

# **EXPEDITE**

**APPENDIX F**  
**FLOOD RISK SUMMARY NOTE**  
**SEAWARD WAY RESIDENTIAL**  
**SEAWARD WAY, MINEHEAD**

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## Seaward Way Residential

### Flood Risk Summary Note

**Issued by:** Expedite  
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**Client:** SW&T

**Project Reference:** ES17.71

**Project Title:** Seaward Way, Residential

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**Approved by:** Simon Lancaster

## 1.0 Introduction

- 1.1 A site specific Flood Risk Assessment (FRA) is being prepared on behalf of SW&T by Expedite Engineering Services Ltd to support a future outline planning application. The report seeks to assess the potential flood risks that may affect the proposed development of greenfield land off Seaward Way, Minehead.
- 1.2 The development proposed is for the erection of 54 no. residential detached and semi-detached dwellings with associated infrastructure, access, highways and soft landscaping.
- 1.3 This FRA will identify and assess the risks of all forms of flooding to and from the development and demonstrate how these flood risks will be managed so that the development remains safe throughout its lifetime, taking climate change into account, as required by the National Planning Policy Framework (NPPF).

### Consultation

- 1.4 To scope out any site specific or catchment specific flood risk or drainage requirements we have engaged with various parties.
- 1.5 We have contacted the Environment Agency in the production of the FRA to obtain applicable flood data. We have also contacted Wessex Water, regarding sewer plans and the discharge of foul flows from the new development.

### References

- 1.6 The FRA is being prepared with reference to the following documents:
- National Planning Policy Framework (February 2019)
  - National Planning Practice Guidance (March 2014)
  - Environment Agency Mapping & Flood Model Data
  - CIRIA Guide 753: “*The SuDS Manual*” (2015)
  - Wessex Water’s Asset Record Maps
  - Somerset West & Taunton Strategic Flood Risk Assessment Level 1 (2019)
  - West Somerset Council Strategic Flood Risk Assessment Level 2 (2010)
  - Seaward Way, Minehead Flood Risk Assessment, Hydrock, (February 2019)

## 2.0 Existing Site

### Site Location

- 2.1 The approximate 1.2ha in area site is located off Seaward Way, within the east of the Alcombe area of Minehead, Somerset, with the nearest post code of TA24 6US. The approximate site co-ordinates for the centre of the site are E: 298184; N: 145398.

### Existing and Surrounding Land Use

- 2.2 The site comprises undeveloped scrubland. Adjacent to the site is the carriageway of Seaward Road to the north and north east. Playing fields forming part of West Somerset College Community Sports Centre are located to the west. To the south and south east are residential properties on Sandpiper Close and Little Plover Close. To the north west is a further parcel of undeveloped land with the carriageway of Luttrell Way and a hotel and public house beyond. The proposed access is linked to the existing roundabout spur on Luttrell Way.
- 2.3 Both the application site and the land to the north west have been subject to previous planning applications. The application site has permission for a residential development granted in 2019 (reference: 3/21/18/020) for 40no. residential dwellings.

### Topographic Survey

- 2.4 It is understood that ground level raising has been historically undertaken in order to create a development plateau on the site. Ground levels on the site generally fall in a south eastern direction from circa 6.8 metres Above Ordnance Datum (mAOD) to 5.53mAOD located near the ditch along the south eastern boundary of the site.

### Existing Site Drainage & Watercourses

- 2.5 The existing drainage regime for the site represents a typical greenfield site, with some surface water runoff soaking into the underlying ground and some following the natural topography of the land and flowing to the drainage ditches present.
- 2.6 A culverted watercourse (900mm diameter) is shown to be present along the site southern boundary directing flows in a north western direction to a manhole chamber on Luttrell Way. The chamber directs flows into a culvert with flows sent north east beneath Seaward Way and outfalling into the open channel watercourse within Marsh Common.
- 2.7 This watercourse directs flows into the system of drains that ultimately directs flows beneath the railway line linking Dunster to Minehead and into the Bristol Channel at Madbrain Sands via a sluice gate present at Warren Road.
- 2.8 On the site there is drainage ditch located along the northern and eastern site boundaries, which receives highway runoff from Seaward Way. This ditch system directs flows into the culverted watercourse as described above in the northern and southern ends of the

site via two inlet points. The northern one of which enters into a culvert connected to a manhole chamber on the road junction of Luttrell Way and Seaward Way.

