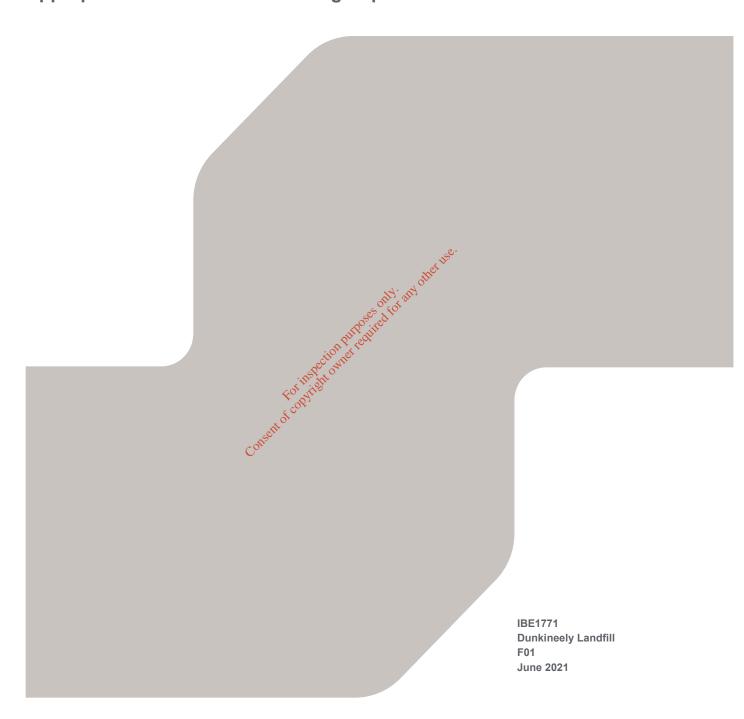


DUNKINEELY LANDFILL INVESTIGATION

Appropriate Assessment Screening Report



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1 INTRODUCTION

This Appropriate Assessment Screening Statement has been prepared by RPS on behalf of Donegal County Council, the operator of the decommissioned landfill site at Dunkineely, County Donegal.

This Appropriate Assessment Screening Statement has been prepared to assist the EPA in its role as a Competent Authority, fulfilling its duties in accordance with European Communities (Natural Habitats) Regulations (S.I. No. 94 of 1997) under Regulation 31 (Annex 1.2). An appropriate assessment screening and, if required, an appropriate assessment, is required under the Habitats Directive for any plan or project likely to have significant effect on a Natura 2000 site.

This Appropriate Assessment Screening Statement documents the evaluation and analysis, undertaken on behalf of Donegal County Council, seeking to establish whether the Dunkineely Landfill site, hereafter referred to as the development, is likely to have a significant effect on any European site, and if so whether those Likely Significant Effects (LSEs) will adversely affect the integrity of any European site.

The exercise considers the proposed site by itself has been undertaken in view of best scientific knowledge and in view of the conservation objectives of the site concerned. Measures intended to avoid or reduce the harmful effects of the proposed development on European sites have not been taken into account at screening stage, in accordance with the judgment of the Court of Justice of the European Union (CJEU) in case C-323/17 (People Over Wind).

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2 **APPROACH**

2.1 **Guidance Documents**

This AA screening statement supporting the restoration works at the Dunkineely Landfill has been carried out using the following guidance:

- Department of Environment Heritage and Local Government Circular NPW 1/10 and PSSP 2/10 on Appropriate Assessment under Article 6 of the Habitats Directive – Guidance for Planning Authorities March 2010.
- Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities, and Department of the Environment, Heritage Local Government 2009; http://www.npws.ie/en/media/NPWS/Publications/CodesofPractice/AA%20Guidance.pdf
- Managing Natura 2000 Sites: the provisions of Article 6 of the Habitats Directive 92/43/EEC, European Commission 2000;
 - http://ec.europa.eu/environment/nature/natura2000/management/docs/art6/provision of art6 en.pdf
- Assessment of Plans and Projects Significantly Affecting Natura 2000 Sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC; http://ec.europa.eu/environment/nature/natura2000/management/docs/art6/natura 2000 assess en.p
- Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC Clarification of the concepts of: alternative solutions, imperative reasons of overriging public interest, compensatory measures, es offor overall coherence. opinion commission. -00t pection Parties at Owner res http://ec.europa.eu/environment/nature/natura2000/pranagement/docs/art6/guidance_art6_4_en.pdf

