Dredging project at Inveraray Pier

Best Practicable Environmental Option Assessment (BPEO)

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1 Introduction

Inveraray Pier reopened for marine traffic and public access in April 2024 after a long period of closure under private ownership. Under the new community ownership and management of Inspire Inveraray, the pier is now open for use again.

In the duration of time that the pier was closed to marine traffic, a significant amount of sediment accumulated around the pier, which has now restricted the access for larger vessels. Inspire Inveraray is now seeking to address this issue by appointing a contractor to dredge the sediment from around the pier and depositing it in deeper water offshore.

This BPEO forms part of the application to MS-LOT with respect to a relevant licence being granted for the proposed dredging activity.

2 Description of dredging activity and dredged material

2.1. Dredging activity

To be carried out by an established contractor using the 'plough' dredging method, material is dragged and pushed into deeper water and evenly distributed.

2.2. Material to be dredged

2.2.1 Physical characteristics

Estimated physical composition by proposed contractor to be 80% sand, 15% clay and silt and 5% pebbles, cobbles and boulders.

2.2.2. Chemical characteristics

Full chemical sample analysis supplied by SOCOTEC (attached separately).

3. Scoping of potential options to determine BPEO

3. 1. Option 1: Deposition at sea (By dredge either dragged or pushed to deeper water)

Due to the minimal transportation levels involved of approx. 150 metres from the dredge site to the disposal site, this deposition at sea option represents a highly cost effective and operationally effective option that will minimise the overall environmental impact and disruption to the area.

Deposition at sea n deeper water allows for the dredged material to be easily eroded and redistributed by currents.

However, it has been noted that careful attention needs to be paid to factors such as habitat disruption, sediment chemistry and the potential release of contaminants.

This option was considered feasible by Inspire Inveraray and Coastworks contractors. Also the preferred option of MS-LOT

3.2. Option 2: Landfill

The closest commercial landfill site to the Inveraray pier dredge site is located 35 miles away by road at Dalinlongart (near Dunoon).

Exercising this option would create significant negative environmental impacts, mainly due to the multiple truck journeys required to dispose of the dredged material at this site. In particular, the emissions of greenhouse gases such as carbon dioxide would be considerable.

Furthermore, the disruption that this would cause to Inveraray's limited parking facilities at the pier, as well as the increased tra ic and congestion on the busy A83 road that runs through Inveraray, would also be significant.

Due to logistical, environmental and cost factors, this option was discounted by Inspire Inveraray

3.3. Option 3: Agricultural use

Agricultural usage presents the benefits of improving the drainage of clay heavy soils by the addition of the high sand content dredged material, with the added potential of a nutrient boost too, although this is difficult to predict in advance.

However, the following factors present a major challenge in effective agricultural usage:

- **Salinity** - High salinity can hinder seed germination, stunt plant growth, and even kill plants as most plants cannot tolerate high levels of salt.
- **Contamination** - Harbour sediments can be contaminated with pollutants such as heavy metals, hydrocarbons, and other toxins. These contaminants can be harmful to plants and potentially enter the food chain.
- **Variable Composition:** The composition of dredged material can vary significantly depending on the location and depth of dredging. This makes it difficult to predict its properties and nutrient content, which can affect plant growth.
- **Lack of Organic Matter:** Dredged material is likely to be low in organic matter, which is essential for healthy soil and plant growth. Organic matter is crucial to improving soil structure, water retention, and nutrient availability.

In addition, a significant logistical challenge is applicable with this option. The dredged material will be required to be transported by truck (multiple journeys by road) to any potential agricultural site.

Furthermore, due to the hilly terrain and climate, arable farming (crop production) is very limited in Argyll and Bute. Some hardy crops like barley and oats may be grown, but the focus is primarily on livestock farming. This would therefore increase the distance required to transport the dredged material away from the dredge site in Inveraray to a suitable location elsewhere.

