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## INTRODUCTION

### Background

- 10.1 This Chapter of the Environmental Impact Assessment Report (EIAR), prepared by SLR Consulting Ireland, addresses the potential noise and vibration impacts arising from the proposed establishment and operation of a materials recovery / recycling facility and inert landfill at Ballinclare Quarry, Kilbride, Co. Wicklow which comprises three key elements
- a soil washing plant to win aggregate from imported soil and stone;
  - a construction and demolition (C&D) waste recycling facility to produce aggregate from construction and demolition waste (principally concrete); and
  - an engineered (i.e. lined) landfill to facilitate backfilling and restoration of the existing quarry void with inert waste (principally soil and stone).
- 10.2 The proposed development at Ballinclare Quarry provides for the importation, re-use, recovery and/or disposal of a range of inert wastes generated by construction and development projects in Counties Wicklow, Dublin and Wexford as well as the re-use of excess, non-waste by-product materials (principally uncontaminated soil and stone).
- 10.3 The proposed soil wash plant will be set up and operated at the former concrete / asphalt production yard in the south-eastern corner of the application site. This plant will principally recover sand and gravel and recycled (secondary) aggregates from more granular soil intake and claybound C&D materials. Aggregates will be won from imported non-waste by-product as well as from inert waste materials.
- 10.4 The proposed construction and demolition (C&D) waste recovery facility will be set up and operated across the existing paved area to the west of the existing site access road. The principal wastes to be recycled at this facility will include concrete (ready-mixed, reinforced, blocks and/or pavement slabs), bricks and bituminous mixtures (hardened asphalt returns and road planings).
- 10.5 All aggregates from waste will be of construction grade and will comply with an engineering specification and the End of Waste criteria for recycled aggregates recently published by the EPA.
- 10.6 It is proposed to backfill the existing quarry to original / surrounding ground level by importing and placing inert waste, principally soil and stone, in a lined landfill facility and in so doing, re-establish the original landform which existed prior to quarrying. The landfilling and restoration activities will be undertaken on an ongoing, progressive basis and on completion, the final landform will be restored to a native woodland habitat.
- 10.7 The proposed maximum intake rate of soil and stone (waste and by-product) for aggregate production and landfilling / disposal is 550,000 tonnes per annum. The maximum rate of C&D waste recovery is 50,000 tonnes per annum. At a maximum combined intake rate of 600,000 tonnes per annum, activities will generate an average of approximately 9 to 10 HGV return trips per hour every working day.
- 10.8 The development proposal provides for the routing of all traffic to and from the proposed development along the L1157 Local Road. It also includes provision for a comprehensive road improvement scheme along the entire length of the L1157 leading up to the application site, including road widening to 6.0m everywhere along its length, with road strengthening and repair overlay and road markings where required.
- 10.9 Under the routing proposal, the majority of the HGVs travelling to the proposed development from Dublin and North Wicklow will use the M11 Motorway, exiting at Junction 18 and joining the R772 Regional Road southbound. After travelling south for approximately 4km, traffic heading for the facility will turn right, off the R772, and onto the

L1157 at the ghost island junction beside the Junction 18 Coffee Shop and Green Angel premises at Kilbride. The access junction to the quarry and proposed development is located along the L1157, approximately 2km north-west of the R772 junction.

- 10.10 It is estimated that only a minor proportion of HGV traffic will arrive from the direction of Arklow and North Wexford. This traffic will use the M11 Motorway, exiting at Junction 19 to turn onto the R772 Regional Road at Jack Whites Pub. It will then travel north for approximately 5km, turn left off the R772 and onto the L1157, and continue thereafter up to the quarry and proposed development.
- 10.11 The proposed haul route requires all HGV traffic departing the proposed facility to turn left and follow the upgraded L1157 back to the junction with the R772 Regional Road, and from there continue toward the national motorway network.
- 10.12 Further detail on the proposed development (site infrastructure, operations, environmental management systems, and controls etc.) are provided in Chapter 2 of this EIAR.
- 10.13 The noise impact assessment presented herein describes and assesses the existing noise baseline characteristics of the local area. The anticipated effects of the proposed development at Ballinclare Quarry are then applied to these baseline conditions and the resulting noise impacts assessed. Mitigation measures are identified where necessary to eliminate or minimise adverse impacts, insofar as practical.
- 10.14 To assist the understanding of acoustic terminology and the relative change in noise, a glossary of terms and phrases, which specifically relate to this Chapter of the EIAR, is provided in the Glossary of Terminology presented in Appendix 10-A.

## Methodology

- 10.15 The following sections of this EIAR Chapter describe the potential noise impacts associated with the proposed development. The following issues are addressed separately:
  - regulatory control framework for noise and vibration
  - methodology used to assess potential impacts from activities at properties (dwellings and farms) and sensitive ecological receptors
  - baseline conditions pertaining to existing background and ambient noise levels around the project site
  - noise and vibrations impact evaluation criteria
  - prediction of the noise and vibrations levels and identification of potential impacts
  - assessment of severity of impacts, with reference to the evaluation criteria
  - description of mitigation measures that will be incorporated into the design and operation of the scheme to eliminate or minimise the potential for noise and vibrations impact
  - a summary of any residual impacts
  - monitoring proposals.

## Consultations / Consultees

- 10.16 As this development constitutes Strategic Infrastructure Development (SID), a formal pre-application consultation exercise was undertaken with a number of prescribed bodies on the advice / directions of An Bord Pleanála, including Wicklow County Council, Transport Infrastructure Ireland, Fáilte Ireland and the Environmental Protection Agency. Consultations with Wicklow County Council were principally with officials from the Environment and Roads Departments.

- 10.17 Separate pre-planning consultations were also held with local residents and members of the general public in August and September 2024. A number of concerns were raised in the course of the public consultations in respect of potential noise impacts arising from the planned development, including
- an 'exponential increase' in noise pollution in the local area and along the proposed haul route;
  - potentially severe disruption to the peace and tranquillity of the local area;
  - an environment that is not only unpleasant but potentially also harmful to residents' mental and physical well-being;
  - implementation of mitigation measures to alleviate the increase in noise pollution, including that caused by heavy (HGV) traffic?
- 10.18 Details of these consultations and the feedback obtained therefrom is provided in a separate report submitted in support of the SID application to An Bord Pleanála. Specific feedback in respect of noise and vibration has been considered and addressed as appropriate in drafting this EIAR Chapter.
- 10.19 Following a review of published development plans and site surveys, it was considered that there was no requirement for any formal external consultations to be carried out in respect of noise and vibration for the purposes of this assessment.

## Contributors / Author(s)

- 10.20 The noise impact assessment presented in this Chapter was prepared by SLR Consulting Ireland. The lead consultant for the study was Ronan Murphy MIOA BSc Environmental Management, Diploma Acoustics and Noise Control. Ronan is Principal Acoustic Consultant with 18 years of experience.

## Sources of Information

- 10.21 The prevailing noise levels at noise sensitive locations in the vicinity of the site and haulage routes was determined through on-site measurements. Empirical source data for expected activities during the construction and operational phases was then used to calculate potential noise impacts arising at the same noise sensitive locations.

## Limitations / Difficulties Encountered

- 10.22 This assessment is compiled based on published guidance documents, and site-specific field surveys. No difficulties were encountered in compiling the required information.

# POTENTIAL IMPACTS OF THE PROPOSED DEVELOPMENT

## Study Area

- 10.23 The application site comprises a former bedrock quarry located in the townlands of Ballinclare and Carrigmore, near the village of Kilbride, Co. Wicklow.
- 10.24 There are isolated private residential property and agriculture farms located throughout the surrounding rural landscape, predominantly along the local road network. The location and proximity of the nearest noise sensitive locations is identified in Table 10-1 below.
- 10.25 As noted above, vehicular access to the quarry will be via the L1157 Local Road (also known as the Breagura Road) and the R772 Regional Road. The haul route for HGV vehicles will avoid the L1113 Local Road (also known as the Carrigmore Road).

## Nearest Noise Sensitive Receptors

- 10.26 Noise sensitive receptors (NSR) are defined in the Environmental Protection Agency (EPA) *Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities* (NG4, 2016) as:

*“ny dwelling house, hotel or hostel, health building, educational establishment, place of worship or entertainment, or any other facility or other area of high amenity which for its proper enjoyment requires the absence of noise at nuisance levels”.*

- 10.27 The closest NSRs to the application site have been identified and assessed based on their distance from the application site boundary. The relevant NSR's located within 500 metres of the application site ('redline') boundary are identified in Table 10-1 below.

**Table 10-1**  
**Sensitive Receptors in Vicinity of Application Site Boundary**

Receptor Reference	Receptor	Distance to C&D Crushing Activities (m)	Distance to Soil Washing Activities (m)	Distance to Inert Waste Deposition Activities (m)
R1	Residential	420	720	540
R2	Residential	490	800	620
R3	Residential	550	850	675
R4	Residential	680	975	800
R5	Residential	660	960	790
R6	Residential	800	910	1090
R7	Residential	580	850	352
R8	Residential	490	740	210
R9	Residential	430	650	120
R10	Residential	520	425	200
R11	Residential	560	600	360
R12	Residential	780	540	360
R13	Residential	540	300	240
R14	Residential	620	620	390
R15	Residential	840	610	630

- 10.28 Additional consideration has been given to the proximity of potentially noise sensitive ecological receptors in the vicinity of the site.
- 10.29 There is one designated Natura 2000 and one pNHA site within a 2km radius of the application site at Ballinclare Quarry. These sites are identified in Table 10-2 below.

