

**Consulting Civil Engineers** 

## **Flood Risk Assessment**

## WILDFOWLERS, SHORE ROAD, BOSHAM, PO18 8QL

For

## **Cara & Peter Bradley**

Rev -

Reference C2104

Date 08.06.2022

REVISION

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-	Initial issue v1	Issued for Review	09.06.22	RH	CS



## 1 SITE AND DEVELOPMENT OVERVIEW

DEVELOPMENT DESCRIPTION	EXISTING (PRE-DEVELOPMENT)	PROPOSED (POST-DEVELOPMENT)
Site Use	Residential Dwelling (report ref: existing site coverage)	Replacement Dwelling
Development Use	Residential (report ref: existing site use)	Residential Dwelling (report ref: proposed site use)
Use Design Life		100 years (epoch 2125)
Number of Dwellings	1	1
EA Vulnerability Classification	More Vulnerable (ref: existing site vulnerability)	More Vulnerable (ref: proposed site vulnerability)
Development Class		Minor
County Planning Authority	West Sussex County Council (WSCC) (ref: district Council)	
District Planning Authority	Chichester District Council (CDC) (ref: district Council)	
Local Sewer Authority	Southern Water (ref: Local Sewer Authority)	
SITE CATCHMENT CHARACTERISTICS	DESCRIPTION	SOURCE
River Basin Catchment	South East (report ref: River Basin Catchment)	https://environment.data.gov.uk/catchment- planning
Nearest EA Main River	Bosham Channel	https://environment.maps.arcgis.com/apps/MapSeri es/
Nearest Ordinary watercourse	Ditches associated with adjacent farmland	Online Mapping
or surface waters		
KEY FLOOD RISK AND DATA	DATA TYPE	SOURCE
or surface waters KEY FLOOD RISK AND DATA SOURCES EA Fluvial and Tidal Planning	DATA TYPE UK Government Flood Maps for Planning	SOURCE
EA Fluvial and Tidal Planning Data	DATA TYPE UK Government Flood Maps for Planning (ref:FMP)	SOURCE
EA Surface Water Data	DATA TYPE UK Government Flood Maps for Planning (ref:FMP) DEFRA Risk of Flooding from Surface Water Sources GIS Data (ref: RoFSW)	SOURCE https://flood-map-for-planning.service.gov.uk/ https://environment.data.gov.uk/DefraDataDownloa d/?Mode=rofsw
EA Surface Water Data EA Long term Flood Risk	DATA TYPE UK Government Flood Maps for Planning (ref:FMP) DEFRA Risk of Flooding from Surface Water Sources GIS Data (ref: RoFSW) UK Government Long term Flood Risk Maps (ref: LTFRM)	SOURCE https://flood-map-for-planning.service.gov.uk/ https://environment.data.gov.uk/DefraDataDownloa d/?Mode=rofsw https://www.gov.uk/check-long-term-flood-risk
EA Fluvial and Tidal Planning Data EA Surface Water Data EA Long term Flood Risk Environment Agency Product 4/5 Data	DATA TYPE UK Government Flood Maps for Planning (ref:FMP) DEFRA Risk of Flooding from Surface Water Sources GIS Data (ref: RoFSW) UK Government Long term Flood Risk Maps (ref: LTFRM) Product 4 <sup>2</sup> (report ref: EA Product Data)	SOURCE https://flood-map-for-planning.service.gov.uk/ https://environment.data.gov.uk/DefraDataDownloa d/?Mode=rofsw https://www.gov.uk/check-long-term-flood-risk The model used was the Chichester Coastal Modelling (2D) which was completed by IBA Consulting in 2016
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### 2 INTRODUCTION

- 2.1 The report is a Phase 1 Flood Risk Assessment (FRA) for the development proposals in relation to the premises at Wildfowlers, Shore Road, Bosham, PO18 8QL for a replacement dwelling (see site location map, Figure 1).
- 2.2 This assessment is required under the National Planning Policy Framework (NPPF) and Local and District Councils given the location, scale and associated flood risks.



LOCATION PLAN (SCALE 1:1250)

Figure 1 - Site Location Plan (site bordered red) Source: Location Map

2.3 This FRA has been written in general accordance with the National Planning Policy Framework (NPPF) and its Technical Guidance, Environment Agency (EA) Standing Advice, LFRMS, County SFRA and associated guidance. This FRA has relied upon publicly available information and data provided from the EA (where relevant). The interpretation of this data has been undertaken with the understand of its accuracy and to a detail deemed suitable for this development type, location and relevant flood risk.



### DEVELOPMENT PROPOSALS

2.4 Planning permission is sought for the construction of a replacement dwelling at the site. The replacement dwelling is shown to include a basement level as well as an increase in the ground floor footprint. Architectural proposals are included in Appendix 1.

#### FLOOD RISK ASSESSMENT SCOPE

- 2.5 The purpose of this FRA is to inform the feasibility and appropriateness of the proposals and to ensure the development proposals incorporate flood resilient measures appropriate to its flood risk.
- 2.6 It should be noted, where up to date flood risk or climate change models are not available, best efforts have been made to assess these risks and extrapolate the available data where necessary. However, this approach may require further detailed modelling if deemed necessary by the reviewing authorities. Detailed hydraulic modelling is deemed outside the scope of this report.

### FLOOD RISK VULNERABILTY

- 2.7 This FRA has been undertaken with due regard to the statutory requirements of the NPPF (2021) and with reference to the Planning Practice Guidance (PPG) in relation to development and flood risk. This FRA has been undertaken to inform on the current flood risk to the site. Therefore, this FRA aims to ensure that the development proposals take into account the site-specific flood risk and to avoid inappropriate development in areas potentially at risk of flooding.
- 2.8 Annex 3 of the NPPF Flood Risk Vulnerability Classification provides guidance on assigning development vulnerability. A summary of this information is provided in Table 1.

