

Bay Campus, Building 20 & Townhouses

Flood Risk Technical Note

This Technical Note (TN) has been prepared in support of the reserved matters approval application (reference: P2019/0014) which seeks approval of purpose built student accommodation in Building 20 and two standalone townhouse blocks at Swansea Bay Campus.

Natural Resource Wales

Natural Resource Wales (NRW) submitted a representation requesting that a Flood Risk Consequence Assessment is submitted. An extract of NRW's representation is set out below:

NRW's Flood Risk Map, which is updated on a quarterly basis, confirms the site to be within Zone C2 of the Development Advice Map (DAM) contained in TAN15 and the 0.5% (1 in 200 year) and 0.1% (1 in 1000 year) annual probability tidal flood outline. As a consequence, the application needs to be supported by a Flood Consequence Assessment.

NRW's representation fails to take into consideration the principles established through the grant of the original outline planning permission (P2010/0222), which has recently been extended via the grant of a new outline planning permission (P2018/0491). Furthermore, no account appears to be made of the reserved matters approval application for the construction of a rock revetment (P2019/0009) which lies between the townhouses site and the sea.

Outline Planning Permission

Specific to the Townhouses, the outline planning permission (OPP) permits residential uses on Block L4 of the approved Land Use plan. The OPP included raising of the land by 0.5m and 1m to achieve a minimum finished site level of 7m AOD to protect the site from tidal flood. This principle covers the whole of the site at Bay Campus. The proposals are consistent with the permitted Land Use for the site and the finished ground floor level for the Townhouses, at 8.2m AOD, is 1.2m above the permitted minimum site level. As this is the case, this reserved matters approval application does not need to revisit flood risk through the submission of an FCA.

Town Houses Rock Revetment

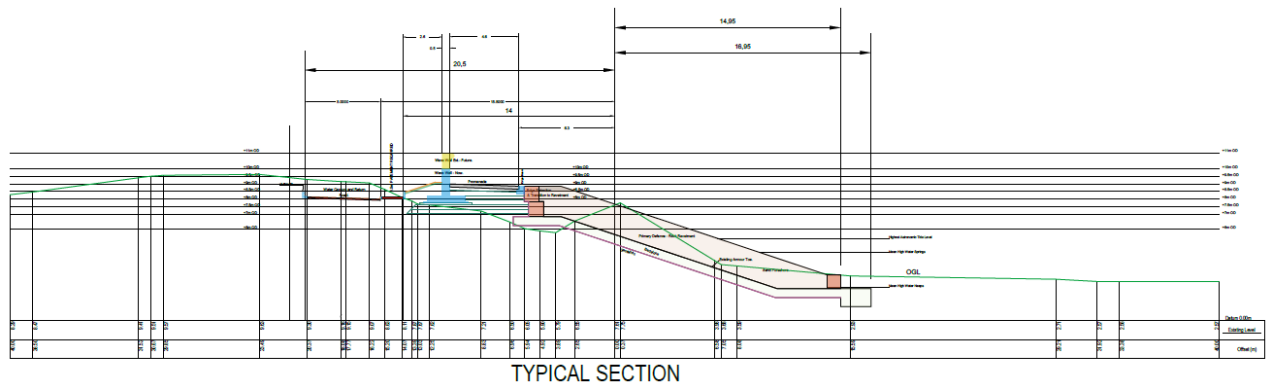
NRW's response is concerned with the location of the site within Zone C2 and the need to model the effect of the flood risk on the proposals in a 1 in 200 and 1 in 1,000 year tidal flood event.

