

# Appropriate Assessment Stage 1 Screening Report



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**Title: Waterstown Landfill, Tier 2 Risk Assessment; Main Site Investigation and Testing, Tier 3 Risk Assessment; Refinement of Conceptual Site Model and Quantitative Risk Assessment and Remediation of the former landfill, Palmerstown, Co. Dublin**

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**Waterstown Landfill,  
Palmerstown, Co Dublin**

**Appropriate Assessment Stage 1 Screening Report**

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## 1.0 Introduction

### 1.1 Background and purpose of this report

Malone O'Regan (MOR) was appointed by South Dublin County Council (SDCC) to prepare an Appropriate Assessment (AA) as part of a Tier 2 Risk Assessment; Main Site Investigation and Testing, Tier 3 Risk Assessment; Refinement of Conceptual Site Model and Quantitative Risk Assessment and Remediation of the former landfill located at Waterstown, Palmerstown, Co. Dublin (Irish Grid reference O 08471 35544), see Figure 1.

This report has been prepared to determine potential impacts, if any, of the historic landfill site, on nearby sites with European conservation designations (i.e. Natura 2000 sites). This report also considers the need and or appropriateness, or otherwise, of the recommendations in the Tier 3 Risk Assessment in the context of the conservation objectives of the Natura 2000 sites.

### 1.2 Regulatory Context

This AA was prepared in accordance with Article 33 of the Planning and Development Regulations 2001 and with the following directives:

The Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Flora and Fauna better known as "The Habitats Directive" provides the framework for legal protection for habitats and species of European importance. Articles 3 to 9 provide the legislative means to protect habitats and species of community interest through the establishment and conservation of an EU-wide network of sites known as Natura 2000. These are Special Areas of Conservation (SACs) designated under the Habitats Directive and Special Protection Areas (SPAs) designated under the Conservation of Wild Birds Directive (79/409/EEC) (better known as "The Birds Directive").

Article 6(3) and 6(4) of the Habitats Directive set out the decision-making tests for plans and projects likely to affect Natura 2000 sites (Annex 1.1). Article 6(3) establishes the requirement for Appropriate Assessment (now termed Natura Impact Statement):

*"Any plan or project not directly connected with or necessary to the management of the [Natura 2000] site but likely to have a significant effect thereon, either individually or in combination with other plans and projects, shall be subjected to appropriate assessment of its implications for the site in view of the site's conservation objectives. In light of the conclusions of the assessment of the implication for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public"*

The Habitats Directive promotes a hierarchy of avoidance, mitigation and compensatory measures. First, the project should aim to avoid any negative impacts on European sites by identifying possible impacts early in the planning stage, and designing the project in order to avoid such impacts. Second, mitigation measures should be applied, if necessary, during the AA process to the point, where no adverse impacts on the site(s) remain. If the project is still likely to result in adverse effects, and no further practicable mitigation is possible, it is rejected. If no alternative solutions are identified and the project is required for imperative reasons of overriding public interest (IROPI test) under Article 6 (4) of the Habitats Directive, then compensation measures are required for any remaining adverse effect.

### 1.3 Stages of the Appropriate Assessment

This Appropriate Assessment Screening Report has been undertaken in accordance with the European Commission Methodological Guidance on the provision of Article 6(3) and 6(4) of the 'Habitats' Directive 92/43/EEC (EC 2001) and the European Commission Guidance 'Managing Natura 2000 Sites'. The Guidance for Planning Authorities issued by the Department of Environment, Heritage and Local Government (December 2009) is also adhered to.

There are four distinct stages to undertaking an AA as outlined in current EU and DOEHLG guidance:

1. Appropriate Assessment Screening.
2. Appropriate Assessment.
3. Assessment of Alternatives in cases where significant impact cannot be prevented.
4. Where no alternatives exist, an assessment of compensatory issues in the case of projects or plans which can be considered to be necessary for imperative reasons of overriding public interest (IROPI).

This report comprises a Stage 1 Screening Report, which seeks to determine whether the subject site will, on its own or in combination with other plans/projects have a significant effect on Natura 2000 sites within a defined radius of the subject site.

