

4 POLICY & PLANNING CONTEXT

4.1 Introduction

This section examines the policies and their context in relation to planning and general waste management, at national and regional levels.

4.2 National Legislation & Policy Context

National and regional legislative and policy instruments with relevance to the provision of waste management infrastructure in Ireland and with relevance to the proposed development are outlined in the following sections.

4.2.1 National Legislation

The Waste Management Act 1996, as amended, reflects the importance of both waste minimisation and waste recovery and a move away from dependence on landfill. The Waste Management (Amendment) Act 2001 (No 36 of 2001) provides a legal mechanism for the production of Regional Waste Management Plans.

Relevance to the Proposed Development

The proposed development will facilitate the recovery of waste soils resulting from the dredging of the River Dargle as part of the River Dargle Flood Protection Scheme. The dredge spoil will be recovered at the development site and used to build up proposed site levels, in the construction of an Eco-park. The proposed development will contribute to the general objectives of the Eastern Region Waste Management Plan 2015 - 2021 through diversion of dredge spoil away from landfill where it can be used beneficially reused, and is assigned a 'recovery' status.

4.2.2 National Planning Policy

National Spatial Strategy 2002 – 2020 (Reviewed in 2010)

The National Spatial Strategy for Irelandⁱ (NSS) is a 20-year framework that has been designed to deliver social, economic and physical development nationwide; *“to enable every place in the country to reach its potential, no matter what size or location”*. The strategy provides strategic planning guidance regarding a number of Government policies and local area plans. The NSS is also concerned with spatial development; what places people use and how these places relate to each other.

Minister of the Environment and Local Government has responsibility for leading implementation of the National Spatial Strategy (NSS). The overall aim of the strategy is to achieve a more balanced pattern of development in Ireland.

The National Development Plan 2007 – 2013 (revised in 2010 to 2016)

The National Development Plan (NDP) is a 'road map' to help Ireland optimise future choices in regards to the challenges of meeting economic and social development goals. Concentrating efforts of developing Ireland's rural communities in a sustainable manner while protecting the environment and working together with 'all-Ireland' cooperation is a key concept of the Plan.

According to the NDP Ireland faces the challenges of removing the factors that are limiting balanced and environmentally sustainable economic development, educating children so that they will be able to take advantage of the opportunities that they are presented with, creating sustainable 'high value' employment opportunities and redistributing the resulting product wealth for a more inclusive society.

4.2.3 National Waste Management Policy

National waste management policy over the years has been outlined in a number of documents which are described sequentially in the following.

Waste Management: Changing Our Ways - 1998

Government policy in relation to waste management was set out in the policy statement entitled *Waste Management: Changing Our Ways* published by the Department of the Environment and Local Government (DoELG) in September 1998. The policy statement incorporated the EU Waste Management hierarchy of waste prevention/minimisation/reuse/recycling/energy recovery/disposal, as well as earlier policy statements including Government strategy documents such as *Recycling for Ireland* (July 1994) and *Sustainable Development: A Strategy for Ireland* (April 1997).

It outlined a clear commitment to reduce dependency on landfill as a primary waste disposal route. It encouraged the development of an integrated management approach to waste which utilises a range of alternative waste treatment options to deliver innovative recycling and recovery targets.

Waste Management: Changing Our Ways outlined ambitious targets for waste management as follows:

- a diversion of 50% of overall household waste away from landfill
- a minimum 65% reduction in biodegradable wastes consigned to landfill
- the development of waste recovery facilities employing environmentally beneficial technologies as an alternative to landfill, including the development of composting and other feasible biological treatment facilities capable of treating up to 300,000 tonnes of biodegradable waste per annum nationally
- recycling of 35% of municipal waste
- recycling at least 50% of construction and demolition (C & D) waste within a five-year period, with a progressive increase to at least 85% over fifteen years
- rationalisation of municipal waste landfills, with progressive and sustained reductions in numbers, leading to an integrated network of some 20 state-of-the-art facilities incorporating energy recovery and high standards of environmental protection
- an 80% reduction in methane emissions from landfill, which will make a useful contribution to meeting Ireland's international obligations.

According to the policy statement, the recovery of construction and demolition (C&D) waste '*can make a very significant contribution to overall recycling targets as well as extending the life of existing landfills*' and local authorities are being '*urged energetically*' where possible to recover C&D waste in their projects and to use C&D in site development.

Relevance to the Proposed Development

The proposed waste soils recovery facility is consistent with the policy measures outlined in *Waste Management: Changing Our Ways*, in that waste generated from a construction related activity i.e. dredge spoil from the Flood Protection Scheme will be diverted from landfill and recovered at a dedicated site; therefore, extending the lifespan of existing landfills in the regions through non consumption of landfill void, and contributing to the achievement of recovery targets.

Preventing and Recycling Waste – Delivering Change – a Policy Statement - 2002

A second policy statement was issued by the Minister for the Environment and Local Government in 2002. In this policy statement entitled 'Preventing and Recycling Waste - Delivering Change', the Government set out objectives for developing recycling and recovery facilities.

The policy statement states that a lot of '*unavoidable waste is a resource*' and, if exploited for materials and/or energy content, that we can reduce our use of natural resources and '*minimise the environmental impacts of waste disposal*'. This can be done by managing unavoidable waste '*in a responsible and environmentally sensitive manner*'.

Relevance to the Proposed Development

The proposed waste soils recovery facility is consistent with the policy measures outlined in *Preventing and Recycling Waste – Delivering Change*, in that the proposed development will utilise the resource benefit of the dredge spoil material produced by the River Dargle Flood Protection Scheme, using this 'unavoidable waste' in the development of a community Eco-park development.

A Resource Opportunity – Waste Management Policy in Ireland - 2012

The most recent national waste policy document was produced in July 2012 and outlines the measures through which Ireland will make "the further progress necessary to become a recycling society, with a clear focus on resource efficiency and the virtual elimination of landfilling".

A range of policy measures are outlined in relation to the elements of the waste hierarchy i.e. prevention, reuse, recycling, recovery and disposal that concentrate on the supporting legislative and market environment in relation to the waste industry. It is acknowledged that 'a range of recovery facilities have been developing in recent years as opportunities are identified for the use of waste as a resource'. A range of recovery options are emerging 'to promote self-sufficiency and to drive a move away from disposal and towards recovery'.

Relevance to the Proposed Development

The proposed waste soils recovery facility is consistent with the policy measures outlined in *A Resource Opportunity*, in that 'the most effective and efficient use of resources', in this instance, is recognising dredge spoil as a resource that will be recovered at the proposed site for the formation of finished ground levels for the Pretty Bush Eco-park.

Through recovery of the dredge spoil the objectives in relation to 'landfill elimination' and use of material for a 'more sustainable' use is supported by the proposed development site.

4.3 Regional Policy Context

In demonstrating compliance of the proposed development with regional guidelines and policy, consideration is given to policy set forth in the Regional Planning Guidelines for the Greater Dublin Area 2010 – 2022, the Eastern - Midlands Regional Waste Management Plan 2015 – 2021 and the Wicklow County Development Plan 2010 - 2016.

4.3.1 Regional Planning Policy**Regional Planning Guidelines for the Greater Dublin Area 2010 – 2022**

The Regional Planning Guidelines (RPG) for the Greater Dublin Area 2010 – 2022 was prepared by Dublin Regional Authority and the Mid-East Regional Authority and encompasses seven local authorities; Dublin City, Dun Laoghaire- Rathdown, Fingal, South Dublin, Kildare, Meath, and Wicklow.

The Planning and Development Act, 2000 requires regional authorities to make Regional Planning Guidelines (RPG) in respect of their regions, the purpose being to provide a strategic planning framework for sustainable development of the area for the 12-year period up to 2022. The Planning Act also requires the Regional Planning Guidelines to be reviewed again in 2016. This RPG is the second, and builds on the experience and progress resulting from the 2004-2016 RPG.

Relevant policies are outlined in the following:

Policy PIP5

To ensure, from environmental, business and public health needs, that waste management remains a priority for local authorities and waste management regions in continuing to invest in promoting and facilitating reuse and recycling by residential and commercial sources and that high standard options for treatment and final disposal of waste are available within the GDA.

Policy PIR39

The reuse of waste should be encouraged and reinforced through encouragement of business clustering across the GDA. Opportunities to facilitate source reduction, the reuse of wastes, by-products and associated energy throughout the GDA should be examined as part of economic policies. Development of these opportunities shall not compromise the integrity of ecologically sensitive areas, in particular infilling with inert materials which can result in loss and fragmentation of wetland.

Policy PIR10 & SIR6

Plans and projects associated with the provision of transport, airport or port development, leisure or recreation that have the potential to negatively impact on Natura 2000 sites will be subject to a Habitats Directive Assessment (HDA) according to Article 6 of the Habitats Directive and in accordance with best practice and guidance.

Policy GIR 35

Local authorities shall, on the basis of cooperation with landowners, recreational users and other relevant stakeholders, take a positive approach to the promotion of agreed and managed access in the countryside and to the coast for people, including agreed and managed walking/cycling routes. The feasibility of such access provisions and routes shall be informed by legislative responsibilities to designated sites of special amenity, ecological sensitivities and heritage value and shall be delivered on the basis of sustainability, consultation and consensus building.

Relevance to the Proposed Development

The proposed development is consistent with the policy measures outlined in the RPG. In keeping with Policy PIP5, WCC proposes to develop a waste soils recovery facility at the Kilquade site and then to further develop the site as an Eco-park. The recovery of the soil is a high quality option for re-using dredge spoil; diverting a potential waste from the national landfill capacity and instead beneficially reusing the material. The reduction of waste to landfill and its reuse is also in adherence with Policy PIR39.

In keeping with Policy PIR39 and Policy PIR10/SIR6, an appraisal of the potential impacts of European sites has been carried out with mitigation measures identified (in the NIS accompanying this EIS) to negate any potential negative impacts to nearby European sites. In keeping with Article 6(3) of the Habitats Directive, a NIS has been completed and accompanies this EIS in Volume 3 (refer to Section 11). The Pretty Bush Eco-park's construction and maintenance will adhere to relevant legislation with regard to European sites and heritage and will be delivered in a sustainable manner.

In consonance with Policy GIR 35, WCC has engaged with the community and relevant stakeholders during the EIA consultation process; and has given consideration to issues identified and raised during this consultation process (as described further in Section 6)

4.3.2 County Development Plan

Wicklow County Development Plan 2010 - 2016

The development of the proposed site is relevant to a number of areas addressed within the Wicklow County Development Plan 2010 – 2016 (WCDP), most notably:

- Section 8.3.1 Commercial & Industrial Development in a Rural Area
- Section 9.3.6 Tourism & Recreation Themes & Products
- Section 13.2 Solid Waste Management
- Section 15.3.3 Leisure & Recreation
- Section 17.5 Water System
- Section 17.8 Recreation Use of Natural Resources

Policy TTP3

To support the development of new and existing walking, cycling and driving trails, including facilities ancillary to trails (such as car parks) and the development of linkages between trails in Wicklow and adjoining counties. In particular, to encourage hill walking trails in West Wicklow and to promote a walk around Blessington Lake, subject to consultation and agreement with landowners.

Objective WM3

To facilitate the development of existing and new waste recovery facilities and in particular, to facilitate the development of 'green waste' recovery sites.

Objective WM6

To facilitate the development of sites, services and facilities necessary to achieve implementation of the objectives of the Wicklow Waste Management Plan.

Objective CP1

To facilitate opportunities for play and support the implementation of the Wicklow County Council Play Policy and its objectives, including the collection of development levies.

Objective SR1

To contribute to the improvement of the health and wellbeing of the inhabitants of County Wicklow and to facilitate participation in sport and recreation.

Policy WT2

To resist development that would interfere with the natural water cycle to a degree that would interfere with the survival and stability of natural habitats.

Policy WT3

To prevent development that would pollute water bodies and in particular, to regulate the installation of effluent disposal systems in the vicinity of water bodies that provide drinking water or development that would exacerbate existing underlying water contamination

Policy AW1

To facilitate the use of natural areas for active outdoor pursuits, subject to the highest standards of habitat protection and management and all other normal planning controls

Policy AW2

The Council shall seek to promote access to amenity areas in the County for the benefit of all, on the basis of cooperation with landowners, recreational users and other relevant stakeholder groups to promote "agreed access" on public and privately owned land in the County on the basis of sustainability, consultation and consensus.

Relevance to the Proposed Development

The proposed development at Kilquade will support the objectives of the WCDP in a number of ways. In accordance with Policy TTP3, development of new walking trails is supported. The proposed Pretty Bush Eco-park will include a waymarked looped walking tracks and nature trails.

Adhering to Objective WM3, WCC proposes the development of a new waste soils recovery facility at the Kilquade site. With consonance also to Objective WM6, the proposed development will help WCC to contribute to the objectives of the relevant waste management plan i.e. the Eastern & Midland Region Waste Management Plan.

The proposed development of an Eco-park is in keeping with Objective CP1 in that the addition of a new recreation space in the area will provide more opportunities for play, in its broadest sense. Also in line with Objective SR1, the proposed Pretty Bush Eco-park will provide a recreational amenity outlet that will '*contribute to the improvement of health and wellbeing of inhabitants*'; not only children but teenagers and adults who will derive enjoyment from the Pretty Bush Eco-park space. Waymarked looped walks and nature trails, which will include information signs about the site flora and fauna will encourage users to explore the Pretty Bush Eco-park and learn about their surroundings.

The proposed development has the potential to indirectly interfere with the areas natural water cycle which could have negative knock-on effects on the survival and stability linked habitats of conservation importance. To ensure adherence with Policies WT2 & WT3, the carrying out of an NIS and the design of the proposed development ensures the assessment and mitigation of any potential negative impact of the proposed development on relevant water bodies and the water cycle.

In keeping with Policy AW1, important features such as mature trees, a hedgerow and a drainage ditch will be retained during both the construction phase and the post-construction phase. Following the sites proposed use as a waste soils recovery facility, the development of a proposed Pretty Bush Eco-park will see the site developed with retained natural features complimented by sensitive planting of appropriate native species. The proposed Pretty Bush Eco-park will contain looped walking trails and nature trails; providing the community access to natural areas for outdoor pursuits such as walking and running.

The proposed Pretty Bush Eco-park site is owned by WCC and in its present condition is not accessible to the public. In keeping with Policy AW2, once constructed, the proposed Pretty Bush Eco-park will provide a recreational space that is accessible to the community 24hrs, 7 days a week. Proposed parking provision will also allow for greater access to the Pretty Bush Eco-park, other than for residents in the immediate vicinity. Through consultation (as part of the EIA process) with the local community, interested individuals were afforded the opportunity for input into the development process of the Pretty Bush Eco-park.

At the time of writing of this EIS (July 2016), the draft Wicklow County Development Plan 2016 to 2022 is proceeding to completion. Therefore, for completeness and to consider future potential strategic planning proposals, an assessment of relevant policies and objectives of the draft Wicklow County Development Plan 2016 to 2022 is included in the following:

Policy T4

To only permit the development of a tourism or recreational facility in a rural area in cases where the product or activity is dependent on its location in a rural situation and where it can be demonstrated that the proposed development does not adversely affect the character, environmental quality and amenity of the rural area or the vitality of any settlement and the provision of infrastructure therein. The natural resource / tourist product / tourist attraction that is essential to the activity shall be located at the site or in close proximity to the site, of the proposed development. The need to locate in a particular area must be balanced against the environmental impact of the development and benefits to the local community.

Policy T27

To encourage eco-tourism projects or those tourism projects with a strong environmentally sustainable design and operational ethos.

Policy WE6

To facilitate the development of sites, services and facilities necessary to achieve implementation of the objectives of the Regional Waste Management Plan.

Policy WE10

To require proposals for new developments with the potential for the accidental release of chemicals or dust generation, to submit and have approved by the Local Authority construction and/or operation management plans to control such emissions.

Policy WE14

To require proposals for new developments with the potential to create excessive noise to prepare a construction and/or operation management plans to control such emissions.

Natural Heritage Strategy - Objective

To avoid negative impacts upon the natural environment and promote appropriate enhancement of the natural environment as an integral part of any development

Policy NH1

To ensure that the impact of new developments on biodiversity is minimised and to require measures for the protection and enhancement of biodiversity in all proposals for large developments

Policy NH2

No projects giving rise to significant cumulative, direct, indirect or secondary impacts on Natura 2000 sites arising from their size or scale, land take, proximity, resource requirements, emissions (disposal to land, water or air), transportation requirements, duration of construction, operation, decommissioning or from any other effects shall be permitted on the basis of this plan (either individually or in combination with other plans or projects).

Policy NH4

All projects and plans arising from this plan (including any associated improvement works or associated infrastructure) will be screened for the need to undertake Appropriate Assessment under Article 6 of the Habitats Directive. A plan or project will only be authorised after the competent authority has ascertained, based on scientific evidence, Screening for Appropriate Assessment, and a Stage 2 Appropriate Assessment where necessary, that:

1. The Plan or project will not give rise to significant adverse direct, indirect or secondary effects on the integrity of any European site (either individually or in combination with other plans or projects); or
2. The Plan or project will have significant adverse effects on the integrity of any European site (that does not host a priority natural habitat type and / or a priority species) but there are no alternative solutions and the plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature. In this case, it will be a requirement to follow procedures set out in legislation and agree and undertake all compensatory measures necessary to ensure the protection of the overall coherence of Natura 2000; or
3. The Plan or project will have a significant adverse effect on the integrity of any European site (that hosts a natural habitat type and/or a priority species) but there are no alternative solutions and the plan or project must nevertheless be carried out for imperative reasons for overriding public interest, restricted to reasons of human health or public safety, to beneficial consequences of primary importance for the environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interest. In this case, it will be a requirement to follow procedures set out in legislation and agree and undertake all compensatory measures necessary to ensure the protection of the overall coherence of Natura 2000.

Policy NH6

Ensure ecological impact assessment is carried out for any proposed development likely to have a significant impact on proposed Natural Heritage Areas (pNHAs), Natural Heritage Areas (NHAs), Statutory Nature Reserves, Refuges for Fauna, Annex I habitats, or rare and threatened species including those species protected by law and their habitats. Ensure appropriate avoidance and mitigation measures are incorporated into development proposals as part of any ecological impact assessment

Policy NH8

To protect non-designated sites from inappropriate development, ensuring that ecological impact assessment is carried out for any proposed development likely to have a significant impact on locally important natural habitats or wildlife corridors.

Policy NH12

To support the protection and enhancement of biodiversity and ecological connectivity within the plan area in accordance with Article 10 of the Habitats Directive, including linear landscape features like watercourses (rivers, streams, canals, ponds, drainage channels, etc.), woodlands, trees, hedgerows, road and railway margins, semi-natural grasslands, natural springs, wetlands, stonewalls, geological and geomorphological systems, features which act as stepping stones, such as marshes and woodlands, other landscape features and associated wildlife where these form part of the ecological network and/or may be considered as ecological corridors or stepping stones that taken as a whole help to improve the coherence of the Natura 2000 network in Wicklow.

Policy NH22

To minimise alterations or interference with river / stream beds, banks and channels, except for reasons of overriding public health and safety (e.g. to reduce risk of flooding); a buffer of generally 10m along watercourses should be provided (or other width, as determined by the Planning Authority) free from inappropriate development, with undeveloped riparian vegetation strips, wetlands and floodplains generally being retained in as natural a state as possible. In all cases where works are being carried out, to have regard to Regional Fisheries Board "Requirements for the protection of fisheries habitat during the construction and development works at river sites".

Policy NH38

To facilitate the use of natural areas for active outdoor pursuits, subject to the highest standards of habitat protection and management and all other normal planning controls.

Policy NH49

To resist development that would significantly or unnecessarily alter the natural landscape and topography, including land infilling / reclamation projects or projects involving significant landscape remodelling, unless it can be demonstrated that the development would enhance the landscape and / or not give rise to adverse impacts.

Relevance to the Proposed Development

Much like the 2010 to 2016 CDP, the draft CDP 2016 to 2022 identifies a number of policies designed to ensure protection of the environment resulting from development.

Policy T4 requires the balancing of environmental impacts versus benefits resulting from recreational facility location in rural areas. This EIS outlines the means by which the development of the proposed Pretty Bush Pretty Bush Eco-park recreational facility takes potential environmental impacts into consideration.

The proposed Pretty Bush Eco-park development will have potential in an eco-tourism context and is proposed to be developed in an environmentally sustainable and beneficial manner, in accordance with Policy T27.

Policy WE6 supports the adherence of objectives of the Regional Waste Management Plan (discussed in Section 4.3.3 following), while the individual assessment in relation to air quality and noise required by Policy WE 10 & Policy 14 are addressed in relevant sections of the EIS and in the outline Construction Environmental Management Plan (CEMP) included in Appendix 2 to this EIS.

The overarching principal of the Natural Heritage Strategy Objective i.e. to avoid negative impacts upon the natural environment, is expanded by the individual policies identified. The preparation of a Stage 2 NIS, accompanying this EIS, satisfies the requirements of NH2, NH4 & NH6.

Policy NH8 is very relevant to the proposed development, as it is not in itself a designated site and the ecological assessment outlined in Section 11 of this EIS satisfies the requirement to carry out ecological impact assessment.