2.2 Likely Significant Effect

The threshold for a Likely Significant Effect (LSE) is treated as being above a de minimis level. A de minimis effect is a level of risk that is too small to be concerned with when considering ecological requirements of an Annex I habitat or a population of Annex II species present on a European site necessary to ensure their favourable conservation condition. If low level effects on habitats or individuals of species are judged to be in this order of magnitude and that judgment has been made in the absence of reasonable scientific doubt, then those effects are not considered to be likely significant effects.

"...the requirement that the effect in question be 'significant' exists in order to lay down a de minimis threshold. Plans or projects that have no appreciable effect on a European site are thereby excluded. If all plans or projects capable of having any effect whatsoever on the site were to be caught by Article 6(3), activities on or near the site would risk being impossible by reason of legislative overkill".

[Paragraphs 46-50 of the Opinion of the Advocate General in the Court of Justice of the European Union case (CJEU) C-258/11]

Mitigation Measures 2.3

In relation to mitigation measures, EC (2001) states that "project and plan proponents are often encouraged to design mitigation measures into their proposals at the outset". However, it is important to recognise that the screening assessment should be carried out in the absence of any consideration of mitigation measures that form part of a project or plan and are designed to avoid or reduce the impact of a project or plan on a Natura 2000 site". This direction in the European Commission's guidance document is unambiguous in that it does not promote the inclusion of mitigation at screening stage.

In April 2018, the CJEU issued a ruling in case $\underline{\text{C-323/17}}$ (People Over Wind) that Article 6(3) of Directive 92/43/EEC must be interpreted as meaning that, in order to determine whether it is necessary to carry out, subsequently, an appropriate assessment of the implications, for a site concerned, of a plan or project, it is not appropriate, at the screening stage, to take account of the measures intended to avoid or reduce the harmful effects of the plan or project on that site.

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3 PROPOSED DEVELOPMENT

3.1 Site Location

Dunkineely Historical landfill site is located within the Bogside River catchment to the north of the village of Dunkineely in Co Donegal. It abuts the Castlefean Road on the lower slopes of Ballymagown Hill and the landfill is located in an areas of predominantly wet soils where groundwater surface water interaction are mainly dominated by near surface flows.

3.2 Site History

Historic mapping held on file by Ordnance Survey of Ireland (6 inch colour 1829-1841 and 25 inch black and white 1897-1913) was consulted to ascertain the previous use of the site. The site appears to have been undeveloped and in agricultural use. It is noted from both the 1829-1841 and 1897-1913 surveys that the land ownership boundary of the embankment area is marked and similar in size to the ownership boundary existing today. The 1897-1913 survey indicates that the boundary has expanded and is slightly larger than the current boundary. A number of quarries are noted south of the site in the 1829-1841 survey map which are not present on the later 1897-1913 survey map.

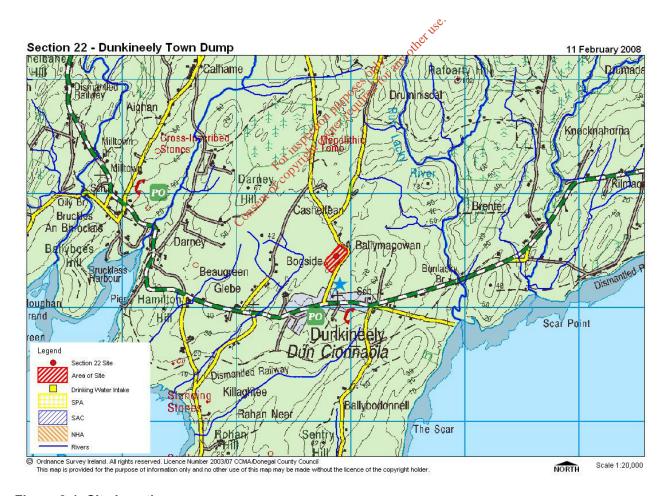


Figure 3-1: Site Location

3.3 Site Restoration

No restoration works are proposed due to the monitoring information that has been gathered. The screening of these results against Environmental Quality Standards has determined that the historical landfill does not represent a significant risk to the environment.