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## 2.0 Screening for Appropriate Assessment

Screening determines whether Appropriate Assessment is necessary by examining:

1. Whether a plan or project can be excluded from AA requirements because it is directly connected with or necessary to the management of a Natura 2000 site.
2. Whether the project will have a potentially significant effect on a Natura 2000 site, either alone or in combination with other projects or plans, in view of the site's conservation objectives.

Screening involves the following:

- i. Description of plan or project;
- ii. Identification of relevant Natura 2000 sites, and compilation of information on their qualifying interests and conservation objectives;
- iii. Assessment of likely effects – direct, indirect and cumulative – undertaken on the basis of available information as a desk study or field survey or primary research as necessary; and,
- iv. Screening Statement with conclusions.

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### 3.0 Description of the Project

Malone O'Regan (MOR) was appointed by SDCC to undertake a Tier 2 Risk Assessment; Main Site Investigation and Testing, Tier 3 Risk Assessment; Refinement of Conceptual Site Model and Quantitative Risk Assessment and Remediation of the former landfill in accordance with the Environmental Protection Agency's (EPA) published Code of Practice: Environmental Risk Assessment for Unregulated Waste Disposal Sites (2007) and Waste Management (Certificate of historic unlicensed waste disposal and recovery activity) Regulations, 2008 (S.I. No. 524 of 2008) which were published in December 2008.

Waterstown Landfill is a closed landfill located north of Palmerstown village approximately 10km west of Dublin City Centre (See Figure 1). It is reported that the landfill was in operation from 1983 to 1987 and was used as a disposal facility for municipal waste as well as solid inert waste from commercial/industrial sources (SDCC, 2011). The former landfill site covers an area of approximately 20ha to the south of the River Liffey and is currently in use as a public park.

As part of the Tier 2 and Tier 3 Risk Assessment there is a requirement to complete an AA to determine potential impacts, if any, of the historic landfill site, on nearby Natura 2000 sites. The report also considers the need and or appropriateness, or otherwise, of the recommendations made in the Tier 2 Risk Assessment; Main Site Investigation and Testing, Tier 3 Risk Assessment; Refinement of Conceptual Site Model and Quantitative Risk Assessment and Remediation of the former landfill, in the context of the conservation objectives of the Natura 2000 sites.

#### 3.1 Findings of the Tier 2 and Tier 3 Assessments

Based on the Tier 2 Risk Assessment; Main Site Investigation and Testing, Tier 3 Risk Assessment; Refinement of Conceptual Site Model and Quantitative Risk Assessment and Remediation of the former landfill (MOR, 2015) the following conclusions have been made:

- *The landfill was in operation from 1983 to 1987;*
- *The Site was formerly a quarry that was filled with waste materials, followed by the progressive raising of site levels as landfilling continued on Site;*
- *No gas or leachate collection systems have been installed at the Site;*
- *It is assumed that waste materials were deposited directly onto exposed bedrock;*
- *Given the location of the site in close proximity to a pNHA (proposed Natural Heritage Area) and within the Liffey Valley SAAO (Special Amenity Area Order), the Site is considered to be located in a sensitive location;*
- *The type of waste found within the landfill is variable and includes both municipal and C&D wastes. It appears that the majority of the municipal wastes were deposited in the south central portion of the former landfill;*
- *The boundaries of the former landfill have been delineated;*
- *The intrusive investigations within the body of waste did not delineate the vertical extent of the waste. This does indicate that the depth of the waste does extend to over seven (7 No) metres depth in the central parts of the Site. The geophysical survey carried out during the Tier 2 Site assessment indicated depths of waste at 17.0m in the centre of the Site;*
- *The area of the former landfill that would fall under the scope of the Code of Practice and associated regulations is approximately 20ha in extent;*
- *It is estimated that in the region of 1,250,000m<sup>3</sup> of waste materials was accepted into the former landfill during its operational lifespan;*

