OFFICE OF ENVIRONMENTAL SUSTAINABILITY

INSPECTOR’S REPORT ON A DUMPING AT SEA PERMIT APPLICATION

To: Dr Eimear Cotter, Director
From: Ciara Maxwell, Inspector, Environmental Licensing Programme
Date: 2 July 2018
RE: Application for a Dumping at Sea Permit from Donegal County Council, Permit Register No. S0011-03.

Application Details

<table>
<thead>
<tr>
<th>Description of activity:</th>
<th>The application is for the dumping at sea of 64,000 tonnes of dredged material from Buncrana Harbour.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permit application submitted:</td>
<td>2nd March 2018</td>
</tr>
</tbody>
</table>
| Public notice: | 14th March 2018 (Irish Times)  
16th March 2018 (Donegal News) |
| Site visit: | None |
| Submissions received: | Lough Swilly RNLI (29th March 2018) |
| Comments from notified consultees received: | Department of Agriculture, Food and the Marine (10th May 2018)  
Department of Culture, Heritage and the Gaeltacht (2nd May 2018) |
| Comments from Dumping at Sea Advisory Committee received: | Marine Institute (18th May 2018) |
| Section 5(2) Notice issued: | 14th June 2018 |
| Response to Section 5(2) received: | 28th June 2018 |

1. Introduction

This application relates to the proposed dumping at sea of material arising from maintenance dredging at Buncrana harbour by Donegal County Council over an eight-year timeframe. Buncrana is located on the eastern shore of Lough Swilly on the Inishowen Peninsula of Co. Donegal. The pier at Buncrana consists of a long permanent construction that forms the quay for fishing boats, the Lough Swilly RNLI lifeboat and Lough Swilly car

1 RNLI: Royal National Lifeboat Institution. A charity established to save lives at sea.
ferry (seasonal). The Mill River outfalls to Lough Swilly alongside Buncrana Pier and the Crana River discharges to Buncrana Bay approximately 1 km north of Buncrana. According to the applicant it is necessary to maintain a navigable depth of -2.5m chart datum (CD) to provide full access for Lough Swilly RNLI lifeboat and other pier users, at all tide stages and throughout the year, as well as ensuring safe use and berthing at the Buncrana - Rathmullan car ferry slip at the northern side of the pier.

Maintenance dredging at Buncrana Pier is an ongoing requirement given the inflow of sediments from the Mill River along the pier and deposition of sand/gravel accumulating from coastal processes, including shifting sand bars in the harbour.

Dredging of amounts up to 15,000 - 20,000 tonnes per annum has been carried out, under permit, in this area since 1999. The most recent permit, issued by the EPA on 20th August 2014, Reg. No. S0011-02, authorised dredging of up to a maximum of 20,000 tonnes per year over a three-year period. This application is for an annual quantity of 8,000 tonnes.

2. Consideration of alternatives to dumping at sea

The applicant considered a number of alternative options for disposal and re-use of the material including:

a) Disposal on land at a waste facility
b) Deposit within a marine structure
c) Land reclamation on the coast or inland
d) Re-used on land in combination with another activity (e.g., agriculture)
e) Disposal at sea – at proposed dumping site within estuary or dumping elsewhere
f) Disposal at sea via plough dredging

Options (a) and (d) were discounted due to lack of suitable temporary storage area, the saline quality of material which may render it unsuitable for landfill or re-use in agriculture and the increased scale of vessel and time involved in what would become a complex operation to remove and transport a relatively small quantity of material from shallow water depths.

Option (b) was ruled out as in the short to medium term there are no suitable marine or land edge coastal structures to take engineering fill material, which would require prior dewatering and be of suitable composition to be used as bulk fill.

Option (c) is not considered practical as there are no suitable areas requiring reclamation or coastal protection adjacent to the harbour or inland at suitable distances and the practicality of depositing clean, dry and suitable dredge spoil is not technically feasible given the short dredge window (approximately 7 to 10 days per biannual campaign).

Option (e) considers the suitability of the proposed dumping site which has been subject to a series of DAS permits and plough dredging at this location has proven effective, practical and cost effective. There are no other former or current dumping areas within Lough Swilly or in nearby coastal waters of North Donegal which could be utilised.

Option (f) investigates the benefits of redistributing naturally occurring material within the harbour by plough dredging as opposed to having separate loading and dumping sites. According to the applicant, in this specific case disturbance is minimised due to the coarse gravel/sand grain size which means that the material will drop out of suspension in the immediate area of dredging. Thus, the proposed activity mimics what happens in nature when there are high levels of suspended material occurring naturally in the water body (e.g., during storms/floods).

The applicant concludes that the situation at Buncrana Pier is ideally suited to a plough dredger, as it can be easily and quickly deployed. The method ensures local deposition within the dumping site with no negative environmental effects.
3. Operation description

The chart included with the application shows that dredged material will be dumped by plough dredging in the area shown in Appendix 1. The proposed dredging will reduce bed levels to the design depth (-2.5m CD) and the dredge material will be deposited into deeper water beyond the -2m CD contour. The proposed operation is described in Table 1 below.