Table 1 – Extract from Annex 3 of the National Planning Policy Framework and Table 2: Flood risk vulnerability classification of PPG detailing Flood Risk Vulnerability Classification by use. (Existing Site Classification is Shaded Gray, Proposed Site specific classification shaded blue).

ESSENTIAL	HIGHLY	MORE	LESS	WATER-
INFRASTRUCTURE	VULNERABLE	VULNERABLE	VULNERABLE	COMPATIBLE
Essential transport infrastructure	Police and ambulance stations; fire stations and telecom installations	Hospitals	Police, ambulance and fire stations which are not required to be operational during flooding.	Flood control infrastructure.
Essential utility infrastructure which has to be located in a flood risk area for operational reasons	Emergency dispersal points.	Residential institutions such as residential care homes, prisons and hostels.	Buildings used for commercial purposes and of a non-residential nature	Water transmission infrastructure and pumping stations.
Wind turbines.	Basement dwellings.	Buildings used for dwelling houses and sleeping, drinking establishments	Land and buildings used for agriculture and forestry.	Sewage transmission infrastructure and pumping stations.
Solar farms.	Caravans, mobile homes and park homes intended for permanent residential use.	Non–residential uses for health services, nurseries and educational uses	Waste treatment (except landfill* and hazardous waste facilities).	Sand and gravel working.
	Installations requiring hazardous substances consent.	Landfill* and sites used for waste management facilities for hazardous waste.	Minerals working and processing (except for sand and gravel working).	Docks, marinas and wharves and Navigation facilities.
		Sites used for holiday or short-let caravans and camping, subject to a specific warning and evacuation plan.	Water treatment and Sewage treatment works which do not need to remain operational during times of flood.	Ministry of Defence installations.



2.9 The site area for development is presently considered 'More Vulnerable' under the NPPF. The development proposals are considered 'More Vulnerable', being for the construction of a replacement dwelling, and therefore there will be no increase in vulnerability post development.

### SEQUENTIAL TEST/EXCEPTION TEST

- 2.10 The EA have designated different areas of the UK based on specific risk to assist and steer developments; these are:
  - Flood Zone 1 land assessed as having a less than a 1 in 1,000 annual probability of river or sea flooding (<0.1%)</li>
  - Flood Zone 2 land assessed as having between a 1 in 100 and 1 in 1,000 annual probability of river flooding (1% 0.1%), or between a 1 in 200 and 1 in 1,000 annual probability of sea flooding (0.5% 0.1%) in any year
  - Flood Zone 3 land assessed as having a 1 in 100 or greater annual probability of river flooding (>1%), or a 1 in 200 or greater annual probability of flooding from the sea (>0.5%) in any year. Flood Zone 3b is land have greater than 1 in 20 annual probability of flooding.
- 2.11 According to NPPF footnote 20, a site-specific FRA should be prepared when the application site is:
  - Situated in Flood Zone 2 and 3; for all proposals of new development (including minor development and change of use); or
  - Greater than 1 ha in size and located in Flood Zone 1; or
  - Located in Flood Zone 1 where there are critical drainage problems or within a designated Critical Drainage Area (CDA) as notified to the LPA by the Environment Agency; or
  - At risk of flooding from other sources of flooding, such as those identified in this SFRA; or
  - Where surface water flood risk exists, detailed surface water modelling may be required; or
  - Subject to a change of use to a higher vulnerability classification which may be subject to other sources of flooding.
- 2.12 Based on the EAs Flood Map for Planning (Figure 2), the site is affected by Flood Zone 3 which denotes a high risk of flooding from seas). The site is considered to have low risk of surface water flooding (based on the EA's Long Term Flood Risk Maps and RoFSW data) (Figure 3). Therefore, given the site's location in areas of flood risk, the proposals require a site-specific FRA in accordance with local and county guidance and the NPPF.
- 2.13 Under the NPPF, all new planning applications must undergo a Sequential Test. At the high-level, this test must be implemented by local planning authorities with a view to locating particularly vulnerable new developments (e.g., residential, hospitals, mobile homes etc.) outside of the floodplain.
- 2.14 However, at the site-specific level, the principles of the sequential test should be followed by locating more vulnerable elements of development to lower areas of flood risk within the site itself. Table 2 below presents a helpful guide in identifying the suitability of a site prior to applying the Sequential Tests in its entirety and identifies when the Exception Test is required.





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Figure 2 extract from EA Flood Maps for Planning (Source: DEFRA)



Figure 3 - extract from the EA's Long-Term Risk of Flooding from Surface Water (RoFSW) maps



Table 2 The Sequential Test: Flood Risk Vulnerability and Flood Zone 'Compatibility' Table as specified by NPPF. Shaded cells denote the proposed re-development. Please note:  $\checkmark$  means development is appropriate; x means the development should not be permitted and should be subject to a full sequential test.

FLOC	DD RISK VULNERABILITY CLASSIFICATION	ESSENTIAL INFRASTRUCTURE	WATER COMPATIBLE	HIGHLY VULNERABLE	MORE VULNERABLE	LESS VULNERABLE
Flood Zone	Zone 1	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$
	Zone 2	$\checkmark$	$\checkmark$	Exception Test Required	$\checkmark$	$\checkmark$
	Zone 3a	Exception Test Required	~	×	Exception Test Required	~
	Zone 3b Functional Floodplain	Exception Test Required	✓	×	×	×

- 2.15 Using the principles of the Sequential Test outlined above, the site use is classified as 'More Vulnerable' and located within Flood Zone 3. There is an existing dwelling on site and given there is no change in vulnerability or intensification, a development of this nature is considered **appropriate and acceptable and full application of the Sequential Test is not deemed necessary.**
- 2.16 Therefore, this FRA presents the findings of the Exception Test and recommendations for incorporation of flood resilient measures to improve long term flood resilience of the proposals. The following sections undertakes further analysis of the data available from the Local and District Council and EA data sets relating to flooding from a number of sources.