- *Materials were imported to the Site to form a capping layer. The depth of the capping layer would appear to vary across the site and it is estimated that in the region of 300,000m<sup>3</sup> of capping material was imported onto the site;*
- *Soil sample results collected from the trial pits generally complied with Waste Acceptance Criteria for inert landfill;*
- *Elevated landfill gas concentrations were detected at a number of locations at the Site, in particular along the southern boundary that adjoins residential properties, albeit lower concentrations were recorded in 2015 when compared to the 2012 monitoring results;*
- *Additional landfill gas monitoring locations were installed south of the Site, outside of the site boundaries and body of waste. The monitoring data confirmed the absence of landfill gas;*
- *Landfill gas flow measurements were recorded to be very low, which would indicate that the rate of landfill gas generation at the former landfill is low;*
- *A landfill gas survey was carried out in and around the closest private dwelling. The survey data confirmed the absence of landfill gas at this location;*
- *The groundwater quality downgradient of the Site has been impacted by a number of elevated parameters including ammoniacal nitrogen. The presence of ammoniacal nitrogen at downgradient locations provides strong evidence that the former landfill is impacting on groundwater as the leachate within the landfill contains elevated concentrations of ammoniacal nitrogen. There is no known groundwater usage downstream of the site;*
- *The surface water monitoring results did not show any clear evidence that the water quality in the River Liffey has been significantly impacted by the former landfill as concentrations within the River Liffey were broadly similar both upstream and downstream of the site;*
- *The surface water monitoring results of the Mill Race, located immediately adjacent to the site, and in particular ammoniacal nitrogen showed a potential impact of the landfill on the downgradient surface water chemistry; and;*
- *According to the EPA COP risk prioritisation calculations prepared for the previous assessments (Tier 1 and Tier 2) the Site was classified as a Class A – High Risk Site due to the potential risks associated with landfill gas migration. The site investigation data collected during the Tier 2 Risk Assessment; Main Site Investigation and Testing, Tier 3 Risk Assessment; Refinement of Conceptual Site Model and Quantitative Risk Assessment and Remediation verified the absence of landfill gas outside of the body of waste. Based on an instruction from the EPA it was considered appropriate to reclassify the Site as Class B – Moderate Risk Site.*

### 3.2 Recommendations

Based on the site investigation completed at the site and in order to ensure that the site is in strict accordance with the relevant legislation, it has been recommended that testing of the groundwater, surface water and leachate boreholes is continued on an annual basis, with particular attention to observed elevated parameters.

The further monitoring works at the site will use the existing monitoring boreholes and therefore there will be no requirement for any drilling or intrusive ground works at the site, which could potentially result in emissions from the site. The proposed monitoring works will also provide an early indication if conditions on the site change, which result in emission from the site that could potentially impact the Natura 2000 sites within Dublin Bay. Should the findings of the further monitoring works identify any harmful emissions from the site or the need for the implantation of remediation works be identified, then further consideration to potential impacts on Natura 2000 sites will be required and the AA will require updating to determine potential impacts.



## 4.0 Identification of Natura 2000 Sites

In accordance with the European Commission Methodological Guidance (EC2001), a list of European Sites that could be potentially affected by the historic landfill site at Waterstown has been compiled (See Table 1). Adopting the precautionary principle in identifying these sites, all SAC and SPA sites within a 15km radius of the site have been identified, see figure 1.

**Table 1. Designated Sites within 5km & 15km of the SmartPly Facility**

Site Name	Code	Distance from site boundary (km) & direction
<b>Special Areas of Conservation</b>		
North Dublin Bay	000206	12.25 E
South Dublin Bay	000210	11.25 SE
Glenasmole Valley	001209	11.5 S
Rye Water Valley / Carton	001398	7.3 W
Wicklow Mountains	002122	13.85 S
<b>Special Protection Areas</b>		
North Bull Island	004006	12.25 E
South Dublin and River Tolka Estuary	004024	9.8 E
Wicklow Mountains	004040	14.6 S

Taking into account the urban location of the site, nature and scale of the project, lack of hydraulic connectivity, absence of any impact pathway and the distance separating the site from the following sites: Glenasmole Valley SAC, Rye Water Valley / Carton SAC and Wicklow Mountains SAC & SPA, it is considered highly unlikely that these protected sites or any of its quality features of interest could be affected in any way by the historic landfill site or the recommendations made in the Tier 2 Risk Assessment; Main Site Investigation and Testing, Tier 3 Risk Assessment; Refinement of Conceptual Site Model and Quantitative Risk Assessment and Remediation (MOR, 2015). As a result these sites have been screened out and will not be taken forward for further consideration in this assessment.