<table>
<thead>
<tr>
<th>Operation</th>
<th>Comment</th>
</tr>
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<tbody>
<tr>
<td>Type of activity</td>
<td>Dumping</td>
</tr>
<tr>
<td>Reason for operation</td>
<td>Maintenance</td>
</tr>
<tr>
<td>Method of dumping</td>
<td>Plough dredging</td>
</tr>
<tr>
<td>Estimated time to complete</td>
<td>2 campaigns per year, each taking approximately 7 to 10 days</td>
</tr>
<tr>
<td>Multi-annual permit application</td>
<td>Yes; 8-year timeframe (commencing Summer 2018)</td>
</tr>
<tr>
<td>Maximum tonnage</td>
<td>64,000</td>
</tr>
<tr>
<td>Maximum annual rate (tonnes)</td>
<td>8,000</td>
</tr>
</tbody>
</table>

4. Characteristics of the material for disposal

Six sediment samples (S1 - S6) were taken from Buncrana harbour. These samples were analysed for granulometric and chemical composition on 22nd December 2017 - two for the full suite of analysis and four for a reduced suite. The sampling programme was developed and conducted by the applicant in consultation with the Marine Institute. Granulometrically the samples analysed consisted of gravel (0.1% - 3.9%); sand (66.9% - 99.5%) and silt-clay (0.4% - 32.2%). Organic carbon levels were low (0.18% – 2.78%). The chemical composition of the sediment samples analysed is summarised in Table 2 below, with reference to published Irish action levels. Sediments below the lower level (Class 1 sediments) are considered essentially clean and suitable for dumping at sea, sediments that exceed the upper level (Class 3 sediments) are considered unsuitable for conventional dumping at sea, while sediments between the upper and lower action levels (Class 2 sediments) must be assessed for dumping at sea using a weight of evidence approach.

In general, Irish marine sediments contain concentrations of nickel and arsenic which are often above the lower action level (AL), even in areas where no source of contamination exists, reflecting natural background levels, whereas elevated concentrations of other parameters typically indicate inputs from anthropogenic sources.
Table 2: Composition of the material for disposal with reference to Irish Action Levels.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Result (no. of samples)</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Class 1 sediments</td>
<td>Class 2 sediments</td>
</tr>
<tr>
<td>Arsenic</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Cadmium</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>Chromium</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>Copper</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>Nickel</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>Lead</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>Mercury</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>Zinc</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>TBT &amp; DBT Note 1</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>γ-HCH (Lindane) Note 2</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>HCB Note 3</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>PCB Note 4</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>PCB Note 5</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>PAH Note 6</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>TEH Note 7</td>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>

Note 1: Sum of tri-butyl and di-butyl tin.
Note 2: Gamma-hexachlorocyclohexane.
Note 3: Hexachlorobenzene.
Note 5: Sum of ICES 7 polychlorinated biphenyls (PCB 028, PCB 052, PCB 101, PCB 138, PCB 153, PCB 180, PCB 118).
Note 6: Sum of 16 polycyclic aromatic hydrocarbons (Naphthalene, Acenaphthylene, Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Dibenzo(a,h)anthracene, Benzo(ghi)perylene, Indeno(123-cd)pyrene).
Note 7: Total extractable hydrocarbons

The Marine Institute was consulted as part of the assessment (Section 7 below) and noted that the concentrations of determinands classify these sediments as Class 1, according to the 2006 ‘Guidelines for the Assessment of Dredge Material for Disposal in Irish Waters’. While two arsenic results are above the lower action level, this has been evident in previous testing and can be attributed, in all probability, to the natural background geology. The laboratory quality assurance is satisfactory. According to the Marine Institute, the material can be considered to be essentially clean and in view of the relatively low quantities involved, suitable for dumping at sea, in the absence of a feasible alternative.

The Agency is satisfied that the dredged material in question is suitable for dumping at sea subject to the conditions included in the recommended permit (RP). The applicant is required to continue to investigate alternative re-use options for the dredged material and report on its investigation as part of the annual environmental report (AER), in accordance with Condition 3.7.
5. Receiving environment and impact

As part of the assessment, the potential impacts of the proposed dumping activity on the marine environment were examined (see Table 3 below).

Table 3: Characteristics and sensitivity of the dumping site.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Classification</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Receiving waterbody</td>
<td>Crana Estuary (IE_NW_220_0400) Lough Swilly (IE_nw_220_0000)</td>
<td>WFD transitional water body WFD coastal water body</td>
</tr>
<tr>
<td>WFD overall status</td>
<td>Crana Estuary: Not monitored Lough Swilly: High Status</td>
<td>WFD Status 2010 - 2015</td>
</tr>
<tr>
<td>Designated Bathing Waters</td>
<td>Lady's Bay, Buncrana (PA3_0030) ~ adjacent to the dumping site Lisfannon (PA3_0034) ~ 1.5km south of the dumping site Rathmullan (PA3_0029) ~ 4km south east of the dumping site</td>
<td>• Lady's Bay was classified as achieving Sufficient Water Quality in 2017 based on the assessment of bacteriological results of the period 2014-2017. • Lisfannon and Rathmullan achieved ‘Good Quality’ status in 2017.</td>
</tr>
<tr>
<td>WFD Protected Areas</td>
<td>Lough Swilly (IEPA2_0042) shellfish growing area</td>
<td>The dumping site is located approx. 1.5km from the boundary of the shellfish growing area.</td>
</tr>
<tr>
<td>Special Area of Conservation (SAC)</td>
<td>Lough Swilly SAC (002287)</td>
<td>Designated for five habitats, including priority habitat coastal lagoons, and the species Otter, <em>Lutra lutra</em>. The proposed plough dredging will take place within the SAC boundary.</td>
</tr>
<tr>
<td>Special Protection Area (SPA)</td>
<td>Lough Swilly SPA (004075)</td>
<td>Designated for multiple bird species and the habitat Wetlands. The SPA boundary is ~1.8km south of the dumping site.</td>
</tr>
<tr>
<td>Resource Use</td>
<td>Aquaculture, commercial fishing</td>
<td>Shellfish and salmon fisheries. Nearest licensed oyster farm ~ 3km north east of dumping site.</td>
</tr>
<tr>
<td>Amenity Use</td>
<td>Angling, sailing, car ferry, Lough Swilly RNLI Lifeboat Station, links golf courses (Buncrana &amp; Lisfannon).</td>
<td>Well-developed tourism infrastructure, including <em>Lough Swilly Ferry</em> which operates from Buncrana to Rathmullan (June - September), connecting Inishowen and Fanad peninsulas.</td>
</tr>
<tr>
<td>Other considerations</td>
<td>Buncrana waste water treatment plant (WWTP) is located due east of the Pier, adjacent to the south bank of the Mill River [WW Discharge Licence Reg. No. D0125-01].</td>
<td>The discharge pipe from the primary WWTP extends from the foreshore into the Lough; the end of the diffuser head extends outside of the proposed dumping site.</td>
</tr>
</tbody>
</table>