### 3 LOCAL FEATURES

### LOCALITY

- 3.1 The application site lies just to the south of the settlement boundary of Bosham, within the Chichester Harbour Area of Outstanding Natural Beauty (AONB) and countryside and the Chichester and Pagham Harbour Special Protection Area (SPA) buffer (see site location map, Figure 1).
- 3.2 Wildfowlers is situated within a row of dwellings close to the Chichester Harbour waterside. The area primarily comprises detached dwellings set within spacious plots, with the density of development increasing closer to Bosham. Wildfowlers adjoins farmland to the west and the residential property Bosham Reach to the east. It sits within a large plot, set back from Shore Road.

### TOPOGRAPHY

- 3.3 According to the EA LiDAR data, site levels range between approximately 4m AOD along the southern boundary, and falling to 2.5m at the northern boundary. There is an approximate fall of 1.4% to the north. There is a raised bund along the site's northern boundary with Shore Road, understood to act as some sort flood defence, but is not continuous across the whole frontage.
- 3.4 Wider area levels fall towards the north and the Bosham Channel (at sea level).



Figure 4 - extract showing area contours (based on EA 1m Lidar Data). Site edged Red, proposed tennis court edged and hatched yellow.



### **RIVERS AND WATERBODIES**

- 3.5 The nearest water body to the site is the Chichester Harbour/Bosham Channel located just to the north of the site on the other side of Shore Road. There appear to be a number of land drainage ditches associated with the surrounding farmland but not directly associated with the site. The site is located with the South East River Basin district.
- 3.6 The South East river basin district covers over 10,200km<sup>2</sup> and extends from West Sussex in the west to Kent in the east. It includes East and West Sussex, the Isle of Wight and parts of Wiltshire and Surrey. In total over 3.5 million people live and work in the south east, which is densely populated and includes the major urban centres of Southampton, Portsmouth, Ashford, Brighton and Hove. The South East river basin district has a rich diversity of wildlife and habitats, supporting many species of global and national importance. These include migratory salmon rivers, native white clawed crayfish, and estuaries and coastal waters important for shellfish, wintering wildfowl, breeding gulls and terns. The management catchments that make up the river basin district include many interconnected rivers, lakes, groundwater, estuarine and coastal waters. These catchments range from chalk streams of the Test and Itchen catchments to the modified rivers of the Rother catchment.

#### **GEOLOGY & HYDROGEOLOGY**

**3.7** The online British Geological Survey (BGS) (Figure 5) shows the site to be underlain by Lewes Nodular Chalk Formation, Seaford Chalk Formation, Newhaven Chalk Formation, Culver Chalk Formation and Portsdown Chalk Formation (undifferentiated) - Chalk. There are Head - Clay, Silt, Sand and Gravel records of superficial deposits



Figure 5 extract from BGS Bedrock and Superficial Deposits Mapping (source: BGS)



3.8 Table 3 below present a summary of the site hydrogeological classifications and considerations.

HYDROGEOLOGY CLASSIFICATIONS							
Aquifer Designation (Bedrock)	Principle	Secondary	Unproductive				
Aquifer Designation (Superficial)	Principle	Secondary	Unproductive				
Groundwater Vulnerability	High	Medium	Low				
Located within Source Protection Zone	Yes	No	N/A				
Soluble Rock Risk	Present	Not Present	N/A				

Table 3 - Summary of Hydrogeology Classifications (source Magic Map, BGS) – applicable classification shaded Blue

3.9 The sensitivity of the underlying groundwater should be carefully considered in the design of surface water management systems and during construction. Details of groundwater levels and soil permeability are unknown and should be confirmed. The design permeability should be investigated further for the purpose of surface water management on the site.

### FLOOD DEFENCES

- 3.10 The Environment Agency releases a range of flood asset information as Open Data through their AIMS Defence (Spatial Flood Defences) GIS mapping. They are the only comprehensive and up-to-date group of datasets in England that show flood defences currently owned, managed or inspected by the EA.
- 3.11 Figure 6 provides an extract from EA AIMS Defence data (2021). This data shows that there are no defences supporting or protecting the site from flooding.



Figure 6 - Extract from EA AIMS Defence Dataset. Site edge red, defences shown in green.



## 4 SOURCES OF FLOOD RISK

- 4.1 In order to assist the implementation of the Governments NPPF, the EA has undertaken national scale flood risk mapping. This mapping takes into account a range of sources including flooding from rivers, sea, surface water and reservoir breach. Furthermore, each Council produces a Strategic (county scale) Flood Risk Assessments (SFRA) that aim to specifically identify local flood risk issues (such as critical drainage areas and local groundwater flooding).
- 4.2 The following section reviews both the EA data as well as the relevant information available from the SFRA.

### FLUVIAL (RIVER) AND TIDAL (SEA)

- 4.3 The EA have undertaken fluvial and tidal modelling of the nation's main rivers in flood to support and ensure developments are steered away from flood prone areas or are designed to ensure risk to people is not increased as a result.
- 4.4 The EA's Flood Maps for Planning shows that the site is affected by Flood Zone 3 (Sea Flooding only) from the Bosham Channel, and therefore the land is assessed as having a 1 in 200 or greater annual probability of flooding from the sea (>0.5%) in any year. It should be noted that the EA's Flood Maps for Planning do not allow for the presence of defences and so illustrate a conservative representation of flood risk from rivers or seas.



