



FORT WILLIAM MARINA & SHORELINE COMMUNITY INTEREST COMPANY

BEST PRACTICABLE ENVIRONMENTAL OPTION (BPEO) ASSESSMENT:

DREDGING APPLICATION FOR FORT WILLIAM PONTOON EXTENSION



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1. INTRODUCTION

1.1 Background to application

This Best Practicable Environmental Option (BPEO) assessment supports an application for dredging under the Marine (Scotland) Act 2010, Part 4, Marine licensing.

Fort William Pontoons provide leisure and commercial access to mariners for safe access to shore from Loch Linnhe. In 2016 funding was secured to install the initial project of 2 pontoons alongside the West End Car Park.

Having achieved this important first milestone, the group are exploring other options for further development of the marine facility and the positive economic impact this will have on Fort William and the wider Lochaber area.

6 large cruise ships came to Fort William in 2017 with 5 in 2018, 16 in 2019, 15 were scheduled for 2020 but were sadly cancelled due to COVID-19 and 21 are scheduled for 2021. Captain Degerlund (Fred. Olsen Cruise Lines) advised on his port inspection in November 2015 that this is expected to grow significantly. He explained that cruise ship companies are endeavouring to find safe locations for passengers to visit away from the risk of migrants in the Mediterranean and the uncertainties around the Middle East.

The initial dredging for the current Fort William Pontoons to be installed was carried out during a weather window and unfortunately one small section was not cleared and there is a “bump” on approach to the pontoons. We have also experienced problems with a number of cruise ship tenders grounding at very low tides which has meant we have had to restrict access to the pontoons at these times.

The material, mainly consisting of small rocks, gravel, sand, silt and clay, needs to be cleared in order to allow safe use by the vessels which operate from the pontoons. While we are dredging this small area we believe it is financially and operationally appropriate to use the equipment when it has been deployed to the area to also dredge the whole area in preparation for the extension to the pontoons.

Scotland’s National Marine Plan states that “Dredging is an essential activity to maintain existing shipping channels, establish safe approaches to new ports or open up routes to old ports.”

It is therefore proposed to carry out dredging to a depth of 2.5m below Chart Datum in the whole area with a volume of around 3,000m³ that will be removed.

The type of dredger used and the associated dredging methodology will be dependent on which contractor is successful in securing the contract to carry out the dredging and on availability of equipment.

It is anticipated that the format is likely to follow the same set up as the original dredge process carried out in 2016 with a long reach digger on a barge with bathymetric survey checks during and at the end of the dredging to ensure that the levels are correct and as per the marine licence.

1.2 Materials to be disposed

There will be approximately 3,000m³ of material that will be generated through dredging that will require disposal.

1.3 Description (nature and volume) of materials

Sediment characteristics on site are as a whole consist of gravel, stone, sand, silt and clay.

1.3.1 Trace Metals and Organotins

On the whole, the majority of the testing that took place at Fort William pontoons were below AL1. The following results were above AL1:

- Chromium (Cr) – 5 out of 9 samples were found to be higher than AL1, with the highest concentration being 69.5mg/kg
- Copper (Cu) – 4 out of 9 samples were found to be higher than AL1, with the highest concentration being 98.8mg/kg
- Nickel (Ni) – 4 out of 9 samples were found to be higher than AL1, with the highest concentration being 37.2mg/kg
- Zinc (Zn) – 3 out of 9 samples were found to be higher than AL1, with the highest concentration being 273mg/kg

No results were above AL2.

1.3.2 Poly Aromatic Hydrocarbons

- Of the 9 samples taken, 4 had no PAH's over the AL1 limit.
- One sample was above AL1 in 10 out of 16 tests.
- The remaining 4 samples were over AL1 in nearly all tests.
- The highest concentrations being Fluorant at 2900 mg/kg and then Pyrene at 2670 mg/kg

No results were above AL2.

