REMEDIAL STAGE 1 APPROPRIATE ASSESSMENT SCREENING REPORT FOR MURPHY CONCRETE MANUFACTURING LTD SITE, GORMANSTON, CO. MEATH WASTE LICENCE W0151-01

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1.0 Introduction

1.1 Background

Envirico Ltd was commissioned by Geosyntec Consultants to an undertake Appropriate Assessment Screening, (AA Screening), of an EPA licenced inert waste landfill facility. This evaluation presents a Stage 1 Screening for Appropriate Assessment (AA) to provide a retrospective assessment of the potential effects that may have occurred on Natura 2000 sites and associated qualifying species as a result of activities at the existing EPA licenced waste management facility in Sarsfieldtown, Gormanstown, County Meath (the Facility) operated by Murphy Concrete Manufacturing Ltd (MCM). The Facility has been restored since 2003 under the EPA Waste Licence register number W0151-01 (the Licence).

In compliance with Technical Amendment A for the Licence, issued by the EPA in February 2013, the licensed total quantity of waste permitted to be placed at the landfill facility (over authorised life of facility) is 3.8 million tonnes. The total quantity of waste placed to date at the Facility is approximately 5.7 million tonnes. This report forms a part of a Technical Amendment application to the EPA to increase the total quantity of waste permitted to be placed at the landfill facility to 6 million tonnes.

This Screening for Appropriate Assessment comprises an appraisal of potential impacts on European designated conservation sites within a 15 km radius of the Site or where an ecological pathway e.g. terrestrial or aquatic exists between the Site and a Natura 2000 site. This AA Screening has been prepared by Maurice O'Connor, Senior Ecologist, Envirico Ltd. The water related sections of this AA Screening have been prepared by Geosyntec Consultants.

The legislative context of this report are set out below.

1.2 Legislative Context for Appropriate Assessment

Regulation 42 of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. 437 of 2011) (as amended) transposes Article 6 of the Habitats Directive (92/43/EEC) into Irish law. The regulations require that where a public authority wishes to progress a project (which is not directly connected with or necessary to the management of the site as a European Site), a screening for Appropriate Assessment (AA) of the project must be carried out by the public authority to assess, in view of best scientific knowledge and in view of the conservation objectives of the site, if that project, individually or in combination with other plans or projects is likely to have a significant effect on the European site. AA screening is required under Article 6(3) of European Union Council Directive 92/43/EEC (also known as the Habitats Directive), section 177U of the Planning and Development Act 2000 to 2018 and amendments (Amendment of Part XAB (appropriate assessment)).

In accordance with the requirements of the Habitats Directive (92/43/EEC) and the Birds Directive (2009/147/EC), Member States have identified a network of sites of conservation importance, hosting habitats and/or species identified in the Directives as needing to be either maintained at or returned to favourable

conservation status. These sites are known as the Natura 2000 network and in Ireland, Natura 2000 sites comprise areas designated as Special Areas of Conservation (SACs), candidate Special Areas of Conservation (cSACs), Special Protection Areas (SPAs) and candidate Special Protection Areas (cSPAs).

These Directives require that where a project is likely to have a significant effect on a Natura 2000 Site, while not directly connected with or necessary to the nature conservation management of the site, it shall be subject to 'Appropriate Assessment' to identify any implications for the site in view of the site's conservation objectives. Specifically, Article 6(3) of the Habitats Directive states:

"Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives.

In the light of the conclusions of the assessment of the implications 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".

Article 6(4) states:

"*If, in spite of a negative assessment of the implications for the [Natura 2000] site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature, Member States shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted.*"

<u>This screening for Appropriate Assessment has been carried out in accordance with the following European Commission Guidance:</u>

Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities. DoEHLG (2010);

- Appropriate Assessment under Article 6 of the Habitats Directive: Guidance for Planning Authorities. Circular NPWS 1/10 and PSSP 2/10. National Parks and Wildlife Service (NPWS) (2010);
- 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. European Commission (2001);
- Managing Natura 2000 sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC. European Commission (2000a);
- Communication from the Commission on the Precautionary Principle. European Commission, (2000b); and

- 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. Office for Official Publications of the European Communities, Luxembourg. European Commission (2002).

1.3 Approach and Planning Precedent

This stage 1 screening is presented with embedded design parameters detailed in section 1.4 below. These measures are not intended to be interpreted as mitigations to address a likely significant effect to a Natura 2000 site. Planning precedent dictates that mitigation should only be presented as part of stage two in the appropriate assessment (AA) process if required to minimise likely significant effect.

1.4 Project Scope, Description and Embedded Design Parameters

The focus of this assessment, wherever possible, is centred on the establishment of likely baseline environmental conditions and potential impacts from licenced activities from 2013 until to date, which have the potential to affect the integrity of Natura 2000 sites including the qualifying species. In any retrospective assessment uncertainty may be a feature. As such, a conservative approach has been adopted to recognise impacts.

The Facility is located in Sarsfieldstown, Gormanstown, Co. Meath, approximately 6.5km south-east of Drogheda Town. The Facility is accessed by a minor road, R132, off the M1 motorway. The Facility is bounded to the north by the Sarsfieldstown Stream, to the west by a service station, residential properties, and agricultural land, to the south by agricultural land and to the east by residential properties and agricultural land.

The Facility covers an area of ca. 41 acres (ca. 16.77 hectares) in total. Current topographic levels across the Facility varies from 27 meters above ordnance datum (mAOD) in the north-western portion to 17mAOD in the southwestern portion. The layout currently comprises site offices, car parking and truck turning areas, weighbridge, maintenance building and truck wheel wash bay and two (2 No) ponds.

The Site was a pre-1963 sand and gravel quarry prior to the issuing of the EPA Waste Licence in 2003. Domestic waste was deposited by Meath County Council at the eastern portion of the Site prior to 2003. A High Court Order agreement (*Record no. 39 MCA 1995*) between Meath County Council and MCM required that the disposal of domestic waste cease at the facility, however it allowed the facility to accept “dry fill and builders rubble, hence the EPA issued the Waste Licence in June 2003 for the restoration of the Site, including areas where domestic waste was deposited.

Embedded design parameters considered for this retrospective assessment are applicable owing to the following day to day operations at the Site in a current and historic context:

- The use of plant and machinery on Site poses risks of hydrocarbon spillage;

- The presence of welfare facilities and septic tank;
- Gravel washing activities (e.g. movement of material silt mobilisation);
- Dust mobilisation.

Murphy Environmental is responsible for all aspects of the management and operation of the Facility and compliance with the Waste Licence. The Facility operates a documented system for the management of environmental systems onsite which is certified to ISO14001:2004. The Facility was the second privately-operated landfill (Murphy Environmental Hollywood Ltd being the first) to achieve accreditation to ISO14001, the international standard for Environmental Management Systems, in 2005.

In order to avoid the potential impacts to the environment during the operation of the facility since the issuing of an EPA waste licence (2003) embedded design and commonly undertaken good practice mitigation measures were in place at the Site.

2. The Appropriate Assessment Process

2.1 Stages in Screening and Appropriate Assessment

Screening for Appropriate Assessment (AA) is broken into four distinct stages, as outlined in the European Commission Guidance document (2001). Within these stages, the potential of significant impacts/effects upon a Natura 2000 site will be assessed and detailed. The four stages of an AA are summarised below. Article 6(3) of the Habitats Directive, which details this assessment process, is implemented into law in Ireland through the provisions of Sections 177U and 177V of the 'Planning and Development Act 2000 to 2018'.

All potential effects between activities associated with the proposed development and the ecological components of European sites must be considered. This includes potential effects on mobile species notably, birds, mammals, invertebrates and migratory fish.