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Figure 7 - EA Flood Map for Planning (source Environment Agency Flood Maps)

- 4.5 Figure 8 below provides an extract from the EA's Product 4 requested for the purpose of this FRA. The EA has provided data relating to a number of nodal points across the site to assess flood depths from a number of return periods. The EA have also provided climate change impacts to 0.5% AEP (that is Flood Zone 3 extents). In the context to this site and the tidal flood risk, Node point 5 has been adopted as the point for advising any flood levels and mitigation measures.
- 4.6 The defended scenario has been used as these generally present the worst scenario in terms of flooded depths.





 Table 1: Water Levels: Tidal Undefended

	NGR		Modelled Flood Levels in Metres AOD Undefended Annual Exceedance Probability				
Node Ref	Eastings	Northings	0.5%	0.5% (2070)*	0.5% (2115)*	0.1%	
1	480574	103293	3.50	4.03	4.63	3.73	
2	480571	103255	3.50	4.03	4.63	3.73	
3	480544	103233	3.50	4.03	4.63	3.73	
4	480568	103239	3.50	4.03	4.63	3.73	
5	480558	103228	3.50	4.03	4.63	3.73	
6	480546	103209	3.50	4.03	4.63	3.73	
7	480566	103211	-	4.03	4.63	3.73	
8	480556	103198	3.50	4.03	4.63	3.73	

Table 2:	Water	Levels:	Tidal	Defended
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	NGR		Modelled Flood Levels in Metres AOD Defended Annual Exceedance Probability				
Node Ref	Eastings	Northings	0.5%	0.5% (2070)*	0.5% (2115)*	0.1%	
1	480574	103293	3.52	3.96	4.66	3.65	
2	480571	103255	3.52	3.96	4.66	3.65	
3	480544	103233	3.52	3.96	4.66	3.65	
4	480568	103239	3.52	3.96	4.66	3.65	
5	480558	103228	3.52	3.96	4.66	3.65	
6	480546	103209	3.52	3.96	4.66	3.65	
7	480566	103211	-	3.96	4.66	3.65	
8	480556	103198	3.52	3.96	4.66	3.65	

Figure 8 - extract from the JFLOW Model 2006, with updated climate change runs completed by JBA Consulting in 2016.

4.7 The EA data shows that the site is almost entirely affected by the 0.5% AEP (that's Flood Zone 3) events. Node point 5 shows flood depths in the proposed tennis court area of up to 0.35m in the defended scenario and 0.37m in the undefended scenario.



### **Climate Change**

- 4.8 Node point 3 is considered the most relevant point to assess flood risk, and shows for the 2115 epoch that flood depths could reach 1.49m (or 4.66mAOD) in the defended scenario.
- 4.9 There is also likely to be an increase in ground floor footprint as a result of the development proposals. This increase is not likely to increase flood risk, displacement of sea/tidal flood volumes does not impact on surrounding flood depth.

### PLUVIAL (SURFACE WATER)

- 4.10 Surface water flooding is the term applied to flooding when intense rainfall overwhelms the ability of the land to infiltrate water, or in urban areas for the sewers and road drains to drain the water away, resulting in surface water runoff and consequent flooding. It is a particular problem in urban areas where the excess water will often travel along streets and paths, between and through buildings and across open space. It can result in indiscriminate flooding to properties when not controlled. The high-profile flooding across the UK in the summer of 2007 was largely attributed to excess runoff where the capacity of the drains was exceeded by intense summer rain storms and led to the Government commissioning the independent Pitt Review in 2008.
- 4.11 The SFRA recommends uses the EA RoSWF maps to assess the risk from pluvial sources. These maps use remotely sensed LiDAR data to determine large areas of topography. In all urban areas this LiDAR has been edited to remove the buildings. This editing process results in a slightly un-even surface profile, which can result in the production of small depressions that fill with water but in reality, is not at risk of surface water flooding. This should be taken into account where very localised areas of flooding are evident and are independent of wider surface water flood flows and routes.
- 4.12 The EA mapping shows 3 event scenarios for the 1 in 30 (3.3% chance of occurring in any one year) return period (high risk Figure 9), 1 in 100 (1% chance of occurring in any one year) return period (medium risk Figure 10) and 1 in 1000 (0.1% chance of occurring in any one year) return period (low risk Figure 11). Extracts of this mapping is provided below, along with an analysis of their likely source and projected impacts on the development.
- 4.13 Figure 9 shows the high-risk scenario (1 in 30-year event). In this event, the site is wholly unaffected by surface water flooding.



Figure 9 EA Long Term Flood Risk Maps (Depths) – High Risk of surface water flooding (source: EA Long Term Flood Risk Maps), site bordered red.



4.14 Figure 10 present the medium risk scenario (1 in 100-year return period) and continues to show that the site is wholly unaffected by surface water flooding.



4.15 The low-risk scenario (1 in 1000-year event) continues to show the site remains unaffected by surface water flooding.



Figure 11 EA Long Term Flood Risk Maps – Low risk of surface water flooding depth (source: EA Long Term Flood Risk Maps), site bordered red.

4.16 Therefore, reviewing the RoFSW data, surface water flood maps and site topography, it is considered that flood risk from surface water flooding to the site is very low given that the site remains unaffected for all events.



#### Impacts of Climate Change

- 4.17 With changes in climate profiles, it is expected that rainfall intensities and frequencies will increase, and as such the risk to property will increase with this. However, the risk of flooding to the proposed buildings from increase in overland flow extents because of climate change is considered to remain low. Nevertheless, it is important to ensure that the proposals do not increase flood risk as a result, incorporates flood resilient building measures and Sustainable Drainage Systems (SuDS).
- 4.18 It should be noted that the Council considers the implementation of SuDS as an essential element of reducing future flood risk to both the site and its surroundings. Indeed, reducing the rate of discharge from sites is one of the most effective ways of reducing and managing flood risk. SuDS can effectively be used to minimise the potential increase of risk to the property and users in the future. In accordance with the NPPF, the sites surface water drainage should account for minimum 40% climate change allowance to site rainfall profiles, to ensure climate change is appropriately considered.
- 4.19 SUDS should try to achieve an infiltration solution, however careful consideration of the underlying geology and its principal nature as an aquifer needs to be considered in the water quality and treatment aspects of the drainage design.