**Table 10-2**  
**Ecological Receptors Within 2 km of Application Site**

Natura 2000 Site	Site Code	Approximate Distance to Site (m)
Deputy's Pass Nature Reserve SAC	000717	1,600
Glenealy Woods pNHA	001756	1,100



- 10.30 The nature of proposed site operations and distance to these receivers is such that noise propagation from site and resultant noise levels at these locations would give rise to negligible impacts, as such impacts on these ecological receivers has not been considered further in the assessment.

## Potential Noise Impacts from the Proposed Development

- 10.31 The proposed development will include a number of activities and processes that have the potential to generate noise impacts.
- 10.32 Additional vehicular movement on the surrounding road network, both initially during the construction stage and longer term due to the import and export of material to and from the site.
- 10.33 The proposals provide for the construction of new site infrastructure. Ground clearance and excavation with heavy machinery, as well as general construction work during this period, will have the potential to give rise to noise impacts off-site.
- 10.34 Once operational, the material recovery / recycling processes will require use of a range of mobile heavy machinery and static mechanical plant to handle, sort and process incoming and outgoing material streams.
- 10.35 In addition to the ongoing material recovery / recycling activity, the proposed development also provides for the backfilling of the existing quarry void with waste materials, principally inert soil and stone.
- 10.36 The proposed operational hours are to be limited to 0800 to 1800 hrs, Monday to Friday, albeit with some loading and unloading of HGVs after 07.00 hours each day. There will be no work at weekends or on public holidays. The nature of the mechanical plant at the site is such that no plant or process will be run outside of normal operational hours, and as such there is no risk of noise impacts arising during the evening or night-time periods.

## Potential Vibration Impacts from the Proposed Development

- 10.37 The nature of onsite operations and the distance to the nearest noise sensitive locations is such that the risk of vibration impacts occurring during either the construction or operational phases is negligible and has therefore not been assessed further as part of this assessment.

## Interaction with Other Impacts

- 10.38 The potential impact of noise generated by the proposed development on sensitive receptors including residents and sensitive ecological receptors has been assessed in this Chapter of the EIAR. The impact of the proposed development activity on these receptors is further considered in Chapter 4 'Population and Human Health' and in Chapter 5 'Biodiversity'.

## PLANNING AND DEVELOPMENT FRAMEWORK

- 10.39 The following sections outline the overarching planning policy and legislation relevant to noise management in the extractive industry at the proposed site.

### National Planning Framework – Project Ireland 2040

- 10.40 The National Planning Framework (NPF) 2040 (published in February 2018) is a national planning framework for Ireland. The framework provides the policies for all regional and local plans. In the framework, the extractive industries are recognised as important for the supply of aggregates and construction materials to a variety of sectors.

- 10.41 National Planning Framework Objective 65 addresses noise related impact of development and identifies a requirement for Planning Authorities to:  
*“Promote the pro-active management of noise where it is likely to have significant adverse impacts on health and quality of life and support the aims of the Environmental Noise Regulations through national planning guidance and Noise Action Plans.”*
- 10.42 The National Planning Framework aims to support the following measures:
- Noise Management and Action Planning Measures to avoid, mitigate, and minimise or promote the pro-active management of noise, where it is likely to have significant adverse impacts on health and quality of life, through strategic noise mapping, noise action plans and suitable planning conditions.
  - Noise, Amenity and Privacy : This includes but is not limited to, good acoustic design in new developments, in particular residential development, through a variety of measures such as setbacks and separation between noise sources and receptors, good acoustic design of buildings, building orientation, layout, building materials and noise barriers and buffer zones between various uses and thoroughfares.
- 10.43 Quiet Areas The further enjoyment of natural resources, such as our green spaces and sea frontage, through the preservation of low sound levels or a reduction in undesirably high sound levels, is particularly important for providing respite from high levels of urban noise. As part of noise action plans, an extra value placed on these areas, in terms of environmental quality and the consequential positive impact on quality of life and health, due to low sound levels and the absence of noise, can assist in achieving this.

## Local Planning Policy – Wicklow County Development Plan 2022-2028

- 10.44 The current Wicklow County Development Plan 1016-2022 includes a number of policies and objectives for the planning and sustainable development of the County.
- 10.45 The Noise Pollution Objectives identified by the County Development Plan are as follows:
- CPO 15.12 To implement the Wicklow County Council Noise Action Plan 2018-2023 (and any subsequent Plan) in order to avoid, prevent and reduce the harmful effects, including annoyance, due to environmental noise exposure
  - CPO 15.13 To enforce, where applicable, the provisions of the Environmental Protection Agency (EPA) Acts 1992 and 2003, and EPA Noise Regulations 2006.
  - CPO 15.14 To regulate and control activities likely to give rise to excessive noise (other than those activities which are regulated by the EPA).
  - CPO 15.15 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.
  - CPO 15.16 To require activities likely to give rise to excessive noise to install noise mitigation measures to undertake noise monitoring and to provide an annual monitoring audit.

## GUIDANCE DOCUMENTS AND ASSESSMENT CRITERIA

### Noise Arising During Construction Stage

- 10.46 There is no published statutory Irish guidance relating to the maximum permissible noise level that may be generated during the construction phase of a project. British Standard BS 5228-1:2009+A1:2014 *Code of Practice for Noise and Vibration Control on Construction and Open Sites - Noise* sets out procedure to assess and control construction noise impacts.



- 10.47 One of the approaches for deriving appropriate construction noise limits is for the designation of a noise sensitive receptor into a specific category (A, B or C) based on existing ambient noise levels in the absence of construction noise. This then sets a threshold noise value that, if exceeded at this location, indicates a significant noise impact is associated with construction activities.
- 10.48 BS 5228-1:2009+A1:2014 sets out guidance on permissible noise levels relative to the existing noise environment. Table 10-3 below sets out the values which, when exceeded, signify a significant effect at the facades of residential receptors.

**Table 10-3**  
**Applicable Construction Noise Thresholds (BS5228-1:2009+A1:2014)**

Assessment Category and Threshold Value Period	Threshold Values, $L_{Aeq,T}$ dB		
	Category A <sup>Note A</sup>	Category B <sup>Note B</sup>	Category C <sup>Note C</sup>
Night (23:00 to 07:00 hrs)	45	50	55
Evenings and Weekends <sup>Note D</sup>	55	60	65
Daytime (07:00 – 19:00 hrs) and Saturdays (07:00 – 13:00 hrs)	65	70	75

- Note A Category A: threshold values to use when ambient noise levels (when rounded to the nearest 5dB) are less than these values
- Note B Category B: threshold values to use when ambient noise levels (when rounded to the nearest 5dB) are the same as Category A values
- Note C Category C: Threshold values to use when ambient noise levels (when rounded to the nearest 5dB) are higher than category A values
- Note D Periods defined as 19:00 to 23:00 hrs weekdays, 13:00 to 23:00 hrs Saturdays and 07:00 to 23:00 hrs Sundays.

- 10.49 Further clarification on prevailing noise climate and relevant construction stage noise thresholds have been discussed in Section 10.83.

## Noise Arising from Onsite Operations (EPA NG4)

- 10.50 Site operations will be classified as a waste management activity under the Waste Management Act (1996, as amended) and as such, the facility will require a waste licence from the Environmental Protection Agency.
- 10.51 Relevant guidance in respect of noise thresholds and requirements for waste / licensed activities is set out in the Agency's *Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities* (NG4, 2016).
- 10.52 In setting appropriate Noise Criteria, the NG4 guidance stipulates that the site location must be screened to determine potential classification as either a "quiet area" as per the Agency publication *Environmental Quality Objectives - Noise in Quiet Areas* (EPA, 2003) or an area of a "low background noise".
- 10.53 An area can be classified as a potentially quiet area if the following criteria are satisfied:
- At least 3 km from urban areas with a population >1,000 people;
  - At least 10 km from any urban areas with a population >5,000 people;
  - At least 15 km from any urban areas with a population >10,000 people;
  - At least 3 km from any local industry;
  - At least 10 km from any major industry centre;

- At least 5 km from any National Primary Route, and;
  - At least 7.5 km from any Motorway or Dual Carriageway.
- 10.54 In this instance, the application site and nearest noise sensitive dwellings are located between 1,000 and 1,500 metres from the M11 motorway which runs immediately east of the site (within 400m of the application site boundary). As such, the site does not satisfy the criteria to be classified as a “quiet area” as per the NG4 guidelines.
- 10.55 In addition to quiet area screening, a series of attended noise measurements has to be completed at the nearest NSR’s to determine prevailing noise levels and to screen for potential low background noise levels.
- 10.56 An area can be considered as having low background noise levels when the following criteria are satisfied:
- Average Daytime Background Noise Level  $\leq 40$  dB  $L_{AF90}$ , and
  - Average Evening Background Noise Level  $\leq 35$  dB  $L_{AF90}$ , and
  - Average Night-time Background Noise Level  $\leq 30$  dB  $L_{AF90}$ .
- 10.57 The NG4 guidance states that the average background noise level for a specific period is the “arithmetic average of the measured  $L_{AF90}$  noise levels during the relevant period” and that low background noise levels are deemed to be present if “all three of the criteria are satisfied”.
- 10.58 The appropriate noise criteria applicable to the operation can be determined by reference to Table 10-4 below.

