1. Executive summary

A review has been undertaken of national environmental data sets to assess the flood risk to the Site from all sources of flooding in accordance with The National Planning Policy Framework (NPPF) (2019) and National Planning Practice Guidance (NPPG) (2014). A site-specific flood risk assessment, to assess the flood risk to and from the development site, is provided within this concise interpretative report. Baseline flood risk and residual risks that remain after the flood risk management and mitigation measures are implemented are summarised in the table below.

This report has been updated for the latest environmental agency flood risk modelling March 2025 and National Flood Risk Assessment 2 of 28 January 2025.

Site analysis

Source of Flood Risk	Baseline	After Mitigation
River (fluvial) and Sea (coastal/tidal)	Very Low	Very Low
Surface water (pluvial) flooding	Very Low	N/A
Groundwater flooding	Low	Low
Other flood risk factors present	No	N/A
Is any other further work recommended?	Yes	Yes (see below)

N/A = mitigation not required

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

- According to the Environment Agency's (EA) Flood Map for Planning Purposes, the Site is located within a fluvial Flood Zone 1 (Low Probability)
- The Site is located over 180 m south from a watercourse.
- According to the EA's Risk of Flooding from Rivers and Sea (RoFRS) map, which considers the type, condition and crest height of flood defences, the Site has a Very Low risk of flooding from Rivers and the Sea.
- According to the EA's Risk of Flooding from Surface Water (pluvial) flood mapping, the Site has a Very Low risk of flooding from Surface Water.
- Groundwater Flood Risk screening data indicates there is a Low risk of groundwater flooding at the surface in the vicinity of the Site during a 1 in 100 year event.

- The risk of flooding from artificial (man-made) sources such as reservoirs, sewers and canals has been assessed:
- TheEA's Risk of Flooding from Reservoir map confirms theSite is not at risk of reservoir flooding.

- A sewer flooding history search was undertaken using the Strategic Flood Risk Assessment. This confirms no recorded incidences of sewer flooding at or within the vicinity of the Site
- The risk of flooding from artificial sources is considered to be Negligible.

Recommendations / Next steps

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

• The regular maintenance of any drains and culverts surrounding/on the Site should be undertaken to reduce the flood risk.

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

2. Introduction

Background and purpose

A site-specific flood risk assessment has been undertaken, to assess the flood risk to and from the development site. This assessment has been undertaken by firstly compiling information concerning the Site and the surrounding area. The information gathered was then used to construct a 'conceptual site model', including an understanding of the appropriateness of the development as defined in the NPPF (2019) and the source(s) of any flood risk present. Finally, a preliminary assessment of the steps that can be taken to manage any flood risk to the development was undertaken.

This report has been prepared with reference to the NPPF (2019) and NPPG (2014). "*The National Planning Policy Framework set out the Government's planning policies for England and how these are expected to be applied*" (NPPF, 2019).

The NPPF (2019) and NPPG (2014) promote a sequential, risk based approach to the location of development. This also applies to locating a development within a Site which has a variable risk of flooding.

"This general approach is designed to ensure that areas at little or no risk of flooding from any source are developed in preference to areas at higher risk. The aim should be to keep development out of medium and high risk flood areas (Flood Zones 2 and 3) and other areas affected by other sources of flooding where possible" (NPPG, 2014).

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

Report scope

In accordance with the requirements set out within NPPG 2014 (Paragraph: 030 Reference ID: 7-030-20140306), a thorough review of a commercially available flood risk report and EA supplied data indicating potential sources of flood risk to the Site from rivers and coastal sources, surface run-off (pluvial), groundwater and reservoirs, including historical flood information and modelled flood extent. Appropriate measures are recommended to manage and mitigate the flood risk to the property.

Information obtained from the EA and a review of the Horsham Strategic Flood Risk Assessment (SFRA) is used to ascertain local flooding issues and, where appropriate, identify information to support a Sequential and/or Exception test required as part of the NPPF (2019).

The existing and future flood risks to and from the Site from all flood sources is assessed in line with current best practice using the best available data. The risk to the development has been assessed over its expected lifetime, including appropriate allowances for the impacts of climate change. Residual risks that remain after the flood risk management and mitigation measures are implemented, are considered with an explanation of how these risks can be managed to keep the users of the development safe over its lifetime.

An indication of whether the site will potentially increase flood risk elsewhere is provided, including where the proposed development increases the building footprint at the Site. A drainage strategy to control runoff has also been prepared.

Report limitations

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

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

This report excludes consideration of potential hazards arising from any activities at the Site other than normal use and occupancy for the intended land uses. Hazards associated with

any other activities have not been assessed and must be subject to a specific risk assessment by the parties responsible for those activities.