North Dublin Bay SAC, South Dublin Bay SAC, North Bull Island SPA; and South Dublin and River Tolka Estuary have been taken forward for further consideration on the basis that there may be hydraulic connectivity between the site and these protected areas. All of these sites are located within Dublin bay at the mouth of the River Liffey. The River Liffey is located within 50m of the north site boundary and flows west to east through the centre of Dublin City before discharging into Dublin bay.

### 4.1 North Dublin Bay SAC (site code: 000206)

The North Dublin SAC is located approximately 12.25km east of the site (Approx. 15.5km following the River Liffey). The area covers the inner part of north Dublin Bay where the seaward boundary extends from the Bull Wall lighthouse across to the Martello Tower at Howth Head. North Bull Island is the focal point of this site. The island is a sandy spit which formed after the construction of the South Wall and Bull Wall in the 18th and 19th centuries. It extends approximately 5 km in length and up to 1 km wide in some areas.

The North Dublin Bay is an excellent example of a coastal site with the main habitats represented. It contains good examples of ten habitats which are listed on Annex I of the E.U. Habitats Directive; one of which is listed with priority status. Several of the wintering bird species have populations of

international importance, with some of the invertebrates being of national importance. The site contains a numbers of rare plants including some which are legally protected.

The main species of conservation interest include a rare liverwort (*Petalophyllum ralfsii*) which is of high conservation value as it is listed on Annex II of the E.U. Habitats Directive. The North Bull is the only known site for the species in Ireland away from the western seaboard.

The main land uses of this site are primarily for amenity activities (including 2 No. golf courses) and nature conservation. The North Bull Island is the main recreational beach in Co. Dublin and is used throughout the year. Two separate Statutory Nature Reserves take up most of the island's eastern side of the Bull Wall and the surrounding intertidal flats. The site is used regularly for educational purposes. North Bull Island has been designated a Special Protection Area under the E.U. Birds Directive and it is also a statutory Wildfowl Sanctuary, a Ramsar Convention site, a Biogenetic Reserve, a Biosphere Reserve and a Special Area Amenity Order site.

### Qualifying Interests for the North Dublin Bay SAC

The site has been selected for the following Annex I habitats and Annex II species, see tables 2 and 3 below:

**Table 2. Qualifying Annex I Habitats for the North Dublin Bay SAC**

Qualifying Habitats (* denotes Priority Habitat)	Code
Tidal Mudflats and Sandflats	1140
Annual Vegetation of Drift Lines	1210
<i>Salicornia</i> Mud	1310
Atlantic Salt Meadows	1330
Mediterranean Salt Meadows	1410
Embryonic Shifting Dunes	2110
Marram Dunes (White Dunes)	2120
Fixed Dunes (Grey Dunes)*	2130
Humid Dune Slacks	2190

**Table 3. Qualifying Annex II Species for the North Dublin Bay SAC**

Common Name	Scientific Name	Code
Petalwort	<i>Petalophyllum ralfsii</i>	1395

### Conservation Objectives for the North Dublin Bay SAC

The main objective of the SAC is to maintain or restore the favourable conservation conditions of the existing Annex I habitats and Annex II species for which the SAC has been designated. Specific objectives as presented in Appendix A.

#### 4.2 South Dublin Bay SAC (code 000210)

The South Dublin SAC is located approximately 11.25 km south east of the site (Approx. 13.75km following the River Liffey). The SAC extends from the South Wall to the west pier at Dun Laoghaire. It is an intertidal site with large areas of sand and mudflats, a habitat listed on Annex I of the E.U.

Habitats Directive. The sediments are predominantly sands but grade to sandy muds near the shore at Merrion gates. The main channel which drains the area is Cockle Lake.

The SAC is a great example of a coastal system with extensive sand and mudflats, a habitat listed on Annex I of the E.U. Habitats Directive. South Dublin Bay is also an internationally important bird site. South Dublin Bay is an important site for waterfowl. Recent studies have shown that certain populations which occur in the south bay spend most of their time there.

During low tide, the inner sections of the south bay are used for amenity purposes. Bait digging is a common activity in the sandy flats. During high tide, wind surfing and jet skiing are a common activity within the area.

