# Dundalk Port


# *Maintenance Dredging*

# *Foreshore Application*

# *Supporting Information*

**March 2021**

**Proj No.**

**595**

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**Client :** O'Hanlon and Sons Ltd

**Project :** Maintenance Dredging Foreshore License Application

**Title :** Foreshore Application Supporting Information

| | Prepared by: | Reviewed by: |
|---|---|---|
| **DRAFT** | NAME | NAME |
| | [redacted] | [redacted] |
| DATE | SIGNATURE | SIGNATURE |
| 5th January 2021 | [redacted] | [redacted] |

| | Prepared by: | Reviewed by: |
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| **FINAL** | NAME | NAME |
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| DATE | SIGNATURE | SIGNATURE |
| 18th March 2021 | [redacted] | [redacted] |

| | Prepared by: | Reviewed by: |
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| **REVISION** | NAME | NAME |
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# Table of Contents

# 1. Introduction

Dundalk Port is owned by Dublin Port Company (DPC) and leased to local company, O'Hanlon and Sons Ltd.

Due to ongoing sediment accretion in the approaches to Dundalk Port, vessel access has become limited. This is having a negative impact on the Port's trade and therefore maintenance dredging is required in the areas of Soldiers Point and Buoy 15 to restore depth in the channel and safe vessel access.

# 2. Site Description and Context

## 2.1. Site Location & Context

Dundalk Bay is located on the east coast of Ireland (Figure 1) and stretches for approximately 16 km from the Cooley Peninsula in the north, to Annagassan and Dunany Point in the south. The bay has large expanses of inter-tidal areas which are exposed at low water.

The inner bay is shallow, sandy and intertidal. The hydraulics of the bay are dominated by the sea however, the bay encompasses the mouths and estuaries of the rivers Dee, Glyne, Fane, Castletown and Flurry. The bay is designated under the EU Habitats Directive as a Special Area of Conservation (SAC). It is also a Ramsar Site and a Special Protection Area (SPA) under the EU Birds Directive


**Figure 1 Location of Dundalk Bay on the East Coast of Ireland**

The Castletown River which is used by boats to access Harbour provides a channel through the intertidal zone in the north-west corner of the bay. The location of the channel is shown in Figure 2.

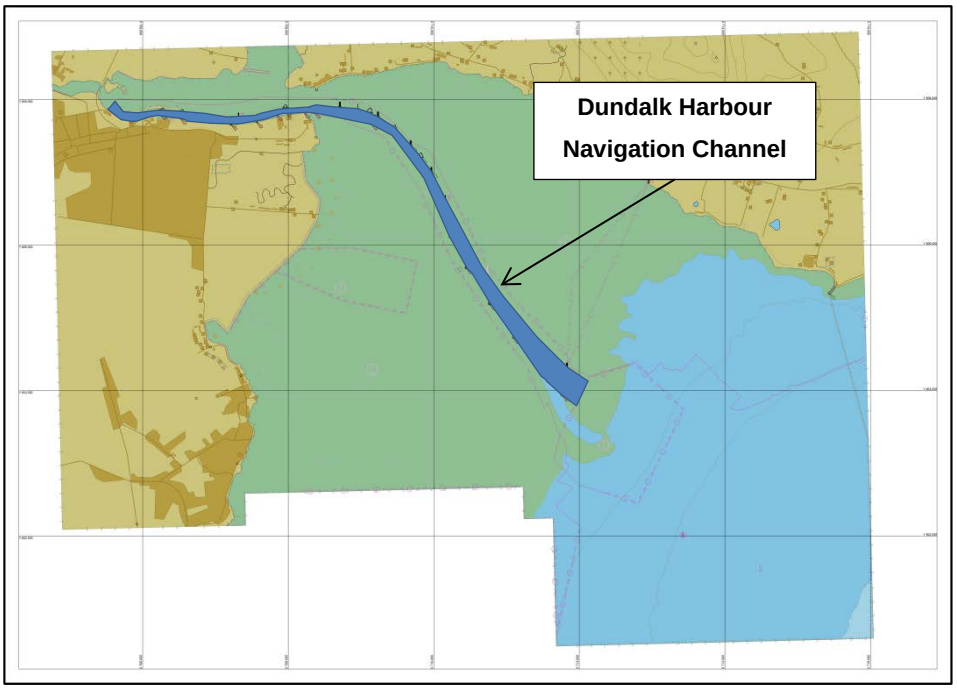



**Figure 2 Dundalk Port Navigation Channel**

Dundalk Port which is located in Dundalk town comprises of a concrete quay with a hard-standing area behind for offloading and storage purposes. There are also other facilities and infrastructure on the quay which of several mobile cranes, storage warehouses, small mechanical plant and an office/harbour reception building. The navigation channel for Dundalk was historically maintained at a depth of 0.75m below Chart Datum but currently the Port are trying to maintain at least 0mCD (0.75m shallower) to allow the Port to continue to operate.


**Figure 3 Dundalk Port Area - Quay Side, Storage Area and Buildings.**

## 2.2. Dundalk Harbour - Current Operations

The ownership of Dundalk Port was taken over from the Dundalk Harbour Commissioners by Dublin Port Company (DPC) in 2011. After DPC took over the

Port, they publicly tendered for interested bodies to apply for the lease for the Harbour. O'Hanlon & Sons Ltd which is a local firm specialising in renting large scale construction plant successfully won the tender and are now the current leaseholders for Dundalk Port.

Whilst DPC maintains ownership of the Harbour and its jurisdiction, O'Hanlon and Sons Ltd are the day-to-day operators and responsible for the general up-keep of the Port.

The number of commercial vessels using Dundalk Port on an annual basis is approximately 45. No leisure boats are using the Harbour for berthing. The facilities currently do not exist at the existing piers for boats such as yachts to safely moor and for people to easily disembark onto the pier. Several fishing boats consisting of small trawlers tie up at the quays in Dundalk. These boats are involved in razor clam fishing in Blackrock Bay. The fishing boats are located at the western end of the Harbour and do not interfere with the docking of commercial vessels further up the quay to the east. There is an amicable and collaborative relationship between the fishery interests and commercial interests using Dundalk Port and both industries progress without hampering or interfering with the other's operations.

The main items which are imported into Dundalk Port are coal, timber and animal feed. Bord na Móna operate a large coal importing business at the Harbour and import loose coal which they then pack onto pallets for the Dublin market. Bord na Móna import in the region of 35,000 - 40,000 tonnes per year of coal into Dundalk Harbour. There are large storage sheds at the Port for the storage of animal feeds. There is also a local firm, Wood Concepts involved in the importation of timber from Riga, Latvia.

The Port has a business in exporting baled municipal waste which is collected (mostly in the Dublin Region) and brought to Dundalk Port for export. The waste is exported by ship to Moerdijk in The Netherlands where it is incinerated and the energy produced is used for municipal heating purposes. The Port has a waste permit from the local authority for the export of up to 50,000 tonnes per year of waste in this format. If the navigation channel was dredged at the locations proposed, it would increase the number of ships which can access the Port and therefore more waste could be exported. Other items which are exported from the Port include scrap metal and tyres. The current Port operator is confident that if maintenance dredging was carried out, it would bring more business to the port and safeguard the existing trade which is ongoing at present.

A pilot boat is based at the Port and pilotage is required to accompany all vessels over a certain size and draught when entering and exiting the navigation channel and the inner Harbour. The types of vessels which can access the Port are naturally restricted by the draught and in recent years, this has become even more restrictive as the navigation channel is becoming shallower.

### 2.3. National Ports Policy, 2013

Dundalk Port is listed in the National Ports Policy as a port of regional significance, alongside other ports such as Killybegs, Drogheda, Galway and New Ross. The National Ports Policy states that *"while commercial shipping in Ireland is centered on the five Ports of National Significance, 14 other ports handle commercial traffic and function as important facilitators of trade for their regional and local hinterland'.*

The National Ports Policy recognises the importance of smaller ports around the country such as Dundalk Port and how they fulfil an important role in the local economy.

## 3. Project Description

This foreshore application is for the proposed maintenance dredging at Soldiers Point and near Buoy 15 in the Navigation Channel. All areas proposed to be dredged are within the navigational channel and have been dredged previously. No capital dredging, in new areas or to greater depths, is due to be undertaken.

It is proposed to carry out maintenance dredging in the area highlighted in Figure 4 below and also in Drawing no. 595-FL-1 (Appendix A). It is planned to deepen the sea-bed to at least 0mCD and if possible restore the historical navigation levels of 0.75m below CD during the maintenance dredging operations. The estimated volume of material to be removed is approximately 5,000m³ per year. A hydrographic survey was completed in the navigation channel in September 2020 and the depths over the area to be dredged ranges up to 0.8m above Chart Datum, severely restricting tidal access to the Port.

The material to be removed is primarily fine to medium, well sorted, clean sand with an average grain size of 0.21mm. The 2021 physical and chemical testing results are presented in Appendix B of this report.

It is proposed that the sandy material dredged will not be disposed of at an offshore disposal site. The dredged sand will be brought on-shore and used beneficially as a product, as in 2014, or, failing this for any reason, will be responsibly managed and placed in an appropriate facility.

It is proposed that the Foreshore License will run for a 10year period from 2022 to 2031 inclusively, with an annual dredging allowance of 5,000m³.

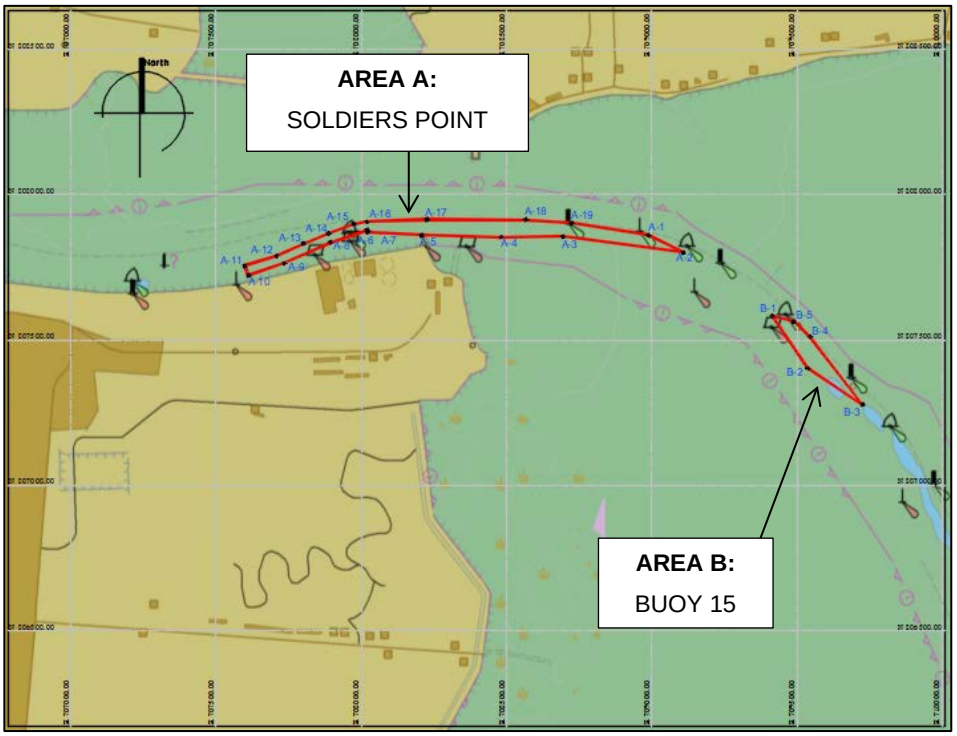



**Figure 4 Proposed dredging Areas in Channel ('Soldiers Point' and 'Buoy 15'). The full drawing is attached in Appendix A.**

### 3.1. Dredging and Off-loading Methodology

Dundalk Port proposes to primarily use a Trailing Suction Hopper Dredger (TSHD) "*Argus*" (or similar) to carry out the dredging operations. A photograph of TSHD *Argus* is shown in Figure 5. This vessel is owned by Londonderry Port and Harbour Commissioners, who use it maintain depths at Foyle Port and also on the approaches in Lough Foyle. It also works significantly at Drogheda Port. Figure 6 shows a diagram of the typical operating characteristics of a TSHD, similar to TSHD *Argus*.

