texture in the area taken from the UKSO Website is sand to sandy loam texture.

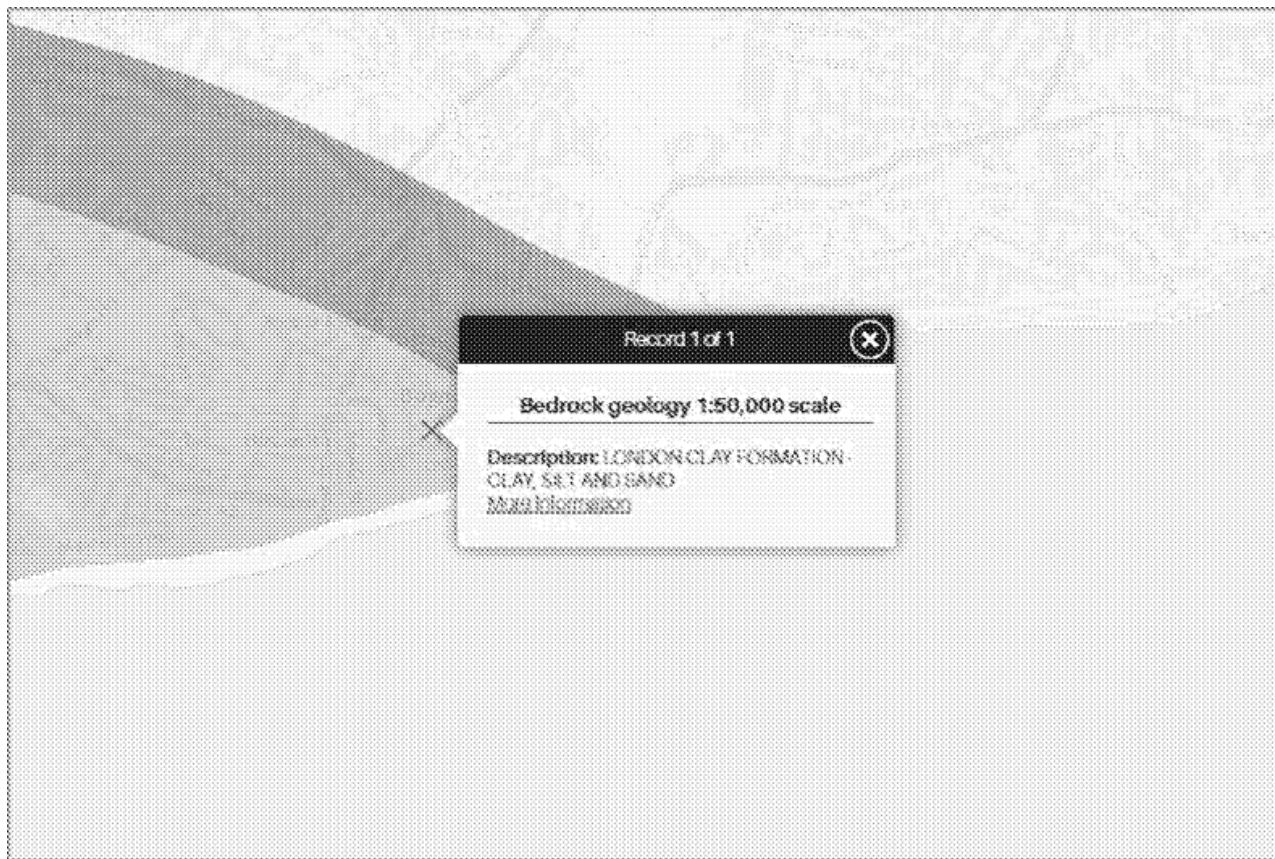


Figure 5: Bedrock Geology (Source: BGS)

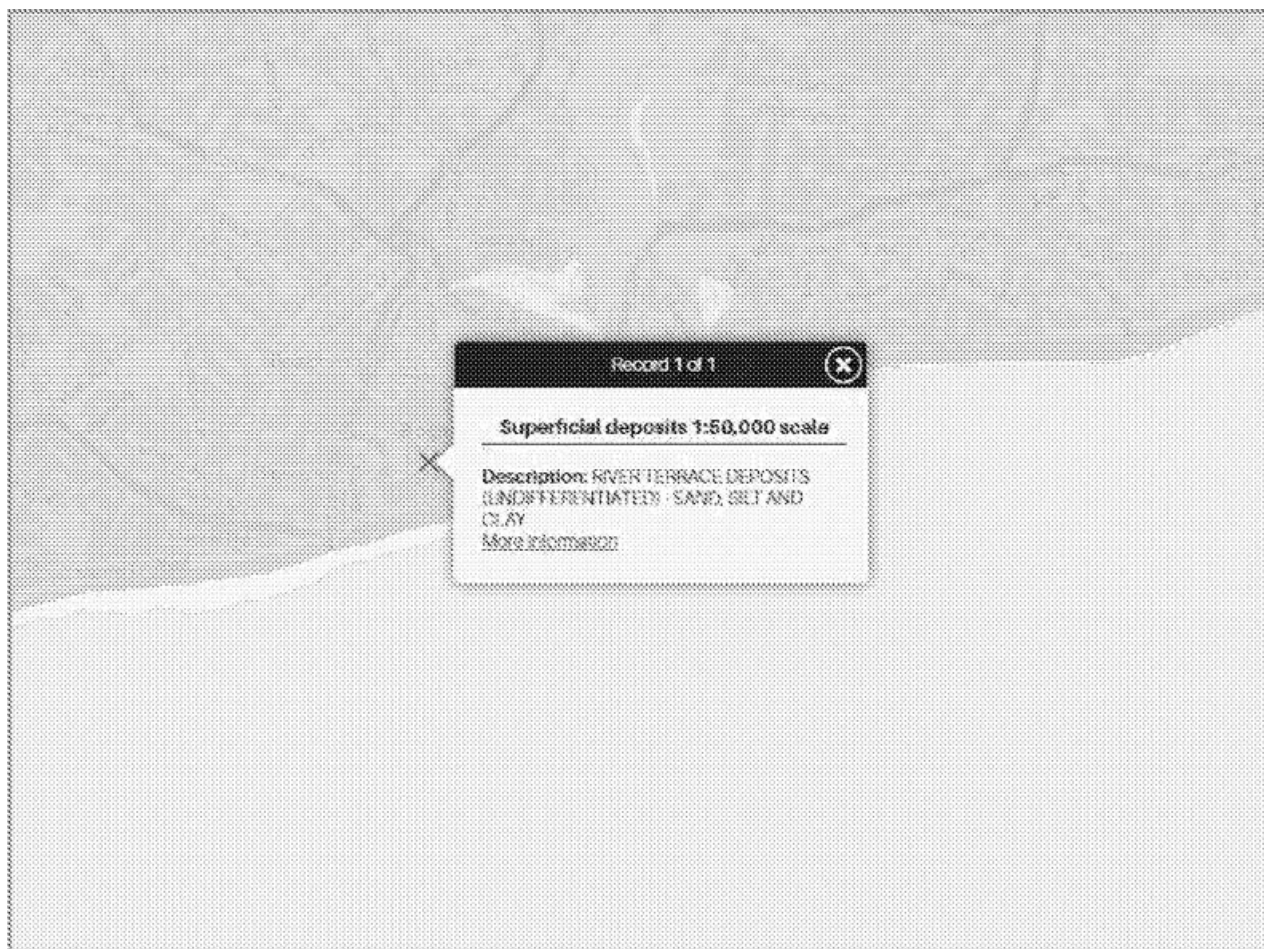


Figure 6: Superficial Geology (Source: BGS)