If the prospect of LSEs occurring cannot be excluded on the basis of objective information, the project is taken forward to the next stage of the process, Appropriate Assessment. At Screening, the burden of evidence is to show, on the basis of objective information, and beyond reasonable scientific doubt, that the project will have no LSEs on a European site. If the effect may be significant, or is not known, it would trigger the need for Appropriate Assessment. The entire process can be broken down into four stages (EC, 2001), as outlined below:

Stage 1 - Screening:

Screening for an AA, in relation to the construction, management/operation and decommissioning of a specific proposed plan or project, shall be completed in order to assess whether said development, either individually or in combination with others, is likely to have a significant effect upon Natura 2000 sites locally, regionally or nationally, in view of these site's conservation objectives.

Stage 2 - Appropriate Assessment:

The competent authority detailing the AA shall, under Article 6(3) and Section 177V of the 'Planning and Development Act 2000 to 2018', make a decision as to whether or not the proposed development would affect or impact upon the integrity of a Natura 2000 site. Where there are adverse effects on site integrity identified, mitigation measures are proposed, as appropriate, to avoid adverse effects, and as such a Natura Impact Statement is then required. For projects, the AA process is documented within a Natura Impact Statement (NIS). This is provided to the competent authority by the applicant, to facilitate an informed assessment of the project.

Stage 3 - Assessment of Alternative Solutions:

If following AA, including proposal of mitigation, adverse effects on site integrity remain, or uncertainty remains, an Assessment of Alternatives is required. This process examines alternative ways of achieving the objectives of the project or plan that avoid adverse impacts on the integrity of the European site.

Stage 4 - Assessment where no alternative solutions exist:

Where alternative solutions, locations, etc. are absent, or if such solutions are likely to have increased levels of impact upon Natura 2000 sites, the competent authority must establish whether or not the plan or project can be considered as necessary for Imperative Reasons of overriding public interest (IROPI).

3. Screening Methodology

3.1 Desktop Review

A desk review was undertaken in November 2022 in order to assess the potential impacts of the proposed project, as detailed in Section 4.2 of this document. The purpose of this review is to collate available data and information relating to the site and relevant Natura 2000 sites. Within this review, sources, publications and datasets that were consulted included:

- Details and qualifying interests of European sites
- Arial photography and 1:50000 mapping
- National Parks and Wildlife Service (NPWS)
- Species and habitat records from the National Biodiversity Data Centre's

3.1.1 Websites and other Resources consulted

- Environmental Protection Agency ENVision online maps http://maps.ie
- National Parks and Wildlife Service website, www.npws.ie map viewer
- National Biodiversity Data Centre (www.biodiversityireland.ie),
- https://www.npws.ie/sites/default/files/publications/pdf/NPWS_2019_Vol2_Habitats_Article17.pdf
- NPWS (2012) Conservation Objectives: Boyne Coast and Estuary SAC 001957. Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
- https://www.npws.ie/sites/default/files/publications/pdf/001957_Boyne%20Coast%20and%20Estuary%20SAC%20Coastal%20Supporting%20Doc_V1.pdf
- https://www.npws.ie/sites/default/files/publications/pdf/001957_Boyne%20Coast%20and%20Estuary%20SAC%20Coastal%20Supporting%20Doc_V1.pdf
- Conservation Status Assessment Reports [1] (CSARs), Backing Documents and Maps prepared in accordance with Article 17 of the Habitats Directive;
- Published and unpublished NPWS reports on protected habitats and species including Irish Wildlife Manual reports, Species Action Plans, and Conservation Management Plans; and
- Existing relevant mapping and databases e.g. waterbody status, species and habitat distribution etc. (sourced from the Environmental Protection Agency - http://gis.epa.ie/, the National Biodiversity Data

Centre - http://maps.biodiversityireland.ie and the National Parks and Wildlife Services - http://www.npws.ie/mapsanddata/).

3.1.2 Interested Party Consultations

- Review of environmental monitoring data for the facility for the years 2019 to 2022 by Geosyntec Consultants. The data comprised groundwater, surface water and leachate monitoring data compiled by Patel and Tonra Ltd.

3.2 Zone of Influence

The Zone of Influence (ZoI) for a project is the area over which significant effects could occur to ecological features from the proposed project and associated activities. The determination of a ZoI for a project should be identified on a case-by-case basis as there may be an effect on European sites that are at a distance from the development site itself. For example, where there is a hydrological link between the development site and a European site.

Considerations when determining the potential ZoI include:

- Ecological features within and in proximity to the proposed development
- Migratory/mobile species within the area
- Construction/operational activities that may cause a significant effect
- Linkages to European sites or sensitive habitats connected to those sites

Current Irish departmental guidance (DoEHLG, 2010) on the ZoI to be considered during the AA process 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".

Given the relatively minor footprint of the proposed development and that the effects during operation of the development are likely to be slight to negligible, it is concluded that the ZoI is likely to be significantly smaller than 15km.

3.3 European site and identification

The identification of European/Natura 2000 sites, which have the potential to be impacted as a result of the proposed development (either individually and or in combination with other plans or projects, proposed or in development) is an important step in the assessment of such impacts whether they be indirect or direct. All

Natura 2000 sites are different; hold differing ecological features, Qualifying Interests, conservation objectives, functions and general structure. Each relevant Natura 2000 site should be evaluated in order to determine if the proposed development is likely to have a significant effect on (EC, 2001).

The Qualifying Interests (QI) of each Natura 2000 site can be affected directly and indirectly. Direct effects include habitat loss and habitat fragmentation, which can occur as a result of development land-take, alteration of conditions within a protected site, etc. Indirect effects that have the potential to occur as a result of a project (either individually or in combination with others) can include the change of silt content of a system, alteration of groundwater flow, etc. These indirect effects have the potential to result in impact to Qualifying Interests which rely on optimum conditions within a specific area/catchment (EC, 2001).

4.0 Screening

4.1 Introduction

The purpose of Screening is to determine whether AA is required. This is done by examining whether

- A plan or project which is directly connected with or necessary to the management of the site can be excluded from AA.

- The potential effects of a plan or project, either alone or in-combination with other plans or projects, on a European site, in view of its conservation objectives and considering whether these effects will be significant.

4.1.1 The Likely Significant Effect test

Screening is underpinned by an interpretation of LSE as this interpretation provides the benchmark for a finding of likely effects. Any assessment of significance must satisfy the principles that underpin a satisfactory determination for LSE with regard to the accumulation of impacts and an understanding of the nature, probability and severity of potential impacts. The terms 'likely' and 'significance' have been defined variously by governments and through the courts. The following sections seek to provide clarification on the current interpretation of these key terms as determined by recent guidance and case law.

4.1.2 An interpretation of 'likely'

European case law has established that the benchmark requirement of 'likely' should not be regarded as a measure of probability in the context of an AA. Rather, a LSE finding is an acknowledgment that the risk of a significant effect occurring exists. This approach is consistent with the findings in the Waddenzee judgement, which found that "*if it cannot be excluded, on the basis of objective information, that it will have a significant effect on that site*" then a LSE finding is appropriate.

More recently, this position was upheld in the European Court of Justice (ECJ) in Case C-258/11 (Sweetman v An Bord Pleanála (Ireland), where the judgment interprets "likely" to mean "may". *"The test is set at a lower level*" and "*there is no need to establish such an effect; it is merely necessary to determine that there may be such an effect*". In cases where there is a determination that there is no significant effect, the Waddenzee judgment establishes that there must remain "*no reasonable scientific doubt as to the absence of such effects*."

4.1.3 An interpretation of 'significant'

It was clarified in the ECJ Case C-127/02 (the Waddenzee judgment) that the measure of significance should be made against the ecological objectives for which the site was designated: "where a plan or project is likely to undermine the site's conservation objectives, it must be considered likely to have a significant effect on that site".