- 2.9 On the opposite side of Seaward Way to the site is Marsh Common. Within this area are a number of drainage channels forming part of the Somerset Drainage Board's Consortium (SDBC) land drainage system. The closest of which being circa 36m to the north east.
- 2.10 To the west of the site is an ordinary watercourse, (188m west approx.) flowing north alongside the rear garden boundaries of properties on Spring Gardens and Brackensfield and the western boundary of Minehead Community Hospital prior to entering a culvert connected to a short open section of drainage channel to the north of the Public House on Luttrell Way, north west of the site.
- 2.11 This drainage channel is also connected to the culverted watercourse which directs flows into the drainage channel system in Marsh Common.
- 2.12 To the north west of the site, 214m away, is a further drain that directs flows in a north eastern direction and a further culvert under Seaward Way directing flows into Marsh Common.
- 2.13 The nearest designated main river watercourse is circa 0.6 miles east of the site. This is the River Avill, which flows north past the site to its sluice gate confluence with the Bristol Channel at Dunster Beach (E: 299756, N: 145446).

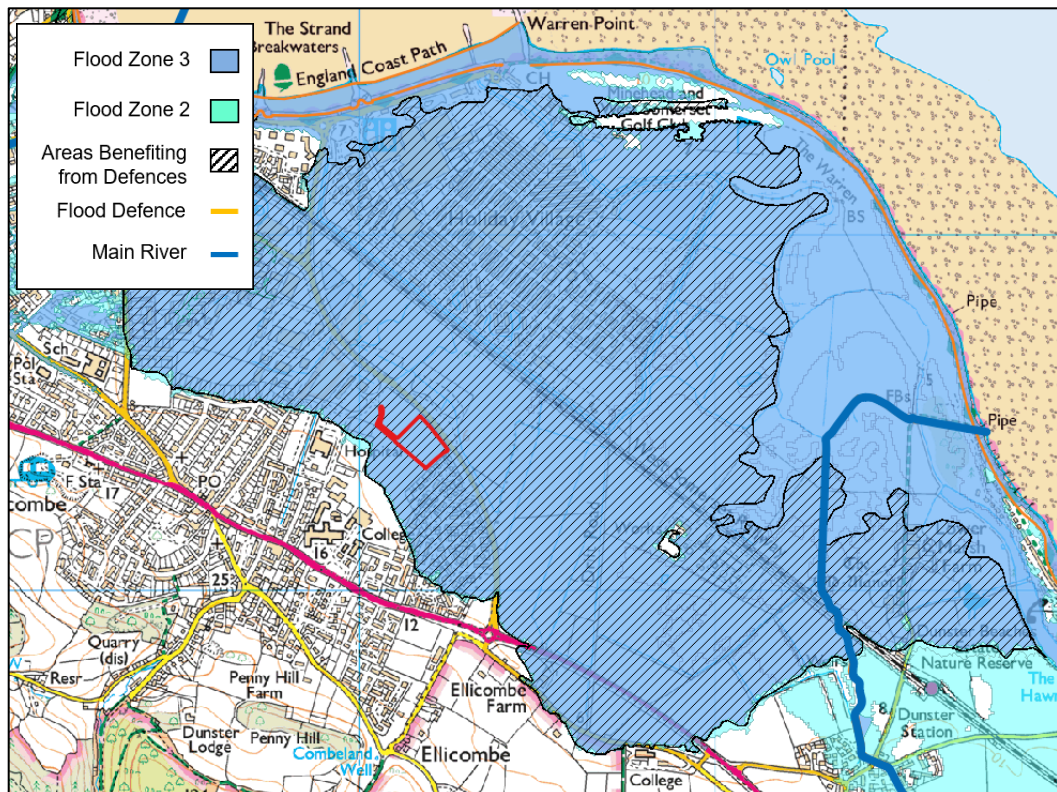
### **Ground Conditions**

- 2.14 Geological data held by the British Geological Survey (BGS) shows that the bedrock geology underlying the site and surrounding area is Mercia Mudstone. Superficial deposits are recorded as clay, silt and sand tidal deposits.
- 2.15 Soils mapping indicates the underlying soil as loamy and clayey soils with naturally high groundwater.
- 2.16 Taking this evidence together, it is considered that the ground conditions are likely to have low potential for infiltration and therefore infiltration is likely to be unviable for this site.

## 3.0 Sources of Flood Risk

### Tidal Flooding

- 3.1 An extract of the Environment Agency's (EA) 'Flood Map for Planning' covering the site and the surrounding area has been reproduced below as Figure 1. This mapping shows the site, highlighted in red, is entirely within Flood Zone 3, the 'High Risk' flood zone. This means that the site has greater than a 1 in 100 annual chance of river flooding and 1 in 200 year chance of tidal flooding.