Policy NH12 support the protection and enhancement of biodiversity and ecological enhancement of identified landscape and ecological features. The proposed Eco-park development aims, through its design to maintain the existing ecological features of the development site, through maintaining existing watercourses channels and mature trees, while encouraging the redevelopment of habitats and ecological features similar to those currently onsite, upon completion of the construction phase of the development.

The requirements of Policy NH22 are reflected in the design of the proposed Pretty Bush Eco-park in that buffer strips of 10 -15m are being maintained along the site boundaries and the placement plan for dredge spoil material is designed in such a way as to reflect and maintain the existing hydrological condition of the site.

The use of the proposed development as an Eco-park that is accessible to the public facilitates the objectives of Policy NH38 in contrast to the existing situation where the Pretty Bush site is inaccessible and does not provide any recreational benefit to the local community.

Policy NH49 is seen as a policy objective that is complimentary to the overall planning and other regulatory processes that will assess the merits or otherwise of the proposed development at Pretty Bush. The applicant, WCC contends that:

- The proposed development is necessary to provide a means of management of dredge spoil from the River Dargle flood defence scheme, while also providing a community benefit in terms of the provision of an accessible open recreational space
- Topography remodelling resulting from placement of the dredge spoil material will not be significant and will be sympathetic to the existing topography and ecology of the site
- No significant, permanent impacts will result from the proposed development with this EIS informing the assessment of same by the appropriate regulatory bodies i.e. An Bord Pleanála (ABP) and the Environmental Protection Agency (EPA).

To this end, the environmental impact assessment (EIA) undertaken by ABP and others in relation to this project will determine the extent of adverse impacts, if any, associated with the proposed development and the decision reached will comply with Policy NH49, given the ABP is the appropriate body to determine what impact will result.

4.3.3 Regional Waste Management Policy

Eastern & Midlands Regional Waste Management Plan 2015 - 2021

The Eastern & Midlands Regional Waste Management Plan 2015 – 2021 (EMRWMP) was made in April 2015 and followed on from the revision to the number of waste management regions, from the previous 10 down to 3, which was required by *A Resource Opportunity*.

The Plan specifically addresses recovery capacity requirement for backfilling of inert wastes in Section 16.4.4 of the Plan with specific policies identified.

The text of Section 16.4.4 is replicated here:

“Backfilling activities (of inert waste), which meet the recovery definition and are in compliance with Articles 4 and 13 of the WFD, sit on the other recovery tier of the waste hierarchy. Local authorities in the region authorise such activities through the award of WFPs and CoRs. Similarly, the EPA authorises significant backfilling of inert waste at large site such as old quarries for restoration purposes.

Backfilling activities make up a significant treatment capacity in the region at present. Local authority authorised sites have a capacity of 0.9 million tonnes, with significant pending capacity for facilities at waste licence application stage. Local Authority authorised site generally have a shorter lifespan that EPA licenced sites and operations can often cease at these site within the life of the permit i.e. five years. EPA authorisations cover more substantial operations with a longer lifetime capacity. Utilisation of active local authority capacity at backfilling/land improvement sites was 48% in 2012. This relatively low level of utilisation reflects the depressed activity in the construction sector in Ireland and, as a result, supply of capacity exceeds the current demand. Activity in the sector is expected to increase over the plan period as economic recovery continues to build nationally.

In the face of increased demand for backfilling authorisations there is a need for better co-ordination between local authorities in the region. This is to ensure facilities are planned and developed at suitable sites and do not present a risk to European designated sites and existing biodiversity and habitats. It is recommended that the lead authority liaise with relevant stakeholders (including the EPA and DAHG) to ensure appropriate measures are in place for the control and spread of invasive alien species at backfilling sites in the region where necessary.”

Specific policies in relation to backfilling are presented in the following table:

<p>E13. Future authorisation by the local authorities, the EPA and An Bord Pleanála must take account of the scale and availability of existing back filling capacity</p> <p>E14. The local authorities will co-ordinate the future authorisation of backfilling sites in the region to ensure balanced development serves local and regional needs with a preference for large restoration sites ahead of smaller scale sites with shorter life spans. All proposed sites for backfilling activities must comply with environmental protection criteria set out in the plan.</p>	
<p>Relevance to the Proposed Development</p> <p>Section 16.4.4 of the Plan identifies 0.9 million tonnes of backfilling capacity authorised under permits and certificates of registration and references further capacity pending through waste facility applications. At the time of writing, there is c. 2.1 million tonnes of backfilling capacity authorised under EPA waste licences, with c. 0.79 million tonnes of capacity in the licencing process. In total, between registered, permitted and licenced sites, there is approximately 3 million tonnes of authorised backfilling capacity within the Eastern & Midlands region.</p> <p>As per Policy E13, this capacity must be considered by the relevant authorities in determining future authorisations. While this existing capacity is acknowledged, it’s presence is not relevant to the proposed development, in that the proposed development is specific to that particular site i.e. it is proposed to develop an Eco-park at Pretty Bush through the placement/backfilling of inert dredge spoil, therefore utilisation of other existing capacity removed from the Pretty Bush site would result in the proposed Pretty Bush Eco-park development not proceeding. Consideration in relation to alternatives in relation to utilising some of this existing capacity are addressed in Section 5 of this EIS.</p> <p>From the applicant’s perspective, as a local authority, WCC is of the view that the use of backfilling as an element to this overall development is balanced and serves the local and regional need, particularly with the recreational and amenity benefits resulting to the local community from the Pretty Bush Eco-park development.</p> <p>Section 16.4.4 identifies the requirement to ensure that no risk is presented to any European designated site and to take appropriate measures in relation to invasive species. Section 11 of this EIS addresses both of these issues in detail.</p>	

Furthermore, Policy E14 identifies the requirement for such development to adhere with the environmental protection criteria laid out in the Plan. These criteria are outlined in bullet points in Section 16.5 of the Plan and summarised in the following, with indication of their applicability/relevance to the proposed development and the means by which they are addressed:

Avoid siting waste infrastructure in areas protected for landscape and visual amenity, geological heritage and/or cultural heritage value	Not applicable to the proposed development as is an existing site which is not located in any of the areas described
Avoid siting waste infrastructure in areas pNHA's, NHA's, Statutory Nature Reserves, Refuges for Fauna and Annex 1 Habitats	Not applicable as the proposed development is not located in any of the areas described
Invasive Alien Species Survey	The issue of Invasive species is addressed in Section 11 of this EIS and the Waste Acceptance Plan included as Appendix 1 to this EIS.
Protection of Protected Habitats	Habitats referenced will be maintained through the incorporation of maintenance buffer along the existing drainage ditch of the site. More detail is provided in Section 11 of this EIs.
Minimum 15 m development distance from bank of any river, stream or watercourse	Incorporation of a maintenance buffer along the existing drainage ditches of the site satisfies this criteria.
Apply SuDS to development	Addressed in Section 13 of this EIS
Avoid development in flood risk areas, apply riparian buffer zones	Not applicable to the proposed development as is an existing site which is not located in a flood risk area
Avoid geologically unsuitable areas including karst – due consideration to primary water source and degree of surface water/groundwater interaction	While the site location is identified as an area of extreme groundwater vulnerability due to the presence of rock near the surface, no impact on groundwater will result due to the inert nature of the material to be placed.
Consultation with airport	Not applicable to the proposed development as is an existing site which is not located in the vicinity of an airport
Traffic impact to be assessed	Addressed in Section 9 of this EIS
Co-development on landfill sites, sites that offer the opportunities to integrate differing aspect of waste processing will be preferred choices.	Not applicable given the nature of the proposed development
Avoid siting new waste infrastructure in European site, including SACs or SPAs	Not applicable to the proposed development as is not located in any of the areas described
Undertake Appropriate Assessment Screening for all waste related activities	Addressed in Appendix 3 to this EIS
An NIS will be sought where significant effects are identified or where there is uncertainty in regard to effects.	An NIS has been prepared to accompany this development application, based on the findings of the Appropriate Assessment Screening process. Refer to Section 11 and Appendix 3.

Where expansion, enlargement etc. to existing waste activities is proposed, the competent authority shall seek evidence to demonstrate no negative impact on European sites	Not applicable as the development site is not an existing waste management facility.
Avoid damage to features of the landscape which are essential to the migration, dispersal or genetic exchange of wild species	Addressed in Section 11 of this EIS

4.4 Local Policy Context

4.4.1 Local Planning Policy

Greystones-Delgany & Kilcoole Local Area Plan 2013 - 2019

The development of the proposed site is relevant to a number of areas addressed within the Greystones-Delgany & Kilcoole Local Area Plan (LAP) 2013 - 2019, most notably:

- Section 7 Social Infrastructure Strategy
- Section 8 Transport and Surface Infrastructure
- Section 9 Natural and Built Heritage

While not located directly within the curtilage of the LAP area, the proposed development directly borders the LAP boundary and so it is considered that the objectives of the LAP are relevant to the proposed development, given its proximity.

<p>Objective SOC8</p> <p>Protect and improve public and private open space and recreation provision.</p> <p>Objective SOC10</p> <p>To provide for the development of active open space to meet the needs of the current and future population of the plan area.</p> <p>Objective SOC12</p> <p>It is a long term objective of the Council to provide for the development of a neighbourhood park at an appropriate location within the plan area.</p> <p>Objective TS1</p> <p>Ensure that a reliable and effective water services, drainage, energy, waste management, recycling and communications infrastructure is put in place to service the existing and future development needs of the settlements, in a manner that protects the quality of the environment, and to allow for the improvement of public services and public utility installations.</p> <p>Objective HER3</p> <p>To protect wherever possible wildlife habitats that are located outside protected and designated areas, including the coast, cliffs, dunes, trees, hedgerows, drainage ditches, scrub, woodland, rock outcrops, watercourses, stone walls and other features of the natural landscape that provide wildlife corridors and which contribute to the biodiversity of the area. In the assessment of planning applications, the Council may require that such features are retained and incorporated into future development. In considering proposals for development, regard shall be paid to the Greystones-Delgany Local Biodiversity Area Study (2006). Recommendations set out in this study shall be implemented, as deemed appropriate, by the planning authority.</p>

Objective HER5

To protect the biodiversity value and associated habitats of water bodies within the plan area in accordance with the objectives as set out in the Wicklow County Development Plan 2010- 2016 and Eastern River Basin District Management Plan 2009-2015. In considering proposals for development, regard shall be paid to the recommendations set out in Greystones-Delgany Local Biodiversity Area Study (2006). In particular, recommendations relating to the Three Trouts Stream shall be implemented, as deemed appropriate, by the planning authority

Relevance to the Proposed Development

The proposed development at Kilquade will support the objectives of the LAP in a number of ways. At present, the Kilquade site is only partially used by WCC as a mini depot, with the rest of the site inaccessible. In keeping with Objective SOC8, development of the site as a proposed permanent Eco-park will improve the site in terms of its use for public recreation while maintaining the site as an open space (with a number of important habitat features retained).

In adherence with Objectives SOC10 and SOC12, the proposed Pretty Bush Eco-park will be an active open space; with looped walks and a nature trail which will provide access for the local community to walk and explore the space. The proposed Pretty Bush Eco-park will help to meet the recreational needs of the area. While the LAP has assigned open space for development of community parks, the nearest location is to the north of Kilcoole. The proposed Pretty Bush Eco-park will provide open active space to the community at the southern side of Delgany (as well as others who wish to utilise it) and will provide a recreation amenity space that differs from the 'traditional' community park and therefore will add diversity to the wider area's recreational spaces.

In consonance with Objective TS1, the site, by its classification, will initially be categorised as a waste management facility, with the subsequent development of the Pretty Bush Eco-park improving the surrounding communities' amenity/recreation infrastructure, while protecting the quality of the environment.

Objective HER3 states that where possible wildlife habitats located outside European sites that contribute to biodiversity should be retained. In keeping with this objective, it is proposed to retain a significant portion of the existing habitats of the site and incorporate them into the proposed Pretty Bush Eco-park design where they will be complimented by appropriate planting of native species.

In consonance with Objective HER5, the objectives of the WCDP relating to the protection of waterbody biodiversity values and dependent habitats as well as the objectives of the Eastern River Basin District Management Plan 2009-2015 will be followed. While the site is linked to a small stream by an onsite drainage ditches, mitigation methods (as outlined in Sections 11 and 13 of Volume 2 in this EIS) will negate potential impacts to waterbodies linked to the proposed development.

Wicklow County Play Policy

The Wicklow County Play Policy is a strategic framework which guides the WCC on how to approach issues related to play and guides the development for play opportunities in Wicklow.

Objective 2.1 Access/choice

The diversity of environments within the neighbourhood and the available access to them are the most important factors for child development. "Children will play everywhere and with anything" (Colin Ward, 1978)'

Relevance to the Proposed Development

The Kilcoole area at present lacks the recreation infrastructure required for its growing population and areas for the development of community parks are laid out in the LAP. In keeping with Objective 2.1 the proposed Pretty Bush Eco-park will provide amenity space to the community on the southern edge of Delgany, offering greater opportunity for children to play and will also add to the diversity of environments for play within the community.

4.5 The Development & its Compliance with Policy

It is considered that the proposed waste soils facility and Pretty Bush Eco-park development at Kilquade is in compliance with the policy objectives listed previously. In terms of national policy and legislation, the proposed development would help to ensure the ongoing adherence to targets that have already been achieved nationally e.g. *Waste Management: Changing Our Ways* targets regarding C&D while the proposed development will support the sustainable use of waste materials in accordance with *A Resource Opportunity*. The development of the proposed waste soils recovery facility at Kilquade, is in keeping with both the Wicklow County Development Plan 2010 – 2016 and the draft County Development Plan 2016 - 2022 and will be developed in accordance with the objectives of the Eastern and Midland Region Waste Management Plan 2015 – 2021.

In adherence with the objectives of the Greystones-Delgany & Kilcoole LAP, important biodiversity features will be retained and complimented when the proposed Pretty Bush Eco-park is constructed. In consonance with the RPG, an NIS has been prepared. Construction of the waste soil facility and the Pretty Bush Eco-park will be mitigated so that potential negative impacts to waterbodies and associated habitats are negated and the objectives of the Eastern River Basin District 2009-2015 and WCDP will be adhered to.

In keeping with the Regional Planning Guidelines and Article 6(3) of the Habitats Directive the public have been consulted and have been provided the opportunity to offer feedback on the waste soils facility and the Pretty Bush Eco-park development. As a permanent community Eco-park, the site, which is inaccessible to the public at present, will be improved and protected as a recreational area and will complement the community parks planned within the LAP for the nearby Greystones, Delgany and Kilcoole areas.

The proposed Pretty Bush Eco-park will provide greater opportunity for recreation in the area and will '*contribute to the improvement of health and wellbeing of inhabitants*' which is in keeping with the WCDP 2010 - 2016. The facility will also provide more opportunities for children to play and adheres to both the WCDP and to the Wicklow County Play Policy.

5 THE NEED FOR THE DEVELOPMENT & ALTERNATIVES CONSIDERED

5.1 The Need for the Development

The need for the proposed development is influenced by two specific factors:

- The requirement for the management of dredge spoil material produced by the River Dargle Flood Defence Scheme Works
- The provision of suitable recreational facilities for the local population in accordance with relevant plan objectives and policies

Up to 200,000 tonnes of surplus dredge material, mainly silt, clay and gravel will be generated from the flood defence works being carried out on the River Dargle in Bray. The scheme works include deepening and widening of approximately 3.5 km of the river in Bray town, for a depth of approximately 1 m. The River Dargle Flood Defence Scheme is an important capital works project for Bray town, designed to alleviate the negative impacts resulting from flooding of the river, in terms of health, safety and wellbeing of individuals as well as the infrastructure of the town.

The works are being carried out by Wicklow County Council, with a contract for the entire works having been awarded to a single contractor in 2012, with responsibility for the management of the dredge spoil material being part of that contract. Following receivership of this company, WCC took back direct control of the delivery of the project and the requirement for the management of the dredge spoil material becoming their responsibility. As previously identified, authorisation of the works by An Bord Pleanála identified that material not reused in the flood defence works would be “*removed off-site to suitably licensed disposal facility*”.

A number of options presented themselves for consideration by WCC in terms of management of this material, including transportation to an appropriate third party site or development of a site under their ownership. The assessment of these alternate options is presented in Section 5.2 following.

As owner of the Kilquade site, WCC recognises the potential for the utilisation of the site for community benefit through development of recreational amenity space. However, given the nature of the existing site, development in terms of contour re-profiling is required in order to facilitate the use as an amenity space, as it is not currently accessible to the public.

The Wicklow County Development Plan 2010 – 2016 and draft Development Plan 2016 - 2022 supports the development of open recreation spaces and walking trails while the Greystones-Delgany & Kilcoole LAP 2013 – 2019 specifically identifies the need for neighbourhood parks and active open spaces in the plan area, which directly borders the proposed development site.

Thus, the dual benefit of the site as an outlet for the appropriate management of the dredge spoil material (in accordance with applied EPA licence conditions) and a subsequent development and use of the site as an Eco-park, satisfies the need for the proposed development and accords with relevant policies relating to both benefits.

5.2 Alternatives Considered

This section assesses the alternative options available to Wicklow County Council in relation to the proposed development at Kilquade and references the guidance provided by the EPA in relation to the consideration of alternatives.

Consideration is paid to the EPA publication ‘*Guidelines on the Information to be contained in Environmental Impact Statements*’ (March 2002) when assessing alternatives as part of this EIS (with cognisance also of the 2015 revised draft guidelines).

The Guidelines state the following:

2.4.3 ALTERNATIVES

The consideration of alternative routes, sites, alignments, layouts, processes, designs or strategies, is the single most effective means of avoiding environmental impacts. The acceptability and credibility of EIA findings can be significantly affected by the extent to which this issue is addressed. For linear projects, such as roads and power lines, alternative routes may be the most important and effective mitigation strategy while for major infrastructure projects the intrinsic suitability of the site is the principal amelioration strategy. However, it is important, from the outset, to acknowledge the existence of difficulties and limitations when considering alternatives. These include: -

Hierarchy

EIA is only concerned with projects. Many projects, especially in the area of public infrastructure, arise on account of plans, strategies and policies which have previously been decided upon.

It is important to acknowledge that in some instances neither the applicant nor the competent authority can be realistically expected to examine options which have already been previously determined by a higher authority (such as a national plan or regional programme for infrastructure or a spatial plan).

Non Environmental Factors

EIA is confined to the environmental effects which influence the consideration of alternatives. It is important to acknowledge that other non-environmental factors may have equal or overriding importance to the developer, e.g. project economics, land availability, engineering feasibility, planning considerations.

Site Specific Issues

The consideration of alternatives also needs to be set within the parameters of the availability of land (it may be the only suitable land available to the developer) or the need for the project to accommodate demands or opportunities which are site specific. Such considerations should be on the basis of alternatives within a site e.g. design, layout.

3.2.2 ALTERNATIVES

The presentation and consideration of the various alternatives investigated by the applicant is an important requirement of the EIA process.

Thus an outline of the main alternatives examined throughout the design and consultation processes is described. This serves to indicate the main reasons for choosing the development proposed, taking into account the environmental effects. For the purposes of the Regulations, alternatives may be described at three levels: -

- *Alternative Locations*
- *Alternative Designs*
- *Alternative Processes*

With cognisance to the guidelines provided above, alternatives in relation to the proposed development at Kilquade are considered under the following headings:

- Alternative locations for material management
- Alternative development options
- 'Do-nothing' alternative

5.2.1 Alternative Locations for Material Management

The appropriate management of the material generated by the River Dargle Flood Defence Scheme at an appropriately licenced facility is a requirement of the planning permission granted to that scheme, as well as a requirement of applicable waste management legislation. Thus, the options in terms of places to manage the material are limited to:

- Existing licenced/permitted waste management sites i.e. landfill or waste soils recovery facilities
- Sites for which a waste soils recovery licence could be secured⁹
- Applications whereby the consideration of a material as a by-product may be applicable¹⁰

Table 5.1 outlines possible locations for the management of the materials that were explored when considering alternatives and identifies benefits and constraints that relate to each site. Transportation distances were considered, with site locations in access of 40 km generally being considered uneconomic for the management of the significant quantities of material to be managed.

In terms of considering the environmental aspects of any of the alternative sites and therefore avoiding environmental impacts, it was considered that, as the majority of these sites operate under either waste licence, waste facility permits or certificates of registration, their potential environmental impact has been assessed as part of the licence/permit/certification process and therefore all perform equally in terms of 'environmental performance' for the purpose of assessing alternatives.

As addressed in Section 4.3.3, the consideration of alternative locations concentrates mainly on alternative licenced/permitted waste management sites, in accordance with the planning permission granted in relation to the River Dargle Flood Scheme, where that material not reused in the flood defence works would be "*removed off-site to suitably licensed disposal facility*".

The capacity provided at these sites is to be considered by a planning authority when assessing future developments in relation to soils backfilling, in accordance with policies of the Eastern-Midlands regional Waste Management Plan 2015 – 2021, but as identified in Section 4.3.3, the alternative capacity provided does not offer the benefit of creation of a community Eco-park and therefore may not provide a 'real' alternative to this development proposal.

Thus, on the basis of the factors identified in Table 5.1, in addition to the site specific requirement to develop an Eco-park, no alternative sites are considered appropriate for the management of material that supplant the proposal to place the dredge spoil material at the Pretty Bush site and develop an Eco-park thereafter.