This AA screening reviews the monitoring results in the context of the supporting conditions for ecological status and the potential pathway to downstream Natura 2000 Sites and the potential to impact on their conservation objectives.

The proposed project is a remediation scheme for the former landfill supported within the site and given the nature of the site and the minimal nature of any contamination present as established from the monitoring results it is anticipated that works will be limited to the treatment and control of invasive species supported within the site and to ongoing watching brief with the decommissioning of the existing boreholes on site which will involve the backfilling, sealing and capping of the boreholes, which is detailed below.

An invasive species management plan has been prepared to outline the recommendation for treatment.

3.3.1 Decommissioning of Boreholes

Improperly abandoned boreholes may act as preferential pathways for groundwater or contaminant transport which may result in groundwater contamination, mixing of groundwaters of variable quality from different aquifers or present a physical hazard. It is proposed that the five boreholes including dual installation BH03 (BH01, BH02, BH03S, BH03D, BH04, BH05) present on site should be decommissioned in line with Scottish Environment Protection Agency (SEPA) guidance 'Good Practice for Decommissioning Redundant Borehotes and Wells'. It is recommended the advice of a specialist well contractor is sought prior to decommissioning works. The ground conditions of the site and health and safety must be carefully considered prior to decommissioning works.

Headworks and Casing

All above ground headworks will be removed. Purging pipework will also be removed to prevent any interference with the sealing of the hole.

Backfilling

The borehole should be backfilled with clean, inert, uncontaminated or excavated materials so that the permeability of the selected materials is similar to the properties of the geological strata against which they are placed. This will protect groundwater flow and quality. Suitable materials recommended in the SEPA guidance include pea gravel, sand, shingle, concrete, bentonite, cement grout and uncontaminated rock.

Deep boreholes (BH01, BH02 & BH03D) installed with a response zone in the Limestone and Sandstone bedrock should be backfilled with permeable aggregates such as sand and pea gravel adjacent to the aquifer horizon in the schist bedrock. The boreholes should then be backfilled with low permeability materials such as concrete or bentonite cement grout from the schist bedrock back to ensure that a vertical pathway is not created.

For shallow boreholes BH04 & BH05 installed with a response zone in the waste material and BH03S with a response zone in natural clay, the entire borehole should be backfilled with low permeability material such as concrete or bentonite cement grout.

The geochemical environment of the borehole should be considered when backfilling as materials may behave differently under different environmental conditions.

The grain size of the aggregates should be selected that allows easy delivery into the borehole and should be delivered in a controlled manner to prevent 'bridging' or the creation of voids in the borehole. The volume of backfill should be monitored as it is placed to check for 'bridging' within the borehole or any loss to formation.

Sealing of borehole

The backfilled borehole should be complete with an impermeable plug and cap to prevent potentially contaminated surface runoff entering the backfilled borehole. The top two meters should be filled with cement, concrete or bentonite grout. A concrete cap of suitable strength with a diameter at least one metre greater than the width of the backfilled borehole should then be installed as per Figure 3.2.

