Langstone Quays
SPAshell Development
Flood Risk Assessment [FRA]

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Prepared by SPA Creators Limited

Proposed development of modular clad portable building for health and wellness activities.

Langstone Hotel
Northney Road
Hayling Island
PO11 0NQ

GPS Grid Position
Latitude 50.8311
Longitude - 0.9710

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1- Introduction

Langstone Quays Hotel is situated at the inner end of Chichester Harbour on the northern shore of Hayling Island east of Langstone Bridge crossing of Langstone Channel to the mainland. This area accommodates the Langstone Quays Hotel and the Marina and boat services.

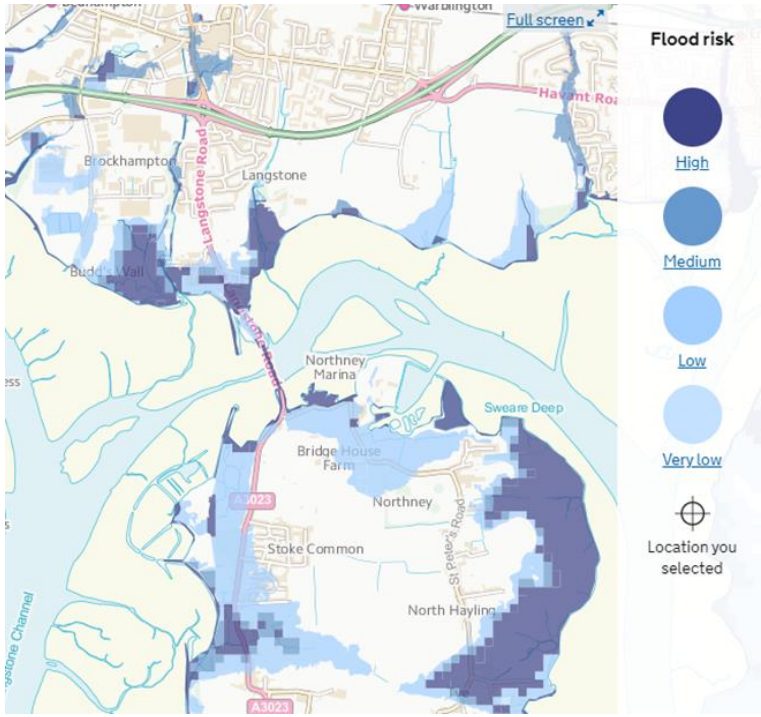
The Langstone Quays Hotel is planning a non residential development of a two storey modular building for the purpose of providing wellness leisure activities.

The building will be constructed off site and installed on site on a foundation system that raises the building on stilts creating a clear void under the building of approximately 300mm above the ground level. In addition the building floor build up will add a further 500mm in the structural floor cassette raising the internal finished floor level. This means there will be 800mm from the ground level.

The modular building will be sited within the grounds of the Langstone Quays Hotel in an area currently being maintained for a combination of hard standing car park and managed grass land. The Langstone Quays Hotel sits in part on the flood risk area as does the adjacent residential homes on the Northney Road.

The proposed development sits outside of the current day flood risk zone 2 & 3 being on higher land on the site as indicated on the flood risk diagram provided within this report.