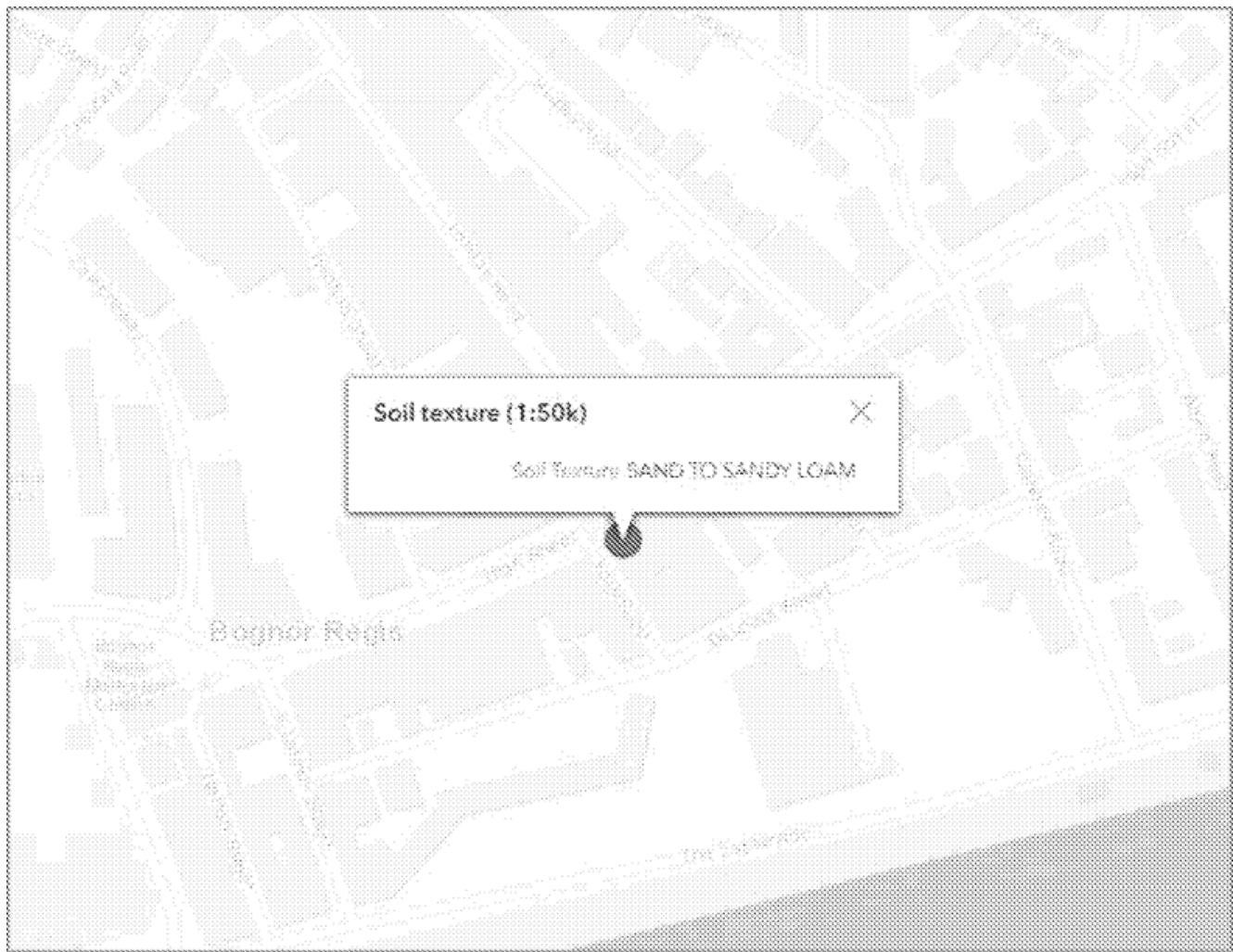


Figure 7: Soil Texture (Source: UKSO)

# 4. Proposed Development

The proposed planning application is for a reduced retail unit to the high street with a new side passage formed to reach: 3 one-bed ground floor flats looking into a newly formed inner courtyard with 4 flats formed from the rear building; 2 ground floor, 2 first floor.

The proposed plans are provided in the report Appendix.

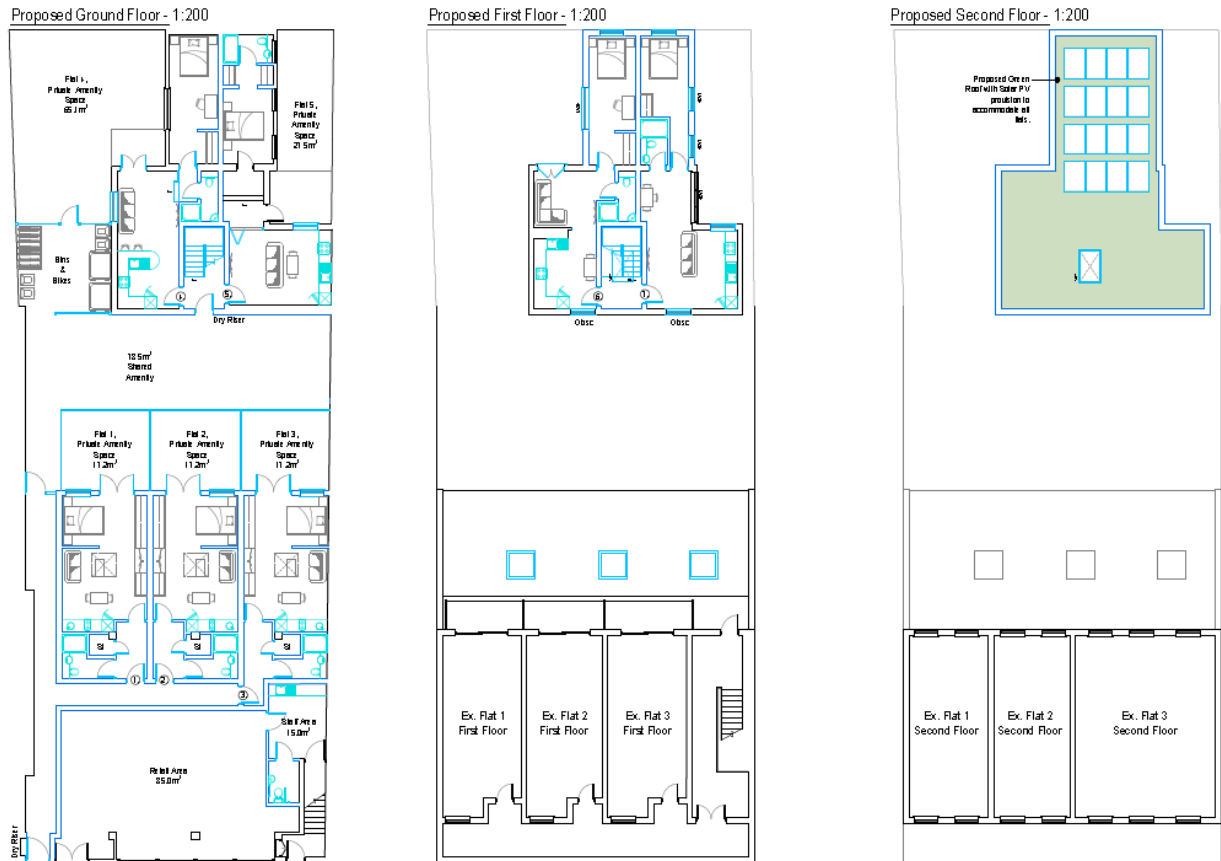


Figure 8: Proposed Ground, First and Second Floors (Source: Knight Consulting)