The proposed project is not directly connected with, or necessary to the management of any European site therefore Screening for AA is required. This involves the following:

- Proposed development description
- European site(s) identification, Qualifying Interests and conservation objectives
- Ecology baseline conditions within and in close proximity to proposed development
- Assessment of likely effects
- Screening conclusion.
- CIEEM (2017). Guidelines for Preliminary Ecological Appraisal. (Chartered Institute of Ecology and Environmental Management) Second Edition
- Fossitt, J. (2000). Guide to Habitats in Ireland. The Heritage Council
- NRA (2010). Guidelines on the Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads.

4.2 Baseline Characterisation

4.2.1 Overview of baseline data

On the 1st November 2022, an Envirico Ecologist carried out a detailed site walkover to inform the screening for Appropriate Assessment. The site is comprised of one land parcel, covering an area of approximately 16.77ha and is accessed by a minor road, R132, off the M1 motorway. The Facility is bounded to the north by the Sarsfieldtown Stream, to the west by a service station, residential properties, and agricultural land, to the south by agricultural land and to the east by residential properties and agricultural land. Current topographic levels across the Facility varies from 27 meters above ordnance datum (mAOD) in the north-western portion to 17mAOD in the southwestern portion. The layout currently comprises site offices, car parking and truck turning areas, weighbridge, maintenance building and truck wheel wash bay and two ponds. The dominant habitat types on the site are Amenity grassland (GA2) and Building and artificial surfaces (BL3). Habitats and flora species identified on site are detailed within the habitats section below.

4.2.2 Habitats

In total eight habitat types were identified on site and are outlined in figure.1. None of the habitats identified as priority Habitats and generally are common within the area, these habitats include:

Active Quarries and Mines (ED4)

The quarrying activity has ceased in the facility, but the facility is still allowed to wash imported gravel at the site. The facility is currently undergoing site restoration such as the area where this particular habitat is located to the south of the two ponds present on-site. The two ponds present are also due to be filled in as part of the site restoration process.

Amenity Grassland Managed (GA2)

This also, is one of the main habitat types on site and extensively covers the remediated green areas of the facility, in which grass species such as Crested dogs-tail (*Cynosurus cristatus*), Cocksfoot (*Dactylis glomerata*) were abundant with many species of herbaceous plants; Creeping Buttercup (*Ranunculus repens.)* Clover *(Trifolium*), Creeping Cinquefoil (*Potentilla reptans*), Lesser Knapweed (*Centaurea nigra*), Ribwort Plantain (*Plantago lanceolata*), Common Vetch (*Vicia sativa*, Coltsfoot (*Tussilago farfara*), Ragwort (*Jacobaea vulgaris*), Nettles (*Urtica diocia*) and Common Thistle (*Cirisium vulgare*).

Buildings & Artificial Surfaces (BL3)

This particular habitat type consisted of the maintenance buildings, storage yards and site access roads.

Artificial Lakes & Ponds

The two ponds present in the facility consisted of this particular habitat type. There was low degree of succession around the margins of the ponds, with the presence of aquatic emergent vegetation as Bulrush *(Scirpoides holoschenus*). The re-colonised bare ground (ED3) of the slopes surrounding the ponds consisted of such species as Yarrow (*Achillea millefolium*), Self-heal (*Prunella vulgaris*) and Buddleia (*Buddleia davidii*) an introduced invasive non-native plant species in Ireland. Buddleia is classed as being a species of 'Medium Invasive Impact' by Kelly, et al., (2013) and is not listed in Part 1 of the Third Schedule of Statutory Instrument 477/2011.

Treelines (WL2)

Treeline *habitat* types were situated around the boundaries of the facility, mainly the eastern and north western perimeters, where the treelines formed a mosaic with Hedgerows (WL1) and Scrub (WS1) habitat types. The treeline habitats consisted of such species as Ash (*Fraxinus excelsior*), Hawthorn (*Crataegus monogyna)*, Alder (*Alnus glutinosa*), and Elder (*Sambucus nigra*), with an understorey of Brambles (*Rubus fructicosus agg*.) and Nettles (*Urtica diocia*).

Hedgerow (WL2)

The site has a continuous hedgerow line running along the northern and eastern perimeter boundaries, in parts has an extensive verge >2m and is interspersed with mature trees; Ash (*Fraxinous excelsior*), Hawthorn (*Crataegus monogyna*), Elder (*Sambucus nigra*), Willow spp., Dog-rose (*Rosa canina*), Bramble (*Rubus fructicosus agg*.) Common Gorse (Ulex europaeus) and the undergrowth contains Nettle (*Urtica dioica)*, and Fern (*Dryopteris Sp.*), Cleavers (*Galium aparine*), Bush Vetch (*Vicia sepium*), Wild Angelica (*Angelica syvestris*), Hedge Bindweed (*Calystegia sepium*) Couch grass (*Elytrigia repens*), Perennial-Rye grass (*Lolium perenne*), Ribwort (*Plantago lanceolata*) and Creeping buttercup (*Ranunculus repens*). There were large pockets of Buddleia also present within the hedgerows along the north and north eastern boundaries (refer to fig.2).

Recolonising Bare Ground (ED3)

This particular habitat type was found mainly around the slopes of the two ponds and along the borders of the access road that services the facility. Species present included Coltsfoot (*Tussilago farfara*), Nettle (*Urtica diocia*), Willowherb (Epilobium spp.) and Ragworts (Senecio spp.). As described earlier, pockets of Buddleia were also observed on the slopes surrounding the two ponds.

Depositing/lowland rivers

The Sarsfieldtown Stream [EPA Code: 08S18] a first order stream bounds the site to the north.