### Qualifying Interests for South Dublin Bay SAC

The site has been selected for the following Annex I habitat, see Table 4 below:

Table 4. Qualifying Annex I Habitats for South Dublin Bay SAC

Qualifying Habitats (* denotes Priority Habitat)	Code
Tidal Mudflats and Sandflats	1140

### Conservation Objectives for South Dublin Bay SAC

The main objective of the SAC is to maintain the favourable conservation condition of Mudflats and sand flats not covered by seawater at low tide in South Dublin Bay SAC and SPA. This objective is defined by the list of attributes and targets presented in Appendix B.

### 4.3 North Bull Island SPA (code 004006)

North Bull Island SPA is located approximately 12.25km east of the site (Approx. 15.5km following the River Liffey). This site covers all of the inner part of north Dublin Bay, with the seaward boundary extending from the Bull Wall lighthouse across to Drumleck Point at Howth Head. The North Bull Island sand spit is a relatively recent depositional feature, formed as a result of improvements to Dublin Port during the 18th and 19th centuries. It is almost 5km long and 1km wide and runs parallel to the coast between Clontarf and Sutton.

North Bull Island SPA covers much of the same area as the Dublin Bay SAC. The North Bull Island SPA is a regular site for passage waders, especially Ruff, Curlew Sandpiper and Spotted Redshank. The rare liverwort, *Petalophyllum ralfsii*, was first recorded from the North Bull Island in 1874 and its presence here has recently been re-confirmed. This species is of high conservation value as it is listed on Annex II of the E.U. Habitats Directive. A well-known population of Irish Hare is resident on the island.

The North Bull Island SPA is of international importance for waterfowl on the basis that it regularly supports in excess of 20,000 waterfowl. A further 14 species have populations of national importance. The main land uses of this site are amenity activities and nature conservation. Part of the interior of the island has been converted to golf courses. The North Bull Island is one of the main recreational beaches in Co. Dublin and is used throughout the year. Two separate Statutory Nature Reserves cover much of the island east of the Bull Wall and the surrounding intertidal flats. North Bull Island is also a Wildfowl Sanctuary, a Ramsar Convention site, a Biogenetic Reserve, a Biosphere Reserve and a Special Area Amenity Order site. Much of the SPA is also a candidate Special Area of Conservation. The site is used regularly for educational purposes and there is a manned interpretative centre on the island.

## Qualifying Interests for the North Bull Island SPA

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species and habitats see tables 5 and 6 below:

**Table 5. Qualifying Habitats for the North Bull Island SPA**

Qualifying Habitats	Code
Wetlands and Wetland birds	A999

**Table 6. Qualifying Bird Species for the North Bull Island SPA**

Species Name	Scientific Name	Code
Light-bellied Brent Goose	<i>Branta bernicla hrota</i>	A046
Shelduck	<i>Tadorna tadorna</i>	A048
Teal	<i>Anas crecca</i>	A052
Pintail	<i>Anas acuta</i>	A054
Shoveler	<i>Anas clypeata</i>	A056
Oystercatcher	<i>Haematopus ostralegus</i>	A130
Golden Plover	<i>Pluvialis apricaria</i>	A140
Grey Plover	<i>Pluvialis squatarola</i>	A141
Knot	<i>Calidris canutus</i>	A143
Sanderling	<i>Calidris alba</i>	A144
Dunlin	<i>Calidris alpina</i>	A149
Black-tailed Godwit	<i>Limosa limosa</i>	A156
Bar-tailed Godwit	<i>Limosa lapponica</i>	A157
Curlew	<i>Numenius arquata</i>	A160
Redshank	<i>Tringa totanus</i>	A162
Turnstone	<i>Arenaria interpres</i>	A169
Black-headed Gull	<i>Chroicocephalus ridibundus</i>	A179

## Conservation Objectives for the North Bull Island SPA

The main conservation objective for this SPA is to maintain or restore the favourable condition of the species listed above and in Appendix C, and the wetland habitat of the SPA as a resource for the regularly-occurring migratory waterbirds that utilise it.

### 4.4 South Dublin Bay and River Tolka Estuary SPA (code 004024)

The South Dublin Bay SPA is located approximately 9.8km east of the site (Approx. 13.5km following the River Liffey). and comprises of a substantial part of Dublin Bay. It includes the intertidal area between the River Liffey and Dun Laoghaire, and the estuary of the River Tolka to the north of the River Liffey, as well as Booterstown Marsh. A portion of the shallow marine waters of the bay is also part of the protected area.