⁹ On the assumption that an application for landfill development would not be warranted, relevant or achievable in the applicable timelines

¹⁰ As per Article 27 of the European Communities (Waste Directive) Regulations, S.I. 126 of 2011

Table 5-1: Alternative Locations considered for materials management

	Site	Relevant Permit/Licence	Annual Intake Capacity	Distance from Bray	Ownership	Constraints	Benefits	Conclusion
1	Ballynagran Landfill	W0165-02	150,000 tonnes per annum (as per planning)	30 km	Ballynagran Landfill Ltd.	Capacity versus other waste type demand (and cost) at site	Relatively close distance; existing licence	Not a viable alternative due to limited capacity
2	Drehid Landfill	W0201-03	120,000 tonnes per annum (as per planning)	71 km	Bord na Móna PLC	Capacity versus other waste type demand (and cost) at site; distance	Existing licence	Not a viable alternative due to limited capacity and distance
3	Knockharley Landfill	W0146-02	200,000 tonnes per annum (as per licence)	71 km	Knockharley Landfill Ltd.	Capacity versus other waste type demand (and cost) at site; distance	Existing licence	Not a viable alternative due to limited capacity and distance
4	Powerstown Landfill	W0025-03	50,000 tonnes per annum (as per licence)	113 km	Carlow County Council	Insufficient annual capacity; closing imminently; distance	Existing licence	Not a viable alternative due to limited capacity, availability and distance
5	Roadstone Brownswood	W0280-01	401,000 tonnes per annum (as per licence)	102 km	Roadstone PLC	Distance	Existing licence	Not a viable alternative due to distance
6	Roadstone Huntstown	W0277-01	750,000 tonnes per annum (as per licence)	42 km	Roadstone PLC	Discussion with owners indicated that, while licenced for significant capacity, this is pre-determined for 2016 and no guarantees could be made for thereafter, as site would be close to being full; distance	Existing licence	Not a viable alternative due to inability to confirm/retain capacity
7	Roadstone Milverton	W0272-01	400,000 tonnes per annum (as per licence)	65 km	Roadstone PLC	Distance	Existing licence; capacity	Not a viable alternative due to distance
8	Roadstone Fassaroe	W0269-01	550,000 tonnes per annum (as per licence)	3 km	Roadstone PLC	Discussion with owners indicated that facility is not accepting soil material and is at capacity and did not accept any in 2015.	Existing licence; distance	Not a viable alternative due to being at capacity
9	Blackhall Soils Recovery Facility	W0247-01	400,000 tonnes per annum (as per licence)	49 km	Beehan Land Restoration Ltd.	Distance	Existing licence; capacity	Not a viable alternative due to distance
10	Kilquade	No Licence	Not applicable	15 km	Wicklow County Council	Planning & licence required	Community benefit; volumetric capacity available	Proposed Development
11	Bray Promenade	Potential by-product application, foreshore required	Not applicable	3 km	Wicklow County Council (responsibility)	Foreshore licence required; by-product classification required; engineering considerations	Beneficial re-use	Not a viable alternative due to classifications required and engineering considerations
12	Kerdiffstown Landfill	W0047- 02	n/a	45 km	EPA (oversight)	Capacity & operational constraints; distance	Existing licence	Not a viable alternative due to capacity and operational constraints
13	TP & S Delahunt	COR-WW-12-0016-01	25,000 tonnes (as per COR)	40 km	TP & S Delahunt Ltd.	Insufficient annual capacity; distance	n/a	Not a viable alternative due to insufficient capacity
14	Marrakesh Limited	W0048-01	1.2 million tonnes (over lifetime of facility)	10 km	Marrakesh Ltd.	Discussion with owners indicated that facility at capacity	Existing licence; distance	Not a viable alternative due to insufficient capacity
15	Cullen Excavations Ltd.	WFP-WW-13-0003-02	50,000 tonnes (as per permit)	15 km	Cullen Excavations Ltd.	Insufficient annual capacity	Distance	Not a viable alternative due to insufficient capacity
16	Stephensons S&G Pit	WFP-WW-10-0017-01	50,000 tonnes (as per permit)	62 km	Kavanagh Transport	Insufficient annual capacity; distance	n/a	Not a viable alternative due to insufficient capacity and distance
17	ECT Sand & Gravel	WFP-WW-12-0031-01	25,000 tonnes (as per permit)	40 km	East Coast Sand & Gravel	Insufficient annual capacity; distance	n/a	Not a viable alternative due to insufficient capacity
18	Cooldross Farm	WFP-WW-12-0029-01	50,000 tonnes (assumed maximum)	12 km	John Webb	Permit expired	Distance	Not a viable alternative due to insufficient capacity and expired permit
19	Kilpipe, Aughrim	WFP-WW-12-0012-03	50,000 (assumed maximum)	57 km	James Nolan	Insufficient annual capacity; distance	n/a	Not a viable alternative due to insufficient capacity and distance
20	Hill House, Dunganstown	COR-WW-11-0014-01	5,000 tonnes (as per CoR)	45 km	James Bradbury	Insufficient annual capacity; distance	n/a	Not a viable alternative due to insufficient capacity
21	The Brooks, Newcastle Upper	COR-WW-11-0015-01	25,000 (assumed)	18 km	Michael Byrne	CoR expired	Distance	Not a viable alternative due to insufficient capacity, expired certificate and distance

5.2.2 Alternative Development Options

Upon identification of the preferred development location, options in terms of end use were considered as follows:

- Development of the site as playing fields
- Development as a community Eco-park

Both options satisfied WCC's own requirement for the provision of a community resource to the Kilcoole and wider locality.

It was through meeting and liaison with the National Parks and Wildlife Service (NPWS) through the development of this EIS that the option to develop a community Eco-park was identified as the preferred development option.

Further detail on this consultation is presented in Section 6 of this document but, in summary, it was considered that the Pretty Bush Eco-park development is more sympathetic to the existing ecology of the site, in terms of habitats preservation and maintaining the environmental and ecological capital of the site.

5.2.3 'Do Nothing' Alternative

The 'do-nothing' scenario would see the following occurring:

- management of the dredge spoil material at another licenced site in accordance with the requirement of the planning permission for the River Dargle Flood Defence Scheme
- the non-utilisation of the Kilquade site and the non-provision of the associated community benefit associated with the Eco-park development
- the maintaining of the existing level of environmental capital associated with the site

6 EIA SCOPING, CONSULTATION AND KEY ISSUES

6.1 Introduction

This section describes the consultation process and EIA scoping that was undertaken in order to identify key impacts from the proposed development to be assessed as part of the EIS.

6.2 Purpose of Scoping

The purpose of the EIS scoping process is to identify the issues which are likely to be important during the environmental impact assessment (EIA) and to eliminate those that are not. The scoping process identifies the sources or causes of potential environmental effects, the pathways by which the effects can happen, and the sensitive receptors, which are likely to be affected. The issues identified in the scoping process are examined in the EIS, any potential impacts are quantified, mitigation measures proposed as required, and residual impacts described. The scoping process also identifies the appropriate level of detail for the information to be provided in the EIS.

There is provision in the legislation for formal scoping of an EIS. The person preparing the EIS can request the competent authority, in this case An Bord Pleanála, to provide a written opinion on the information to be contained in the EIS. The applicant must provide sufficient information on the project to allow informed opinions to be given. The competent authority can request additional information from the applicant.

When sufficient information has been obtained, the competent authority seeks a written opinion from the statutory consultees. Upon receipt of these opinions, the competent authority issues its formal opinion to the applicant. Giving a formal scoping opinion does not preclude the competent authority from requiring further information at a later stage.

The alternative to formal scoping is informal scoping. This can be undertaken by the authors of the EIS through direct consultation with the relevant statutory and non-statutory consultees.

Informal scoping was undertaken for this EIS.

6.3 Scoping Methodology

Scoping was conducted during the initial stages of the EIA. The exercise established the terms of reference for the EIA and identified the concerns and issues that warranted particular attention during the assessment phases. The scoping process for this EIS was based on:

- Consultation with the National Parks and Wildlife Services (NPWS) personnel
- Consultation with relevant departments within Wicklow County Council i.e. Planning, Roads and Environment
- Examination of environmental impact statements for similar developments which were deemed to be of an acceptable standard by the relevant authorities
- The experience of the project team in preparing environmental impact statements for waste deposition developments.

6.4 Consultation Process & Responses Received

A consultation letter was sent out to 21 recipients on 5th October 2015. The recipients included relevant statutory consultees (as defined in Article 28 of the Planning and Development Regulations as amended), non-governmental organisations (NGOs) and key stakeholders. A scoping report describing the proposed development was prepared to accompany the consultation letters.

A copy of the consultation letter and scoping report is included in Appendix 4.

Stakeholders consulted are identified in the following table.

Table 6-1: Stakeholders Consulted

Contact	Organisation
Mr. Raymond Foley	Senior Policy Advisor, Planning, Transport Infrastructure Ireland, Parkgate Business Centre, Parkgate Street, Dublin 8, Ireland
Ms. Alison Harvey	Planning & Development Officer, The National Heritage Council, Rothe House, Church Lane, Kilkenny
Mr. Paddy Browne	Teagasc, Oak Park, Carlow
Mr. Ian Lumley	An Taisce, The National Trust for Ireland Tailors' Hall, Blacklane, Dublin 8
Mr. Ray Earle	ERBD Coordinator, Dublin City Council 4th Floor, 68-70 Marrowbone Lane, Dublin 8
Ms. Gretta Hannigan	Inland Fisheries Ireland, 3044 Lake Drive, Citywest Business Campus, Dublin, D24Y265
Ms. Stephanie O'Callaghan	An Chomhairle Ealaíon (The Arts Council), 70 Merrion Square, Dublin 2
Mr. Brian Meaney	EPA, PO Box 3000, Johnstown Castle Estate County Wexford
Sir/Madam	Principal Environmental Health Officer, Environmental Health Department HSE Health Centre, Kilarney Road, Bray, Co. Wicklow
Ms. Joanne Pender	Development Officer, Irish Wildlife Trust, Sigmund Business Centre, 93A Lagan Road, Dublin Industrial Estate, Glasnevin, Dublin 11
Ms. Maite Zabaltza	Irish Geological Heritage Programme, Geological Survey of Ireland, Beggars Bush, Haddington Road, Dublin 4
Mr. Gerry Murphy	National Transport Authority, Floor 3, Block 6/7, Irish Life Centre, Dublin 1
Mr. Malachy Bradley	Planning Section, Eastern & Midland Regional Assembly, 3 rd Floor North, Ballymun Civic Centre, Main Street, Ballymun, Dublin 9
Mr. Niall Kinsella	New Connections Team, Developer Services, Irish Water, PO Box 6000, Dublin 1
Mr. Niall Keogh	Birdwatch Ireland – Wicklow Branch, East Coast Nature Reserve, Sea Road, Newcastle, Co. Wicklow
Mr. Noel O'Connor	Climate Change Section, Department of Agriculture, Food and the Marine, Johnstown Castle, Co. Wexford
Mr. Eoin McDonnell	Planning & Environmental Department, Failte Ireland, 88 – 95 Amiens Street, Dublin 1
The Manager	Development Applications Unit, Department of Arts, Heritage and the Gaeltacht, Newtown Road, Wexford, Co. Wexford
Mr. Hugh Coughlan	Eastern & Midland Waste Management Region, Dublin City Council, Block 1, Floor 6, Civic Offices, Dublin 8.
Sir/Madam	Bat Conservation Ireland, Ulex House, Drumheel, Lisduff, Virginia, Co. Cavan
Sir/Madam	Biodiversity Ireland, Beechfield House, Waterford Institute of Technology West Campus, Carriganore, Co. Waterford

In all there were 5 no. responses to the consultation letter. A summary of all of the replies received is provided in Table 6.2 with a copy of all correspondence received included in Appendix 5. The responses received were fully considered and where appropriate, the topics raised were included within the EIS.

Table 6-2: Submissions Received

Consultee	Date of Response	Summary of Comments Provided	Means by which comments are addressed in EIS
Transport Infrastructure Ireland	27/10/2015 (Letter)	<p>Correspondence presents a list of what are identified as general EIS guidance issues:</p> <ul style="list-style-type: none"> • Consultation should be had with the relevant National Roads design office • Visual impacts from existing national roads should be assessed • Consideration of any EIS and/or modifications imposed by An Bord Pleanála regarding road schemes in the area • Consideration of the NRA DMRB and Manual of Contract Documents for Road Works should be had • Regard should be given to the NRA Air Quality guidelines • The Environmental Noise regulation 2006 should be considered • It should be determined whether a Traffic & Transport Assessment (TTA) must be carried out, as well as a Road Safety Audit, • The EIS should identify methods/techniques for any works in proximity to the national road network • Haul Routes should be identified <p>It is also identified that TII would be specifically concerned as to potential significant impacts the development would have on the national roads network in the proximity of the proposed development and the N11.</p>	Issues identified by the TII for consideration in relation to traffic are addressed in detail in Section 9 – Roads, Traffic & Transportation
Eastern River Basin District	13/10/2015 (Letter)	Response references the new governance structure put in place for the second cycle of the Water Framework Directive where each local authority is now the competent authority in its own right for the Directive.	Not Applicable

Consultee	Date of Response	Summary of Comments Provided	Means by which comments are addressed in EIS
Geological Survey Ireland	19/10/2015 (Email)	Response from GSI states that: <i>"Note that there is no site of geological heritage interest within the perimeter of the study boundary.....The closest sites of interest are the 'Glen of the Downs' and the 'Wicklow- Greystones Coast'. They lie within a 2 km radius of the proposed site, however, due to their scale and nature, they are unlikely to be affected by the proposed facility."</i>	Information provided by GSI is considered in Section 12 of this EIS.
Development Application Unit, National Parks & Wildlife Service	20/07/2015 (Letter) & 22/12/2015 (Letter)	Response initially received from DAU acknowledging receipt of consultation request and indicating that a six-week turnaround is to be expected. A more detail response was received in December 2015 outlining specific issue to be addressed in the EIS and AA processes Further consultation was undertaken with specific NPWS personnel – refer to Section 6.4.1.	Feedback from NPWS is considered in Section 11 of this EIS.
Irish Water	20/10/2015 (Letter)	IW indicated the presence of water supply pipelines in the local and regional roads adjoining /near to the site. A list of general EIS considerations in relation to water services is provided: <ul style="list-style-type: none"> • Consideration of development impact on the capacity and/or upgrade requirement of an existing supply • Consideration of surfacewater discharges to sewers • Any physical impacts on IW assets • Consideration of assimilative capacity of receiving waters • Impact on contribution catchments of water sources 	Comments, where relevant, considered in Section 13 of this EIS.

6.4.1 Consultation with the EPA

On the 28th September 2015, a pre-application consultation meeting was held with Mr. Brian Meaney of the EPA in relation to the application for a waste soils recovery facility licence for the proposed development. Notes in relation to that meeting are included in Appendix 6 of this EIS. Key points and issues discussed were:

- Requirement for a local risk assessment
- Means of determining nature of material i.e. greenfield and non-greenfield differentiation
- Means and timing of licence surrender
- Consideration regarding contingency plans
- Consideration regarding invasive species

These issues have been considered in relevant following sections of this EIS, as well in preparation of the EPA waste licence application.

6.4.2 Consultation with the National Parks & Wildlife Service

Upon carrying out baseline ecology surveys, a number of badger setts were identified onsite within the extent of the proposed development area. WCC and FTC met with Ms. Enda Mullen, NPWS District Conservation Officer on the 19th October 2015 to discuss the presence of badgers onsite and other conservation related issues. Notes in relation to this meeting are included in Appendix 7 of this EIS and a summary of the key points and issues raised at the meeting is presented in the following.

- The high environmental capital associated with site was noted by Enda Mullen
- The potential of the site as a foraging habitat for Barn Owls located in the wider area was identified
- No concerns were presented regarding impact on bat foraging as the presence of alternate sites were identified
- The limitations of the badger breeding season in relation to site clearance were identified, while consideration as to potential relocation of existing badger family units were discussed
- Proposals in relation to end-use for the sites were discussed
- NPWS requested the undertaking of a badger activity and bait marking survey to inform further considerations

A second meeting was held with Ms. Enda Mullen on the 7th December 2015 to discuss the outcomes from the badger activity and bait marking survey. Based on discussion at this meeting, Ms. Mullen approved an application for a derogation licences to destruct the badger setts identified onsite. Further details on this issue are provided in Section 11 of this EIS.

6.5 Public Consultation Events

A number of public information events and meeting were held where information in relation to the proposed development was presented to the attendees. Table 6.3 presents a summary of these meeting.

Presentations given by the project team at the meetings of the 12th January and the 18th February are included in Appendix 8.

Table 6-3: Summary of Public Consultation events and meetings

Date	Time	Location	Present	Information presented	Issues Raised
12th January 2016	6:30pm	Greystones Municipal District Offices	Des O'Brien, Marc Devereux, Amy O'Farrell (WCC), Derek Milton (FTC), WCC District Staff and Greystones District Councillors	Outline of proposals and outline of EIS and EPA license application procedures	Need for development, impact on the environment generally, level of consultation to date. Impact of operation and maintenance of the proposed Eco park
	7:30 pm to 8:30 pm	Greystones Municipal District Offices	Des O'Brien, Marc Devereux, Amy O'Farrell (WCC), Derek Milton (FTC), Enda Mullen (NPWS), WCC District Staff and Greystones District Councillors and members of the Press, members of the public and a TD's representative.	Outline of proposals and outline of EIS and EPA license application procedures	Need for development, impact on the environment generally, level of consultation to date. Impact on the environment particularly wildlife, birds, bats
19th January 2016	8:30 pm to 10pm	Greystones Municipal District Offices	Des O'Brien, Marc Devereux, Amy O'Farrell (WCC), WCC District Staff and Greystones District Councillors and members of the Press, members of the public and a TD's representative.	Outline of proposals and outline of EIS and EPA license application procedures including proposals for lighting and parking provisions for the Eco park	Need for development, impact on the environment generally, level of consultation to date.
					Impact on the environment particularly wildlife, birds, bats
					Effect of development on environment in particular the following receiving environment
					Wildlife
					Birds (Owls and hunting birds), Bats
					Lighting and security around the site
					Potential Impact on Kilcoole Marsh and the Murrough SAC
Traffic and noise impact of the works					
18th February 2016	6:30 pm to 10pm	Greystones Municipal District Offices	Des O'Brien, Marc Devereux, Amy O'Farrell, Brian Collins, Derek Milton (FTC), WCC District Staff and Greystones District Councillors,	Outline of proposed development and Outline of method of creation of replacement Badger Sett,	Effect of development on environment in particular the following receiving environment
					Wildlife, in particular Badgers

Date	Time	Location	Present	Information presented	Issues Raised
			members of the Public, Joe Behan facilitator	and outline of program for development	Birds (Owls and hunting birds), Bats Effect of development on environment in particular the following receiving environment Wildlife, in particular badgers Birds (Owls and hunting birds), Bats Lighting and security around the site Traffic and noise impact of the works
7th March 2016	3pm to 5:30pm	Mr Kugler's House	Marc Devereux, Amy O'Farrell, Sarah Franklin, (Luisne), Hans-Juergen Kreugler (Luisne)	n/a	Effect of development on Environment in particular the following: Impact of the development on the Kilcoole Marsh and the Murrough SAC
12th April	9:30 am to 11 am	Luisne, Kilcoole	Marc Devereux, Amy O'Farrell, Hans-Juergen Kreugler (Luisne)	Extent of Alternative sites considered	Possibility of Luisne or other not for profit body managing Eco park or remediated site after works
4th May 2016	8:30pm to 10pm	Charlesland Golf Club, Greystones	Des O'Brien, Marc Devereux, Brian Collins, Cllr Fortune and Cllr Whitmore, a large number of members of the public, Harriet Emerson Facilitator	Proposals and extent of alternative sites considered	All of the effects on the environment mentioned at previous meetings Consideration of potential alternative sites and the process and requirements for planning and waste licensing
10th May 2016	2pm to 4pm	Bray Municipal District Offices	Des O'Brien, Marc Devereux, Sarah Franklin (Luisne), Hans Juergen Kugler, Brendan Smith	Two alternative sites proposed by public, and list of permitted sites in Wicklow	Consideration of potential alternative sites and the process and requirements for planning and waste licensing

Issues raised and the means and/or location in the EIS by which these have been addressed are as follows:

- | | |
|--|--|
| <ul style="list-style-type: none"> • Need for the development • Alternatives considered • Operation and maintenance of the development • Environmental impact (ecology) • Impact on Kilcoole Marsh and the Murrough SAC • Traffic impact • Noise impact | <ul style="list-style-type: none"> • As outlined in Section 5 • As outlined in Section 5 • As described in Section 3 • As addressed in Section 11 and NIS in Appendix 3 of Volume 3 • As addressed in Section 11 and NIS in Appendix 3 of Volume 3 • As addressed in Section 9 • As addressed in Section 10 |
|--|--|

It should be noted that the proposed development initially proposed the acceptance of up to 280,000 tonnes per annum of surplus dredge spoil. On the basis of feedback received during these public consultation meetings, Wicklow County Council re-examined its options and means of managing and re-using some of the material such that the initial proposal was revised to reduce the proposed intake by 40%, to 200,00 tonnes.

In addition, options in relation to lighting and car-parking provision were revised based on feedback provided in relation to potential for anti-social behaviour, such that these original provisions were removed.