**Table 10-4**  
**EPA NG4 Operational Criteria Screening**

Scenario	Daytime Noise Criterion, dB $L_{Ar,T}$ (07:00 to 19:00 hrs)	Evening Noise Criterion, dB $L_{Ar,T}$ (19:00 to 23:00 hrs)	Night-time Noise Criterion, dB $L_{Aeq,T}$ (23:00 to 07:00 hrs)
Quiet Area	Noise from the licensed site to be at least 10dB below the average daytime background noise level measured during the baseline noise survey.	Noise from the licensed site to be at least 10dB below the average evening background noise level measured during the baseline noise survey.	Noise from the licensed site to be at least 10dB below the average night-time background noise level measured during the baseline noise survey.
Areas of Low Background Noise	45dB	40dB	35dB
All other Areas	55dB	50dB	45dB

- 10.59 Further clarification on prevailing noise climate and relevant operational noise thresholds is provided in later sections of this Chapter.

## Noise Arising from Vehicular Traffic on Public Roads

- 10.60 There are no specific guidelines of limits relating to traffic related sources along the local or surrounding road network. In this instance, in order to assess the potential noise impact from prospective changes in road traffic, Table 10-5 below offers guidance as to the likely degree of impact associated with a particular change in traffic noise level (Highways Agency Design Manual for Roads and Bridges HA 213/08).

**Table 10-5**  
**Likely Impacts Associated with Change in Traffic Noise Level (DMRB, 2011)**

Change in Sound Level	Magnitude of Impact
0	No Change
0.1 – 0.9	Negligible
1.0 – 2.9	Minor
3.0 – 4.9	Moderate
> 5	Major

## Quantifying Significance of Noise Impacts

- 10.61 The *Guidelines for Noise Impact Assessment* produced by the Institute of Environmental Management and Assessment (IEMA) are generally recognised as established good practice standards for scope, content, and methodology of noise impact assessment.
- 10.62 These guidelines address the key principles of noise impact assessment and are applicable to all development proposals where noise effects are likely to occur. These guidelines state that for any assessment, the noise level threshold and significance should be determined by the assessor, based upon the specific evidence and likely subjective response to noise. An example impact scale offered by the IEMA guidelines is shown in Table 10-6 below.

**Table 10-6**  
**Example Impact Scale from the Change in Sound Levels (IEMA)**

Long-Term Impact Classification	Short-Term Impact Classification	Sound Level Change dB L <sub>pAeqT</sub> (+ive or -ive) T = either 16hr day or 8hr night
Negligible	Negligible	≥ 0 dB and < 1 dB
	Minor	≥ 1 dB and < 3 dB
Minor	Moderate	≥ 3.0 dB and < 5 dB
Moderate	Major	≥ 5.0 dB and < 10 dB
Major		≥ 10.0

- 10.63 The criteria above reflect the key benchmarks that relate to human perception of sound. A change of 3dB is generally considered to be the smallest change in environmental noise that is perceptible to the human ear under most normal conditions. A 10dB change in noise represents a doubling or halving of the noise level. The difference between the minimum perceptible change and the doubling or halving of the noise level is split to provide greater definition to the assessment of changes in noise level.
- 10.64 To determine the overall noise impact, the magnitude and sensitivity Noise Effects Descriptors are presented in Table 10-7.

**Table 10-7**  
**Noise Effects Descriptors (IEMA)**

Noise Effect Levels	Description
Very Substantial	Greater than 10 dB $L_{Aeq}$ change in sound level perceived at a highly sensitive noise receptor
Substantial	Greater than 5 dB $L_{Aeq}$ change in sound level at a noise-sensitive receptor, or a 5 to 9.9 dB $L_{Aeq}$ change in sound level at a highly sensitive noise receptor
Moderate	A 3 to 4.9 dB $L_{Aeq}$ change in a sound level at a sensitive or highly sensitive noise receptor, or a greater than 5 dB $L_{Aeq}$ change in sound level at a receptor of some sensitivity
Slight	A 3 to 4.9 dB $L_{Aeq}$ change in a sound level at a receptor of some sensitivity
None / Not Significant	Less than 2.9 dB $L_{Aeq}$ change in sound level and/or all receptors of negligible sensitivity to noise or marginal to the zone of the influence of the proposed development

10.65 As recognised in the IEMA guidance, there are however many factors which affect people's perception and their responses to noise. Guidance on assessment of the magnitude of noise impact and the significance of the effects are presented in Table 10-8.

**Table 10-8**  
**Relationship between Noise Impact, Effect and Significance (IEMA)**

Magnitude (Nature of Impact)	Description of Effect (On a Specific Sensitive Receptor)		Significance
Substantial	Beneficial	Receptor Perception = Marked Change Causes a material change in behaviour and/ or attitude, e.g., individuals begin to engage in activities previously avoided due to preceding environmental noise conditions. Quality of life enhanced due to change in character of the area.	More Likely to be Significant  (Greater justification needed- based on impact magnitude and receptor sensitivities- to justify a non-significant effect)
Moderate		Receptor Perception = Noticeable Improvement Improved noise climate resulting in small change in behaviour and/ or attitude, e.g., turning down volume of television; speaking more quietly; opening windows. Affects the character of the area such that there is a perceived change in the quality of life.	↕  (Greater justification needed- based on impact magnitude and receptor sensitivities- to justify a significant effect)
Slight		Receptor Perception = Just Noticeable Improvement Noise impact can be heard but does not result in any change in behaviour or attitude. Can slightly affect character of the area but not such that there is a perceived change in quality of life.	Less Likely to be Significant
Negligible	N/A = no discernible effect on receptor		Not Significant

Magnitude (Nature of Impact)	Description of Effect (On a Specific Sensitive Receptor)		Significance
Slight	Adverse	Receptor perception = non-intrusive Noise impact can be heard, but does not cause change in behaviour or attitude, e.g., turning up volume of television, speaking more loudly, closing windows. Can slightly affect the character of the area but not such that there is a perceived change in the quality of life.	Less Likely to be Significant  Greater justification needed- based on impact magnitude and receptor sensitivities- to justify a significant effect)
Moderate		Receptor Perception = Intrusive Noise impact can be heard and causes small changes in behaviour and/or attitude, e.g., turning up volume of television; speaking more loudly; closing windows. Potential for non-waking sleep disturbance. Affects the character of area such that there is a perceived change in the quality of life.	↕  Greater justification needed- based on impact magnitude and receptor sensitivities- to justify a non-significant effect)
Substantial		Receptor perception = Disruptive Causes material change in behaviour and /or attitude, e.g., avoiding certain activities during periods of intrusion. Potential for sleep disturbance resulting in getting to sleep, premature awakening, and difficulty in getting back to sleep. Quality of life diminished due to change in character of area.	More Likely to be Significant
Severe		Receptor Perception = Physically Harmful Significant Changes in behaviour and/or an inability to mitigate effect of noise leading to psychological stress or psychological effects, e.g., regular sleep deprivation / awakening; loss of appetite, significant, medically definable harm, e.g., auditory and non-auditory.	Significant

## RECEIVING ENVIRONMENT

### Survey Methodology

- 10.66 An environmental noise survey was completed to establish the prevailing noise levels in the vicinity of the nearest noise sensitive receptors to the site and associated haul routes.
- 10.67 The survey was conducted by SLR Consulting Personnel in accordance with the procedures outlined in ISO 1996-2:2017 *Acoustics — Description, measurement and assessment of environmental noise - Determination of sound pressure levels*.
- 10.68 The noise monitoring locations selected for the purposes of the baseline noise survey are shown in Figure 10-1 and comprise the following:
- N01 is located adjacent the nearest dwelling north of the site, the microphone was installed at a position equal distance to the road as the façade of the dwelling;
  - N02 at the entrance laneway of the nearest dwelling located to the southeast of the site on the L1157 (Breagura Road);
  - N03 adjacent to the nearest dwelling immediately west of the site, the microphone was installed at a position equal distance to the road as the façade of the dwelling