The site is a Special Protection Area (SPA) under the EU Birds Directive, of special conservation interest for the several species listed in Annex I. The EU Birds Directive pays particular attention to wetlands, and as these form part of the SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds. The site is an important site for wintering waterfowl, being an integral part of the internationally important Dublin Bay complex.

Boosterstown Marsh supports an important population of Borrer's Saltmarsh-grass (*Puccinellia fasciculata*), a rare, Red Data Book species that is listed on the Flora (Protection) Order, 1999. Sediments in the Tolka Estuary vary from soft thixotrophic muds with a high organic content in the inner estuary to exposed, well-aerated sands off the Bull Wall.

During low tide, the inner sections of the south bay are used for amenity purposes. Bait digging is a common activity in the sandy flats. During high tide, wind surfing and jet skiing are a common activity within the area.

### Qualifying Interests of the South Dublin Bay and River Tolka Estuary SPA

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species and habitats, see tables 7 and 8 below:

**Table 7. Qualifying Habitats for the South Dublin Bay and River Tolka Estuary SPA**

Qualifying Habitats	Code
Wetlands and Wetland birds	A999

**Table 8. Qualifying Bird Species for the South Dublin Bay and River Tolka Estuary SPA**

Species Name	Scientific Name	Code
Light-bellied Brent Goose	<i>Branta bernicla hrota</i>	A046
Oystercatcher	<i>Haematopus ostralegus</i>	A130
Ringed Plover	<i>Charadrius hiaticula</i>	A147
Grey Plover	<i>Pluvialis squatarola</i>	A141
Knot	<i>Calidris canutus</i>	A143
Sanderling	<i>Calidris alba</i>	A144
Dunlin	<i>Calidris alpina</i>	A149
Bar-tailed Godwit	<i>Limosa lapponica</i>	A157
Redshank	<i>Tringa totanus</i>	A162
Black-headed Gull	<i>Chroicocephalus ridibundus</i>	A179
Roseate Tern	<i>Sterna dougallii</i>	A192
Common Tern	<i>Sterna hirundo</i>	A193
Arctic Tern	<i>Sterna paradisaea</i>	A194

### Conservation Objectives of the South Dublin Bay and River Tolka Estuary SPA

The main conservation objective for this SPA is to maintain or restore the favourable condition of the species listed above and in Appendix D, and the wetland habitat of the SPA as a resource for the regularly-occurring migratory waterbirds that utilise it.

## 4.5 Overall Conservation Objectives

European and national legislation places a collective obligation on Ireland and its citizens to maintain at favourable conservation status, areas designated as SACs and SPAs. The Government and its agencies are responsible for the implementation and enforcement of regulations that will ensure the ecological integrity of these sites.

A site's conservation objectives are a statement of the overall nature conservation requirements for a site, expressed in terms of the favourable conditions required for the qualifying features. According to the EU Habitats Directive, favourable conservation status of a habitat is achieved when:

- Its natural range, and area it covers within that range, is stable or increasing;
- The ecological factors that are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future; and
- The conservation status of its typical species is favorable as defined below.

The favourable conservation status of a species is achieved when:

- Population data on the species concerned indicate that it is maintaining itself;
- The natural range of the species is neither being reduced or likely to be reduced for the foreseeable future; and,
- There is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

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## 5.0 Identification and Assessment of Potential Impacts

Potential impacts, if any, on the European sites identified within a 15 km radius of the site were considered.

Only those features of the project that have the potential to impact on the conservation objectives of the identified Natura 2000 sites are considered. A number of factors were examined at this stage and dismissed due to the very low risk associated with them. The following areas were examined in relation to potential impacts from the proposed projects:

- Loss of, or disturbance to habitats or species; and
- Potential impairment of water quality.

Given that all of the protected sites that have been brought forward for further assessment are located with Dublin Bay and are interconnected with each other and in some case cover the same areas, the sites will be considered collectively.

### 5.1 Loss of, or disturbance to habitats species

Direct habitat loss is caused where there is complete removal of a habitat type. Habitat loss can also occur through the reduction of habitat quality and a loss of important habitat functions.

