Board 1 - Overview

Irvine Beach Coastal Study

North Ayrshire Council has undertaken a study considering how the Irvine Beach area has changed and is likely to change in the future.

The study recognises;

- **The importance of maintaining the natural function of the dunes**
- **The important recreational and amenity value, specifically maintaining the connectivity of the area**
- **The failing defences in front of the Dragon viewing point and the old spoil heap**

Coastal Change

The shoreline, in the past, has undergone significant change both naturally and as a result of change to the management of the Harbour entrance.

With Climate Change, in particular with sea level rise, the pressure from erosion increases.

- While recognising the uncertainty as to how rapidly sea level rise is happening, sea level may realistically be expected to increase by around 0.5m over the next fifty years (potentially by as much as 1.2m over the next 100 years)

This poses significant challenges:

- For the way in which we manage the dunes, allowing width within which their natural development may be allowed to continue
- For the way in which we maintain safe access through the dunes to the foreshore, without damage to the dunes and still maintaining the dunes capacity to change
- As to whether there is a need to manage and improve the existing defences or the implications should it be decided to remove these defences

This Consultation

The underlying principle for management is to allow the coast to develop naturally. However, there are important decisions that follow from this, in terms of influencing the way in which the area is used and the possibility for imposing some form of control.

Any sustainable approach to management has to be developed in open discussion with the those who use the area, those who manage the area, alongside other stakeholders. The aim of this consultation is to initiate this discussion and allow people to express their views

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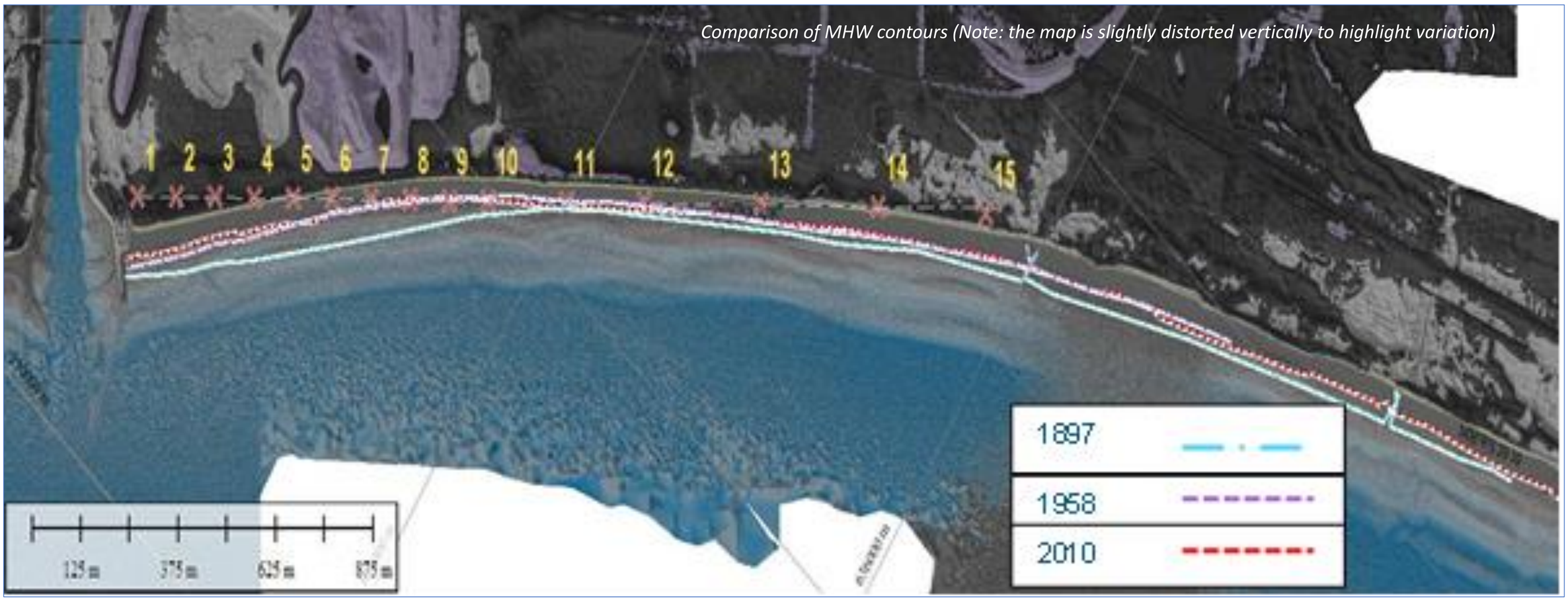
Board 2 - Coastal Change