- N04 is located along the Breagura Road, the position is representative of prevailing noise levels at NSRs located to the east of the site, in close proximity to the M11 Motorway and along the proposed haul route to and from the application site.
- 10.69 All measurements were completed using a Class 1 Sound Level Meter (Larson Davis 831 SLM). The sound level meter was calibrated before and after the survey. The calibration deviation was determined to fall within the acceptable range based on the meter specification (+/- 0.8 dB in this instance). The sound level meter was calibrated to traceable standard by a UKAS (United Kingdom Accreditation Service) accredited laboratory within 12 months preceding the measurement.
- 10.70 Measurements were completed at four measurement positions between the hours of 09:41 and 13:38 hrs on Thursday, 20<sup>th</sup> June 2024. Measurement periods were 15 minutes with a total of three rounds of monitoring completed at each location on a cyclical basis.
- 10.71 In addition to subjective observations on key sources contributing to the prevailing noise climate, the following noise level indices were recorded:
- $L_{Aeq,T}$  - The A-weighted equivalent continuous noise level over the measurement period, and effectively represents an “average” value.
  - $L_{AFMax,T}$  - The maximum RMS A-weighted sound pressure level occurring within a specified time period. Measured using the “Fast” time weighting.
  - $L_{AFMin,T}$  - The minimum RMS A-weighted sound pressure level occurring within a specified time period. Measured using the “Fast” time weighting.
  - $L_{A10,T}$  - The A-weighted noise level exceeded for 10% of the measurement period. This parameter is often used to describe intermittent noise sources such as road traffic.
  - $L_{A90,T}$  - The A-weighted noise level exceeded for 90% of the measurement period. This parameter is often used to describe the background noise.
- 10.72 The weather conditions were generally conducive to environmental noise surveys with light to gentle south-westerly breeze (<4 m/s) present. External ambient air temperature of ~ 18°C was observed.
- 10.73 All measurements were completed under free-field conditions (i.e., at least 3.5 m from the nearest vertical reflecting surface, with the microphone approximately 1.5 m above ground level).
- 10.74 All noise levels are recorded in ‘A-weighted’ decibels, dB(A). A-weighting is the process by which noise levels are corrected to account for the non-linear frequency response of the human ear. All noise levels are quoted in dB(A) relative to a sound pressure of 20 Pa.
- 10.75 Additional reference has been made to a series of attended noise measurements completed by SLR Consulting at position along the L1157 road on Monday 17<sup>th</sup> May and Tuesday 18<sup>th</sup> May 2021.

## Survey Results

- 10.76 Noise monitoring results for the baseline survey on are provided in Table 10-9 overleaf.



**Table 10-9**  
**Baseline Measured Noise Levels 2024 Survey**

Location	Time	Free Field Sound Pressure Levels (dB 2x10 <sup>-5</sup> Pa)				
		L <sub>Aeq</sub>	L <sub>AFMax</sub>	L <sub>AFMin</sub>	L <sub>A10</sub>	L <sub>A90</sub>
N01	10:40 - 11:10	55	78	47	56	48
	12:02 - 12:33	55	72	47	55	48
	13:23 - 13:53	55	74	43	56	47
N02	10:03 - 10:33	52	77	37	51	42
	11:20 - 11:50	48	81	20	41	27
	12:44 - 13:14	41	68	19	40	31
N03	09:41 - 10:11	50	72	31	48	34
	10:59 - 11:29	57	75	29	59	33
	12:23 - 12:54	52	72	30	53	32
N04	10:22 - 10:52	53	76	29	50	34
	11:43 - 12:13	51	81	29	49	31
	13:04 - 13:34	49	73	30	49	33

10.78 The following observations are made in respect of the baseline noise monitoring undertaken around the application site in June 2024:

- The dominant intermittent noise at position N01 was road traffic on the adjacent L1113 Local Road (Coolbeg Road). Background noise levels were influenced primarily by noise from the adjacent stream culvert.
- The dominant intermittent noise at position N02 was road traffic on the L1157 Local Road (Breagura Road). Background noise levels were influenced by distance road traffic from the M11 Motorway to the east. A tractor was operating in a field nearby during the first measurement period, influencing both the measured L<sub>Aeq</sub> and L<sub>A90</sub> values.
- Measured baseline noise levels at N03 were mainly dominated by road traffic noise on the adjoining local road, natural noises were audible when traffic abated.
- Measured baseline noise levels at N04 were mainly dominated by road traffic noise on the adjacent local road. Background noise levels were influenced by more distant road traffic along the M11 Motorway.

10.79 The results of the survey have been summarised in Table 10-10 overleaf.

**Table 10-10**  
**Summary of Measured Noise Levels 2024**

Monitoring Location	Average Free Field Sound Pressure Levels (dB 2x10 <sup>-5</sup> Pa)		
	L <sub>Aeq,T</sub>	L <sub>Aeq,T</sub> Rounded to nearest 5 dB as per BS5228	L <sub>A90</sub> <sup>1</sup> for NG4
N01	55	55	47
N02	49	50	33
N03	54	55	33
N04	51	50	33

10.80 For ease of reference the measured baseline noise levels measured across the local road network during the 2021 survey, identified as R1 to R7, are presented in Table 10-11 below. The corresponding noise survey locations are shown in Figure 10-2.

**Table 10-11**  
**Baseline Measured Noise Levels 2021 Survey**

Location	Date	Time	Free Field Sound Pressure Levels (dB 2x10 <sup>-5</sup> Pa)			
			L <sub>Aeq,T</sub>	L <sub>AMax</sub>	L <sub>A10</sub>	L <sub>A90</sub>
R1_2021	17/05/2021	08:29-08:59	65	90	58	39
	17/05/2021	12:35-13:05	65	90	59	39
	17/05/2021	17:00-17:30	65	88	60	41
R2_2021	17/05/2021	13:08-13:38	65	86	65	54
	17/05/2021	07:55-08:25	64	89	65	54
	18/05/2021	09:04-09:34	64	89	64	52
R3_2021	17/05/2021	09:37-10:07	56	78	54	45
	17/05/2021	13:41-14:11	53	75	53	44
	18/05/2021	08:29-08:59	56	78	57	48
R4_2021	17/05/2021	10:21-10:51	59	84	57	46
	17/05/2021	14:14-14:44	61	86	58	47
	18/05/2021	09:03-09:33	57	81	56	47

<sup>1</sup> Arithmetically averaged as per NG4 requirements

Location	Date	Time	Free Field Sound Pressure Levels (dB 2x10 <sup>-5</sup> Pa)			
			L <sub>Aeq,T</sub>	L <sub>AMax</sub>	L <sub>A10</sub>	L <sub>A90</sub>
R5_2021	17/05/2021	10:54-11:24	60	81	64	45
	17/05/2021	14:47-15:17	59	76	63	44
	18/05/2021	09:36-10:06	59	78	64	42
R6_2021	17/05/2021	11:28-11:58	63	81	65	45
	17/05/2021	15:30-1600	67	91	69	45
	18/05/2021	10:10-10:40	65	84	65	42
R7_2021	17/05/2021	07:54-08:24	57	80	57	39
	17/05/2021	12:01-12:31	58	81	56	37
	17/05/2021	16:27-16:57	61	82	57	41

10.81 The 2021 survey notes indicate that the noise climate at all monitored locations was dominated, as would be expected, by road traffic noise on the surrounding road network.

## Clarification of Assessment Criteria

### Construction Stage Noise Limits

10.82 The hours of construction for the proposed development will be limited to the daytime period, Monday to Friday from 07:00 to 18.00 hrs, with no works on weekends or public holidays.

10.83 The applicable construction noise limits based on the prevailing noise climate and BS5228-1 thresholds have been summarised in Table 10-12 below.

**Table 10-12**  
**Applicable Construction Noise Limits**

Monitoring Location	Baseline Noise Level (L <sub>Aeq</sub> , dB), rounded to nearest 5 dB	BS5228-1:2009 +A1:2014 ABC Method Category	Applicable Noise Threshold (L <sub>Aeq,T</sub> )
N01	55	A	65
N02	50	A	65
N03	55	A	65
N04	50	A	65

- 10.84 Whilst low background noise levels have been identified as present during the daytime period, the expected duration of the proposed construction works is such that a lower threshold value should not be required to prevent excessive impacts arising at the nearest noise sensitive locations.

## Operational Stage Noise Limits

- 10.85 The prevailing noise levels in the vicinity of the nearest noise sensitive locations range between 49 and 55 dB  $L_{Aeq,T}$  and 33 to 47 dB  $L_{A90,T}$ . Intermittent road traffic on the surrounding roads is the dominant influence in all instances.

- 10.86 The extant planning permission for the site outlines the following condition in respect of operational noise:

*Equivalent sound levels attributable to all onsite operations associated with the development shall not exceed 55 dBA  $L_{eq}$  over a continuous one hour period between 0800 hours and 1800 hours on Monday to Friday inclusive, and 0800 hours and 1300 hours Saturday, when measured at any noise sensitive receptor. Sound levels shall not exceed 45 dBA over a continuous one hour period at any other time.*

*Reason: in the interest of residential amenity*

- 10.87 It is noted that measured background noise levels at three of the baseline survey locations are below the EPA NG4 “low background noise” criteria of  $\leq 40$  dB  $L_{A90}$ .
- 10.88 It is important to note that the “low background noise” criteria outlined in NG4 guidelines apply if measured noise levels during the day, evening and night period ALL fall below the relevant thresholds.
- 10.89 The intention of the NG4 “low background noise” criteria is to provide additional protection to noise sensitive locations in the vicinity of sites that would be required to operate on a continuous basis, such as pharmaceutical, food processing or manufacturing plants, where noise would be generated to varying degrees over all time periods.
- 10.90 In the case of the proposed development at Ballinclare Quarry, all noise generating activities and mechanical plant use will be restricted entirely to daytime periods. Noise impacts will not arise outside of normal permitted daytime operational periods.
- 10.91 The potential noise generating properties of the proposed mechanical plant items and waste management activities proposed are also nearly identical to those previously employed at the site when it previously operated as a quarry.
- 10.92 In light of the above, and having regard to the historical land use and the extant permission for the site, it is proposed that a threshold of 50 dB  $L_{AR,T}$  for on-site specific noise be applicable at noise sensitive locations in the vicinity of the application site. This threshold is deemed to offer sufficient protection to surrounding noise sensitive receptors.
- 10.93 In addition to the overall site-specific noise threshold, the presence of either tonal or impulsive characteristics would, if present, incur an additional rating of 5 dB on measured noise levels. Tonal and impulsive noise will be measured and assessed in accordance with the relevant procedures outlined in the EPA’s NG4 guidance.