1.3.3 Organohalogen - Polychlorinated Biphenyls

All samples of the PCBs from the Fort William pontoons were below AL1. The highest individual result was 0.36 µg/kg in PCB153.

1.4 Discussion about sampling and testing results

Fort William pontoons have been in use since 2016 primarily to provide safe access to shore for cruise ship passengers and crew and other marine visitors.

The Puffer Pier has been in use since the Victorian times, with the pier in its current form dating back to the 1800s and was generally used by the old Puffer Boats that brought provisions to the area and all the other remote island communities that could only be reached by water. The town pier about 300m further along the waterfront has been used by many vessels in this time, including the King George V and MacBraynes ran a ferry service to Oban during the 1900s. These vessels are believed to be the cause for some of the testing results being above AL1 – in particular the Poly Aromatic Hydrocarbons and Metals.

Sources such as anti-fouling from both leisure craft and fishing vessels, as well as the paint on these vessels could have contributed to these increased levels. Sources such as fuel spills and engine oil may also be a contributing factor to the cause for some of the tests to have shown higher than AL1 levels. There are no facilities to purchase fuel within Fort William pontoons with the nearest petrol station being about 1 mile away.

The pontoon users are required to ensure that their vessels meet the environmental and safety guidelines to prevent any impact on the environment happening in the future.

Fort William Marina & Shoreline Community Interest Company acknowledge these results and will take the best course of action by following Marine Scotland's guidelines to minimize any potential for environmental impact on the dredge disposal location.

2 OPTIONS

In this section the different available options will be looked into and if necessary will be described in more detail if the option is found to be feasible.

2.1 Do nothing approach

The seabed level is currently such that a purely 'do nothing' option would not allow the future safe use of the pontoons by the vessels which currently use it. Use of the pontoons at low tides would become impractical, hence the need to dredge the surrounding area.

We have experienced a number of occasions where cruise ship tenders have either grounded or had to reduce the number of folk in each tender which has impacted the service and experience of passengers and crew when visiting Fort William.

In order for the pontoons to remain accessible to vessels a 'do nothing approach' is not considered a viable option and therefore will not be considered any further.

2.2 Beach Replenishment

It is expected that 3,000m³ of dredged material would have a negative impact to the area surrounding Upper Loch Linnhe. To ensure there is no detrimental effect to the continued visual appeal of this area of Fort William, Beach Replenishment is not considered a viable option and therefore will not be considered any further.

2.3 Sea Disposal – Plough Dredging

The depth of the seabed gradually increases from around +1.0m CD at the dredge site at the Fort William Pontoons and then very swiftly shelves down to over -59m CD.

This was the agreed location for plough dredging the initial small amount of dredge material (56.25 tonnes) carried out in 2016 when the Fort William Pontoons were installed using a long reach digger on a barge.

Disposal at sea would appear to be allowable from the sampling results.

At this location there is a risk of build-up of silt in areas which form navigation channels or risk of material returning to dredged area through drift.

Due to the complexity and distance from between the dredge site and disposal location, it is assumed that there will be an increase in fuel usage and greater impact to the local marine environment.

2.4 Sea Disposal below -100m Chart Datum

An alternative deposit area is below the -100m Chart Datum. This would involve a number of round trips of at least 4 miles, this would be expected to increase costs over the other options presented, and would involve additional fuel use and environmental impact; however it would remove any risk of build-up of silt in areas which form navigation channels or risk of material returning to dredged area through drift.

Depositing the dredge material in this area is considered to be detrimental to the activities to a number of local companies which carry out deep sea dive training and test various underwater machines (Caldive and JFD).

This option would also likely be detrimental to the local environment, due to the distance from the dredging site to the deeper water and the potential dropping of dredge material along the route.

2.5 Landfill Disposal – at Licenced Site

Disposal to landfill would appear to be allowable from the sampling results.

The significant cost of the transfer of the material from the dredge area and the landfill site is prohibitive for this option.