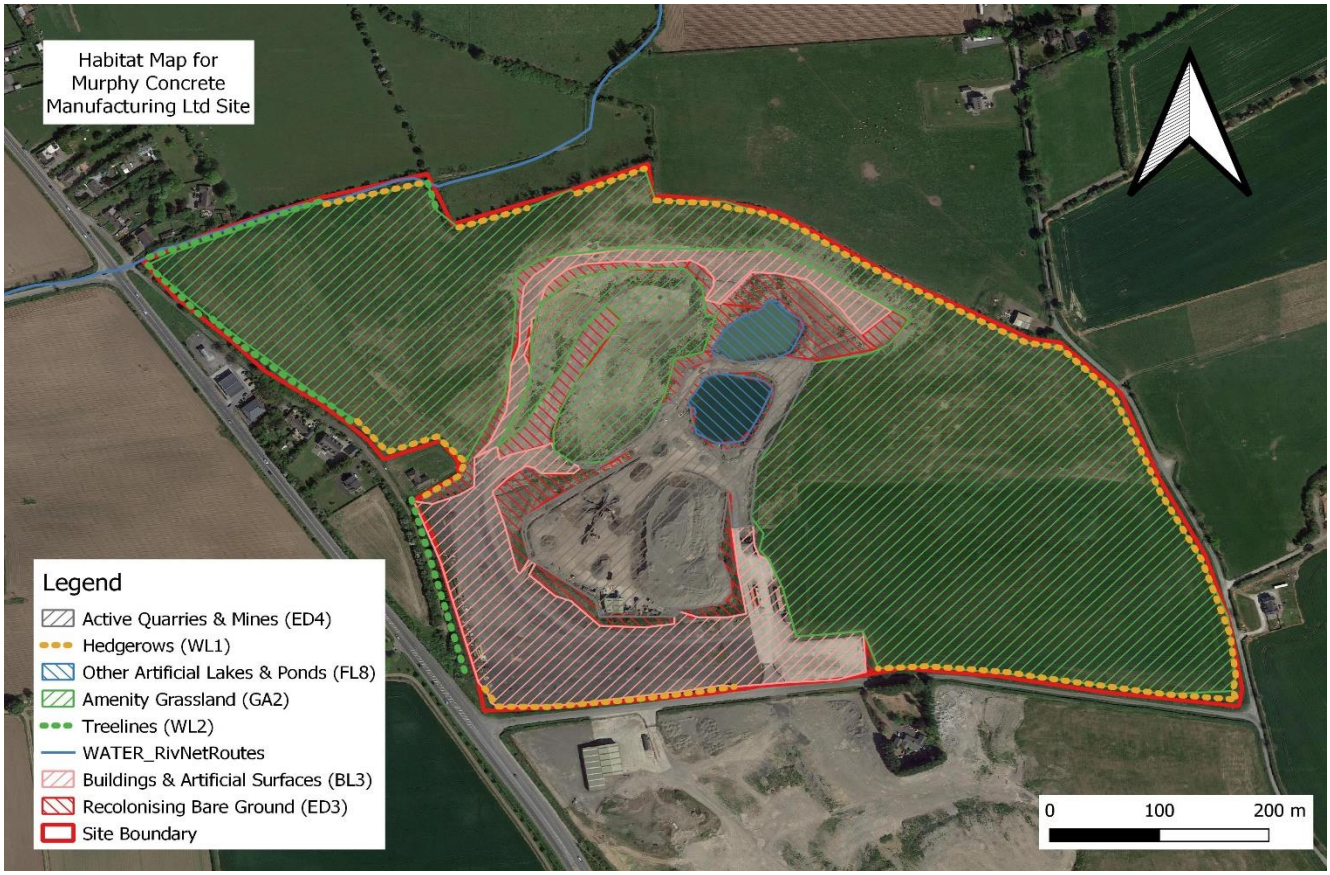

Figure 1: Habitat Map for Murphy Concrete Manufacturing Ltd Facility, Gormanstown, Co. Meath

Figure 2: Buddleia locations on the site

4.2.3 Invertebrates

No investigation of micro-organisms was undertaken on the day of site survey. Insects identified onsite include many types of species of micro-organisms that would be common to such an area: such as Slug, Snail, Spiders, Woodlice, Beetles, various Flies, and Worms. All are common but important in the overall ecology of this site. Species noted on survey include numerous sighting of *Bombus lapidaries* feeding on buttercups, and ladybirds, mostly six spotted ladybird, in the grassland areas, many species of beetles, spiders, flies and hover flies foraging and sheltering throughout the sites boundaries. None of these species are protected under the Wildlife Act or Habitats Directive.

4.2.4 Avifauna

The desk study search of NBDC records a species list of approximately 13 bird species over the last decade for the 2km grid square area, that included the facility.

The following avian species were recorded during the survey and are all common to these habitats; Snipe (*Gallinago gallinago*), Magpie (*Pica Pica*), Hooded Crow (*Corvus corone*), Rook (*Corvus frugilegus*), Robin (*Erithacus rubecule*) Starling (*Sturnus vulgaris*), Wood Pigeon (*Columba palumbus*) and a Shelduck (*Tadorna tadorna*) was observed present in the smaller of the two ponds present on-site.

4.2.5 Invasive Species

The desk study search of NBDC for invasive alien plant species, bird species and invasive animal species, scheduled to the European Communities (Bird and Natural Habitat Regulations) 2011; records recorded one Sycamore (*Acer pseudoplatanus*), one Ruddy Duck (*Oxyura jamaicensis*), three Brown Rat (*Rattus norvegicus*), nine European Rabbit (*Oryctolagus cuniculus*) and one Eastern Grey Squirrel (*Sciurus carolinensis*).

No scheduled invasive animals were noted during the field survey of the proposed development site. The Buddleia is classed as being a species of 'Medium Invasive Impact' by Kelly, et al., (2013) and is not listed in Part 1 of the Third Schedule of Statutory Instrument 477/2011 (refer to fig.2).

4.2.6 Aquatic Habitats

Two groundwater fed artificial ponds were present in the middle of the facility. The Sarsfieldtown Stream [EPA Code: 08S18] a first order stream bounds the site to the north, where the stream then flows in a northerly direction, until it joins the Mosney [EPA Code: 08M02] a second order stream. The Mosney then enters the sea at the River Nanny Estuary and Shore SPA (Site Code: 004158), approximately 1.6km northeast of the Facility.

Routine surface water monitoring in the vicinity of the Facility is carried out at upstream (ST1) and downstream (ST2) locations on the Sarsfieldstown Stream, and at one onsite surface water location (SWD-1) in accordance with the requirements of the Waste Licence.

The key control on groundwater flow direction in the northern portion of the Facility appears to be groundwater discharge to the Sarsfieldstown Stream (via. the gravel aquifer), while the key control on groundwater flow

direction in the eastern portion of the Facility appears to be groundwater discharge to the Irish Sea (via. the bedrock aquifer). Given this conceptual hydrogeological understanding and taking account of both the seasonal variation in groundwater levels and the site history, the Facility is therefore considered to be situated in a dynamic hydrogeological environment.

Surface Water Quality Investigations (2019-2022)

Routine surface water monitoring in the vicinity of the Facility is carried out at upstream (ST-1) and downstream (ST-2) locations on the Sarsfieldstown Stream, and at one onsite surface water location (SWD-1) in accordance with the requirements of the Waste Licence.

During the 2019-2022 monitoring period bi-annual surface water monitoring was carried out by Patel Tonra Environmental Solutions Ltd (PTL) at three locations – SWD-1, ST-1 and ST-2 for parameters listed in Table D.6.1 of the licence.

Location SWD-1 could be sampled only once (Q4 of 2019) during 2019 – 2022 monitoring period, as the location has been dry. All results were below the surface water and the salmonid water regulation concentrations.

Upstream location ST-1 was sampled three times by PTL and once by the EPA during 2019 – 2022 monitoring period. The stream was observed dry during the remaining monitoring events. All results were below the surface water and the salmonid water regulation concentrations.

Downstream location ST-2 was sampled once by PTL and once by the EPA during 2019 – 2022 monitoring period. The stream was observed dry during the remaining monitoring events. All results were below the surface water and the salmonid water regulation concentrations.

The environmental monitoring infrastructure is shown on the following Figure 3.