### **RESERVOIR FLOODING (BREACH)**

- 4.20 Reservoir flooding is very different from other forms of flooding. It may happen with little or no warning and evacuation will need to happen immediately. The likelihood of such flooding is difficult to estimate, but it is less likely than flooding from rivers or surface water. It may not be possible to seek refuge upstairs from floodwater as buildings could be unsafe or unstable due to the force of water from the reservoir breach or failure. The risk of inundation to the study area as a result of reservoir breach or failure of a number of reservoirs within the area was assessed as part of the National Inundation Reservoir Mapping (NIRIM) study. Several reservoirs are located within the study area. However, there are also reservoirs outside of the area whose inundation mapping is shown to affect the study area. Maps of the flood extent can be found on the Government's Long term flood risk information website.
- 4.21 The EA has undertaken failure scenarios of the UK reservoirs and summarised these extents through their Long-Term Flood Risk Maps for Reservoir Flooding. Figure 12 shows that the site is not at risk of reservoir flooding.



Figure 12 extract from EAs LTFRM Reservoir Flood Risk (star marks approximate site location)

4.22 Therefore, the risk of reservoir failure to the site is considered very low.



### SEWERS FLOODING

- 4.23 A common source of flooding is a result of sewer or other drainage infrastructure becoming surcharged and flooding. Flood risk associated with the potential surcharging of the sewerage network is extremely hard to predict and there are currently no datasets available that provide an indication of areas that may be at risk of flooding from the sewerage network. However, as most drainage systems are not designed for events greater than a 1 in 30 (3.33%) annual probability rainfall event (typically reducing to 1 in 5 (20%) for highway drainage systems and most likely less for older drainage systems) new development should always give consideration to likely overland flow paths should flooding from these systems occur.
- 4.24 As emergence from sewerage systems is likely to follow the ground's topography, it is recommended that consideration is given to the EA's Risk of Flooding from Surface Water map and other available topographic data as this will provide an indication of likely flow routes should surcharging of the sewerage system occur.
- 4.25 The WSCC SFRA present records relating to sewer flooding. Specifically, Map S from the SFRA highlights that there have been a number of sewer flooding incidences in the area, but not within the immediate area of the site.



Figure 13 - extract from SFRA Map S – "Areas with Recorded Incidents of Sewer Flooding"

- 4.26 As such, it can be considered the risk of sewer flooding to the site is considered low, assuming that any new development proposals include appropriate protective measures to manage runoff, and any additional runoff proposed to be directed offsite (either into the public sewer system or elsewhere) are approved by the local authority or body responsible for its management prior to discharge.
- 4.27 The Environment Agency has no record of sewer flooding to this property/area in the past.

#### GROUNDWATER

- 4.28 Groundwater flooding is the emergence of groundwater at the ground surface or into subsurface voids arising as a result of:
  - $\Rightarrow$  abnormally high groundwater heads or flows;
  - $\Rightarrow$  the introduction of an obstruction to groundwater flow; or



- $\Rightarrow$  the rebound of previously depressed groundwater levels.
- 4.29 Groundwater flooding usually occurs following a prolonged period of low intensity rainfall. As groundwater flow is much slower than surface flow, the flooding may not recede for long periods of time, typically weeks or even months. It is important to recognise the risk of groundwater flooding is typically highly variable and heavily dependent upon local geology, topography and weather conditions, as well as local abstraction regimes. Groundwater flooding is hard to predict and challenging to mitigate.
- 4.30 Review of local geology can provide an indication of where groundwater flooding may occur. However, it is important to remember that once groundwater has reached the ground's surface, it is likely to flood overland and may therefore pose similar risks to those identified by the EA's Flood Risk from Surface Water map. It is therefore not necessarily those areas susceptible to groundwater emergence that are at risk, but the areas that are located downhill of those areas susceptible to groundwater emergence.
- 4.31 Map G from the WSCC SRFA, shows that the site is in an area that could be prone to groundwater emergence (see Figure 14). However, there have been no recorded incidences of groundwater flooding to the site, and it is notably difficult to predict where groundwater may emerge and cause damage. Nevertheless, groundwater flooding is typically low level in depth, and all but the worst cases can be managed through appropriate flood resilient designs. However, the risk of high groundwater needs to be carefully considered in both the design of the structure, basement, foundations, and drainage (as well as during the construction process).



Figure 14 - Extract from WSCC SFRA Map G Areas More Prone to Groundwater Flooding (site marked with star)

### Impacts of Climate Change

4.32 The potential effects of climate change on groundwater levels are uncertain. Greater seasonality in groundwater level fluctuation is a potential outcome under a pattern of higher winter rainfall and less summer rainfall. Broad predictions of the impacts of climate change on groundwater levels are difficult to make at the present time.



### HISTORICAL SOURCES

4.33 The EA and SFRA data suggest that the site has no recorded instances of flooding directly affecting the site (see Figure 15).