6.6 Conclusions

A consultation process was undertaken in relation to the proposed development that encompassed a wide number of organisations, entities and individuals. Issues raised are identified and the means by which they are addressed or the relevant locations in this EIS where they are addressed are presented.

7 HUMAN BEINGS – SOCIO ECONOMIC, LAND USE & AMENITY

7.1 Introduction

This section examines the potential impacts of the proposed development on the human environment. It covers the existing nature of the environment at and near the site and predicts the impacts that may be expected and the measures proposed to mitigate these effects.

The main areas examined in this section with respect to the potential effects of the proposed development on the human environment in the area are:

- Settlements & population
- Land use
- Local employment and economic activity
- Transportation network
- Utilities
- Amenity
- Tourism

Noise, traffic, air and visual impacts, which can also be considered to potentially impact on the human environment are discussed in detail in other individual sections within this EIS.

7.2 Study Area

The assessment area has been defined with reference to the potential for impact from the proposed development and the availability of relevant information.

In terms of land use and amenity, it was considered that a 3 km buffer from the proposed development boundary would encompass all land uses potentially directly impacted by the proposed scheme. Therefore, existing land uses within a 3 km buffer were considered in this section.

In terms of socio-economic data, the smallest legally defined administrative area for which the Central Statistics Office (CSO) releases census results is the Electoral Division (ED). The development location is located within the Kilcoole ED and is bordered by 3 other EDs. The 3 other EDs are:

- Delgany ED
- Greystones ED
- Newcastle Upper ED

These 4 EDs in combination are considered as an appropriate area for the socio economic assessment of the EIS.

7.3 Methodology

The baseline condition in relation to the human environment in the area of the development location was assessed by means of a desk-based study to assess the available information in relation to the population in the area of the proposed development, the current levels of housing, the current employment levels and the baseline in relation to land use, tourism, amenity, public transport and public utilities.

Once the baseline assessment had been carried out, an assessment of both the positive and negative impacts of the proposed development on the surrounding area in terms of socio-economic factors was undertaken. These impacts are presented in this section as well as the mitigation measures proposed, if appropriate, to mitigate negative impacts identified.

The data and publications used to compile the baseline assessment are listed in Section 7.10.

The Central Statistics Office (CSO) national census results are classified into 15 themes:

Table 7-1: Census Data Classifications

Theme	Description
Theme 1	Sex, Age and Marital Status
Theme 2	Migration, Ethnicity and Religion
Theme 3	Irish language
Theme 4	Families
Theme 5	Private Households
Theme 6	Housing
Theme 7	Communal Establishments
Theme 8	Principal Status
Theme 9	Social Class and Socio-Economic Group
Theme 10	Education
Theme 11	Commuting
Theme 12	Disability, Carers and General Health
Theme 13	Occupation
Theme 14	Industries
Theme 16	PC and Internet Access

Themes 1, 5, 8, 11 & 14 were considered relevant to the analysis of the proposed development as they indicate population trend and density, housing, employment and commuting patterns in relation to the potentially impacted population.

Tourism was included in the assessment of this section as it can positively impact on the population numbers and the economy of an area. Information for this assessment was drawn from Fáilte Ireland reports and its guidance document “*Guidelines on the Treatment of Tourism in an EIS*”.

Following the description of the baseline environment, the positive and negative impacts of the proposed development on the human environment were assessed.

7.4 Existing Environment

7.4.1 Human Environment – Population & Settlements

The proposed site is located in the townland of Priestsnewtown and is located approximately 1 km north of Kilcoole Village and 1 km south of Delgany village. Greystones and Bray towns are located approximately 3 km and 8 km north of the site, respectively. The main entrance to the proposed development, owned by Wicklow County Council (WCC), can be directly accessed from the L1042 local road via an existing agricultural type gate, which is set back approximately 8 metres from the road edge. A secondary access point to the site is located approximately 175 m east of the main entrance, adjacent to the Eir distribution building. This comprises an agricultural type gate, directly off the local L1042 road.

Directly bordering the site to the north and west are a number of residential dwellings, a distribution building owned by Eir, car maintenance work shop, stables and the local L1042 road, while the site is bordered to the east, south and south west by the Kilcarrig Road, agricultural fields and a number of individual dwellings.

Figure 7.1 presents the existing developments and dwellings in the vicinity of the site. The townland of Priestsnewtown is in the ED of Kilcoole, Co. Wicklow. Table 7-2 presents the local populations as per the two most recent census surveys in 2006 and 2011.

Table 7-2: Population as per most recent census surveys

Location	2006	2011	% Change 2006- 2011
	Persons	Persons	
State	4,239,848	4,581,269	8.1
Wicklow	126,194	67,542	47
Kilcoole ED	6832	9834	44
<i>Males</i>	3397	4823	42
<i>Females</i>	3435	5011	46
Delgany ED	5158	5652	10
<i>Males</i>	2545	2745	8
<i>Females</i>	2613	2907	11
Greystones ED	7044	7151	7
<i>Males</i>	3444	3478	1
<i>Females</i>	3600	3673	2
Newcastle Upper ED	3161	3584	13
<i>Males</i>	1623	1824	12
<i>Females</i>	1538	1760	14

There are no hospitals, schools or hotels within 1 km of the site. The nearest hospitals are St Columille's Hospital (c.15 km to the north) and Beacon Hospital (c.20 km to the north of the site). Three schools are located within the 3km study boundary; Kilcoole Primary School (1 km north), St. Catherine's Special School (3 km south) and St. Laurence's National School (3 km north). Colaiste Chraobh Abhann (2 km north) is the only post primary school located in the within the study boundary. Druid's Glen Resort and Trident Holiday Homes are located within the 3 km of the development site, as are 5 no. golf courses.

7.4.2 Human Environment – Land Use

The proposed development site occupies an area of approximately 5.6ha. The north-eastern corner of the site (by the main entrance) is presently used by WCC as a mini depot for road maintenance etc. Directly bordering the site to the north and west are a number of residential dwellings, a distribution building owned by Eir, car maintenance work shop, stables and the local L1042 road, while the site is bordered to the east, south and south west by the Kilcarrig Road, agricultural fields and a number of individual dwellings.

The development site stands out as an area of scrubland when viewed from roads to the east and west of the site. 2 no. ephemeral streams run through the site – one along the eastern boundary and one in a northeast-southwest direction through the site. The undulating nature of the site itself and surrounding fields combine with vegetation to generally constrain views across the landscape with the exception of localised vantage points or clearances in vegetation.

The development site is located just outside the land use zoning area of the *Greystones – Delgany and Kilcoole Local Area Plan 2013-2019* (the LAP). The proposed development is immediately adjacent to lands zoned as 'Green Belt' in the LAP. While the site is not part of the zoning of the LAP and objectives of the LAP do not specifically apply to the proposed development site, cognisance of adjacent zoning has been taken into account.

Regarding opens space development, *Greystones – Delgany and Kilcoole Local Area Plan 2013-2019* states that 'uses generally appropriate for open space zoned land include tourism and recreational uses, community facilities, open space, sports grounds, public utilities, civic amenity and ancillary developments for open space uses in accordance with the CDP.'

Land use in the vicinity of the proposed development, as per the Coordination of Information on the Environment (CORINE) mapping, is identified in Figure 7-2.

There are a number of protected sites designated for their wildlife, located in the vicinity of proposed development location. These include:

- Bray Head pNHA (000714)
- Carriggower Bog pNHA (000716)
- Glen of the Downes pNHA (000719)
- Kilmacanogue Marsh pNHA (000724)
- The Murrough pNHA (000730)
- Dargle River Valley pNHA (001754)
- Powerscourt Waterfall pNHA (001767)
- Powerscourt woodland pNHA (001768)
- Great Sugarloaf pNHA (001769)
- Vartry Reservoir pNHA (001771)
- Bray Head SAC (000714)
- Carriggower SAC (000716)
- Glen of the Downs SAC (000719)
- Wicklow Mountains SAC (002122)
- The Murrough Wetlands SAC (002249)
- Wicklow Mountains SPA (004040)
- The Murrough SPA (004186)

Only the Murrough SPA/pNHA is potentially hydrologically linked with the site. (Note: Kilcoole Marsh is included within The Murrough Wetlands SAC and The Murrough pNHA).

A number of areas in the wider vicinity of proposed development site contain Architectural Conservation Areas (ACAs). These include:

- Delgany village
- Greystones town:
 - Church Road
 - Killincarrig
 - Burnaby
 - Blacklion
 - Greystones Harbour

There are also a number of protected structures in the wider vicinity of the proposed development site. These include Delany village (No. 11), Church Road (No. 5), Burnaby (No. 5) and Greystones Harbour (no. 25). These are addressed in more detail in Section 15.

7.4.3 Human Environment –Local Employment and Economic Activity

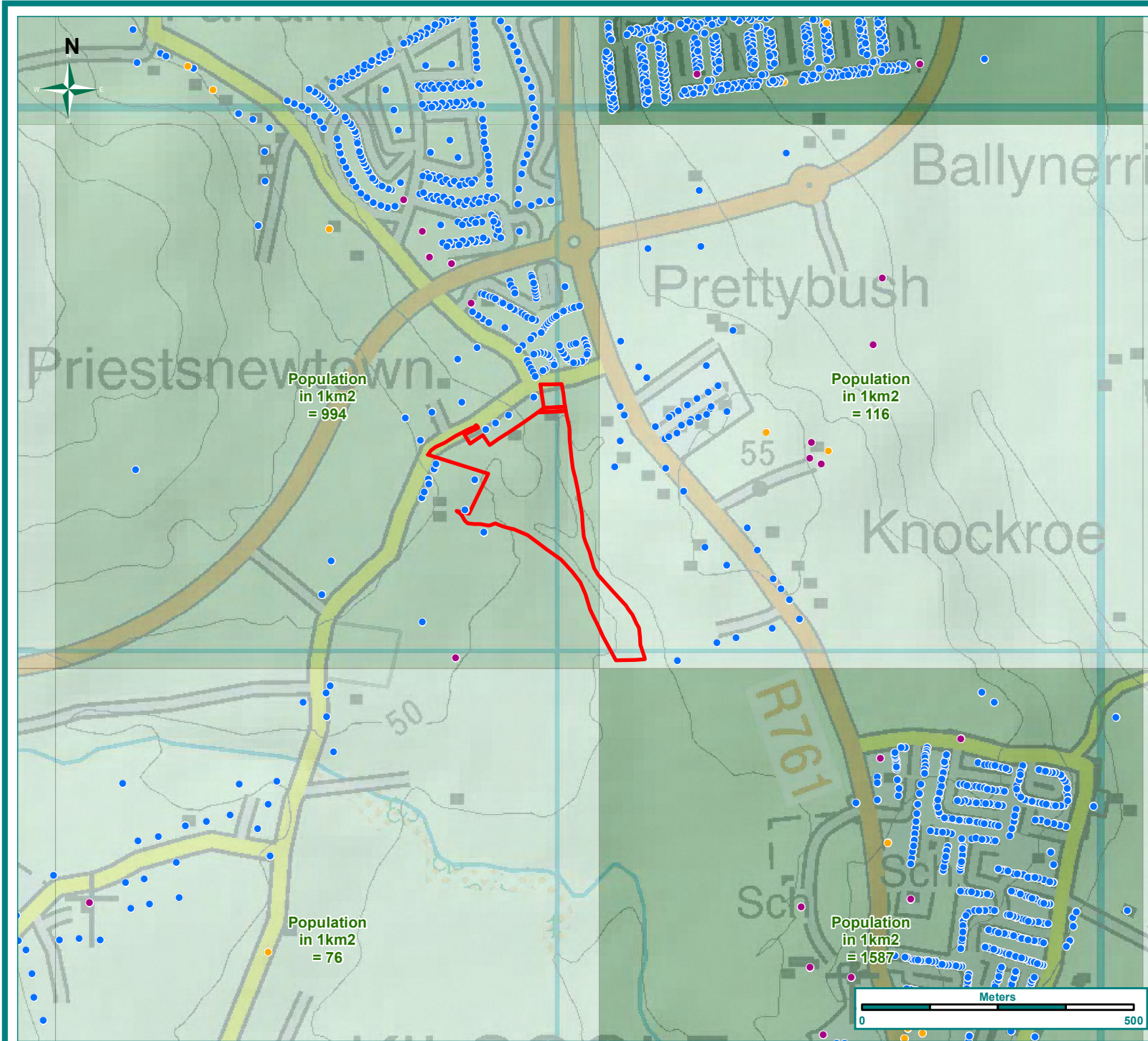
Theme 14 of the Census 2011 provides data in relation to the employment of persons with respect to industry type. Table 7.3 presents the 3 main employment sectors by industry type in each of the electoral districts of the study area.

Table 7-3: Employment by Industry Type

Electoral District	Employment ranked by Industry type		
	1 st	2 nd	3 rd
Kilcoole	Commerce & Trade	Professional Services	Other
Delgany	Commerce & Trade	Professional Services	Other
Greystones	Commerce & Trade	Professional Services	Other
Newcastle Upper	Commerce & Trade	Professional Services	Other

Commerce & trade and professional services are the predominant industry types providing employment to the population of the study area. This suggests that employment is mainly provided beyond the study area, with the local population required to travel to local economic centres such as Dublin city, Bray, Greystones and relevant suburbs for employment.

It is expected that the proposed development will provide work for 15 - 20 persons during the -construction phase of the proposed development which will contribute to short-term employment in the locality and the overall economy of the local area for this period.



Legend

- Study Boundary

Buildings in Vicinity

- Residential
- Commercial
- Mixed Commercial/Residential
- Unknown

Population Density - 1km Grid (CSO 2011)

- 0 - 350
- 351 - 1312
- 1313 - 2860
- 2861 - 4999
- 5000 - 11649

Date: 05/05/2016

Name Of Client:
Wicklow County Council

Name Of Job:
EIS for proposed Kilquade Waste Soils Recovery Facility

Title Of Figure:
Populations and Settlement within the Study Area

Scale Used: 1:10,000 @ A4

Figure No. 7.1	Rev A
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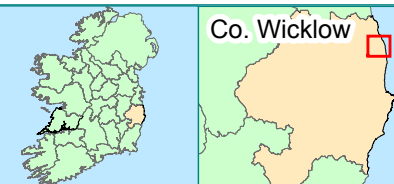
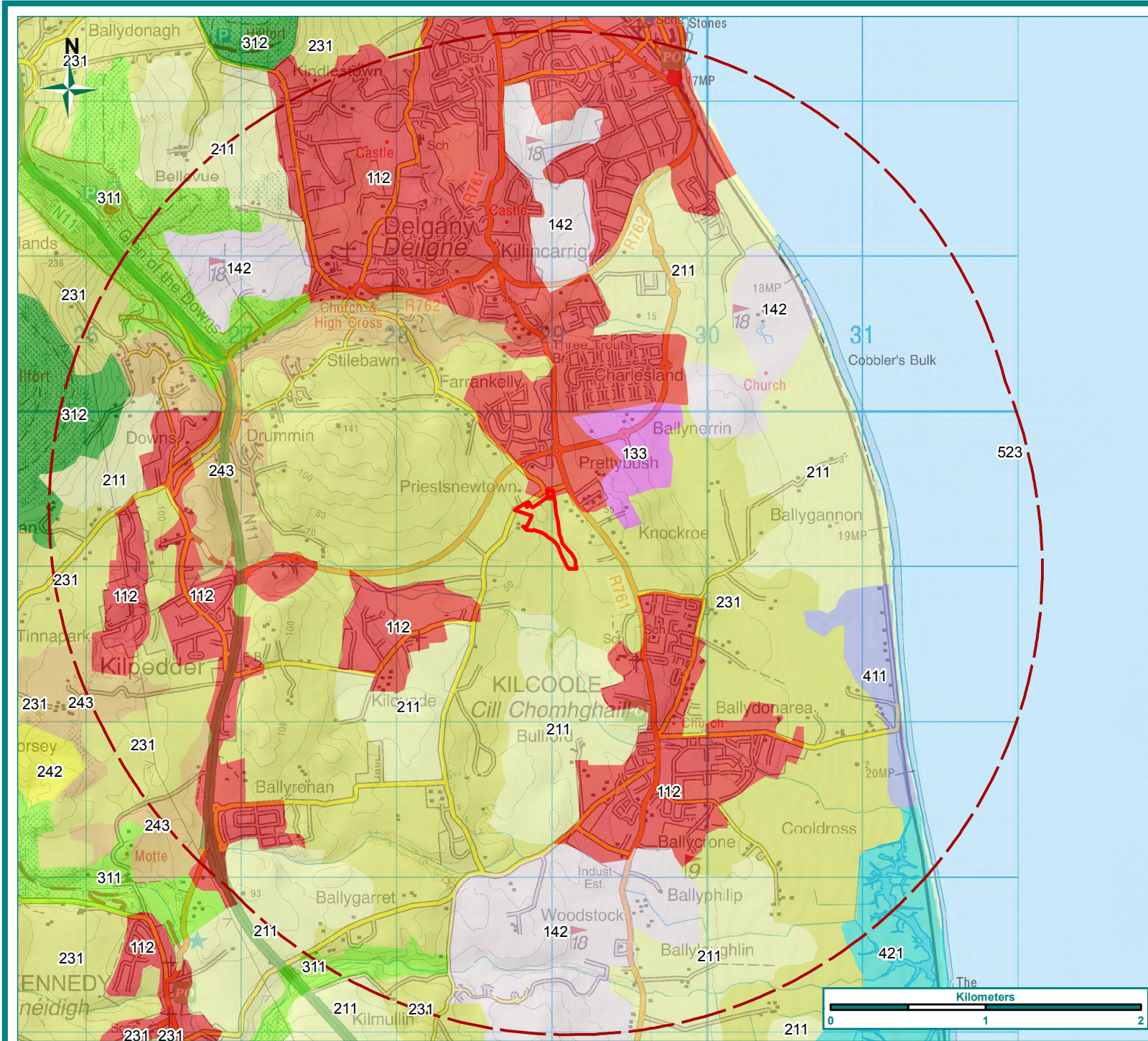


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Legend

- 3 km Zone
- Study Boundary
- CORINE Land Cover**
- 112 Discontinuous urban fabric
- 133 Construction sites
- 142 Sport and leisure facilities
- 211 Non-irrigated land
- 231 Pastures
- 242 Complex cultivation patterns
- 243 Land principally occupied by agriculture with areas of natural vegetation
- 311 Broad-leaved forest
- 312 Coniferous forest
- 411 Inland marshes
- 421 Salt Marshes

Date 05/05/2016

Name Of Client
 Wicklow County Council

Name Of Job
 EIS for proposed Kilquade Waste Soils Recovery Facility

Title Of Figure
 Land Use Within 3 km of the Proposed Development Map

Scale Used 1:35,000 @ A4

Figure No. 7.2 Rev A



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7.4.3 Human Environment – Transport Network

The area's road infrastructure is well served. The site entrance is approximately 1 km south of Delgany and 1 km north of Kilcoole on the L1042 local Kilquade Road, approximately 100 metres off the R761 Regional Road. The junction of the L1042 and the R761 is facilitated by a right hand turning lane with a channelising ghost island on the R761. The right hand turning lane provides easy access for right-turning vehicles travelling from the north on the R761. The R761 joins a roundabout junction approximately 200 m north of the L1042/R761 junction, which is joined from the east-west by the dual carriageway R774. The R774 connects to the N11, c. 1.6km to the west of the site. The N11 connects the area to Dublin and Wexford.

The area is also well served by public transport facilities. Both Kilcoole and Greystones are served by the South Eastern Commuter Rail Service, Dublin to Rosslare Europort Services, a public bus service and Aircoach to Dublin Airport. Greystones is also serviced by the DART and a large Park & Ride facility.

7.4.3 Human Environment –Utilities

Most of Greystones drinking water comes from Drummin Reservoir. Part of Greystones and most of Delgany is serviced by Vartry Waterworks in Roundwood. The Kindlestown Hill area of Delgany, due to topographical restrictions, is fed by a connection to the Dublin City trunk main. Charlesland and Kilcoole are fed by combination of the Drummin and Priestsnewtown Reservoir. A small proportion of households on the outskirts of the aforementioned areas receive water from wells.

Greystones, Delgany and Kilcoole area's wastewater is treated at the Greystones waste water treatment plant (WWTP). The Kindlestown and Blackberrylane areas of Delgany are served by private single on-site effluent disposal systems. Another WWTP (that undertakes both primary and secondary treatment) is located off Sea Road, Kilcoole and services the north and middle of Kilcoole Village. According to the Greystones – Delgany and Kilcoole Local Area Plan 2013-2019¹¹, the capacity for the second WWTP is severely restricted and requires upgrading. WCC have proposed the construction of another WWTP (and associated sewers) at Leamlara, Co. Wicklow which is south of Kilcoole, under the Water Services Investment Programme 2010-2012. WCC expect a number of phases to be constructed under the programme, however they do not expect the new WWTP to be ready by the time the second Kilcoole WWTP licence is up¹².

A 220 kV overhead powerline runs within the proposed development site's eastern boundary and terminates at a terminus pylon located approximate 75 m from the main entrance gate. From here the line runs underground in a northerly direction towards Kilcoole. A 38 kV overhead powerline also runs across the site to its north western corner where it terminates at a terminus pylon, adjacent to the Eir telecommunications building. From here it runs underground in a westerly direction. There are no further substations located within the 3km study boundary.