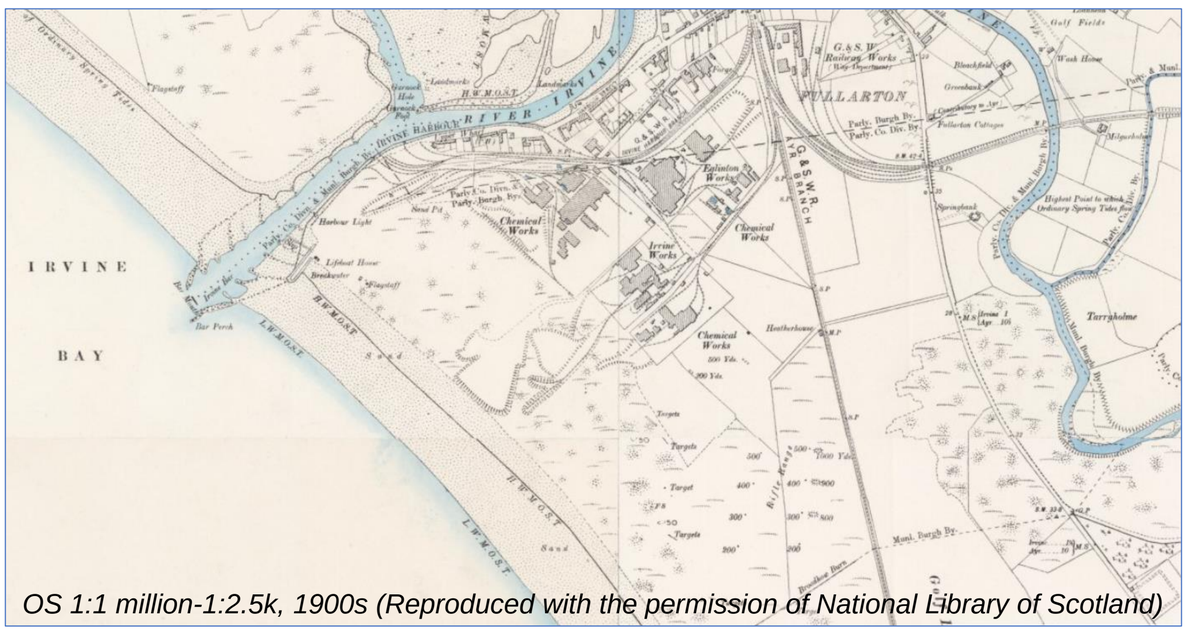
Irvine Beach Coastal Study



Comparison of MHW contours (Note: the map is slightly distorted vertically to highlight variation)

Historical Coastal Change

- In the early 20th century, the Irvine frontage experienced bay wide erosion. This was most notable in the lee of the Harbour entrance to the North. Likely linked to construction of the main harbour pier in the late 19th century.
- In the late 20th century, the rate of erosion reduced, with evidence of slight accretion in some areas to the south.