Figure 15 - Historical Sources of Flooding (EA Data)

### SUMMARY OF RISKS

- 4.34 Section 3 outlines the likely sources of flooding based on the available data, the below is a summary of these risks:
  - Fluvial Risk from this source is considered very low given that the site is not at risk of flooding from river sources.
  - **Tidal** Risk from this source is considered **high** given that the entire development area is subject to flooding from river and seas for the 0.5% AEP.
  - Surface Water Risk from this source is considered very low.
  - **Reservoir** Risk from this source is considered **very low**.
  - Sewers and Drainage Risk from this source is considered low given no historical data points directly to the site having flooding from this source previously.
  - **Groundwater** Risk from this source is considered **moderate**.
- 4.35 Although tidal/sea flooding is considered high, the proposed development is for a replacement dwelling and therefore will not increase vulnerability or overall flood risk. However, by creating a replacement dwelling, will afford the opportunity for the proposals to implement flood mitigation measures to reduce the risk to a residential dwelling on the site and therefore improve flood risk overall. Therefore, is it considered that the replacement dwelling is acceptable based on the NPPF.
- 4.36 A number of mitigation measures have been discussed in Section 5.



### **RESIDUAL RISKS**

- 4.37 Residual risks are those remaining after applying the sequential approach to the location of development and taking mitigating actions. Examples of residual flood risk include:
  - the failure of flood management infrastructure such as a breach of a raised flood defence, blockage of a surface water conveyance system, overtopping of an upstream storage area, or failure of a pumped drainage system;
  - failure of a reservoir, or;
  - a severe flood event that exceeds a flood management design standard, such as a flood that overtops a raised flood defence, or an intense rainfall event which the drainage system cannot cope with.
- 4.38 Areas behind flood defences are at particular risk from rapid onset of fast-flowing and deep-water flooding, with little or no warning if defences are overtopped or breached. The site is not protected by flood defences and therefore there is no residual flood risk from this source.
- 4.39 A number of mitigation measures have been proposed below in Section 5 in order to minimise/mitigate flood risk from the above sources.



## 5 FLOOD MITIGATION MEASURES

- 5.1 The proposals allow the opportunity to improve flood resilience of the site by incorporating a number flood mitigation measures, both through the incorporation of flood resilient building materials, surface water drainage improvements and signing up to the EA Flood Warning/Alert System.
- 5.2 Therefore, in order to meet the requirements of the WSCC SFRA and NPPF, it is recommended that the development proposals ensure:
  - On site drainage should be designed in accordance with Building Regulations Part H and the SUDS Manual without flooding up to the 1 in 100 year plus climate change event;
  - No sleeping accommodation on the ground level;
  - All sleeping accommodation on the first floor (i.e above 4.63mAOD);
  - No habitable rooms in the basement;
  - Any flood sensitive assets (such as electrics) are stored above 4.63mAOD;
  - Users sign up to the EA Flood Warning and/or Alert System and incorporate a flood evacuation and management plan (outside the scope of this report);
- 5.3 Further generic building design and construction measures can be found at https://assets.publishing.service.gov.uk/.

### BUILDING MATERIAL MITIGATIONS

5.4 The national government produced guidance for improving the flood resilience of building in the Communities and Local Government (CLG) 2007 'Improving the Flood Performance of New Buildings' publication. This publication provides recommendations on how to protect buildings in the case of a flood event, and propose two scenarios based on maximum expected flooded depths:

Water exclusion strategy – where emphasis is placed on minimising water entry whilst maintaining structural integrity, and on using materials and construction techniques to facilitate drying and cleaning. This strategy is favoured when low flood water depths are involved (not more than 0.3m). According to the definitions adopted in this Guidance, this strategy can be considered as a resistance measure but it is part of the aim to achieve overall building resilience

Water entry strategy – where emphasis is placed on allowing water into the building, facilitating draining and consequent drying. Standard masonry buildings are at significant risk of structural damage if there is a water level difference between outside and inside of about 0.6m or more. This strategy is therefore favoured when high flood water depths are involved (greater than 0.6m) by utilising resilient materials, and construction methods.

- 5.5 Given the primary risk is related to tidal flooding, it is considered that a **Water Entry Strategy** should be adopted for the dwelling. Some recommendations include:
  - The route of all electrical services will run from ceilings at ground floor (where possible), down toward sockets;
  - All plumbing insulation to be of closed-cell design;
  - Non-return valves to be fitted to all drain and sewer outlets;
- 5.6 Further detail can be found at <u>https://assets.publishing.service.gov.uk/</u>:



### 6 CONCLUSION

- 6.3 The report is a Phase 1 Flood Risk Assessment (FRA) for the development proposals in relation to the premises at Wildfowlers, Shore Road, Bosham, PO18 8QL for a replacement dwelling (see site location map, Figure 1).
- 6.4 This assessment is required under the National Planning Policy Framework (NPPF) and Local and District Councils given the location, scale and associated flood risks.
- 6.5 Based on the EAs Flood Map for Planning (Figure 2), the site is affected by Flood Zone 3 which denotes a high risk of flooding from seas). The site is considered to have low risk of surface water flooding (based on the EA's Long Term Flood Risk Maps and RoFSW data) (Figure 3).
- 6.6 A review of flood risk from all sources (including Fluvial, Surface Water, Groundwater and Sewer flood risk), has been undertaken, and appears to show general flood risk from these sources is low.
- 6.7 The primary source of flood risk to the site is from tidal (sea) flooding and shows that in the 0.5% AEP (1 in 200 year) event plus climate change the dwelling could be affected by up to 1.49m of flooding.
- 6.8 To assist in mitigating the present flood risk to the site's users based on the development proposals, a number of recommendations have been discussed, the core of these include:
  - On site drainage should be designed in accordance with Building Regulations Part H and the SUDS Manual without flooding up to the 1 in 100 year plus climate change event;
  - No sleeping accommodation on the ground level;
  - All sleeping accommodation on the first floor (i.e above 4.63mAOD);
  - No habitable rooms in the basement;
  - Any flood sensitive assets (such as electrics) are stored above 4.63mAOD;
  - Users sign up to the EA Flood Warning and/or Alert System and incorporate a flood evacuation and management plan (outside the scope of this report);
- 6.9 This report demonstrates that the proposals could be accommodated within the site by in accordance with the EA guidance, Council SFRA, and the NPPF. It is considered that as long as the development follows the advice presented in this report, that the development proposals may be considered appropriate at this location and an overall reduction in Flood Risk can be achieved.