**Figure 1 – Flood Map for Planning**

- 3.2 Mapping produced as part of the Somerset West and Taunton Strategic Flood Risk Assessment (SFRA) (Level 1) 2019 identifies the site to be located within tidal Flood Zone 3a.
- 3.3 The principle of a residential development in Flood Zone 3a is acceptable according to Table 3 within flood risk Planning Practice Guidance subject to demonstrating the proposal will not increase flood risk elsewhere and be designed to be safe from flooding.
- 3.4 Mapping included as part of the 2019 produced Council Strategic Flood Risk Assessment (SFRA) displays that the site is not located within an area that has experienced flooding historically. Environment Agency recorded flood outline mapping supports the SFRA information, which shows that tidal flooding has predominantly affected land to the north of the railway line following flooding in October 1996.

- 3.5 Tidal flood risk is considered to pose the overriding form of flood risk in the Minehead area and that which would affect the proposed development site as advised in the SFRA.
- 3.6 The site is shown to lie within an area that benefits from tidal flood defences. These defences provide protection against tidal flooding, which consist of man-made and natural sand dune and earth embankment defences along the coastline.
- 3.7 The man made defences, (Minehead Seawall) which are present along Warren Road provide protection from tidal flooding to the site from high risk and extreme tidal flooding events up to a 1 in 1000 year return period event.
- 3.8 The sand dune natural defences to the east of the sea wall (Warren Pebble Ridge) provide less protection. However, with both sets of defences in place, the site is considered to be protected from flooding from high risk tidal flood events, the 1 in 200 year return period event.
- 3.9 Information available from the SFRA identifies that the site would not be affected in the 'present day' situation from a high or extreme risk tidal flood event if the defences were overtopped.
- 3.10 When accounting for the effect of climate change up to the year 2118 and predicted sea level rise, the site could theoretically be flooded to a reported level of 6.47mAOD. However, due to the height of the ground levels and the development plateau created on the site (ground levels circa 6.8mAOD) the majority of the area of the proposed housing will be on ground higher than that, which could be affected by such a flooding scenario.
- 3.11 As part of the previous application concerning the site (ref: 3/21/18/020) the EA requested that a bespoke breach assessment of the natural defences present be considered due to concern related to the condition of the defences following storm damage and uncertainty over their continued maintenance.
- 3.12 A breach assessment modelling study undertaken identifies the site would not be flooded from a 1 in 200 year event including an allowance for climate change. Flood extents would reach as far as the carriageway of Seaward Way but not extend onto the carriageway and beyond.
- 3.13 On the above basis the development proposed would not increase tidal flood risk elsewhere and is an appropriate site to consider for residential development subject to the measures detailed in Section 4.

### **Groundwater Flooding**

- 3.14 Areas susceptible to groundwater flooding mapping available within the 2019 produced SFRA shows the area the site is located within to be in a low risk area with between a 25-50% susceptibility of ground water flooding.

### Reservoir Flooding

- 3.15 Mapping data from the Environment Agency show that the site is located outside the area that could flood from a reservoir breach or failure.

### Sewer Flooding

- 3.16 No sewers are located on-site. The public sewers located to the south of the site are owned, monitored and maintained by Wessex Water to ensure that they do not pose a risk of flooding. Any flooding would be localised and would not present a risk to the development.

### Surface Water Flooding

- 3.17 An extract of the EA's 'Flood Risk from Surface Water' map covering the site and the surrounding area has been reproduced below as Figure 2.

- 3.18 A review of the surface water flood map indicates that there are low to high risk areas in the south east of the site caused by surface water runoff from the site and an overland flow path from the north west, which only occurs in medium to low risk and extreme storm events. Flood depths that could occur are circa 150-300mm and shallow. The rest of the site is at a very low risk of surface water flooding.