2.6 Disposal between Puffer Pier and Slipway

The most appropriate location for the disposal of the material is considered to be between the Puffer Pier and Slipway. This is between 10 and 100m from the dredge location.

Disposal to the area between the Puffer Pier and Slipway is expected to be allowable from the sampling results.

The majority of the material will be able to be removed using a long reach digger on a barge. It will enable the majority of dredging to be carried out at low tide, placed onto the barge and then the barge will be moved alongside the Puffer Pier at high water enabling the long reach digger to transfer the dredge material over the pier into the area on the foreshore. The material will be transferred and levelled with the use of another digger and dumper with the rock armour and a wall along the slipway keeping it in situ. The details of where the rock armour will be placed and the size of the wall will be built in accordance with the structural engineering report which has been commissioned to be carried out by Campbells of Doune.

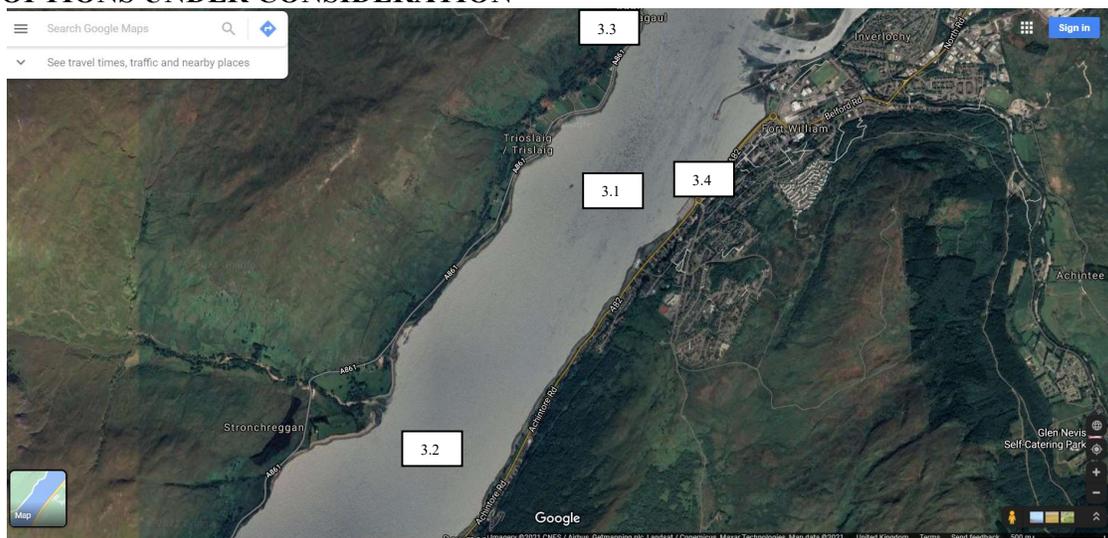
This will minimise the loss of dredge material and maximise the use of it to reclaim the area from the foreshore.

Disposal between the Puffer Pier and Slipway, appears to be the most suitable option, given the close proximity to the area that is being dredged and the minimal environmental impact.

2.7 Other beneficial uses

Currently no viable recipient for the material has been identified. It is assumed the material will have a limited capacity for reuse and therefore other beneficial uses are not considered further.

3. OPTIONS UNDER CONSIDERATION



Location of different disposal options

3.1 Sea Disposal – Plough Dredging

3.1.1 STRATEGIC CONSIDERATION

3.1.1.1 Operational aspects, including handling, transport, etc.

Dredging and disposal can be carried out with no effect on the public. Suitable vessel(s) & equipment will be obtained through a tender process.

Plough dredging will not be permitted for the works at Fort William Pontoons.

3.1.1.2 Availability of suitable sites/facilities

Disposal site is located within 300m of the proposed dredge location.

3.1.1.3 Legislative implications, both national and international

Marine Licence sought.