Coastal Protection Principles

When assessing and designing for the impacts of rare events, it is important to appreciate how the consenting requirements apply to the elements of a scheme. In the case of the Townhouses development, the matter is easily resolved because there is a simple geographic separation between the coastal protection and the Townhouses. Clearly the coastal defence provides the required protection

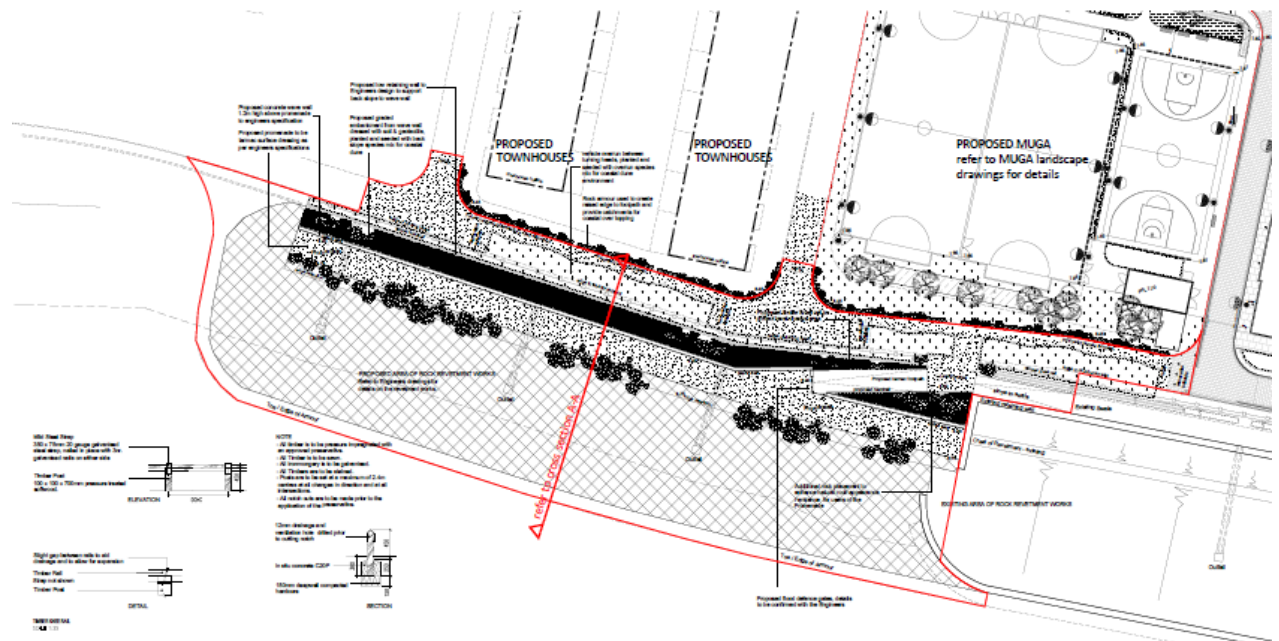
for the Townhouses. Reference should be made to Drawings 'SU-PH2B-XX-LA-STL-DR-700-0901 Revetment Plan to Townhouses' and '181212 Section Defence West Issued' and key extracts from those plans are detailed in Figures 1, 2 and 3 below.

Figure 1: Typical cross section of rock revetment (refer to plan for scale drawing/detail)