There are no designated sites, or qualifying habitats as listed in section 4 within the vicinity of the site. In addition, the nearest designated site within Dublin Bay is located almost 10km away from the site and the fact that the site is separated from this areas by Dublin City, it can be stated that any activates associated with the recommendations for further monitoring will not have an impact on any of the designated habitats within Dublin Bay.

It is considered that the proposed monitoring works will not have any impact on any of the qualifying species of interest listed in the tables in section 4. This assumption is based on the localised nature of the proposed works and on the distance separating the site from the Natura 2000 sites. Furthermore, the onsite habitats are considered to be sub-optimal for the species listed, as they provide little in the way of foraging opportunities or shelter. In addition the site is separated from Dublin Bay by Dublin City, which also reduces the potential for any of the designated species to move between the two areas.

Accordingly it can be stated that there will be no loss or disturbance on either habitats or species and hence there will be no likely significant indirect impact on any of the protected sites with Dublin Bay.

### 5.2 Potential impairment of water quality

The Tier 2 Risk Assessment; Main Site Investigation and Testing, Tier 3 Risk Assessment; Refinement of Conceptual Site Model and Quantitative Risk Assessment and Remediation (MOR, 2015) did not identify any significant levels of emissions of pollutions to either groundwater or surface water from the Site. The water quality at the sampling points both in the River Liffey and the Mill race (Located between the site and the River Liffey), above and below the site remained unchanged. There was no significant change in any of the parameters measured at these locations. It can therefore be stated that in its current state of the historic landfill at the site is not contributing to a detrition in water quality within either the River Liffey or Mill Race. In the absence of any impact on the water quality within these waterbodies, it can also be stated that the historic landfill is not currently causing any loss or disturbance as a result of emissions from the site to either habitats or species for which the Natura 2000 sites are designated.

Accordingly there will be no impact on water quality and hence there will be no likely significant indirect impact on any of the protected sites within Dublin Bay.

### 5.3 Assessment of In-Combination Effects

The Habitats Directive requires competent authorities to undertake an appropriate assessment of any plan or project which is likely to have a significant effect alone or in-combination with other plans and projects.

The assessment has considered the possibility for impacts on North Dublin Bay SAC, South Dublin Bay SAC, North Bull Island SPA; and South Dublin and River Tolka Estuary. While it can be objectively demonstrated that the historic landfill and the proposed recommendations will not have any impacts, direct or indirect, on the conservation objectives of these designated European sites, it is noted that other land use activities within and around this site and along the banks of the River Liffey such as agricultural practices, industrial practices, other commercial activities, residential properties, transport infrastructure and both commercial and leisure activities within Dublin Bay have the potential to affect, its conservation objectives.

The conclusions of this assessment are that the historic landfill site in its current state will not, either alone or in combination with other activities and project, will not have significant impacts on the designated SAC's or SPA's within Dublin Bay.

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## 6.0 Screening Conclusions and Statement

The screening process has examined the information available for the historic landfill site and the findings of the Tier 2 Risk Assessment; Main Site Investigation and Testing, Tier 3 Risk Assessment; Refinement of Conceptual Site Model and Quantitative Risk Assessment and Remediation (MOR, 2015) for the site and considered the potential for the site to cause impacts on Natura 2000 sites and qualifying features of interest within a 15km radius of the site located at Waterstown, Palmerstown Co Dublin.

Taking into consideration the findings of Tier 2 Risk Assessment; Main Site Investigation and Testing, Tier 3 Risk Assessment; Refinement of Conceptual Site Model and Quantitative Risk Assessment and Remediation (MOR, 2015), it has been concluded that that the historic landfill is currently not resulting in the direct loss or disturbance of any Annex I habitats or Annex II species for which the SAC is designated. Furthermore it is considered that the implementation of further monitoring works at the site will also not have any significant impact on the Natura 2000 sites with Dublin Bay. The proposed monitoring of surface water and groundwater at the site will also provide an early indication to any changes at the site that could potential result in impacts to designated sites.

Taking into account all of the matters discussed, it can be concluded that the historic landfill site or the proposed monitoring works, alone or in-combination with other projects, will not adversely affect the integrity and conservation status of any of the Natura 2000 sites of their qualifying features of interest. Accordingly, progression to Stage 2 of the Appropriate Assessment process (i.e. preparation of a Natura Impact Statement) is not considered necessary.

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## 7.0 References

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