3.1.1.4 Summary of the outcome of discussions with third parties (If possible, copies of consultees replies should be appended to the assessment)

Dredging is proposed primarily to avoid any disruption to third parties although no discussions have been made as yet as dredging will negate any issues.

3.1.2 Environmental considerations

3.1.2.1 Safety implications

Tender submissions will be accompanied by relevant Health & Safety documentation.

3.1.2.2 Public health implications

It is expected that there will be minimal public health implications as a result of the dredging works proposed.

3.1.2.3 Pollution/contamination implications, including discussion on: accumulation, toxicity, hazards, persistence, short and long-term impacts, dilution and dispersion, etc.

Sampling and testing was carried out in January 2021. 3 core samples were taken and analysed by Socotec laboratories.

These results can be seen on attached documents “Marine Scotland - Results Template MAR00908 – updated.xls”. Test results were generally below Action Level 1 with some above Action Level 1 but below Action Level 2. None were above Action Level 2.

It is believed that the reason that some of these results are above AL1 is due to the previous use of the Puffer Pier over the decades. Historically the Puffer Pier was used by the old Puffer Boats and the Town Pier by pleasure craft and fishing vessels as well as larger vessels such as King George V and MacBraynes ferry service which can explain the increased levels of PAH’s and metals found in the samples.

Due to the nature of plough dredging, these contaminated materials would contaminate the marine environment between the dredge site at Fort William Pontoons and the Disposal site.

However, the site is not the chosen option.

3.1.2.4 Interference with other legitimate activities, e.g. fishing operations, other aquaculture interests

This disposal by digger and barge will be managed in such a way as to not interfere with the cruise ship visits as it will occur before the first ship is scheduled to arrive on 20th April 2021 and will minimise disruption to leisure craft visiting Fort William Pontoons.

It will not affect any vessels using the Fort William Town Pier or the Highland Council Ferry transporting foot passengers from Fort William to Camusnagaul as the area to be dredged is the other side of the Town Pier.

3.1.2.5 Amenity/aesthetic implications

No amenity / aesthetic implications identified at this stage.

3.1.2.6 Best practice guidance and mitigation measures

Fort William Pontoons will take all necessary steps to minimise any disruption to the marine environment throughout the process of the dredging operation. This will be accomplished by following Marine Scotland’s guidelines with close cooperation with the dredging contractor.

3.2 Sea Disposal below -100m Chart Datum

3.2.1 STRATEGIC CONSIDERATION

3.2.1.2 Operational Aspects, including handling, transport, etc.

Dredging and disposal can be carried out with no effect on the public. Suitable vessel(s) & equipment will be obtained through a tender process.

3.2.1.3 Availability of suitable sites/facilities

Suitable pocket areas are available within 2 miles south of Fort William pontoons.

3.2.1.4 Legislative implications, both national and international

Marine Licence sought.

3.2.2 ENVIRONMENTAL CONSIDERATIONS

3.2.2.2 Safety implications

Tender submissions will be accompanied by relevant Health & Safety documentation.

3.2.2.3 Summary of the outcome of discussions with third parties (If possible, copies of consultees replies should be appended to the assessment)

The proposed dredging is primarily to avoid any disruption to third parties going forwards; therefore no discussions at this stage as dredging is expected to avoid any impact on third parties.

3.2.2.5 Public health implications

If sea disposal below -100m chart datum was used then it would be up to a 4 mile round trip to deposit site. This would require multiple journeys that could potentially be a danger to other users within the loch and sea.

Air pollution, fuel use and environmental impact all increased.

3.2.2.6 Pollution/contamination implications, including discussion on: accumulation, toxicity, hazards, persistence, short and long-term impacts, dilution and dispersion, etc.

Sampling and testing was carried out in January 2021. 3 core samples were taken and analysed by Socotec laboratories.

