BUILDINGS AT RISK

Sea defences played vital role in preserving beaches

Buildings at Risk covers buildings and structures and how they contribute to our island. This week ***Frank Cowin****, a Fellow of the Royal Institute of Chartered Surveyors who grew up on Douglas Promenade, looks at sea defences and in particular the reasons for erecting and retaining effective groynes on our vulnerable beaches*

Power of the waves striking Douglas seafront prior to the promenade being widened

Promenades are for seeing and being seen. The being seen is possibly of less importance these days than in the past when those who felt themselves to be 'a cut above' would parade to show themselves off on the Promenade.

In more recent times they became places to congregate to mix and meet friends while the young would be hoping to make new friends usually of the opposite sex.

Promenades were often places of entertainment and Douglas was no exception with its bandstand and pierot shows forming a focal point.

The Harris Promenade was the high point of all this activity becoming so busy at times as to warrant the erection of 'Keep Right' signs.

The construction of the Loch Promenade was intended to extend this with the naming of the southern end 'The Loch Parade' showing the hopes of the Town Fathers.

However, with its high cement-faced wall it never achieved the hoped for popularity.

Indeed early postcards show its main popularity was for watching the waves break high over it with the spray even reaching the height of the buildings opposite and large quantities of water threatening to flood the roadway.

When in the 1930s the Promenade was widened to create the sunken gardens and the wide walkway it was realised that to allow some of the weight of the water to pass through the ironwork sections it would reduce the impact and the height the spray rose, while enabling any water arriving on the walkway to quickly and easily return to the sea with little chance of it being trapped on the walkway.

The ironwork also opened up the view to the sea and beach without people having to lean over the wall or children having to climb on top with all the risks that involved.

A more suitable method of providing protection against future rises in sea level without interfering with the views from the promenade would be to strengthen and slightly increase the height of the outer wall of the gardens with protecting overlapping walls built onto the walkway giving adequate access to the throughways to the roadway.

These were to be fitted with storm gates that could easily and quickly be closed when storm conditions are anticipated.

The original sea wall was behind the hotels and boarding houses where the one surviving short length of this is on the rear wall of WH Smith's in the lane off Howard Street.

One other piece which had survived and was supposed to be incorporated into the 'Villiers Site Town Square' disappeared over one weekend in unexplained circumstances.

As the tide has little regard for man-made defences it flows in and out beneath the ground throughout the area and many readers will remember the pumps which were needed to keep the 'Clarendon Grill' at the Villiers Hotel free of water.

Perhaps fortunately the tide in the ground in that vicinity runs at about 20 minutes behind the sea so that its rise and fall are much reduced!

The one area where an edge-of-Promenade wall is required is to shelter the War Memorial. This should be treated as an architectural feature suitable for receiving memorials to others losing their lives in conflict and suitable for the display of the main memorial wreaths.

Attention needs to be given to the junction of the War Memorial platform with the reduced width of the Harris Promenade. The angle between the two faces concentrates the power of waves, consequently causing damage especially when the waves 'decorate' the railings with seaweed and the increased surface area means that the force is sufficient to damage the rails.

It must be said that the present way of dealing with the sea weed by piling it up in heaps and hoping the tide will take it away cannot be described as being very successful. Our forefathers removed the seaweed to spread it on the land – could another profitable use have been found for it?

The recent removal of the groynes from the beach can only add to the problems of the sea running over the road in the Queens Promenade area. That problem has only arisen because of the lack of maintenance afforded to the groynes in recent years.

Clarendon Grill beneath The Villiers Hotel which was protected by pumps at high tide

Harris Promenade, with one of its 'Keep right!' signs highlighted

LONGSHORE DRIFT & GROYNES

The purpose of the groynes on our beaches is to inhibit the 'longshore drift' – the movement of sand and stone, along the coast, by the sea.

On the island, longshore drift is normally, but not always, from south to north. The action of the waves moves sand and stones slowly but surely along.

A place where this action can actually be watched is the slipway to the beach from Castletown Promenade.

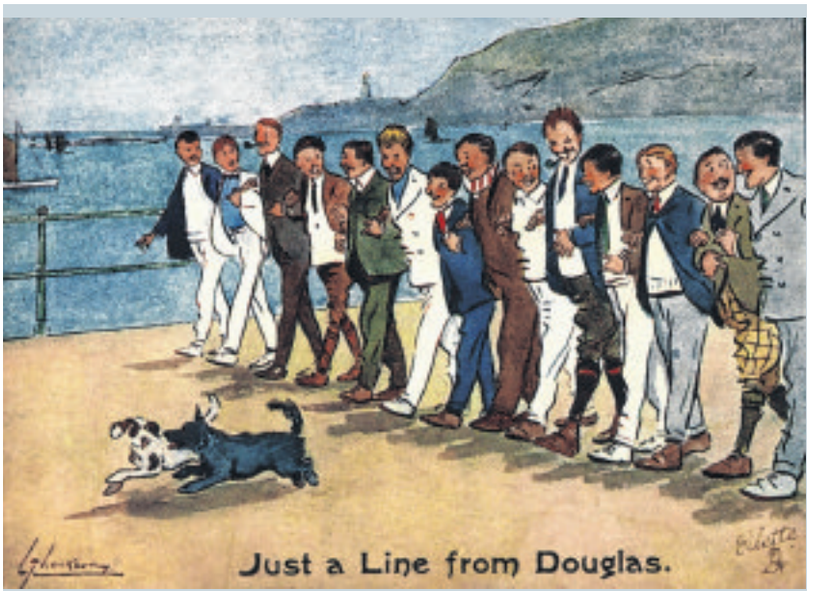
At the right state of the tide and with a reasonable wave height an incoming wave will 'flip' a stone onto the foot of the concrete slipway on the 'Town Side' and push it up and slightly across and the stone will follow the retreating wave straight down as it recedes.