Due to the unsuitability of the dredged material content, and the challenging logistical factors, this option was discounted by Inspire Inveraray

3.4. Option 4: Use as construction material

Although the high sand content of the dredged material would be beneficial in its use as a construction material, particularly the production of concrete, the saline content of the water makes its usage significantly more complex.

The primary part of the process in addressing the salinity would involve desalination of the dredged material, which would require transportation away from the dredge site in the first instance, followed by numerous lengthy road trips of an unspecified distance until the full amount of dredged material had been removed.

Due to the unsuitability of the dredged material content, and subsequent complexities of processing it for further use, this option was discounted by Inspire Inveraray .

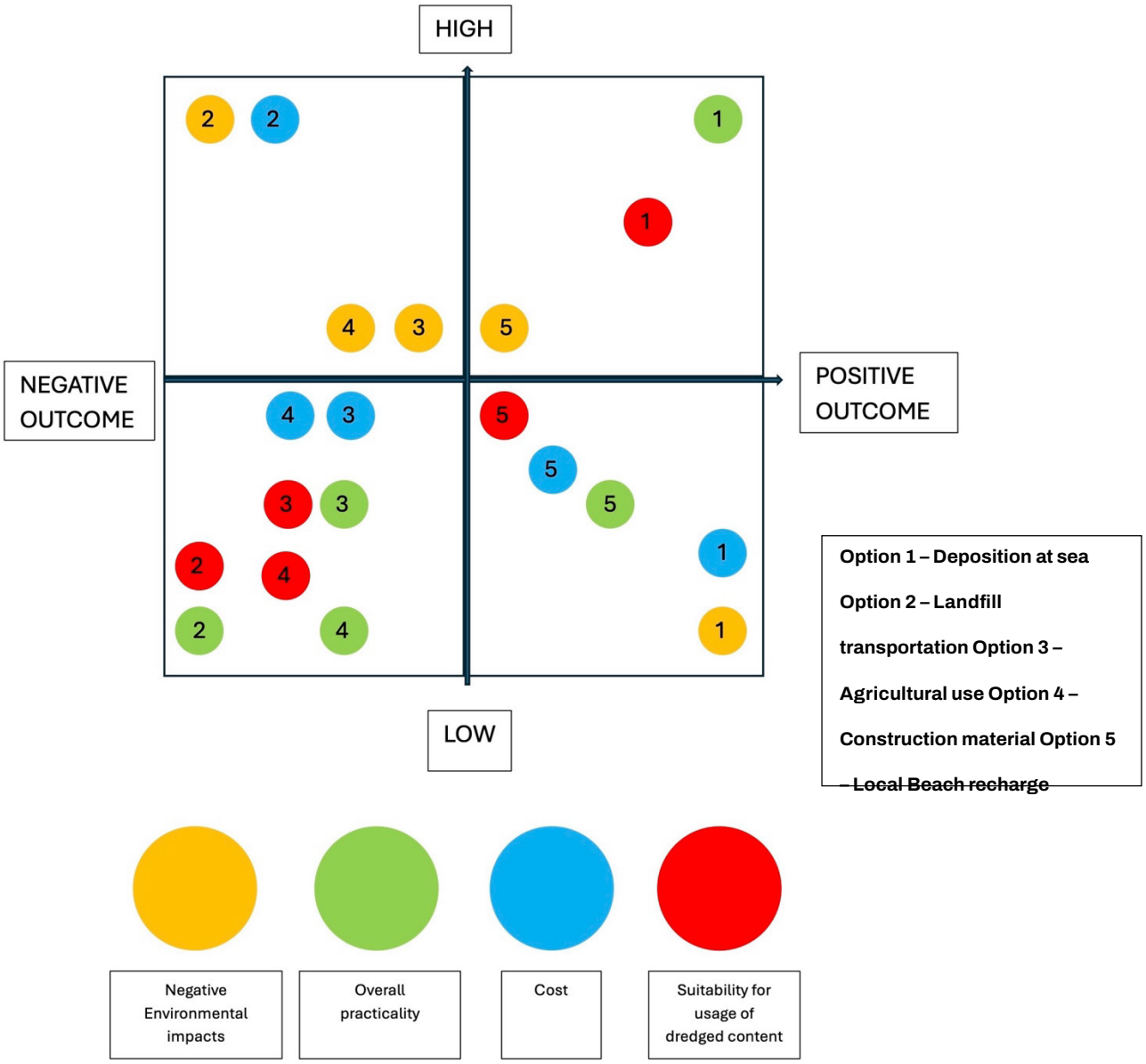
3.5. Option 5: Beach recharge

The benefits of pursuing a beach recharge option include erosion control, habitat restoration and recreational enhancement.

However, given that the minimal beach areas of Inveraray are only evident at times of low tide, which reduces the recreational value significantly, the tidal water of Loch Fyne would ultimately cover any recharged area, which would then consume the dredged material back into to the loch anyway.

Due to the lack of a suitable beach area within the immediate Inveraray area, this option was discounted by Inspire Inveraray

3.6 Summary of options scoping



As displayed in the above comparative analysis, The logistical challenge, and resulting negative environmental impact, of any option that involved the transportation of the dredged material away from the pier dredge site by truck, severely narrowed the options scoping process.

However, this also allowed a clear focus on the single option that would minimise the significant negative environmental impacts associated with the transportation by road options.

Based on the comparative analysis, Option 1 was identified as the preferred option.

4. Further assessment of preferred option

4.1. Assessment methodology

MS-LOT's general licensing guidance (MS-LOT, 2015) states the following in relation to BPEO assessment:

'consideration must be given to the availability of practical alternatives when considering any applications involving disposal of material at sea. In order for MS-LOT to assess the available alternative options, all sea disposal licence applications must be supported by a detailed assessment of the alternative options. This should include a statement setting out the reasons, including financial, that have led to the conclusion that deposit of the materials at sea is the BPEO.'