7.4.3 Human Environment –Amenity

The concept of amenity is not defined in Irish planning legislation but a (non-legislative) definition of amenity¹³ states that it is "*the pleasant or normally satisfactory aspects of a location which contribute to its overall character and the enjoyment of residents or visitors*".

It is generally taken to comprise of a number of elements that, in combination, create the attractive aspect of the location in question. The aspects include:

1. Visual appearance/landscape
2. Traffic levels
3. Noise levels
4. Air quality
5. Recreational options
6. Open spaces

¹¹ <http://www.wicklow.ie/sites/default/files/Adopted%20Written%20Statement.pdf>

¹² http://www.epa.ie/licences/lic_eDMS/090151b2803a92e7.pdf

¹³ <http://www.lawsonfairbank.co.uk/planning-glossary.asp>

Aspects 1 – 4 above are addressed individually in relevant sections of this EIS.

The proposed development site is located within a landscape that is characterised by hedgerow bound fields, regional and local rounds, one off residential developments, as well as the wild scrubland nature of the site itself. The site directly borders an area within the Greystones – Delgany and Kilcoole Local Area Plan 2013-2019 identified as “Greenbelt”.

Recreational options within the EDs identified are likely to include walking and cycling; there are the nearby Delany heritage trail, Kindlestown Woodland trail and the Glen of the Downes walking trails which are all within the study boundary. There are various team sports at dedicated sports fields, with Charlesland Sports and Recreation Park located 650 m east of the site.

5 no. golf courses (Charlesford Golf Club, Druids Glen Golf Club, Kilcoole Golf Club, Greystones Golf Club and Delgany Golf Club) are all located within 3 km of the proposed development site. There is also Glenroe Open Farm and Arboretum Kilquade; located 1 km northeast and 1 km southwest respectively. The proposed development is located 2 km west of Greystones marina, harbour cliff walk and blue flag beach.

No recreational activities are carried out at the proposed development site location given that it is currently overgrown scrubland and with the only readily accessible area being a WCC mini depot on the site’s north eastern corner.

The development location can be considered as an open space and is owned by WCC.

7.4.4 Human Environment - Tourism

The area around the proposed development site offer substantial tourism resources, from golf to eco and agri related tourism, as well as historical heritage. Within the 3km study boundary, accommodation is available in the form of Druid’s Glen Resort and Trident Holiday Homes.

Within the study boundary there are five golf course; Charlesford Golf Club, Druids Glen Golf Club, Kilcoole Golf Club, Greystones Golf Club and Delgany Golf Club.

There is the coastal and historic amenity of Greystones town, harbour, marina, cliff walk and blue flag beach (South Beach) located 2 km from the site.

Regarding ecotourism, Kilcoole Marshes, Kindlestown Wood Walking Trail, East Coast Nature Reserve, Murrough Wetlands SAC and Glen of the Downes Nature Reserve Walking Trail are all within the study boundary.

Within 1 km of the proposed development site there is Glenroe Open Farm and Arboretum Kilquade.

Ireland’s Ancient East is a brand used by Fáilte Ireland to promote Ireland’s East coast heritage¹⁴. Three stops on the Ireland’s Ancient East trail¹⁵ are located within 20km of the proposed development site; Powerscourt Gardens (c. 10km northwest), Wicklow Gaol (c. 15km south) and Glendalough (c. 18km southwest of site).

Regarding heritage there is also the Delgany Heritage Trails and Rathdown medieval settlement; located c. 2km and c. 2.7km respectively from the proposed development site. Kilruddery House and Gardens, an NIAH (National Inventory of Architectural Heritage) is located 7km north of the site. There are also six Protected Structures within the 1 km of the site boundary (refer to Section 15).

¹⁴ <http://www.failteireland.ie/Ireland-s-Ancient-East.aspx>

¹⁵ <http://www.rte.ie/news/2015/0414/693941-tourism/>

7.5 Summary of Key Potential Impacts

7.5.1 Do-nothing Impact

In the event of the development not being carried out, there will be no direct or indirect impacts on the population, settlements, landuse, employment, economic activity, transport network, utilities, amenity or tourism of the local area.

7.5.2 Human Environment – Population & Settlements; Direct & Indirect

The villages of Kilcoole and Delgany are both located c. 1km from the proposed development. Greystones Town is located 3km from the proposed development.

There are 32 residential one off houses, as well as the Farrankelly Close and Eden Wood residential developments, within 100m of the proposed development site boundary, with the nearest 10 residences directly bordering the northern and north eastern boundary. This EIS, in following sections, assesses the impact of the development on the existing environment and recommends appropriate mitigation measures where necessary.

In the absence of mitigation measures, potential indirect impacts on population, residential settlements and community facilities in the vicinity of the proposed development site may arise during the construction phase from a combination of noise, traffic and air emissions, which are addressed in detail in the following sections of the EIS.

It is not envisaged that the post construction phase of the proposed development will directly impact on the population or settlement patterns in the study area through an increase or decrease in population or through the influencing of settlement patterns in the study area.

7.5.3 Human Environment – Land Use: Direct & Indirect

The land use of the proposed site will change from its existing use as a mini depot for WCC and as an open undulating space dominated by scrub, to an Eco-park development for local and community use post construction.

The land use in the immediate and wider site vicinity, identified in Figure 7.2 i.e. pasture lands, arable land, urban environment, will not be directly or indirectly changed or impacted upon as a result of the proposed development.

The proposed Pretty Bush Eco-park will have significant positive community (and possible tourism) related benefits for the local community through the provision of communal recreational space for the local and wider community.

The landuse within the site boundary will be directly and significantly impacted as a result of the proposed development through the clearance of existing scrub and vegetation and placement of dredge spoil at the site, thereby altering existing ground levels. The site will change from an area of unmanaged land to a semi-managed land area, which will be classified as a waste recovery facility, until such time as any EPA licence may be surrendered. However, the design of the proposed Pretty Bush Eco-park will be such that the site will be allowed to revert to a wild, unmanaged status in terms of the landscaping design proposed, thus replacing existing wild habitats and returning the site to existing status.

Direct & indirect impacts on the ecology of the site are addressed in more detail in Section 11.

7.5.4 Human Environment – Local Employment and Economic Activity: Direct & Indirect

The proposal results from the works currently being undertaken as part of the River Dargle Flood Defence Scheme which is *required to protect both property, but more importantly, life in Little Bray*¹⁶.

¹⁶ River Dargle Flood Defence Scheme Newsletter, November 2014: <http://www.brav.ie/wp-content/uploads/2014/11/RDFP-Newsletter-November-2014-final1.pdf>

The flood defence works is one of a number of capital investments being made by WCC and the Office of Public Works (OPW) with an investment of €40 million. The flood prevention works include deepening and widening the River Dargle channel to make the river as hydraulically efficient as possible.

Regarding employment during the construction phase of the proposed development (i.e. the placement of dredge spoil from the River Dargle flood scheme), the impact is anticipated to be directly positive as some employment will be created onsite for the duration of the construction phase, which is envisaged to last between 8 – 15 months.

Regarding employment during the post construction phase, a neutral impact is envisaged as minimal upkeep of the site will be required by Council staff, with extra job creation not envisaged.

7.5.5 Human Environment –Transport Network: Direct & Indirect

The potential direct and indirect construction and post-construction phase impacts in the absence of mitigation measures on the local road network are discussed in further detail in Section 9.

7.5.6 Human Environment –Utilities: Direct & Indirect

No direct or indirect impact are envisaged on any utilities during the construction and post construction phases.

7.5.7 Human Environment – Amenity: Direct & Indirect

Potential direct and indirect operational phase impacts on identified elements of the amenity (visual appearance/landscape, traffic, noise, and air quality) of the study area are addressed in individual sections of this EIS.

SOC 10 objective of the Greystones – Delgany and Kilcoole Local Area Plan 2013-2019 is *'to provide for the development of open space to meet the needs of the current and future population of the plan area'*. As the proposed development location is directly adjacent to this Plan area, the proposed Pretty Bush Eco-park will positively benefit the local communities through provision of a recreational outlet and open space for walking activities.

7.5.8 Human Environment – Tourism: Direct & Indirect

The proposed Pretty Bush Eco-park will have positive community and tourism related benefits for the local and wider community through the provision of communal space with potential for alignment with eco-tourism initiatives of Wicklow County Council.

Potential construction phase impacts associated with traffic, noise, air emissions, surface water quality and landscape that could have an indirect impact on tourism in the local area are addressed in respective sections in this EIS.

7.6 Mitigation Measures

7.6.1 Human Environment – Population & Settlements

Appropriate mitigation measures for potential direct and indirect impacts on population and settlements associated with traffic, noise and air emissions are identified in their respective sections.

7.6.2 Human Environment – Land Use

No mitigation measures are proposed in relation to land use beyond the development boundary, given the lack of direct and indirect impacts on these lands.

The development of the Pretty Bush Eco-park in itself is a mitigating measure for the change of land use within the site boundary from a wild, inaccessible area to an accessible Eco-park for community use.

Mitigation measures provided in relation to the direct impact on the ecology of the area, which is closely related to the land-use, are described in more detail in Section 11.

7.6.3 Human Environment - Local Employment & Economic Activity

No mitigation measures are proposed in relation to local employment and economic activity as the proposed development is considered as having positive (albeit slight), direct and indirect impacts.

7.6.4 Human Environment - Transport Network

Mitigation measures in relation to traffic and transport are presented in Section 9 of this EIS.

7.6.5 Human Environment - Utilities

No mitigation measures are proposed in relation to utilities, given the lack of any direct and indirect impacts resulting from the proposed development.

7.6.6 Human Environment – Amenity

As identified, the provision of the Pretty Bush Eco-park in itself is a positive mitigation measure in relation to the amenity of the locality in terms of recreational options and open spaces.

Mitigation measures for traffic, noise, air emissions, surface water quality and landscape are identified in their respective sections.

7.6.7 Human Environment - Tourism

As with amenity, the provision of the Pretty Bush Eco-park in itself is a positive mitigation measure in relation to the tourism potential of the locality, given the eco-tourism potential of the site.

7.7 Residual Impacts after Mitigation

No additional mitigation measures have been outlined in this section of the EIS, over and above what is outlined in individual noise, traffic, air impact, surface water quality and landscape/amenity assessments.

Residual impacts resulting from the implementation of mitigation measures identified will result in the development of an Eco-park (managed under licence from the EPA) that will remain as a recreational outlet for the community, with an overall positive impact on the locality.

Following the implementation of mitigation measures outlined for noise emissions, traffic and air emissions, the proposed development will not have a significant impact on the human environment.

7.8 Monitoring

Monitoring requirements associated with potential impacts from noise, traffic, air emissions and surface water discharged have been outlined in Section 3 of this EIS and in respective sections for each of these environmental media.

7.9 Conclusion & Summary

The human environment in the vicinity of the proposed development relating to population and settlements, land use, local employment & economic activity, transport, utilities, amenity and tourism has been assessed.

No significant, direct, medium or long term negative impacts on the human environment of the locality have been identified. The provision of a community resource in the form of an Eco-park will have a positive, long term impact.

7.10 References

Fáilte Ireland; Ireland's Ancient East;

<http://www.failteireland.ie/Ireland-s-Ancient-East.aspx>

Grant, 2010. Inspectors Report on a Waste Water Discharge Licence Application (Application for a Waste Water Discharge Licence from Wicklow RE: County Council for the agglomeration named Kilcoole, Reg. No. D0087-0 1);

http://www.epa.ie/licences/lic_eDMS/090151b2803a92e7.pdf

RTE News, *Ancient East trail aims to boost tourism*, Tuesday 14th April 2015

<http://www.rte.ie/news/2015/0414/693941-tourism/>

WCC, 2013. Greystones – Delgany and Kilcoole Local Area Plan 2013-2019;

<http://www.wicklow.ie/sites/default/files/Adopted%20Written%20Statement.pdf>

8 HUMAN BEINGS –AIR QUALITY & CLIMATE

8.1 Introduction

This section of the EIS presents details on air quality and microclimate in the existing environment in the vicinity of the site. This section also predicts the impacts that may be expected on the existing environment at and near the site and the proposed measures to mitigate these effects.

The climate in the immediate local area of a proposed development is known as the micro-climate whereas the climate of a large geographical area (global) is the macro-climate. The potential impacts of the proposed development on micro-climate and macro-climate will be addressed.

The main areas examined with respect to the potential impacts from the proposed development on climate and air quality are:

- dust/particulate emissions
- vehicle emissions

Given the nature of the proposed operations and the materials to be accepted i.e. inert dredge soil and gravel, it is not considered that odour generation will be associated with any phase of the proposed development and thus odour is not considered further in this section.

8.2 Methodology

8.2.1 [Assessment of Existing Environment](#)

To describe the existing environment, a desk-top assessment was undertaken of existing data sources and published reference reports such as, available climatic data representative of the site from Met Éireann and air monitoring data undertaken by the EPA.

Data for localised climatic conditions has been derived from meteorological measurements at the Casement Aerodrome synoptic station located approximately 35 km north-west of the site.

The Casement Aerodrome synoptic station is located at Baldonnell, Co Dublin (53°18'20" N, 6°26'20" W) at 94 mOD above mean sea level, approximately 40 metres higher than the proposed site location.

Assessment of dust emissions

Dust monitoring was carried out onsite by an FTC scientist between September and October 2015 to determine the existing dust baseline.

Bergerhoff gauges were used to determine total dust deposition at the site. Monitoring was carried out in accordance with the Standard Method VDI 2119 (Part 2, 1996) - (Measurement of Dustfall, Determination of Dustfall using Bergerhoff Instrument (Standard Method) German Engineering Institute) for individual 30 day periods at 2 no. locations onsite.

Under the Air Pollution Act 1987, dust is considered a pollutant if concentrations are such that it is injurious to public health, deleterious to ecology, or impairs or interferes with amenities or the environment. This definition of air pollution has been transposed into the Protection of the Environment Act 2003. There are no statutory standards in Ireland for the control of dust nuisance.

To assess the impacts of dust emissions, the assessment process outlined in the guidance document "Guidance on the assessment of dust from demolition and construction" prepared by the UK Institute of Air Quality Management in 2014 was used.

Assessment of Vehicle Emission Impacts

To assess the impact of vehicle emissions from the proposed development on the wider road network (L1042 and R761), a basic air quality prediction screening model was undertaken in accordance with the National Roads Authority (NRA) Guidelines for the Treatment of Air Quality during the Planning and Construction of National Road Schemes.

This prediction tool is designed by Design Manual for Roads and Bridges (DMRB) (Volume 11, Section 3 Air Quality, May 2007) and published by the UK Highways Agency. The DMRB model predicts vehicle emissions for NO_x, NO₂ and PM₁₀, carbon monoxide, benzene and 1,3-butadiene. This screening model was used to predict the existing base case NO_x, NO₂, CO and PM₁₀ traffic emissions using 2015 traffic data and estimated proposed traffic flows associated with the acceptance of up to 200,000 tonnes at the proposed facility over an 8-month period. (conservative assumption - refer to Section 9).

The DMRB model requires a number of inputs such as traffic flow, speed and vehicle mix and the annual background pollutant concentration at each route. Relevant traffic data is outlined in Section 9 of this EIS. Modelled traffic speeds were taken as the speed limit on each of the roads. The average maximum annual large town location monitoring results from the fixed EPA Zone C (towns with a population greater than 15000) air quality monitoring locations was included in the assessment.

The UK Local Air Quality Management (LAQM) year adjustment factor spreadsheet tool was used to adjust measured concentrations and assess the pollution impact for future years (V2.2 for NO₂ & PM₁₀ adjustment and V1.1 for CO adjustment). This spreadsheet is used based on the assumption that pollutant concentrations will decline in future years due to initiatives to reduce vehicle derived emissions. Pollutant concentrations were predicted for a sensitive receptor located 10 m from the modelled road. Predicted concentrations were then compared with the relevant air quality standards.

8.3 Existing Environment

8.3.1 Climate in the Existing Environment

The weather experienced in Ireland is typically a west maritime climate, consisting of relatively mild, moist winters and cool, cloudy summers. For substantial periods of the year, Ireland is subject to maritime air, associated with the Gulf Stream. This helps to maintain a moderate climate with few extremes experienced by other countries at similar latitude. Prevailing winds are westerly to south westerly and average humidity is high. The west coast and inland areas of high relief are subject to the highest levels of annual average precipitation.

Rainfall is greatest in the northwest, west and southwest of the country, especially over the higher ground. Rainfall accumulation tends to be highest in winter and lowest in early summer. The annual number of days with more than 1 mm of rain varies between about 150 days in the drier parts i.e. east and south-east coasts and over 200 days in the wetter parts of the country i.e. west coast (<http://www.met.ie/climate/rainfall.asp>).

The potential effects of climate change on a global scale have been investigated by the Intergovernmental Panel on Climate Change (IPCC).

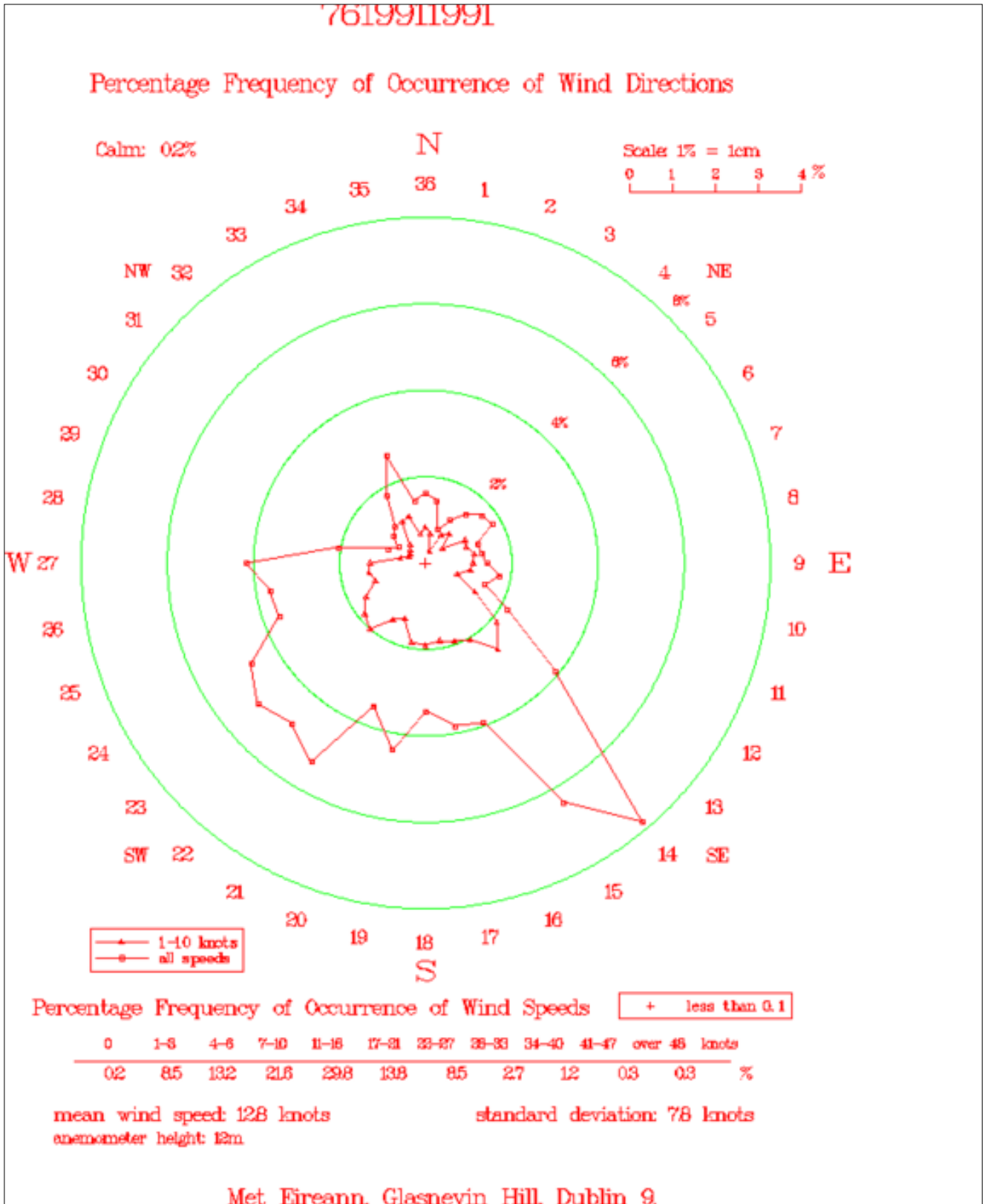
The predicted impacts in Ireland are outlined in the National Climate Change Strategy and state that Ireland will become warmer, with drier summers and wetter winters. Serious flooding events, more frequent than at present, are also predicted.

It is recognised that Ireland cannot, on its own, prevent climate change impacts. However, the National Climate Change Strategy states that Ireland must meet its responsibilities with regard to reducing CO₂ emissions in partnership with the EU and the global community.

Changes in Ireland's climate are predicted to continue to change in the coming decades (Desmond et al., 2009). With some meteorological records in Ireland over 100 years old, published data shows changes in Ireland's climate in line with global and regional trends.

Data for localised climatic conditions has been derived from meteorological measurements at the Casement Aerodrome synoptic station and is presented in Table 8-1.