## ASSESSMENT OF LIKELY SIGNIFICANT EFFECTS

### Do-nothing Scenario

- 10.94 At present, the prevailing noise climate is influenced predominantly by intermittent road traffic along the local road network and agricultural activity on adjacent landholdings.

- 10.95 Over time, changes in the prevailing noise levels would be impacted by variations in road traffic volumes as well as changes in the land use of the adjacent sites. Whilst it is expected that road traffic volumes would gradually increase, it would be difficult to assume whether the adjacent landholdings would remain in dairy and beef farming activities. Overall, it would be expected that prevailing noise levels would remain generally similar in the short-to-medium term.

## Potential Impacts During Construction Stage

- 10.96 A limited period of construction is expected to facilitate construction and /or installation of the additional site infrastructure required to service the proposed development. Key works will include the construction and installation of:
- the new industrial shed (portal frame structure) at the paved area to the west of the existing access road which will house crushing and screening equipment and process / recover / recycle inert C&D wastes;
  - the soil recycling plant at the former concrete / asphalt yard which will produce construction grade sand and gravel aggregate from imported excess soil and stone;
  - the new weighbridge along the inbound lane of the quarry access road; and
  - the additional wheelwash facility on the eastern side of the former concrete / asphalt yard.
- 10.97 The decommissioning of the existing quarrying and asphalt production plant will also be required and is expected to occur over a slightly more extended period.
- 10.98 A range of construction plant items will be required to facilitate the construction of the new site infrastructure, these shall include:
- 13 to 20 tonne excavator with digging bucket and breaker;
  - Dumper truck for removal of topsoil;
  - Loader for backfilling aggregate;
  - Hand tools (angle grinder, nail gun, circular saw) for construction and installation of formwork and cutting rebar for foundation and ramps;
  - Concrete truck for installation of foundation and retaining walls for weighbridge;
  - Petrol poker for settling concrete in formwork; and,
  - Mobile crane for lifting and installation of weigh bridge and wheelwash;
- 10.99 Construction noise calculations have been conducted generally in accordance with British Standard BS5228-1:2009+A1:2014.
- 10.100 At the present time, a construction programme including specific plant items is not available and predictions of construction related noise cannot be completed without introducing a degree of uncertainty.
- 10.101 The proposed construction works would be completed in a number of phases, however. It is expected that the works would likely be completed consecutively without any overlap period due to the likelihood of the same machinery being required for each phase of work.
- 10.102 It is possible to reduce this uncertainty somewhat by presenting assessing worst-case noise levels using empirical source data set out in BS5228-1:2009+A1:2014 guidance.
- 10.103 Table 10-13 outlines source noise data based on the list of plant items listed in Para 10.97 above.

**Table 10-13**  
**Source Data for Construction Stage Assessment**

Phase	Source	BS5528 Ref	Noise Level at 10 m (dB L <sub>Aeq,1hr</sub> )	Qty	20LogN Corr.	Activity as % of 12 hr	Corr. to L <sub>Aeq,12hr</sub>	Activity L <sub>Aeq,12hr</sub>	Phase Total L <sub>Aeq,12hr</sub>
Erection of C+D Recycling Shed Superstructure	Teleporter (60 kW/10 t)	C.2.35	71	1	0	67	-2	69	79
	Wheeled mobile crane (lifting) (275 kW/35 t)	C.4.43	70	1	0	67	-2	68	
	Wheeled mobile crane (idling) (275 kW/35 t)	C.4.44	60	1	0	67	-2	58	
	Angle grinder (grinding steel) (2.3 kW)	C.4.93	80	1	0	67	-2	78	
	Miscellaneous Hand Tools	Other	59	1	0	67	-2	57	
Site Preparation / Constructed Wetlands	Tracked excavator (170 kW/30 t)	C.2.16	75	1	0	67	-2	73	87
	Articulated dump truck (tipping fill) (187 kW/23 t)	C.2.32	74	1	0	67	-2	72	
	Wheeled loader ж (184 kW/23 t)	C.10.17	84	1	0	67	-2	82	
	Articulated dump truck ж (239 kW/23 t)	C.10.19	87	1	0	67	-2	85	



Phase	Source	BS5528 Ref	Noise Level at 10 m (dB $L_{Aeq,1hr}$ )	Qty	20LogN Corr.	Activity as % of 12 hr	Corr. to $L_{Aeq,12hr}$	Activity $L_{Aeq,12hr}$	Phase Total $L_{Aeq,12hr}$
Weighbridge and Wheelwash	Teleporter (60 kW/10 t)	C.2.35	71	1	0	67	-2	69	79
	Wheeled mobile crane (70 t)	C.3.30	70	1	0	67	-2	68	
	Lorry movements on access road (350 kW/36 t)	C.11.5	80	1	0	67	-2	78	
	Miscellaneous Hand Tools	Other	59	1	0	67	-2	57	

10.104 Predictions of construction related noise impacts have been made having regard to the following :

- the existing topography of the site and extant boundary berms provide some inherent acoustic screening. For the construction phase a screening correction of between -10 dB and -15 dB has been applied to noise sensitive receptors off-site;
- a correction of +3 dB has been applied to all predicted values to model reflections from the façade;
- no correction has been applied to receptor positions in conversation areas;
- all noise sources have been modelled at a height of 2 metres above ground; and
- propagation assumes 80% soft ground cover for all receptors.

10.105 The predicted noise levels for each of the nearest NSRs during the construction phase has been summarised in Table 10-14 below.

**Table 10-14**  
**Predicted Construction Stage Noise Levels**

Receptor Reference	Threshold Applicable (dB $L_{Aeq,12hour}$ )	Predicted Construction Noise Level					
		C+D Steel Shed Superstructure		Site Preparation / Wetland Construction		Weighbridge and Wheelwash Construction	
		Distance	dB $L_{Aeq,12hour}$	Distance	dB $L_{Aeq,12hour}$	Distance	dB $L_{Aeq,12hour}$
R1	65	440	44	115	64	570	42
R2	65	530	43	180	60	650	41
R3	65	615	41	290	56	740	40
R4	65	610	36	290	51	680	35
R5	65	540	37	320	50	600	37
R6	65	490	38	350	49	520	38
R7	65	470	39	570	45	450	39
R8	65	580	37	950	41	530	38
R9	65	720	40	385	54	850	38
R10	65	750	40	380	54	870	38
R11	65	750	40	430	53	890	38
R12	65	720	40	425	53	850	38
R13	65	720	40	460	52	850	38

Receptor Reference	Threshold Applicable (dB $L_{Aeq,12hour}$ )	Predicted Construction Noise Level					
		C+D Steel Shed Superstructure		Site Preparation / Wetland Construction		Weighbridge and Wheelwash Construction	
		Distance	dB $L_{Aeq,12hour}$	Distance	dB $L_{Aeq,12hour}$	Distance	dB $L_{Aeq,12hour}$
R14	65	620	36	730	43	590	37
R15	65	840	34	1200	39	780	34
SAC (RE1)	NA	1600	30	1600	36	1600	28
pNHA (RE2)	NA	1100	33	1100	39	1100	31

- 10.106 The predicted construction noise levels as presented in Table 10-14 demonstrate that construction noise levels will fall below the adopted threshold of 65 dB  $L_{Aeq,12hr}$  at the nearest noise sensitive locations. Construction noise would therefore be considered to give rise to temporary slight to moderate impacts.
- 10.107 Notwithstanding the findings of the construction phase noise impact assessment, best practice construction noise and vibration management practice should be adhered to and implemented as a matter of course. Further details in respect of these practices are presented and discussed later in this Chapter (Paras 10.135 to 10.154)
- 10.108 The predicted construction noise levels at the nearest nature conservation area (Deputy's Pass SAC and Glenealy Woods pNHA) are expected to fall in the region of 28 to 31 dB  $L_{Aeq,1hr}$ . It should however be noted that noise levels predicted in accordance with BS5528-1 calculation methods introduce some uncertainty at distances greater than 300m due to the impact of meteorological conditions on attenuation.
- 10.109 The predicted values are also presented in terms of the  $L_{Aeq,T}$  rather than the maximum noise ( $L_{Amax(F)}$ ) parameter which is more representative of discrete or impulsive noise events. It would be expected that maximum noise ( $L_{Amax(F)}$ ) levels could be of the order of 15 to 20 dB higher than the equivalent  $L_{Aeq,T}$  values due to the intermittent nature of some of the noise sources. As such, the resultant calculated maximum noise levels in the vicinity of nature conservation areas would be of the order of 43 to 51dB  $L_{Amax(F)}$ .