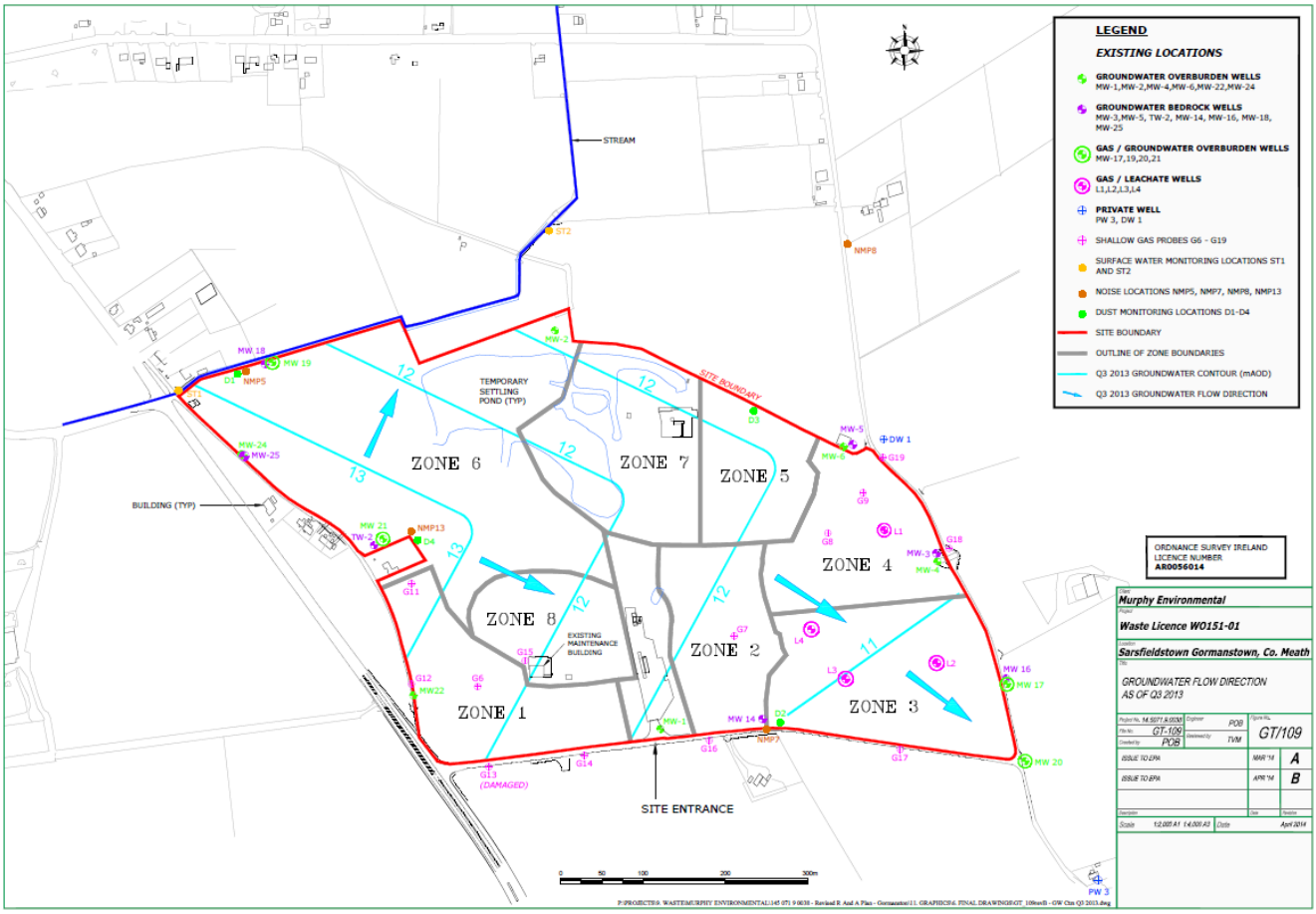

Figure 3: Environmental Monitoring Infrastructure at the Site.

Groundwater Quality Investigations (2019-2022)

Key findings from groundwater monitoring reports (PTL) for the monitoring periods from Q1-2019 to Q3-2022 are summarised as follows:

- MW-1 – ammoniacal nitrogen elevated between 0.55 mg/l and 14.52 mg/l, chloride elevated in Q1-2020 at 72.5 mg/l, sulphate elevated in Q1-2020 at 293.1 mg/l, manganese elevated at 2.43 mg/l (Q1_2020) and 0.2 mg/l (Q1-2021);
- MW-2 – ammoniacal nitrogen elevated at 0.7 mg/l (Q1-2022), 0.59 mg/l (Q2-2022) and 0.49 mg/l (Q3-2022), sulphate elevated at 287.8 mg/l (Q2-2021), 243.9 mg/l (Q3-2021), 195.1 mg/l (Q4-2021) and 157.50 mg/l (Q3-2022), manganese elevated at 0.07 mg/l (Q1-2020), 0.31 mg/l (Q1-2021) and 0.56 mg/l (Q1-2022).
- MW-3 – ammoniacal nitrogen elevated at 0.45 mg/l (Q2-2022).
- MW-4 – ammoniacal nitrogen elevated between 0.50 mg/l and 1.37 mg/l, manganese elevated at 1.33 mg/l (Q1-2020), 1.01 mg/l (Q1-2021) and 0.72 mg/l (Q1-2021) and faecal coliforms at 8 cfus/100ml (Q1-2020);
- MW-5 – ammoniacal nitrogen elevated at 0.32 mg/l (Q1-2019) and 0.21 mg/l (Q3-2020).

- MW-6 – faecal coliforms elevated between 8 and 48 cfus/100ml and total coliforms elevated between 42 and 6,330 cfus/100ml.
- MW-14 – chloride elevated between 104.7 ml/l and 240.2 mg/l, manganese elevated at 0.06 mg/l (Q1-2020), 0.07 mg/l (Q1-2021) and 0.07 mg/l (Q1-2022).
- MW-17 – ammoniacal nitrogen elevated at 7.2 mg/l (Q1-2021).
- MW-19 – sulphate elevated at 152.3 mg/l (Q1-2019).
- MW-21 – chloride elevated between 77.9 mg/l and 130.7 mg/l and total coliforms elevated at 10 cfus/100ml (Q1-2021) and 23 cfus/100 ml (Q1-2022).
- MW-22 – chloride elevated between 80.8 mg/l and 173.5 mg/l and faecal coliforms elevated between 3 and 23 cfus/100ml and total coliforms elevated between 6 and >100 cfus/100ml.
- MW-24 – total coliforms elevated between 64 and >100 cfus/100ml.
- MW-25 – faecal coliforms elevated between at 1 cfus/100ml and total coliforms elevated between 2 and 66 cfus/100ml.
- TW-2 – ammoniacal nitrogen elevated between 12.51 mg/l and 24.34 mg/l and manganese elevated at 0.06 mg/l (Q1-2021).

Site Water and Groundwater Interaction

According to the Hydrogeological Assessment (2017) the key control on groundwater flow direction in the northern portion of the Facility appears to be groundwater discharge to the Sarsfieldstown Stream (via. the gravel aquifer), while the key control on groundwater flow direction in the eastern portion of the Facility appears to be groundwater discharge to the Irish Sea (via. the bedrock aquifer). Given this conceptual hydrogeological understanding and taking account of both the seasonal variation in groundwater levels and the site history, the Facility is therefore considered to be situated in a dynamic hydrogeological environment.

Leachate Quality Investigations (2019-2022)

Routine environmental monitoring at the Site includes bi-annual leachate monitoring at four locations (L1, L2, L3 and L4). Locations L1, L2 and L3 have been dry, and no samples have been collected at these locations for over 10 years. Leachate samples have been retrieved at location L4 for laboratory analysis in compliance with Table D.6.1 of the licence.

Leachate monitoring reports (PTL) for monitoring periods from Q1-2019 to Q3-2022 identified elevated concentrations of ammoniacal nitrogen and manganese at every monitoring event since 2019:

- Ammoniacal nitrogen – results ranging from 1.22 mg/l to 4.86 mg/l
- Manganese – results ranging from 0.06 mg/l to 3.10 mg/l.

Iron concentration was observed elevated at 6.62 mg/l during Quarter 1 of 2019, but since the results have been below the drinking water guideline values.

Risk Screening

The environmental monitoring has identified a number of potential onsite and offsite sources for elevated parameters:

- Elevated manganese concentrations were detected in the groundwater at the Facility: this is a naturally occurring metal and hence was not considered an indicator of potential groundwater contamination.
- Elevated ammoniacal nitrogen, chloride and sulphate concentrations and total and faecal coliform detections were reported both upgradient and downgradient of the Facility.

4.2.7 Mammals

The desk study search of NBDC 2km grid records; returned one Eastern Grey Squirrel (*Sciurus carolinensis*), nine European Rabbit (*Oryctolagus cuniculus*), three Brown Rat (*Rattus norvegicus*), five Red Fox (*Vulpes vulpes*), six Irish Hare (*Lepus timidus subsp. hibernicus*), two Eurasian Badger (*Meles meles*), thirteen West European Hedgehog (*Erinaceus europaeus*) and threes species of bats, Common Pipistrelle (*Pipistrellus pipistrellus*), Soprano Pipistrelle (*Pipistrellus pygmaeus*) and Lesser Noctule (*Nyctalus leisleri*) recorded within a 2km grid containing the facility.

All the sites perimeters were assessed for potential tracks, prints, droppings and feeding remains. The ZoI for mammals such as bats, badgers and otters may extend over larger distances due to the fact that they can commute and cover large territories for food and shelter from their breeding sites.

No evidence of hedgehog and pygmy shrew was noted in field survey, however there is potential for hedgehog and pygmy shrew to occur within the ZoI of the proposed development, particularly within the adjacent hedgerows.