A TSHD works by raising sediment to the surface by suction. The suction plant is contained within a dedicated vessel. A pipe is lowered through the water column into the sediments. Suction is then created in the pipe by the rapid rotation of an impeller drawing sediments and water into the pipe. The mixture of sediment and water then passes through the pump and into the hopper of the vessel via a sequence of sealed pipes. If the material is resistant to removal by suction alone then water jets may be employed at the lower end of the pipe to fluidise the sediment as the suction head passes over it.


**Figure 5 Photo of Trailer Suction Hopper Dredger 'Argus'**

The vessel will travel over the area to be dredged at a very slow speed, typically less than 2 knots. As the vessel progresses along the site the suction head passes over the area requiring dredging producing a trench in the sediment. Successive passes over the area result in the total removal of all sediments above a specific level. The dredge master monitors the depth of the suction head at all times.

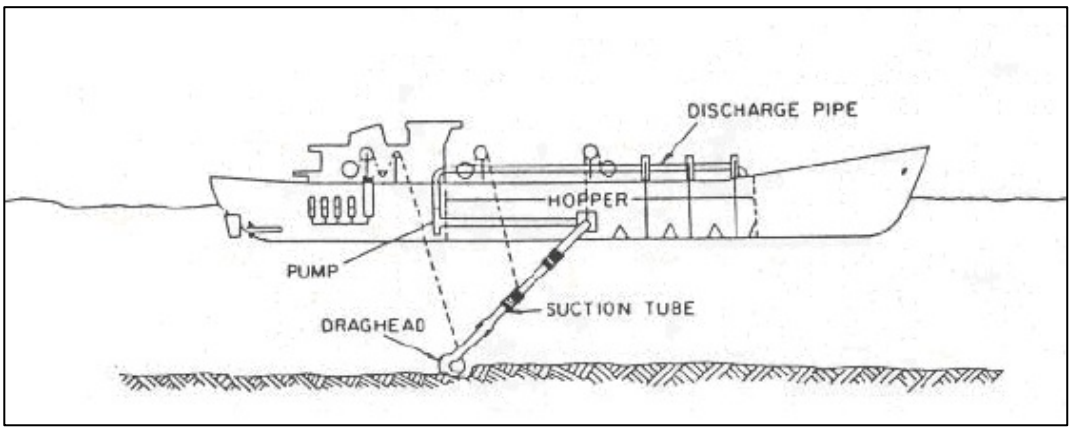



**Figure 6 Typical operating characteristics of a TSHD**

The dredger will operate by going along the area to be dredged in an east-west direction in straight lines. The bed will be lowered each time until the required target depth is achieved. By moving along the sea-bed in this way, others vessels can pass

by the dredger when it is working and enter or exit Dundalk Port unimpeded. In this way, navigation will not be interfered with during the dredging operations.

The dredged sediment is raised to the surface by hydraulic action and stored within the hopper (hold) of the vessel. Once the vessel is full with a mixture of sediments and water the dredging process may continue in order to increase the sediment to water ratio in the hopper. This is achieved by allowing the surface water, in the hopper, to overflow through a dedicated weir system within the hopper. The optimum period of overflow will depend on the particle size and density of the material being dredged.

Once the hopper is full, dredging stops and the suction pipe is raised to the surface and stowed on the deck of the vessel. The vessel will then return to Dundalk Port and berth alongside the quay. The sand will be off-loaded from the hopper using a clamshell grab from the shore. After the sediment is off-loaded the dredger will return to the dredging area on a reciprocal course and the cycle will commence again.

Should a suitable TSHD not be available, then the dredging may alternatively be undertaken mechanically by a Backhoe dredger or by a Grab (Clamshell) Dredger. The sand would be excavated, transported within a hopper/hold, and unloaded, as outlined above, at the quay at Dundalk Harbour.

### 3.2. Waste Management

The sediment being brought ashore is clean sand and a significant demand is expected. The clamshell grab being used to unload the sediment from the dredger will close fully and ensure no loss of material between the dredger and quay before it is placed ashore. The sediment will be stored in a confined area (see Figure 7) within the port limits. Should the dredged sediment not have a market to be used beneficially then it will be responsibly managed and placed into a licensed site for such material.

**Figure 7 Confined storage area for clean sand recovered**

There will be no waste deposited into the sea from the dredger at any time. Bilgewater and wastewater from the dredger will be brought onshore for proper removal and disposal by licensed waste contractors. Contractors working on-site during the works will be responsible for the collection, control and disposal of all wastes generated by the works. Refuelling of the dredging vessel will take place at the quayside using suitable hoses etc to avoid any spillages.

### 3.3. Navigation and Safety Issues

During times when the dredger is not working, it will be moored at the quays in Dundalk Port at a suitable location to not interfere with any other users of the port at the time. The entrance and exit of ships to Dundalk Port via the navigation channel will not be impeded upon in any way during the dredging operations.

Before and during dredging operations, a safety warning will be issued to mariners operating in the area to inform them of the dredging campaign. The Harbour Master of Dublin Port will be kept informed of dredging operations. Furthermore, the local sea anglers will be made aware of the dredging campaign.

The existing navigation markers in the channel will not be impacted by the dredging works and will remain unchanged after dredging is completed.

## 4. Consultations

### 4.1. Overview of Consultations carried out

At the outset of the project, a pre-application form was submitted to the Foreshore Section of the Department of Housing, Local Government & Heritage (DHLGH). Upon review of the supplied information it was confirmed that the application can

progress to formal application stage. The necessary requirements of the application were set out.

The Marine Institute was consulted, as required by DHLGH from the pre-application phase, to specify the sediment sampling required and chemical testing necessary to ascertain that the dredged material is not contaminated and suitable for dredging and reuse ashore. The sampling and testing specified is included in Appendix B.

After the foreshore pre-application stage, a consultation document, outlining the key aspects of the proposed works, was developed and disseminated to the following stakeholders:

- Department of Housing, Local Government & Heritage, to include:
    - National Parks and Wildlife Service (NPWS)
    - National Monuments Service (NMS)
- Inland Fisheries Ireland (IFI)
- Marine Survey office (MSO)

The responses of the statutory consultees are provided in Appendix C of this report and the input was considered and integrated into this document and the Natura Impact Statement.

Furthermore, as part of the consultation process, the views of port users, local businesses and others were sought on the proposed works. The responses from the local consultees were supportive of the proposed works and their responses are provided in Appendix D of this document.

# 5. Environmental Considerations

Whilst the proposed development is below the threshold necessary for a full Environmental Impact Assessment to be carried out consideration has been given to aspects of the environment with the potential to be impacted by the proposed maintenance dredging at Soldiers Point and Buoy 15.

## 5.1. Designated Sites

An Appropriate Assessment (AA) screening was carried out to assess the impact of the proposed scheme on Natura 2000 sites. This AA screening and Natura Impact Statement is presented as a standalone document and submitted within the foreshore license application.

## 5.2. Coastal Processes

A study of the stability of the Dundalk Navigation Channel was carried out by RPS in October 2011. This publicly available report is provided with the foreshore license application. Based on this report and from the scale of the proposed maintenance dredging at Soldier's Point/Buoy 15, it can be concluded that the Channel will naturally fill in again and require repeated dredging. Hence this application covers a period of 10 years. There is not a concern about the removal of sediment from the coastal cell system as (a) the amount of sand being removed is so small as not to be significant, (b) it is a dynamic system with sediment moving of the about all the time, so from the modelling results it will be shown that the channel will gradually fill in again and therefore require periodic dredging to maintain the published chart depths.

The 2011 channel stability report concluded the following:
*"The computational model simulations for the stability of the navigational channel dredged to -0.75mCD indicate that there is likely to be infilling of parts of the channel during significant wave events. The model suggests that the infilling will be most likely in the areas around the bar, channel marker number 8 and at the bend in the channel approaching Soldiers Point between markers 11 to 7. The limited historical survey results also tend to confirm the results of the model simulations and it is concluded that regular maintenance dredging will be required if the depths in the channel are to be maintained at a figure of 0.75mCD."*

The amount and frequency of maintenance dredging required to maintain the channel will depend upon prevailing weather conditions.

## 5.3. Marine Archaeology

The navigation channel at Dundalk has been dredged many times in the past. The proposed dredging at Soldier's Point and Buoy 15 which this application refers to is a maintenance dredging campaign. These areas are historical choke points for trade due to the accretion of sediment. The purpose of the dredging is to lower the channel

to its previously advertised depth of -0.75mCD. The proposed dredging is not capital dredging, which is where an area is deepened to a level it has not been before.

Dundalk Port personnel who have been involved in previous dredging campaigns along this length of the navigation channel, they have remarked that no items of archaeological significance were uncovered before. Also, they are not aware of any archaeological sites or wrecks in the vicinity.

The National Monuments Service archive only identifies two minor unknown wrecks within Dundalk Bay. These are shown in Figure 8. They are not within the navigation channel and consequently are not in the areas to be dredged. Their description is as follows: "*Two wrecks lie alongside old slip 1038, 345ft from end of training wall. They dry out, but do not reach above MHWS*."


**Figure 8 Wreck Sites within Dundalk Bay**

These know shipwreck sites are outside the area of proposed dredging. It is not envisaged that there will be an impact on marine archaeology as a result of the proposed maintenance dredging. No direct mitigation measures are proposed but the dredging crew will be informed of the presence of wrecks and that if any material of archaeological potential is encountered during the course of the permitted activities, the Port and the Underwater Archaeology Unit, National Monuments Service, Department of Culture, Heritage and the Gaeltacht should be notified immediately and works ceased in the area in question.