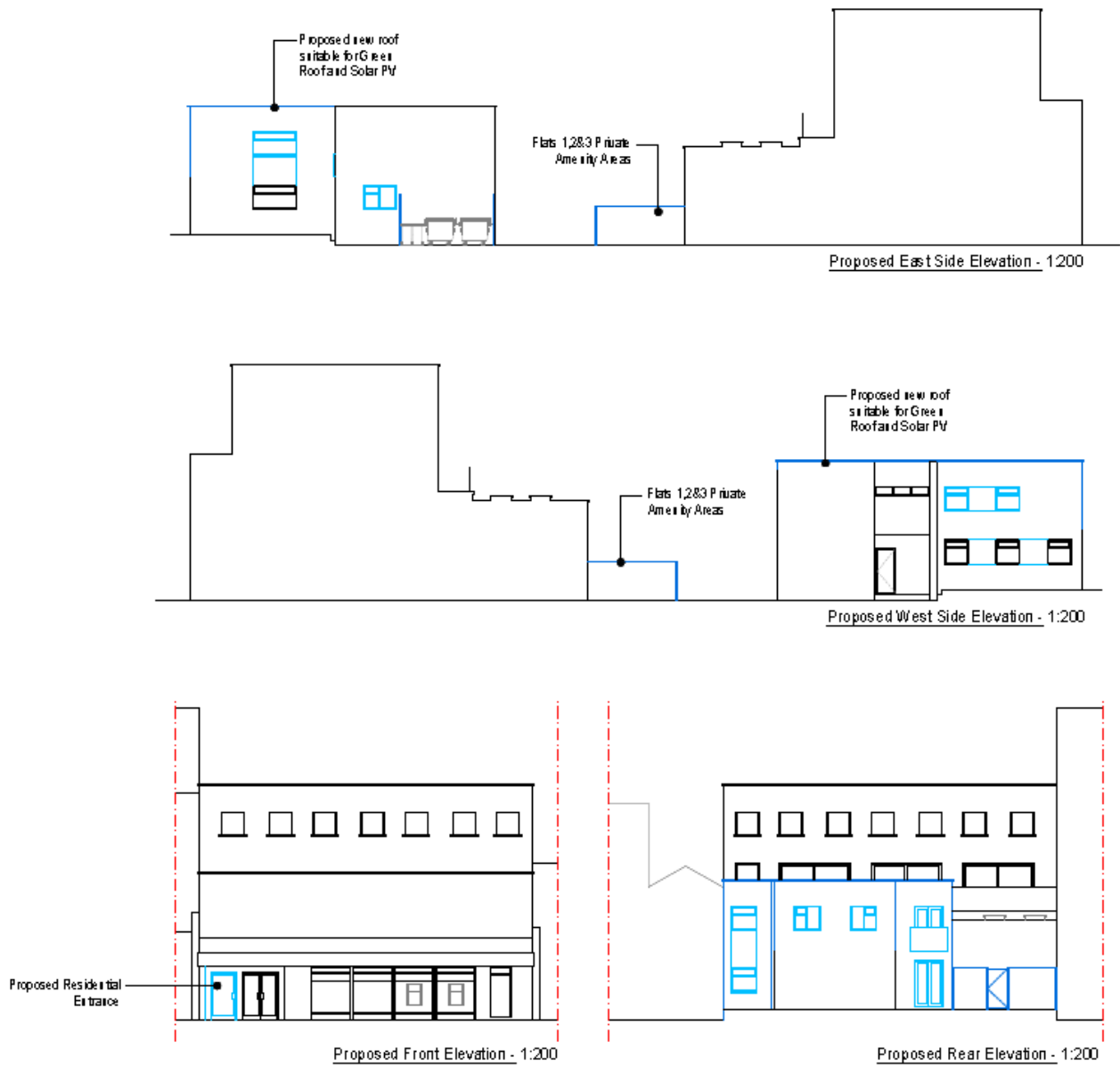


Figure 9: Proposed Elevations

# 5. Assessment of Flood Risk

## 5.1 Flood Zones

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

| Flood Zone                               | Definition                                                                                                                                                                                                                                                                                                                                   |
|------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Zone 1 <b>Low Probability</b>            | Land having a less than 1 in 1,000 annual probability of river or sea flooding. (Shown as 'clear' in the Flood Map – all land outside Zones 2 and 3)                                                                                                                                                                                         |
| Zone 2 <b>Medium Probability</b>         | Land having a less than 1 in 1,000 annual probability of river or sea flooding. (Shown as 'clear' in the Flood Map – all land outside Zones 2 and 3)                                                                                                                                                                                         |
| Zone 3 <b>High Probability</b>           | Land having a 1 in 100 or greater annual probability of river flooding; or Land having a 1 in 200 or greater annual probability of sea flooding. (Land shown in dark blue on the Flood Map)                                                                                                                                                  |
| Zone 3b <b>The Functional Floodplain</b> | This zone comprises land where water has to flow or be stored in times of flood. Local planning authorities should identify in their Strategic Flood Risk Assessments areas of functional floodplain and its boundaries accordingly, in agreement with the Environment Agency. (Not separately distinguished from Zone 3a on the Flood Map). |

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

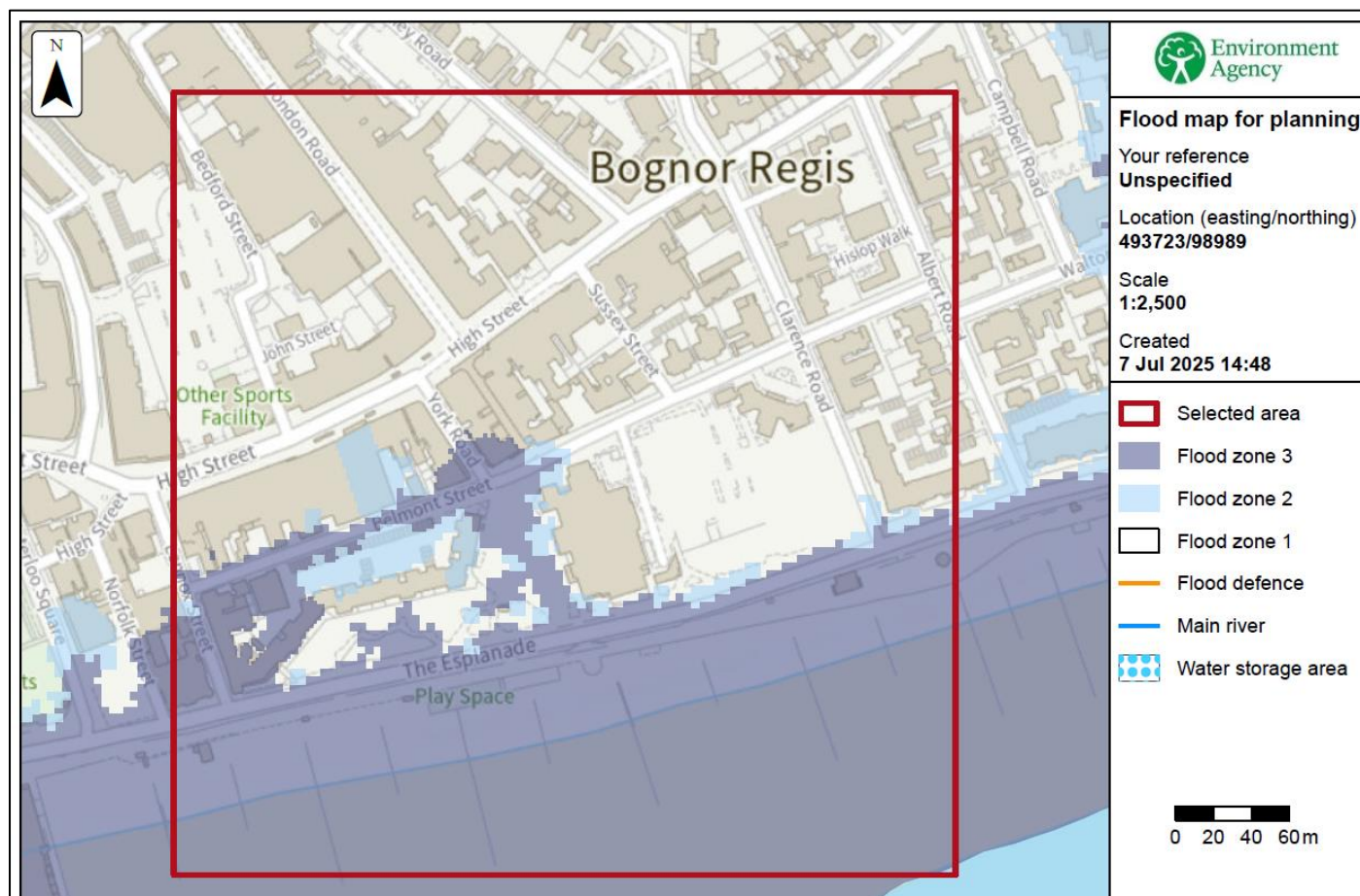


Figure 10: Environment Agency Flood Map for Planning (Source: EA)

The site is located within Flood Zone 1 (Low Probability), which means it is defined as land having a less than 1:1000 annual probability of river or sea flooding.

However, the site is located within an area at potential risk of surface water flooding, and as such the planning application submitted is required to be accompanied by a Flood Risk Assessment which shows that the development can be achieved in a sustainable manner.

## 5.2 Fluvial / Tidal:

The site is situated entirely within Flood Zone 1. Flood Zone 1 is defined as land having a less than 1:1000 annual probability of river or sea flooding.

In addition, the site is not located within a 'dry island' and given the distance to the nearest flood zone the south of the site it is reasonable to assume that climate change effects on the flood zone will not impact the site.

### 5.2.1 Flood Storage Areas:

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

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

### 5.2.2 Flood Defences:

A flood defence or EA Asset is any man-made or natural feature such as a raised defence, retaining structure, channel, pumping station or culvert - that performs a flood defence or land drainage function.