Datasets

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

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

Source of flooding	Datasets consulted			
	Commercial Flood Maps (Appendix B)	SFRA	Environment Agency	OS Data
Historical	X	X	X	
Fluvial/tidal	X	X	X	
Surface water (pluvial)	X	X	X	
Groundwater	X	X		
Sewer		X		
Culvert/bridges		X		X
Reservoir		X	X	

*The SFRA and local guidance has been used to inform this report as referenced in Section 6.

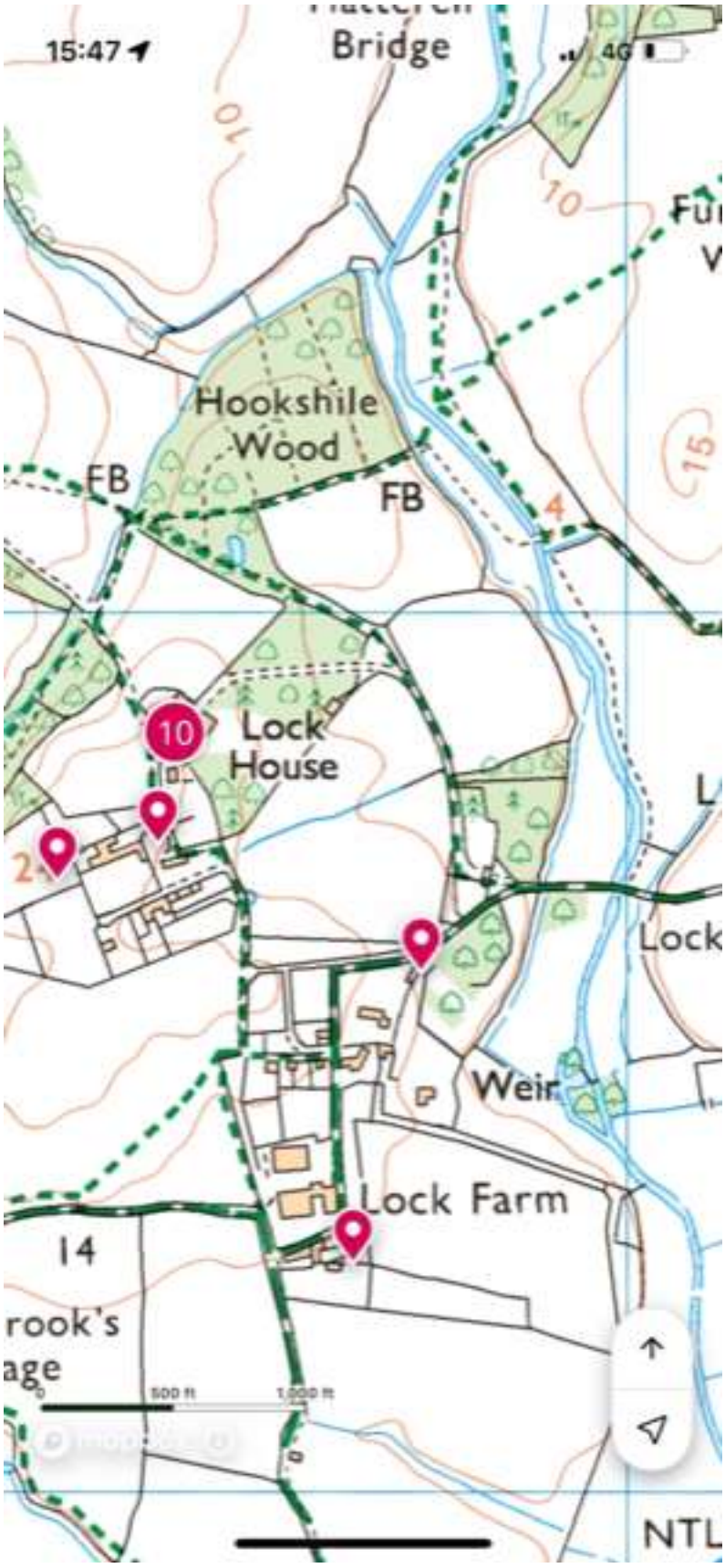
3. Site analysis

Site information

The Site is located west of Partridge Green, in a setting of residential and agricultural land use at TQ17513 18822. Site plans and drawings are provided in Appendix A.

According to OS data, using a 500 m buffer around the Site, the area is on a raised ground 20m above the nearest watercourse. (Figure 1).