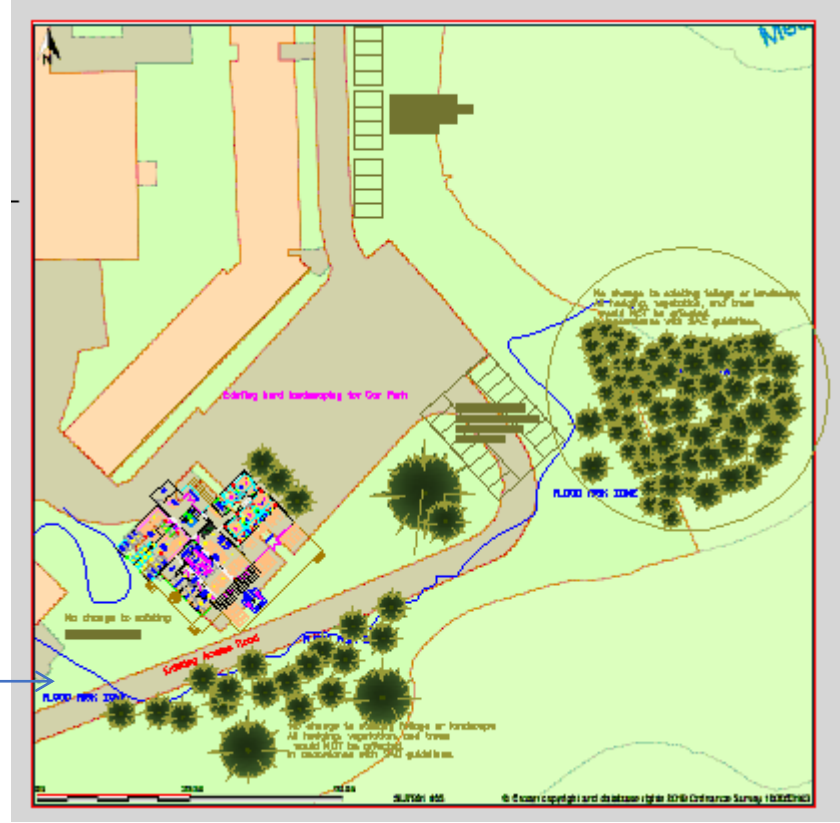
Access to the hotel from Northney Road will be affected and sections of the highway would be flooded to depths of 1m at high water. To that end we have proposed within our report the use of the current flood risk evacuation strategy currently being adopted by the hotel.



2 - Development site and location

LANGSTONE HOTEL
NORTHNEY ROAD
HAYLING ISLAND
PO11 0NQ

The planned spa development building location is in the car park adjacent to the bedroom block. This location is an area outside of the flood risk zone identified in the Environment Agency diagram above [information provided by the EA indicative flood level website on the 29th November 2019]. Further data supports the location with no risk of flooding.