OS 1:1 million-1:2.5k, 1900s (Reproduced with the permission of National Library of Scotland)

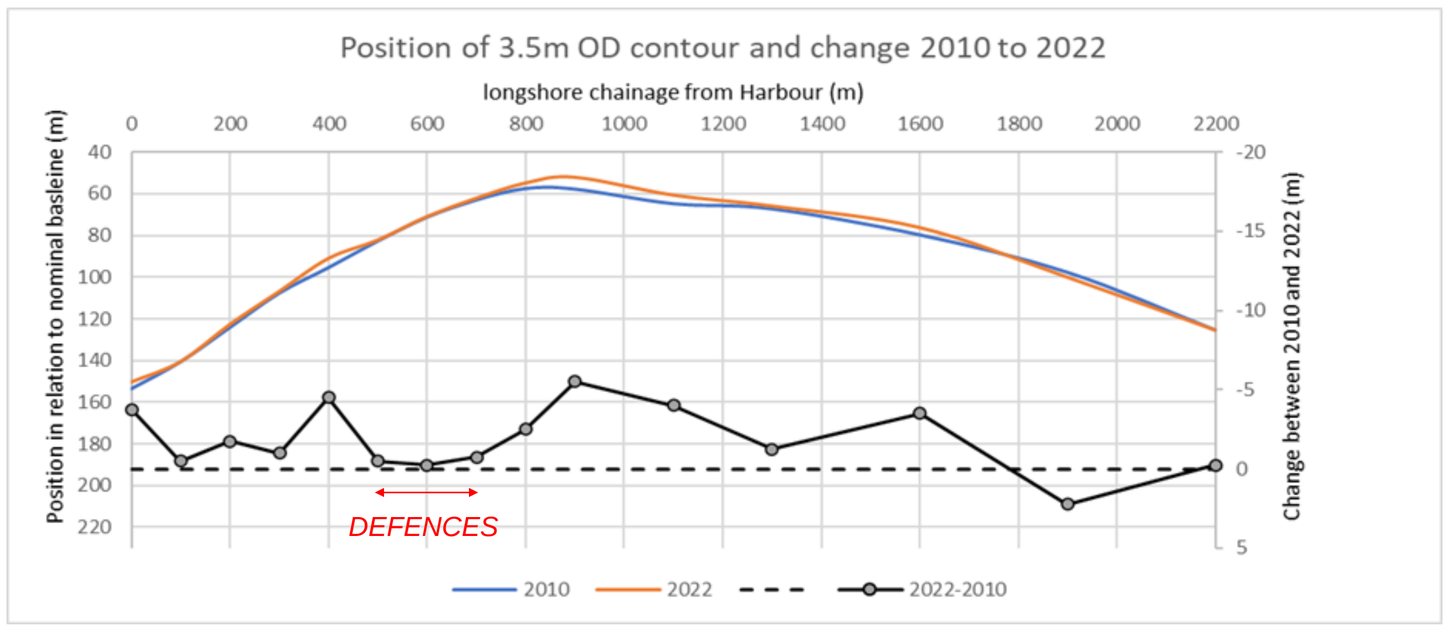
Historical Setting

In the 1900s, the coastal hinterlands at Irvine were dominated by a series of Iron and Chemical works. The relict spoil heaps from such times still dominate the frontage today.

The defences built to prevent the erosion of these spoil heaps are being put under increasing pressure.

Contemporary Change

Between 2010 and 2022, the gabion defences fronting the spoil heap have fixed the position of the backshore resulting in locally increased erosion to the adjacent frontages.



The general rate of erosion has been in the order of 0.4m/yr. (on average 1897 to 2010) and 0.1m/yr. to 0.3m/yr. (on average 1958 to 2010). This compares to the more recent (2010 to 2022) change relating the frontage to either side of the defence being in the order of 0.4m/yr.

