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ARTHURSTOWN LANDFILL TECHNICAL AMMENDMENT

Report to Inform the Screening for Appropriate Assessment

Prepared for:

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REPORT TO INFORM THE SCREENING FOR APPROPRIATE ASSESSMENT

REVISION CONTROL TABLE, CLIENT, KEYWORDS AND ABSTRACT

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Abstract: This document is to inform the Competent Authority in carrying out their statutory obligations relating to the Habitats Directive requirement for Appropriate Assessment for plans and projects seeking consent. Appropriate Assessment is required under Article 6 (3) of the Habitats Directive for any project or plan that may give rise to significant effects on a European (Natura 2000) site.

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1. INTRODUCTION

South Dublin County Council (SDCC) intend to apply to the Environmental Protection Agency (EPA) for a Technical Amendment to the Industrial Emissions waste licence for Arthurstown Landfill (Licence Ref: W0004-04) to alter the existing emission limit values (ELV) which specify the maximum concentrations for emissions to sewer. This change will be sought from the EPA by seeking a Technical Amendment to the Waste License.

This report for Screening for Appropriate Assessment has been prepared to inform the competent authority (EPA) in completing their statutory obligations in relation to Appropriate Assessment under Council Directive 92/43/EEC (Habitats Directive).

The assessment was conducted in accordance with the following guidance:

- Assessment of plans and projects in relation to Natura 2000 sites - Methodological guidance on Article 6(3) and (4) of the Habitats Directive 92/43/EEC. Commission Notice (2021) Brussels, 28.9.2021 C(2021) 6913 final (European Commission, 2021)
- OPR Practice Note PN01 Appropriate Assessment Screening for Development Management, (Office of the Planning Regulator, 2021)
- Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities. National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin (2009, updated 2010) (Environment Heritage and Local Government, 2010).

2. DESCRIPTION OF THE PROJECT

Arthurstown Landfill is owned and operated by South Dublin County Council (SDCC) and is licensed by the Environmental Protection Agency (EPA) (Waste Licence W0004-4).

As part of the ongoing management and operation of Arthurstown landfill, leachate is pumped from the lined landfill cells to a leachate storage tank prior to treatment in the on-site leachate treatment facility using an aerated sequential batch reactor (SBR). The treated leachate is discharged to a leachate balance tank and thereafter continuously pumped via a rising main to a foul sewer, part of the Upper Liffey Valley Sewerage Scheme (Osberstown wastewater treatment plant, Waste Water Discharge Authorisation Reg No. D0002-01). Treated effluent from the Upper Liffey Valley Sewerage Scheme is discharged under EPA licence into the River Liffey.

Recently the EPA issued a licence non-compliance notification for the Arthurstown Landfill regarding recurring exceedances of ELVs for ammonia and chemical oxygen demand (COD) in the balanced leachate emissions to sewer.

In their notification the EPA state that '*The licensee shall investigate measures to be implemented to ensure that recurrent breaches of the licence emissions values do not occur. These measures shall include but are not limited to licence amendment to increase the emission limit values, implementation of a faster laboratory results turnaround, and/or the purchase/implementation of onsite the monitoring to establish licence compliance prior to effluent discharge to sewer*'.

SDCC is seeking changes to the Emission Limit Values (ELVs) for treated leachate discharges from Arthurstown Landfill to the foul sewer (Upper Liffey Valley Sewerage Scheme). This change will be sought from the EPA by seeking a Technical Amendment to the Waste License.

Table 2-1 identifies the existing ELVs for the treated leachate discharge to the sewer and the proposed ELVs being sought.

Table 2-1: Existing and Proposed Kill Sewer Emission Discharge Limit Values

	Units	Existing	Proposed
Ammonia	mg/l	5	20
BOD	mg/l	200	400
COD	mg/l	750	2000
SS	mg/l	250	250
TOC	mg/l	300	600
cl	mg/l	2250	2250
N	mg/l	1000	2000
P	mg/l	20	40
Flow	m3/day	200	200

Note 1 Existing discharge limits defined by Condition C.6 of Waste Licence W0004-4.

Proposed increase in ELVs were agreed by Irish Water Letter in October 2022 (see Technical Amendment Application). There are no proposed changes to increase to the volume of leachate being discharged and there will be no change in the process.

3. IDENTIFICATION OF RELEVANT NATURA 2000 SITES USING SOURCE-PATHWAY-RECEPTOR ASSESSMENT AND ASSESSMENT OF POTENTIAL FOR SIGNIFICANT EFFECTS

The Office of the Planning Regulator's Practice Note PN01 recommends that the zone of influence of a project should be considered using the Source-Pathway-Receptor model.

European sites which may potentially be significantly affected by the proposed development are identified using the 'source-pathway-receptor' (S-P-R) conceptual model. The S-P-R model is a standard tool in environmental assessment to determine links between sensitive features and sources of impacts. In order for an effect to occur, all three elements of this mechanism must be in place. The absence of one of the elements of the mechanism means there is no likelihood for the effect to occur e.g., if there is no ecological pathway or functional link between the proposed development and the European site, there is no potential for impact and as such no potential for significant effects.

