

### Isle of Wight SFRA and PUSH SFRA data and reporting

It should be noted that a bespoke Strategic Flood Risk Assessment is also in existence for the entire authority area of the Isle of Wight. This was developed by Entec on behalf of Isle of Wight Council prior to the authority being part of PUSH and therefore stands alongside this PUSH SFRA as a complimentary document.

Where reference is made to an SFRA within this document it is made clear as to whether this constitutes the Isle of Wight commissioned SFRA (IOW SFRA) or Partnership for Urban South Hampshire SFRA (PUSH SFRA).

The PUSH SFRA contains data from the following mapsets which should be used for the Isle of Wight area for most up to date current mapsets:

- Flood Zone 3
- Flood Zone 2
- Historic Flood Map
- Updated Flood Maps for Surface Water
- Flood Warning Areas
- Planning: Coastal Strategies
- Planning: Local Strategies

The IOW SFRA should be referred to when seeking information regarding the following mapsets:

- Hazard Map:  
Refer to IOW SFRA Potential Development Sites Qualitative Flood Risk (Fig 6)
- Climate Change:  
Refer to IOW SFRA Tidal Climate Change Predictions (Fig 13 and 14) and IOW Fluvial Areas potentially susceptible to Climate Change (Fig 15)
- Flooding from Other Sources:  
Refer to IOW SFRA SuDS Infiltration Potential (Fig 9) and Qualitative Wind and Wave Exposure Risk (Fig 18)
- Infrastructure:  
Refer to IOW SFRA Flood Defence Condition (Fig 17)

## Guidance Document: Isle of Wight Council

### Flood Risk Overview

#### Sources of Flood Risk

The unitary authority of the Isle of Wight lies to the South of the PUSH sub-region. It covers a total area of approximately 380 km<sup>2</sup>. The Isle of Wight has approximately 110 km of open coastal frontage and 184km of designated main river channels. At present, approximately 9.5% of the Island's land area is designated as within Flood Zones 2 and 3 (see PUSH SFRA Map: Flood Mapping Dataset).

Both the IOW and PUSH SFRA have shown that the primary source of flood risk to the Isle Wight is from the sea. At present, large areas of the Island both adjacent to the open coast and inland within estuaries are at risk of flooding from the sea, particularly parts of Ryde, Cowes and East Cowes, Sandown and Yarmouth. In addition, areas including Freshwater on the Western Yar, parts of Ryde on the Monkton Mead Brook and isolated settlements along the Eastern Yar such as Brading, Alverstone and Newchurch are also at risk of fluvial flooding from rivers. There is a complex and dynamic source of flood risk from combined sources working together (e.g. flashy catchments and tidal storm surges) that can result in instances of tidal locking of river discharges. This has led to some of the worst recorded incidents of flooding on the Island (see paragraph 3.1.2 Impact of Tide Locking River Discharge in the IOW SFRA for further details).

Historically, the Isle of Wight has also been susceptible to flooding from other sources including surface water and flooding caused by infrastructure failure including blockage of drainage and gulleys. Areas of Ryde and Newport are key areas where incidents of surface water flooding have previously occurred.

#### Key physical characteristics that may constrain development

Approximately 8.2% of the Isle of Wight's administrative area is currently covered by existing development. A number of environmentally designated areas represent a significant additional constraint on development, covering approximately 57% of its area. Additional offshore designations also add to these terrestrial designations around all of the coastal frontages of the Isle of Wight (including the Solent and Dorset Coast potential SPA which will result in all parts of the coastline being covered by European designations).