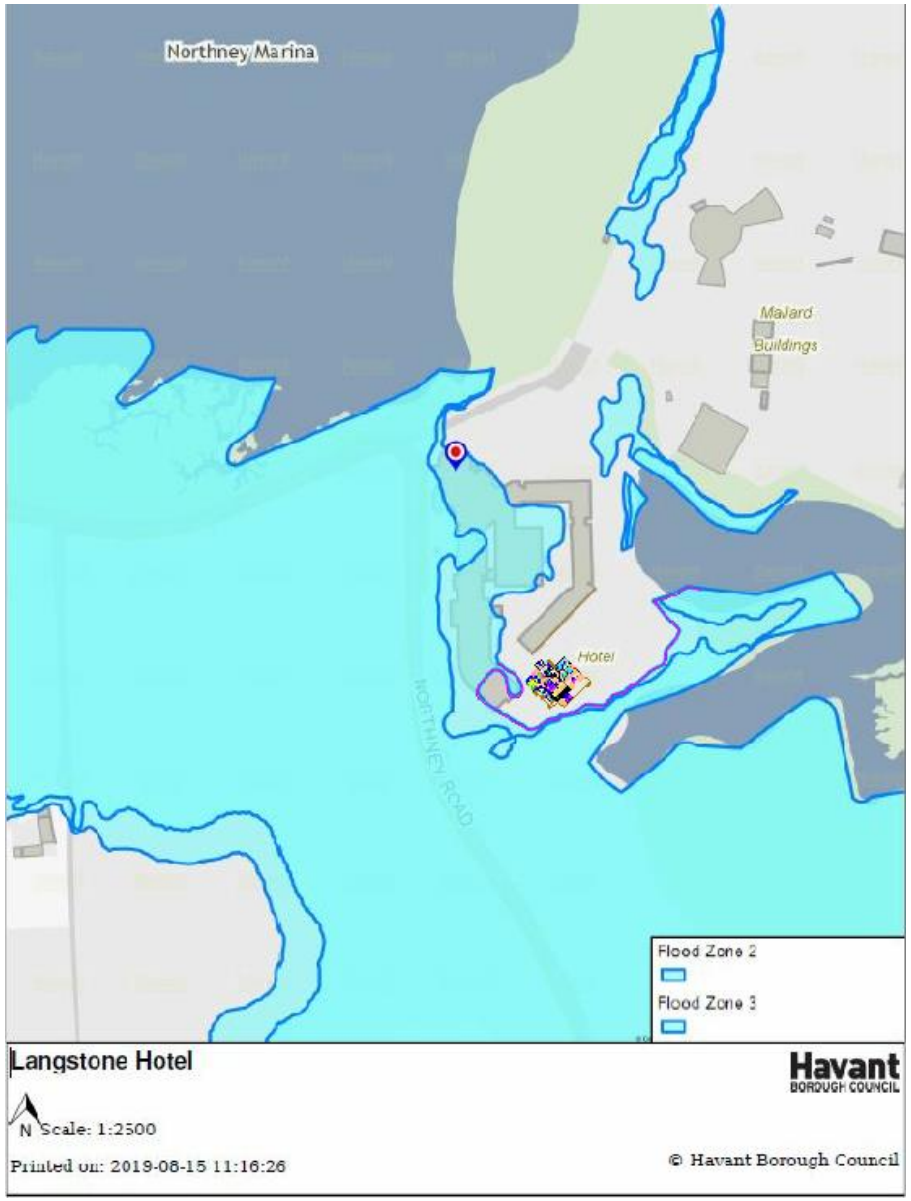


Flood Risk Zone 2

The proposed development is sited in the current hotel car park. This area is not in Flood Risk Zone 2 or 3.

GPS Grid Position
Latitude 50.8311
Longitude - 0.9710

2 - Development site and location



The location of the building has been decided following consultation with the EA and the Chichester Harbour Conservancy. The planned spa development building location is within the car park.

This location is outside of the flood risk zone identified in the Environment Agency diagram.

3 - Development proposals

The building being proposed is modular in construction. The building foot print is 360sqm. The building will be sited on existing hard standing and grass land. The building design has taken into consideration drainage of surface water and the roof has a section of 120sqm with a green living roof for water harvesting and to reduce the rain runoff [50%] from the building. The living roof will slow water run off from the building into the existing site drainage within the car park.

The building does not have traditional foundations to reduce its environmental impact. The building being proposed is modular in construction and will use either a foundation pad system or screw piles [subject to ground conditions]. There will be a clear void under the building to allow water to flow under the building in the event of flooding*[void management plan appendix 1]. The building will be raised approximately 300mm from the ground level. This will help reduce the risk of the building flooding. In addition the internal finished floor level will be 500mm above the building foot print extending the flooding level ranges to up to 800mm.

There will be hard landscaping around the building which again will be approximately 800mm above the current ground level. In addition it is planned to plant a range of indigenous trees and hedging. The foundation systems allow for the building to be raised if required at any point in the future. This will future proof the building in the event of climate change and changes in the tidal flood levels.

4 - Climate Change

In the event climate change affects the flooding likely hood on site within the 1 in 200 year tidal flood, various actions could be taken to secure the development for its lifetime. [Defined lifetime of the building is 20-30 years as a modular constructed building].

The proposed development is 300mm above ground level plus an additional 500mm to the finished floor level, a total of 800mm freeboard. The building has been designed to allow for it to be raised in the future in the event climate change affects the flood risk zone. [subject to the necessary approvals]. This could be achieved by maintaining the building height by adjusting the height of the foundation system.

This is a significant advantage to the planning application over traditional building foundations, the building is effectively on stilts. In the event of water levels rising the building will allow water to flow beneath it without any affect to the building.