There are no flood defences in the vicinity of the site. The site is situated entirely within Flood Zone 1 at low risk of fluvial or tidal flooding.

### 5.2.3 Residual Risk (breach or overtopping of flood defences):

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

Breaches are most likely to occur in soft defences such as earth embankments although poorly maintained hard defences can also be a potential source of breach.

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

No flood defences act to defend the site from direct inundation, meaning there is negligible residual risk from beach and overtopping of flood defences.

#### 5.2.4 Historical Flood Records:

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

The EA have no records of historical flooding having affected the site.

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

Following an internet-based search for flooding within Bognor Regis, numerous results were retrieved. Flooding caused by the most recent major flood event documented were regarding Storm Ciarán. The duration of this storm started on the 28th of October 2023 to 4th November 2023.

On the 1st and 2nd of November the Met Office released Amber weather warnings. The Met Office also detailed that Storm Ciarán brought heavy rainfall and gusts of 69 -81 mph to the South coast of England and would have been comparable in severity to the 'Great Storm' of 16th October 1987. The excessive rainfall caused sewage incidents in Middleton-on-Sea and general flooding in Bognor Regis.

An Arun District Council article stated that West Sussex had received over 200mm rainfall over the last two weeks. Environment Agency had deployed pumps on the 28th November in effects to stem flooding to residential areas near Aldingbourne Rife, to redirect flood water.

A BBC News detailed that London Road, near Upper Bognor Road, experienced flooding with speculation of blockages within the drainage networks, leading to prolonged flood levels. It is understood that roads south of this event were not affected including High street, adjacent to the site.



Figure 11: London Road November 2023, facing towards Upper Bognor Road. Locals attempting to dislodge drain debris (Source: BBC)

According to the 2016 Arun District Council Strategic Flood Risk Assessment (SFRA), there are no records of historical flooding to High Street, the site or in the surrounding area.

No further information was provided to suggest the site or the surrounding area has been affected by historical flooding.

### 5.3 Pluvial (Surface Water):

Pluvial flooding is the term used to describe flooding which occurs when intense, often short duration rainfall is unable to soak into the ground or to enter drainage systems and therefore runs over the land surface causing flooding. It is most likely to occur when soils are saturated (or baked hard) so that they cannot infiltrate any additional water or in urban areas where buildings tarmac and concrete prevent water soaking into the ground. The excess water can pond (collect) in low points and result in the development of flow pathways often along roads but also through built up areas and open spaces. This type of flooding is usually short lived and associated with heavy downpours of rain.

The potential volume of surface runoff in catchments is directly related to the size and shape of the catchment to that point. The amount of runoff is also a function of geology, slope, climate, rainfall, saturation, soil type, urbanisation and vegetation.

Pluvial flooding can occur in rural and urban areas but usually causes more damage and disruption in the latter. Flood pathways include the land and water features over which floodwater flows. These pathways can include drainage channels, rail and road cuttings. Developments that include significant impermeable surfaces, such as roads and car parks may increase the volume and rate of surface water runoff.

Urban areas which are close to artificial drainage systems, or located at the bottom of hill slopes, or in valley bottoms and hollows, may be more prone to pluvial flooding. This may be the case in areas that are down slope of land that has a high runoff potential including impermeable areas and compacted ground.

Pluvial flooding can affect all forms of the built environment, including:

- Residential, commercial and industrial properties;
- Amenity and recreation facilities; and
- Infrastructure, such as roads and railways, electrical infrastructure, telecommunication systems and sewer systems.

This type of flooding is usually short-lived and may only last as long as the rainfall event. However, occasionally, flooding may persist in low-lying areas where ponding occurs. Due to the typically short duration, this type of flooding tends not to have consequences as serious as other forms of flooding, such as flooding from rivers; however, it can still cause significant damage and disruption on a local scale.

The Flood Map for Surface Water assesses flooding scenarios as a result of rainfall with the following chance of occurring in any given year (annual probability of flooding is shown in brackets):

- High: Greater than or equal to 3.3% (1 in 30) chance in any given year (3.3%)
- Medium: Less than 3.3% (1 in 30) but greater than or equal to 1% (1 in 100) chance in any given year
- Low: Less than 1% (1 in 100) but greater than or equal to 0.1% (1 in 1,000) chance in any given year
- Very Low: Less than 0.1% (1 in 1,000) chance in any given year

The mapping below shows the Risk of Flooding from Surface Water centred on the postcode. Please note that the EA do not consider this information suitable to be used to identify the risk to individual properties or sites. It is useful to raise awareness in areas which may be at risk and may require additional investigation.

The EA Surface Water Flood Map suggests that the site is at a "Low" to "Medium" risk of flooding from surface water. It should be noted that High Street is also at "Low" to "Medium" risk of flooding from surface water.

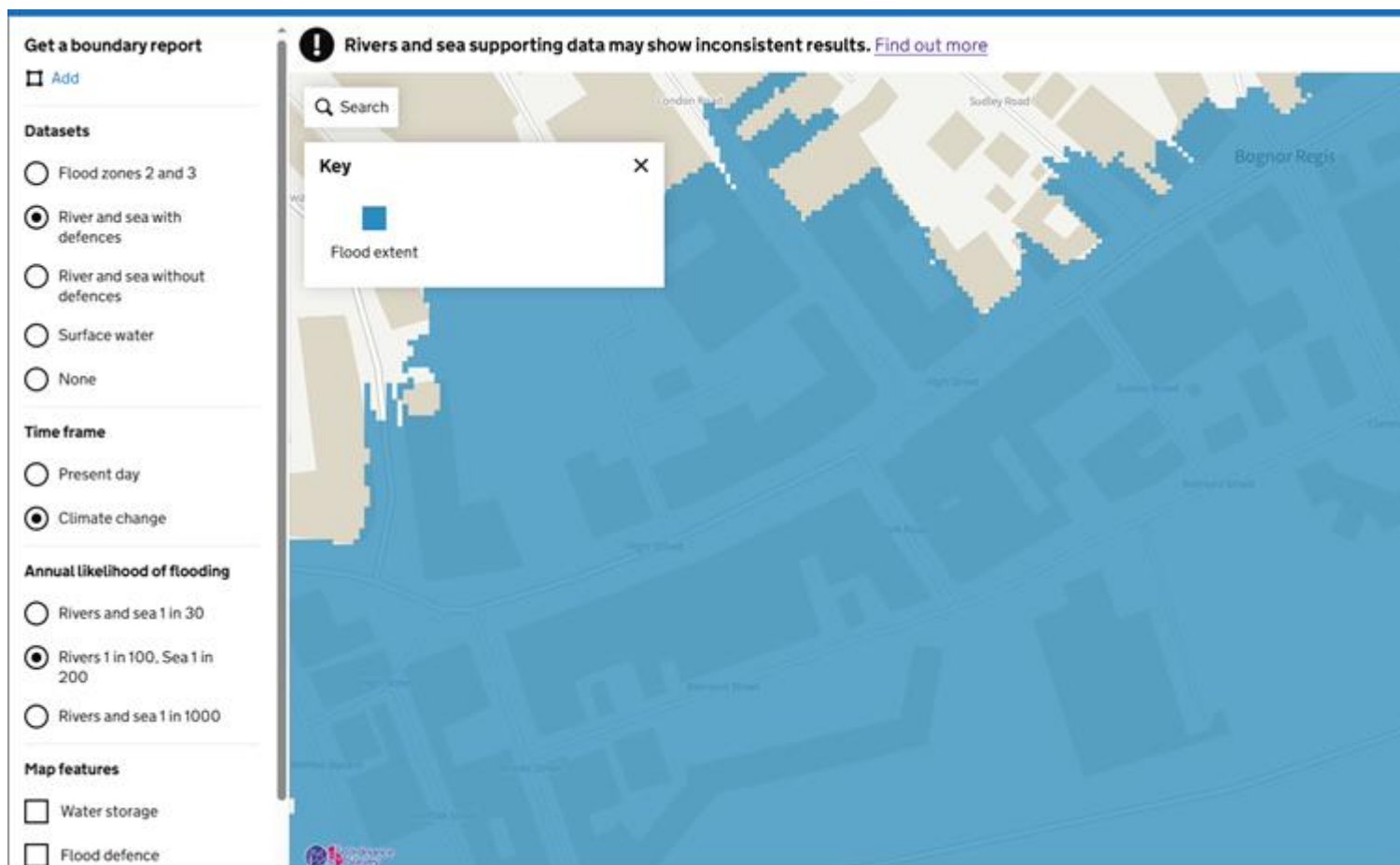


Figure 12: Extract from Environment Agency Survey River in 100, Sea in 200. If Arun Council neglects flood defences