Data from Casement Aerodrome indicates that the mean air temperature is approximately 9.57 °C. The average wind speed and direction indicates that the prevailing winds are south westerly, with a mean wind speed of 12.8 knots, based on a Met Éireann Wind Rose plot from Dublin Airport from 1942 to 2010, presented in Figure 8-1.



Source (Met Éireann, 2015)

Figure 8-1: Wind Rose for Dublin Airport synoptic station 1942 to 2010

Table 8-1: Casement Aerodrome Synoptic Station Monthly & Annual Mean & Extreme Values (1985-2015*; 30 Year Average)

TEMPERATURE (degrees Celsius)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Mean Daily max	8.07	8.21	10.06	12.31	14.92	17.83	19.86	19.18	16.91	13.76	10.24	8.33	13.31
Mean Daily min	2.3	2.08	2.56	3.67	6.37	9.02	11.22	10.52	8.68	6.82	4.2	2.55	5.83
Daily Mean	5.185	5.145	6.31	7.99	10.645	13.425	15.54	14.85	12.795	10.29	7.22	5.44	9.57
Minimum Air Temp	-4.25	-4.22	-3.62	-2.37	0.87	3.71	6.64	5.63	3.03	0.09	-2.89	-4.96	-0.19
Maximum Air Temp	12.79	12.72	15.03	17.60	21.02	23.38	24.59	23.76	22.09	18.32	14.94	13.38	18.30
SUNSHINE (hours)													
Mean Daily Duration	1.66	2.54	3.39	5.46	5.48	5.53	5	4.7	4.25	3.25	2.28	1.56	3.76
RAINFALL (mm)													
Mean Monthly total	65.20	51.51	48.32	52.75	58.60	63.75	60.23	76.19	56.95	85.68	74.45	71.52	63.76
Mean Daily Rainfall	2.26	1.87	1.6	1.86	2.16	2.19	1.98	2.74	1.71	2.8	2.53	2.3	2.17
EVAPORATION (mm)													
Mean Monthly total	0.66	0.99	1.7	2.63	3.41	3.9	3.85	3.19	2.27	1.32	0.82	0.75	2.12
WIND (knots)													
Mean Monthly Wind Speed	13.01	12.59	11.92	9.85	9.39	8.48	8.75	9.05	9.34	10.73	11.22	12.38	10.56
Highest Gust	57.32	53.16	51.61	47.29	44.61	39.48	39.42	41.55	44.43	48.47	50.73	56.40	47.87

Source (Met Éireann, 2015) (partial 2015 data available only)

Precipitation is the discharge of water, in liquid (rain and dew) or solid state (snow, hail, sleet and frost) from the atmosphere. It is the common process by which atmospheric water becomes surface or subsurface water. In Ireland, it is observed that hail and snow contribute relatively little to the precipitation measured.

The mean annual precipitation data recorded at Casement Aerodrome shows a mean monthly rainfall of 63.76 mm over a 30-year period (Table 8-1), or an average yearly total of 765.15 mm. The average monthly precipitation varies; slightly higher levels are recorded during the winter period compared to the summer period. The wettest months are typically August, October, November and December, over the 30-year period, while March represents the driest month.

8.3.2 Air Quality in the Existing Environment

A desktop study assessment was undertaken to determine the existing air quality in the area of the proposed development site. This involved assessing air monitoring being undertaken by the EPA as part of the National Ambient Air Quality Network.

EPA Air Monitoring Data

Under the Air Quality Framework Directive (1996/62/EC), Ireland has been divided into four air management areas. Dublin is Zone A and Cork is defined as Zone B. Zone C consists of 16 towns with a population of greater than 15,000 while Zone D covers the remainder of the country (all towns with a population of less than 15,000 and all rural areas). The Pretty Bush site is located in Zone C due to its proximity to the towns of Bray and Greystones.

The EPA operates a number of fixed and mobile air monitoring stations. As the site is located in a Zone C location, EPA air quality data from 2012, 2013 and 2014, monitored within Zone C, was reviewed and summarised in Table 8.2. An average of the maximum Zone C location monitoring results can be used as a conservative representation of the air quality in proximity to the proposed development location.

Table 8-2: Summary of EPA Monitoring Results (ug/m³)

Parameter	Measurement	Kilkenny Seville Lodge	Portlaoise	Mullingar	Ennis	Bray	Kilkenny	Galway	Balbriggan
Year		2014							
NO ₂ (ug/m ³)	Hourly max	57	74	53					
	Annual Mean	5	16	4					
NO _x (ug/m ³)	Hourly max	315	457.6	74					
	Annual Mean	8	27	6					
SO ₂ (ug/m ³)	Hourly max		323.5	51	530				
	Annual Mean		5	2	4				
Ozone (ug/m ₃)	Max 8 hr					96	109		
	Annual Mean					53	55		
PM ₁₀	Daily Max		67	35	68	54		41	
	Annual Mean		12	11	21	17		15	
PM _{2.5}	Daily Max				77	45			
	Annual Mean				16	8			
Year		2013							
NO ₂ (ug/m ³)	Hourly max	90.1		68					
	Annual Mean	4		6					
NO _x (ug/m ³)	Hourly max	188		197					
	Annual Mean	6		12					
SO ₂ (ug/m ³)	Hourly max			51	106				
	Annual Mean			3	3				
Ozone (ug/m ₃)	Max 8 hr					114	121		
	Annual Mean					57	56		
PM ₁₀	Daily Max			48	95	83		74	
	Annual Mean			15	20	20		21	
PM _{2.5}	Daily Max				86				

Parameter	Measurement	Kilkenny Seville Lodge	Portlaoise	Mullingar	Ennis	Bray	Kilkenny	Galway	Balbriggan
	Annual Mean				12				
Year		2012							
NO ₂ (ug/m ³)	Hourly max	62		62					87
	Annual Mean	4		7					9
NO _x (ug/m ³)	Hourly max	423		212					492
	Annual Mean	7		11					14
SO ₂ (ug/m ³)	Hourly max			23					49
	Annual Mean			3	3				3
Ozone (ug/m ₃)	Max 8 hr	118		0		120			
	Annual Mean	52		0		55			
PM ₁₀	Daily Max			40	81	58		60	49
	Annual Mean			16	19	17		16	17
PM _{2.5}	Daily Max			0	70				
	Annual Mean			0	12			0	

Sources: Air Quality in Ireland 2012– Key Indicators of Ambient Air Quality, EPA 2013
Air Quality in Ireland 2013– Key Indicators of Ambient Air Quality, EPA 2014
Air Quality in Ireland 2014– Key Indicators of Ambient Air Quality, EPA 2015

Table 8-3: Average of EPA Zone C Monitoring Results (ug/m³) 2012-2014

Parameter	Measurement	Average 2012-2014
NO ₂ (ug/m ³)	Hourly max	70
	Annual Mean	7
NO _x (ug/m ³)	Hourly max	283
	Annual Mean	11
SO ₂ (ug/m ³)	Hourly max	142
	Annual Mean	3
Ozone (ug/m ³)	Max 8 hr	113
	Annual Mean	55
PM ₁₀	Daily Max	62
	Annual Mean	17
PM _{2.5}	Daily Max	72
	Annual Mean	12

Sources: Air Quality in Ireland 2012– Key Indicators of Ambient Air Quality, EPA 2013
Air Quality in Ireland 2013– Key Indicators of Ambient Air Quality, EPA 2014
Air Quality in Ireland 2014– Key Indicators of Ambient Air Quality, EPA 2015

Dust Monitoring

Dust monitoring results from monitoring undertaken at the proposed development location are used to assess the ambient air quality, with dust monitoring being undertaken at 2 no. locations for a 30-day period in between September and October 2015.

The locations of this monitoring are indicated in Figure 8.2.

The TA Luft Guideline entitled 'Technical Instructions on Air Quality Control, 2001', which is frequently applied as a guideline in Ireland, sets a limit of 350 mg/m²/day for dust deposition, with this limit typically being applied in EPA licence, as will be applicable to the proposed development.

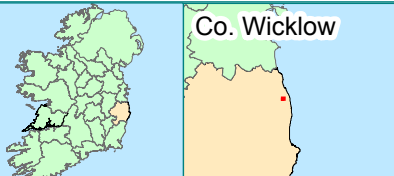




Dust Monitoring Results

The results of the monitoring carried out are presented in Table 8-4 and copies of the laboratory reports are included in Appendix 9.

Table 8-4: Results of Total Dust Deposition

Location	Total Dust mg/m ² /day
DS-01	5.56
DS-02	11.7



	
Legend	
	Study Boundary
Dust Monitoring Locations	
	D-01
	D-02
Date	05/05/2016
Wicklow County Council	
Name Of Job	
Waste Licence, Planning & EIS for Waste Soils Recovery Facility	
Title Of Figure	
Baseline dust monitoring locations	
Scale Used	1:3,000 @ A4
Figure No.	8.2
	Rev A
	
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8.4 Summary of Key Possible Impacts

This section examines the potential effects of the proposed development on climate and air quality. It predicts the impacts that may be expected on the existing nature of the environment at and near the site and the proposed measures to mitigate these effects. The main areas examined with respect to the potential impacts from the proposed development on climate and air quality are:

- climate
- dust/particulate emissions
- vehicle emissions

For the purposes of this assessment, potential impacts on climate are considered as covering both the construction and post-construction phases of the development, while impacts relating to dust emissions and vehicle emission are considered for the Construction Phase only. Given the proposed use of the facility as an Eco-park, post -construction impacts relating to dust and vehicle emissions are considered to be negligible.

8.4.1 Do-Nothing Impacts

In the event of the development not proceeding, there will be no direct or indirect impacts on air quality in the vicinity of the development site.

8.4.2 Potential Impacts on Climate - Direct & Indirect

The practice of landfilling the majority of the country's waste results in the production of significant quantities of greenhouse gases, in particular methane (CH₄) and that alternative infrastructure is required for Ireland to meet its national obligations. The second National Climate Change Strategy, published in 2007, provides a framework for action to reduce Ireland's greenhouse gas emissions to comply with the target, set by the EU, to reduce greenhouse gas emissions by 20% on 1990 levels by 2020. The National Climate Change Strategy designated the Environmental Protection Agency (EPA) with responsibility for developing annual national emission projections for greenhouse gases for all key sectors of the economy.

In the latest projections in 2014¹⁷, two scenarios were developed for the waste sector. The "With Measures" scenario assumes a continued requirement for landfill as the disposal option for residual waste. The "With Additional Measures" scenario assumes that a second waste-to energy incinerator (600,000 tonne per annum) comes online. Under both scenarios it is assumed that recycling of waste materials increases by 1% per year and that the total municipal solid waste generated increases in line with GDP growth. It is assumed that the Landfill Directive targets (Directive 1999/31/EC), for the diversion of biodegradable waste from landfill, are met progressively in 2013 and 2016 following on from Ireland's achievement of the 2010 Landfill Directive target.

Under the "With Measures" scenario total waste sector emissions decrease by 25% by 2020. Under the "With Additional Measures" scenario total waste sector emissions decrease by 31%. Under both scenarios it is assumed that CH₄ capture increases from the current level of 68% of CH₄ generated in 2012 to 75% in 2020.

Based on existing waste management practices in Ireland, we can assume the "With Additional Measures" scenario to be applicable as Ireland is no longer landfilling the majority of its waste and construction of the country's second waste-to-energy facility is underway and it is expected to come online in 2017.

Under the requirements of the Kyoto Protocol, Ireland is required to reduce its emissions of greenhouse gases. The way in which these targets will be achieved is outlined in the National Climate Change Strategy 2007 – 2012. The landfilling of waste results in the production of significant quantities of greenhouse gases particularly methane (CH₄). The achievement of national targets with respect to the commitments under the Landfill Directive will, in parallel, contribute to the achievement of the national Kyoto Protocol targets.

¹⁷ Irelands Greenhouse Gas Emissions Projections 2013-2030, EPA, August 2014

The proposed development at Kilcoole, over the construction and post-construction phases, will, through facilitating regional recovery of dredge spoil by providing required waste management infrastructure, positively, albeit minimally, and indirectly, contribute to achievement of the national commitments regarding climate change. Impacts on climate change will be minimal given the inert nature of the material to be placed i.e. no greenhouse gas potential will result from management from this type of waste material.

8.4.3 Potential Impacts on Air Quality – Construction Phase - Direct & Indirect

Dust Emissions

During the Construction Phase of the development, potential dust emissions may arise from:

- Site clearance works including shredding, with temporary stockpiling of shredded wood and/or loading of vehicles with same
- Dredge spoil and topsoil delivery and temporary stockpiling
- Placement of materials
- Vehicle movement to and from the site

Due to the close proximity of a number of residential dwellings to the proposed site, there is a need to complete a detailed assessment of the potential impacts and associated risks arising from dust generation during the construction phase of the proposed development.

In the absence of specific Irish guidance on the matter, this assessment has been carried out in accordance with the guidance document "*Guidance on the assessment of dust from demolition and construction*" prepared by the UK Institute of Air Quality Management in 2014¹⁸. This Guidance provides a framework for the assessment of potential impacts associated with dust generation. It divides activities on construction sites into four main types: demolition, earthworks, construction and trackout. As earthworks¹⁹ is the sole proposed type of activity to be carried out at the Kilquade site, the three other activities were not considered for this assessment.

The assessment methodology outlined in the guidance and used for this assessment is based on a sequence of steps which are summarised below.

- Step 1: screens the requirement for more detailed assessment
- Step 2: assesses the risk, considering the scale of the works and the sensitivity of the area
- Step 3: determines site-specific mitigation for the activities carried out
- Step 4: determines residual effects and whether or not they are significant

Steps 3 & 4 are considered as part of Section 8.4.3 and 8.4.4 following, respectively.

Step 1- Screening the Need for a Detailed Assessment

The guidance indicates that an assessment is required when there is:

- A 'human receptor' within:
 - 350 m of the boundary of the site; or
 - 50 m of the route(s) used by construction vehicles on the public highway, up to 500 m from the site entrance(s)
- An 'ecological receptor' within:
 - 50 m of the boundary of the site; or

¹⁸ Holman et al (2014). IAQM Guidance on the assessment of dust from demolition and construction. Institute of Air Quality Management, London.

Available from: http://iaqm.co.uk/wp-content/uploads/guidance/iaqm_guidance_report_draft1.4.pdf

¹⁹ Where earthworks are defined as activities "involving excavating material, haulage, tipping and stockpiling" as well as "levelling the site and landscaping"

- 50 m of the route(s) used by construction vehicles on the public highway, up to 500 m from the site entrance(s)

The residential dwellings directly bordering the site to the north and west and the Farrankelly Close & Eden Wood residential developments located directly opposite (north) from the main site access represent 'human receptors' within 350 m of the boundary of the site. A more detailed assessment is therefore required to be carried out for the proposed site.

Step 2 – Assessing the Risk of Dust Impacts

The risk of impacts from dust are determined using four risk categories: negligible, low, medium and high risk.

A site is allocated to one of the above specific risk categories based on the potential dust magnitude (small, medium or large) which is determined by the scale and nature of the works at the site, and the sensitivity of the area to dust impacts (low, medium or high).

The total site area at Kilquade is approximately 5.6 ha. It is proposed to utilise the site for the deposition of up to 200,000 tonnes of dredge spoil material. Dredge spoil typically comprises clay, silt, sand, gravel and stone and the clay, silt and sand elements may be prone to suspension when dry, due to their small particle size.

Based on the above scale and nature of the proposed works at the site, the magnitude of potential dust emission from the site is considered to be **large**²⁰.

The sensitivity of different receptors at the site to dust soiling, health effects and ecological effects are outlined below. Following this, the sensitivity of the Kilquade site itself to dust soiling, human health and ecosystem impacts is outlined.

Dust Soiling Effects

As noted in the guidance, high sensitivity receptors to dust soiling effects are surrounding land where:

- users can reasonably expect enjoyment of a high level of amenity; or
- the appearance, aesthetics or value of their property would be diminished by soiling; and
- the people or property would reasonably be expected to be present continuously, or at least regularly for extended periods, as part of the normal pattern of use of the land.

The dwellings located in close proximity to the proposed site are considered to be high sensitivity receptors.

Table 8-5 shows how the sensitivity of an area can be determined for dust soiling effects on people and property.

²⁰ where the Guidance identifies 'large' earthworks as, inter alia, "total material moved > 100,000 tonnes"

Table 8-5: Sensitivity of an area to dust soiling effects on people and property

Receptor Sensitivity	Number of Receptors	Distance from the Source (m) ^c			
		<20	<50	<100	<350
High	>100	High	High	Medium	Low
	10-100	High	Medium	Low	Low
	1-10	Medium	Low	Low	Low
Medium	>1	Medium	Low	Low	Low
Low	>1	Low	Low	Low	Low

(from 'Guidance on the assessment of dust from demolition and construction. Institute of Air Quality Management')

Each residential dwelling close to the site represents an individual receptor. The source is considered to be the dust that may be generated from the activities proposed to be carried out at the 'central staging' area of the site (refer to Section 3). This is the area where the majority of potential dust generation is likely to occur.

There are 10 no. residential dwellings bordering the site to the north and north east which are within 50m of the potential dust generation source. There are greater than 10, but less than 100 receptors within 100 m of the source.

The overall sensitivity of the area to dust soiling effects on people and property is therefore considered to be **low**.

Health Effects of PM₁₀

As noted in the guidance, high sensitivity receptors to the health effects of PM₁₀ are:

- locations where members of the public are exposed over a time period relevant to the air quality objective for PM₁₀

The dwellings located in close proximity to the proposed site are considered to be high sensitivity receptors.

Table 8-6 shows how the sensitivity of an area can be determined for human health impacts.

Table 8-6: Sensitivity of an area to human health impacts

Receptor Sensitivity	Annual Mean PM ₁₀ concentration ^c	Number of Receptors ^d	Distance from the Source (m) ^e				
			<20	<50	<100	<200	<350
High	>32 µg/m ³ (>18 µg/m ³ in Scotland)	>100	High	High	High	Medium	Low
		10-100	High	High	Medium	Low	Low
		1-10	High	Medium	Low	Low	Low
	28-32 µg/m ³ (16-18 µg/m ³ in Scotland)	>100	High	High	Medium	Low	Low
		10-100	High	Medium	Low	Low	Low
		1-10	High	Medium	Low	Low	Low
	24-28 µg/m ³ (14-16 µg/m ³ in Scotland)	>100	High	Medium	Low	Low	Low
		10-100	High	Medium	Low	Low	Low
		1-10	Medium	Low	Low	Low	Low
	<24 µg/m ³ (<14 µg/m ³ in Scotland)	>100	Medium	Low	Low	Low	Low
		10-100	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
Medium	-	>10	High	Medium	Low	Low	Low
	-	1-10	Medium	Low	Low	Low	Low
Low	-	>1	Low	Low	Low	Low	Low

(from 'Guidance on the assessment of dust from demolition and construction. Institute of Air Quality Management')

A conservative representation of the annual mean background PM₁₀ concentration at the proposed site is 17 µg/m³. This was the average annual mean concentration of the EPA Zone C monitoring results between 2012 and 2014 (see Section 8.3.2, Table 8.3). The table above, from the Guidance document, identifies ranges of background PM₁₀ concentration in the UK. At a background of 17 µg/m³ in the Zone C area, it is considered that the <24 µg/m³ (<14 µg/m³ in Scotland) category is the most applicable and comparable category.

Therefore, using this figure alongside the information already outlined above, the overall sensitivity of the area to human health impacts is therefore considered to be **low**.

Ecological Effects

As noted in the guidance, low sensitivity receptors to ecological effects are:

- locations with a local designation where the features may be affected by dust deposition

As the site is not located within an international or national designation, and there are no communities or species which are particularly dust sensitive located nearby, the local ecology is considered to be a low sensitivity receptor.

Table 8-7 shows how the sensitivity of an area can be determined for ecological impacts.

Table 8-7: Sensitivity of an area to ecological impacts

Receptor Sensitivity	Distance from the Source (m) ^c	
	<20	<50
High	High	Medium
Medium	Medium	Low
Low	Low	Low

(from 'Guidance on the assessment of dust from demolition and construction. Institute of Air Quality Management')

The nearest designated ecological area, the Murrrough Wetlands SAC, is approximately 2 km from the site. The overall sensitivity of the area to ecological impacts is therefore considered to be **low**.

Summary of Sensitivity of the Area & Risk of Impacts

Table 8.8 summarises the sensitivity of the area, based on the previous assessments.

Table 8-8: Summary of the sensitivity of the Area to Earthworks

Potential Impacts	Sensitivity of area to Earthworks
Dust Soiling	Low
Human Health	Low
Ecological	Low

The risk of impacts from dust generation with no mitigation applied are determined by combining the dust emission magnitude with the sensitivity of the area. Table 8.9 provides a method of assigning the level of risk for the earthworks activities which are proposed to be carried out.

Table 8-9: Risk of dust impacts from earthworks

Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible

(from 'Guidance on the assessment of dust from demolition and construction. Institute of Air Quality Management')

Combining the large magnitude of potential dust emission with the low sensitivity of the area, the risk of dust impacts from the earthworks activities at the proposed site with no mitigation applied is considered to be **low**. Note mitigation measures, as outlined in Section 8.5 will be applied, even considering that identified risk is low.

Vehicle emissions

The pollutants of most concern in relation to emissions from road traffic are NO₂ and PM₁₀. Predicted traffic flows associated with the Construction Phase of the proposed development were examined using an air quality prediction screening model designed by DMRB. The results of this prediction assessment are outlined in Table 8.10 over.