The stone will gradually cross the concrete in a sawtooth fashion until it drops off again on the Derbyhaven side. Following tides will move it on until it comes to rest alongside the Golf Course where the path is now much further from the drop to the beach than it used to be.

The results of the action of the sea in this way can be seen at the Point of Ayre where the tidal streams run against the coasts of the Northern Plain, scouring the Ice Age alluvial deposits from the coastline.

The nature of the material is such that at the worst affected areas, on both sides, there is erosion to the aver-

The former drop to the beach opposite the Crescent



A postcard showing parading on the Promenade

The former drop to the beach opposite the Palace Hotel

Height of the sea wall at Laxey where shingle hasn't built up

Other parts of the Laxey wall are increasingly ineffective because of the build-up of shingle

age extent of 1.5 metres a year. Some years little is lost, but at other times 10 metres or more can be lost in a night.

Here not only does the tidal run move the materials along the coast but also moves the various constituents at differing speeds. Heavy stones move very slowly but the smaller the stone the faster it moves. The fine material, grains of sand and soil, are suspended in the water and can be moved faster than you can run.

As a result the stones are deposited where the two tidal streams collide at the Point of Ayre. They end up as low banks of stone wrapping themselves around the Point, where if you walk across them you can see that in the 'hollows' are larger stones grading gradually to small stones at the top and increasing in size again as you descend into the next hollow.

Meanwhile the now-combined tidal run carries the sand Eastward where it is deposited as the waters disperse and slow. The deposited material forms the King William and Bahama banks, dangerous shallows, once marked by a lightship but now with warning buoys. These banks force marine traffic to pass unusually close inshore at the Point of Ayre to keep clear of the sandbanks.

The extent of the build-up of material at the Point can readily be seen as the lighthouse was close to the edge of the sea when built in 1818. As the stones built up, and the Pont extended North-East, it was found necessary in 1890 to erect the 'Winky' light to mark the edge of the land; and then in 1926/7 move it from its original site – where the remains of the foghorn are situated – to near the new edge of the sea, where it now stands once again well inland from the tide line.

Longshore drift in the island is usually south-to-north but there can be local tidal eddies. The southern end of this North-East coast is one of the areas affected by a local southern longshore drift causing a build-up of stones beyond the wall at the southern end of Ramsey's North Promenade where nature reclaims it and plants start to grow, where the swimming pool / 'Talk of the Town' once stood.

Ineffectual skeletal remains of neglected groynes on Douglas beach, which were recently removed

DOUGLAS

In a similar fashion at Douglas the sea scours the beach at the foot of the southern end of the Promenade wall and slowly but surely moves the material along and distributes it beyond the War Memorial northwards.

At Queen's Promenade where in my youth there was a drop in excess of four metres to the beach, the top of the shingle is now nearly at footpath level. In storm conditions at high tide the waves can run up the shingle and across the footpath and at times also the road.

At the Crescent the drop was in excess of two metres but again is now very small.

A similar situation occurs in Laxey where the shingle has been allowed to build up not only to footpath level but almost the full height of the existing wall.

A high wall is not necessarily the answer as witnessed by what happened at Loch Promenade before the gardens were built, and what happens at the north end of the Promenade where the Port Jack road has so frequently to be closed.

The trick in these situations is to make sure that the waves have lost their full energy before they arrive at the final barrier. Continuing beach management has to be a major part of this, including the removal of much of the present 'build up' of stones from the north end of Douglas Promenade and use them to help form an 'outer work' to protect the Southern end.

Walls can help, but in general their use should be restricted to sheltered areas such as the harbour sides at Douglas North Quay, Laxey and Ramsey and where used must be designed to fit in with both the appearance and use of the area involved.

'One fix' does not fit all but we can often find that our forefathers had forethought which we ignore at our peril.

Groynes, sea walls and breakwaters

A sea wall
Principally defends against the height of the tide, stopping 'over-topping' when the water level is too high, as sometimes seen around our harbours can protect a vulnerable land-edge from erosion can be the final barrier to waves washing debris ashore

A groyne
Is usually constructed at right-angles to the shore reduces longshore drift which causes both erosion and unwanted build of shingle which in turn means waves roll more easily ashore

A breakwater
Is usually constructed parallel to the shore, or across the mouth of a harbour breaks the force of the waves before they reach the shore or the harbour