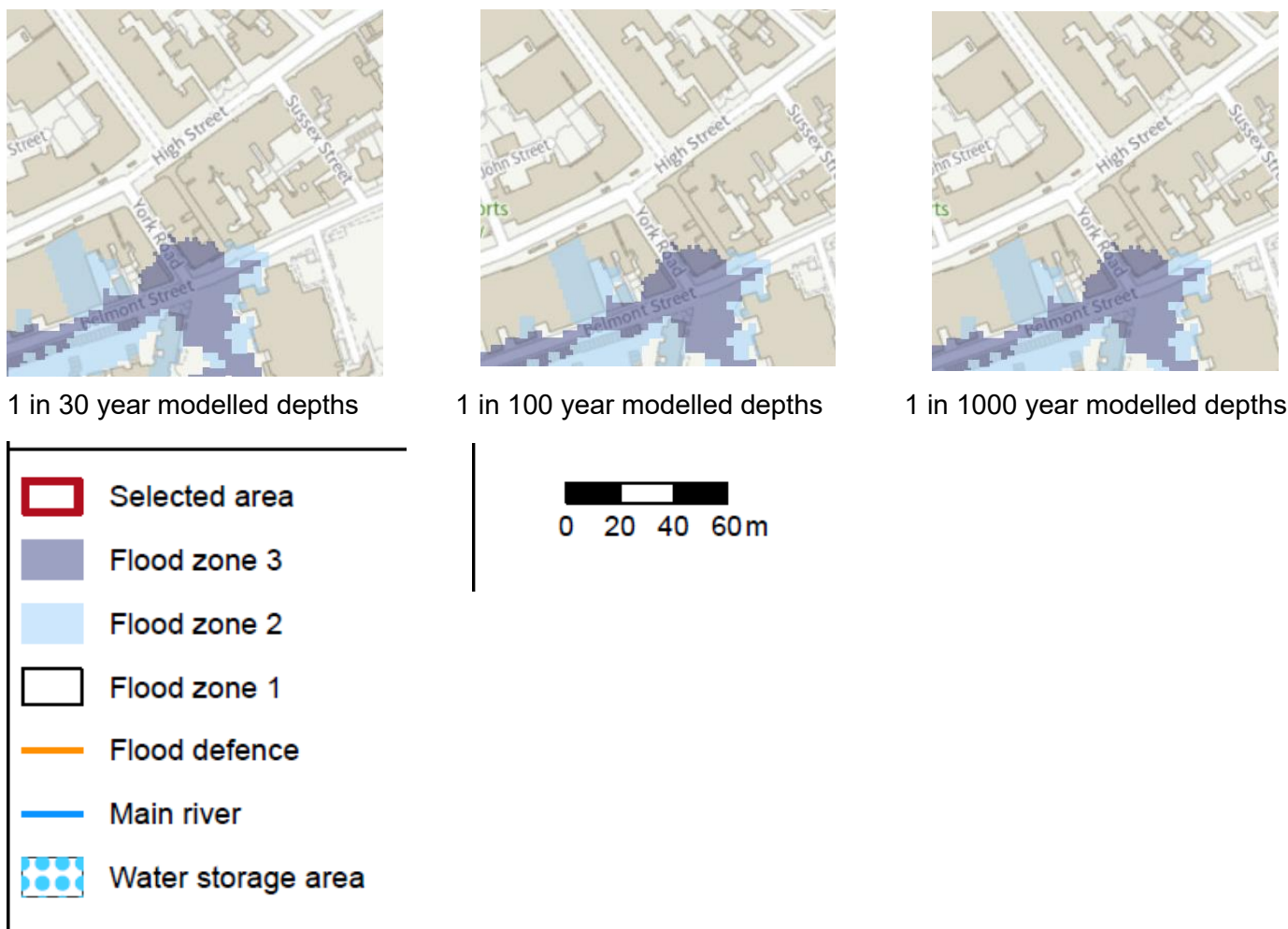


Figure 13: Environment Agency Risk from Surface Water Flood Depth Maps for High (1:30yr), Medium (1:100yr) and Low (1:1000yr) modelled events (Source EA, OS Map)

The EA has also produced surface water flood depth mapping for the 1 in 30 year (High Risk), 1 in 100 year (Medium Risk) and 1 in 1000 year (Low Risk) scenarios (high risk, medium risk and low risk respectively).

The site is entirely outside of the 1 in 30 year and 1 in 100 year modelled surface water flooding events. The site's west border appears to be affected by the 1 in 1000 year modelled surface water flooding event, with a maximum depth of 0.30m.

No further records of surface water flooding the vicinity of the site have been provided.

## 5.4 Groundwater:

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

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

According to the 2016 Arun District Council SFRA the site is located within an area where there is a  $\geq 75\%$  susceptibility to groundwater flooding. However, according to the EA flooding from groundwater is unlikely in this area.

No further information has been provided to suggest that the site has flooded from groundwater flooding previously.

## 5.5 Sewer Surcharge:

Sewer flooding occurs when the sewer network cannot cope with the volume of water that is entering it. It is often experienced during times of heavy rainfall when large amounts of surface water overwhelm the sewer network causing flooding. Temporary problems such as blockages, siltation, collapses and equipment or operational failures can also result in sewer flooding.

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

Sewer flooding events are usually the result of overloaded sewers following heavy rainfall or blockages caused by misuse of the sewerage system. For a sewer to remain adoptable, any storage capacity above the 1.3% AEP (1 in 30 year) storm volume must be incorporated as an offline storage feature outside the online sewer network.

According the 2016 Arun District Council SFRA and Southern Water, 2 recorded sewer incidents have been recorded in the postcode area of PO21 1.

No information has been provided to suggest that the site has flooded from sewer surcharge flooding previously.

## 5.6 Other Sources

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

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

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

There do not appear to be any further artificial (man-made) sources of flood risk (such as raised canals) in the vicinity of the site.

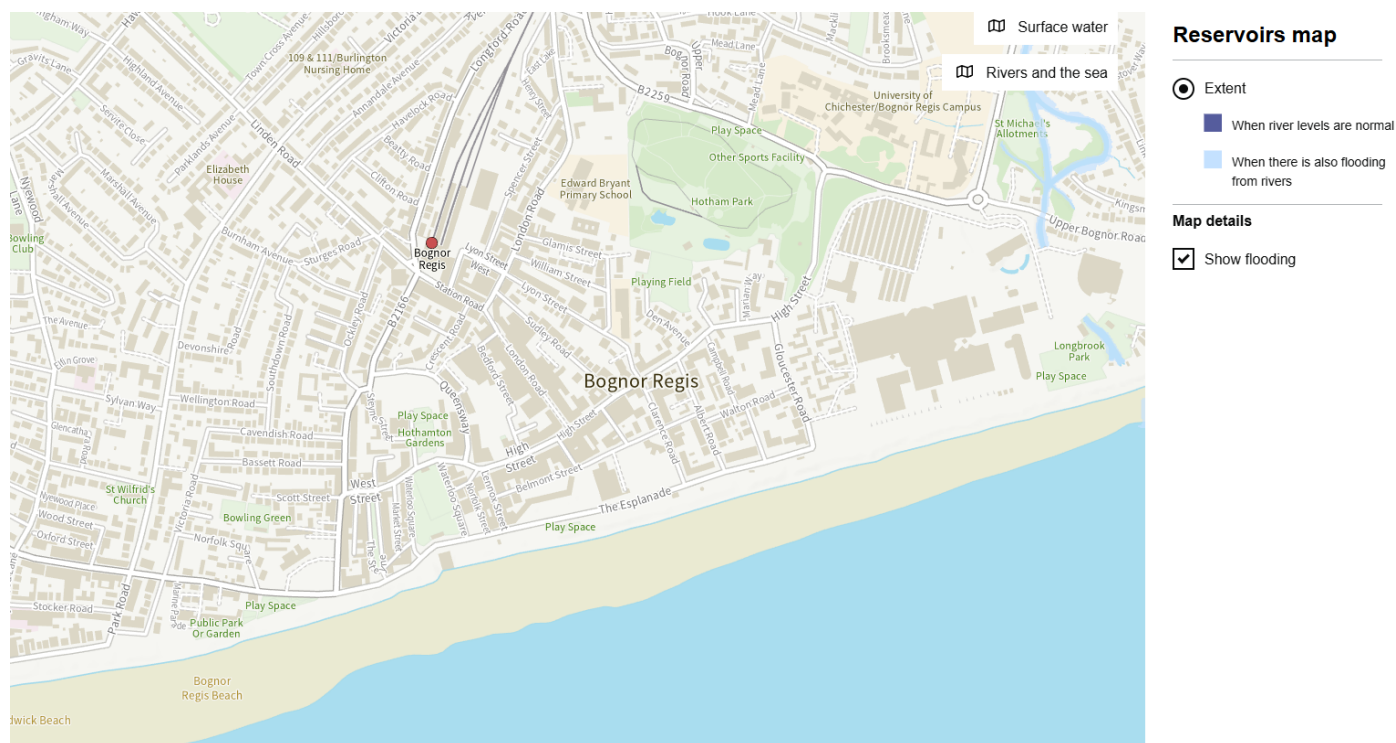


Figure 14: Reservoir Inundation Map (Source: EA)

# 6. Flood Risk Management

## 6.1 Vulnerability to Flooding

The NPPF classifies property usage by vulnerability to flooding.