The general ground levels on the Site are between 70 mAOD in the far southern area of the Site and 90.0 mAOD in the far northern area, with the Site falling in a southerly easterly direction. This is based on EA elevation data obtained for the Site to a 1 m resolution with a vertical accuracy of ±150 mm.


15:47
Bridge
Hookshile Wood
FB
FB
10
Lock House
Weir
Lock Farm
14
500 ft
1,000 ft
NTL

Development

The Site is currently used within a residential capacity with associated landscaped areas having formerly being used as a convent.

Development proposals comprise the development of an 8 bedroom holiday let unit.

Hydrological features

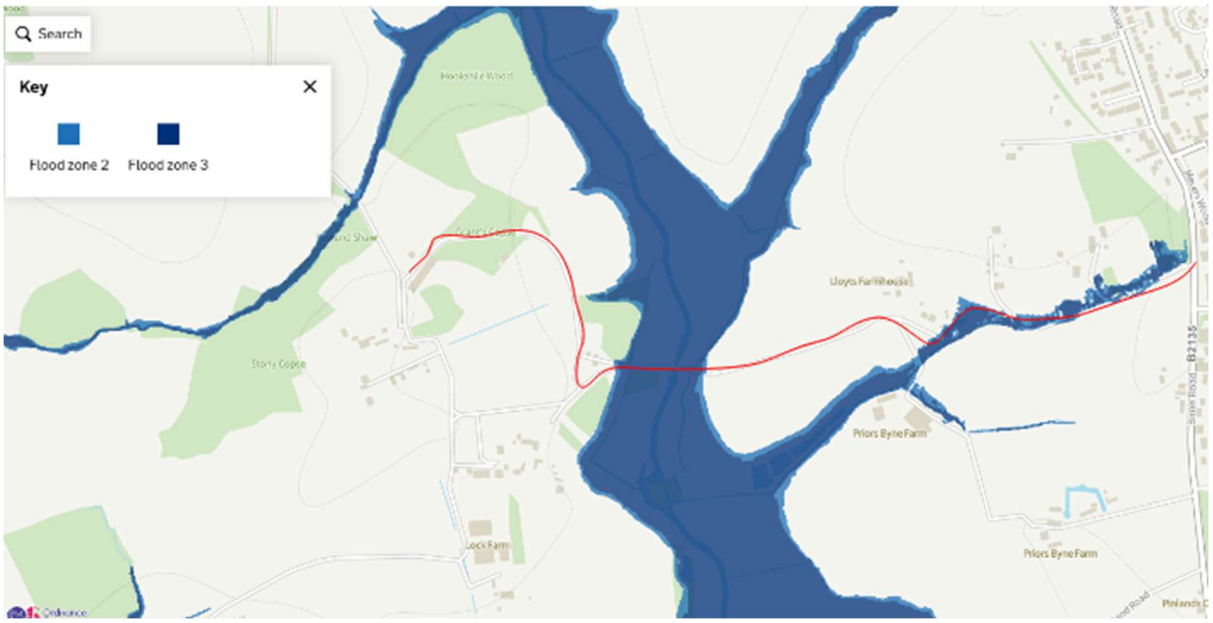
There are numerous surface water features within 500 m of the Site (Figure 2), these are included in the mapping below:

Figure 2 Surface water features

Proximity to relevant infrastructure:

There is a bridge on the private unadopted access road, Lock Lane to the site which is shared access with other residents of the Lock Estate together with the farm.

The bridge is in flood risk zone 3.



The river is tributary of the River Adur. The flood plan and occasionally Lock Lane are flooded as part of the Adur North strategy of preventing flooding in Steyning, Bramber and Shoreham when high levels of rainfall co-incide with a high tide.

The incidences of this during winter 2023/24 are:

10/12/23 – Water over road to 12cm – passable all cars

13/12/23 – water over road to 30cm – passable vans and 4x4

2/1/24 – Water over road to 40cm – passable vans and 4x4

9/2/24 – water over road to 30cm – passable vans and 4x4

23/2/24 – water over road to 12cm – passable all cars

28/4/24 – water over road to 5cm – passable al car

Accordingly in 2023/24 there were 3 incidence where an alternative route for those without a van or 4x4 needed to use.

The situation has been worsened by rapid surface run-off from farmland adjacent which is not draining through existing silted up drainage ditches. Significant work has been undertaken recently by the local farmer to clear all the drainage ditches so the land is free draining and to lessen the impact of surface water run off.