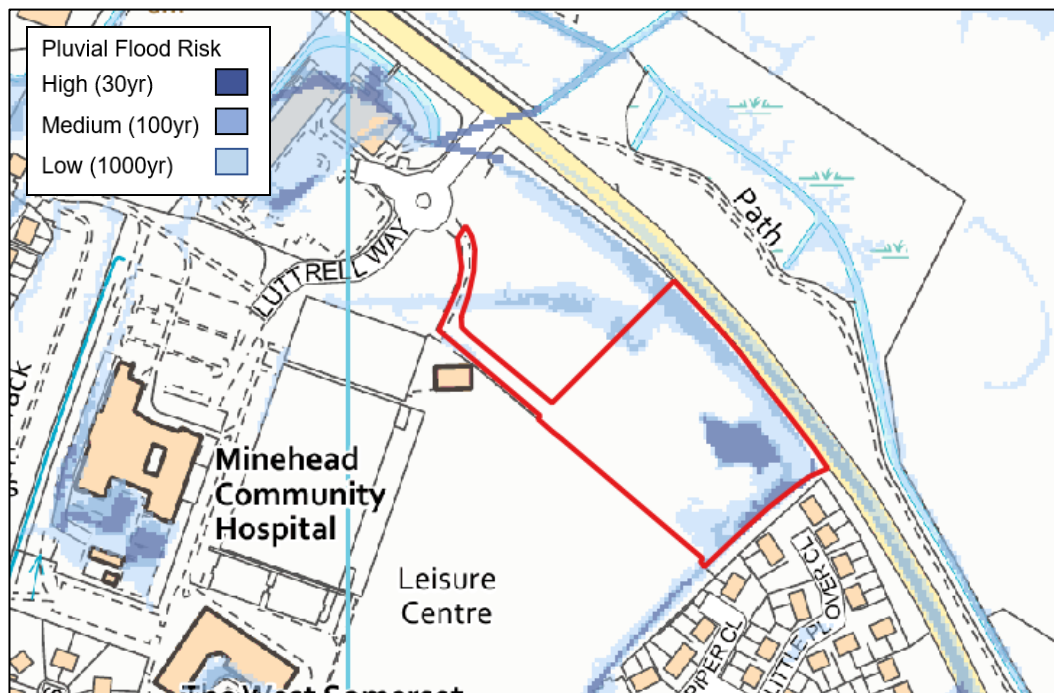


Figure 2 – Flood Risk from Surface Water Map

- 3.19 It should be noted that such mapping does not take account of existing drainage infrastructure, i.e. the existing pipe connection from the ditch beneath Seaward Way which allows the ditch to drain to the Internal Drainage Board ditch and network to the north, which therefore significantly mitigates the potential surface water flood risk poses



to the site. Surface water from the site will be also managed by a suitable drainage system.

### **Surface Water Runoff**

- 3.20 The site currently drains surface water runoff by it naturally soaking into the ground and following the natural topography of the land and flowing to the drainage ditches present.
- 3.21 The proposed development would increase the runoff generated because of introducing hard paved surfaces.
- 3.22 Roof water from houses and runoff from areas of hardstanding will be collected from downpipes, gutters and gullies and transferred via private surface water sewers to an adoptable surface water network.
- 3.23 To comply with national and local planning policy and Internal Drainage Board requirements; runoff released from the site must not exceed the existing rate of runoff and will need to be restricted to the annual average to prevent an increase in flood risk elsewhere.
- 3.24 To achieve the required restriction to drainage leaving the site, on site storage is required. This is to be provided in the form of above ground storage (basin) and below ground tank and drainage pipe storage prior to being ultimately directed into the existing drainage ditch along the north eastern boundary of the site, subject to agreement with the Internal Drainage Board.

## 4.0 Flood Mitigation

### Flood Mitigation

- 4.1 In accordance with Environment Agency guidance finished floor levels (FFLs) should be set 600mm above the 1 in 200 year return period flood level that accounts for climate change and a possible flood defence breach scenario. It is worth noting as part of the previous application a minimum FFL of 6.84mAOD condition was attached to the permission granted on this basis.
- 4.2 It is proposed to set FFLs at a minimum height of 7mAOD in view of the previous application requirements and in order to provide additional protection against flows of overland runoff and defence overtopping when accounting for the effects of climate change.
- 4.3 On the above basis the FFL mitigation is considered to provide the required protection against flood events. However, a further condition of the previous planning application required the provision of measures that could be included to add further flood resilience to the proposal.
- 4.4 Resilience measures are either an integral part of the building or features inside the building. Flood resilient buildings are designed to reduce the impact of flood water entering the building to restrict permanent damage, ensure structural integrity is maintained and to assist with drying and cleaning following flooding.
- 4.5 The following recommendations are in accordance with Environment Agency standing advice and the Ministry for Communities and Local Government document Improving the Flood Performance of New Buildings.
- 4.6 The following recommendations could be considered:
- Low permeability construction (walls, plaster, insulation, flooring materials)
  - Raised electrical sockets, fixtures and fittings

### Safe Access and Egress

- 4.7 The Environment Agency require new residential development proposals to be accessed by pedestrians on dry land outside the high risk floodplain.
- 4.8 As the site as well as Luttrell Way and Seaward Way are protected from high risk tidal flood events, access and egress for pedestrians and vehicles will not be affected during such high risk flood events.
- 4.8 The outputs of the previous application demonstrate that safe access could also be achieved along Seaward Way in view of a flood defence breach situation to reach land outside the floodplain to the south east of the site (Bircham Road, A59).