### 5.4. Fisheries

Inland Fisheries Ireland (IFI) was consulted with regards to the proposed dredging scheme. In their response, they stated that the Castletown Estuary and Dundalk Bay support a wide range of marine fish species and migratory salmonids, European eel and sea lamprey travel through this area on their journey to/from the sea. As a mitigation measure, it is proposed to avoid dredging in the March to May period to avoid migration time for smolts. Further discussion can be held with Inland Fisheries Ireland prior to dredging taking place to agree on any further mitigation measures deemed necessary.

It is noted also from the response from IFI that the Inner Bay receives the waters from the Castletown and Flurry Rivers. These rivers contain a number of species, which migrate through the bay, namely salmon, sea trout, eels and sea lamprey. It is the outward migration of smolts from rivers to the sea which would be most vulnerable to dredging operations. It is for this reason that it is proposed that dredging takes place at times of year to avoid peak migration time for smolts of migratory fish.

### 5.5. Aquaculture

There is only a minor presence of licensed aquaculture sites in Dundalk Bay (cockles and oysters), although Carlingford Lough to the North has an abundance of licensed site both in the Republic and within Northern Ireland waters. The proposed dredge area is remote from any licensed site, with the closest being 1.5km in distance. There are also designated shellfish waters within Dundalk Bay (Figure 5.3) but these again are remote from the dredging areas (circa 3km).

The aquaculture sites are for the cultivation of cockles and oysters. The proposed maintenance dredging scheme involves the dredging of sands which by their nature do not produce a significant sediment plume. There is considerable support for this project from the aquaculture interests in the Bay as indicated in their letter provided in Appendix D of this report (letter from the consortium of trawler owners). The proposed channel maintenance dredging will give the fishermen greater flexibility for accessing their aquaculture sites as they won't be restricted to entering and exiting the harbour at or close to high tide.

Maintenance dredging has been carried out in the past on the navigation channel and no impact was felt at the licensed aquaculture sites. No mitigation measures are proposed.

The shellfish water designation arises from the EU Shellfish Directive and it is transposed into Irish Legislation under the Quality of Shellfish Water Regulations(S.I.

No. 268 of 2006). There are parameters listed in Annex I of the Shellfish Water Directive specifying guideline and mandatory limits which can't be exceeded for activities in these waters. In terms of Suspended Solids, a discharge affecting shellfish waters must not cause the suspended solid content of the waters to exceed the content in unaffected waters by 30%. The proposed maintenance dredging off Soldiers Point is sufficiently far enough away from the Shellfish Waters so as not to interfere with the water quality and any of the parameters listed in Annex I of the Shellfish Water Directive. Furthermore, as stated above, no notable plume from the dredging operations is anticipated due to the sediment being on average 99.2% sand. Based on this no mitigation measures are required nor proposed.

### 5.6. Marine Mammals

The Irish Whale and Dolphin Group (IWDG) maintain a sightings record of marine mammals and some other fish species observed around the coastline of Ireland. The IWDG website was consulted about sightings of marine mammals and elasmobranchs (sharks and rays) in the vicinity of the proposed maintenance dredging at Soldiers Point/Buoy 15. From a recent review of the website no recent sights were noted. However, from the 2014 foreshore application the following sightings were recorded for Dundalk Bay up to 2012:

| Record # | Date | Animals | Species | Location |
|---|---|---|---|---|
| 16 | Oct-12 | 12 | bottlenose dolphin | Dundalk Bay, Louth |
| 27 | Aug-11 | 1 | minke whale | Dundalk Bay, Louth |
| 36 | Jun-10 | 5 | dolphin species | Dundalk Bay, Louth |
| 424 | Jun-09 | 2 | basking shark | Dundalk Bay, Louth |
| 52 | Jun-08 | 4 | basking shark | Dundalk Bay, Louth |
| 617 | Nov-02 | 1 | harbour porpoise | Dundalk Bay, Louth |
| 77 | Jul-01 | 1 | dolphin species, possibly harbour porpoise | Dundalk Bay, Louth |

From the information up to 2012, it is noted that all of the marine mammal and shark sightings took place in the Outer Dundalk Bay area. There were not any sightings close to Soldiers Point/Buoy 15 where the proposed maintenance dredging will take place. It is not expected that there will be any impact on marine mammals as a result of the proposed dredging operations and no mitigation measures or further observation/monitoring are recommended.

### 5.7. Mitigation Measures Proposed

Based on the assessments undertaken the following measures are proposed to mitigate against any potential impacts to the local environmental and any third parties:

- A documented Accident Prevention Procedure will be put in place prior to commencement;

- A documented Emergency Response Procedure will be put in place prior to commencement;
- The position of the local wrecks within Dundalk Bay will be noted by the crew and where possible displayed on the dredgers onboard systems;
- A full record of the material being dredged will be maintained for each trip;
- Discharging at the quay will be completed using a sealed clamshell grab;
- The sediment will be stored in a confined area within the port limits;
- Soft start-up procedures will be developed and implemented during the commencement of loading activities;
- Manmade material encountered shall be segregated and landed ashore for responsible management;
- Dredging from March to May inclusively will be avoided for migratory species;
- All loading operations will be managed to be as efficient as possible and minimise the duration of the dredging activities.

# 6. Conclusions

- Sand accumulates in the navigation channel at Soldiers Point and Buoy 15 in Dundalk Bay. As a result, there are difficulties for ships of certain draught accessing Dundalk Port at low water. This is having a knock-on effect on the Harbours business as boats are limited to when they can access the Port.

- Dundalk Port wishes to carry out maintenance dredging on the navigation channel at Soldiers Point. It is proposed to dredge the channel to -0mCD initially, and thereafter potentially -0.75mCD, which would bring the channel back to its advertised depth on admiralty charts.

- It is proposed to dredge the channel using a trailer suction hopper dredger. The material dredged will not be dumped at a disposal site offshore. Instead, the dredged sand will be brought onshore and removed to be beneficially used as a product rather than disposed as a waste.

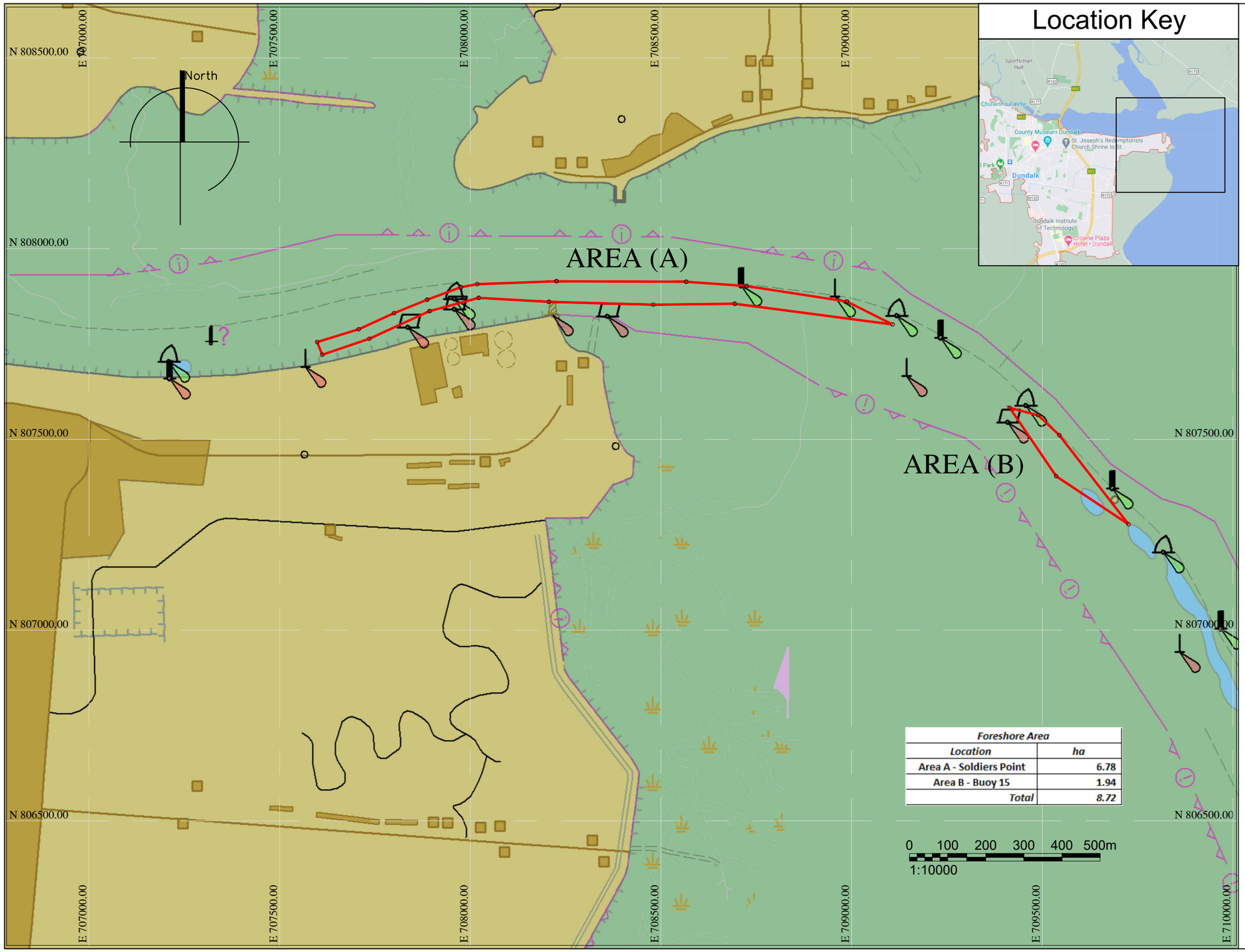
- Operations of other port users will not be impacted during the dredging operations. Marine safety and navigation will be in no way compromised during the dredging operations. Existing navigation markers will remain unaffected after dredging work has been completed.

- Consultations have been carried out with relevant statutory bodies and local stakeholders. There is significant local support for the proposed maintenance activities.

- A stage 2 Appropriate Assessment was carried out. It was found that there will be no impact on the Natura 2000 sites as a result of the proposed maintenance dredging.

- Environmental issues were considered and mitigation measures proposed where appropriate.

