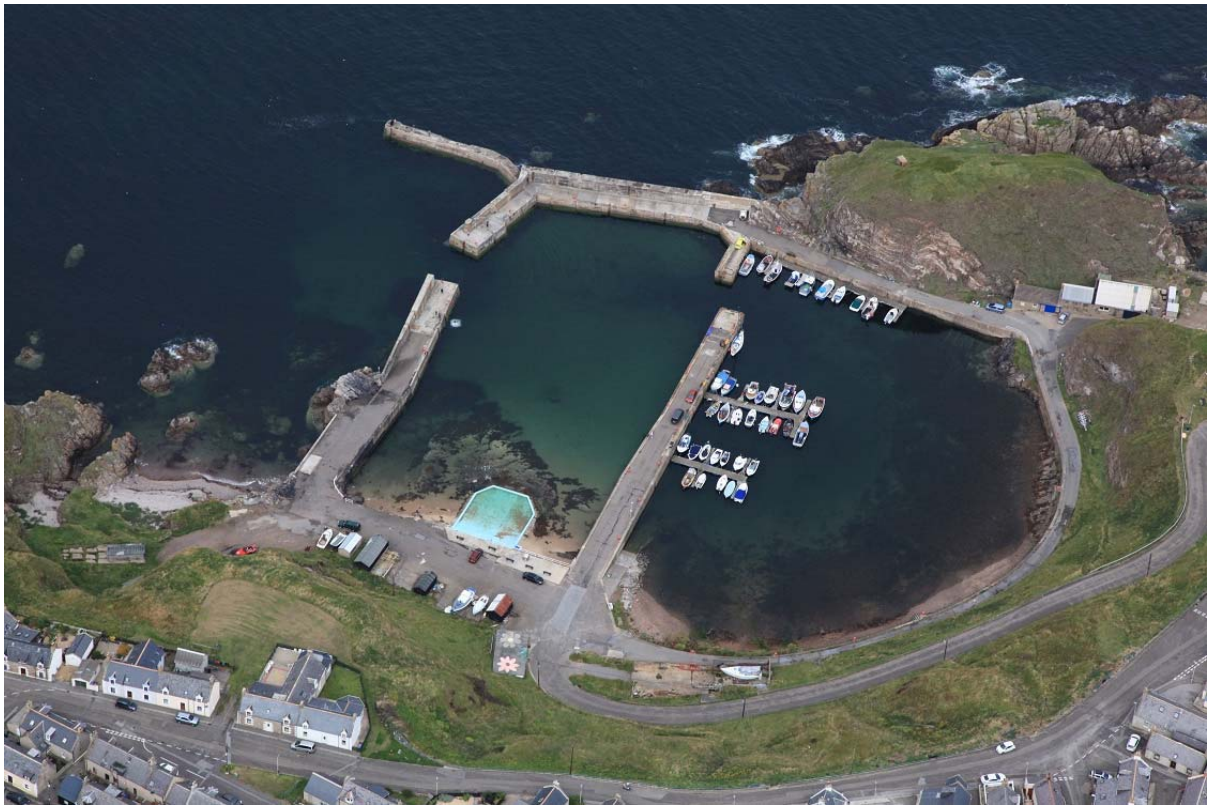
PORTKNOCKIE HARBOUR: THE MORAY COUNCIL

Maintenance Dredging of Entrance and Inner Basin

MARINE SCOTLAND ACT 2010

APPLICATION FOR DREDGING AND DEPOSIT OF SOLID WASTE IN THE TERRITORIAL SEA AND UK CONTROLLED WATERS ADJACENT TO SCOTLAND

BEST PRACTICAL ENVIRONMENTAL OPTION ASSESSMENT



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1. Introduction

1.1 Background

Moray Council is the Statutory Harbour Authority for 6 harbours extending from Burghead in the west to Cullen in the east. Of these, Buckie and Burghead are classed as the only commercial harbours, the others catering predominantly for the leisure market. Buckie handles cargo vessels and fish landings, and Burghead combines fish landings with leisure craft.