The topography of Isle of Wight ranges from sea level at its coast to approximately 241 metres above ordnance datum (mAOD) at its highest point at St Boniface Down near Ventnor. As many existing settlements on the Isle of Wight are located either near to or within areas at risk of coastal or fluvial flooding due to their location on the coast or at strategic crossing points of watercourses, the pressure for future maintenance and improvement to existing flood defences, particularly following predicted rises in sea level in future, will increase. All of the Island's primary settlements (in terms of development hierarchy) are located in such vulnerable areas, however the IOW SFRA is predicated on the principle that in the first instance all new development being capable of being located in Flood Zone 1. Such an approach not only minimises the level of flood risk new development is exposed to, but starts to unlock the unsustainable cycle of 'build-defend-build'. A balance has to be struck when considering sites for redevelopment as many of the Island's

## Guidance Document: Isle of Wight Council

brownfield sites, due to being located within the existing main settlements, are exposed to some level of flood risk.

Geologically, the Isle of Wight is extremely complex and is underlain by bands of low, moderate and highly permeable bedrock formations. The majority of the northern part of the Isle of Wight is underlain by low to moderately permeable tertiary clays, while the southern part of the island formed by Cretaceous geology including chalk on the elevated downs and sandstones on the southern agricultural plans. A carefully selected approach to the installation of Sustainable Drainage Systems (SUDS) is therefore recommended which should consider the primary geological formations in the area of the site being considered.

### **Vulnerability to Climate Change**

The IOW SFRA has generated predicted tidal outlines for a number of years up to 2115. These outlines account for the most up-to-date predicted rises in sea-level over the coming century due to climate change and they therefore allow the identification of locations that will be most vulnerable to this change due to their topography. On the Isle of Wight, the areas most vulnerable to rising sea levels are Cowes, East Cowes, Yarmouth and Sandown.

Although the PUSH SFRA has generated predicted tidal outlines for a number of years up to 2115, these outlines were not specifically delivered for the Isle of Wight authority area. This was because they were delivered as part of the original 2007 work packages when the Isle of Wight was not a partner of the PUSH authorities.

Rather than merge or remodel these flood outlines to include the Isle of Wight it is recommended that reference is made to the existing Isle of Wight SFRA mapping work <https://www.iwight.com/azservices/documents/2782-SFRA%20Appendix%20A%20-%20Islandwide%20Mapping.pdf>.

This work accounts for the most up-to-date predicted rises in sea-level over the coming century due to climate change and identifies those locations that will be most vulnerable to this change due to their topography.

### **Existing defence assets and likely future investment**

The developed coastal frontages of the Isle of Wight are almost entirely defended from either wave overtopping or tidal flooding by some form of coastal defence where the topography means that low coastal plains are at risk of flooding.

The coastal defences on the Isle of Wight are, however, likely to be susceptible to climate change, with 100 years of predicted sea level rise. To sustain future development on the Isle of Wight, particularly in high risk or highly vulnerable parts of the Island, significant investment in flood defences and flood defence infrastructure will be required in improving and maintaining existing flood defences.

## Guidance Document: Isle of Wight Council

### Sequential and Exception Test

National Planning Policy Framework (NPPF) and The Planning Practice Guidance sets out the Government's objectives for achieving sustainable development through the avoidance and management of flood risk. The NPPF aims to ensure that flood risk is taken into account at all stages of the planning process to avoid inappropriate development in areas of flood risk. To achieve this aim, the Planning Practice Guidance provides a decision making tool to ensure that sites with a low probability of flooding are developed in preference to areas at higher risk. The Sequential Test is the decision process which Local Authorities must demonstrate when developing their Local Development Frameworks and Local Development Documents.

This PUSH SFRA has developed a suite of mapping outputs to assist Local Authorities in applying the Sequential Test. Where there is already existing information within the Isle of Wight SFRA it is proposed that it is used alongside the information and data available within this PUSH SFRA. There will be commonality in some datasets including the present day flood zones. In other areas the IOW SFRA will provide considerably more detail than the PUSH SFRA is able. It is recommended therefore that both sources of information are referred to for the Isle of Wight.