The existing site consists of Class E on the ground floor. As such, the existing permitted site usage is classified as 'less vulnerable' on the ground floor and the first floor to second floor is classified as 'more vulnerable'.

Post development, there will be an additional 7 flats created, with 5 on the ground floor and 2 on the first floor. There will be a reduced retail area facing the high street, and the 3 flats currently existing will remain unchanged.

Accordingly, it is considered that while the vulnerability of the site as a whole will increase post development, there will be several measures of resilience that will reduce this vulnerability to its current 'less vulnerable' level.

## 6.2 EA Standing Advice:

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

The proposed development is for the creation of 7 flats on the ground and first floors, with a reduced retail area facing the high street.

## 6.3 Physical Design Measures:

The site is shown to be entirely within Flood Zone 1 on the EA Flood Map for planning (Rivers and the Sea). In addition, the EA Risk of Flooding from Surface Water Map suggests that the site lies in an area of "Low" to "Medium" risk from surface water. It should also be noted that High Street is also located within an area of "Low" to "Medium" risk of flooding from surface water.

According to the 2016 Arun District Council SFRA the site is located within an area where there is a  $\geq 75\%$  susceptibility to groundwater flooding. However, according to the EA flooding from groundwater is unlikely in this area. In addition, no further information has been provided to suggest that the site has flooded from groundwater flooding previously.

It is noted in the 2016 Arun District Council SFRA:

*"Groundwater flooding has a very different flood mechanism to any other and for this reason many conventional flood defence and mitigation methods are not suitable. The only way to fully reduce flood risk would be through building design (development form), ensuring floor levels are raised above the water levels caused by a 1 in 100-year plus climate change event. Site design would also need to preserve any flow routes followed by the groundwater overland to ensure flood risk is not increased downstream."*

To help protect against flooding during extreme events, the applicant has agreed to implement flood resistant design measures, in consultation with the Local Authority building control department. These measures can include the following where possible:

- Non-return valves fitted to all drain and sewer outlets;

- Anti-syphon fitted to all toilets;
- Manhole covers secured.
- Stairs of solid hardwood construction with wood faces treated to resist water penetration.
- The external ground floor doors and windows will be defended by a flood barrier to the side passage

The applicant will use demountable flood defence barriers to defend low windows and flood doors at the ground level to mitigate against extreme weather events.

## 6.4 Safe Escape and Flood Action Plan

The NPPF requires a route of safe escape for all residents and users to be provided from new residential properties in Flood Zone 3. Safe escape is usually defined as being though slow moving fluvial or tidal flood water no deeper than 25cm.

The site is located entirely within Flood Zone 1 and entirely out of the key 1:100yr pluvial flood event. In addition, no further information has been provided to suggest that the site has flooded from groundwater flooding previously.

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

Owners, occupants and tenants should follow the warning and evacuation procedure detailed in the following section.

## 6.5 Flood Warning:

As the UK's official weather service, the Met Office is responsible for issuing weather warnings, which warn of impacts caused by severe weather. The Met Office provide warnings up to seven days ahead for rain, thunderstorms, wind, snow, lightning, ice and fog.

Met Office weather warnings are available in a number of ways, which make it easy to get the very latest information wherever you are. These include the Met Office app and website, social media, email alerts, TV, radio and RSS.

It is recommended that the site owner sign up to the National Severe Weather Warning Service. More information can be found here: <https://www.metoffice.gov.uk/weather/guides/warnings>.

The Met Office issues weather warnings, through the National Severe Weather Warning Service, when severe weather has the potential to bring impacts to the UK. These warnings are given a colour (yellow, amber or red) depending on a combination of both the impact the weather may have and the likelihood of those impacts occurring.

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

The EA issue flood warnings/alerts to specific areas when flooding is expected. It is recommended that the applicant registers online with the free Environment Agency Floodline Warnings/Alert Direct service at [www.gov.uk/sign-up-for-flood-warnings](http://www.gov.uk/sign-up-for-flood-warnings) to receive flood warnings by phone, text or email. The flood warning service has three types of warnings that will help you prepare for flooding and take action:

**Yellow Warning:** Yellow warnings can be issued for a range of weather situations. Many are issued when it is likely that the weather will cause some low level impacts, including some disruption to travel in a few places. Many people may be able to continue with their daily routine, but there will be some that will be directly impacted and so it is important to assess if you could be affected. Other yellow warnings are issued when the weather could bring much more severe impacts to the majority of people but the certainty of those

impacts occurring is much lower. It is important to read the content of yellow warnings to determine which weather situation is being covered by the yellow warning.

**Amber Warning:** There is an increased likelihood of impacts from severe weather, which could potentially disrupt your plans. This means there is the possibility of travel delays, road and rail closures, power cuts and the potential risk to life and property. You should think about changing your plans and taking action to protect yourself and your property. You may want to consider the impact of the weather on your family and your community and whether there is anything you need to do ahead of the severe weather to minimise the impact.

**Red Warning:** Dangerous weather is expected and, if you haven't already done so, you should take action now to keep yourself and others safe from the impact of the severe weather. It is very likely that there will be a risk to life, with substantial disruption to travel, energy supplies and possibly widespread damage to property and infrastructure. You should avoid travelling, where possible, and follow the advice of the emergency services and local authorities.

The applicant has prepared the following flood plan to protect life and property during a flood event:

**Before a flood:**

- Find out if you are at risk of flooding.
- Find out if you can receive flood / weather warnings.
- Prepare and keep a list of all your important contacts to hand or save them on your mobile phone.
- Think about what items you can move now and what you would want to move to safety during a flood such as pets, cars, furniture, and electrical equipment.
- Know how to turn off gas, electricity and water supplies.
- Prepare a flood kit of essential items and keep it handy. It can include copies of important documents, a torch, a battery-powered or wind-up radio, blankets and warm clothing, waterproofs, rubber gloves and a first aid kit including all essential medication.
- Consider buying flood protection products such as flood boards and airbrick covers to help reduce flood water getting into your property.

**During a flood:**

- Tune into your local radio station on a battery or wind-up radio.
- Fill jugs and saucepans with water.
- Grab your flood kit - if you have prepared one.
- Collect blankets, torch, first aid kit, medication and food.
- Move important documents, personal items, valuables, and lightweight belongings upstairs or to high shelves.
- Raise large items of furniture, or put them in large bags if you have them.
- Move people, outdoor belongings, cars and pets to higher ground.
- Switch off water, gas and electricity at mains when water is about to enter your home. Do not touch sources of electricity when standing in water.
- Fit flood protection products, if you have them, for example flood boards, airbrick covers, sandbags.
- Put plugs in sinks and baths. Weigh them down with a pillowcase or plastic bag filled with soil.
- If you do not have non-return valves fitted, plug water inlet pipes with towels or cloths.
- Move your family and pets upstairs or to a high place with a means of escape.
- Listen to the advice of the emergency service and evacuate if told to do so.
- Avoid walking or driving through flood water. Six inches of fast-flowing water can knock over an adult and two feet of water can move a car.

**After a flood:**

- If you have flooded, contact your insurance company as soon as possible.
- Take photographs and videos of your damaged property as a record for your insurance company.
- If you don't have insurance, contact your local authority for information on grants and charities that may help you.