## APPENDIX 1 – SUPPORTING INFORMATION







# GROUND FLOOR PLAN (SCALE 1:50)

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PROPOSED ADDITIONS & ALTERATIONS TO WILDFOWLERS, BOSHAM FOR MR & MRS BRADLEY

FINE TOWN & COUNTRY HOUSE COMMISSIONS LIMITED from IAN ADAM-SMITH CHARTERED ARCHITECTS HIGHBUILDING FARM, VANN ROAD, FERNHURST, SURREY, GU27 3NL

TIGHBUILDING FARM, VANN ROAD, FERNHURST, SURREY, GU27 3ND TEL: 01428 644 644 www.ianadam-smith.co.uk



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GROUND FLOOR PLAN (SCALE 1:100)







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APPENDIX 2 – EA DATA

### AIMS Flood Defences. Centred PO18 8QL. Created 24/05/2022.

![](_page_28_Picture_1.jpeg)

![](_page_28_Figure_2.jpeg)

![](_page_29_Figure_0.jpeg)

Other type or not defined

Our ref:SSD260547Date:24/05/2022

Dear Ryan Hofman,

## Enquiry Regarding Product 4 for Flood Risk Assessment for Wildfowlers, Shore Road, Bosham, PO18 8QL.

Thank you for your enquiry which was received on 06 April 2022.

We respond to requests under the Freedom of Information Act 2000 and Environmental Information Regulations 2004. The information is attached.

The information on Flood Zones in the area relating to this address is as follows:

## The site is in an area located within Flood Zones 2 & 3 as shown on our Flood Map for Planning (Rivers and Sea).

Note - This information relates to the area that the above named property is in and is not specific to the property itself as it is influenced by factors such as the height of door steps, air bricks or the height of surrounding walls. We do not have access to this information and is not currently used in our flood modelling.

Flood Zone definitions can be found at <u>www.gov.uk/guidance/flood-risk-and-coastal-change#Table-1-Flood-Zones</u>

### **Flood Defences**

There are no formal raised flood defences in the vicinity of the site.

### **Model Information**

The model used was the Chichester Coastal Modelling (2D) which was completed by JBA Consulting in 2016.

### Flood History

We hold no record of previous flooding events affecting this site.

Please note our records are not comprehensive and may not include all events. I recommend contacting the Lead Local Flood Authority, **West Sussex County Council** or the Local Authority, **Chichester District Council** for a more comprehensive flood history check.

FRA advisory text

Name	Product 4
Description	Detailed Flood Risk Assessment Map for Wildfowlers, Shore
-	Road, Bosham, PO18 8QL.
Licence	Open Government Licence
Information Warnings	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 <u>'Flood risk assessments: climate change</u> <u>allowances'</u> 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.
Information Warning - OS background mapping	The mapping of features provided as a background in this product is © Ordnance Survey. It is provided to give context to this product. The Open Government Licence does not apply to this background mapping. You are granted a non-exclusive, royalty free, revocable licence solely to view the Licensed Data for non-commercial purposes for the period during which the Environment Agency makes it available. You are not permitted to copy, sub-license, distribute, sell or otherwise make available the Licensed Data to third parties in any form. Third party rights to enforce the terms of this licence shall be reserved to OS.
Attribution	Contains Environment Agency information © Environment Agency and/or database rights. Contains Ordnance Survey data © Crown copyright 2022 Ordnance Survey 100024198.

### Data Available Online

Many of our flood datasets are available online:

- Flood Map For Planning (<u>Flood Zone 2</u>, <u>Flood Zone 3</u>, <u>Flood Storage Areas</u>, <u>Flood Defences</u>, <u>Areas Benefiting from Defences</u>)
- Risk of Flooding from Rivers and Sea
- Historic Flood Map
- Current Flood Warnings

Please get in touch if you have any further queries or contact us within two months if you'd like us to review the information we have sent.

Yours sincerely,

Edward Conway Partnership & Strategic Overview - West Sussex Environment Agency, Guildbourne House, Chatsworth Road, Worthing, BN11 1LD

![](_page_33_Figure_0.jpeg)

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![](_page_35_Picture_0.jpeg)

## Flood map for planning

Your reference **1253** 

Location (easting/northing) C 480530/103230 7

Created 7 Jun 2022 12:01

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 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 2021 OS 100024198. https://flood-map-for-planning.service.gov.uk/os-terms

![](_page_36_Figure_0.jpeg)

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### Use of Environment Agency Information for Flood Risk Assessments

### Important

The Environment Agency are keen to work with partners to enable development which is resilient to flooding for its lifetime and provides wider benefits to communities. If you have requested this information to help inform a development proposal, then we recommend engaging with us as early as possible by using the pre-application form available from our website:

https://www.gov.uk/government/publications/pre-planning-application-enquiry-form-preliminary-opinion

We recognise the value of early engagement in development planning decisions. This allows complex issues to be discussed, innovative solutions to be developed that both enables new development and protects existing communities. Such engagement can often avoid delays in the planning process following planning application submission, by reaching agreements upfront. We offer a charged pre-application advice service for applicants who wish to discuss a development proposal.

We can also provide a preliminary opinion for free which will identify environmental constraints related to our responsibilities including flooding, waste, land contamination, water quality, biodiversity, navigation, pollution, water resources, foul drainage or Environmental Impact Assessment.