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Board 3 - Future Change

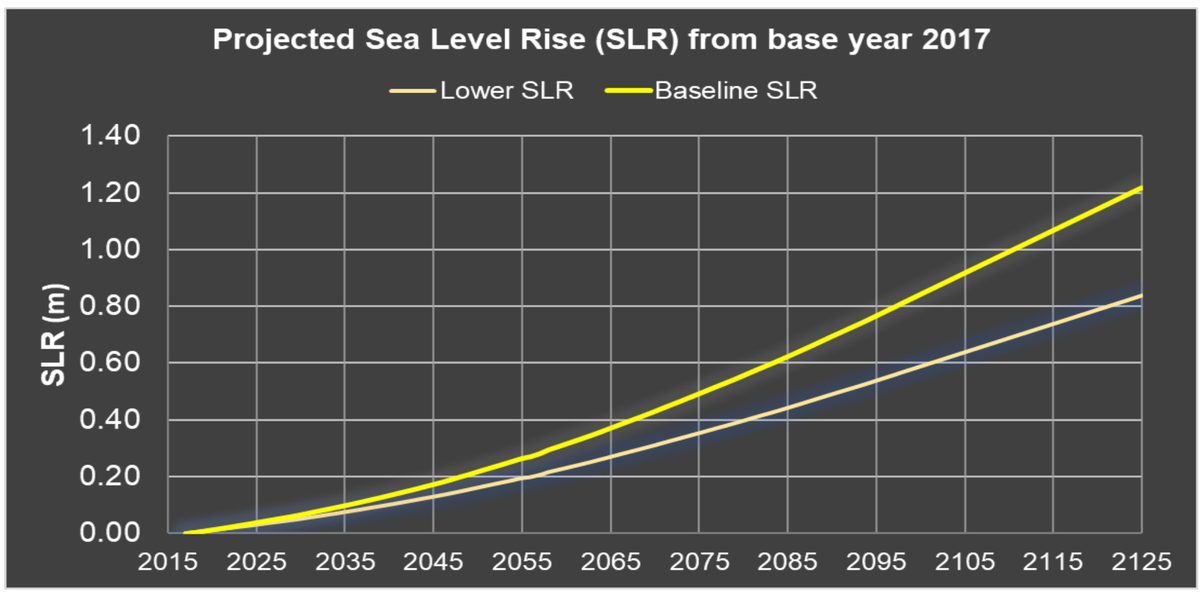
Irvine Beach Coastal Study

Sea level rise (SLR)

The most significant influence of climate change on the coast will be sea level rise.

Relative to the baseline taken as 2017, sea level may realistically be expected to rise by:

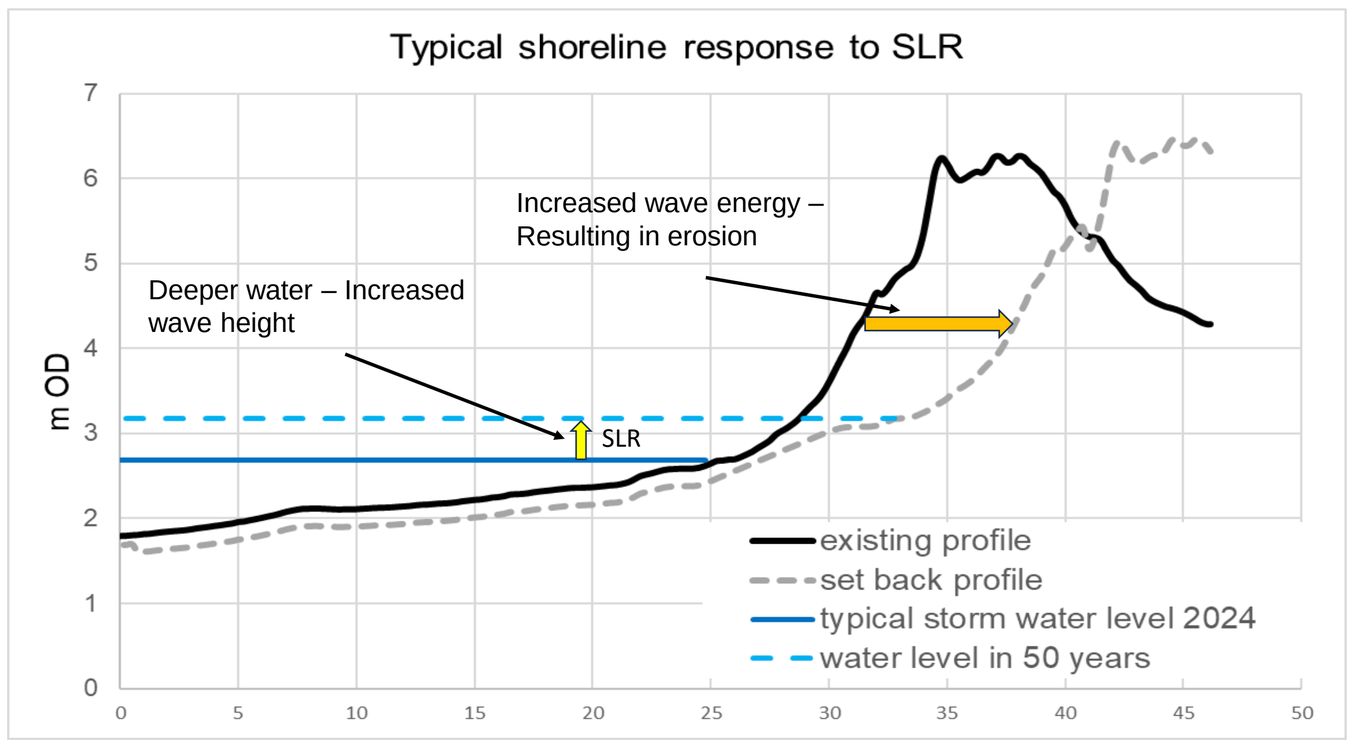
- **0.2m within 20 years**
- **0.5m over 50 years, and potentially by**
- **1.2m over 100 years**