# Appendix A – Drawings




## Location Key




### NOTES

1. All dimensions and levels are in meters unless stated otherwise.
2. The co-ordinates of the proposed development (site boundaries) are shown in Irish Transverse Mercator (ITM).
3. Paper size is A3
4. Application Stage: ***APPLICATION***

### KEY

Dredge Area

**FORESHORE FILE NO.**

FS007223

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BEng, PhD, CEng FIEI, ACIArb

Signature: [redacted]

Date: 24-May-2021



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Project Title: Dundalk Port Maintenance

Drawing Title: Foreshore Licence Map (Admiralty)

| | |
|---|---|
| Drawn by: LH | Scale: 1:10,000 |
| Checked by: CS | Drawing Number: 595-FL-4 |
| Date: 24-MAY-2021 | PAPER: A3 |

| No. | Revision | Date |
|---|---|---|
| 1 | | |
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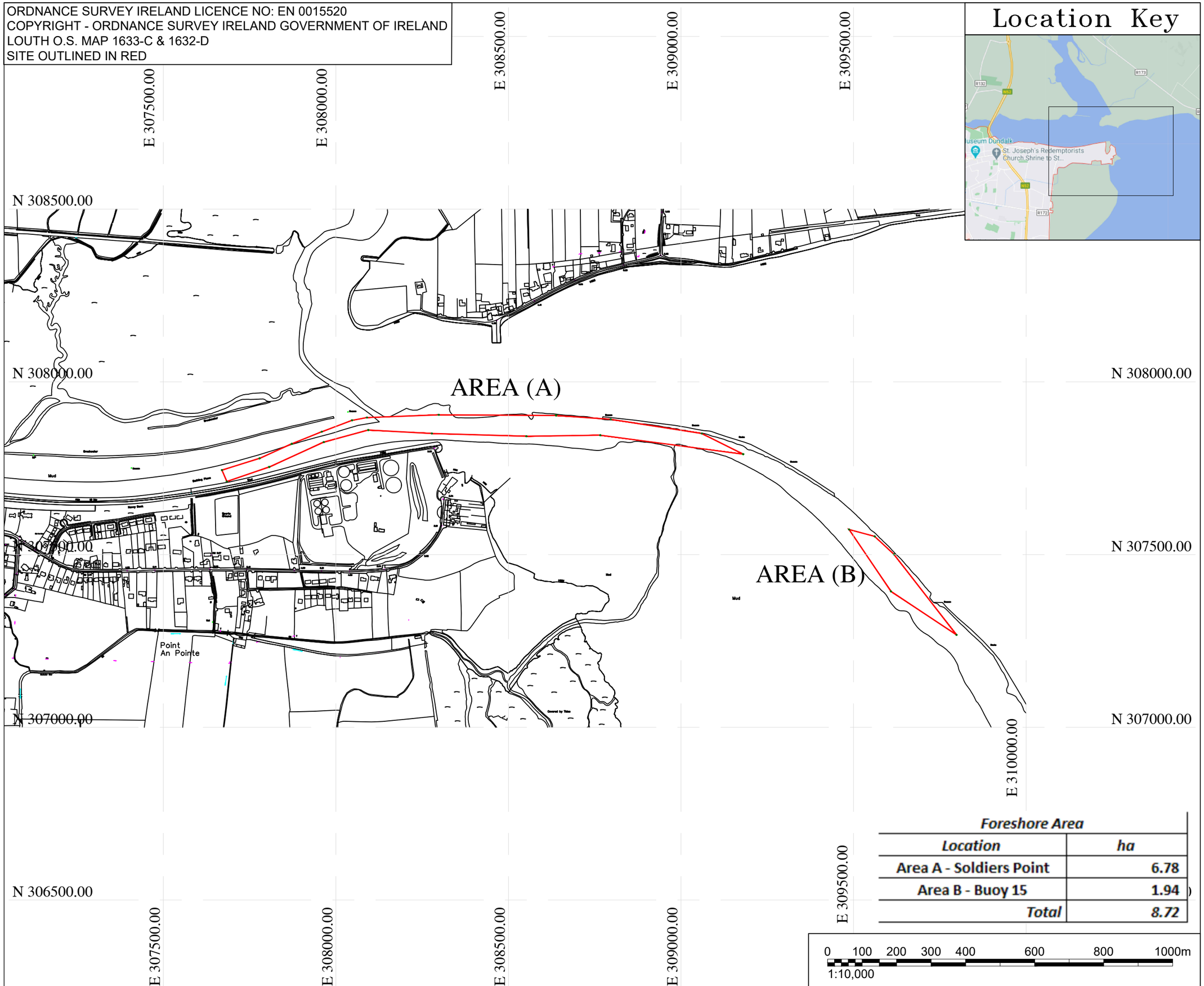
| 3 | | |

ORDNANCE SURVEY IRELAND LICENCE NO: EN 0015520
COPYRIGHT - ORDNANCE SURVEY IRELAND GOVERNMENT OF IRELAND
LOUTH O.S. MAP 1633-C & 1632-D
SITE OUTLINED IN RED




## Location Key




**Notes:**

1. FIGURED DIMENSIONS ONLY TO BE TAKEN FROM THIS DRAWING.
2. ALL DRAWINGS TO BE CHECKED BY THE CONTRACTOR ON SITE.
3. ENGINEER TO BE INFORMED OF ANY DISCREPANCIES BEFORE ANY WORK COMMENCES.
4. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELAVANT DRAWINGS AND DOCUMENTATIONS.
5. ALL DIMENSIONS AND LEVELS ARE IN METERS UNLESS STATED OTHERWISE.
6. THE COORDINATES OF THE PROPOSED DEVELOPMENT (SITE BOUNDARIES) ARE SHOWN IN IN IRISH NATIONAL GRID (ING).
7. PAPER SIZE IS A3
8. FORESHORE FILE NO. FS007223

| KEY | |
|---|---|
| | Dredge Area |

N

| Rev. | Modifications | By | Date |
|---|---|---|---|
| | | | |

*Foreshore Area*

| *Location* | *ha* |
|---|---|
| Area A - Soldiers Point | 6.78 |
| Area B - Buoy 15 | 1.94 |
| *Total* | *8.72* |

0 100 200 300 400 600 800 1000m
1:10,000

Client: O'Hanlon & Sons Ltd

Project: FORESHORE LICENCE APPLICATION

Job Description: MAINTENANCE DREDGING

Title: Foreshore Licence Map (OS)

| Drawn By | Checked By | Date | Scale |
|---|---|---|---|
| S. Mc COY | P. HERR | 24.May.'21 | 1:10000 |



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CO. LOUTH

| FILE REF | DRAWING No | REVISION |
|---|---|---|
| FS App - Dundalk Foreshore Licence Map (OS) | 595-FL-5 | 0 |

# Appendix B – Chemical and Physical Composition of the Sediment

# Certificate of Analysis

Issuing Laboratory SOCOTEC, Marine Department, Specialist Chemistry, Etwall House, Bretby Business Park, Ashby Road, Bretby, Burton-upon-Trent DE15 0YZ

| | |
|---|---|
| **Test Report ID** | **MAR00892** |
| Issue Version | 1 |
| Customer | Anthony D Bates Partnership LLP, Upper Weare, Axbridge, Somerset, BS26 2LE |
| Customer Reference | Dundalk Port Sediment Analysis |
| Date Sampled | 06-Jan-21 |
| Date Received | 11-Jan-21 |
| Date Reported | 01-Feb-21 |
| Condition of samples | Ambient Satisfactory |

[redacted]

Authorised by: [redacted]

Position: Laboratory Manager

Any additional opinions or interpretations found in this report, are outside the scope of UKAS accreditation.

# Certificate of Analysis

Issuing Laboratory SOCOTEC, Marine Department, Specialist Chemistry, Etwall House, Bretby Business Park, Ashby Road, Bretby, Burton-upon-Trent DE15 0YZ

| | |
|---|---|
| Test Report ID | MAR00892 |
| Issue Version | 1 |
| Customer Reference | Dundalk Port Sediment Analysis |

| | | Method No | SOCOTEC Doncaster* |
|---|---|---|---|
| **Client Reference:** | **SOCOTEC Ref:** | **Matrix** | **Visual Description** |
| Location 1 | MAR00892.001 | Sediment | Brown SAND |
| Location 2 | MAR00892.002 | Sediment | Brown SAND |
| Location 3 | MAR00892.003 | Sediment | Brown SAND |
| Location 4 | MAR00892.004 | Sediment | Brown SAND |
| Location 5 | MAR00892.005 | Sediment | Brown SAND |
| Location 6 | MAR00892.006 | Sediment | Brown SAND |
| Location 7 | MAR00892.007 | Sediment | Brown SAND |

* See Report Notes

# Certificate of Analysis

Issuing Laboratory SOCOTEC, Marine Department, Specialist Chemistry, Etwall House, Bretby Business Park, Ashby Road, Bretby, Burton-upon-Trent DE15 0YZ

Test Report ID MAR00892
Issue Version 1
Customer Reference Dundalk Port Sediment Analysis

| | | Units | % | % | % | % | % | Mg/m3 |
|---|---|---|---|---|---|---|---|---|
| | | Method No | ASC/SOP/303 | ASC/SOP/303 | SUB_01* | SUB_01* | SUB_01* | SOCOTEC Doncaster* |
| | | Limit of Detection | 0.2 | 0.2 | N/A | N/A | N/A | N/A |
| | | Accreditation | UKAS | UKAS | N | N | N | N |
| **Client Reference:** | **SOCOTEC Ref:** | **Matrix** | **Total Moisture @ 120°C** | **Total Solids** | **Gravel (>2mm)** | **Sand (63-2000 µm)** | **Silt (<63 µm)** | **Particle Density** |
| Location 1 | MAR00892.001 | Sediment | 23.6 | 76.4 | 0.0 | 100 | 0.0 | 2.67 |
| Location 2 | MAR00892.002 | Sediment | 24.0 | 76.0 | 0.0 | 100 | 0.0 | 2.62 |
| Location 3 | MAR00892.003 | Sediment | 21.2 | 78.8 | 0.0 | 100 | 0.0 | 2.75 |
| Location 4 | MAR00892.004 | Sediment | 23.7 | 76.3 | 0.0 | 100 | 0.0 | 2.62 |
| Location 5 | MAR00892.005 | Sediment | 23.6 | 76.4 | 0.0 | 100 | 0.0 | 2.63 |
| Location 6 | MAR00892.006 | Sediment | 24.0 | 76.0 | 0.4 | 97.5 | 2.2 | 2.26 |
| Location 7 | MAR00892.007 | Sediment | 20.8 | 79.2 | 0.6 | 96.6 | 2.7 | 2.65 |
| | | Reference Material (% Recovery) | N/A | N/A | N/A | N/A | N/A | N/A |
| | | QC Blank | N/A | N/A | N/A | N/A | N/A | N/A |

* See Report Notes
NADIS - No Asbestos Detected In Sample

# Certificate of Analysis

Issuing Laboratory SOCOTEC, Marine Department, Specialist Chemistry, Etwall House, Bretby Business Park, Ashby Road, Bretby, Burton-upon-Trent DE15 0YZ

| | |
|---|---|
| Test Report ID | MAR00892 |
| Issue Version | 1 |
| Customer Reference | Dundalk Port Sediment Analysis |

| | | Units | % M/M | % M/M |
|---|---|---|---|---|
| | | Method No | SOCOTEC Env Chem* | SOCOTEC Env Chem* |
| | | Limit of Detection | 0.02 | 0.12 |
| | | Accreditation | UKAS | No |
| **Client Reference:** | **SOCOTEC Ref:** | **Matrix** | **TOC** | **Carbonate Equivalent (%CO3)** |
| Location 1 | MAR00892.001 | Sediment | 0.19 | 4.20 |
| Location 2 | MAR00892.002 | Sediment | 0.15 | 4.56 |
| Location 3 | MAR00892.003 | Sediment | 0.13 | 3.84 |
| Location 4 | MAR00892.004 | Sediment | 0.16 | 4.56 |
| Location 5 | MAR00892.005 | Sediment | 0.16 | 4.08 |
| Location 6 | MAR00892.006 | Sediment | 0.20 | 13.0 |
| Location 7 | MAR00892.007 | Sediment | 0.20 | 12.8 |
| | | Reference Material (% Recovery) | 109 | 102 |
| | | QC Blank | <0.02 | <0.12 |