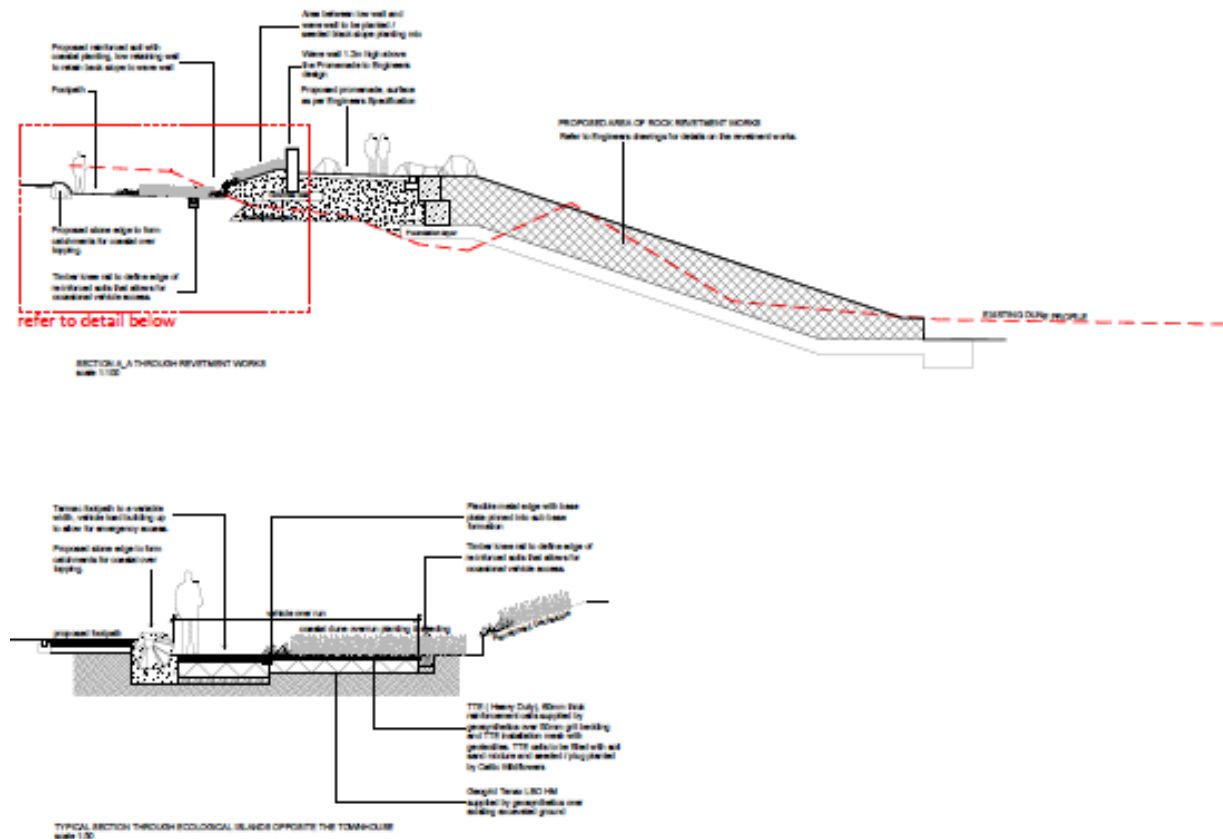
Source: 181212 Section Defence West Issued

Figure 2: Site Layout detailing proposed rock revetment and town houses



Source: SU-PH2B-XX-LA-STL-DR-700-0901 Revetment Plan to Townhouses

Figure 3: Cross section of rock revetment detail



Source: SU-PH2B-XX-LA-STL-DR-700-0901 Revetment Plan to Townhouses

The plan shows a red line boundary (Figure 2) and reference should be made to the geometry of the landward red line which forms the interface between the coastal defence and the Townhouses development. Figure 1 shows a typical cross section of the rock armor and Figure 3 details the proposed and more focused cross section of the seaward road between the northern back edge of the revetment and the pavement to the south of the proposed townhouses development. Attention is directed towards the 'water capture and return road' and the threshold level on the landward boundary of +8.45m OD. The designated area for coastal protection is therefore separated from the Townhouse development by a boundary set at a threshold level of +8.45m OD.

It is important to appreciate that the coastal defence has no bearing and is not directly impacted by tide. The principal function of our sea defence is to deal with wave action and the potential for wave overtopping. Waves obviously exist in water and wave height / wave energy is governed by water depth which leads us back to tides. Tides at the Bay Campus site could never reach a height which would cause an influx of water to the landward side of the defence. Tides could, however, reach a height on the seaward side that, whilst being well below the crest of the defence, would allow waves of sufficient height to exist at the defence and that could cause overtopping. Overtopping would not be produced by the action of waves breaking over the crest but rather being translated into runup which would cause water to spill over the crest at a limited rate. The conditions for significant overtopping would be statistically rare and subject to the joint probability of an extreme event applying to both variable events, such as tides and storms. It is worth noting that the threshold level of the defence is +10mOD which is 3m above the minimum permitted site level referred above.

The criteria which determines the design of the defence to protect against waves effectively eliminates the risk of tidal inundation.

08.07.20

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Savills