Eastern Promenade

(See Appendix E, F and G for plans)
The Eastern Promenade at Porthcawl provides protection against flooding to the land behind and is located between National Grid Reference (NGR): SS 82155 76898 and NGR SS 81989 76544. The existing masonry wall is in fair condition; however, it has been identified that the crest level of the wall is not consistent and the current level is not providing adequate defence from overtopping to the land behind.

The existing structure is in 'Good' condition following an initial structural appraisal. However, the current crest level of te Eastern Promenade parapet varies in both height and width along its length; this represents an overtopping risk and potential weakness in structural integrity throughout the planned design life of 100 years. Site investigation revealed voids beneath the existing revetment at the southern end of the Eastern Promenade.

The preferred solution will raise and widen the crest level of the current parapet, including raising the promenade ground level. The parapet will then be strengthened with anchors, and the seaward side of the existing Eastern Promenade wall will be repointed and repaired in accordance with standard necessary maintenance. Public realm enhancements including provision of seating, planted areas and re-surfacing of the promenade are also proposed.

The Public realm enhancements, crest raising and promenade level raising works are above MHWS and therefore are not described further in detail. All works for these elements will be undertaken from the landside.

The works which will be below MHWS include void villing using pressure grouting, and part of the anchors will fall below MHWS. The anchors will be constructed using a rotary coring machine from the landside.

Outflow storm drainage will be incorporated into the existing wall to encourage dewatering during a storm event.

These proposals increase the level of protection from future storm events and sea level rise and presents an opportunity to increase the level of protection significantly, and along with appropriate maintenance, could significantly extend the serviceable life of the asset.

Western Breakwater

(See Appendices H, I, J, K and L for plans)
The structure requires regular routine maintenance and additional improvements have been necessary from time to time. Voids have been formed through washout of fines and scouring at the base of the revetment has resulted in loss of facing stones from the original revetment and creation of a localised depression.
The following works are proposed:

- Pressure grouting to fill voids beneath the revetment and concrete deck slabs

and construction of a concrete cut off wall with rock armour scour protection around roundhead and along revetment to prevent further loss of material and scour.

- General masonry repairs/repointing/replacement of missing stonework to the limestone upstand in zones. This is to be followed by repair and strengthening of the masonry upstands using Cintec anchors.
- Concrete patch repairs to spalled regions by specialist contractor. Repairs using an SBR modified mortar following defect survey to capture all areas that require repair.
- Construction of a mass-concrete revetment embedded with large boulders/facing stone with scour/cut off protection detail to reduce the wave energy impact at the breakwater parapets. This will be constructed in sections with precast concrete blocks added to dug trenches with a JCB and filled behind with mass concrete during low tide.

Rhych Point

(See Appendix M for the plan)

Rhych Point is susceptible to erosion from both the Sandy Bay and Trecco Bay sides with evidence that erosion of the clay overburden from Trecco Bay (eastern side of Rhych Point) is currently occurring. Whilst Trecco Bay falls outside the scope of this study, the erosion of Rhych Point neck has potentially significant implications to the current stable equilibrium of the sediment transfer system in Sandy Bay. The solution has therefore been extended to include rock armour of the Eastern shoreline also; i.e. if Rhych Point were to erode completely this equilibrium would collapse.

A rock armour revetment is proposed to absorb wave energy and restrict erosion to protect the integrity of the headland. This is proposed to focus on the narrow 'neck' of the headland; outline drawings describe the proposals in Appendix M. Without such protection, the clay overburden risks erosive pressures that may cause the transition of the headland into a small island. Should this occur it would open a new erosion pathway to impact on the relict dunes.