## Potential Impacts During Operational Stage

- 10.110 The primary sources of noise during the operational phase of the proposed development will include handling and movement of waste and non-waste by-product materials within the application site, the operation of the soil recycling plant, crushing and screening of C&D waste and backfilling / restoration of the former quarry.
- 10.111 The soil washing plant shall comprise a loading hopper, a number of soil screens in series with connecting conveyor systems, a primary wastewater treatment tank (thickener), a buffer tank holding sludge and recycled water, an elevated plate press and filter cake discharge area.
- 10.112 The waste recovery shed will house additional crushing and screening equipment for the purpose of processing inert C&D waste (principally solid / reinforced concrete, bricks, ceramics and solid bituminous waste mixtures).

- 10.113 Backfilling of the quarry will primarily entail the use of bulldozers, wheeled loaders and dumper trucks.
- 10.114 In all instances, mobile noise sources in the form of vehicular movement from incoming and outgoing dumper trucks as well as handling of materials with wheeled loaders and excavators are expected to be intermittently present across the site.
- 10.115 Table 10-15 outlines source data based on the list of plant items identified above.

**Table 10-15**  
**Source Data for Operational Phase Assessment**

Phase	Source	BS5528 Ref	Noise Level at 10 m (dB L <sub>Aeq,1hr</sub> )	Qty	20LogN Corr.	Activity On Time %	Corr. to L <sub>Aeq,1hr</sub>	Activity L <sub>Aeq,1hr</sub>	Total L <sub>Aeq,1hr</sub>
C+D Recycling Shed	Semi-mobile screen/stockpiler, Screen stockpiler (56 kW/15 t)	C.10.14	81	1	0	67	-2	79	86
	Crushing concrete/rubble, Tracked crusher (172 kW/47 t)	C.1.14	82	1	0	67	-2	80	
	Transport of material, Wheeled loader ж (184 kW/23 t)	C.10.17	84	1	0	67	-2	82	
	Ground excavation/earthworks, Tracked excavator (107 kW/22 t)	C.2.21	71	1	0	67	-2	69	
C+D Handling in Yard	Transport of material, Articulated dump truck ж (239 kW/23 t)	C.10.19	87	1	0	67	-2	85	88
	Transport of material, Wheeled loader ж (184 kW/23 t)	C.10.17	84	1	0	67	-2	82	
	Lorry movements on access road, Lorry ж (350 kW/36 t)	C.11.5	80	1	0	67	-2	78	
	Distribution of material, Articulated dump truck (tipping fill) (187 kW/23 t)	C.2.32	74	1	0	67	-2	72	

Phase	Source	BS5528 Ref	Noise Level at 10 m (dB L <sub>Aeq,1hr</sub> )	Qty	20LogN Corr.	Activity On Time %	Corr. to L <sub>Aeq,1hr</sub>	Activity L <sub>Aeq,1hr</sub>	Total L <sub>Aeq,1hr</sub>
Soil Washing Plant	Field conveyor system, Conveyor drive unit (37 kW)	C.10.21	76	1	0	67	-2	74	85
	Semi-mobile screen/stockpiler, Screen stockpiler (56 kW/15 t)	C.10.14	81	1	0	67	-2	79	
	Field conveyor system, Feed hopper conveyor drive unit (6 kW)	C.10.22	69	1	0	67	-2	67	
	Transport of material, Wheeled loader ж (184 kW/23 t)	C.10.17	84	1	0	67	-2	82	
	Ground excavation/earthworks, Tracked excavator (107 kW/22 t)	C.2.21	71	1	0	67	-2	69	
Waste Deposition (all phases)	Transport of material, Wheeled loader ж (184 kW/23 t)	C.10.17	84	1	0	67	-2	82	87
	Ground excavation/earthworks, Tracked excavator (107 kW/22 t)	C.2.21	71	1	0	67	-2	69	
	Earthworks, Bulldozer ж (250 kW/35 t)	C.5.14	86	1	0	67	-2	84	
	Dumping brick rubble, Articulated dump truck (dumping rubble) (250 kW/28 t)	C.1.11	80	1	0	67	-2	78	



- 10.116 Although the C+D processing / crushing activities are to be located within a covered shed, it has been conservatively been assumed for assessment purposes that the shed doors will be open on two sides during processing. As such, no further correction has been applied to take account of potential sound insulation offered by the building fabric.
- 10.117 Predictions of operational related noise impacts have been made having regard to the following :
- the existing topography of the site and extant boundary berms provides some inherent acoustic screen. For the operational phase, a screening correction of between -10 dB and -15 dB has been applied to noise sensitive receptors off-site;
  - a correction of +3 dB has been applied to all predicted values to determine reflections from the façade;
  - no correction has been applied to receptor positions in the conversation areas;
  - all sources have been modelled at a height of 2 metres above ground; and,
  - propagation assumes 80% soft ground cover for all receptors.
- 10.118 The predicted noise levels for each of the nearest NSRs during the operational phase has been summarised in Table 10-16 below.

**Table 10-16**  
**Predicted Operational Stage Noise Levels from Individual Activities**

Receptor	Threshold (dB L <sub>Aeq,T</sub> )	Predicted Noise Level (dB L <sub>Aeq,1hour</sub> )					
		Waste Deposition P1	Waste Deposition P2	Waste Deposition P3	C+D Crushing	C+D Handling	Soil Washing
R1	50	46	42	42	46	44	41
R2	50	44	41	41	44	42	40
R3	50	43	40	40	43	41	39
R4	50	47	43	41	43	41	39
R5	50	44	41	37	39	37	35
R6	50	47	43	39	40	38	36
R7	50	47	46	44	40	37	39
R8	50	44	41	37	38	36	41
R9	50	42	40	39	41	39	38
R10	50	42	40	39	41	39	38
R11	50	42	40	39	41	39	38
R12	50	42	40	39	41	39	38

Receptor	Threshold (dB L <sub>Aeq,T</sub> )	Predicted Noise Level (dB L <sub>Aeq,1hour</sub> )					
		Waste Deposition P1	Waste Deposition P2	Waste Deposition P3	C+D Crushing	C+D Handling	Soil Washing
R13	50	42	40	39	41	39	38
R14	50	47	47	46	43	40	42
R15	50	45	43	40	40	37	42
SAC(RE1)	NA	34	34	34	34	31	33
pNHA(RE2)	NA	38	38	38	37	35	36

10.119 It is noted that in many instances, the individual activities modelled in Table 10-16 would be occurring simultaneously across the application site and that only the waste deposition activities at the quarry void would be completed on a phased basis. The predicted worst case operational noise levels have therefore been presented in Table 10-17 below.

**Table 10-17**  
**Predicted Operational Noise Levels**

Receptor Reference	Applicable Daytime Operational Threshold (dB L <sub>Aeq,T</sub> )	Predicted Operational Noise Levels (dB L <sub>Aeq,1hr</sub> )		
		Phase 1 Backfilling with all C+D and Soil Washing	Phase 2 Backfilling with all C+D and Soil Washing	Phase 3 Backfilling with all C+D and Soil Washing
R1	50	50	49	49
R2	50	48	47	47
R3	50	47	46	46
R4	50	49	47	46
R5	50	46	44	42
R6	50	48	45	43
R7	50	48	47	46
R8	50	47	45	44
R9	50	45	45	44
R10	50	45	44	44

Receptor Reference	Applicable Daytime Operational Threshold (dB $L_{Aeq,T}$ )	Predicted Operational Noise Levels (dB $L_{Aeq,1hr}$ )		
		Phase 1 Backfilling with all C+D and Soil Washing	Phase 2 Backfilling with all C+D and Soil Washing	Phase 3 Backfilling with all C+D and Soil Washing
R11	50	45	44	44
R12	50	45	45	44
R13	50	45	45	44
R14	50	49	49	49
R15	50	47	46	46
SAC (RE1)	50	39	39	39
pNHA (RE2)	50	42	42	42

10.120 The predicted noise levels presented in Table 10-17 indicate that even under worst case operational conditions, the relevant operational noise threshold of 50 dB  $L_{Aeq,T}$  would be achievable subject to the adherence to best practice noise management practices outlined later in this Chapter (in Paras 135 to 154)

## Additional Traffic on Public Roads

- 10.121 In addition to site-based construction and operational noise, the potential impact of additional development generated traffic on the local road network needs to be assessed.
- 10.122 Typically, an increase of 25% in road traffic volumes would be required to give rise to a 1dB increase in road traffic noise levels. Due to the nature of the proposed operations, whilst the proposed development will not give rise to a 25% increase in overall AADT levels, the additional HGV traffic would represent a potentially significant increase in road traffic volumes of the order of 40%.
- 10.123 Due to the fact that approximately 94% of the additional road traffic generated by the proposed development will be HGVs, it is more appropriate to consider the potential noise generated during peak hours from HGVs.
- 10.124 The noise level associated with a discrete noise event, such as a passing vehicle movement, may be expressed in terms of its Sound Exposure Level ( $L_{AX}$ ). The Sound Exposure Level can be used to calculate the contribution of a series of events to the overall noise level in a given period based on the following formula:

$$L_{Aeq,T} = L_{AX} + 10\log_{10}(N) - 10\log_{10}(T) + 20\log_{10}(r_1/r_2) \text{ dB}$$

where

- $L_{Aeq,T}$  is the equivalent continuous sound level over the time period T (in seconds);
- $L_{AX}$  is the “A-weighted” Sound Exposure Level of the event considered (dB);
- N is the number of events over the course of time period T;
- $r_1$  is the distance at which the  $L_{AX}$  value has been measured; and,
- $r_2$  is the distance to the assessment location.

