

YACHTHAVEN, HAYLING ISLAND

ENVIRONMENTAL STATEMENT

DECEMBER 2011

APPENDIX 6.1

**NEW DEVELOPMENT OF 6 HOUSES TO EXISTING LAND
ADJACENT TO YACHTHAVEN, HAYLING ISLAND**

FLOOD RISK ASSESSMENT

Architects: PWP Architects

On Behalf of: YACHTHAVEN (HAYLING) LTD.

EG/320573/EG

Rev A 2 January 2012

Cowan Consultancy Ltd
3 Turnberry House
4400 Parkway
Whiteley
Fareham
Hampshire
PO15 7FJ

Telephone: 01489 577488
Fax: 01489 579873

www.cowanconsult.co.uk
consultants@cowanconsult.co.uk

Landguard Manor
Landguard Manor Road
Shanklin
Isle of Wight
PO37 7JB

Telephone: 01983 868497
Fax: 01983 865781

www.cowanconsult.co.uk
iow@cowanconsult.co.uk

CONTENTS

INTRODUCTION	page 3
THE SITE AS EXISTING	page 3
THE PROPOSED DEVELOPMENT	page 3
POLICY BACKGROUND	page 4
FLOOD RISK MAPS	page 4
EFFECT ON EXISTING DRAINAGE STRATEGY	page 4
SEQUENTIAL TEST	page 4
RISK ASSESSMENT	page 5
CONCLUSIONS AND RECOMMENDATIONS	page 6

APPENDICES

APPENDIX A	ENVIRONMENT CONSULTATION RESPONSE
APPENDIX B	LOCATION PLAN
APPENDIX C	TOPOGRAPHICAL SURVEY PLAN
APPENDIX D	PROPOSED DEVELOPMENT DETAILS
APPENDIX E	ENVIRONMENT AGENCY FLOOD MAP
APPENDIX F	PROPOSED SITE LEVEL AND BUILDING FFL

INTRODUCTION

Instructions were received on 27 July 2010 to carry out a full Flood Risk Assessment on this site.

Previously we have carried out a preliminary FRA outlining proposals relating to flood risk on the site. This preliminary FRA was commented upon by the Environment Agency in their letter dated 1st April 2010, a copy of which can be found in Appendix A.

A Planning Application is being submitted in connection with the proposed development at this site. A Flood Risk Assessment in accordance with the current recommendations given in the National Planning Policy Framework, which has recently superseded PPS25, has been requested in relation to the requirements of the code for sustainable homes.

Following a desk study and various discussions with local authorities and the Environment Agency, this report has been prepared to determine the risk of flooding on the site for the proposed development and to put forward recommendations to protect the development, its users and surrounding properties from any potential flood risk.

THE SITE AS EXISTING

Appendix B contains a location plan for the site. The proposed development on the site can be found at grid reference SU 729 018.

Appendix C contains a topographical survey drawing showing levels across the site. The levels were taken using an ordnance survey benchmark. The drawing shows existing levels around the site of approximately 2.900 to 4.200m AOD. It also shows levels along the access road to the site which range from 4.000 to 4.600m AOD.

The existing site was previously used for industrial purposes. The area of the site proposed for the residential units was a small industrial shed building with various smaller out buildings and caravans. The site is currently derelict and unused. The area of the site near the sea edge was previously used for boat repairs with a small boat birth directly adjacent to the shore.

THE PROPOSED DEVELOPMENT

Appendix D contains plans showing the proposed development. This consists of 6 new residential houses at the Northern end of the site with a small floating boat mooring structure at the waters edge to enable residents to moor their yachts.

POLICY BACKGROUND

The Government's sustainable development strategy makes it a requirement to assess appropriate forms of developments for areas at risk of flooding. This is to avoid any unnecessary increase in the requirement for flood defences. A requirement of the National Planning Policy Framework is that developers making planning applications on sites that are potentially at risk from flooding should consult with the Environment Agency, and where appropriate produce a flood risk assessment (FRA). The Environment Agencies flood matrix was consulted and showed that a flood risk assessment is appropriate for this site.

FLOOD RISK MAPS AND AVAILABLE INFORMATION

Appendix E contains a copy of the Environment Agency Flood Map for this area. This shows that the development for the six new houses is within flood zone 2 and is at risk from tidal flooding. The site is not at risk from fluvial flooding.

EFFECT ON EXISTING DRAINAGE STRATEGY

The change of use of the existing development will have very little effect on the existing storm drainage in the area. It is likely that the majority of storm water from the site runs directly off into the sea so the small increase in impermeable area on the site will not have any major effect on the storm water drainage regime. There will be a potential increase in the number of persons on the site so the foul water flow from the development will increase. However as the site is susceptible from flooding by the sea the increase in foul flow from the site will not effect the likelihood of flooding.

SEQUENTIAL TEST

The total area of the proposed development site is approximately 1 hectare. The EA flood risk matrix was consulted for a 1 hectare operational development in flood zone 2 with 'more vulnerability'. The following standing advice is appropriate for the development. The sequential test should be applied by the local planning authority and a flood risk assessment is required.