Lough Swilly is a long, relatively narrow sea inlet that lies between the Inishowen and Fanad peninsulas. The Lough is naturally deep, with depths down to -22m CD in places.
The harbour is subject to rapid siltation and requires ongoing maintenance dredging to ensure navigable water depths in the approach channel, at the pier, RNLI berth and at the slipway.

**Previous use of the dumping site**
The total area of the dumping site is approximately 0.3km² (27.45 hectares), within which most of the sediment generated from the plough dredging is likely to disperse and settle, according to the sediment dispersion modelling report submitted.

The proposed dumping site has been used previously by Donegal County Council, most recently during two dredging campaigns in 2017 under permit Reg. No. S0011-02. The total quantity dumped in 2017 was 6,888 tonnes\(^2\). The site was selected by Donegal County Council for various reasons: including avoidance of shipping lanes, navigation routes, known archaeological features and areas designated for shellfish production. A bathymetric survey was completed in November 2017 which shows an area of deeper water below the -2m CD contour due west of the pier head. The falling sea bed levels and deeper water together with evidence of a natural depression (with depths exceeding -5m CD) demonstrates that there is ample capacity to receive the material.

**Sediment dispersion modelling**
A 3D depth integrated hydrodynamic model of a section of Lough Swilly was developed to model the sediment transport associated with the proposed dumping activity. The results of modelling were submitted in the Modelling Assessment Report (February 2016). The simulated peak tidal current used in the model for the proposed dredge area was 0.2m/s, which is predicted to give the likely worst case dispersion characteristics for a dredging campaign. The plough dredging activity is simulated by introducing a discharge of sediment for a set period of time at a set velocity. Four different scenarios were modelled, including dumping for 6 days or 13 days at varying daily dredge quantities.

Modelling total dredge quantities of 8,000 tonnes and 4,000 tonnes demonstrated that despite modelling scenarios with different volumes and durations, the net effect is that most of the sediment settles out of suspension within the proposed dumping site. For dredging of material over 6 or 13 days (4,000 tonnes - 8,000 tonnes, respectively), the model predicts low levels of cumulative sedimentation (approximately 70mm - 100mm).

Input data used in the model is discussed further in Section 8: Comments from Notified Consultees below.

The proposed dredging activity will result in an increase in suspended sediment concentrations through disturbance of the seabed. This may result in the localised smothering of benthic communities. However, given the dynamic nature of the dumping site, with strong current flows and tidal streams, the impact on benthic communities is predicted to be minimal. Given the characteristics of marine sediments in the area, and the natural tidal movement to which re-suspended sediment will be subjected to, it is expected that disturbed material will settle out quickly and evenly within the dumping site, as indicated by the sediment transport modelling undertaken.

The main potential impact on water quality from the proposed activity is increased suspended solids/turbidity in the water column. Considering the clean, sandy nature of the materials to be plough dredged, the small volumes involved, the short duration of the proposed dumping campaigns and the characteristics of the receiving environment, the

\(^2\) Data from AER Return 2017 available on EPA website at http://www.epa.ie/licences/leDMS/090151b280684e4a.pdf
proposed activity, if conducted in accordance with the conditions of the recommended permit, is unlikely to have any significant adverse impact on the receiving water.

**Schedule C.1: Monitoring at Plough Dredging Sites** requires the applicant to conduct pre-dredge and post-dredge bathymetric surveys of the dumping site to ensure the material is gradually and evenly dispersed within the dumping site.

**Water Framework Directive (WFD)**

In assessing the application, regard was had to the potential impact of the proposed dumping activity on the receiving transitional and coastal water bodies meeting their objectives under the WFD. The proposed dumping activity is within Crana Estuary (IE_NW_220_0400) transitional waterbody and Lough Swilly (IE_NW_220_0000) coastal waterbody. The Crana Estuary is not monitored under the WFD while the Lough Swilly achieved High Status (WFD Status 2010 – 2015).