In order to maintain depth in the entrances and basins all these harbours, maintenance dredging is required. At the smaller leisure harbours, the rate of infill is such as to require dredging once every two or three years. At Buckie and Burghead however, dredging needs to be undertaken annually to maintain the depth in the entrance channels.

The material removed from the Council's harbours has to be disposed of in accordance with guidance from Marine Scotland. This document assesses the options available for disposal and examines the Best Practical Environmental Option (BPEO) in accordance with the requirement of Part 4 of the Marine Scotland Act 2010.

1.2 Source of Materials

The sediments generally enter from seaward, mainly as a result of wave action during storm conditions. In each harbour, the coarse sandy material accumulates in the approach channels. The finer sand and silt placed in suspension by the waves is carried into the harbour basins by tidal currents. The relatively still conditions then allow settlement and deposition.

1.3 Description of Materials

The material is predominantly composed of sand and silt. Apart from the discharge from local surface water drains and small watercourses, no other material enters the basins to contaminate the sediments, as supported by analytical data from the James Hutton Institute Laboratory. The material transported by wave action is composed predominantly of sand moved from areas of high wave energy, and from areas with no known sources of appreciable pollution. Consequently, it is considered that given the relatively small quantities to be removed from the harbours, the best disposal option is to return it to the marine environment.

1.4 Method of Removal & Relocation

Maintenance dredging is carried out by the hopper dredging vessel MV Selkie, which is owned by Moray Council and was specifically designed to work in the smaller harbours around the coast. The vessel is equipped with a long reach excavator, enabling dredging down to a depth of 6 metres, and is based at Buckie Harbour as home port. Disposal takes place at sea by use of the excavator as the vessel is not equipped with bottom doors. Further details about the vessel can be found in Appendix 1 on page 7.

There are two options for disposal of the material removed by dredging:

i) continued relocation of material at sea in a controlled manner

ii) disposal on land

The dredging operation involves removal of the material from the sea bed, transportation to a disposal site and relocation in that location. The current dredging requirement in the Moray Council harbours necessitates the use of floating plant. Few of the dredging locations are accessible from the shore.

Along with other factors such as the requirement to have a minimal impact on the normal harbour activity and the size and access constraints of the harbours, the most practical and economic method of dredging is to use the hopper dredging vessel designed for the job.

For the vessel to transfer material ashore after completion of loading would require double handling into temporary shore based storage facilities or vehicles.

1.5 Previous Maintenance Dredging at Portknockie

	Annual Tonnes
2001	1332
2002	1332
2006	1483
2016	250
2017	700
2018	100

Material dredged from the harbour has previously been disposed of at sea. The location is licensed by the SOAFED under the requirement of Section 8(2) of the Food and Environment Protection Act 1985. A diagram of the dump site at 57°42.22N 002°57.17W can be found in Appendix 2 on page 8.

2. Disposal Options

2.1 Temporary Storage

2.1.1 At a land based site

The use of a quayside holding or storage area requires the identification of a suitable site of adequate capacity. This would in effect act as a settlement basin, with the resulting problems of containing the material and discharging surplus water at an acceptable solids concentration, the safety of the public and harbour users, and wind-blown particles causing interference across the wider area in dry conditions.

2.1.2 At a marine site

If material was dumped for subsequent re-dredging, a suitably sheltered location would have to be found. In practice this would mean dumping in the harbour itself. Dispersion of the material over the harbour bed during dumping would be a cause for concern, as would the loss of quayside and berthing space. There would also be risk of spillage into the harbour and onto the quayside.

2.1.3 Method of relocation/removal of stored material

Movement of material either from the dredger or a dump to the final site would require the provision of extra plant and equipment, substantially increasing the cost and duration of the operation. The risks of spillage and contamination would also increase due to double handling.