- Flood water can contain sewage, chemicals and animal waste. Always wear waterproof outerwear, including gloves, wellington boots and a face mask.
- Have your electrics, central heating and water checked by qualified engineers before switching them back on.

Although the site is not within an EA Flood Warning Area, it is within close proximity to the Bognor (Solent and South Downs) Warning Area. In addition, the Met Office issue warnings for rainfall.

## 6.6 Off-Site Impacts:

### 6.6.1 Fluvial Floorplain Storage

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

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

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

The entire site is located within Flood Zone 1 when using the Environment Agency Flood Map for Planning (Rivers and Sea). The proposed development will therefore not result in unacceptable loss of floodplain storage.

### 6.6.2 Surface Water Drainage:

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

1. Store rainwater for later use;
2. Infiltration techniques;
3. Attenuate rainwater by storing in tanks for gradual release;
4. Discharge rainwater direct into watercourse;
5. Discharge rainwater into surface water sewer;
6. Discharge rainwater into a combined sewer;
7. Attenuation of rainwater in ponds or open water features with controlled discharge into the local watercourse.

Due to the scale of the development, a full Surface Water Drainage Strategy is not required at this stage of planning. The proposed development will utilise the current drainage arrangements on site given the proposed development is for a change of use to the existing building.

# 7. Sequential and Exception Test

The Government Guidance on Flood Risk and Coastal Changes had been updated in September 2025, placing renewed emphasis on the application of Sequential Tests and Flood Risk Assessments. While the current-day flood map places the site in Flood Zone 1, the climate change (2070-2125) map identifies it within Future Flood Zone 3a – which previously triggered the requirement for a Sequential Test under application BR/72/25/PL.

However, the updated guidance introduces a more pragmatic approach with Paragraph 027a stating “a Pragmatic approach needs to be taken where proposals involve comparatively small extensions to existing premises (relating to their existing size), where it may be impractical to accommodate the additional space in an alternative location”.

Given that the existing building is already located within the Future Flood Zone, and that the proposed extension to facilitate two first-floor flats represents a relatively modest increase in floorspace, it is not a reasonable expectation to expect the development to be relocated to an alternative site. Accordingly, in line with the updated guidance, it is believed that a sequential test is not required.

Furthermore, while Government guidance assumes a minimum residential development lifetime of 100 years, this proposal involves the conversion of an existing structure rather than a new build. It is therefore reasonable to adopt a reduced design life of approximately 75 years, in line with the approach taken for non-residential development.

When the site’s expected design lifespan is compared with the project expansion of ‘Future Flood Zone 3a’ under climate change scenarios, it is believed that less than half of the site will fall within Zone 3a by 2100. This was calculated by measuring the incremental progression of the current flood zone boundary towards the 2070-2125 climate change extent in schematic 5-year steps.

## 8. Conclusion

The FRA has been undertaken in accordance with the National Planning Policy Framework (NPPF) and the associated technical guidance.

The existing site consists of a Class E retail unit with 3 two-storey flats on the first and second floor. The building to the rear of the site (south) has a basement, a kitchen on the ground floor and toilets on the first floor. Post development, there will be a reduced retail unit to the high street with a new side passage formed to reach: 3 one-bed ground floor flats looking into a newly formed inner courtyard with 4 flats formed from the rear building; 2 ground floor, 2 first floor. Accordingly, it is considered that while the vulnerability of the site as a whole will remain the same post-development, however, there will be an intensification of usage.

The site is located within Flood Zone 1 (Low Probability), which means it is defined as land having a less than 1:1000 annual probability of river or sea flooding. In addition, the site is not at located within a 'dry island'. And likely will remain when ADC inevitably build additional sea wall defences.

However, the site is located within an area at potential risk of Surface water flooding, and as such the planning application submitted is required to be accompanied by a Flood Risk Assessment which shows that the development can be achieved in a sustainable manner.

There are no Flood Storage Areas located in close proximity to the site and there are no flood defences in the vicinity of the site.

The EA have no records of historical flooding having affected the site.

Following an internet based search for flooding found numerous records regarding flooding following Storm Ciarán. The results of the Storm event caused flooding in the general vicinity of Bognor Regis and the Aldingbourne Rife, however no specific flooding was mentioned having affected the site or the immediate surrounding area. It is understood that the High Street and the site were not affected during this event.

The EA Surface Water Flood Map suggests that the site is at a "Low" to "Medium" risk of flooding from surface water. It should be noted that High Street is also at "Low" to "Medium" risk of flooding from surface water.

The site is entirely outside of the 1 in 30 year and 1 in 100 year modelled surface water flooding events. The site's west border appears to be affected by the 1 in 1000 year modelled surface water flooding event, with a maximum depth of 0.30m.

No further records of surface water flooding the vicinity of the site have been provided.

According to the 2016 Arun District Council SFRA the site is located within an area where there is a  $\geq 75\%$  susceptibility to groundwater flooding. However, according to the EA flooding from groundwater is unlikely in this area. No further information has been provided to suggest that the site has flooded from groundwater flooding previously.

Additionally, the risk of flooding posed to the site by reservoirs and sewer surcharge flooding would appear to be low.

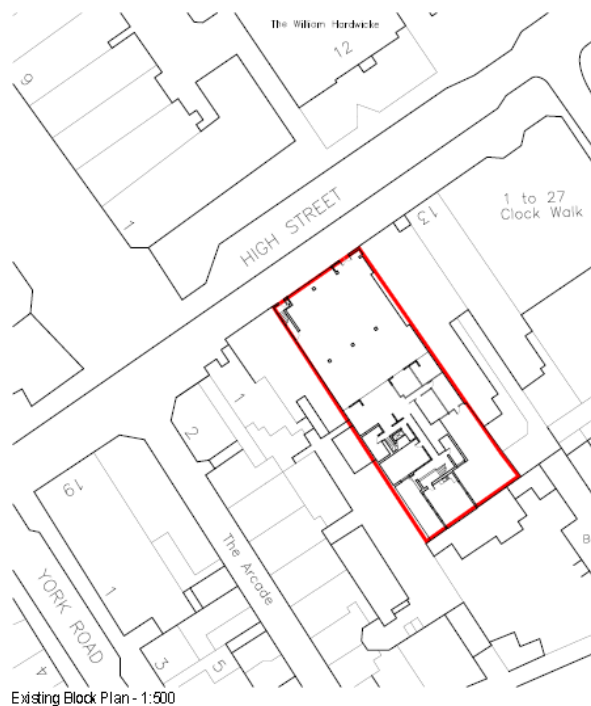
The applicant has confirmed that:

- Safe escape will be provided by a formal flood warning and evacuation plan, which will be prepared in liaison with the Emergency Planners and tied in with the existing Emergency Plans for the area.
- The applicant will register with the Environment Agency Floodline Alert/Warnings Direct service and Met office National Severe Weather Warning Service.
- Flood proofing of the building will be incorporated as appropriate.
- Due to the nature of the development, existing drainage arrangements will be retained.

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

# Appendix

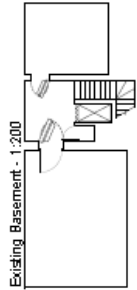
- Site location, Existing and Proposed Plans
- EA Flood Map for Planning