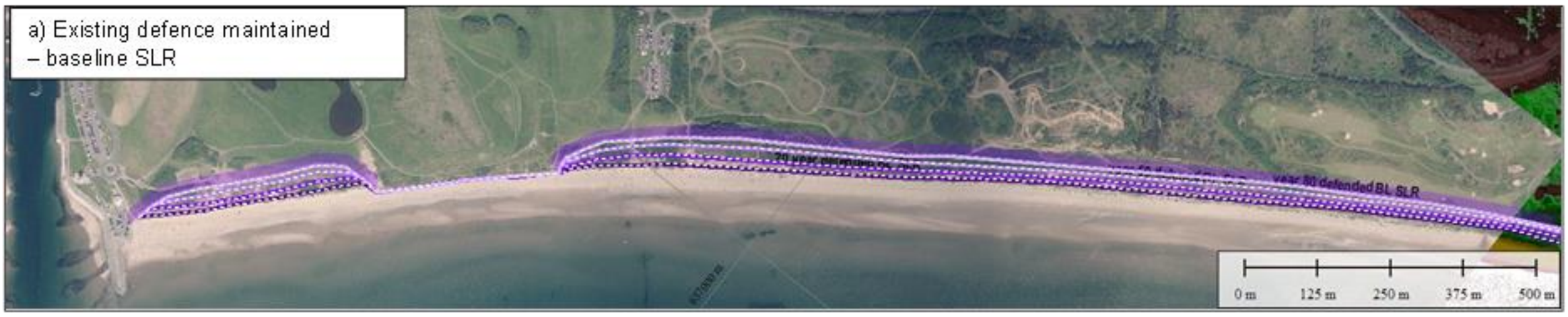
Why is this significant?

With increased water levels there will be increased wave energy at the dune line.

The shoreline will attempt to retreat or set back, with increased rates of erosion.



Projected future erosion with SLR



Whilst the underlying principle for management is to allow the coast to develop naturally, the management of the spoil heaps may require continued intervention.

Nevertheless, projected erosion lines show the pattern of erosion impacts on the use and natural function of the dunes.