When applying the Sequential Test, The *Flood Mapping* Dataset of the PUSH SFRA will provide all the necessary information required upon which to base decisions regarding the location of future development in relation to flood risk. Within The *Flood Mapping* Dataset, the key map required for applying the Sequential Test is the Environment Agency's Flood Map for Planning, shown as Flood Zone 2 and Flood Zone 3 in conjunction with the Historic Flood Map.

For the Isle of Wight the *Flood Mapping* Dataset does not contain the 4 other Mapsets which include:

- *Hazard Map* – Undefined Flood Hazard
- *Flooding from Other Sources* – including Groundwater, Sources of Overland Flow
- *Climate Change* - Outlines for years 2025, 2055, 2085 and 2115

At the time of publication of the original PUSH SFRA in 2007 the Isle of Wight was not part of the PUSH region of authorities. For this reason these datasets have not been included within the web-based mapping system and are instead available only through the hard copy of the Isle of Wight Strategic Flood Risk Assessment published in 2010

For the purpose of efficacy and ensuring this text remains contemporary, advice on carrying out Flood Risk Assessment will not be reproduced here and instead signposted from the key guidance below:

- [The National Planning Policy Framework](#)
- [Planning Practice Guidance: Flood Risk and Coastal Change](#)
- [Flood risk assessment for planning applications](#)
- [Flood risk assessment: standing advice](#)

## Guidance Document: Isle of Wight Council

It is requested that if in applying any of this guidance that links are found to be broken or require updating that contact is made with the SFRA helpdesk through contact details on the mapping webpage.

### Planning Policy

Paragraph 100 of the National Planning Policy Framework (NPPF) seeks to direct development away from areas at highest risk of flooding. Local Plans should be supported by a SFRA and develop policies to manage flood risk from all sources.

Local Plans should apply a sequential, risk based approach to the location of development. Development should not be permitted if there are reasonably available sites appropriate for the proposed development in areas with a lower probability of flooding.

If, following application of the sequential test, it is not possible (consistent with wider sustainability objectives) for the development to be located in zones with lower probability of flooding, the exception test can be applied if appropriate. The exception test should demonstrate that there are wider benefits to the community which outweigh flood risk. It should also demonstrate, through a site specific flood risk assessment, that the development will be safe for its lifetime.

Chapter 10 of the NPPF sets out government policy on climate change, flooding and coastal change, , while the National Planning Practice Guidance provides (currently under Flood Risk and Coastal Change) guidance on implementing the national policy approach to flood risk.

## Guidance Document: Isle of Wight Council

### SFRA Mapping Outputs

The table below summarises the most relevant mapping outputs and their purpose, for each of the key users of the PUSH and IOW SFRA.

Key Users	Relevant SFRA Mapping Dataset	Purpose
Planning Policy	<b>Flood Mapping:</b> NPPF Sequential Test and Relevant Supporting Information	<b>Flood Mapping Dataset</b> provides all the necessary information to help planners apply the Sequential Test and Exception Test when allocating new sites for development. <b>Flood Mapping Dataset</b> also allows planners to identify sites with the lowest probability of flooding and lowest flood hazard / danger and how the extent of flooding is likely to change in the future due to climate change.
	<b>Development Control</b>	<b>Flood Mapping Dataset</b> helps Development Control personnel to: <ul style="list-style-type: none"> <li>o Prepare specifications for site specific FRAs.</li> <li>o Review site specific FRAs for new development sites and check for compliance with NPPF.</li> </ul>
Risk Management	<b>Flood Mapping:</b> NPPF Sequential Test and Relevant Supporting Information	<b>Flood Mapping Dataset</b> helps Flood Risk Managers to identify variations in flood hazards / dangers to existing development. The data also provides mapping to show how the extent of flooding is likely to increase over time due to climate change.
	<b>Infrastructure:</b> Appropriate Defence Standards and Levels of Investment	<b>Infrastructure Dataset</b> helps Flood Risk Managers to: <ul style="list-style-type: none"> <li>o Identify shortfalls in existing defences in providing appropriate standards of defence, now and in the future.</li> <li>o Identify indicative levels of investment required to provide the appropriate standards, now and in the future.</li> </ul>
Emergency Planning	<b>Flood Mapping:</b> NPPF Sequential Test and Relevant Supporting Information	<b>Flood Mapping Dataset</b> can provide emergency planners with information on the variation of flood probability and hazard across the sub region. Such information can aid in the development of emergency plans and evacuation routes during flood events.
	<b>Infrastructure:</b> Appropriate Defence Standards and Levels of Investment	<b>Infrastructure Dataset</b> can help Emergency Planners to: <ul style="list-style-type: none"> <li>o Identify indicative standards of defence, now and in the future.</li> </ul>