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It is believed that the reason that some of these results are above AL1 is due to the previous use of the Puffer Pier over the decades. Historically the Puffer Pier was used by the old Puffer Boats and the Town Pier by pleasure craft and fishing vessels as well as larger vessels such as King George V and MacBraynes ferry service which can explain the increased levels of PAH's and metals found in the samples.

Due to the nature of plough dredging, these contaminated materials would contaminate the marine environment between the dredge site at Fort William pontoons and the Disposal site.

However, the site is not the chosen option.

3.2.2.7 Interference with other legitimate activities, e.g. fishing operations, other aquaculture interests

Any dredging activity will be managed in order to minimise any potential for disruption. Close communication with the other users of Loch Linnhe will allow for further minimising of any potential disruption.

3.2.2.8 Amenity/aesthetic implications

No amenity / aesthetic implications identified at this stage.

3.2.2.9 Best practice guidance and mitigation measures

Fort William Marina & Shoreline Community Interest Company will take all steps to minimise any disruption to the marine environment throughout the process of the dredging operation. This will be accomplished by following Marine Scotland's guidelines with close cooperation with the dredging contractor.

3.3 Landfill Disposal at Licensed Site – Bowmans Waste Management, Duiskey, Fort William

3.3.1 STRATEGIC CONSIDERATION

3.3.1.2 Operational aspects, including handling, transport, etc.

Disposal to landfill would require around 3,000m³ / 6,000 tons of dredged material to be transported from the dredged site to an appropriate commercial waste facility, which is 16 miles away by road. It should be noted that this disposal site, Bowmans Waste Management, is not expected to have the capacity to take this amount of material.

It therefore would have to be transported via barge to Corpach Port, offloaded onto lorries and then transported to another location – likely to be in the central belt, increasing the environmental impacts drastically. Further to this, the added wear to the area’s roads would be undesirable. In order to make the sediment suitable for landfill disposal, several processes would need to be undertaken. Dredged material would require offloading to shore and undergo a de-watering process, ideally prior to transportation to minimise the weight to be transported. It is unlikely that Corpach Port would have sufficient space available to undertake the dewatering processes on site and hence another area would need to be found for this process to take place.

Due to the rural nature of the site, the de-watering process is likely to be technically challenging and could result in significant disruption to the area. Full methods have not yet been provided by a contractor, the following assessments are made using potential working methods. It is considered that undertaking de-watering will in reality be impractical, disruptive to local residents and traffic and ultimately cost prohibitive. Dredged material from the area would need transporting by HGV’s to the disposal site. The transportation alone would increase the cost substantially and add to significant disruption to locals on roads.

Suitable vessel(s) & equipment would be obtained through a tender process.

3.3.1.3 Availability of suitable sites/facilities

Due to the weight of material to be disposed of being around 6,000 tonnes, and the nearest suitable site being 16 miles away this option has been discounted at this stage. Assuming 25 tonnes of material can be loaded onto a 40 tonne truck, this would require 240 lorry loads to be transported. This would drastically increase cost and environmental pollution, as well as impacting the local roads and communities.

3.3.1.4 Legislative implications, both national and international

Marine License sought.

3.3.1.5 Summary of the outcome of discussions with third parties (If possible, copies of consultees replies should be appended to the assessment)

The proposed dredging is primarily to avoid any disruption to third parties going forwards; therefore no discussions at this stage as dredging is expected to avoid any impact on third parties.

3.3.2 ENVIRONMENTAL CONSIDERATIONS

3.3.2.2 Safety implications

Tender submissions will be accompanied by relevant Health & Safety documentation.

3.3.2.3 Public health implications

If landfill disposal of the material was the option taken forward, there is no site close by with capacity for such material. The material would have to be transported on up to 202 vehicle movements across the area to Scotland’s central belt.

3.3.2.4 Pollution/contamination implications, including discussion on: accumulation, toxicity, hazards, persistence, short and long-term impacts, dilution and dispersion, etc.