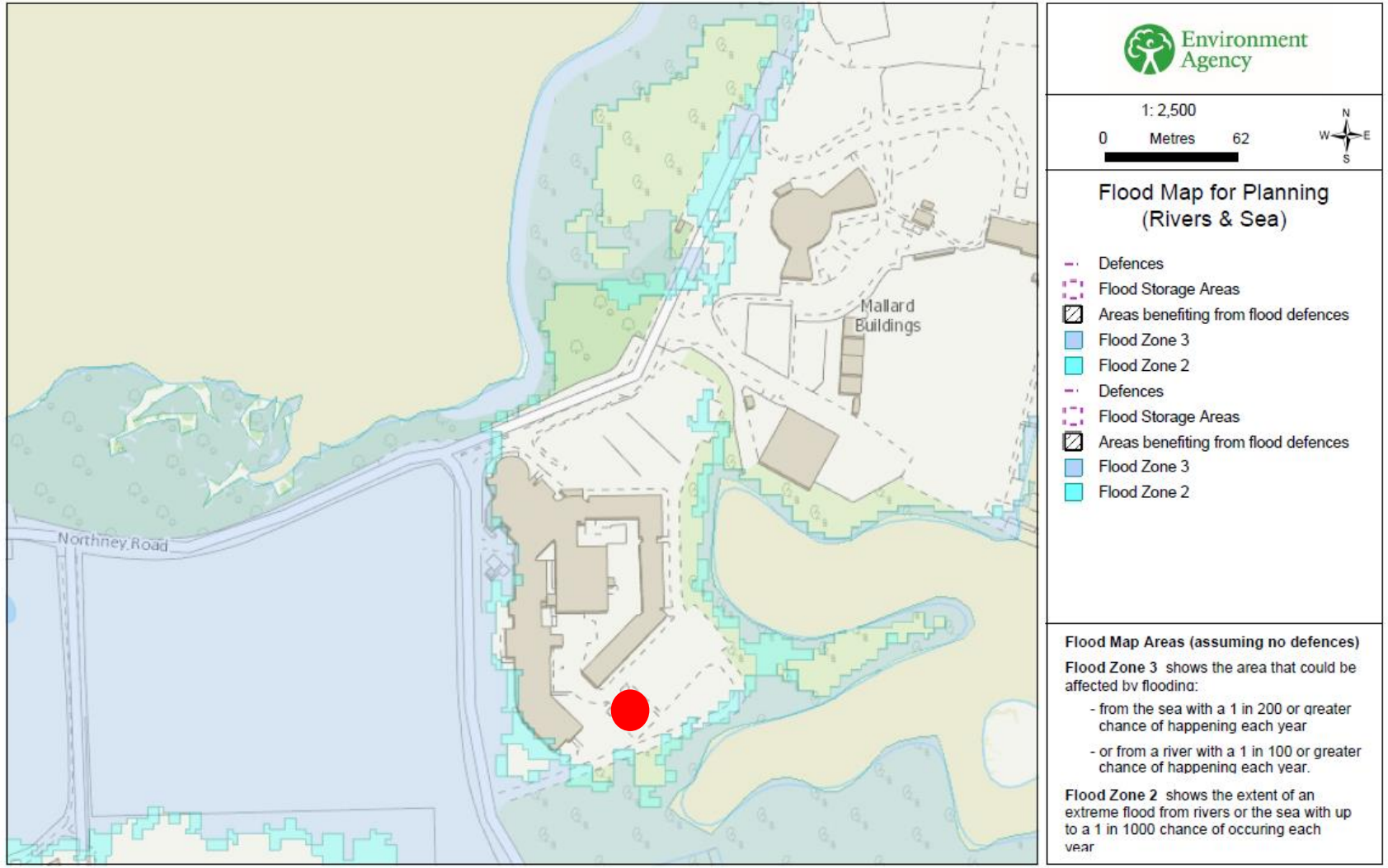
These two aspects future proof the development for its lifetime.

As part of the FRA it is highlighted that within the site boundary there is a 0.5% chance of flooding annually (1 in 200), ignoring the presence and effect of any flood defences. The proposed site location takes the building into a higher level on site. [Appendix 2]

A report conducted by an independent agency in 2004 has been used for guidance. Within this report it indicates uncertainties in flood estimation and expected climate change Gifford & Partners were informed that the flood risk in the 1 in 200 year tidal flood levels of 3.7m AOD. This would mean the current site location would not be impacted. Further information supplied by the EA December 2019 indicates the site would not be at risk of flooding. Detailed maps supplied by the EA confirm this in section 4.01 – 4.03.

4.01 – Flood Levels [Flood Plan]

Flood Map for Planning (Rivers and Sea) - Centred on Langstone Quays Hotel, Hayling Island Created 11 December 2019



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Proposed location of the SPAshell building on site at the Langstone Quays Hotel Hayling Island

Flood map indicating the flood levels with the boundary of the site indicated as risk of flooding. The main site where the proposed development is planned should not be in an area of high risk.