The main potential impact on water quality from the proposed dumping activity is increased suspended solids/turbidity in the water column, which could impact benthic invertebrates. Currently, both Lough Swilly and Swilly Estuary are classified as high for benthic invertebrates. Given the physical and chemical characteristics of the material to be plough dredged at Buncrana Harbour which consists of coarse, clean, recently deposited sand; the relatively small quantities involved (8,000 tonnes per annum); the intermittent nature of the activity (7 – 10 days on a biannual basis); the characteristics of the receiving environment and its previous use as a dumping site, the proposed activity is unlikely to have any significant adverse impact on water quality or benthic communities.

**Designated bathing waters**

Table 3 above outlines the nearest designated bathing areas to the proposed dumping site, including Buncrana’s local sandy beach, Lady’s Bay, which lies north of Buncrana Pier and within the proposed dumping site. It is noted that the applicant does not propose to dredge north of the pier. What the applicant terms ‘loading area’ - although no physical loading of material is proposed - is the zone from which sediments will be mobilised by plough dredging. This area comprises the berthing area on the southern face of Buncrana Pier and the approach channel to the harbour (Figure 1). Sediment will be ploughed from these inshore areas and drawn further out into Lough Swilly. The area within which the material may disperse and settle has been proposed by the applicant as the ‘dump site’.

The Agency notes that plough dredging is defined in the Dumping at Sea Act 1996 as amended, as a dumping activity. For this reason, the ‘dumping site’ specified in **Schedule A.2** and illustrated in Appendix 1 encompasses the entire area over which dumping activity will take place, i.e., including both the ‘loading area’ and the ‘dump site’, as referred to by the applicant in the application documentation.
Figure 1. Drawing shows ‘loading area’ in Yellow, from which material will be mobilised via plough dredging. The southern end of Lady’s Bay beach is visible just north of Buncrana Pier. The full extent of the dumping site is shown in Appendix 1.

Given the sandy nature and quantity of the material to be dumped the proposed dumping activity will not have an impact on designated bathing waters. Condition 4.5 and Schedule C.2: Sediment Monitoring requires repeat granulometric and chemical sampling analysis of marine sediments every 3 years (i.e., 2021 and 2024) prior to resuming maintenance dredging campaigns.

Shellfish Area
Lough Swilly is a designated shellfish area for oysters and mussels as well as an important fishery for the native or wild oyster (Ostrea edulis). The nearest designated Shellfish Area, Lough Swilly shellfish growing area, is approximately 1.5 km west of the dredging area. Due to the clean nature of the sediments proposed to be plough dredged and the limited scale and short duration of the operations (7 – 10 days twice a year), the proposed activity is not expected to have a significant effect on the shellfish waters. Sediment dispersion modelling undertaken has indicated that, given the nature of the material, most of the mobilised sediment will remain within the dumping site. The current status of the Shellfish Area is discussed further in Section 8 (Comments from Notified Consultees) below.

Archaeology
The applicant submitted a desktop archaeological impact assessment report (dated February 2018) which assesses Buncrana’s archaeological heritage on the basis of various documentary sources. The report concludes that given that the area was plough dredged several times in the past, the likelihood of impacting significant archaeological material is negligible.

Benthic Fauna
A benthic survey of the proposed dumping site was undertaken to determine baseline benthic communities. Fauna and sediments were analysed from at 5 sampling stations; four within the dumping site and one control site further west in the Lough. Granulometric data from the 5 stations classifies the sediment as sand, muddy sand and slightly gravelly
muddy sand. All species recorded were found to be typical of the sandy and muddy habitats encountered. The habitats identified were ‘Fine sand community complex’, located inside the -2m CD contour and ‘Muddy fine sand with Thyasira flexuosa’ outside the -2m contour line. Variations in the community type and dominating species between the sampling stations was evident, as is common in the natural environment.

Sediment dispersion modelling of the proposed dumping activity predicts levels of sedimentation of approximately 70mm to 100mm which may have localised effects (e.g., smothering, physical impacts) on marine benthic species. Sediment deposition of 100mm within seabed environments can commonly occur due to natural coastal currents and storm events and are not significant in nature. Temporary loss of habitat will occur during the dumping activity after which the natural cycle of deposition and erosion will continue and over a short period of time the seabed habitat will re-adjust and settle. Given the dynamic nature of the dumping site, with strong current flows and tidal streams, the impact on benthic communities is predicted to be minimal.

Marine Mammal Risk Assessment
The potential impacts on marine mammals from the proposed dumping activity has been addressed in a Marine Mammal Risk Assessment (MMRA), dated December 2017. The cetacean species most regularly occurring in within a 20km radius of the proposed dumping site are Harbour Porpoise and Bottlenose Dolphin. Low numbers of Common Dolphin, Minke Whale, Harbour and Grey Seal and Otter are recorded. The occurrence of Basking Shark sightings in the Lough (14 no. in the period 2000 – 2017) is noted. Most sightings occurred north of Buncrana. The MMRA notes that while suitable habitats are available for marine mammals, numbers along the north coast of Ireland do not reach the levels evident in the south, east and west. The MMRA included an assessment of the impact of increased suspended solids/turbidity and noise associated with the dredging activity on marine mammals and concluded that the risk to marine mammals is insignificant as the harbour is used very infrequently by marine mammals, in low numbers, and the proposed dredging activities are infrequent and of short duration.