The field assessments along the hedgerows, under the vegetation and amenity grassland had potential evidence of fox dropping.

4.3 Identification of European Sites

Eight European/Natura 2000 sites were identified within 15km of the proposed development site. Of these sites, three are Special Areas of Conservation (SAC) and five are Special Protection Areas (SPA). These sites are detailed within Table 1 below.

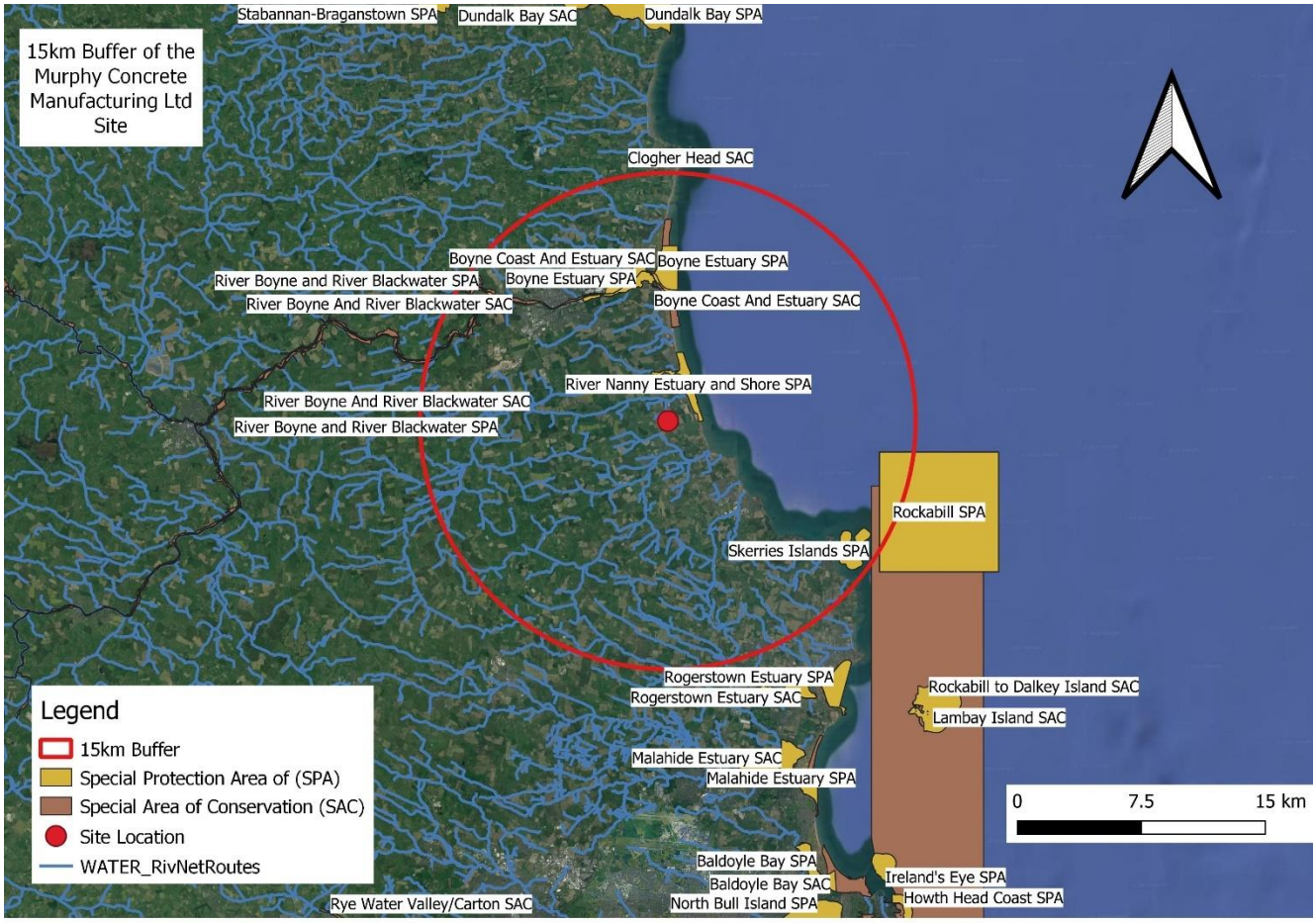

Figure 4: 15km buffer of European/Natura 2000 Sites

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The nearest European/Natura 2000 site to the proposed development is the River Nanny Estuary and Shore SPA (Site Code: 004158), located 1.68km directly north east and the Boyne Coast and Estuary SAC (Site Code: 001957), located 5.6km directly north east. The remaining sites; River Boyne and River Blackwater SAC Site Code: 002299), Rockabill to Dalkey Island SAC (Site Code: 003000), Boyne Estuary SPA (Site Code: 004080), River Boyne and River Blackwater SPA (Site Code: 004232), Skerries Islands SPA Site Code: 004122) and Rockabill SPA (Site Code: 004014) respectively, are greater than 7km distance. There is a hydrological link between the facility via the Sarsfieldtown Stream [EPA Code: 08S18], a first order stream bounds the site to the north, where the stream then flows in a northerly direction, until it joins the Mosney [EPA Code: 08M02] a second order stream. The Mosney flows in an easterly where it enters the sea at the River Nanny Estuary and Shore SPA (Site Code: 004158). See Figure.4 and Figure.5 in relation to the location of these sites in relation to the proposed development site.