Sampling and testing was carried out in January 2021. 3 core samples were taken and analysed by Socotec laboratories.

These results can be seen on attached documents “Marine Scotland - Results Template MAR00908 – updated.xls”. Test results were generally below Action Level 1 with some above Action Level 1 but below Action Level 2. None were above Action Level 2.

It is believed that the reason that some of these results are above AL1 is due to the previous use of the Puffer Pier over the decades. Historically the Puffer Pier was used by the old Puffer Boats and the Town Pier by pleasure craft and fishing vessels as well as larger vessels such as King George V and MacBraynes ferry service which can explain the increased levels of PAH’s and metals found in the samples.

3.3.2.5 Interference with other legitimate activities, e.g. fishing operations, other aquaculture interests

There would likely be interference with vessels using Corpach Pier and any vessels using the pontoons at Fort William Pontoons.

The expected requirement of 240 movements to transport the material along Lochaber’s road network would interfere with local traffic and would involve an increased burden on the area’s roads.

3.3.2.6 Amenity/aesthetic implications

No amenity / aesthetic implications identified at this stage.

3.3.2.7 Best practice guidance and mitigation measures

Fort William Marina & Shoreline Community Interest Company will take all steps to minimise any disruption to the marine environment throughout the process of the dredging operation. This will be accomplished by following Marine Scotland's guidelines with close cooperation with the dredging contractor.

3.4 Disposal between the Puffer Pier and Slipway

3.4.1 STRATEGIC CONSIDERATION

3.4.1.1 Operational aspects, including handling, transport, etc.

Dredging and disposal can be carried out with no effect on the public. Suitable vessel(s) & equipment will be obtained through a tender process.

The dredge material will be taken up by a long reach digger, placed on a barge and then transported next to the Puffer Pier where it will be deposited into the disposal area using the long reach digger. A further digger and dumper will be used to level the material and place the rock armour as per the structural engineers report in order to reclaim the area.

3.4.1.2 Availability of suitable sites/facilities

Disposal site is located within 10m-100m of the proposed dredge location.

3.4.1.3 Legislative implications, both national and international

Marine Licence sought.

3.4.1.4 Summary of the outcome of discussions with third parties (If possible, copies of consultees replies should be appended to the assessment)

Dredging is proposed primarily to avoid any disruption to third parties although no discussions as yet as dredging will negate any issues.

3.4.2 Environmental considerations

3.4.2.1 Safety implications

Tender submissions will be accompanied by relevant Health & Safety documentation.

3.4.2.2 Public health implications

Public Health implications identified are considered to be minimal and purely relate to the use of machinery to transport the dredge material and place the rock armour into position.

3.4.2.3 Pollution/contamination implications, including discussion on: accumulation, toxicity, hazards, persistence, short and long-term impacts, dilution and dispersion, etc.

Sampling and testing was carried out in January 2021. 3 core samples were taken and analysed by Socotec laboratories.

These results can be seen on attached documents "Marine Scotland - Results Template MAR00908 – updated.xls". Test results were generally below Action Level 1 with some above Action Level 1 but below Action Level 2. None were above Action Level 2.

It is believed that the reason that some of these results are above AL1 is due to the previous use of the Puffer Pier over the decades. Historically the Puffer Pier was used by the old Puffer Boats and the Town Pier by pleasure craft and fishing vessels as well as larger vessels such as King George V and MacBraynes ferry service which can explain the increased levels of PAH's and metals found in the samples.

Due to the nature of plough dredging, these contaminated materials would contaminate the marine environment between the dredge site at Fort William pontoons and the Disposal site but this is very short as it is between 10m and 100m distance and therefore minimal.

3.4.2.4 Interference with other legitimate activities, e.g. fishing operations, other aquaculture interests

This disposal by digger and barge will be managed in such a way as to not interfere with the cruise ship visits as it will occur before the first ship is scheduled to arrive on 20th April 2021 and will minimise disruption to leisure craft visiting Fort William pontoons.