The MMRA recommends the use of a dedicated Marine Mammal Observer to monitor marine mammals within a 500 metre radius of the activity prior to commencement of dredging operations, in accordance with DAHG Guidance 2014. A mitigation zone of 100 metres from the dredging vessel is proposed for pre-start mitigation, whereby if a mammal is sighted during a 30-minute pre-start watch, start-up must be delayed until the mammal has either been observed to move outside the mitigation zone or 30 minutes has elapsed since it was last sighted within the mitigation zone. The proposed mitigation is also addressed in Section 8 (Comments from Notified Consultees) below. The report concludes that subject to the mitigation proposed it is unlikely that the dumping activity will present a risk to marine mammals. Condition 4.6 requires marine mammal monitoring of the dumping activity by a Marine Mammal Observer for the duration of the activity.

6. Compliance with EU Directives and international conventions
In considering the application, regard was had to the London and OSPAR Conventions and the Water Framework, Bathing Water, Habitats, Birds and Marine Strategy Framework.

<table>
<thead>
<tr>
<th>Compliance with Directives/ Regulations</th>
<th>Description and Conditions in RP</th>
</tr>
</thead>
</table>

3 Guidance to Manage Risk to Marine Mammals from Man-made Sound Sources in Irish Waters (Department of Arts, Heritage and the Gaeltacht, 2014).
London Convention (and Protocol) and OSPAR Convention

Condition 6 and Schedule D: Annual Environmental Report of the RP requires the permit holder to submit an annual OSPAR dumping report as part of the Annual Environmental Report. The recommended permit (RP), as drafted, fulfils the requirements of the OSPAR and London Conventions.

Water Framework Directive [2000/60/EC]

High Status to be maintained in Lough Swilly coastal waterbody.

Bathing Water Directive [2006/7/EC]

No significant impact expected. Condition 4.5 and Schedule C.2: Sediment Monitoring requires repeat granulometric and chemical sampling analysis of marine sediments every 3 years.


The proposed operations will not impact on the achievement of the MSFD objectives for the affected coastal waters. In particular, Condition 2.8 of the RP will ensure that marine litter is controlled.


The proposed dumping activity is within the Lough Swilly SAC and is approximately 1.8 km north of Lough Swilly SPA; protected sites under the Habitats and Birds Directives, respectively. These sites were determined to lie within the zone of influence of the proposed dumping activity. Appendix 2 lists the European Sites assessed, their associated qualifying interests and conservation objectives, and the assessment of the effects of the activity on the European Sites.

A screening for Appropriate Assessment was undertaken to assess, in view of best scientific knowledge and the conservation objectives of the site, if the proposed activity, individually or in combination with other plans or projects is likely to have a significant effect on any European Site. In this context, particular attention was paid to the European Sites at Lough Swilly SAC (Site Code: 002287) and Lough Swilly SPA (Site Code: 004075).

The proposed activity is not directly connected with or necessary to the management of any European Site and the Agency considered, for the reasons set out below, that it cannot be excluded, on the basis of objective information, that the proposed activity, individually or in combination with other plans or projects, will have a significant effect on any European Site and accordingly determined that an Appropriate Assessment of the proposed activity was required.

This determination is based on the unconfined nature of the proposed activity, and the location of the dumping site within Lough Swilly SAC and within 2 kilometres of Lough Swilly SPA, which could have potential negative ecological impacts on the European Sites and their qualifying interests. A Natura Impact Statement, dated February 2018, was submitted as part of the permit application.

An Inspector’s Appropriate Assessment has been completed and has determined, based on best scientific knowledge in the field and in accordance with the European Communities (Birds and Natural Habitats) Regulations 2011 as amended, pursuant to Article 6(3) of the Habitats Directive, that the proposed activity, individually or in combination with other plans or projects, will not adversely affect the integrity of any European Site, in particular
Lough Swilly SAC and Lough Swilly SPA, having regard to their conservation objectives and will not affect the preservation of these sites at favourable conservation status if carried out in accordance with this recommended permit and the conditions attached hereto for the following reasons:

- The material to be dumped consists of essentially clean sediment of natural origin. Repeat granulometric and chemical sampling analysis of marine sediments is required every 3 years (i.e., 2021 and 2024) prior to resuming maintenance dredging campaigns to demonstrate ongoing suitability of sediments for dumping at sea (Condition 4.5 and Schedule C.2: Sediment Monitoring of this permit).
- The duration of dredging will be short; typically, two 7-10 day campaigns a year, and Schedule A.1: Limitations of the recommended permit (RP) restricts the annual quantity of dumping to 8,000 tonnes.
- Sediment dispersion modelling has predicted localised temporary sedimentation at levels of, 70mm to 100mm, which will have little additional effect on water quality or benthic communities in this dynamic environment.
- Dumping activities shall be confined to daytime only, primarily for the protection of the Lough Swilly SAC qualifying species, Otter _Lutra lutra_ (Condition 2.2).
- A Marine Mammal Observer shall be appointed to monitor dredging activities in accordance with the monitoring and reporting requirements of the National Parks and Wildlife Service and a mitigation zone of 100 metres from the dredging vessel for pre-start mitigation shall be implemented (Condition 4.6).

In light of the foregoing reasons no reasonable scientific doubt remains as to the absence of adverse effects on the integrity of the European Sites, Lough Swilly SAC (Site Code: 002287) and Lough Swilly SPA (Site Code: 004075).

### 7. Advisory Committee Comments

A Dumping at Sea Advisory Committee has been established under Section 41 of the EPA Act 1992 as amended. The role of the Advisory Committee is to provide consultation and technical advice to the Agency on aspects of the dumping at sea permitting function, in accordance with its terms of reference. One member of the Advisory Committee, the Marine Institute, submitted comments on this application. These comments are noted in Section 4: Characteristics of the material for disposal above, including the Marine Institute's conclusion that the sediment chemistry would not preclude disposal at sea of this material, in the absence of a feasible alternative. The applicant is required to continue to investigate alternative re-use options for the dredged material and report on its investigation as part of the annual environmental report (AER), in accordance with Condition 3.7.