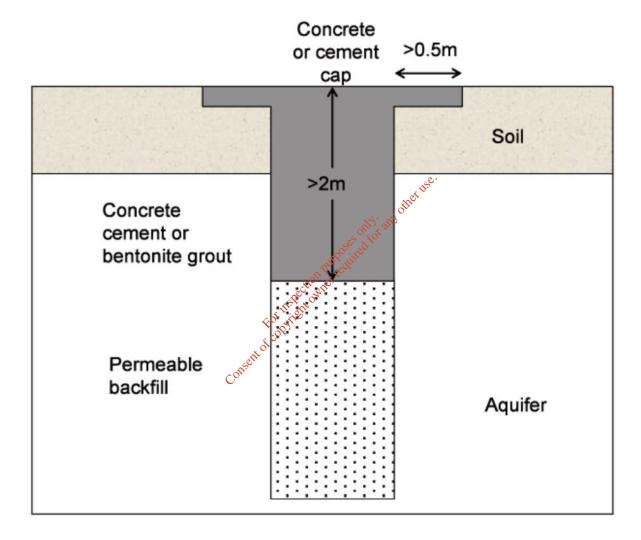


Figure 3-2 Sealing and capping of borehole (Source: SEPA 'Good practice for decommissioning redundant boreholes and wells').

4 SCREENING FOR APPROPRIATE ASSESSMENT

The overall aim of the Habitats Directive is to maintain or restore the favourable conservation status of habitats and species of community interest. These habitats and species are listed in the Habitats and Birds Directives and Special Areas of Conservation and Special Protection Areas are designated to afford protection to the most vulnerable of them. These two designations are collectively known as the Natura 2000 network.

This screening exercise principally considers European sites (Special Areas of Conservation or SACs and Special Protection Areas or SPAs designated under the Habitats Directive 92/43/EEC.

The proposed development must be screened against those sites for which a pathway of effect can be reasonably established between a receptor and the proposed development.

4.1 Establishing an Impact Pathway

Current guidance (DEHLG, 2010) on the Zone of Influence to be considered during the Screening for AA states the following:

"A distance of 15km is currently recommended in the case of plans, and derives from UK guidance (Scott Wilson et al., 2006). For projects, the distance could be much less than 15km, and in some cases less than 100m, but this must be evaluated on a case-by-case basis with reference to the nature, size and location of the project, and the sensitivities of the ecological receptors, and the potential for in-combination effects".

As stated above, a buffer of 15km is typically taken as the initial Zone of Influence extending beyond the reach of the footprint of a plan or project, although there may be scientifically appropriate reasons for extending this Zone of Influence further depending on pathways for potential impacts.

The possibility of significant effects is considered in this report using the source-pathway-receptor model. 'Source' is defined as the individual elements of the proposed works that have the potential to affect the identified ecological receptor. 'Pathway' is defined as the means or route by which a source can affect the ecological receptor. 'Ecological receptor' is defined as the qualifying feature of European sites (and for which conservation objectives have been set in the case of SACs or SPAs) being assessed. Each element can exist independently however an effect is created when there is a linkage between the source, pathway and receptor.

This source pathway receptor model has been used to screen the potential for impact on those Natura 2000 sites. Given that the assessment is based on the EQS for surface water that provide a hydrological link to the Natura 2000 network the 15km distance is considered inadequate to screen all likely significant effects that might impact upon European Sites. This is primarily due to the need to consider the potential for likely significant effects on European Sites with regard to aquatic and water dependent receptors that are hydrologically linked to the reach of the Bogside_010 river water body and consequently the further downstream coastal water bodies, Inver Bay (IE_NW_060_0000) AND Mc Swines's Bay (IE_NW_080_0000) that are hydrologically connected to the Dunkineely Landfill. Therefore, the Zone of Influence for this project includes all of the hydrologically connected surface water sub catchments which have the potential to impact on a downstream Natura 2000 site.