Table 8-10: DMRB Air Model Prediction Results

Road	Year	CO	Benzene	NO ₂	PM ₁₀	PM ₁₀
		Annual mean mg/m ³	Annual mean µg/m ³			Days >50µg/m ³
R761	Present traffic	0.38	0.40	9.40	17.90	1.00
R761	Additional traffic	0.38	0.40	9.70	18.00	1.00
% Increase/Decrease		0%	0%	3.19%	0.56%	0%
Impact Magnitude		Negligible	Negligible	Negligible	Negligible	Negligible
L1042	Present traffic	0.33	0.34	7.50	17.20	1.00
L1042	Additional traffic	0.33	0.34	7.80	17.20	1.00
% Increase/Decrease		0%	0%	4%	0%	0%
Impact Magnitude		Negligible	Negligible	Negligible	Negligible	Negligible
R774	Present traffic	0.33	0.34	7.30	17.10	1.00
R774	Additional traffic	0.33	0.34	7.40	17.10	1.00
% Increase/Decrease		0%	0%	1.37%	0%	0%
Impact Magnitude		Negligible	Negligible	Negligible	Negligible	Negligible
Air Quality Limit Value		-	5	40	40	-

(Note: data for 1,3-butadiene not available)

An overall maintaining of existing values or slight increase in some pollutant concentrations for the duration of the Construction Phase is evident on each road. Overall, proposed traffic movement associated with the Construction phase of the development, in addition to existing traffic levels, are comfortably within the relevant air quality guidelines. The proposed development will contribute to a negligible direct impact on ambient air quality during the Construction Phase.

8.4.4 Cumulative Assessment

Section 2.4, in Table 2.1, identifies a number of construction related projects that have the potential to be carried out within the same timeframe as the proposed development, that are within the vicinity of the proposed development site, with a resultant cumulative impact on air quality in the local area.

However, given the impacts identified from dust and traffic emissions are identified as low and negligible respectively in previous sections, for the proposed development, it is not considered that cumulative impacts from this development and any of those identified in Table 2.1, were they to be carried out at the same time, would be significant, given the likely separation distances between the projects in question.

8.5 Mitigation Measures

8.5.1 Mitigation Measures for Climate

As it is not envisaged that there will be potential negative impacts on the climate as a result of the proposed development, no mitigation measures are proposed.

8.5.2 Mitigation Measures for Air Quality

Dust Emissions

In keeping with Step 3 of the assessment methodology of the “*Guidance on the assessment of dust from demolition and construction*”, outlined in Section 8.4.2 previously, while the risk from dust impacts at the site is considered to be low, a number of mitigation measures, based on the recommendation contained within the Guidance document, will nonetheless be implemented to ensure that potential impacts are negligible.

These are outlined below.

1. The name and contact details of person(s) accountable for air quality and dust issues will be displayed on the site boundary. This may be the Environment Manager/Engineer or the Site Manager.
2. A Dust Management Plan (DMP) will be developed and implemented as part of the Construction Environmental Management Plan (CEMP).
3. Any dust and air quality complaints will be recorded, causes(s) will be identified, appropriate measures to reduce emissions in a timely manner will be taken, and the measures taken will be recorded. This will be a requirement of the EPA licence to be applied to the facility.
4. In addition to the dust monitoring requirements of the EPA licence to be applied to the site, weekly on-site and off-site inspections will be undertaken where receptors (including roads) are nearby, to monitor dust and record inspection results. This will include regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100m of site boundary, with cleaning to be provided if necessary.
5. The frequency of site inspections by the person accountable for air quality and dust issues on site will be increased when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.
6. Site layout will be planned so that machinery and dust causing activities are located away from receptors, as far as is possible.
7. Site runoff of water or mud will be avoided.
8. Site fencing, barriers etc. will be kept clean using wet methods.
9. It will be ensured that all vehicles switch off engines when stationary - no idling vehicles.
10. A maximum-speed-limit of 10 mph on facility roads and work areas will be imposed and sign posted.
11. It will be ensured that an adequate water supply is available on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.
12. Enclosed chutes and conveyors and covered trailer will be used during the construction phase site clearance works
13. Drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment will be minimised.
14. Bonfires and burning of waste materials will be prohibited.
15. Earthworks and exposed areas/soil stockpiles will be re-vegetated to stabilise surfaces as soon as possible.

Vehicle Emissions

Predicted vehicle emissions associated with the proposed development are within the relevant air quality guidelines and therefore will not impact on ambient air quality. No mitigation measures are required.

8.6 Residual Impacts after Mitigation

Following the implementation of the above mitigation measures and with the implementation of good housekeeping and management procedures and techniques, it is predicted that the proposed development will not have a significant impact on ambient air quality or the local or national climate.

In relation to dust generation, and as per Step 4 of the assessment methodology of the “*Guidance on the assessment of dust from demolition and construction*”, no notable adverse impacts on receptors will arise from dust generation and the residual effects of dust generation at the site are considered to be ‘not significant.’

8.7 Monitoring

8.7.1 Monitoring of Climate

It is not proposed that site specific meteorological monitoring will be undertaken. If required in the future, data will be obtained from the Casement Aerodrome and Dublin Airport synoptic stations which can be taken as being appropriately representative of meteorological conditions at the proposed site location.

8.7.2 Monitoring of Air Quality

Figure 3-12 presents the proposed environmental monitoring location for the facility to satisfy the monitoring requirements of the waste soils recovery licence from the EPA.

Monitoring for air quality parameters will be carried out at these locations as per the frequency and methodology or be specified in the facility EPA licence and results of this monitoring will be presented as per the reporting requirements of the licence.

8.8 Conclusion & Summary

This section examined the potential impacts of the proposed development on climate and air quality in the surrounding environment.

Potential impacts associated with the proposed development on climate and air quality are dust/particulate emissions and vehicle emissions during the Construction Phase. The post-construction phase will see the development site operate as a community Eco-park and there will, therefore, be no impacts associated with the ‘operation’ of the Pretty Bush Eco-park.

An assessment of potential impacts from the earthworks activities associated with the construction of the proposed development, undertaken in accordance with the “*Guidance on the assessment of dust from demolition and construction*” identified a low risk from the activities to be undertaken onsite.

Traffic pollutants were also examined using a basic air quality prediction screening model which identified a negligible, temporary negative impact from vehicle movement during the construction phase of the proposed development and predicted traffic emissions from the existing and the proposed Construction Phase traffic flows are comfortably within the relevant air quality guidelines and therefore will not impact on overall ambient air quality.

From a climate perspective, the proposed development will not alter the local climate or climate change and will, through providing required waste management infrastructure, indirectly and minimally contribute to the positive climate change benefits realised from best practice in waste management.

8.9 References

Air Guidance Note 5 (AG5) Odour Impact Assessment Guidance for EPA Licensed Sites;
<https://www.epa.ie/pubs/advice/air/emissions/AG5-V11.pdf>

Air Quality in Ireland 2012– Key Indicators of Ambient Air Quality, EPA 2012,
http://www.epa.ie/pubs/reports/air/quality/epairqualityreport2011.html#.Ve_zDRFViko

Air Quality in Ireland 2013– Key Indicators of Ambient Air Quality, EPA 2013
http://www.epa.ie/pubs/reports/air/quality/epairqualityreport2012.html#.Ve_y9RFViko

Air Quality in Ireland 2014– Key Indicators of Ambient Air Quality, EPA 2014;
http://www.epa.ie/pubs/reports/air/quality/epairqualityreport2013.html#.Ve_y5BFViko

A summary of the State of Knowledge on Climate Change Impacts for Ireland (Desmond et al., 2009)
http://www.epa.ie/pubs/reports/research/climate/ccrpreport1.html#.Ve_2FRFViko

Holman et al (2014). IAQM Guidance on the assessment of dust from demolition and construction. Institute of Air Quality Management, London.
http://iaqm.co.uk/wp-content/uploads/guidance/iaqm_guidance_report_draft1.4.pdf

Met Éireann, 2015 – Casement Aerodrome Synoptic Station data;
<http://www.met.ie/climate-request/>

National Climate Change Strategy 2007 – 2012;
<http://www.environ.ie/en/Publications/Environment/Atmosphere/FileDownload,1861,en.pdf>

9 HUMAN BEINGS - ROADS, TRAFFIC AND TRANSPORTATION

9.1 Introduction

9.1.1 General

This section of the EIS describes the existing road networks leading to the proposed development site at Kilquade. Existing and forecasted likely future traffic levels are estimated. The impact of the proposed development is examined with respect to the likely impacts or influences on the operation of the receiving roads network. Where necessary, mitigation measures are proposed.

9.1.2 Study Area

The study area for this section of the EIS is generally confined to the immediate vicinity of the proposed development and to the network of public roads leading to and from same. The study area includes the N11 National Primary Road.

9.2 Methodology

The methodology adopted in this assessment can be summarised as follows:

- Available existing traffic data was obtained, from the roads authority, for the roads in the vicinity of the proposed development
- Manual classified traffic counts were undertaken on the R761/L1042 junction near the proposed development on 22 September 2015
- Existing NRA traffic count data was examined
- Site visit on 16 December 2015
- Construction and operational stage traffic volumes were estimated for the proposed development
- The impact of the proposed development was appraised and mitigation measures proposed where appropriate.

In preparing this section, reference was made to:

- NRA Traffic and Transport Assessment Guidelines 2014
- NRA *Design Manual for Roads and Bridges* (DMRB)
- NRA Project Appraisal Guidelines Unit 16.2 Expansion Factors for Short-term Traffic Counts
- NRA TD 41-42/11 Geometric Design of Major/Minor Priority Junction and Vehicular Access to National Roads
- NRA TD9/12 Road Link Design
- Design Manual for Urban Roads and Streets (DMURS), Published by the Department of Transport, Tourism and Sport (March 2013).

9.2.1 Hours of Operation

As outlined in Section 3 of this EIS, during the construction phase of the proposed development, it is envisaged that operations will be carried out on site between:

- 07:00 to 19:00 Monday to Friday
- 07:00 to 13:00 Saturday

Post construction, the Pretty Bush Eco-park will be a recreational amenity available to the general public on a 24 hours, 7 days per week basis.

9.3 Existing Environment

This section describes the existing environment, in respect of roads, in the vicinity of the proposed development. The location of the proposed development is shown in Figure 9.1 below and a description of the site's existing use is provided in detail in Section 3 of this EIS.

9.3.1 Existing Road Network and Existing Traffic Volumes

Roads in the Republic of Ireland are classified as motorways, national (primary and secondary), regional and local roads. The NRA has overall responsibility for the planning and supervision of the construction and maintenance of motorways, national primary and national secondary roads. The local authorities have responsibility for all non-national roads. The hierarchy of roads throughout Ireland, is outlined in Table 9.1 below.

Table 9-1: Roads Classification

Road Category	Description
Motorways	These are high quality multiple lane roads with limited grade separated junctions. They are high speed (120kph) roads predominantly provided to facilitate strategic traffic with reduced journey times.
National Primary Roads	These are predominantly single carriageway, with some that are dual carriageway. Generally high speed (100kph) roads that facilitate strategic traffic, with reduced journey times.
National Secondary Roads	These are medium distance through-routes connecting towns, serving medium to large geographical areas and link to primary routes to form a homogeneous arterial network.
Regional Roads	Predominantly single carriageway roads of regional and local importance. These roads generally receive more frequent maintenance criteria than Local Roads and therefore tend to be structurally sound.
Local Roads (Primary, Secondary and Tertiary)	The local road system is operated in three tiers defining local importance, usage and maintenance priorities. They form a network of single carriageway roads of varying quality.

In order to establish the traffic volumes on the existing road network, data was gathered from a number of sources. The National Roads Authority maintains a network of traffic counters on national roads throughout Ireland including on the N11 which runs close to the site. The relevant available data is presented in Table 9.2 below and the count locations are depicted on Figure 9.1.

As the local roads authority, Wicklow County Council gathers traffic data on many of the roads within its functional area. Some of this available data, where available, was also used to consider the baseline volumes of traffic using the roads network. These traffic figures, as provided by the Wicklow County Council Roads department, are presented in Table 9.2 below and the count locations are depicted on Figure 9.1.

In addition, Abacus Transportation Surveys Limited were commissioned to undertake a traffic count on the R761/L1042 junction close to the subject site. This count consisted of a manual classified junction turning (JTC) and was undertaken between 00:00 hours 24:00 hours on Tuesday 22 September 2015. This survey period did not coincide with school holidays so the results can be taken as representative of normal traffic on the roads. Results of this survey are included in Appendix 10 to this EIS.

The existing road network in the general vicinity of the proposed development site is described in more detail hereunder.

L1042 Kilquade Road

The L1042 is a local road that runs from the R761 at its eastern end towards Kilquade. A speed limit of 80 kph applies to the L1042.

Locally, and in the vicinity of the main site entrance, the L1042 consists of a single carriageway road with overall width of approximately 6 to 7 m with one lane in each direction. Close to the main site entrance, the road widens to include a right turning lane to access the L5027 Local Road into Farrankelly Close.

Between the R761 and the entrance to Farrankelly Close (i.e. the section of the road passing the subject site) the L1042 road surface is in good condition consisting of asphalt surfacing. This section of road was realigned with kerbing and footpaths developed as part of the development works for the adjacent Farrankelly Close housing development. Further west (i.e. west of the subject site towards Kilquade) the road is narrower and of a lower quality and consists generally of tar and chip surfacing.

A pedestrian footpath is in place on the northern side of the L1042 (into Farrankelly Close) and a footpath is in place on southern side of the L1042 which terminates at the entrance to the subject site.

The L1042 has an Annual Average Daily Traffic (AADT) of 2,327 (2.5 % HGV) based on a 2015 traffic count carried out at the R761/L1042 junction and as summarised in Table 9.2 below.

R761 Kilcoole Road

The R761 is a regional road that runs from Bray to Rathnew, County Wicklow. The R761 passes to the east of the subject site as it runs from Delgany to Kilcoole. In the immediate vicinity of the subject site, the R761 has an overall width of 6 to 7 m consisting of one lane in each direction. A right turning lane is in place for traffic turning onto the L1042 (i.e. towards the entrance to the subject site). Footpaths are located on both sides of the R761 in the vicinity of the R761/L1042 junction and public lighting is also in place.

The R761 has an annual average daily traffic (AADT) of 12,665 (3.4 % HGV) based on a 2015 traffic count carried out at the R761/L1042 entrance and as summarised in Table 9.2 below.

R774

The R774 is a regional road that connects the town of Greystones to the N11 at Junction 11. The R774 is a dual carriageway with 2 lanes in each direction, a central barrier and hard shoulder. A footpath and cycle lane is generally in place along both the eastbound and westbound carriageways.

The R774 has an average daily traffic (ADT) of 12,591 based on Wicklow County Council traffic counts from October 2014 (sum of ID location 481 and 482 from Table 9.2 below).

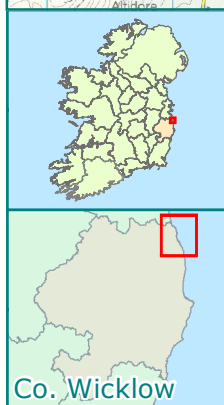
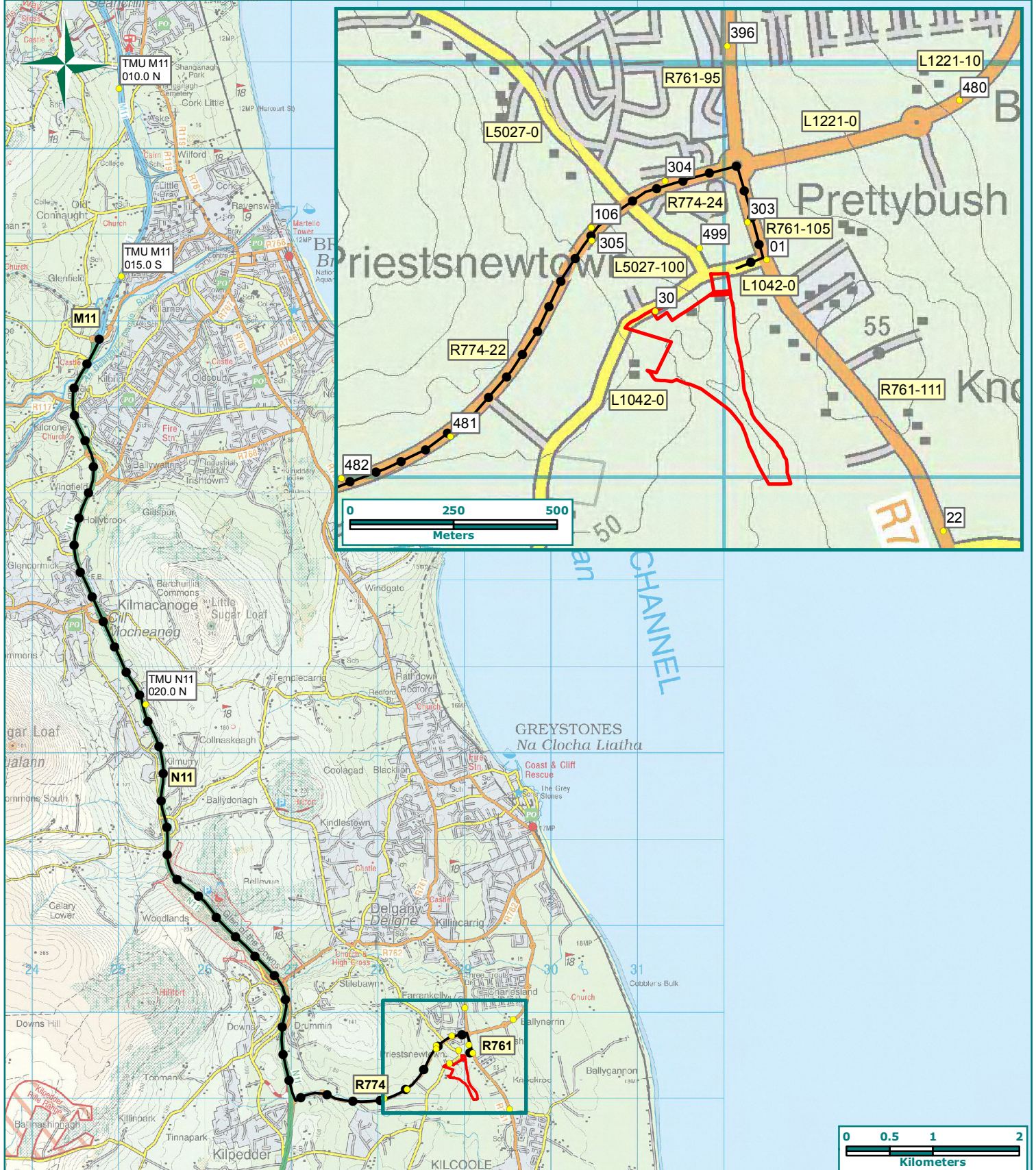
N11

The N11 is a national primary road running from Dublin to Wexford. Portions of the road are designated as motorway standard and these sections can be referred to as the M11. The nearest junction to the subject site is N11 Junction 11 which is located approximately 2.7 km (by road) from the subject site.

The N11 has an AADT of 47,984 (3.0 % HGV) near Delgany, based on NRA traffic counter located between Kilmacanogue and the Delgany junction. However, the AADT of the N11 increases the closer you get to Dublin. Closer to Bray, the N11 AADT is 66,289 as summarised in Table 9.2 over.

Table 9-2: Traffic Data for Study Area (see Fig. 9.1 for count locations)

ID No	Location	AADT	% HGV	Comment/Data reference date	Source	
TMU N11 020.0 N	N11 Between Kilmacanogue and Delgany Jn, Co Wicklow	47,984	3.0 %	NRA Counter (2015 figure)	NRA Website www.nratrafficdata.ie	
TMU M11 015.0 S	M11 Between Bray North and Fassaroe Jn, Co Wicklow	66,269	2.8 %	NRA Counter (2015 figure)		
TMU M11 010.N	M11 Between M50/M11 and Bray North Jn, Co. Dublin	75,093	2.4 %	NRA Counter (2015 figure)		
ID No	Location	ADT	% HGV	Comment/Data reference date	Source	
22	Kilcoole North (R-761-111)	10,695	4	July 2007	Wicklow County Council data, ADT figures produced using short duration traffic counts.	
30	Kilquade Road (L-1042)	2,486	2	July 2007		
106	R-774 Farrankelly Road, Eastbound Only	7,137	8	March 2008		
303	R761 Kilcoole Road, Greystones. Device on pole with no signs	11,542	2	January 2012		
304	R774 Farrankelly road, Greystones (Eastbound). Device on pole with pedestrian/cyclist signs	7,117	10	January 2012		
305	R774 Farrankelly road, Greystones (Westbound). Device on pole with pedestrian/cyclist sign	5,942	6	January 2012		
396	R761 Farrankelly, Greystones south of Three Trouts Bridge. Device on pole with no sign.	6,202	2	September 2013		
480	L1221-10 (N11) bound traffic ONLY. Device on pole with numerous signs.	4,950	1	October 2014		
481	R774-22 (N11) bound traffic ONLY. Device on pole with cycle/pedestrian sign.	6,241	3	October 2014		
482	R774-22 Greystones bound traffic ONLY. Device on pole with cycle/pedestrian sign.	6,350	5	October 2014		
499	L50271 Farrankelly Close, Delgany. Device on pole with children at play sign.	701	36	April 2015		
ID No	Location	ADT	% HGV	Comment/Data reference date		Source
01	R761 Kilcoole Road (just north of the L1042 junction)	12,665	3.4	September 2015		Based on Abacus Junction Count with data interpretation by Fehily Timoney.
	L1042 (equivalent to 2-way traffic passing entrance to subject site)	2,327	2.5			



- Legend**
- Study Boundary
 - Traffic Count Locations
 - Proposed Haulage Route

Job Name Waste Licence, Planning & EIS for Waste Soils Recovery Facility	Client Name Wicklow County Council					
Figure Title Road Network, Traffic Count Locations and Proposed Haulage Route	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Date 04/01/2016</td> <td rowspan="2">Rev. C</td> </tr> <tr> <td>Figure No. 9.1</td> </tr> <tr> <td colspan="2">Scale Used 1:60,000 @ A4</td> </tr> </table>	Date 04/01/2016	Rev. C	Figure No. 9.1	Scale Used 1:60,000 @ A4	
Date 04/01/2016	Rev. C					
Figure No. 9.1						
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9.4 Existing Environment – Entrances

9.4.1 Existing Site Entrances

The existing site has 2 no. gated accesses both off the L1042 local road. The main entrance gate, currently used to access a mini depot operated by Wicklow County Council, is shown in Figure 9-2 below. A second existing but rarely utilised site entrance is also located off the L1042 approximately 200 m west of the main entrance. The second entrance is shown in Figure 9-3 below.