Existing Block Plan - 1:500

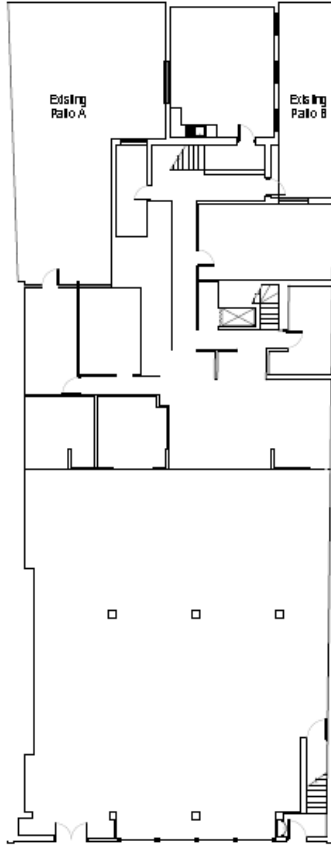


Proposed Block Plan - 1:500

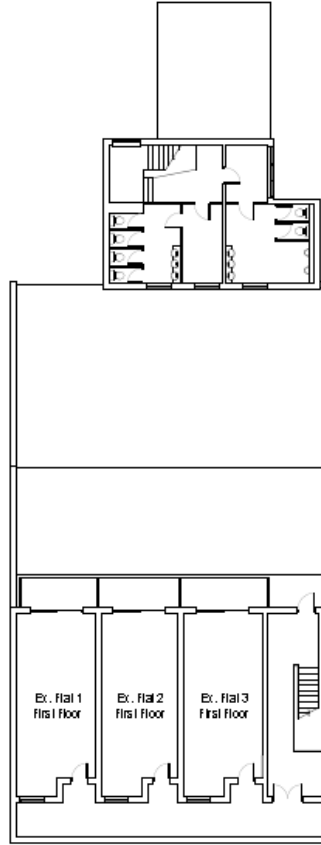


Existing Basement - 1:200

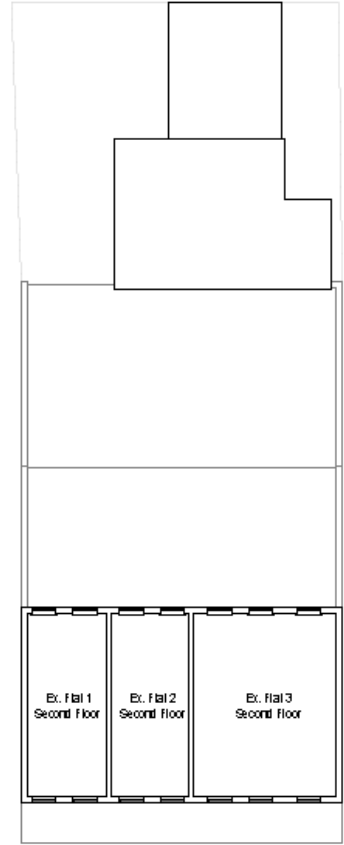
Existing Ground Floor - 1:200

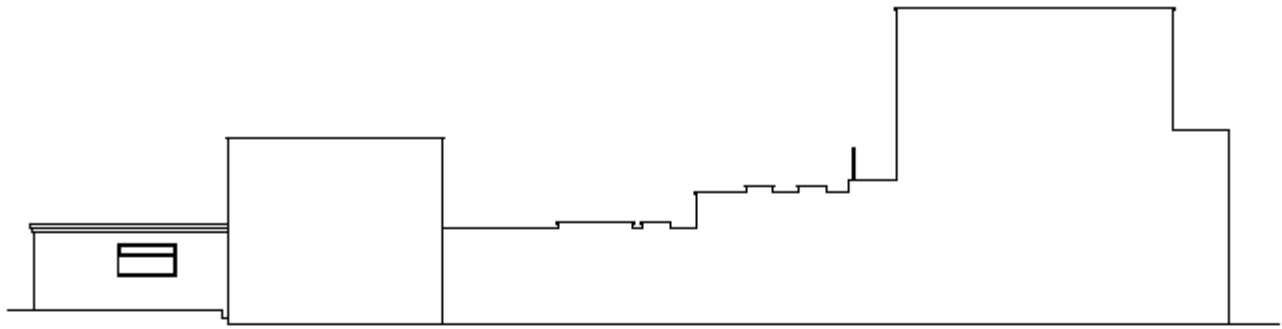


Existing First Floor - 1:200

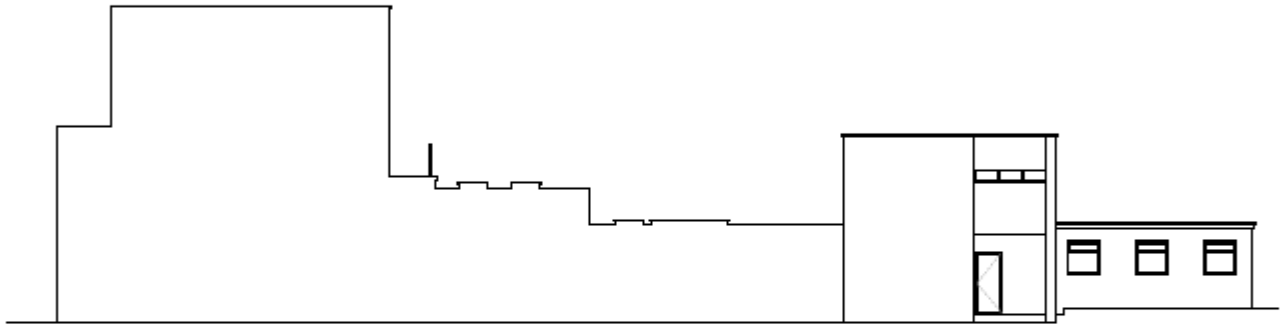


Existing Second Floor - 1:200

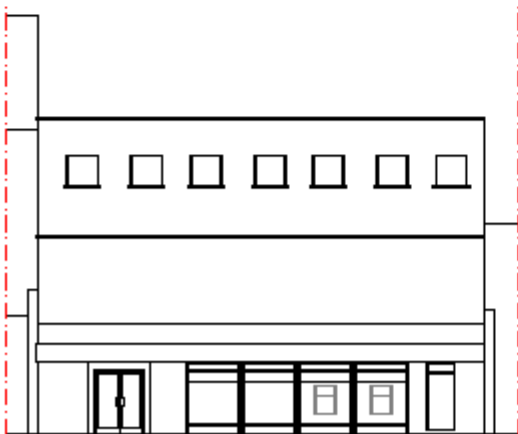




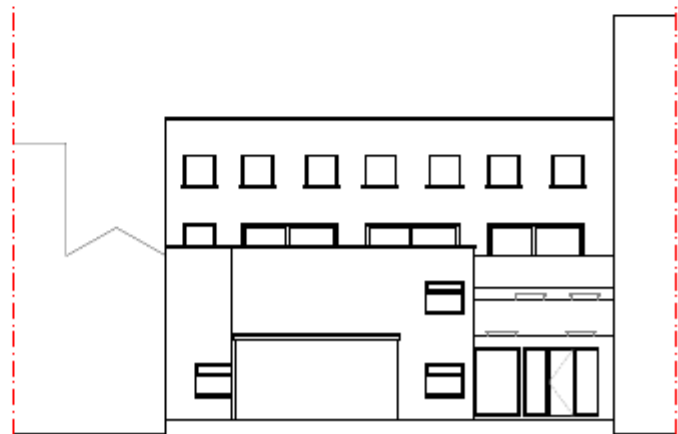
Existing East Side Elevation - 1:200



Existing West Side Elevation - 1:200



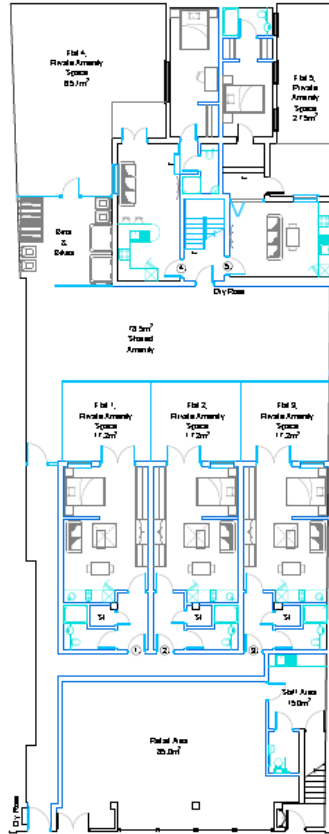
Existing Front Elevation - 1:200



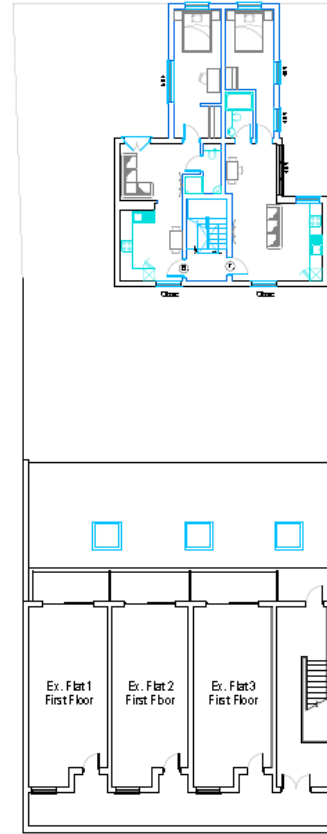
Existing Rear Elevation - 1:200



Proposed Ground Floor - 1:200



Proposed First Floor - 1:200



Proposed Second Floor - 1:200