Figure 4.1 includes illustrates the Natura Network within the Zone of Influence. The relevant sites are:

- St. John's Point SAC (000191)
- Donegal Bay SPA (004151)
- Inishduff SPA (004115)

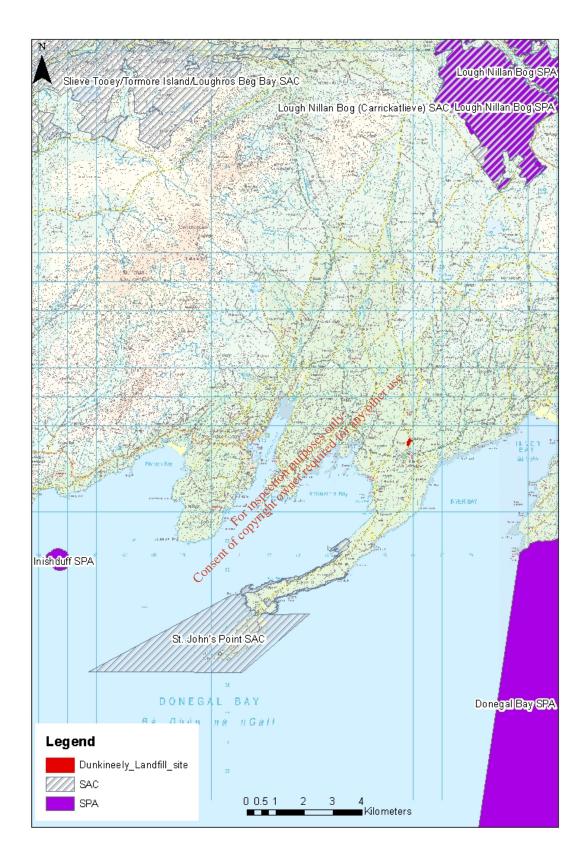


Figure 4-1: SAC and SPA location within the vicinity of the Dunkineely Landfill.

Table 4-1: Downstream European sites, their qualifying features and relative distances from the proposed development

European Site	Downstream distance	Qualifying features
Saint John's Point SAC (000191)	Approximately 3.8km from the closest part of the SAC to the site (See Figure 4.1)	Qualifying Interests are ranked in the 'Global Status A-C' category, have conservation objectives set for them and are principally considered within the screening and test of likely significance. (DAERA, 2017).
		Large shallow inlets and bays [1160]
		Reefs [1170]
		Vegetated sea cliffs of the Atlantic and Baltic coasts [1230]
		Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) [6210]
		Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) [6410]
		Alkaline fens [7230]
		Limestone pavements [8240]
		Submerged or partially submerged sea caves [8330]
		Euphydryas aurima (Marsh Fritillary) [1065]
Donegal Bay SPA	Approximately 5.7 km from the closest part of the SPA to the site (Figure 4.1)	Great Northern Diver (Gavia immer) [A003]
(004151)		Light belied Brent Goose (Branta bernicla hrota) [A046]
		Common Scoter (Melanitta nigra) [A065]
		Šanderling (Calidris alba) [A144]
		Wetland and Waterbirds [A999]
Inishduff SPA (004115)	Approximately 12.5km from the closest part of the SPA to the site (See Figure 4.1)	Shag (Phalacrocorax aristotelis) [A018]

4.2 Initial Screening of European Sites within the Zone of Influence

4.2.1.1 St. John's Point SAC

4.2.1.1.1 Large shallow inlets and bays

A review of the SSCOs (NPWS, 2015b) for this habitat show that there will be no likely significant effects as the conservation objectives of this qualifying feature is not dependent on water quality. There are, therefore, no likely significant effects and this feature can be screened out of any further assessment.

4.2.1.1.2 Reefs

A review of the SSCOs (NPWS, 2015b) for this habitat show that there will be no likely significant effects as the conservation objectives of this qualifying feature is not dependent on water quality. There are, therefore, no likely significant effects and this feature can be screened out of any further assessment.

4.2.1.1.3 Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)

A review of the SSCOs (NPWS, 2015a) for this habitat show that there will be no likely significant effects as the conservation objectives of this qualifying feature is not depend on water quality. There are, therefore, no likely significant effects and this feature can be screened out of any further assessment.

4.2.1.1.4 Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae)

A review of the SSCOs (NPWS, 2015a) for this habitat show that there will be no likely significant effects as the conservation objectives of this qualifying feature is not dependent on water quality. There are, therefore, no likely significant effects and this feature can be screened out of any further assessment.