The sequential test for the development should be undertaken by the local planning authorities using the guidance given by the EA in their flood risk matrix document. The aim of the sequential test is to steer development towards flood zone 1. In the case of our proposed development an important part of the scheme is that the houses have access and are in relatively close proximity to the on-site boat mooring area. The residential development, comprising the six houses, has been moved as far to the North within the available site boundary as possible in an attempt to reduce the risk of flooding to the houses and to move

them to slightly higher ground. This is an important aspect of the development that should be considered by the planners during the sequential test.

The exception test requires to prove that developments provide wider sustainability benefits to the community that outweigh flood risk. It also states that the development should, where possible, be on developable, previously developed land. This site has previously been used as an industrial area. The development of the site into residential usage would reduce the chance of contamination to the site and also bring the land usage more in keeping with this area of Hayling Island. The proposed development is classed as 'more vulnerable' and is within flood zone 2. Consultation with the now superseded, though still useful as a reference, PPS 25 table D3 indicates that the development is appropriate with regard to the exception test. It is also of note that the development is to be constructed on land that has been previously developed and used for industrial use. This means that in order to develop the site a contamination assessment would be completed and, if required, a site clean up undertaken. It is also important that the development will not be undertaken on a 'green field site'.

RISK ASSESSMENT

Discussions have been held with the Environment Agency. The advice from the Environment Agency was that the development lies within flood zone 2. This means the site is within an area which has between a 1 in 200 and 1 in 1000 (0.5%-0.1%) annual chance of sea flooding. As the proposed buildings are for domestic use the predicted flood event must be considered for a 100 year lifetime. This means that the level of the predicted flood water is 4.500m for the year 2115. When allowing for a wave height on the site of 10%, this would give a predicted maximum flood water level on the site of 4.950m AOD, however the site is positioned well within a sheltered cove so the actual wave effects could be significantly less than this.

Any flooding on the site will be caused by the sea inundating the site from the South. There are no significant flood defences in this area of Hayling Island so flood defences cannot be relied upon to protect the site.

It is usual for the Environment Agency to require a free board of 600mm above the maximum predicted flood water level. This would indicate a finished floor level (FFL) of 5.100m AOD. This level would also protect the residential units from the maximum flood level including a 10% wave allowance whilst still providing a 150mm free board. Setting the ground floor of the building at this level would ensure that the properties were never flooded even during this extreme flood event. If this FFL level can be achieved then no flood resilient construction measures would need to be employed for the construction of the houses.

Access to and from the site during the extreme flood event would be along the access road which leads to Copse Lane. The first, approximately, 50m of access road is within flood zone 1 and not at risk from flooding. The remaining length of access road is within flood zone 2 as is the development site. This means that the effect of the flood water level of 4.500m AOD needs to be considered along the length of access road within flood zone 2 to ensure that access could be gained to and from the site during a flood event. As the access road is even further in land than the houses it is not deemed necessary to consider significant wave effects during the access exercise.

The levels along the access road range from approximately 4.000 to 4.600m AOD. This access road varies in construction from some tarmac areas to a gravel track; therefore it is feasible to slightly raise the access road levels to comply with the minimum level that would allow access during a flood event.

It is desirable to provide completely dry access to and from the site during an extreme flood event, however where this is not feasible a commonly used rule of thumb provided by the EA is to allow a maximum of 250mm water depth on the access, which will still allow emergency vehicles to access the site during a flood. This equates to a minimum access road level of 4.250m. Appendix F shows an access site level sketch which shows existing levels and proposed levels on the access road where adjustments are required to provide the minimum level of 4.250m AOD. This will be achieved by adding additional aggregate to the access road to increase levels.

CONCLUSIONS AND RECOMMENDATIONS

The predicted maximum flood water level at this development has been determined as 4.500m AOD using guidance from the Environment Agency. The maximum high water level on the site will be 4.950m AOD when allowing for waves. The predicted high water level, caused by waves, will only be sustained for very short periods due to tidal action. The existing flood defences in the area of the site are currently not able to defend against the predicted flood event.

In order to meet the Environment Agencies requirements the finished floor levels of the new houses within the proposed development should be set at 5.100m AOD, this will provide the full required 600mm of freeboard above the high tide flood level usually requested by the EA and will also still provide protection when allowing for full wave action. Providing the finished floor levels of the residential units are set at this level then the properties should not suffer in the event of flooding and flood resilient construction techniques need not be employed. As the existing site levels are considerably lower than this at present extensive ramping or steps will be required on the site to allow level access.

The access road to and from the development is lower in some areas than acceptable to allow access to and from the site during a flood event. Therefore levels in some areas of the access road will need to be raised to provide the minimum access road level noted earlier in this report.

The site should be registered with the environment agency online flood warning system and floodline telephone service to give warnings of any possible flood events. Local radio and television services should also be used for the same reason. Some warning of severe weather may also be available from the Met Office using its severe weather warning service. As the tidal event likely to cause flooding on this site is predictable the floodline will give warnings of potential flood events.

The site is primarily at risk from tidal flooding. Therefore the increase in foul and storm water run-off from the site should not have any major effect on the flooding regime of our site or nearby areas.



ELVIN GOMERY

B.Eng (Hons.)

For and On Behalf of Cowan Consultancy



DAVID BUTTON

B.Sc. (Eng), C.Eng., M.I.C.E.

For and On Behalf of Cowan Consultancy

APPENDIX A

ENVIRONMENT AGENCY CONSULTATION RESPONSE