Based on this guidance, the preferred option was then further assessed from both a strategic and environmental perspective.

4.2. Deposition at sea

4.2.1 Strategic considerations

Operational considerations

The operational practicalities of depositing dredged material at the proposed deposit site are straightforward: as the dredged material will be pushed out into deeper water and evenly distributed on the seabed no more than 150m from the location of works No preparation of the material is required prior to deposition.

Availability of suitable sites

The proposed deposit site is an area no more than 150m from the location of work in deeper water.

Legislative implications

Inveraray pier is under the private ownership of Inspire Inveraray however does require final approval from Peel Ports (Clydeport) A licence to deposit dredged material at sea is required, and an application to MS-LOT is in progress, to which this BPEO analysis is part of.

4.2.2. Environmental considerations

Safety implications - In this case, the preferred Deposition at sea option has negligible implications for safety, with matters of safety related to the work itself being implemented by the proposed contractors Coastworks Ltd.

Public health implications - There are no threats to public health associated with deposition of uncontaminated dredged material at sea.

Interference with other legitimate interests - There is a low risk of interference with other legitimate interests (pier users), but to mitigate any risk, appropriate notice will be given.

Amenity/aesthetic implications - The recreational use of the pier may be limited while the work is carried out.

Ecological Implications - As the preferred deposition at sea option involves the deposit of dredged material in deeper water, the potential ecological disturbance is low.

4.3 Operational cost evaluation

The deposition at sea option involves the shortest logistical journey for the dredged material with the least amount of disruption, and also carries the quickest project completion timeline, ultimately making it the most cost effective option available to Inspire Inveraray. and also preferred option of MS-LOT

To support this perspective, with reference to a previous MS-LOT application by Montrose Port Authority in May 2023, it was concluded that “Financially, the costs are in the region of 6-7 times greater for beach recharge than for deposition at sea.”

5. Best practicable environmental option

Given the above consideration and analysis, Inspire Inveraray decided that **Option 1 (Deposition at sea by method of plough dredge)** was the BPEO for this capital dredging project.