4.2.1.1.5 Alkaline fens

The water chemistry measures target for the fens is to ensure appropriate quality to support the natural structure and functioning of the habitat. Fens are generally poor in phosphorus and nitrogen.

A review of the SSCOs (NPWS, 2015a) for this habitat show that it is unlikely that any significant effects may occur to the conservation objectives of this qualifying feature as a result to its hydrological distance from the site and large dilution volume. Therefore, no likely significant effects are expected and this feature can be screened out of any further assessment.

4.2.1.1.6 Limestone pavements

A review of the SSCOs (NPWS, 2015a) for this habitat show that there will be no likely significant effects as the conservation objectives of this qualifying feature is not dependent on water quality. There are, therefore, no likely significant effects and this feature can be screened out of any further assessment.

4.2.1.1.7 Submerged or partially submerged sea caves

Target 2 of the conservation objectives for this qualifying feature state that "Human activities should occur at levels that do not adversely affect the ecology of sea caves at the site". The target identifies any deterioration of water quality and other key resources that may impact community structures within the caves as a threat to its objectives.

A review of the SSCOs (NPWS, 2015b) for this habitat show that it is unlikely that any significant effects may occur to the conservation objectives of this qualifying feature as a result to its hydrological distance from the site and large dilution volume. Therefore, no likely significant effects are expected and this feature can be screened out of any further assessment.

4.2.1.1.8 Euphydryas aurinia

A review of the SSCOs (NPWS, 2015a) for this habitat show that there will be no likely significant effects as the conservation objectives of this qualifying feature is not dependent on water quality. There are, therefore, no likely significant effects and this feature can be screened out of any further assessment.

4.2.1.2 Donegal Bay SPA

The bird species that are regarded as qualifying interests of the Donegal Bay SPA are listed above (Table 4.1). The SPA habitat has the potential to be impacted by deterioration in water quality and pollutants.

There is potential for impact on these qualifying features, however due to the fact that the water bodies draining the site are not significantly impacted, their hydrological distance from the site to the SPA and large dilution volume there are no likely significant effects.

4.2.1.3 Inishduff SPA

The bird species that are regarded as qualifying interests of the Inishduff SPA are listed above (table 4.1). The SPA habitat has the potential to be impacted by deterioration in water quality and pollutants.

There is potential for impact on these qualifying features however due to the fact that the water bodies draining the site are not significantly impacted their hydrological distance from the site to the SPA and large dilution volume there are no likely significant effects.. Habitat Loss

The Dunkineely site is not located or directly comected with any European site.

Therefore, there will be no direct impact on the footprint of the SAC or SPA listed and thus no habitat loss from any of the European sites listed in Section 4.1 above.

4.3 Water Quality and Habitat Deterioration

The site of the proposed development is not directly linked to any European site listed above but may be indirectly linked. As a result, the European sites listed above must be taken into consideration due to their hydrological connection to the development. However only the qualifying features within these European Sites that have the potential to be impacted through a hydrological link to the discharge point will be considered.

A key requirement of the Water Framework Directive is that surface water bodies attain at least "good" surface water status, requiring both ecological status and chemical status to be at least "good", and that there should be no deterioration in existing status. The Bogside_010 river water body, downstream coastal water bodies and underlying groundwater body are:

- Bogside_010 (IE_NW_37B260880)
- Inver Banagher Hill Groundwater (IE NW G 070)
- St John's Point Groundwater (IE NW G 068)
- Inver Bay (IE_NW_060_0000)
- Mc Swine's Bay (IE NW 080 0000)

The landfill is situated within the proximity of the Bogside_101 which lies within the northern secondary sub-catchment of Stragar_SC_010 which resides within the Donegal Bay North catchment. The overall Donegal Bay North catchment comprises five sub-catchments with 50 river water bodies, 12 lakes, four transitional, six coastal water bodies and eight groundwater bodies. The tributaries of the Eany (water), the Eany More and Eany Beg, drains the southern slopes of the western half of the Bluestack Mountains. The river past Inver, where it flows out into Donegal Bay via Inver Bay

4.4 Summary of the Screening Assessment

4.4.1 Habitat Loss

Likely significant effects have been discounted for all European sites.