2.2 Permanent Disposal

2.2.1 Land Disposal

As the main component of the dredge spoil is sand, incineration of the material is not economically viable. This disposal option can therefore be discounted.

2.2.2 Sacrificial Landfill

There are no landfill sites within easy reach of any of the Moray Council harbours and the Council facilities are not able to accept the quantities involved, even when dried.

2.2.4 Spreading on Agricultural Land

Due to the high salt content, the dredged material is unsuitable for spreading on farmland. Removal of the salt from the material is not economically viable.

2.2.5 Land Reclamation

There is no local demand for the use of dredged material for land reclamation. To transport the material further afield would be not economically viable.

2.2.6 Beach Nourishment

In order to disperse the material on a beach site, it would have to be transferred from the dredger to a holding basin or directly to road haulage units. The risk of spillage and contamination combined with the additional resources required and expense incurred mean this is not a viable option. The increase in the use of heavy haulage in the local villages would be socially unacceptable.

2.2.7 Concrete Manufacture

The prohibitive cost of salt removal means this method of disposal is not viable.

2.2.8 Licensed Disposal at Sea

The alternative to land disposal is to continue with the established method of placing the material in a licensed site at sea. This option allows the Council to utilise the vessel it has built this year, and returns material derived almost entirely from coastal waters to those same waters. This method avoids double handling of material, temporary storage on land, transport of material by road, the reduction of landfill capacity and minimises the possibility of contamination and spillage. Sea disposal has negligible impact on harbour users or the local community if managed correctly.

3. Environmental Considerations

3.1 Land Disposal

Increased road traffic movements would impact local communities and existing road users with greater safety risks, pollution, contamination, spillage, noise and disturbance. However, there would be little or no risk of ecological impact arising from disposal to an existing landfill site, and no immediate amenity implications.

3.2 Disposal to Sea

This method has negligible safety implications providing that the required navigational and seamanship procedures are followed and there are no known health threats. The time taken to dredge and dispose at sea will be considerably shorter than the transfer of material to vehicles for disposal on land, reducing the overall impact of operations. The present system of sea disposal does not have any significant adverse effect on the marine environment and is monitored closely by Marine Scotland. This method results in no conflicts with the fishing, commercial or leisure sectors.

4. Conclusion

It has been demonstrated in this discussion paper that disposal of dredged material to land presents a significant set of risks, including spillage and contamination, safety concerns, reduction of valuable landfill capacity, nuisance, noise and impact on local communities. In addition, this method involves considerable practical difficulties and the resource implications of additional equipment and vehicles, all of which increase overall operational costs significantly.

Disposal to Sea is therefore considered to be the Best Practical Environmental Option for removal and relocation of material dredged from this harbour. The risks are minimal in comparison, and the costs are significantly lower. Having taken ownership of a purpose built dredging vessel in 2016, Moray Council has responsibility to use the disposal method which gives best value for the inhabitants of Moray.

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Moray Council

25 April 2019

Appendix 1

MV SELKIE (Moray Council)

Designers: MacDuff Ship Design Ltd.

Builders: MacDuff Shipyard Ltd. (Buckie)

Classification: Workboat Cat 3

Crew: Master, Engineer & Deckhand

Home port: Buckie, Moray Firth

LOA: 25.7 metres

Registered Length: 24.2 metres

Breadth: 8.2 metres

Draught: Hopper empty 2.3metres/ full 3.2metres

Max Speed: 9 knots

Range: 1,400 NM

Dredging Equipment: Long reach excavator with buckets

Max. Dredging Depth: 6 metres

Hopper Capacity: 147 cubic metres

Positioning: 2 spud legs & bow thruster

Appendix 2

MORAY COUNCIL: DISPOSAL OF DREDGINGS FROM BUCKIE – Buckie Spoil Ground	
Disposal site:	Within 0.5 nautical mile radius of centre coordinates: 57° 42.22'N 002° 57.17'W