4.02 – Flood Levels [Surface Water]

Flood Levels Map Centered on Langstone Quays Hotel, Hayling Island - Created 12 December 2019

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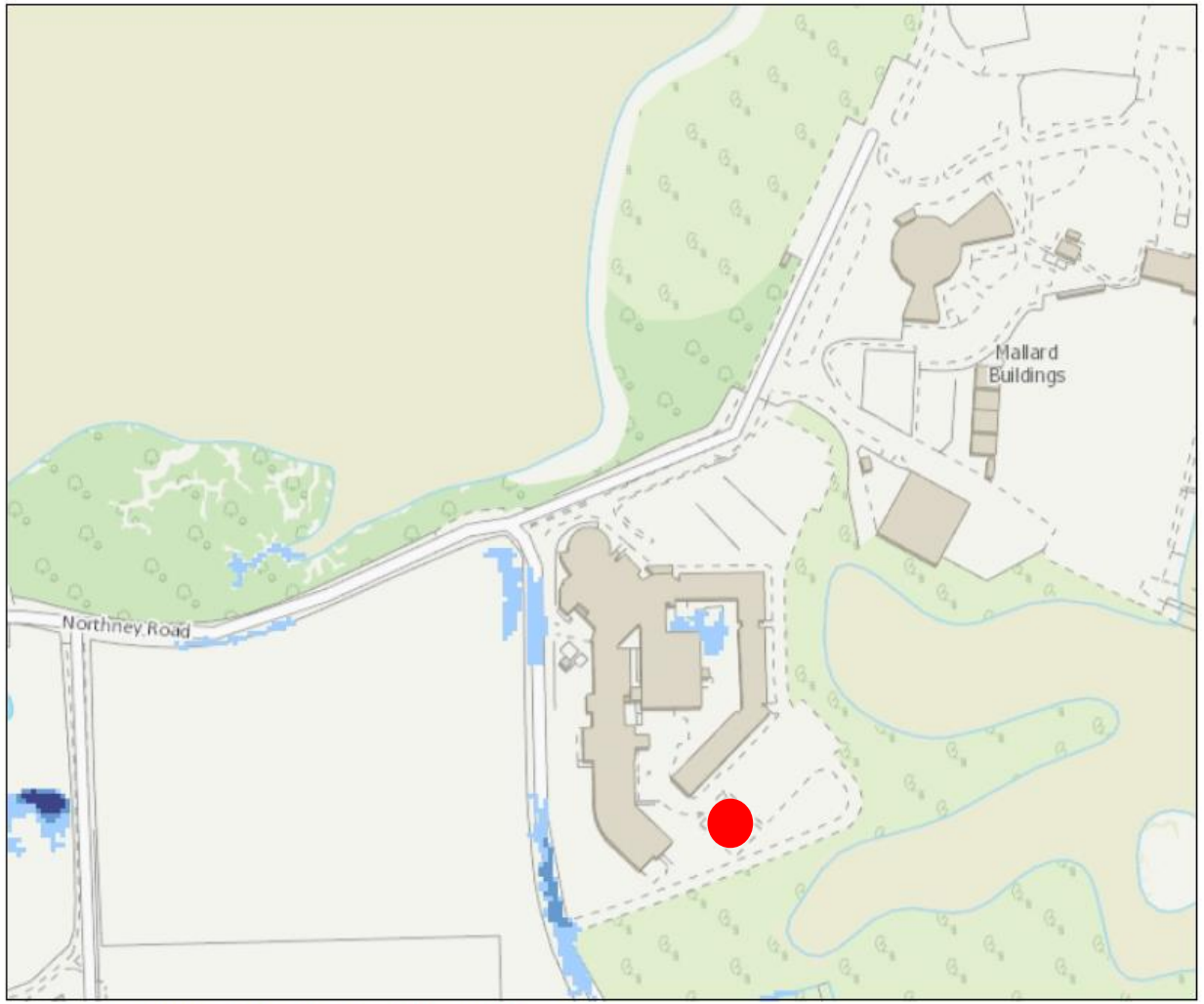
Contact Us: National Customer Contact Centre, PO BOX 544, Rotherham, S60 1BY. Tel: 08708 506 506 (Mon-Fri 8-6). Email: enquiries@environment-agency.gov.uk

- Proposed location of the SPAshell building on site at the Langstone Quays Hotel Hayling Island

Flood levels relating to tidal levels including climate change. Flooding is unlikely in the designated area of the proposed development.