* See Report Notes

NADIS - No Asbestos Detected In Sample

# Certificate of Analysis

Issuing Laboratory SOCOTEC, Marine Department, Specialist Chemistry, Etwall House, Bretby Business Park, Ashby Road, Bretby, Burton-upon-Trent DE15 0YZ

Test Report ID MAR00892
Issue Version 1
Customer Reference Dundalk Port Sediment Analysis

| | | Units | mg/Kg (Dry Weight) | mg/Kg (Dry Weight) | mg/Kg (Dry Weight) | mg/Kg (Dry Weight) | mg/Kg (Dry Weight) | mg/Kg (Dry Weight) |
|---|---|---|---|---|---|---|---|---|
| | | Method No | SOCOTEC Env Chem* | SOCOTEC Env Chem* | SOCOTEC Env Chem* | SOCOTEC Env Chem* | SOCOTEC Env Chem* | SOCOTEC Env Chem* |
| | | Limit of Detection | 1 | 0.1 | 0.5 | 2 | 2 | 0.5 |
| | | Accreditation | UKAS | No | No | UKAS | UKAS | No |
| **Client Reference:** | **SOCOTEC Ref:** | **Matrix** | **Arsenic** | **Cadmium** | **Chromium** | **Copper** | **Lead** | **Nickel** |
| Location 1 | MAR00892.001 | Sediment | 4.2 | 0.1 | 24.1 | 5.9 | 36 | 12.4 |
| Location 2 | MAR00892.002 | Sediment | 3.9 | <0.1 | 22.8 | 4.9 | 28.8 | 12.2 |
| Location 3 | MAR00892.003 | Sediment | 3.9 | 0.1 | 24.7 | 6 | 21.2 | 12.5 |
| Location 4 | MAR00892.004 | Sediment | 3.9 | 0.1 | 23.9 | 5.0 | 22 | 12.8 |
| Location 5 | MAR00892.005 | Sediment | 3.9 | 0.1 | 24 | 5.2 | 22.9 | 12.6 |
| Location 6 | MAR00892.006 | Sediment | 5.8 | 0.1 | 37.8 | 6 | 35.1 | 21.7 |
| Location 7 | MAR00892.007 | Sediment | 5.6 | <0.1 | 36.3 | 5.9 | 21.7 | 20.8 |
| | | Certified Reference Material 2702 (% Recovery) | 101 | 98~ | 100~ | 99 | 95 | 99~ |
| | | QC Blank | <1 | <0.1 | <0.5 | <2 | <2 | <0.5 |

* See Report Notes
~ Indicates result is for an In-house Reference Material as no Certified Reference Materials are avaliable.

# Certificate of Analysis

Issuing Laboratory SOCOTEC, Marine Department, Specialist Chemistry, Etwall House, Bretby Business Park, Ashby Road, Bretby, Burton-upon-Trent DE15 0YZ

| | |
|---|---|
| Test Report ID | MAR00892 |
| Issue Version | 1 |
| Customer Reference | Dundalk Port Sediment Analysis |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | **Units** | mg/Kg (Dry Weight) | mg/Kg (Dry Weight) | mg/Kg (Dry Weight) | mg/Kg (Dry Weight) |
| | | **Method No** | SOCOTEC Env Chem* | SOCOTEC Env Chem* | SOCOTEC Env Chem* | SOCOTEC Env Chem* |
| | | **Limit of Detection** | 3 | 10 | 0.5 | 0.01 |
| | | **Accreditation** | No | UKAS | No | No |
| **Client Reference:** | **SOCOTEC Ref:** | **Matrix** | **Zinc** | **Aluminium** | **Lithium** | **Mercury** |
| Location 1 | MAR00892.001 | Sediment | 38.7 | 18500 | 15.0 | 0.02 |
| Location 2 | MAR00892.002 | Sediment | 33.3 | 16800 | 14.3 | 0.02 |
| Location 3 | MAR00892.003 | Sediment | 33.7 | 18400 | 15.1 | 0.02 |
| Location 4 | MAR00892.004 | Sediment | 38.6 | 18200 | 15.8 | 0.02 |
| Location 5 | MAR00892.005 | Sediment | 35.0 | 19000 | 14.7 | 0.01 |
| Location 6 | MAR00892.006 | Sediment | 45.3 | 21800 | 14.7 | 0.01 |
| Location 7 | MAR00892.007 | Sediment | 43.3 | 22700 | 15.8 | 0.01 |
| | | Certified Reference Material 2702 (% Recovery) | 99~ | 98 | 97 | 107~ |
| | | QC Blank | <3 | <10 | <0.5 | <0.01 |

* See Report Notes

~ Indicates result is for an In-house Reference Material as no Certified Reference Materials are avaliable.

# Certificate of Analysis

Issuing Laboratory SOCOTEC, Marine Department, Specialist Chemistry, Etwall House, Bretby Business Park, Ashby Road, Bretby, Burton-upon-Trent DE15 0YZ

| | |
|---|---|
| Test Report ID | MAR00892 |
| Issue Version | 1 |
| Customer Reference | Dundalk Port Sediment Analysis |

| | | Units | µg/Kg (Dry Weight) | |
|---|---|---|---|---|
| | | Method No | ASC/SOP/301 | |
| | | Limit of Detection | 1 | 1 |
| | | Accreditation | UKAS | UKAS |
| **Client Reference:** | **SOCOTEC Ref:** | **Matrix** | **Dibutyltin (DBT)** | **Tributyltin (TBT)** |
| Location 1 | MAR00892.001 | Sediment | <1 | <1 |
| Location 2 | MAR00892.002 | Sediment | <1 | <1 |
| Location 3 | MAR00892.003 | Sediment | <1 | <1 |
| Location 4 | MAR00892.004 | Sediment | <1 | <1 |
| Location 5 | MAR00892.005 | Sediment | <1 | <1 |
| Location 6 | MAR00892.006 | Sediment | <1 | <1 |
| Location 7 | MAR00892.007 | Sediment | <1 | <1 |
| **Certified Reference Material BCR-646 (% Recovery)** | | | 61 | 54 |
| QC Blank | | | <1 | <1 |

* See Report Notes

# Certificate of Analysis

Issuing Laboratory SOCOTEC, Marine Department, Specialist Chemistry, Etwall House, Bretby Business Park, Ashby Road, Bretby, Burton-upon-Trent DE15 0YZ

| | |
|---|---|
| Test Report ID | MAR00892 |
| Issue Version | 1 |
| Customer Reference | Dundalk Port Sediment Analysis |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | **Units** | µg/Kg (Dry Weight) | µg/Kg (Dry Weight) | µg/Kg (Dry Weight) | µg/Kg (Dry Weight) | µg/Kg (Dry Weight) | µg/Kg (Dry Weight) |
| | | **Method No** | ASC/SOP/303/304 | ASC/SOP/303/304 | ASC/SOP/303/304 | ASC/SOP/303/304 | ASC/SOP/303/304 | ASC/SOP/303/304 |
| | | **Limit of Detection** | 1 | 1 | 1 | 1 | 1 | 1 |
| | | **Accreditation** | UKAS | UKAS | UKAS | UKAS | UKAS | UKAS |
| **Client Reference:** | **SOCOTEC Ref:** | **Matrix** | **ACENAPTH** | **ACENAPHY** | **ANTHRACN** | **BAA** | **BAP** | **BBF** |
| Location 1 | MAR00892.001 | Sediment | <1 | <1 | <1 | 1.93 | 2.41 | 2.36 |
| Location 2 | MAR00892.002 | Sediment | <1 | <1 | <1 | 6.32 | 6.43 | 5.17 |
| Location 3 | MAR00892.003 | Sediment | <1 | <1 | <1 | 1.14 | 1.66 | 1.85 |
| Certified Reference Material QPH098MS (% Recovery) | | | 72 | 90 | 79 | 46 | 50 | 51 |
| QC Blank | | | <1 | <1 | <1 | <1 | <1 | <1 |

For full analyte name see method summaries
~ Indicates result is for an In-house Reference Material as no Certified Reference Materials are avaliable.
As the method uses surrogate standards to correct for losses, the RM results are reported as percentage trueness, not recovery.

# Certificate of Analysis

Issuing Laboratory SOCOTEC, Marine Department, Specialist Chemistry, Etwall House, Bretby Business Park, Ashby Road, Bretby, Burton-upon-Trent DE15 0YZ

| | |
|---|---|
| Test Report ID | MAR00892 |
| Issue Version | 1 |
| Customer Reference | Dundalk Port Sediment Analysis |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | **Units** | µg/Kg (Dry Weight) | µg/Kg (Dry Weight) | µg/Kg (Dry Weight) | µg/Kg (Dry Weight) | µg/Kg (Dry Weight) | µg/Kg (Dry Weight) |
| | | **Method No** | ASC/SOP/303/304 | ASC/SOP/303/304 | ASC/SOP/303/304 | ASC/SOP/303/304 | ASC/SOP/303/304 | ASC/SOP/303/304 |
| | | **Limit of Detection** | 1 | 1 | 1 | 1 | 1 | 1 |
| | | **Accreditation** | UKAS | UKAS | UKAS | UKAS | UKAS | UKAS |
| **Client Reference:** | **SOCOTEC Ref:** | **Matrix** | **BENZGHIP** | **BKF** | **CHRYSENE** | **DBENZAH** | **FLUORANT** | **FLUORENE** |
| Location 1 | MAR00892.001 | Sediment | 1.88 | 1.48 | 2.35 | <1 | 4.43 | <1 |
| Location 2 | MAR00892.002 | Sediment | 3.62 | 3.08 | 6.57 | <1 | 13.2 | <1 |
| Location 3 | MAR00892.003 | Sediment | 1.66 | 1.17 | 1.59 | <1 | 3.17 | <1 |
| Certified Reference Material QPH098MS (% Recovery) | | | 54 | 76 | 62 | 70 | 67 | 81 |
| QC Blank | | | <1 | <1 | <1 | <1 | <1 | <1 |

For full analyte name see method summaries
~ Indicates result is for an In-house Reference Material as no Certified Reference Materials are avaliable.
As the method uses surrogate standards to correct for losses, the RM results are reported as percentage trueness, not recovery.