### 8. Comments from Notified Consultees

The following comments were received from notified consultees:

**8.1 Department of Agriculture, Food and the Marine, received 10th May 2018**

The Department of Agriculture, Food and the Marine (DAFM) indicates the location of the nearest licensed Pacific oyster farm (under Aquaculture licence T12/462A); approximately 3 km north of the proposed dumping site. DAFM requests that the developers be made aware of the oyster farm and ensure that it will not be impacted by plume from the dredge spoil. DAFM states that there is a fish farm approximately 3 km across the bay from the dumping site and several dredging vessels operate in Lough Swilly harvesting native (_Ostrea edulis_) and Pacific (_Crassostrea gigas_) oysters. DAFM notes that the current
shellfish classification of the bay is class “B”; meaning that oysters must undergo relaying for an extended period of time in a class “A” bay for depuration or receive heat treatment prior to being placed on the market for direct human consumption. DAFM recommends consultation with commercial fishing interests and recommends that additional testing would be advisable before shellfish leave Lough Swilly.

DAFM requests clarity on the accuracy of the bulk density conversion factor (2.6 tonnes per cubic metre) which seems to have been used by the applicant to convert dredge quantity from cubic metres to tonnes in the sediment dispersion model. According to DAFM, a specific gravity value of 2.6 appears to be too high a bulk density for granular sediment. DAFM questions the outcome of the model in that were a lower bulk density value applied, the volume of sediment discharged would be higher and the corresponding modelled depositional amounts for that rate of discharge would also be higher.

DAFM notes that more than 10 years ago there was an expectation that plough dredge maintenance at Buncrana might be phased out in favour of methods that created less suspension of dredged material into the water column. DAFM questions whether the EPA has a position on long term suitability of plough dredging as an appropriate dredging technique at this location or elsewhere.

DAFM concludes that the proposed dumping activity seems acceptable, subject to confirmation of the aforementioned bulk density issue, but recommends that the environmental sustainability of dredging along Buncrana Pier be given further consideration by the EPA.

Applicant Response:
The applicant clarified that the approach taken in the sediment transport model was to assume a worst case scenario in terms of maximum daily volumes of dredge material, and model sediment dispersion based on a number of different scenarios with a conservative bulk density conversion factor (2.6) applied post modelling. The model itself is driven by a cubic metre discharge rate applied to the field derived sediment sample characteristics. When a lower bulk density factor is applied (1.9) the outcome is reduced total dredge tonnages. Therefore, predicted sediment dispersion levels of 70mm to 100mm for the proposed dredge campaign (4,000 tonnes) is representative. Though in reality, while the dredge scenarios are based on campaigns of 6 to 13 days in duration, the length of each campaign will vary depending on the amount of sedimentation that is in place at any one time, tidal and weather windows and available budget.

In relation to the location of a licensed oyster farm 3km due north of the proposed dumping site, the applicant notes that the model shows that the material dredged and deposited by means of a plough dredger stays within the proposed dumping site and does not travel northwards. Furthermore, the material is clean, uncontaminated sediment, typical of seabed material at Buncrana Harbour, and deposition rates occurring within the dumping site would be similar to those encountered during storm or extreme tide events.

The applicant notes that the DAFM submission appears to focus on a dredge rate of 8,000 tonnes per day which is incorrect. The maximum proposed dredge tonnage is 8,000 tonnes per year which will occur during two separate dredge campaigns.

Inspector’s Response:
As of February 2010, the responsibility for permitting and enforcement for Dumping at Sea transferred to the EPA from the then Department of Agriculture, Fisheries and Food (DAFF). Donegal County Council has undertaken regular dumping at sea campaigns at Buncrana, using plough dredging and other techniques (suction dredging and grab
dredging\textsuperscript{4} since 1999, under permit, for amounts up to and in excess of the tonnages applied for in this permit application (8,000 tonnes per year). The EPA assesses each permit application on its own merits, in line with the requirements of the Dumping at Sea Act 1996 as amended, and a particular focus was placed on the \textit{Consideration of Alternatives to Dumping at Sea} (Section 2 above) in this assessment. In the absence of a suitable, feasible re-use option for the dredged material and to ensure no loss of sediment from the ecosystem, it is considered that the proposed plough dredging is acceptable on environmental grounds. Nevertheless, having regard to the 8-year timeframe for dumping activities requested, Condition 3.7 requires the applicant to undertake ongoing investigations into alternative re-use options for the dredged material and report on these investigations in the annual environmental report (AER).

The likely impact of the dumping activity on the designated Shellfish Area is discussed above under Section 5, \textit{Receiving environment and impact}. Due to the clean nature of the sediments proposed to be plough dredged and the limited scale and duration of the operations (7-10 days, twice a year), the proposed activity is not expected to have a significant effect on shellfish waters. It is acknowledged that for plough dredging in a dynamic environment such as Buncrana Harbour, sediment dispersion modelling is quite theoretical given the many variables involved on any given day/location of dredging (depth of sediment accumulation, tides, weather, duration of dumping activity, etc.). Nevertheless, modelled sediment dispersion for a number of different scenarios indicates a temporary sedimentation impact, localised to the dumping site. Therefore, aquaculture operations are not likely to be impacted by the dumping activity. The applicant has committed to consulting with local stakeholders prior to the dredging taking place, and also during and post completion. As part of the Public Awareness and Communications Programme required under Condition 2.7, the applicant is required to issue Marine Notices in advance of each campaign to ensure that all relevant stakeholders, including local aquaculture and commercial fishery operators, are aware of all scheduled dumping activities.