## Guidance Document: Isle of Wight Council

### Recommendations for Site Specific Flood Risk Assessments

Whilst the information presented in this PUSH SFRA in conjunction with the IOW SFRA will inform Local Authorities and facilitate their strategic allocation of sites for future development, it does not preclude the need for developers to undertake site specific flood risk assessments (FRAs). A SFRA, by its very nature, is a high level assessment of flood risk at the local authority level. It does not provide sufficiently detailed information to satisfy all of the requirements of a site specific FRA as outlined in the National Planning Policy Framework.

The Environment Agency has produced a suite of standing advice and guidance on producing Flood Risk Assessments.

- Flood Risk Assessment: Guidance for completing flood risk assessment to accompany a planning application
  - [When you need an assessment](#)
  - [When you don't need an assessment](#)
  - [When to follow standing advice](#)
  - [How to do an assessment](#)
  - [Get information to complete an assessment](#)
  
- Flood Risk Assessment: Guidance for planning authorities on review of flood risk assessments submitted as part of planning applications
  - [Check if you need to consult](#)
  - [Flood zone 1](#)
  - [Flood zone 2](#)
  - [Flood zone 3](#)
  - [What you need to check in an assessment](#)
  - [Extra flood resistance and resilience measures](#)

The following sections provide additional specific guidance for assessing flood risk at the site specific level within the Isle of Wight Council and indicate how the outputs from both the PUSH SFRA and IOW SFRA can inform such assessments.

### Tidal Flooding

As an island authority, flooding from tidal sources is one of the primary sources of flood risk within the Isle of Wight and the areas at risk are predicted to increase significantly by 2115. The *Flood Mapping* Dataset shows the existing areas at risk of tidal flooding.

The impact of climate change on increasing sea levels has a significant effect on the extents of Flood Zones 2 and 3 by 2115, especially in low lying coastal areas around the Island. Although the NPPF directs planning decisions to be based on the current Flood Zones, at the site specific level consideration should be given to increases in risk as a result of climate change. The climate change flood extents presented in the IOW SFRA should be used when undertaking a site specific FRA to inform the assessment of the long term sustainability of developments currently within Flood Zone 1 and the likely increases in flood risk in Flood Zones 2 and 3.

## Guidance Document: Isle of Wight Council

Figure 17 in Appendix A of the IOW SFRA illustrates where the SMP (2) has identified flood defence structures. The IOW SFRA has not quantified the areas benefiting from these defences nor has it modelled the consequence of flood defence failure. No coastal defences have been identified which offer protection from the 1 in 200 year tide level, therefore the IOW SFRA considers there to be no areas of defended Flood Zone 3.

### Wave Overtopping

The Wave Energy mapset included within *Flood Mapping: Flooding from Other Sources*, does not include the Isle of Wight but shows how exposure to wave energy varies along coastal frontages of the study area. This information is included in Figure 18 or Appendix A of the IOW SFRA. Such information can be used to assess, at a high level, the risk of flooding caused by extreme wave overtopping. Based on information from other similarly exposed frontages in the PUSH sub-region, it is recommended that all applications for development within the vicinity of the southern frontage of the Isle of Wight include an assessment of extreme wave overtopping, regardless of which Flood Zone the site is in. In addition to this areas around Cowes and East Cowes should make an allowance for wave action where fetch across the Solent may cause localised wave action. This will ensure that this risk is always considered for new development in the relevant locations. The assessment of extreme wave overtopping should be appropriate to the scale of risk and may, in some cases, be ruled out as a significant risk quite easily, but should nevertheless be addressed.