An impact may occur without having a significant effect. An impact is essentially the 'source' in the S-P-R assessment. It is the biophysical change caused to the environment by the project e.g., increase in sediment runoff due to ground disturbance. For the effect to be significant, the Qualifying Interests / Special Conservation Interests of the European site must be sensitive to the biophysical change.

3.1 Source-pathway-Receptor Assessment

The leachate generated on site at Arthurstown Landfill from cells 1 through 15 (LC1-LC15) is treated in an on-site leachate treatment plant comprising a sequencing batch reactor (SBR). The treated leachate discharges to the leachate balancing tank (LBAL) where it is stored prior to discharge to rising main from Arthurstown Landfill at a maximum rate of 8 m^3 per hour to the sewer network serving the Kill Village agglomeration. The village is served by the Kill pumping station which forward feeds the foul flow to the Osberstown wastewater treatment plant (WWTP).

The emission limit values prescribed in Condition 6 of the EPA waste licence W0004-04 for the Arthurstown landfill are not being met. The quarterly reports on emissions to sewer as submitted by the licensee (available through the EPA website[1]) identify on-going exceedances of the ELVs in the leachate emissions to sewer. These elevated concentrations above current waste licence conditions are readily assimilated and treated at the Osberstown WWTP as evidenced by the effluent monitoring results from Osberstown WWTP. The EPA Site Visit Report for the Osberstown WWTP (file ref: SV23790 for inspection carried out on 16/09/2022) notes that effluent monitoring results from Osberstown WWTP complied with the Emission Limit Values in 2021 and 2022. The 2021 Annual Environmental Report for the WWTP (AER) states that there is adequate hydraulic capacity at the WWTP. The primary discharge from the WWTP is to the Liffey River (EPA Name LIFFEY_100) which is classified as having a Good Water Framework Directive (WFD) Status. EPA Monitoring Stations both upstream and downstream of the primary discharge from the WWTP record Good Status, indicating no impact on WFD status from the WWTP.

[1] https://epawebapp.epa.ie/licsearchdownload/CombinedFileView.aspx?regno=W0004-04&classification=Enforcement

The Kill Pumping station has a storm water overflow which discharges to the Painestown River (EPA name PAINESTOWN_010) at Kill Village. The EPA Site Visit Report (ref: SV23790) notes that this pumping station has adequate capacity and storm water overflow events are rare (Irish Water Comment). The Site Visit Report additionally notes that in 2022, Irish Water records indicated there was only one storm water overflow event from Kill pumping station. During storm water events the effluent overflow from the pumping station to the Painestown River is diluted by rainwater and will have a lesser concentration than during dry weather conditions.

The Painestown River is a tributary of the River Liffey, which ultimately flows into Dublin Bay ca. 45 km downstream. The Bay is designated as Special Protection Area and a Special Area of Conservation: South Dublin Bay and River Tolka Estuary SPA, North Bull Island SPA and South Dublin Bay SAC.

As per the mass balance assessment presented below, even in the event of pump failure at the Kill Pumping Station the emergency overflow of leachate from Atrhurstown Landfill would not adversely affect the Good WFD status in the River Liffey and ultimately would not impact water quality in the Bay some 45km downstream and as such could not have an effect on the European sites of the Bay.

Mass Balance Formula

$$\textbf{Mass balance} = T = \frac{FC + fc}{F + f}$$

Where
T = resultant concentration due to the discharge (mg/l)
F = 95%ile flow in receiving water (m^3/s)
C = mean background concentration in receiving water (mg/l)
f = maximum discharge flow (m^3/s)
c = maximum concentration in the discharge (mg/l)

95%ile flow on the River Liffey at monitoring station 09024 is 3.74 m^3/s downstream of the tributary with the Painestown River.

The maximum allowable discharge of leachate from Authurstown Landfill to sewer is 8m3/hr (equating the 0.0022 m3/sec). This value is used for 'f' maximum discharge flow.

'C' the mean background concentrations in the River Liffey are taken from Monitoring Station RS09P010400 at Celbridge Bridge for the years 2021 and 20222 and are as follows:

- Ammonia: 0.0204 mg/l
- BOD: 0.85 mg/l
- Ortho P: 0.0169 mg/l

'c' the maximum concentration in the discharge are as per the proposed ELVs in Table 2.1.

[2] Taken from Data - Catchments.ie - Catchments.ie

The results of the mass balance assessment, when compared against the Ecological Quality Status (EQS) concentrations as prescribed in the European Communities Environmental Objectives (Surface Waters) Regulations 2009 (as amended) show that the Good Status would not be affected.

Parameter	T Resultant Concentration (mg/l)	Good Status EQS (mg/l)	Compliant with Good Status
Ammonia	0.032	≤ 0.14 (95%ile)	Yes
BOD	1.085	≤ 2.6 (95%ile)	Yes
Ortho P	0.025	≤ 0.075 (95%ile)	Yes

3.2 Assessment of Likely Significant Effects

The source-pathway-receptor assessment demonstrates that the proposed Technical Amendment to the Industrial Emissions waste licence for Arthurstown Landfill (Licence Ref: W0004-04) to alter the existing emission limit values for discharge to sewer is not likely to have significant effects on any European site given the absence of a pathway for effect.

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