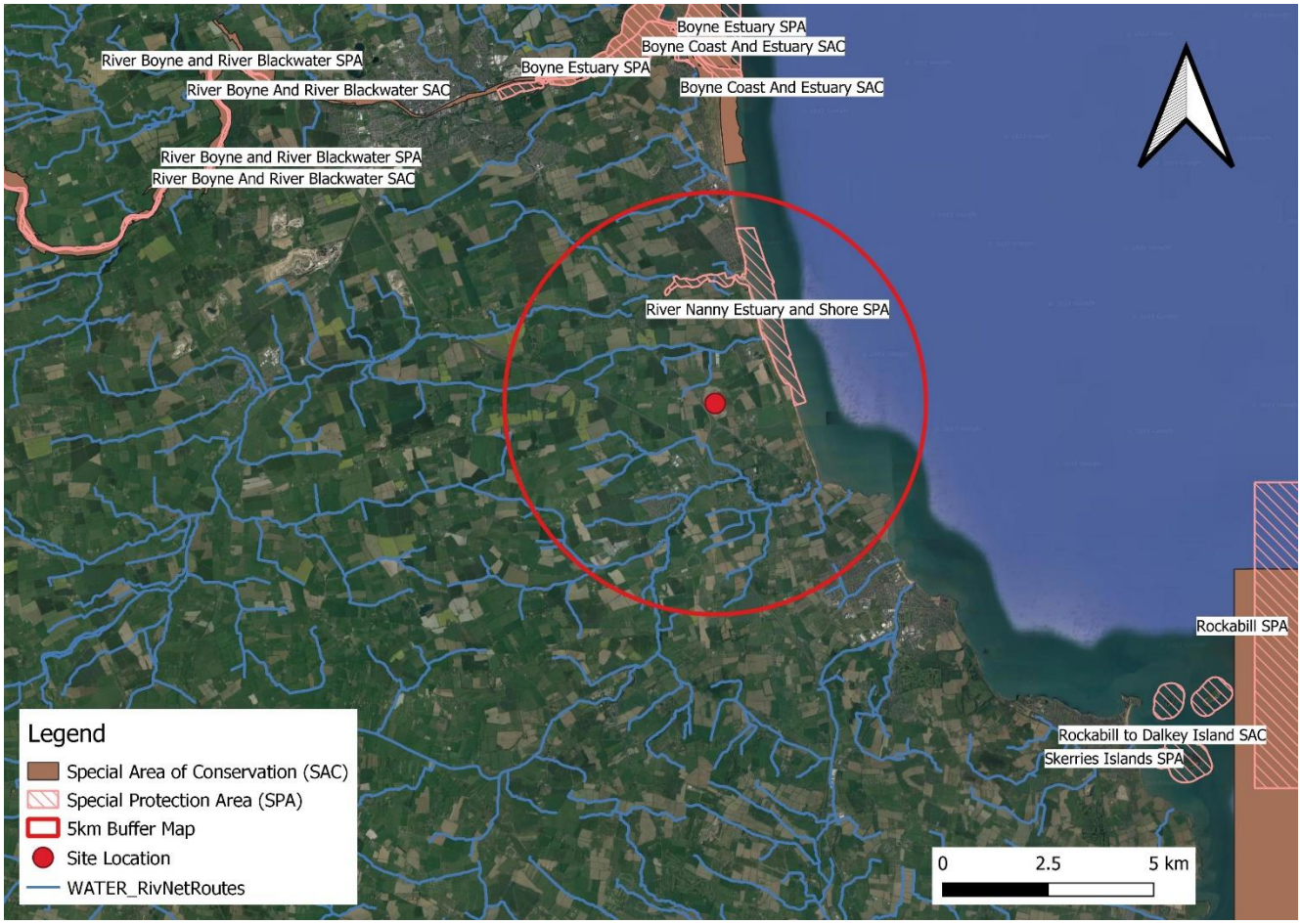

Figure 5: European/Natura 2000 sites identified within 5km of the site

Table 1 (Section 4.4) details each European/Natura site within 15km and its distance in relation to the proposed development. Table 2 (Section 4.4) details the potential effects which could occur as a result of the proposed development, describing the effect and indicating where this impact is likely to occur within the detailed Zone of Influence (ZoI). These sites are then assessed against the detailed impacts in Table 3 (Section 4.5).

Table 1 European sites/ Natura 2000 sites within 15km of the proposed development

Natura 2000 Site	Site Code	Annex I Habitats / Annex II Species	Approximate Distance from Proposed Area	Potential receptor links between proposed development & the Natura 2000 site.	Likely to Occur on site, in area or adjacent to Natura 2000 sites
River Nanny Estuary & Shore SPA Ramsar Site & Wildfowl Sanctuary. Important Bird Area (IBA)	004158	Birds: - Oystercatcher *Haematopus ostralegus* wintering -Ringed Plover *Charadrius hiaticula* wintering - Golden Plover *Pluvialis apricaria* wintering - Knot *Calidris canutus* wintering - Sanderling *Calidris alba* wintering - Herring Gull *Larus argentatus* wintering - Wetlands & Waterbirds	1.68 km (NE)	No potential direct, indirect or cumulative threats to qualifying interests of site. Hydrological links exist to the SPA via Sarsfieldtown Stream Quarrying works have minimal potential to adversely affect surface and groundwater quality and there are no dynamic surface water features on the Site and no discharges to watercourses that would lead to a measurable adverse contribution. Amenity Grassland Habitat not utilised as a feeding site for Annexed Bird Species.	No

Boyne Coast & Estuary cSAC	001957	Habitats: - Estuaries - Mudflats and sandflats not covered by seawater at low tide - Salicornia and other annuals colonizing mud and sand - Atlantic saltmeadows(*Glauco-Puccinellietaliamaritimae*) - Mediterranean saltmeadows(*Juncetaliamaritimi*) - Embryonic shifting dunes - Shifting dunes along the shoreline with Ammophila arenaria ('white dunes') - *Fixed coastal dunes with herbaceous vegetation ('grey dunes')	5.6 km (N)	No potential direct indirect or cumulative threats to qualifying interests of site.	No
Boyne Estuary SPA	004080	Birds: - Shelduck *Tadorna tadorna* -Oystercatcher *Haematopus ostralegus* - Golden Plover *Pluvialis apricaria* - Grey Plover *Pluvialis squatarola* - Lapwing *Vanellus vanellus* -Knot *Calidris canutus* - Sanderling *Calidris alba* - Black-tailed Godwit *Limosa limosa*	7.5 km (N)	No potential direct, indirect or cumulative threats to qualifying interests of site.	No

		- Redshank *Tringa totanus* - Turnstone *Arenaria interpres* - Little Tern *Sterna albifrons* - Wetlands & Waterbirds			
River Boyne & River Blackwater cSAC	002299	Habitats: -Alkaline fens -*Alluvial forests Species: -River Lamprey -Atlantic Salmon -Otter	8.5 km (N)	No potential direct indirect or cumulative threats to qualifying interests of site.	No
River Boyne & River Blackwater SPA	004232	- Kingfisher (*Alcedo atthis*)	12.2 km (N)	No potential direct indirect or cumulative threats to qualifying interests of site.	No
Skerries Islands SPA	004122	-Cormorant (*Phalacrocorax carbo*) -Shag (*Phalacrocorax aristotelis*) -Light-bellied Brent Goose (*Branta bernicla hrota*) [A046] -Purple Sandpiper (*Calidris maritima*) -Turnstone (*Arenaria interpres*) -Herring Gull (*Larus argentatus*)	12.6 km (SE)	No potential direct indirect or cumulative threats to qualifying interests of site.	No
Rockabill to Dalkey Island SAC	003000	Habitats: Reefs [1170]	13km (SE)	No potential direct indirect or cumulative threats	No

		Species: Harbour Porpoise (*Phocoena phocoena*) [1351]		to qualifying interests of site.	
Rockabill SPA	0004014	Roseate Terr (*Sterna dougallii*) [A192] Common Tern (*Sterna hirundo*) [A193] Purple Sandpiper (*Calidris maritima*) [A148] Arctic Tern (*Sterna paradisaea*) [A194]	13km (SE	No potential direct indirect or cumulative threats to qualifying interests of site.	No

Based on the project description as set out in Section 4.2 and the ZoI over which the effect could occur, i.e. the distance at which the facility could have potential effects, using professional judgement and published guidance, potential effects can be identified. Table 2 focuses on the potential effects that could occur during the construction and operational phase of the proposed project.

Table 2 Potential effects

Potential Effect	Description of Effect	ZoI- likely area over which effect could occur
Construction		
Construction outside the ZoI no	Direct disturbance (i.e. beachside habitat removal, reduction, fragmentation/beachside recreation disturbance, shooting)	The ongoing remediation works are confined to the facility, so therefore, there is no potential for this impact to occur to any of the European/Natura 2000 sites either within or outside the ZoI. The proposed development will be fully regulated to manage all on site activities including ERP for all on site events. Therefore, there is no potential for this impact to occur.
Water and pollution events	Indirect impacts on habitat (e.g. reduction in surface water	The nearest surface water feature to the Site is the Sarsfieldtown Stream which bounds the site to the north and flows in a north-easterly

	quality/ introduction of invasive spp.)	direction for about 0.95 km where it joins the Mosney. The Mosney flows for a further 1.4km in an easterly direction, where it flows into the sea at the River Nanny and Shore SPA. The main potential polluting impact associated with the Site and the historic and current activities is the introduction of hydrocarbons to the underlying groundwater. Given the embedded design parameters (plant and machinery maintenance that has occurred historically) and absence of bedrock/groundwater pathways it is considered very unlikely that hydrocarbon pollution will occur or has occurred at the Site and the risk of pollution to surrounding groundwater environment is deemed to be very low.
Air Quality/ Dust		Dust deposition is the predominant risk which may arise from historic and current activities arising from soil/aggregate movement and dust mobilised from vehicle movements. However, given the embedded design parameters dust deposition and residual effects to Natura 2000 habitat or species are considered highly unlikely. The nearest European/Natura 2000 site is 1.68 km from the Site. Advice provided within the Design Manual for Roads and Bridges (DMRB)3 suggests that the most sensitive species appear to be affected by dust deposition at distances > 200m from the source4. Accordingly, given the low risk of dust mobilisation on Site, embedded design parameters and distance to the nearest Natura 2000 site it is considered unlikely that dust deposition will have had an impact on any nearby Natura 2000 designations.