### Fluvial Flooding

There is a risk of fluvial flooding in parts of the Isle of Wight from the Main River watercourse network. Notably some of the major watercourses and catchments include the Eastern and Western Yar Rivers, Monkton Mead Brook and tributaries of the River Medina. The Flood Mapping Dataset shows the fluvial Flood Zones, which show parts of Ryde, Sandown, to be key areas at risk of fluvial flooding in this authority.

Across the Isle of Wight gaps in available fluvial flood risk data exist, which are being addressed by the Environment Agency's ongoing Strategic Flood Risk Mapping programme. Therefore, for the purposes of this SFRA, Flood Zone 3b (defined by the NPPF as the 'functional floodplain') has been defined as the entire extent of Flood Zone 3, in line with the Planning Practice Guidance precautionary approach and should be tested by site specific FRAs, where required.

Unlike the tidal Flood Zones, flood levels associated with the fluvial Flood Zones have not been identified as part of this SFRA. The variations in previous modelling approaches for the rivers within the PUSH sub-region, coupled with the spatial variation on flood levels along the river valleys, meant that it was not possible to provide a consistent approach to identifying fluvial flood levels without re-modelling a number of rivers. Such detailed assessments were outside the scope of this SFRA.

It was the intention of the IW SFRA to determine how sensitive the fluvial domain on the Isle of Wight is to increased river flows. This involved an uncomplicated Island wide approach that utilised all the available data. Flood Zone 2 outlines were produced by modelling a 1 in 1000 year fluvial flow in each watercourse and Flood Zone 3 was produced using the same methodology but with a 1 in 100 year fluvial flow. The two different flows used to produce Flood Zones 2 and 3 were used to



## Guidance Document: Isle of Wight Council

identify areas of fluvial floodplain that are potentially sensitive to an increase in fluvial flow. In doing so it is possible to assess the sensitivity of the fluvial flood extents to climate change. Areas of fluvial floodplain identified as being potentially sensitive to the impacts of climate change are illustrated in the IOW SFRA (Figure 15 in Appendix A).

Developers undertaking a FRA for a site within the fluvial Flood Zones should obtain the most up to date flood risk data from the Environment Agency. If no further information is available then a site specific FRA may need to include a numerical assessment to refine the understanding of fluvial flood risk, and agree the form of this assessment with the Environment Agency.

It is recommended that FRAs for sites located within the flood zones undertake a more detailed quantitative assessment of flood hazard based on an improved understanding of defences and flow routes.

### Surface Water/Overland Flow Flooding

The dataset *Flood Mapping: Flooding from Other Sources* show both maps for potential surface water flooding across the PUSH sub-region including the Isle of Wight.

Due to variation in geology and topography it is recommended that all site specific FRAs within the Isle of Wight boundary should consider the impacts and management of flooding due to overland flow both to and from sites. Even undeveloped areas on the Isle of Wight where underlain by permeable chalk, have a moderate potential for generating overland flow due to the steeply sloping gradient there.

Site specific FRAs should therefore carefully consider the impact of development on the local surface water runoff regime and should investigate SUDS options to manage surface water where achievable. In addition to the data contained within this PUSH SFRA, the relevant sections of the IOW SFRA should be consulted (e.g. section 7: Sustainable Management of Surface Water).

### Groundwater Flooding

Groundwater flooding on the Isle of Wight is not considered by the Environment Agency as a significant issue and for the purposes of a SFRA section 3.3 of the IW SFRA provides a summary of the available information (Figure 1 of Appendix A broadly represents the major geological formations on the Island).