Figure 9-2: Main Existing Site Entrance



Figure 9-3: Main Existing Site Entrance (viewed from entrance to Farrankelly Close)



(www.googlemaps.com)

Figure 9-4: Second Existing Site Entrance

9.4.2 Main Entrance – Sightlines

For vehicles existing the site, the sightlines to the right are generally unimpeded for a distance of approximately 100 m (as far as the junction with the R761). The available sightlines to the right on exiting the site are depicted in Figure 9.5 below. Sightlines to the left on exiting the site are approximately 60m owing to the curvature of the road and the presence of an existing hedgerow/trees. Sightlines to the left are depicted on Figure 9.6 below.



Figure 9-5: Sightlines at Existing Main Entrance (looking right)



Figure 9-6: Sightlines at Existing Main Site Entrance (looking left)

Forward visibility for vehicles approaching from the east (from the R761 junction approximately 100 m away) is unimpeded from the R761 junction approximately 100 m away. Forward visibility for vehicles approaching from the west (from the Kilquade side) is partially restricted owing to the curvature of the road and the presence of vegetation/hedgerow. The available forward visibility is approximately 70 m when approaching from the west as depicted in Figure 9.7 below. The existing road markings for vehicles approaching from the west (Kilquade side) include 2 no. 'SLOW' markings, a solid white line and a ghost island approaching the junction into Farrankelly Close (see Figure 9.7 and 9.8 below).



Figure 9-7: Forward visibility approaching the main entrance (from the west/Kilquade side)



(www.googlemaps.com)

Figure 9-8: L1042 approaching Farrankelly Close from the West (from Kilquade side)

9.5 Key Potential Impacts

This section considers the potential impact of this project, prior to mitigation, for the construction and post-construction phases.

9.5.1 Do-nothing Impact

If the proposed development was not to proceed, there would be no construction stage impacts or post construction stage impacts on the roads leading to the subject site.

9.5.2 Construction Traffic - Trip Generation

Construction stage operations will involve the haulage of up to 200,000 tonnes of dredge spoil from the River Dargle Flood Defence Scheme in Bray to the subject site. Also, as described in Section 3, the proposed development will involve associated works including site set up, site clearance, topsoil import/placement and landscaping works associated with the development of the Eco Park.

In total, it is estimated that the construction stage traffic will amount to 23,610 additional trips²¹ during the construction works. A breakdown of this estimate is presented in Table 9-3 below. Approximately 21,340 (or 90%) will be Heavy Good Vehicle (HGV) trips associated with material haulage and construction deliveries. Approximately 2,270 (or 10%) will be Light Goods Vehicle (LGV) trips associated with cars and vans used by construction personnel. The construction traffic will occur over the course of the construction period which, as stated in Section 3 of this EIS, is estimated to last for between 12 and 24 months.

²¹ A trip is a single journey either in or out of the site. So, a HGV hauling material to the site equates to 2 no trips (1 no trip IN and 1 no trip OUT).

Table 9-3: Summary of Estimated Construction Stage Traffic Generation

Description	Units	Amount Loads	Amount in Trips
Site Set Up	HGV Loads	20	
Site Clearance Works	HGV Loads	200	
Dredge Spoil Importation/Haulage (200,000 tonnes divided by 20 tonnes/load)	HGV Loads	10,000	
Topsoil Import (8,000 tonnes divided by 20 tonnes/load)	HGV Loads	400	
Construction Materials for Eco Park	HGV Loads	50	
Subtotal		10,670	21,340
Construction Workers/Supervisor Staff (assume 6 vehicles per day)	LGVs (cars & vans)	1,135	2,270
Grand Total		11,805	23,610

However, in respect of traffic, the most intensive period will occur during the haulage of dredge spoil to the site. For the purposes of this assessment, it has been assumed that the haulage operations will be carried out over an 8-month period. This is a conservative assumption, representing the maximum production of dredge spoil from the Dargle works and can be considered a 'worst case' in terms of traffic volumes associated with the proposed development. Table 9-4 below presents a breakdown of the traffic into daily and hourly averages.

Table 9-4: Traffic Generation for Dredge Material Haulage Operation

Description	Units	Amount	Amount in Trips
Quantity of Dredge Spoil	Tonnes	200,000	
Quantity per Load	Tonnes	20	
Total No of HGV Loads		10,000 Loads	20,000 trips
Duration of Construction Programme	Months	8	
No of Working Days per week	Days/Week	5.5	
No of Working Hours per day	Hours/day	8	
No of Loads per Day	HGV Loads	53 Loads/day	106 trips/day
No of Loads per Hour		7 loads/hour	14 trips/hour

The haulage phase will lead to a total of 20,000 HGV trips over the 8-month period. This equates to approximately 106 trips/day or 14 trips/hour over an 8-hour day. If haulage operations occur for longer than 8 months, then the quantity of daily traffic is likely to be less than that predicted above but the additional traffic will last for a longer duration. Following the completion of the material haulage operations, there will be some additional traffic associated with the construction works (landscaping works, entrance works etc.) but these will be temporary and far less intensive than the haulage works.

9.5.3 Construction Traffic - Trip Distribution

The proposed haulage route from Bray to the subject site is depicted on Figure 9.1 and the additional construction traffic will be wholly confined to this haulage route as the trucks travel back and forth with dredge material. The haulage route includes the N11, the R774, the R761 and the L1042.

The haulage route shown in Figure 9.1 is presented as commencing at Junction 6 where the M11 ends and the N11 begins. The Upper Dargle road joins the N11 at Junction 6, with the Upper and Lower Dargle roads having previously been identified, assessed and approved as the construction haul routes for the River Dargle Flood Defence Scheme under the An Bord Pleanála approval for the overall Flood Defence Scheme Works (Ref: PL39 .YA0003).

9.5.4 Construction Traffic Impacts – Direct & Indirect

A summary of the potential traffic related impacts associated with the construction of the proposed development is provided below.

Additional Construction Traffic

The construction traffic generated as a result of the proposed development will lead to an increase in traffic along the haul route and these increases will largely be associated with HGVs hauling material from Bray to the subject site (including a return journey). The impact is discussed in this section.

- The traffic on the N11 will increase locally by 106 trips (or 0.2 %) from an average daily traffic of 47,984 to 48,090.
- The traffic on the R774 will increase locally by 106 trips (or 0.8 %) from an average daily traffic of 12,591 to 12,697.
- The traffic on the R761 will increase locally by 106 trips (or 0.8 %) from an average daily traffic of 12,665 to 12,771.
- The traffic on the L1042 will increase locally by 106 trips (or 4.5%) from an average daily traffic of 2,327 to 2,433.

Other Construction Traffic Related Impacts

Without appropriate mitigation measures, the proposed development has the potential to have a negative impact on the road network including:

- Delay and disruption to road users especially near/at the entrance including motorists and pedestrians.
- Soiling of the public road leading to a general lack of cleanliness and poor skid resistance on roads.
- Unsafe turning manoeuvres exiting the site. In particular, vehicles turning right upon exiting the site.

Summary Appraisal of Construction Stage Traffic Impacts

Based on the above appraisal it is concluded that, prior to the implementation of appropriate mitigation measures, the additional construction traffic has the potential to lead to a temporary (i.e. duration of construction works), slight to moderate, negative, direct impact on the road network in the vicinity of the subject site.

9.5.5 Post-construction Traffic Impacts – Direct & Indirect

When the Pretty Bush Eco-park is developed and open to the public, it will be accessed primarily by pedestrians accessing the site. No dedicated car parking spaces will be provided therefore no significant traffic is anticipated to be associated with the post construction phase of the development.

The open area adjacent to the pedestrian entrance shall be utilised for ad hoc Wicklow County Council activities only and will be gated and remain inaccessible to the public.

While difficult to quantify the amount of traffic the council yard would generate on an average day, but it is estimated that, on average, no more than 2 LGVs would access the site per day (4 trips/day)

Sightlines available at the site entrance to the left (west) i.e. 60m, is not in accordance with the requirements of TD 21-42/11 Table 7/1 of the DMRB for a 80 kph speed limit (85 kph design speed), where a desirable sightline of 160m is recommended. This poses a potential safety impact with regards to vehicles turning right when exiting the site in order to reach the R761, R774, and the N11, as visibility between the two streams of traffic (eastbound traffic on the L1042 and traffic exiting the site) is reduced.

In terms of operational stage traffic impacts, the following impacts have been identified:

- Potential for unsafe pedestrian access (including crossing the L1042 road to the site entrance)
- Potential for unsafe vehicular access in particular turning right on exiting the site (primarily Council related vehicles).

9.5.6 Cumulative Assessment

As identified in Table 2.1 of Section 2.4, a number of construction related projects that have the potential to be carried out within the same timeframe as the proposed development, are located within the vicinity of the proposed development site. These developments, were they to occur in conjunction with the proposed development has the potential to create a cumulative impact on traffic in the local area.

However, the greatest impact on the local road network will be directly at the site entrance on the stretch of the L1042 road from the R761 junction, identified as a 4.5 % increase on existing average daily traffic levels on the L1042, with resultant potential for unsafe pedestrian or vehicular access at that location.

None of the projects identified within Table 2.1 are located within the L1042/R761 location and it is considered that the wider N11 and R774 roads have sufficient capacity for both the proposed development and any other development identified, given the high average daily traffic figures identified.

Therefore, no cumulative impacts are envisaged.

9.6 Mitigation Measures

This section outlines the mitigation measures that are proposed to avoid or reduce the potential impacts due to this project.

A significant amount of 'mitigation by design' has already been carried out including site selection, preliminary design of the site and the haul route selection. This section presents the proposed mitigation measures for both the construction and post-construction phases of this project.

9.6.1 Mitigation by Design (Route Selection)

The haulage route presented in Figure 9.1 utilises national and regional roads in so far as is possible. The use of local roads is limited to a 100 m long section of the L1042 from the R761 to the site entrance.

9.6.2 Construction Stage Mitigation Measures

The successful completion of this project will require coordination and planning and the following mitigation measures will be implemented prior to and during construction of the project as appropriate:

1. **Road Markings** - Subject to agreement with the roads authority, the existing ghost island (line markings) outside the main entrance will be modified to allow for vehicles exiting the site to turn right without crossing the ghost island illegally.

2. **Traffic Management Plan** - A detailed Traffic Management Plan (TMP) will be finalised and the detailed provisions agreed with the roads authority and An Garda Síochána prior to construction works commencing on site. The final traffic management plan will detail the following:
 - a. **Traffic Management Coordinator** - A dedicated competent Traffic Management Coordinator will be appointed for the duration of this project and this person will be the main point of contact for all matters relating to traffic management on the project.
 - b. **Road to be used and not used** - The traffic management plan will clearly identify those roads that will be used for haulage and those roads that are not to be used.
 - c. **Parking** of construction related vehicles (or queuing) will not be permitted outside the facility gate. This will be achieved using a combination of signage, suitable bollards (if required) and by enforcement by site management.
 - d. **Site Inductions** - All workers/drivers will receive a comprehensive site induction which will include, as appropriate, a section on traffic management and clear guidance on the routes to be used/not used.
 - e. **Wheel cleaning facilities** - Wheel cleaning facilities, as outlined in Section 3.3.10, will be located at the entrance to the site. The wheel wash facilities will mitigate any potential impact from construction traffic fouling public roads.

An Outline Traffic Management Plan has been prepared as part of the Outline Construction Environmental Management Plan (CEMP) included in Appendix 2 to this EIS. This outline Plan will be developed in further detail upon appointment of an identified construction contractor.

Proposed entrance and road layout arrangements are shown in Figure 9.9.

As noted above, desirable sight lines to the west of the site entrance are not achievable given the speed limit of the L1042 roadway.

It is proposed that this impact is mitigated against through the following measures:

- Introduction of temporary road signs to warn eastbound traffic on the L1042 of the construction site entrance and the traffic associated with the construction works at Pretty Bush Eco Park;
- Provision of a banksman positioned on the north of the L1042 roadway at the site entrance to assist construction vehicles in exiting the site;
- Inductions for all drivers accessing site outlining the traffic safety arrangements for access and egress at the site;

Agreement will be sought from the Road Design Office regarding the measures outlined above and other measures deemed necessary prior to upgrading and use of the existing entrance for the construction phase of the Pretty Bush Eco Park.

9.6.3 Post-construction Stage Mitigation Measures

The following post-construction phase traffic related mitigation measures are proposed:

1. A new entrance to the yard area will be constructed, existing footpaths shall be upgraded and a scheme of road markings for pedestrian access shall be agreed with the roads authority.
2. A boundary wall will be constructed along the northern boundary of the site comprising a native ditch and hedgerow. The location of the boundary will be set back so as to preserve and maximise existing sightlines looking left and right on exiting the site.
3. Subject to agreement with the road authority and in accordance with the provisions of the NRA Traffic Signs Manual and the Design Manual for Urban Roads and Streets (DMURS) the existing ghost island (line markings) outside the site will be modified to include the following:
 - a. Provision will be made for vehicles exiting the site to turn right without crossing illegally over the ghost island
 - b. Provision will be made for a defined crossing point for pedestrians to cross the L1042 to gain access to the park.

Proposed entrance and road layout arrangements are shown in Figure 9.9.

For the operation and maintenance of the Pretty Bush Eco Park, sight lines to the west of the site entrance are not achievable given the speed limit of the L1042.

It is proposed that this operational impact is mitigated against through the following measures:

- Introduction of permanent road signs to warn eastbound traffic on the L1042 of right-turning traffic exiting the Pretty Bush Eco Park;
- Inductions for all council personnel accessing site including site access routes and outlining the safety requirements for accessing site;
- The seeking of a departure from Wicklow County Council Roads Department regarding the minimum required sight lines for the L1042, given the need for low levels of LGV maintenance traffic to access the site.

Agreement will be sought from Wicklow County Council regarding the measures outlined above and other measures deemed necessary prior to the commencement of the operation and maintenance phase of the Eco Park.

It is noted that some existing traffic calming/training measures are in place locally on the L1042 including 'SLOW' road markings and ghost islands. Nonetheless, it would be desirable if the roads authority considered reducing the speed limit on the L1042 locally to 50/60kph to help reduce the average speed of vehicles passing the site.

9.7 Residual Impacts after Mitigation

9.7.1 Construction Stage Impacts – Direct & Indirect

Following the implementation of the above construction stage mitigation measures, there will be a slight, temporary (i.e. for the duration of the construction phase), direct negative impact during the construction period. This impact will be largely associated with additional HGVs accessing and exiting the site and will be limited to the duration of the construction period.

9.7.2 Post Construction Stage Impacts – Direct & Indirect

Following the implementation of the above operational stage mitigation measures, there is anticipated to a negligible impact on the local road network resulting from access to the Pretty Bush Eco-park.

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Road signage to be erected during construction phase to slow westbound L1052 traffic due to right-turning HGVs from site entrance.

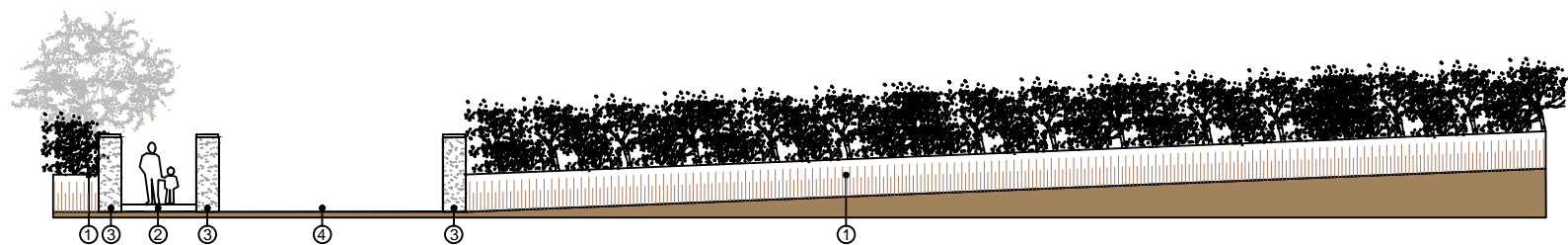
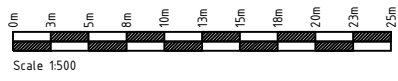
New Road Layout with uncontrolled pedestrian crossing points

Clay ditch and native hedgerow

Pedestrian Access

Council Yard

Cycle Parking



- 1- Earth ditch and native hedgerow
- 2- Footpath
- 3- Rendered gate pairs
- 4- Vehicle entrance

ROAD FRONT ELEVATION

Scale 1:200

Rev.	Drawn	Checked	App'd	Rev Origin	Date	Description
A	GW	JK	DM	Cork	14.12.15	

Revision History	
A	

Name of Client
 WICKLOW COUNTY COUNCIL

Name of Job
 PRETTY BUSH ECO PARK

Title of Drawing
 SITE ENTRANCE LAYOUT

Scales Used
 AS SHOWN

This Drawing was printed to ISO Full Bleed A3 (420.00 X 297.00 MM)

Dwg. No.
 LW15-247-01-Figure 9.9

Rev.

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9.8 Monitoring

As part of the TMP required to be prepared for the construction phase, construction related traffic will be monitored in terms of number of vehicles per day and time of their arrival and will be overseen by the Traffic Management Coordinator.

No project specific monitoring is proposed post construction, other than ongoing traffic data counts undertaken by Wicklow County Council Roads Department in the vicinity of the site, as and when required.

9.9 Conclusion & Summary

The development location is located 100 m from the junction of the L1042 local road and the R761 and will be accessed via a haul route to and from the River Dargle Flood Defence Scheme works location via the N11, R774, R761 and L1042.

The proposed development will lead to additional HGV traffic generation during the Construction Phase, which has been conservatively modelled over an eight months period, associated with the movement of up to 200,000 tonnes of dredge spoil from the Dargle Scheme.

It is estimated that the Construction Phase will result in up to 7 HGV load per hour arriving at the site (i.e. 14 HGV trips), which is identified as a 0.8% and 4.5% increase on the R761 and L1642 respectively, based on calculated average daily traffic counts.

Post construction, limited vehicle movements at the site will be associated with access to the Pretty Bush Eco-park and LGV access to the Council yard area, with these impacts being considered negligible.

Mitigation measures have been implemented through design as part of the identification of the dedicated haul route, while construction phase specific mitigation measures will include appropriate road marking and the implementation of a Traffic Management Plan (TMP) developed in consultation with the Gardaí.

Post construction mitigation measures comprise the development of a new entrance and boundary, with modifications being made to the L1042 to facilitate safe access to and from the site.

Upon implementation of the mitigation measures, construction phase impacts are considered to be slight, temporary (i.e. for the duration of the construction phase), direct and negative, with negligible post construction phase impacts being realised while the Pretty Bush Eco-park is operational

9.10 References

NRA Traffic and Transport Assessment Guidelines 2014

<http://www.tii.ie/tii-library/land-use-planning/Transport-Assessment-GuidelinesMay2014.pdf>

NRA Design Manual for Roads and Bridges (DMRB)

<http://nrastandards.nra.ie/nra-dmr-b-documents>

NRA Project Appraisal Guidelines Unit 16.2 Expansion Factors for Short term Traffic Counts;

<http://www.tii.ie/tii-library/strategic-planning/project-appraisal-guidelines/Unit-16.2-Expansion-Factors-for-Short-Period-Traffic-Counts.pdf>

NRA TD 41-42/11 Geometric Design of Major/Minor Priority Junction and Vehicular Access to National Roads;

<http://nrastandards.nra.ie/road-design-construction-standards/dmr-b/volume6/nra-td-41-42-geometric-design-of-major-minor-priority-junctions-and-vehicular-access-to-national-roads-incorporating-td-41-and-td-42>

NRA TD9/12 Road Link Design;

<http://nrastandards.nra.ie/road-design-construction-standards/dmr-b/volume6/nra-td-9-road-link-design-incorporating-ta-43-where-applicable>

www.nratrafficdata.ie