\textbf{8.2 Department of Culture, Heritage and the Gaeltacht - nature conservation, received 2\textsuperscript{nd} May 2018}

The Department notes that proposed seabed dredging and dumping at sea of sediment at Buncrana Harbour has been evaluated by a Natura Impact Statement (NIS) and a Marine Mammal Risk Assessment (MMRA) amongst other assessments. The Department concurs with the conclusion of the NIS; that proposed works are unlikely to pose a significant risk to nature conservation interests in the vicinity. The Department notes that the MMRA suggests that there is a low likelihood of interaction with marine mammals from the proposed operations and recommends implementation of the mitigation measures proposed in the MMRA during operations, which include the appointment of a dedicated Marine Mammal Observer to undertake 30 minute watches for marine mammals prior to start-up and delaying start-up if a cetacean, pinniped, or other species such as basking shark or otter, is sighted within 100 metres of the dredging vessel.

\textit{Inspector’s Response}

An inspector’s Appropriate Assessment has been undertaken as outlined in Section 6: \textit{Compliance with EU Directives and international conventions}, which had regard to the NIS submitted as part of the application. The recommended permit includes conditions to mitigate any potential temporary disturbance to otters, by restricting dumping activities to

\textsuperscript{4} The outcome of trials using suction dredging and grab dredging is discussed in the Inspector’s report for permit Reg No. S0011-02, available here \url{http://www.epa.ie/ licences/ lic_eDMS/090151b2804fc543.pdf}. 
daytime only (Condition 2.2) and the requirement to appoint a marine mammal observer to monitor all dumping activities (Conditions 3.6, 4.6 and Schedule C.3).

9. Submissions

One submission was received in relation to this application. The issues raised in the submission are summarised below. However, the original submission should be referred to at all times for greater detail and expansion of particular points.

Submission #1: Lough Swilly RNLI

Lough Swilly RNLI supports the application by Donegal County Council. The RNLI berths their all-weather lifeboat at Buncrana Pier and require access to the Lough to respond to emergencies on a year-round basis. The applicant’s maintenance of the ‘seaway’ from the berth, by means of dredging over the years, has enabled the RNLI’s operation to continue.

Applicant Response:
The applicant responded to the Lough Swilly RNLI correspondence stating that they have no issue with the submission and they acknowledge the support of the Lough Swilly RNLI for the maintenance dredging.

Inspector Response:
The support of the Lough Swilly RNLI for the dumping at sea activity is noted.

10. Site Visit

No site visit was conducted as part of the assessment of this application.

11. Cross-office liaison

Advice and guidance issued by the Dumping at Sea Technical Working Group (TWG) was followed in the assessment of this application. Advice and guidance issued by the TWG is prepared through a detailed cross-office co-operative process, with the concerns of all sides taken into account. The Board of the Agency has endorsed the advice and guidance issued by the TWG for the use by licensing inspectors in the assessment of dumping at sea permit applications.

- The Office of Radiation Protection and Environmental Monitoring (ORM), as part of the TWG, advised that radiological analysis of the material was not required.
- The Office of Environmental Enforcement (OEE) was consulted in relation to its enforcement history with the applicant. The Agency prosecuted Donegal County Council on 12th July 2017 in relation to DAS permit, Reg. No. S0011-02, which authorised dredging and dumping of up to 20,000 tonnes per annum from Buncrana Harbour, for failure to give satisfactory notification of dredging as required under the conditions of the permit, despite repeated requests from the EPA. The Council pleaded guilty to carrying out plough dredging in the maritime area at Buncrana Harbour from the 18th March to 27th of March 2015 and explained that the dredging had taken place at the request of the RNLI to allow the lifeboat to function in Buncrana Harbour. Failure of the Council to notify the EPA of this work was ascribed to human error. The charge against the Council was dismissed as human error, given that, though acknowledging that the issue was serious, there was no environmental damage and the work required by the RNLI was deemed urgent. Condition 6 of the recommended permit sets out the recording, reporting and notification requirements, including those concerning incidents and complaints, while Condition 2.4 requires the applicant to notify the Agency at least fourteen
calendar days prior to commencement of the dumping activity, unless otherwise agreed by the Agency. The latter condition allows flexibility for prior agreement of any necessary urgent dumping activities required as a result of storms interfering with lifeboat access/egress, outside of scheduled dredging campaigns.

12. **Recommended Permit (RP)**
The recommended permit (RP), as drafted, permits the dumping of dredged material at sea subject to the conditions set out in the RP.

13. **Charges**
The RP proposes that the permit holder shall pay to the Agency a sum as the Agency from time to time determines based on the enforcement effort required for the loading and dumping at sea operations.

14. **Recommendation**
I recommend that a Final Permit be issued subject to the conditions and for the reasons as set out in the attached recommended permit (RP).

Signed,  

Ciara Maxwell,  
Inspector
Appendix 1: Location of the dumping site (outlined in Red) relative to Buncrana Pier.
Appendix 2: Assessment of the effects of the activity on European sites and proposed mitigation measures.