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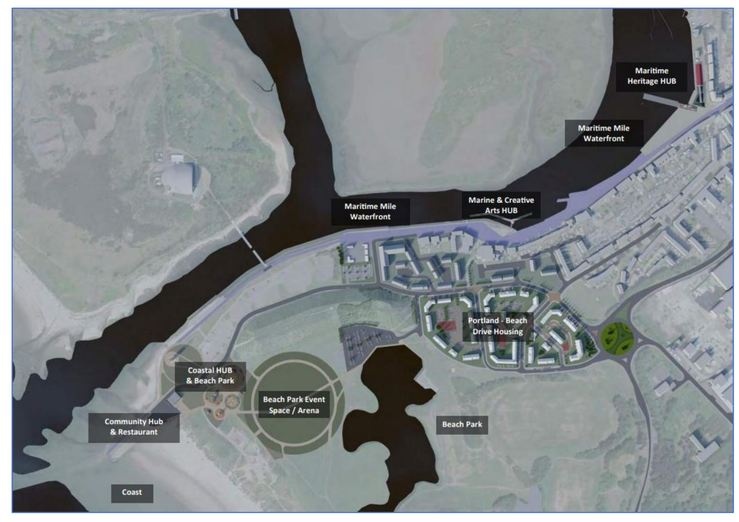
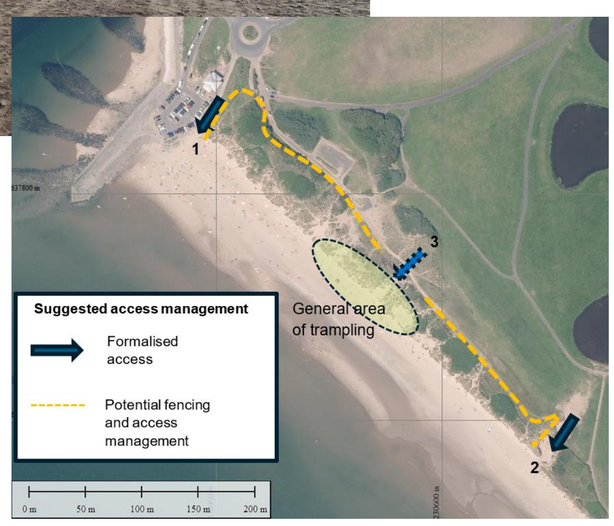
Board 4 - Management Issues **Irvine Beach Coastal Study**

Context

North Ayrshire Council aspires to further enhance the Harbourside area of Irvine through the development and delivery of a Great Harbour Masterplan. This development of the hinterland will increase the pressure on the coastal frontage through increased foot traffic.





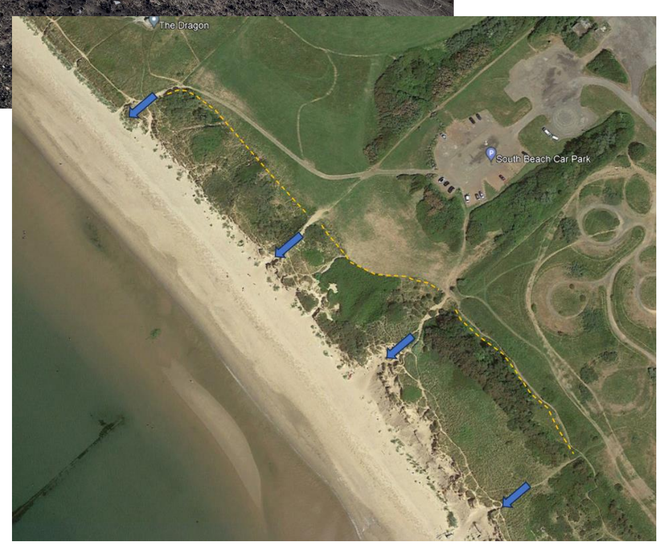
Dunes are presently subject to a significant number, and size, of blowouts through the foredune as a result of unmanaged access.

Management principles could include;

1. Limit the number of perpendicular access through the dunes
2. Align the central access points with the Great Harbour master plan.
3. Increase signage in the area to help raise awareness of the issues faced by the dunes.
4. Formalise, and control, the shoreline parallel routes with knee rail fencing or similar.

The defences fronting the spoil heap are in poor condition and will require intervention in the near future.

The management of this area hinges on the make-up , specifically any contamination, of the spoil heap itself. As a result, both defended and undefended options are considered.



Dunes are akin to Zone 1

However, they are also increasingly showing signs of the industrial past. Industrial spoil is outcropping through the foredune, and several historic outfalls are now in a dilapidated condition on the foreshore.

- Increase / reinstate signage in the area to help raise awareness of the issues faced by the dunes
- Formalise, and control, the shoreline parallel routes with knee rail fencing or similar.

Access management would need to be developed in detail and with support of community and users of the area.

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