- 10.125 Typical Sound Exposure Level values for HGVs travelling at low speeds (i.e. 15 to 45 kmph) would be of the order of 82 dB L<sub>AX</sub> at 5 metres from the vehicle. For light vehicles travelling at similar speeds, the value would be of the order 67 dB L<sub>AX</sub> at 5 metres from the vehicle. These figures are based a series of controlled measurements completed on vehicles in good repair travelling on a well surfaced tarmac road. An arbitrary correction of +3 dB would be appropriate to reflect similar vehicle movement at moderately higher speed of 80 kmph as is currently permitted along the L1157 / Breagura Road.
- 10.126 It is understood that when operating at maximum capacity, hourly HGV traffic movements for the proposed development would average out at approximately 30 per hour (equivalent to 15 trips per hour). It is expected that staff and other LGV movement would likely occur earlier and later than the expected peak for HGV movements to and from the application site.
- 10.127 The predicted road traffic noise level arising from increased HGV traffic levels at the nearest noise sensitive locations along the L1157 / Breagura Road is presented in Table 10-18 below.

**Table 10-18**  
**Predicted Noise Level Associated with Peak Hourly HGV Along L1157**

Receptor	Distance to Haul Route	Screening	Predicted Noise Level	Proxy for Prevailing Noise Levels	Prevailing Noise Levels	Cumulative Noise	Change	DMRB Impact Rating
R24	18	-5	46	N4	51	53	+ 2	Minor
R25	20	-5	45	N4	51	53	+ 1	Minor
R26	5	-5	57	N4	51	60	+ 9	Major
R38	10	--	56	R3_2021	56	60	+ 4	Moderate
R39	45	--	43	R3_2021	56	56	--	No Change
R44	10	-5	51	R4_2021	59	60	+ 1	Minor
J18 Café	5	-5	57	R5_2021	60	63	+ 3	Moderate
R45	8	--	58	R5_2021	60	63	+ 3	Moderate
R46	10	--	56	R5_2021	60	62	+ 2a	Minor

- 10.128 In terms of potential impact, making reference to the DMRB impact assessment rating, the road traffic noise level arising from hourly HGV movements arising when the proposed development is operating at maximum capacity would be considered as minor to major for receptors located along the L1157 Breagura Road.
- 10.129 It is important to note that two of the noise sensitive receptors with the greater potential impact, properties R26 and R45, are owned by the Applicant. In order to reflect potentially reduced sensitivity of any residents of these dwellings to noise generated from the site, it is reasonable to adopt some leniency in impact ratings and thresholds.

10.130 Additional mitigation measures will be required to reduce potential impact of noise on these receptors. Suitable mitigation measures are outlined in Paras 135 to 154 of this Chapter.

## Cumulative Impacts

- 10.131 In essence, cumulative impacts are those which result from incremental changes caused by other past, present, or reasonably foreseeable future development or activities, together with those generated by the proposed development. The potential impacts of the proposed development cannot be considered in isolation but must be considered in addition to impacts already arising from existing or planned development.
- 10.132 A planning search undertaken to determine if there were any other planned developments in the vicinity of the application site did not identify any other potentially significant source of noise or ground-borne vibration, either approved or planned within 2km of the application site. As a result, no potential for significant cumulative noise related impact has been identified. The cumulative impact of the proposed development on local noise and vibration levels is therefore assessed as insignificant.
- 10.133 To identify the potential impact of ongoing, continuous site activities, the predicted specific noise levels have been logarithmically added to existing ambient noise levels. The cumulative levels have been compared to the existing ambient noise levels at each of the noise sensitive locations for each time-period. The cumulative assessment is presented in Table 10-19 below.

**Table 10-19**  
**Cumulative Operational Noise Levels**

Receptor	Proxy Baseline Survey Location	Sound Pressure Level ( $L_{Aeq,T}$ dB RE $2 \times 10^{-5}$ Pa)			Difference	IEMA Long Term Impact Rating
		Existing Noise Levels	Maximum Operational Noise Level	Cumulative		
R1	N1	55	50	56	+ 1	Negligible
R2	N1	55	48	56	+ 1	Negligible
R3	N1	55	47	56	+ 1	Negligible
R4	N1	55	49	56	+ 1	Negligible
R5	N1	55	46	56	+ 1	Negligible
R6	N1	55	48	56	+ 1	Negligible
R7	N1	55	48	56	+ 1	Negligible
R8	N1	55	47	56	+ 1	Negligible
R9	N1	55	45	55	+ 0	Negligible
R10	N1	55	45	55	+ 0	Negligible
R11	N1	55	45	55	+ 0	Negligible

Receptor	Proxy Baseline Survey Location	Sound Pressure Level ( $L_{Aeq,T}$ dB RE $2 \times 10^{-5}$ Pa)			Difference	IEMA Long Term Impact Rating
		Existing Noise Levels	Maximum Operational Noise Level	Cumulative		
R12	N2	49	45	51	+ 2	Negligible
R13	N2	49	45	51	+ 2	Negligible
R14	N4	51	49	53	+ 2	Negligible
R15	N4	51	47	53	+ 1	Negligible

10.134 With reference to the Guidelines for Noise Impact Assessment published by the Institute of Environmental Management and Assessment (IEMA) and based on the prevailing noise levels measured during the baseline noise survey, the cumulative medium-term noise impact from the proposed development, once it is established, will be negligible.

## MITIGATION

10.135 Where necessary, the three established strategies for impact mitigation are avoidance, reduction, and remedy. Where it is not possible or practical to mitigate all impacts, then the residual impacts must be clearly described in accordance with the system for impact description set out in the EPA Guidelines.

## Construction Phase

10.136 This noise impact assessment has indicated that worst-case construction noise levels will fall within the applicable construction noise threshold limit (65dBA) at nearby NSRs.

10.137 Notwithstanding this, the Applicant intends to implement best practice construction noise and vibration management techniques throughout the construction phase in order to further reduce the noise and vibration impact to nearby noise sensitive receptors.

## Construction Noise and Vibration Management Plan

10.138 Prior to commencement of works, the Applicant (and any appointed Contractors) will compile and submit to Wicklow County Council a Construction Noise and Vibration Management Plan (NVMP). The plan shall:

- Outline management processes and mitigation measures to be utilised to remove or reduce significant noise impacts from the intended construction works;
- Define noise and vibration monitoring and reporting;
- Include method statements for each phase of the works including associated specific measures to minimise noise and vibration in so far as is reasonably practicable for the specific works covered by the plan and a detailed appraisal of the resultant construction noise and vibration generated.

10.139 The Applicant will also proactively engage with the local community and notify the public and potential noise / vibration sensitive premises before the commencement of any works which would be likely to generate any appreciable levels of noise or vibration, explaining the nature and duration of the works.



- 10.140 The Applicant will also distribute information circulars informing the local community of the progress of site-based construction works which will also highlight any likely periods of significant noise and vibration.
- 10.141 BS5228-1:2009+A1:2014 *Code of practice for noise and vibration control on construction and open sites – Noise* and BS5228-2:2009+A1:2014 *Code of practice for noise and vibration control on construction and open sites – Vibration* are the best practice standard for management of noise and vibration on construction sites and due regard will be had to these when planning and undertaking the construction phase works.
- 10.142 The standards include guidance on several aspects of construction site mitigation measures, including, but not limited to:
- Selection of quiet and or low vibration emitting plant;
  - Control of noise sources;
  - Screening;
  - Hours of work;
  - Liaison with the public; and
  - Monitoring.

## Operational Phase

- 10.143 The Applicant also intends to implement best practice construction noise and vibration management techniques throughout the operational phase of the proposed development to control, and where possible, further reduce the noise and vibration impact to nearby noise sensitive receptors.

## Mechanical Plant

- 10.144 All plant and equipment (both fixed and mobile) will be properly and regularly maintained and operated according to the manufacturers' recommendations, in such a manner as to avoid causing excessive noise.
- 10.145 All plant will be fitted with effective exhaust silencers which are maintained in good working order to meet manufacturers' noise rating levels. Any defective silencers will be replaced immediately.