4.03 – Flood Levels [Surface Water]

Risk of flooding from Surface Water - Centred on Langstone Quays Hotel, Hayling Island
Created 11 December 2019



Environment Agency

1: 2,500

0 Metres 62

N W E S

Likelihood of flooding from Surface Water

- High (>=3.3%)
- Medium (3.3% - 1%)
- Low (1% - 01%)
- Very Low

Likelihood of flooding from Surface Water

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

This information is shown on the Risk of Flooding from Surface Water map on GOV.UK.

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- Proposed location of the SPAshell building on site at the Langstone Quays Hotel Hayling Island

Surface water flooding is unlikely in the designated area of the proposed development

5 - Occupants and users of the development

The users of the spa and wellness facilities will be the current local membership to the health club on site, hotel guests and a small number of day guests visiting the hotel facility. These users will be managed under the hotels current flood risk strategy. In the event that a flood warning is provided by the environment agency the hotel will enact the current evacuation procedures.

The management and key staff are aware of the hotels detailed action plan and evacuation procedure. This plan has been formulated under consultation with the Environmental Agency and the local Marina which includes liaising and working with the marina staff. Arrangements have been made with the marina for access to enact an evacuation as the Marina would be unaffected by tidal flooding. It is likely due to climate change there will have been a rise in sea levels on site that even during the 1 in 200 year tidal flood and this still does not exceed the levels, pedestrian access to the marina will be un affected.

Given that the concerns are essentially of a short duration a high water, the marina and large parts of the hotel remain secure and of sufficient extent to provide safe and if necessary longer-term refuge. In these circumstances the occupants would not be considered vulnerable.

In the event that emergency evacuation was required the marina could provide an inflatable safety craft or alternatively the parking areas could provide a suitable landing location for an air evacuation. This procedure is detailed in the hotels evacuation procedures.

The proposed building is made up of a ground floor and first floor with access to a roof terrace, occupants could take refuge in the upper levels or on the roof top accessible for evacuation.

The full hotel strategy/plans ensures that all guests and users of the Langstone Quays Hotel facilities have access to emergency services if required.

Appendix 1

Void Management Plan

Within the design of the SPAshell building the building will be raised above ground level by approximately 300mm subject to the terrain on site. This clearance is derived from the foundation systems being employed which is very specific to the modular building design being proposed.

In addition the building finished floor level FFL will be 500mm above the foundation pad level. This area will be enclosed and is part of the building structure. It is an internal void with structural beams and drainage services.

In the unlikely event of flooding on site the building void will be clear of any obstructions. This will be maintained at all times to ensure access to the base of the building.

Around the perimeter of the building there will moveable planters blocking access to the void space. These planters will be set within regulated spaces to allow access below the building. The area below the building will allow water flow.

A full maintenance and operations manual will be provided to the operator. Within this plan guidance on the maintenance of the void will be given. This operations manual will include the importance of maintaining a clear void at all times in the event of flooding.

Appendix 2

FRA Advisory Text

We can confirm that the majority of the above site is located in Flood Zone 1 - an area where the chance of flooding from both rivers and the sea has been assessed as less than 0.1% in any year (1 chance in 1,000 in any year). The site extent however may be affected by an extreme flood. According to our published flood map, which provides a general estimate of the likelihood of flooding across England & Wales, the site boundary is shown to be within Flood Zone 3 - an area which may have a 0.5% chance of flooding annually (1 in 200), ignoring the presence and effect of any flood defences.

The Environment Agency is aware of flooding to the area west of the site in 2008, but have no specific details. Please note our records are not comprehensive and may not include all events. I recommend contacting the Lead Local Flooding Authority, Hampshire County Council or the Local Authority, Havant Borough Council for a more comprehensive flood history check.

Defences – Please see the attached map 4.01-4.03.

Levels - Please see the attached levels for you site taken from the East Solent Model produced by JBA Consulting in 2018. Please note the climate change allowances have been calculated through use of Environment Agency Climate Change sea level allowance, detail of which can be found here. Values are based on 2015 baseline data.

In preparing our planning application submission, we have referred to the Environment Agency's Flood Risk Standing Advice and the Planning Practice Guidance. This information can be accessed via:
https://www.gov.uk/flood-risk-assessment-standing-advice
http://planningguidance.planningportal.gov.uk/

www.spacreators.co.uk

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