# Certificate of Analysis

Issuing Laboratory SOCOTEC, Marine Department, Specialist Chemistry, Etwall House, Bretby Business Park, Ashby Road, Bretby, Burton-upon-Trent DE15 0YZ

Test Report ID MAR00892
Issue Version 1
Customer Reference Dundalk Port Sediment Analysis

| | | Units | µg/Kg (Dry Weight) | µg/Kg (Dry Weight) | µg/Kg (Dry Weight) | µg/Kg (Dry Weight) | µg/Kg (Dry Weight) |
|---|---|---|---|---|---|---|---|
| | | Method No | ASC/SOP/303/304 | ASC/SOP/303/304 | ASC/SOP/303/304 | ASC/SOP/303/304 | ASC/SOP/303/306 |
| | | Limit of Detection | 1 | 1 | 1 | 1 | 100 |
| | | Accreditation | UKAS | UKAS | UKAS | UKAS | N |
| **Client Reference:** | **SOCOTEC Ref:** | **Matrix** | **INDPYR** | **NAPTH** | **PHENANT** | **PYRENE** | **THC** |
| Location 1 | MAR00892.001 | Sediment | 2.08 | <1 | 1.83 | 3.91 | 5650 |
| Location 2 | MAR00892.002 | Sediment | 4.30 | <1 | 2.24 | 11.6 | 4000 |
| Location 3 | MAR00892.003 | Sediment | 1.59 | <1 | 1.64 | 2.61 | 4480 |
| Certified Reference Material QPH098MS (% Recovery) | | | 47 | 89 | 79 | 67 | 99~ |
| QC Blank | | | <1 | <1 | <1 | <1 | <100 |

For full analyte name see method summaries
~ Indicates result is for an In-house Reference Material as no Certified Reference Materials are avaliable.
As the method uses surrogate standards to correct for losses, the RM results are reported as percentage trueness, not recovery.

# Certificate of Analysis

Issuing Laboratory SOCOTEC, Marine Department, Specialist Chemistry, Etwall House, Bretby Business Park, Ashby Road, Bretby, Burton-upon-Trent DE15 0YZ

| | |
|---|---|
| Test Report ID | MAR00892 |
| Issue Version | 1 |
| Customer Reference | Dundalk Port Sediment Analysis |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | **Units** | µg/Kg (Dry Weight) | µg/Kg (Dry Weight) | µg/Kg (Dry Weight) | µg/Kg (Dry Weight) | µg/Kg (Dry Weight) | µg/Kg (Dry Weight) | µg/Kg (Dry Weight) |
| | | **Method No** | ASC/SOP/302 | ASC/SOP/302 | ASC/SOP/302 | ASC/SOP/302 | ASC/SOP/302 | ASC/SOP/302 | ASC/SOP/302 |
| | | **Limit of Detection** | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
| | | **Accreditation** | UKAS | UKAS | UKAS | UKAS | UKAS | UKAS | UKAS |
| **Client Reference:** | **SOCOTEC Ref:** | **Matrix** | **PCB28** | **PCB52** | **PCB101** | **PCB118** | **PCB138** | **PCB153** | **PCB180** |
| Location 1 | MAR00892.001 | Sediment | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 |
| Location 2 | MAR00892.002 | Sediment | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 |
| Location 3 | MAR00892.003 | Sediment | 0.23 | 0.40 | 0.59 | 0.42 | 0.91 | 1.01 | 0.54 |
| Certified Reference Material QOR141 MS (% Recovery) | | | 101 | 95 | 98 | 97 | 104 | 97 | 79 |
| QC Blank | | | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 | <0.08 |

For full analyte name see method summaries

~ Indicates result is for an In-house Reference Material as no Certified Reference Materials are avaliable.

# Certificate of Analysis

Issuing Laboratory SOCOTEC, Marine Department, Specialist Chemistry, Etwall House, Bretby Business Park, Ashby Road, Bretby, Burton-upon-Trent DE15 0YZ

| | |
|---|---|
| Test Report ID | MAR00892 |
| Issue Version | 1 |
| Customer Reference | Dundalk Port Sediment Analysis |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | **Units** | µg/Kg (Dry Weight) | µg/Kg (Dry Weight) | µg/Kg (Dry Weight) | µg/Kg (Dry Weight) | µg/Kg (Dry Weight) | µg/Kg (Dry Weight) | µg/Kg (Dry Weight) | µg/Kg (Dry Weight) |
| | | **Method No** | ASC/SOP/302 | ASC/SOP/302 | ASC/SOP/302 | ASC/SOP/302 | ASC/SOP/302 | ASC/SOP/302 | ASC/SOP/302 | ASC/SOP/302 |
| | | **Limit of Detection** | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| | | **Accreditation** | UKAS | UKAS | UKAS | UKAS | UKAS | UKAS | N | UKAS |
| **Client Reference:** | **SOCOTEC Ref:** | **Matrix** | **AHCH** | **BHCH** | **GHCH** | **DIELDRIN** | **HCB** | **DDE** | **DDT** | **DDD** |
| Location 1 | MAR00892.001 | Sediment | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Location 2 | MAR00892.002 | Sediment | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Location 3 | MAR00892.003 | Sediment | <0.1 | <0.1 | <0.1 | 0.19 | <0.1 | 0.33 | 0.26 | 0.47 |
| Certified Reference Material QOR141 MS (% Recovery) | | | 47 | 102 | 116~ | 129 | 117 | 105 | 100 | 115 |
| QC Blank | | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |

For full analyte name see method summaries

~ Indicates result is for an In-house Reference Material as no Certified Reference Materials are avaliable.

# Certificate of Analysis

Issuing Laboratory SOCOTEC, Marine Department, Specialist Chemistry, Etwall House, Bretby Business Park, Ashby Road, Bretby, Burton-upon-Trent DE15 0YZ

Test Report ID MAR00892
Issue Version 1
Customer Reference Dundalk Port Sediment Analysis

## REPORT NOTES

| Method Code | Sample ID | The following information should be taken into consideration when using the data contained within this report |
|---|---|---|
| SOCOTEC Env Chem* | MAR00892.001-007 | Analysis was conducted by an internal SOCOTEC laboratory. UKAS accredited analysis by this laboratory is under UKAS number 1252. |
| SOCOTEC Doncaster* | MAR00892.001-007 | Analysis was conducted by an internal SOCOTEC laboratory. |
| SUB_01* | MAR00892.001-007 | Analysis was conducted by an approved subcontracted laboratory. |
| ASC/SOP/302 | MAR00892.001-003 | The Primary process control data associated with this Test has not wholly met the requirements of the Laboratory Quality Management System QMS with DDT falling outside acceptable limits. DDT is a known problem compound that can breakdown into DDD and DDE .These circumstances should be taken into consideration when utilising the data and in line with our QMS policy we have removed accreditation, where applicable. |
| ASC/SOP/303/304 | MAR00892.001-003 | Chrysene is known to coelute with Triphenylene and these peaks can not be resolved. It is believed Triphenylene is present in these samples therefore it is suggested that the Chrysene results should be taken as a Chrysene (inc. Triphenylene).This should be taken into consideration when utilising the data. |

## DEVIATING SAMPLE STATEMENT

| Deviation Code | Deviation Definition | Sample ID | Deviation Details. The following information should be taken into consideration when using the data contained within this report |
|---|---|---|---|
| D1 | Holding Time Exceeded | N/A | N/A |
| D2 | Handling Time Exceeded | N/A | N/A |
| D3 | Sample Contaminated through Damaged Packaging | N/A | N/A |
| D4 | Sample Contaminated through Sampling | N/A | N/A |
| D5 | Inappropriate Container/Packaging | N/A | N/A |
| D6 | Damaged in Transit | N/A | N/A |
| D7 | Insufficient Quantity of Sample | N/A | N/A |
| D8 | Inappropriate Headspace | N/A | N/A |
| D9 | Retained at Incorrect Temperature | N/A | N/A |
| D10 | Lack of Date & Time of Sampling | N/A | N/A |
| D11 | Insufficient Sample Details | N/A | N/A |
| D12 | Sample integrity compromised or not suitable for analysis | N/A | N/A |

# Certificate of Analysis

Issuing Laboratory SOCOTEC, Marine Department, Specialist Chemistry, Etwall House, Bretby Business Park, Ashby Road, Bretby, Burton-upon-Trent DE15 0YZ

| | |
|---|---|
| Test Report ID | MAR00892 |
| Issue Version | 1 |
| Customer Reference | Dundalk Port Sediment Analysis |

| Method | Sample and Fraction Size | Method Summary |
|---|---|---|
| Total Solids | Wet Sediment | Calculation (100%-Moisture Content).Moisture content determined by drying a portion of the sample at 120°C to constant weight. |
| Particle Size Analysis | Wet Sediment | Wet and dry sieving followed by laser diffraction analysis. |
| Total Organic Carbon (TOC) | Wet Sediment | Carbonate removal and sulphurous acid/combustion at 1600°C/NDIR. |
| Carbonate | Air dried | Quantitative digestion with Hydrochloric Acid back titration with 1M Sodium Hydroxide to pH 7 |
| Metals | Air dried | Aqua-regia extraction followed by ICP analysis. |
| Organotins | Wet Sediment | Solvent extraction and derivatisation followed by GC-MS analysis. |
| Polyaromatic Hydrocarbons (PAH) | Wet Sediment | Solvent extraction and clean up followed by GC-MS analysis. |
| Total Hydrocarbon Content (THC) | Wet Sediment | Solvent extraction and clean up followed by GC-FID analysis. |
| Polychlorinated Biphenyls (PCBs) | Air dried and seived to <2mm | Solvent extraction and clean up followed by GC-MS-MS analysis. |
| Organochlorine Pesticides (OCPs) | Air dried and seived to <2mm | Solvent extraction and clean up followed by GC-MS-MS analysis. |

| Analyte Definitions | | | | | |
|---|---|---|---|---|---|
| Analyte Abbreviation | Full Analyte name | Analyte Abbreviation | Full Analyte name | Analyte Abbreviation | Full Analyte name |
| ACENAPTH | Acenaphthene | C2N | C2-naphthalenes | THC | Total Hydrocarbon Content |
| ACENAPHY | Acenaphthylene | C3N | C3-naphthalenes | AHCH | alpha-Hexachlorcyclohexane |
| ANTHRACN | Anthracene | CHRYSENE | Chrysene | BHCH | beta-Hexachlorcyclohexane |
| BAA | Benzo[a]anthracene | DBENZAH | Dibenzo[ah]anthracene | GHCH | gamma-Hexachlorcyclohexane |
| BAP | Benzo[a]pyrene | FLUORANT | Fluoranthene | DIELDRIN | Dieldrin |
| BBF | Benzo[b]fluoranthene | FLUORENE | Fluorene | HCB | Hexachlorobenzene |
| BEP | Benzo[e]pyrene | INDPYR | Indeno[1,2,3-cd]pyrene | DDD | p,p'-Dichorodiphenyldichloroethane |
| BENZGHIP | Benzo[ghi]perylene | NAPTH | Naphthalene | DDE | p,p'-Dichorodiphenyldicloroethylene |
| BKF | Benzo[k]fluoranthene | PERYLENE | Perylene | DDT | p,p'-Dichorodiphenyltrichloroethane |
| C1N | C1-naphthalenes | PHENANT | Phenanthrene | | |
| C1PHEN | C1-phenanthrene | PYRENE | Pyrene | | |

# Appendix C – Statutory Consultee Responses

**From:** [redacted]
**To:**
**Cc:**
**Subject:** [SPAM] Dundalk Harbour Sustainable Maintenance Dredging - Consultation
**Date:** Tuesday 12 January 2021 15:05:53

---

Dear [redacted]

I refer to an email you sent my colleague, [redacted], last month regarding Dundalk Harbour Sustainable Maintenance Dredging – Consultation. [redacted] passed on your email to me as I cover that part of the country.