4.4.2 Water Quality and Habitat Deterioration

The principle issue of concern raised in the assessment, is that of the potential impact of groundwater surface water interactions from the historic landfill on the receiving waterbody, Bogside River, and those further downstream waterbodies which are hydrologically connected to the European sites. The historical landfill site will require an ongoing watching brief to ensure that there will be no negative impacts on the WFD status of waterbodies that are hydrologically connected to the European Sies, including the protected area objectives. The possibility of likely significant water quality and habitat deterioration effects can be discounted for the St. John's Point SAC, Donegal Bay SPA and Inishduff SPA due to the fact that the surface water bodies are not impacted by the historical landfill site which is not preventing the water bodies from achieving their environmental objectives under the WFD.

4.5 Likely Significant Effects (LSE)

The ecological status of this Bogside river water body has not been assigned under the WFD monitoring programme. The characterisation undertaken under the second river basin management cycle has assigned agriculture as the only significant pressure to the Bogside_010 river water body which is currently listing as being significant within the subcategory of pasture.

The levels of contaminants analysed at the sorface waters upstream and downstream of the landfill site and the borehole monitoring undertaken for the tier 3 report are within the required EQS required to sustain at least good ecological status with the exception of BOD, where concentration in the upstream of the landfill were measured to be 3.42mg/l, which is greater than the EQS for conditions capable of supporting good ecological status. However as this measurement was taken upstream of Dunkineely historical landfill it suggests that the site is not the source of the pressure.

Nutrient levels downstream of the landfill indicate no need for remediation works at the site and the existing boreholes on the site will therefore be decommissioned which will involve the backfilling, sealing and capping of the boreholes. The decommissioning of the boreholes is necessary to prevent a pathway to contamination of the shallow groundwater and potential to impact on surface water through the groundwater interaction and will not pose a significant threat to the associated water bodies given the nature and scale of the works.

Therefore Dunkineely Landfill site represents no risk to the achievement of the WFD objectives of Bogside_010 river water body, the coastal waterbodies downstream and therefore the conservation objectives of the St. John's Point SAC, Donegal Bay SPA or Inishduff SPA where hydrological connectivity exists.

This Appropriate Assessment Screening has been prepared by RPS on behalf of Donegal County Council in support of the proposed restoration works for the Dunkineely Landfill. The purpose of the report is to document the evaluation and analysis of the potential impact on the waterbodies and conservation objectives of connected Natura 2000 sites.

Having regard to the methodology employed and the findings of the screening stage exercise, it is concluded that an appropriate assessment of the Dunkineely Landfill site is not required as it represents no risk to the receiving environment, therefore restoration is not required and the decommissioning of the boreholes will not negatively impact on water quality.

5 CONCLUSION

The report was prepared with regards to relevant legislation outlined in Section 1 of this report and methodological guidance outlined in Section 2 of this report.

A screening exercise was completed in Section 4 of this report to determine whether or not 'Likely Significant Effects' on any European site could be discounted as a result of the proposed development.

From the findings of the screening stage exercise, the possibility of likely significant water quality and habitat deterioration effects could be discounted for St. John's Point SAC, Donegal Bay SPA and Inishduff SPA due to the low risk associated with the historical landfill site, their distance from the site and large dilution volume from the freshwater and coastal systems.

The assessment concludes that no adverse effect upon the integrity of any European site will occur. Should the correct monitoring and treatment procedures to ensure the proposed ELVs are achieved are undertaken, the waterbodies downstream of the site will not be at risk of deterioration or achieving their WFD status.

On the basis of these findings, it is concluded that the proposed discharge:

(i) is not directly connected with or necessary to the management of a Natura 2000 site

and

will not have significant effects on the conservation objectives of the qualifying habitats and species of the River Bogside_010 water body, or the downstream St. John's Point SAC and Inishduff SPA provided proposed discharge ELVs.are adhered to.

proposed discharge ELVs and ELVs

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