It will not affect any vessels using the Fort William Town Pier or the Highland Council Ferry transporting foot passengers from Fort William to Camusnagaul as the area to be dredged is the other side of the Town Pier.

3.4.2.5 Amenity/aesthetic implications

This reclamation of the land between the Puffer Pier and Slipway will significantly improve the look of the Puffer Pier and Slipway and thus the Fort William waterfront.

The Puffer Pier in particular is very dilapidated with rusting railings, decaying wooden buffers and broken up concrete. The Slipway is totally unusable with two 90 degree turns in it and the lower section is very steep and slippery with algae and seaweed on it.

This proposal will actually make the Puffer Pier and Slipway useful for the benefit of the locals and the visitors to the area from the Loch.

3.4.2.6 Best practice guidance and mitigation measures

Fort William Pontoons will take all necessary steps to minimise any disruption to the marine environment throughout the process of the dredging operation. This will be accomplished by following Marine Scotland's guidelines with close cooperation with the dredging contractor.

4. APPROXIMATE COSTS

4.1 Capital / Revenue costs

Estimated cost for Plough Dredging and disposal of material below -2.5m Chart Datum is estimated at £70,000.

Estimated cost for Dredging and disposal of material below -100m Chart Datum is estimated at £200,000.

Estimated cost for Dredging and disposal of material between the Puffer Pier and Slipway via long reach digger and barge is estimated at £105,570.

Tender for disposal of material on land is estimated at £240,000: Costs are based on comparing the options to previous schemes and consultation for those methods not before costed.

5. CONCLUSIONS

5.1 Summary of available options

Only one option is considered to be suitable to dredge the area for the Fort William Pontoons Extension. This is after close consideration of the costs and the environmental impact that these options may incur. This option is to dispose of the dredge material between the Puffer Pier and Slipway and reclaim this area from the seabed.

5.2 Summary of Options

The following Option Viability Justification summarizes aspects of each scenario:

Do Nothing Approach - Not viable.

To do nothing would make the Fort William Pontoons unusable and the extension would not be able to be carried out which is not a viable option.

Beach Replenishment - Not viable.

Beach replenishment would require the movement of the sediment a short distance and is likely to be highly unpopular with residents.

Plough Dredging - Not viable.

Plough dredging around 300m to the disposal site, is thought to be unacceptable. There will be an increased potential for disruption to users of the Fort William Pontoons and impact to the environment.

Sea Disposal below -100m Chart Datum - Not viable.

High environmental impact due to multiple sea journeys to -100m CD site and negative impact on local companies using that area.

Landfill Disposal - Not viable

The process is majorly impractical due to the transport of many vehicles and plant at an already busy port and a local roads network which would have unnecessary additional wear and tear.

Disposal at the foreshore between the Puffer Pier and Slipway – Feasible.

Low environmental impact compared to plough dredging. Minimal to no impact between the dredging location at Fort William pontoons and the disposal location.

Other Beneficial Use - Not viable

Currently no viable recipient for the material has been identified. It is assumed the material will have a limited capacity for reuse and therefore other beneficial uses are not considered further.

5.3 Identification of BPEO

The “Disposal at the foreshore between the Puffer Pier and Slipway” option has been chosen as the Best Practicable Environmental Option due to a number of factors:

- Minimising use of the area’s local road network and the trunk road network.
- Minimising fuel use.
- Minimising Environmental impact.
- Avoiding unnecessary journeys to allow disposal of material in licenced site on land.
- Reducing the carbon footprint.
- As close as practical to the dredge site.

Overall, based on this report Sea Disposal at the area between the Puffer Pier and Slipway by long reach digger on a barge provides the best practicable and environmental option for disposal.

This report was based on practical, environmental, economic and strategic considerations.

6. APPENDIX

Pre-disposal Sampling Results Form – “Marine Scotland - Results Template MAR00908 – updated.xls”