I note the contents of the document you attached and have the following comments to make:

3.3 Waste Management
Details of management of the dredge material while it is on the quayside should be provided. It would be important to ensure that there are no discharges of deleterious material to the adjacent Castletown Estuary during this aspect of the project.

3.4 Navigation and Safety Issues
I note you have included notifying mariners in advance, assuming this means sailors I would also suggest that sea anglers would also be notified.

I note that the Marine Institute have requested information regarding sampling and analysis of the sediment.

The Castletown Estuary and Dundalk Bay support a wide range of marine fish species and migratory salmonids, European eel and sea lamprey travel through this area on their journey to/from the sea.
In terms of WFD, the Ecological status of the Castletown Estuary is Poor and Inner Dundalk Bay is Moderate – both waterbodies are At Risk of not achieving Good Status.
It is important to ensure that the proposed dredging operation does not have a negative impact on this valuable aquatic habitat.

Yours faithfully,

[redacted]
Senior Fisheries Environmental Officer
Inland Fisheries Ireland - Dublin
---
**Iascach Intíre Éireann**
**Inland Fisheries Ireland**

Tel +353 (1) 8842600
Direct Line +353 (1) 8842691
Email [redacted]@fisheriesireland.ie
Web www.fisheriesireland.ie

3044 Lake Drive, Citywest Business Campus, Dublin 24, Ireland, **D24 Y265**.
---

**From:** MSO
**To:** [redacted]; MSO
**Cc:** [redacted]
**Subject:** RE: Dundalk Harbour Sustainable Maintenance Dredging - Consultation
**Date:** Monday 21 December 2020 16:06:26

---

Hello[redacted]

I refer to your email in respect of the above.

The slected vessel operator will need to contact the MSO prior to the operations commencing.

Regards,

[redacted]
*Maritime Services Division*

**An Roinn Iompair**
*Department of Transport*

**Lána Líosain, Baile Átha Cliath, D02 TR60**
Leeson Lane, Dublin, D02 TR60

T +353 (0)1 604 1205
[redacted]@transport.gov.ie www.transport.gov.ie

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**From:** [redacted] [mailto[redacted]@anthonybates.co.uk]
**Sent:** Thursday 17 December 2020 17:10
**To:** MSO
**Cc:** [redacted]
**Subject:** Dundalk Harbour Sustainable Maintenance Dredging - Consultation

Dear Sir/Madam,

Please find attached a consultation document pertaining to minor sustainable maintenance dredging works proposed to be undertaken in Dundalk Harbour's navigational channel.

This activity will ensure safe navigation of the harbour's trade vessels and facilitate further trade.

In advance of a formal foreshore license application for the dredging activity, any comments or queries you have on this project are welcomed.

Kind regards,
[redacted]

[redacted] BEng, PhD, CEng FIEI, ACIArb
Partner
Anthony D Bates Partnership LLP
Dredging, Harbour & Coastal Consultants
IRL Office: Caisleán Beag, Windsor, Ovens, Cork, P31 YR60, Ireland
UK Office: Laburnham Farm, Upper Weare, Axbridge, Somerset, BS26 2LE, England

Mob IRL: +353 [redacted]
Tel UK: +44 1934 732380
Mob UK: +44 [redacted]
Web: www.anthonybates.co.uk

**From:** Manager DAU
**To:** [redacted]
**Cc:**
**Subject:** RE: Dundalk Harbour Sustainable Maintenance Dredging - Consultation
**Date:** Monday 8 February 2021 16:17:48

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Our Ref: **G Pre 00259/2020** (Please quote in all related correspondence)

A Chara,

The Department has reviewed your pre-planning consultation and has no comment to make at this time. No inference should be drawn from this that the Department is satisfied or otherwise with the proposed activity. The Department may submit observations/recommendations at a later stage in the process.

Regards

[redacted]

[redacted]

—

**Aonad na nIarratas ar Fhorbairt**
*Development Applications Unit*

**Bóthar an Bhaile Nua, Loch Garman, Contae Loch Garman, Y35 AP90**
Newtown Road, Wexford, County Wexford, Y35 AP90

—

T +353 (0)53 911 7326
[redacted]
www.chg.gov.ie

—

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**From:** [redacted] [mailto:[redacted]@anthonybates.co.uk]
**Sent:** Tuesday 2 February 2021 3:34 PM
**To:** Manager DAU <Manager.DAU@chg.gov.ie>
**Cc:** [redacted] <[redacted]@anthonybates.co.uk>; [redacted] <[redacted]@gmail.com>
**Subject:** RE: Dundalk Harbour Sustainable Maintenance Dredging - Consultation

Ref: G Pre 00259/2020

Dear Sir/Madam,

Can I query the timeline for the provision of consultation feedback regarding the proposed works at Dundalk Harbour?

Kind regards,
[redacted]

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**From:** Manager DAU <Manager.DAU@chg.gov.ie>
**Sent:** Tuesday 22 December 2020 16:33
**To:** [redacted] <[redacted]@anthonybates.co.uk>
**Cc:** [redacted] <[redacted]@anthonybates.co.uk>; [redacted]@gmail.com>
**Subject:** Dundalk Harbour Sustainable Maintenance Dredging - Consultation

Our Ref: **G Pre 00259/2020** (Please quote in all related correspondence)
Dundalk Harbour Dredging

A Chara

On behalf of the Manager, I acknowledge receipt of your recent consultation. In the event of observations, you will receive a response by email from Development Applications Unit (DAU) on behalf of the Department.

The normal target turnaround is six weeks from date of receipt (One extra week added for Holidays/New Year). If observations are received before this time, DAU will be in contact at that stage.

If you have not heard from DAU and wish to receive an update, please telephone the direct line number below or email manager.dau@chg.gov.ie .

Le meas
[redacted]

[redacted]
*Executive Officer*
—
**Aonad na nIarratas ar Fhorbairt**
*Development Applications Unit*
**Bóthar an Bhaile Nua, Loch Garman, Contae Loch Garman, Y35 AP90**
Newtown Road, Wexford, County Wexford, Y35 AP90
—
T +353 (0)53 911 7326
[redacted]@chg.gov.ie
www.chg.gov.ie
—

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**From:** [redacted] [mailto:[redacted]@anthonybates.co.uk]
**Sent:** Thursday 17 December 2020 5:05 PM
**To:** Manager DAU <Manager.DAU@chg.gov.ie>
**Cc:** [redacted] [redacted]@anthonybates.co.uk>; [redacted]@gmail.com>

**Subject:** Dundalk Harbour Sustainable Maintenance Dredging - Consultation

Dear Sir/Madam,

Please find attached a consultation document pertaining to minor sustainable maintenance dredging works proposed to be undertaken in Dundalk Harbour's navigational channel.

The material dredged is to be brought ashore, as it is a sandy material, and no disposal at sea is proposed to be undertaken.

In advance of a formal foreshore license application for the dredging activity, any comments or queries you have on this project are welcomed.

Kind regards,

[redacted] BEng, PhD, CEng FIEI, ACIArb
Partner
Anthony D Bates Partnership LLP
Dredging, Harbour & Coastal Consultants
IRL Office: Caisleán Beag, Windsor, Ovens, Cork, P31 YR60, Ireland
UK Office: Laburnham Farm, Upper Weare, Axbridge, Somerset, BS26 2LE, England

Mob IRL: +353 [redacted]
Tel UK: +44 1934 732380
Mob UK: +44 [redacted]
Web: www.anthonybates.co.uk



Tá an t-eolas sa ríomhphost seo faoi rún, chomh maith le gach comhad atá ceangailte leis, agus i gcomhair úsáid an duine nó an chórais a bhfuil sé dírithe air amháin. Má fhaigheann tú an ríomhphost seo trí bhotún, cuir scéal chugainn ag webmaster@chg.gov.ie. Tá an ríomhphost seo arna sheiceáil ag scanóir víreas agus dealramh air go bhfuil sé glan.

The information in this email, and any attachments transmitted with it, are confidential and are for the intended recipient only. If you receive this message in error, please notify us via webmaster@chg.gov.ie . This e-mail has been scanned by a virus scanner and appears to be clean.

# Appendix D – Local Consultee Responses

Dundalk Chamber
Advancing business together

Unit 4,
Partnership Court,
Park St.,
Dundalk, Co. Louth.
Tel: 042 933 6343
Fax: 042 935 4942

Email: info@dundalk.ie
www.dundalk.ie

4th March 2021

**Re: Dundalk Harbour Navigation Channel – Maintenance Dredging**

Dear Sir/Madam,

As you are probably aware, in recent years the navigation channel to Dundalk Harbour has become shallower due to natural deposition of sand in the channel. This is causing difficulties and severe restrictions for ships of a certain size entering and exiting the Harbour. The main area of concern for navigation is the channel in the vicinity of Soldiers Point.

Over the past year a number of ships had to cancel scheduled visits to Dundalk Harbour due to the restrictions on accessing the Harbour at certain states of the tie.

In order to maintain the viability of the Harbour and greatly improve the navigation access, a company is proposing to carry out maintenance dredging at Soldiers Point, and are currently preparing a foreshore license application for Dundalk Harbour for a proposed maintenance dredging scheme at Soldiers Point in the navigation channel.

Dundalk Chamber of Commerce would support this operation and wish them every success as we feel this is vital for both the town and employment in the area.

Your sincerely

[redacted]

**PRO Dundalk Chamber of Commerce**

23rd December 2020

***Re: Dundalk Harbour Navigation Channel - Maintenance Dredging***

To whom it may concern,

We the undersigned trawler owners fully support the proposed maintenance dredging proposed for Soilders Point, Dundalk, Co. Louth. If this work is completed it will ensure we can use the channel not just at high tide but also at low tide.

Currently access to the channel is restricted at low tide and the proposed maintenance dredging will enable us to work on a less restricted time line and more importantly improving safety when the channel is being used as well, particularly in times of bad weather when the swell reduces underkeel clearance.

Owner Name: Boat name: Signature:

[redacted]

# Councillor [redacted]

[redacted]

5th March 2021

**Re: Dundalk Harbour Navigation Channel Maintenance Dredging**

Dear Sir/ Madam,

I refer to the Navigation Channel to Dundalk Harbour which has become shallow over the years due to the natural accumulation of silt being deposited in the channel.