Whilst the bridge over the Adur is in Flood Zone 3, no development is proposed. This is solely the utilisation of the existing private access road that serves 26 properties. In the event this bridge is flooded the following routes remain:

1. Access by a 4x4 though the flood which at worst is 40cm above the road surface.
2. Alternative rear access which has been enjoyed for many years by all residents of the Lock Estate directly onto the A24 by the Garden Centre off Grinders Lane. The title to Lock house has a specific right of way over this route.

Hydrogeological features

British Geological Survey (BGS) mapping indicates there is no underlying superficial geology at the Site (BGS, 2020).

BGS mapping indicates the underlying bedrock geology consists of Claystone / Mudstone with a clay to clayey loam soil.

The Site does not lie within a groundwater Source Protection Zone (SPZ) (EA, 2020).

4. Flood risk to the development

Historical flood events

According to the EA's historical flood map, no historical flood events have been recorded at the Site (EA, 2023). The purpose of historical flood data is to provide information on where and why flooding may have occurred in the past. The absence of any recorded events does not mean flooding has never occurred on Site or that flooding will never occur at the Site.

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

According to the EA's Flood Map for Planning Purposes (Figure 3), the Site is located within fluvial Flood Zone 1 and is therefore classified as having a Very Low probability of fluvial flooding. The Site lies approximately 180 m to the north of the nearest land within Flood Zones 2 and 3.

Flood risk including the benefit of defences

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

According to the EA's Risk of Flooding from Rivers and the Sea (RoFRS) mapping (Figure 4), which considers the crest height, standard of protection and condition of defences, the flood risk from Rivers and the Sea is Very Low.

Surface water (pluvial) flooding

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

According to the EA's Risk of Flooding from Surface Water (pluvial) mapping, there is a very low risk of pluvial flooding in the Site.

Groundwater flooding

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

Groundwater Flood Risk screening data (Figure 7) indicates there is a Negligible risk of groundwater flooding at surface in the vicinity from permeable bedrock during a 1 in 100 year event. Mapped classes combine likelihood, possible severity and the uncertainty associated with predicting the subsurface system. The map is a national scale screening tool to prompt site-specific assessment where the impact of groundwater flooding would have significant adverse consequences. Mapping limitations and a number of local factors may reduce groundwater flood risk to land and property even where it lies within mapped groundwater flood risk zones, which do not mean that groundwater floods will occur across the whole of the risk area.

Based on a review of (limited) site specific data there is unlikely to be a mechanism for groundwater flooding at the site and the risk is negligible.

Climate change predictions suggest an increase in the frequency and intensity of extremes in groundwater levels. Rainfall recharge patterns will vary regionally resulting in changes to average groundwater levels. A rise in peak river levels will lead to a response of increased groundwater levels in adjacent aquifers subject to the predicted climate change increases in peak river level for the local catchment. Based on the available evidence the resulting increase to groundwater flood risk is not considered significant.

Flooding from Artificial Sources

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

Sewer flooding

Table 6-1 of the SFRA has identified 7 incidences of flooding as a result of surcharging sewers within the Forest Row parish. However, it is recognised that this parish covers a large area and instances of flooding are not specific to the Site (JBA, 2017).

Canal Failure

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

Water supply infrastructure

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

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

Culverts and bridges

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

Culverts and bridges have not been identified within 500 m of the Site.

Reservoir flooding

According to the EA's Risk of Flooding from Reservoir mapping, the Site is not considered to be at risk of flooding from a breach in any nearby reservoirs (EA, 2020).

5. Flood risk from the development

Floodplain storage

As the development is located within Flood Zone 1, there would be no losses in floodplain storage as a result of the development. Therefore, compensation for any loss in flood plain storage will not be required.

Drainage and run-off

The overall development has a very limited impact on building footprint/ hardstanding with a total building footprint of 396.8sqm.

Sustainable Drainage System (SuDS)

It is therefore recommended that any attenuation of run-off is undertaken on site as there is an increase in impermeable surface areas.

Table 5: SuDS features which may be feasible for the Site

Option	Description
Rainwater harvesting	Rainwater harvesting can collect run-off from the roofs for use in non-potable situations, using water butts for example. - PROPOSED
Green roof	Having part/all of the roof as a green roof covered in vegetation can intercept and store a proportion of the rainfall to result in an overall reduction in the amount of surface water run-off generated from a building structure. They comprise a substrate (growth medium) layer which can be seeded with specially selected plants suitable for the local climatic conditions. Beneath the growth medium is a geotextile filter layer which filters out the substrate from entering the aggregate/geo-composite drainage layer below. At the very bottom of the green roofing, a waterproof membrane protects the roof structure below. NOT PROPOSED
Permeable paving	Permeable pavements can be used for driveways, footpaths and parking areas to increase the amount of permeable land cover. Suitable aggregate materials (angular gravels with suitable grading as per CIRIA, 2007) will improve water quality due to their filtration capacity. Plastic geocellular

	systems beneath these surfaces can increase the void space and therefore storage but do not allow filtration unless they are combined with aggregate material and/or permeable geotextiles. PROPOSED TO ALL NEW PARKING AREAS
Swales	Shallow, wide and vegetated channels that can store excess run-off whilst removing any pollutants. PROPOSED
Soakaways	An excavation filled with gravel within the Site. Surface water run-off is piped to the soakaway. PROPOSED
Attenuation basins/pond	Dry basin or a permanent pond that is designed to hold excess water during a rainfall event. NOT PROPOSED