<table>
<thead>
<tr>
<th>Site Code</th>
<th>Site Name</th>
<th>Qualifying Interests (* denotes a priority habitat)</th>
<th>Conservation Objectives</th>
<th>Assessment</th>
</tr>
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<tbody>
<tr>
<td>002287</td>
<td>Lough Swilly SAC</td>
<td><strong>Habitats</strong> 1130 Estuaries 1150 Coastal lagoons* 1330 Atlantic salt meadows (Glaucopuccinellieta maritimae) 6410 Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) 91A0 Old sessile oak woods with Ilex and Blechnum in the British Isles <strong>Species</strong> 1355 Otter (Lutra lutra)</td>
<td>As per NPWS (2011) Conservation Objectives: Lough Swilly SAC 002287 and Lough Swilly SPA 004075. Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.</td>
<td>Using the source-pathway-receptor model, the following habitats/species were included for impact assessment based on connectivity with the proposed dumping activity: - ‘estuaries’; located approx. 4km south of the dumping site and ‘coastal lagoons’; approx. 9km south of the dumping site; both habitats could be impacted by water quality deterioration. - Otter could be impacted by disturbance/displacement (e.g., noise/human activity or water quality effects); NBDC5 records indicate nearest otter sighting at Crana River which drains to Buncrana Harbour. Sediment dispersion modelling has determined that maximum sedimentation will be in order of 70mm to 100mm, localised to the dumping site. Water quality impacts will be temporary in nature as re-suspended material is expected to settle out quickly and evenly within the dumping site. Therefore, there will be no impact on the qualifying habitats within the SAC. The dumping activity is not expected to result in any significant impairment of water quality which could impact on the prey resources of the Otter. Any water quality effects will be localised and temporary. The dumping area is subject to vessels operating in the area (car ferry, fishing vessels, lifeboat,) so the local otter population is likely to be habituated to some degree of noise and human activity in the harbour. However, to minimise any potential disturbance/</td>
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5 NBDC: National Biodiversity Data Centre.
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displacement impacts to otters and given that otters tend to be more active at night time, dumping activities will be confined to daytime only, in accordance with the mitigation measure stated in the Natura Impact Statement. Furthermore, the Marine Mammal Risk Assessment recommends the monitoring of dumping activities by a Marine Mammal Observer and implementing a mitigation zone of 100m from the dredging vessel for the protection of marine fauna including cetaceans, pinnipeds, otters and basking sharks.

Given the scale and short term nature of the activity, no significant cumulative or in-combination effects are envisaged.

Due to the infrequent dredging operations proposed (7-10 days twice a year) and the limited quantity of clean sediment disposal involved (maximum 8,000 tonnes per annum), it is considered that impacts on the SAC will not be significant subject to compliance with the conditions of the recommended permit and, in particular, implementing the following mitigation measures:

- Dumping activities shall be confined to daytime only, primarily for the protection of the Lough Swilly SAC qualifying species, Otter *Lutra lutra* (Condition 2.2).
- A Marine Mammal Observer shall be appointed to monitor dredging activities in accordance with the monitoring and reporting requirements of the National Parks and Wildlife Service and a mitigation zone of 100 metres from the dredging vessel for pre-start mitigation shall be implemented (Condition 4.6).
### Site Code | Site Name | Qualifying Interests (* denotes a priority habitat) | Conservation Objectives | Assessment
--- | --- | --- | --- | ---
004075 | Lough Swilly SPA | **Birds**  
A052 Teal (*Anas crecca*)  
A067 Goldeneye (*Bucephala clangula*)  
A043 Greylag Goose (*Anser anser*)  
A193 Common Tern (*Sterna hirundo*)  
A028 Grey Heron (*Ardea cinerea*)  
A179 Black-headed Gull (*Chroicocephalus ridibundus*)  
A149 Dunlin (*Calidris alpina*)  
A053 Mallard (*Anas platyrhynchos*)  
A069 Red-breasted Merganser (*Mergus serrator*)  
A164 Greenshank (*Tringa nebularia*)  
A162 Redshank (*Tringa totanus*)  
A125 Coot (*Fulica atra*)  
A395 Greenland White-fronted Goose (*Anser albifrons flavirostris*)  
A038 Whooper Swan (*Cygnus cygnus*)  
A048 Shelduck (*Tadorna tadorna*)  
A182 Common Gull (*Larus canus*)  
A130 Oystercatcher (*Haematopus ostralegus*)  
A005 Great Crested Grebe (*Podiceps cristatus*)  
A191 Sandwich Tern (*Sterna sandvicensis*)  
A160 Curlew (*Numenius arquata*)  
A056 Shoveler (*Anas clypeata*)  
A050 Wigeon (*Anas penelope*)  
A062 Scaup (*Aythya marila*)  
A143 Knot (*Calidris canutus*)  
**Habitats**  

The proposed dumping activity does not overlap with the Special Protection Area (SPA). However, the potential for disturbance/displacement effects and water quality impacts on waterfowl and their wetland habitats was considered.

Increases in suspended sediment concentration will be temporary and localised. Sediment modelling has determined that maximum sedimentation will be in order of 70mm to 100mm, localised to the dumping site.

Given the nature and scale of the proposed dumping activities, in light of current harbour activities and given the intervening distance between the dumping site and the SPA (1.8 km), it is concluded that there will be no water quality effects or disturbance or displacement impacts on Lough Swilly SPA’s qualifying interests.