This is causing severe restrictions for commercial ships of a certain size entering and exiting the Harbour. The main area for concern in the channel is in the vicinity of the Soldier's Point area. I am aware that over the past year a number of ships have had to cancel scheduled stops to Dundalk due to the restrictions on accessing the harbour at certain times of tide.

In order to maintain the viability of the Harbour and greatly improve the navigation access. Anthony D Bates Partnership are currently preparing a foreshore licence application for Dundalk Harbour for proposed maintenance Dredging Scheme at Soldier's Point in the navigation channel.

As the current chairperson of Dundalk municipal area I would be in support of this operation, taking into account that the foreshore licence is issued in compliance with all the usual legal requirements in regard to same. This would ensure, that if successful, not only the viability of the Dundalk Port but also bring further positive economic activity to the town of Dundalk and the surrounding areas.

[redacted]

***Councillor*** [redacted]

*49 Fair Street,*
*Drogheda,*
*Co. Louth.*

*Landline: 041 9847002 Mobile:* [redacted] *Email:* [redacted] *louthcoco.ie /* [redacted] *@gmail.com*

[redacted]

[redacted]
**Independent TD**
Louth Constituency

**Constituency Office: 2 Courthouse Square, Dundalk, Co. Louth**
**Tel:** 042 93 30100
**Fax:** 042 93 36014
**Mobile:** [redacted]

**Dáil Éireann, Leinster House, Kildare Street, Dublin 2.**
**Dáil Tel:** 01 6183563
**E Mail:** [redacted]@oir.ie

09th March 2021

**RE: Dundalk Harbour Navigation Channel – Maintenance dredging**

A Chara,

I am today contacting you in relation to the above-mentioned Navigation Channel at Dundalk Harbour.

It has been brought to my attention that Dundalk Harbour has become shallower due to natural sand deposition in this area.

I have been informed that in the past 12 months, Dundalk Harbour have received several cancelations of vessels scheduled, due to the problems accessing the harbour at certain states of the tide.

I understand that the dredging of the approach channel is required at this stage to ensure the port can continue to provide services to our local businesses and the wider public.

In order to facilitate this maintenance Dundalk Port is preparing a foreshore licence application for a proposed maintenance dredging scheme at the congestions within the navigation channel.

I would like to state my support for this application, subject to all the usual environmental and planning considerations.

[redacted]

Sinn Féin

Sinn Féin,
1-2 Crowe Street,
Dundalk,
Co. Louth.
(01) 6184060
[redacted]@oireachtas.ie

[redacted]

Feabhra 19, 2021

A chara,

**Re: Dundalk Harbour Navigation Channel – Maintenance dredging**

I write in relation to the navigation channel at Dundalk Harbour which has, as you may be aware, become shallower due to natural sand deposition at this location.

I have been informed that is causing difficulties for ships of a certain size entering and exiting Dundalk Harbour and the main problem for navigation seems to be in the channel close to Soldier's Point.

I understand that in the past 12 months, a number of vessels cancelled scheduled visits to Dundalk Harbour because of the problems accessing the harbour at certain states of the tide.

It has been brought to my attention that the dredging of the approach channel is a necessity at this point to ensure the Port can continue to serve the local businesses and wider public.

To facilitate this maintenance the Port is preparing a foreshore licence application for a proposed maintenance dredging scheme at the bottlenecks within the navigation channel.

I wish to state my support for this application, subject to all the usual planning and environmental considerations.

Please feel free to contact me about this letter on [redacted] or email: [redacted]@oireachtas.ie.

Is mise,

[redacted]

GREAT GLEN SHIPPING Co

Corpach, Fort William 13th Jan 2021

**Draft Restrictions Dundalk Port**

To whom it may concern,

We at Great Glen Shipping Company Ltd can confirm our full support for the final application to carry out the dredging at Dundalk Port, scheduled to take place in near future. We would welcome this as fantastic news for the port.

Our coastal vessels are regular visitors to the Port of Dundalk and although the port gives us a fantastic turnaround, we are often restricted for visits due to water depth limitations at the port and can only really enter around Spring Tides.

We have noticed an increase in cargoes to and from Dundalk over the last 12/18 months and it is our hope that this continues to grow. If Dundalk receives the necessary dredging, we believe this will help our business and are sure it will have many positive results for businesses in and around Dundalk.

You sincerely

[redacted]

Managing Director

Great Glen Shipping Company Ltd, Corpach, Fort William PH33 7NB
Tel: 01397 772 944 Email: office@greatglenshipping.co.uk Registered in Scotland No 372528
Directors: L Browning, C MacColl, D Cannell, M Boyd

GLASSCO
RECYCLING

13th January 2021

**Glassco Recycling activity through Dundalk Port**

To whom it may concern

Glassco Recycling is Ireland's largest collector and processor of post-consumer glass packaging. The company exports bulk recycled glass by ship to customers in the UK and to locations in continental Europe. We have taken vessels into Dundalk Port for a number of years now to export this material and we consider the port a very important part of our logistics supply chain. On average, our vessels leaving Dundalk Port carry 2500mts of cargo and, given that the port is one of very few waste-permitted ports on Ireland's east coast, we also use the port for storage of material prior to it being loaded onto vessels.

Draft restrictions in Dundalk Port cause us both delays and problems in sourcing vessels and cargo out via Dundalk Port. When sourcing a vessel for a shipment, our options are severely limited given the current draft restrictions. Smaller capacity vessels have to be engaged to suit the current draft restrictions as opposed to us being able to match our customers order volumes. While there are options to use alternative ports which can accommodate larger vessels, these ports are not able to provide the same waste-permitted storage and haulage services that Dundalk port can offer.

We would support and appreciate any initiative to help the port be more accessible for larger vessels and we would therefore consider the proposed dredging programme as a vital operational requirement to resolve the present problems in terms of draft restriction.

Yours sincerely,

[redacted]

General Manager
Glassco Recycling

Glassco Recycling Ltd, Unit 4 Osberstown Ind. Park, Caragh Road, Naas, Co. Kildare, W91 PF54, Ireland
**Tel Dublin:** +353 (0)1 6854400 **Fax:** +353 (0)1 4430621
**Tel Cork:** +353 (0)21 2429900 **Fax:** +353 (0)21 4580529
**Tel Galway:** +353 (0)91 395400 **Fax:** +353 (0)91 394066
**Web:** www.glassco.ie **E-mail:** info@glassco.ie
**National Waste Collection Permit No:** NWCPO-08-01150-03 **Licence No:** W0279-02

**Registered in Ireland No:** 365472 **Registered Office:** Unit 4 Osberstown Industrial Park, Caragh Road, Naas, Co. Kildare, Ireland
**Directors:** D. Cooper, Z. Mustafa (Managing), M. Sherling

To whom it may concern

We would like to support the application for the dredging of Dundalk Port. Over the last 9 months we at EMR have experienced considerable difficulties with a number of vessels, having been chartered for loading in Dundalk, loaded only part cargo due to insufficient water. This has lead to considerable expense to us.

It is becoming more difficult for EMR to charter vessels to Dundalk as owners deduct a further 0.60meters from predicted tides, therefore restricting the number of suitable vessels. EMR have a long association with Dundalk Port and want to continue to use the port.

We hope the department of marine will look on this application favourably.

Yours sincerely,

[redacted]
Vessel Operations Manager
European Metal Recycling Ltd

RECYCLING TO CREATE RESOURCE
European Metal Recycling
Sirius House, Delta Crescent, Westbrook,
Warrington, WA5 7NS
T: +44 (0)1925 715400 F: +44 (0)1925 712480
E: info@emrltd.com www.emrltd.com

EIRCEM LTD
INDEPENDENT CEMENT SUPPLIERS

Naas Industrial Estate
Naas, Co.Kildare, Ireland

Distribution Depot:
South Quay, Wicklow Port,
Wicklow Town, Co.Wicklow

Tel: (+353) 45 897 558
Mobile: (+353) 87 255 8521
Email: eircem@gmail.com

12 January 2021

To whom it may concern

We are an importer who distributes cargo through Ireland. We have taken vessels into Dundalk Port for a number of years now and consider the port a very important part of our business. On average our vessels take in 2500mts of cargo and is currently stored in Dundalk Port also.
Over the years draft restrictions in Dundalk Port have caused a number of delays and issues when trying to secure vessels and cargo for Dundalk Port, our customers have suggested entering other ports local to Dundalk but where those ports can take a larger tonnage they are not able to provide the same storage and haulage services that Dundalk port can offer which in turn will cost more in the long run.
We would support and appreciate any initiative to help the port be more accessible for larger vessels therefore we consider the proposed dredging programme as a vital operational requirement to resolve the present problems in terms of draft restriction.

Yours sincerely

[redacted]
Managing Director
Eircem Limited

Directors:
Peter Goode (Managing), Tom Goode
VAT No: IE 9827086D.
Registered in Ireland No: 511229

Maritime Chartering Ltd
Shipbrokers

20 Lower Main Street,
Arklow, Co. Wicklow,
Ireland.

telephone: 353 402 39424
telefax: 353 402 39443
e-mail: chartering@marichart.ie

12th January 2021

To Whom It May Concern

Re. Dundalk Port

We are a shipbroking company specialising in dry bulk cargo in the coastal and short sea trades.

For over 20 years now we have been chartering vessels in/out of Dundalk port.

Dundalk is a very convenient location for our customers and only 10 mins from the M1 motorway.

The only problem is the draft restriction in the port which makes it very difficult to secure vessels.

Owners deduct a 60 cm safety margin from the tidal predictions to avoid getting neaped and this severely restricts the number and size of suitable vessels.

Vessels have been diverted to other ports due to insufficient water which results in time loss and additional costs for all concerned.

Needless to say Dundalk port needs dredging and we would support any application to get that done.

[redacted]

# O'Hanlon Shipping Services

Georges Quay
Dundalk
Co Louth

Tel: 042 9334096
Mob: 087 0903133
Email: agent@ohanlonshippingservices.ie

11.01.21

To whom it may concern

O'Hanlon Shipping Services has worked in Dundalk port for over 30years providing a number of services such as Stevedoring, haulage, warehousing and in recent years agency services.

At Dundalk Ports peak 100 plus vessels were entering the port throughout the year and in recent years that figure has more than halved and the main cause of this is the condition of Dundalk River at Soldiers Point and turning circle in Port.

Presently we have to deduct 0.60 mtrs from the predicted tides and this is causing our customers problems and additional expense fixing suitable vessels to enter Dundalk.

Due to number of larger competitive ports in surrounding areas such as Warrenpoint, Greenore, Drogheda we have had to turn down business as we have not been able to compete with the tonnage that can be imported/exported by other local ports due to our draft restriction.

Failure to carry out dredging in Dundalk Port may result in closure of the port and therefore this will have a direct affect on Local business and employment.

Yours sincerely

Sean O'Hanlon



*NOTE: Frost, high pressure and northerly winds can cut the tides in Dundalk Port*