In preparing your planning application submission, you should refer to the Environment Agency's Flood Risk Standing Advice and the Planning Practice Guidance for information about what flood risk assessment is needed for new development in the different Flood Zones. This information can be accessed via:

https://www.gov.uk/flood-risk-assessment-standing-advice http://planningguidance.planningportal.gov.uk/

You should also consult the Strategic Flood Risk Assessment or other relevant materials produced by your local planning authority.

You should note that:

- 1. Information supplied by the Environment Agency may be used to assist in producing a Flood Risk Assessment (FRA) where one is required, but does not constitute such an assessment on its own.
- 2. This information covers flood risk from main rivers and the sea, and you will need to consider other potential sources of flooding, such as groundwater or surface water runoff. Information produced by the local planning authority referred to above may assist here.
- 3. Where a planning application requires an FRA and this is not submitted or is deficient, the Environment Agency may raise an objection.

FRA Site Boundary & Node Points. Centred PO18 8QL. Created 24/05/2022.

![](_page_38_Figure_1.jpeg)

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![](_page_39_Picture_0.jpeg)

### Product 4 Flood Risk Data Requested by: Cornerstone Consulting Engineers

Site: Wildfowlers, Shore Road, Bosham, PO18 8QL

	NGR		Modelled Flood Levels in Metres AOD			
			Undefended Annual Exceedance Probability			
Node Ref	Eastings	Northings	0.5%	0.5% (2070)*	0.5% (2115)*	0.1%
1	480574	103293	3.50	4.03	4.63	3.73
2	480571	103255	3.50	4.03	4.63	3.73
3	480544	103233	3.50	4.03	4.63	3.73
4	480568	103239	3.50	4.03	4.63	3.73
5	480558	103228	3.50	4.03	4.63	3.73
6	480546	103209	3.50	4.03	4.63	3.73
7	480566	103211	-	4.03	4.63	3.73
8	480556	103198	3.50	4.03	4.63	3.73

Table 2: Water Levels: Tidal Defended

	NGR		Modelled Flood Levels in Metres AOD			
			Defended Annual Exceedance Probability			
Node Ref	Eastings	Northings	0.5%	0.5% (2070)*	0.5% (2115)*	0.1%
1	480574	103293	3.52	3.96	4.66	3.65
2	480571	103255	3.52	3.96	4.66	3.65
3	480544	103233	3.52	3.96	4.66	3.65
4	480568	103239	3.52	3.96	4.66	3.65
5	480558	103228	3.52	3.96	4.66	3.65
6	480546	103209	3.52	3.96	4.66	3.65
7	480566	103211	-	3.96	4.66	3.65
8	480556	103198	3.52	3.96	4.66	3.65

	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	480574	103293	1.22	1.70	2.30	1.41
2	480571	103255	0.70	1.18	1.79	0.89
3	480544	103233	0.43	0.91	1.51	0.61
4	480568	103239	0.58	1.06	1.67	0.77
5	480558	103228	0.37	0.85	1.46	0.56
6	480546	103209	0.12	0.60	1.21	0.31
7	480566	103211	-	0.52	1.12	0.22
8	480556	103198	0.04	0.51	1.12	0.22

### Table 3: Water Depths: Tidal Undefended

 Table 4: Water Depths: Tidal Defended

	NGR		Modelled Flood Depths in Metres			
Node Ref	Eastings	Northings	0.5%	0.5% (2070)*	0.5% (2115)*	0.1%
1	480574	103293	1.17	1.61	2.31	1.30
2	480571	103255	0.68	1.11	1.82	0.80
3	480544	103233	0.40	0.84	1.54	0.53
4	480568	103239	0.56	0.99	1.70	0.68
5	480558	103228	0.35	0.78	1.49	0.47
6	480546	103209	0.10	0.53	1.24	0.22
7	480566	103211	-	0.45	1.15	0.14
8	480556	103198	0.02	0.44	1.15	0.13

All levels taken from: Chichester Coastal Modelling (2D) (2016) (Tidal)

Produced on: 24/05/2022

\* 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 <u>'Flood risk assessments: climate change allowances'</u> 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.

## Modelled Flood Outlines (Defended Tidal). Centred PO18 8QL. Created 24/05/2022.

![](_page_41_Figure_1.jpeg)

© Environment Agency Copyright and/or database rights 2022. All rights reserved. © Crown copyright and database rights 2022. All rights reserved. Ordnance Survey licence number 100026380. Contact us: National Customer Contact Centre, PO Box 544, Rotherham, S60 1BY. Tel: 03708 506 506. Email:enquiries@environment-agency.gov.uk Modelled Flood Outlines (Undefended Tidal). Centred PO18 8QL. Created 24/05/2022.

![](_page_42_Figure_1.jpeg)

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![](_page_43_Figure_0.jpeg)

![](_page_44_Figure_0.jpeg)

## Risk of flooding from Surface Water. Centred PO18 8QL. Created 24/05/2022.

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![](_page_45_Picture_0.jpeg)

## **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-forplanning.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) <u>http://planningguidance.communities.gov.uk/blog/guidance/flood-risk-and-coastal-change/</u>

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 orf 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: <u>https://www.gov.uk/government/uploads/system/uploads/attachment\_data/file/6077/2116950.pdf</u>

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

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

### **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: <u>https://www.gov.uk/guidance/flood-risk-assessments-climatechange-allowances</u>

## **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: <u>https://magic.defra.gov.uk/</u>

### **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: <u>http://apps.environment-agency.gov.uk/wiyby/151293.aspx</u>

customer service	e line
03708 506 506	
www.gov.uk/env	vironment-agenc

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 Environment 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 - <u>https://www.gov.uk/government/publications/pre-</u> <u>planning-application-enquiry-form-preliminary-opinion</u>

## 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.

incident hotline 0800 80 70 60 floodline 0345 988 1188