Loss Noise and vibration/unfamiliar visual stimuli (e.g. machinery/people).	Disturbance (e.g. noise/recreational etc.)	Of the Natura 2000 designations in the search area, it is considered that the SPAs would be sensitive to noise disturbance, given that they are designated on the basis of supporting bird species. Activities within Site which may contribute to increased noise levels include traffic movements and quarrying activities. The nearest European/Natura 2000 sites are in excess of 1.68km from the proposed development site. Given the distance of the SPAs from the Site, it is considered that over this distance the noise levels within the Site would have had a negligible impact on the SPAs.
Operational		
The operational phase to this project will be the ongoing management of the facility (maintenance and services) there are no operational impacts predicted to occur.		

4.5 Sites within the ZoI

It has been determined that only one of the sites within 15km of the proposed development site exists within the ZoI. The River Nanny Estuary & Shore SPA Site Code: 004158 located 1.68km north east of the proposed development site. This site been chosen as it is within 2km of the proposed development. The site is hydrologically linked to the River Nanny Estuary and Shore SPA via the Sarsfieldtown Stream that bounds the site to the north.

The assessment of LSE (Likely Significant Effects) upon sites within the ZoI have been considered in Table 3 below.

Table 3 Assessment of Likely Significant Effects (LSE)

European site name and code	Distance of site from project	Conservation Objectives and Qualifying Interests (*=priority habitat).	Identification of Potential Effects and potential Pathway	Potential for Likely Significant Effects (LSE)
Special Area of Conservation (SPA)				
River Nanny Estuary & Shore SPA (004158) **Ramsar Site &** **Wildfowl Sanctuary.** **Important Bird Area (IBA)**	The SPA boundary is approximately 1.6km from the proposed development site on the north eastern side	Objective 1: To maintain the favourable conservation condition of the waterbird Special Conservation Interest species listed for River Nanny Estuary and Shore SPA Objective 2: To maintain the favourable conservation condition of the wetland habitat at River Nanny Estuary and Shore SPA as a resource for the regularly-occurring migratory waterbirds that utilise it. Qualifying Interests: A130 Oystercatcher Haematopus ostralegus wintering A137 Ringed Plover Charadrius hiaticula wintering A140 Golden Plover Pluvialis apricaria wintering A143 Knot Calidris canutus wintering A144 Sanderling Calidris alba wintering A184 Herring Gull Larus argentatus wintering A999 Wetlands	Potential effects/pathways Known Threats: -Direct disturbance (i.e. beachside habitat removal, reduction, fragmentation/beachside recreation disturbance, shooting) - Indirect impacts on habitat (e.g. reduction in surface water quality/ introduction of invasive spp.) - Disturbance (e.g. noise/recreational etc.)	**Potential for (LSE)** No – There has been no habitat loss. No - There has been no habitat fragmentation. No - Previous and current disturbance and disruption to species is considered unlikely. Species for which the Natura 2000 sites have been designated are highly unlikely to utilise the Site or be influenced by the Site due to distance and / or a lack of environmental connectivity between the sites. None. The Project has not resulted in any measurable adverse effects on surface and groundwater quality, availability, flow or distribution. No noise disturbance or recreational pressures predicted.

4. Assessment of Likely Significant Effects

The determination of LSE is considered to be any effect that may possibly occur as a consequence of the project that would undermine the conservation objectives for the site's Annex I habitats or Annex II species. As shown in Table 3 (Section 4.5), the potential effects from the project on surrounding European Sites have been shown to be negligible and not likely to occur.

It has been determined that there is no hydrological, physical or ecological links between the proposed development site and any European/Natura 2000 sites, therefore there is no possibility of LSE occurring on any European site.

5.1 In combination Effects

In order to take account of in combination effects, plans and projects that are completed, approved but uncompleted, or proposed (but not yet approved) should be considered (EC, 2001). A search for relevant plans and projects within the surrounding area was undertaken for assessment of in combination impacts. The sources listed below were searched:

- Meath County Council Planning Enquiry System (MCC, 2022)

No significant developments were identified from the above sources within close proximity of the proposed development. A number of smaller planning applications predominantly for extensions or alterations to existing residential dwellings were identified. Given the small nature of these developments within predominantly private dwellings there is unlikely to be any in combination effects from the proposed development.

5. Screening Statement and Conclusion

This assessment considers whether the ongoing operations and further scheduled remediation works, of the Murphy Concrete Manufacturing Ltd facility at Gormanston Road Co Meath, alone or in combination with other projects or plans, will have adverse effects on the integrity of nearby Natura 2000 sites. Following examination of the proposed development, including the nature and location of works, it is concluded that there is no potential to impact on Annex I habitats or Annex II species associated with European Sites, namely the River Nanny Estuary & Shore SPA Site Code: 004158 located 1.68km north east of the proposed development site. As this assessment has not identified any potential significant impacts to nearby Natura 2000 sites, a Stage 2 Appropriate Assessment and subsequent Natura Impact Statement are not deemed necessary.

The findings of this screening for Appropriate Assessment are summarised in the Findings of no Significant Effects Matrix hereunder:

Table 4 Findings of No Significant Effects Matrix

Findings of No Significant Effects Screening Matrix	
Name of project or plan	Murphy Concrete Manufacturing Ltd, Gormanston Road, Co. Meath
Name and location of Natura 2000 site	**River Nanny Estuary & Shore SPA 1.68km NE** **Boyne Coast & Estuary SAC 5.6km N** **Boyne Estuary SPA 7.5km N** **River Boyne & River Blackwater SAC 8.5km N** **River Boyne & River Blackwater SPA 12.2km N** **Skerries Islands SPA 12.6km SE** **Rockabill to Dalkey Island SAC 13km SE** **Rockabill SPA 13km SE**
Description of the project or plan	Ongoing operations and further scheduled site remediation works, in the Murphy Concrete Manufacturing Ltd facility, Gormanstown, Co. Meath.
Land take	None from Natura 2000 sites and no further land take is required from the Site as the quarry and boundaries are already in place
Resource requirements (Water abstraction etc.)	No resources from a Natura site are required or have been required.
Emissions (disposal to land, water or air)	There are no emissions to water that could have affected Natura 2000 sites. Possible hydrological pathways have been identified between the Site and Natura 2000 sites but there is no evidence to suggest that water quality has

	had, or has the potential to have, a likely significant effect on water quality to downstream receptors. Air emissions from the Site (historic use of plant and machinery at the Site) are unlikely to cause/have caused impacts on the Natura 2000 sites due to the absence of ecological pathways and negligible emissions.
Excavation requirements	There are and have been no excavation requirements within the Natura 2000 sites or those that could affect Natura 2000 sites through source pathway modelling.
Transportation requirements	Transportation of goods to and from Site will not affect / would not have affected Natura 2000 sites in a way that would be measurable.
Is the project or plan directly connected with or necessary to the management of the site?	No.
Are there other projects or plans that together with the project or plan being assessed could affect the site?	No. Plans and projects within the local area are predominantly small scale residential and commercial developments.
The Assessment of Significance of Effects	
Describe how the project or plan (alone or in combination) is likely to affect the Natura 2000 site.	No likely effects determined. All potential impacts are determined as extremely unlikely.
Explain why these effects are not considered significant	No impacts have been determined therefore there can be no alteration of the conservation condition or objectives of the Natura 2000 sites due to the proposed works.

Data collected to carry out the assessment		
Who carried out the assessment?	**Sources of Data**	**Level of Assessment**
Maurice O'Connor Senior Ecologist Envirico Ltd. Robert Mc Namara, Project Ecologist Envirico Ltd.	Refer to Section 7. References	Desk study plus field assessment

6. References

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