Where areas of highly permeable geology meet low permeability geology on the Isle of Wight, these areas can be very sensitive to groundwater conditions and may have experienced previous instances of groundwater flooding observed. Site specific FRAs within these areas of the Isle of Wight should seek to ascertain whether a site has been previously affected by groundwater flooding if it lies adjacent to the boundary of changes in geological strata.

### Flooding from Infrastructure

Historically, parts of the Isle of Wight have recorded incidents of flooding caused by problems relating to drainage infrastructure, often due to the age and limited capacity of the existing combined sewer system. Increased runoff rates and volumes as a result of new development could,

## Guidance Document: Isle of Wight Council

if unmanaged, make the existing situation far worse. Isle of Wight Council should therefore, wherever possible, seek opportunities to apply rainfall source control techniques to relieve issues relating to overloading of the existing sewerage system.

When undertaking a site specific FRA for a large development site, consultation with Southern Water should always be undertaken to investigate whether the proposed development will have an adverse impact on the local drainage system.

### **Sustainable Urban Drainage Systems (SUDS)**

Conventional surface water drainage systems have traditionally used underground pipe networks to efficiently convey water away from sites. In the past this has led to problems of downstream flooding, reductions in groundwater recharge and waste pollution incidents associated with surface water overwhelming combined sewers. Both 'Making Space for Water' and the 'Water Framework Directive' have highlighted the need for an improved understanding and better management of how our urban environments are drained. The SUDS management train approach is the principle that a range of SUDS which feed into each other can often offer benefits to the delivery of a successful surface water system/strategy.

NPPF states that Local Authorities should prepare and implement planning strategies that help to deliver sustainable development, by using opportunities offered by new development to reduce the causes and impacts of surface water flooding. By implementing policies to encourage developers to incorporate SUDS wherever possible, Local Authorities can help to mitigate the impacts that development has on surface water runoff rates and volumes. Areas SuDs Infiltration Potential are illustrated in the IOW SFRA (Figure 9 in Appendix A).

### **Emergency Planning**

As well as informing the development control process, the outputs of the PUSH and IOW SFRA can also be used by the Local Authority to inform their Emergency Planning Policies. The Flood Mapping Datasets are particularly useful when considering the feasibility and sustainability of key access routes within their administrative boundaries. For the Isle of Wight this may also include flood risks to ferry terminals and transport infrastructure adjacent to the coast and river floodplains

## Guidance Document: Isle of Wight Council

### Additional Guidance

- [Isle of Wight MKII Strategic Flood Risk Assessment](#), Entec
- [Isle of Wight MKII Strategic Flood Risk Assessment, App A - Islandwide Mapping](#), Entec
- [Isle of Wight Council Online Mapping – online resource](#)
- [Flood risk assessment for planning applications](#); Environment Agency
- [Flood risk assessment: standing advice](#); Environment Agency
- [National Planning Policy Framework](#); DCLG
- [National Planning Policy Framework Quick Guide](#); Environment Agency
- [Planning Practice Guidance – Online web-based resource](#); DCLG
- [Flood and coastal risk guidance: climate change allowances](#); Environment Agency
- [Development and Flood Risk: Guidance for the Construction Industry](#) CIRIA (2004)
- [Flood Risk Assessment Guidance for New Development: FD2320/TR2](#) Environment Agency / DEFRA
- [Susdrain online resource: The community for sustainable drainage](#) CIRIA
- [Isle of Wight Council emergency planning flooding – online resource](#)
- [Island Plan – online resource](#)
- [Isle of Wight Catchment Flood Management Plan](#), Environment Agency
- [Local Flood Risk Management Strategy](#), Isle of Wight Council
- [West Wight Coastal Flood and Erosion Risk Management Strategy](#), Isle of Wight Council