It is assumed that any changes to the existing drainage system will be undertaken in accordance with best practice and that care will be taken to ensure the new development does not overload/block any existing drainage or flow pathways to/from the Site. Based on the topography and low surface water flood risk in the vicinity interference with overland flow paths is considered unlikely.

6. Suitability of the proposed development

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

National policy and guidance

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

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

This report has been produced to assess all development types, prior to any development. The vulnerability classification and Flood Zones are compared within Table 6 overleaf (Table 3 of the NPPG (2014)).

As the Site is located within Flood Zone 1, all types of development listed within the Table overleaf are acceptable according to National Policy.

Sequential test: The aim of this test is to steer new development towards areas with the lowest risk of flooding (NPPF, 2019). Reasonably available sites located in Flood Zone 1

should be considered before those in Flood Zone 2 and only when there are no reasonably available sites in Flood Zones 1 and 2 should development in Flood Zone 3 be considered.

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

Table 6: Flood risk vulnerability and flood zone 'compatibility (taken from NPPG, 2014)

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

Local policy and guidance

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

Horsham Strategic Flood Risk Assessment:

The site lies within the Adur catchment within Horsham district council.

The upper and western branch of the Adur catchment spans most of Horsham District and is underlain by the Weald Clay. As a result, the watercourses respond rapidly to rainfall causing the water to run-off the impermeable surface. However the District Council Drainage Team, particularly in the last 10 years is becoming increasingly aware that during and after heavy rainfall, areas just outside the various flood zones have experienced flooding. This is due in part, as mentioned above to the prevailing surrounding impermeable surfaces discharging quickly into the already overloaded watercourses. Although there is

little history of flooding in this sub catchment of the Adur and consequently a low risk to people and property in this area.

The site lies within the Upper Adur – Policy 6 area of low to moderate flood risk where THE policy is to store water or manage run-off in locations that provide overall flood risk reduction or environmental benefits. The risk of flooding from the Adur in this sub-area is currently relatively low and future predictions for increases in flood risk are predicted to be relatively small. The majority of the land at risk is moderate grade agricultural land, and less than 10 residential properties are at risk. The implementation of policy 6 will assist in controlling or reducing flood risk downstream in urban areas such as Steyning, Upper Beeding and Shoreham. The increased flooding could result in an increase of wetland around the River Adur Water Meadow. This policy effectively see some use of the floodplain where Lock bridge crosses the Adur tributary being used to store water causing the limited incidences to localised flooding of the road.

7. Resilience and mitigation

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

Sea (coastal/tidal) flood mitigation measures

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

Rivers (fluvial) flood mitigation measures

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

Surface water (pluvial) flood mitigation measures

As the site is not identified as being at risk of flooding from Surface water, mitigation measures are not required.

Groundwater flood mitigation measures

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

Reservoir flood mitigation measures

According to EA information, the Site is not a risk of flooding from reservoirs; therefore, mitigation measures are not required.

Other flood risk mitigation measures

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

Further flood mitigation information

More information on flood resistance, resilience and water entry can be found here:

http://www.planningportal.gov.uk/uploads/br/flood_performance.pdf
www.knowyourfloodrisk.co.uk

8. Conclusions and recommendations

Table 9: Risk ratings following implementation and subsequent maintenance of mitigation measures

Source of Flood Risk	Baseline	After Mitigation
River (fluvial) and Sea (coastal/tidal)	Very Low	Very Low
Surface water (pluvial) flooding	Very Low	N/A
Groundwater flooding	Low	Low
Other flood risk factors present	No	N/A

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

Table 10: Summary of responses to key questions in the report

Key sources of flood risks identified	None (see Section 3).
Are standard mitigation measures likely to provide protection from flooding to/from the Site?	N/A (see Section 7).
Is any further work recommended?	

• The regular maintenance of any drains and culverts surrounding/on the Site should be undertaken to reduce the flood risk.

Appendix A

Proposed site plan