## Vehicle Movement within Site Boundary

- 10.146 Access / internal haul roads will be kept clean and maintained in a good state of repair, specifically any uneven surfaces will be repaired, potholes filled, and large bumps removed to avoid unwanted rattle and "body-slap" from heavy goods vehicles.
- 10.147 All vehicles delivering and operating on the site will have white noise reversing alarms fitted.
- 10.148 Vehicles waiting within the application site will be prohibited from leaving their engines running and there will be no unnecessary revving of engines.
- 10.149 Care will be taken when unloading vehicles to reduce or minimise potential for noise disturbance to nearby residents.

## Vehicle Movements on Public Roads

- 10.150 HGVs / trucks accessing and egressing the proposed development will be required to adhere to a 60 kmph speed limit travelling along on the L1157 to ensure road traffic noise impacts at the nearest noise sensitive receptors are minimised. Details on the monitoring and enforcement of this requirement are presented in Chapter 14 of this EIAR (Traffic).

- 10.151 All HGVs / trucks travelling to and from the application site will be required to be kept and maintained in good working order.
- 10.152 Any deliveries to the proposed development site will be programmed to arrive during daytime hours only.

## Monitoring

- 10.153 The Applicant will undertake an annual compliance noise survey to establish operational noise emissions arising at the application site and demonstrate compliance with noise emission thresholds set by any grant of planning permission or waste licence issued by the EPA.
- 10.154 The survey shall be completed by a Competent Person in accordance with the EPA *Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities* (NG4) using a Class 1 Sound Level meter.

## RESIDUAL IMPACT ASSESSMENT

- 10.155 During the construction stage, under a worst-case scenario for noise generation, there is potential for moderate to significant temporary negative impacts.
- 10.156 The adoption and implementation of best practice Construction Noise Management practices should ensure residual impacts are minimised to the extent that construction noise should give rise to slight negative temporary impacts for the most part and moderate brief impacts on limited occasions.
- 10.157 During the operational phase, on-site activity arising from general recovery, recycling, soil washing, aggregate processing and landfilling activities has the potential to give rise to minor medium-term noise impacts.
- 10.158 Additional road traffic noise on public roads has the potential to give rise to minor to major noise impacts, depending on the proximity of the receptor location to the L1157 Local Road. Impacts for properties set back from the road are typically classified as minor.

### **FIGURES**

**Figure 10-1  
Noise Receptors and Monitoring Locations**

**Figure 10-2  
Noise Survey Monitoring Locations along Local Roads**



**APPENDIX A**  
**Glossary of Terminology**



To assist the understanding of acoustic terminology and the relative change in noise, the following background information is provided.

The human ear can detect a very wide range of pressure fluctuations, which are perceived as sound. To express these fluctuations in a manageable way, a logarithmic scale called the decibel, or dB scale, is used. The decibel scale typically ranges from 0dB (the threshold of hearing) to over 120 dB. An indication of the range of sound levels commonly found in the environment is given in the following table.

**Table 10 A-1**  
**Noise Levels Commonly Found in the Environment**

Sound Level	Location
0dB(A)	Threshold of hearing
20 to 30dB(A)	Quiet bedroom at night
30 to 40dB(A)	Living room during the day
40 to 50dB(A)	Typical office
50 to 60dB(A)	Inside a car
60 to 70dB(A)	Typical high street
70 to 90dB(A)	Inside factory
100 to 110dB(A)	Burglar alarm at one metre away
110 to 130dB(A)	Jet aircraft on take off
140dB(A)	Threshold of Pain

**dB (decibel)** The scale on which sound pressure level is expressed. It is defined as 20 times the logarithm of the ratio between the root-mean-square pressure of the sound field and a reference pressure ( $2 \times 10^{-5}$  Pa).

**dB(A)** A-weighted decibel. This is a measure of the overall level of sound across the audible spectrum with a frequency weighting (i.e., 'A' weighting) to compensate for the varying sensitivity of the human ear to sound at different frequencies.

**$L_{Aeq}$**  is defined as the notional steady sound level which, over a stated period, would contain the same amount of acoustical energy as the A-weighted fluctuating sound measured over that period.

**$L_{10}$  &  $L_{90}$**  If a non-steady noise is to be described it is necessary to know both its level and the degree of fluctuation. The  $L_n$  indices are used for this purpose, and the term refers to the level exceeded for n% of the time. Hence,  $L_{10}$  is the level exceeded for 10% of the time and as such can be regarded as the 'average maximum level'. Similarly,  $L_{90}$  is the 'average minimum level' and is often used to describe the background noise. It is common practice to use the  $L_{10}$  index to describe traffic noise.

**$L_{Amax}$**  is the maximum A-weighted sound pressure level recorded over the period stated.  $L_{Amax}$  is sometimes used in assessing environmental noise where occasional loud noises occur, which may have little effect on the overall  $L_{Aeq}$  noise level but will still affect the noise environment. Unless described otherwise, it is measured using the 'fast' sound level meter response.



## INTRODUCTION

### Background

- 10.1 This Chapter of the Environmental Impact Assessment Report (EIAR), prepared by SLR Consulting Ireland, addresses the potential noise and vibration impacts arising from the proposed establishment and operation of a materials recovery / recycling facility and inert landfill at Ballinclare Quarry, Kilbride, Co. Wicklow which comprises three key elements
- a soil washing plant to win aggregate from imported soil and stone;
  - a construction and demolition (C&D) waste recycling facility to produce aggregate from construction and demolition waste (principally concrete); and
  - an engineered (i.e. lined) landfill to facilitate backfilling and restoration of the existing quarry void with inert waste (principally soil and stone).
- 10.2 The proposed development at Ballinclare Quarry provides for the importation, re-use, recovery and/or disposal of a range of inert wastes generated by construction and development projects in Counties Wicklow, Dublin and Wexford as well as the re-use of excess, non-waste by-product materials (principally uncontaminated soil and stone).
- 10.3 The proposed soil wash plant will be set up and operated at the former concrete / asphalt production yard in the south-eastern corner of the application site. This plant will principally recover sand and gravel and recycled (secondary) aggregates from more granular soil intake and claybound C&D materials. Aggregates will be won from imported non-waste by-product as well as from inert waste materials.
- 10.4 The proposed construction and demolition (C&D) waste recovery facility will be set up and operated across the existing paved area to the west of the existing site access road. The principal wastes to be recycled at this facility will include concrete (ready-mixed, reinforced, blocks and/or pavement slabs), bricks and bituminous mixtures (hardened asphalt returns and road planings).
- 10.5 All aggregates from waste will be of construction grade and will comply with an engineering specification and the End of Waste criteria for recycled aggregates recently published by the EPA.
- 10.6 It is proposed to backfill the existing quarry to original / surrounding ground level by importing and placing inert waste, principally soil and stone, in a lined landfill facility and in so doing, re-establish the original landform which existed prior to quarrying. The landfilling and restoration activities will be undertaken on an ongoing, progressive basis and on completion, the final landform will be restored to a native woodland habitat.
- 10.7 The proposed maximum intake rate of soil and stone (waste and by-product) for aggregate production and landfilling / disposal is 550,000 tonnes per annum. The maximum rate of C&D waste recovery is 50,000 tonnes per annum. At a maximum combined intake rate of 600,000 tonnes per annum, activities will generate an average of approximately 9 to 10 HGV return trips per hour every working day.
- 10.8 The development proposal provides for the routing of all traffic to and from the proposed development along the L1157 Local Road. It also includes provision for a comprehensive road improvement scheme along the entire length of the L1157 leading up to the application site, including road widening to 6.0m everywhere along its length, with road strengthening and repair overlay and road markings where required.
- 10.9 Under the routing proposal, the majority of the HGVs travelling to the proposed development from Dublin and North Wicklow will use the M11 Motorway, exiting at Junction 18 and joining the R772 Regional Road southbound. After travelling south for approximately 4km, traffic heading for the facility will turn right, off the R772, and onto the

L1157 at the ghost island junction beside the Junction 18 Coffee Shop and Green Angel premises at Kilbride. The access junction to the quarry and proposed development is located along the L1157, approximately 2km north-west of the R772 junction.

- 10.10 It is estimated that only a minor proportion of HGV traffic will arrive from the direction of Arklow and North Wexford. This traffic will use the M11 Motorway, exiting at Junction 19 to turn onto the R772 Regional Road at Jack Whites Pub. It will then travel north for approximately 5km, turn left off the R772 and onto the L1157, and continue thereafter up to the quarry and proposed development.
- 10.11 The proposed haul route requires all HGV traffic departing the proposed facility to turn left and follow the upgraded L1157 back to the junction with the R772 Regional Road, and from there continue toward the national motorway network.
- 10.12 Further detail on the proposed development (site infrastructure, operations, environmental management systems, and controls etc.) are provided in Chapter 2 of this EIAR.
- 10.13 The noise impact assessment presented herein describes and assesses the existing noise baseline characteristics of the local area. The anticipated effects of the proposed development at Ballinclare Quarry are then applied to these baseline conditions and the resulting noise impacts assessed. Mitigation measures are identified where necessary to eliminate or minimise adverse impacts, insofar as practical.
- 10.14 To assist the understanding of acoustic terminology and the relative change in noise, a glossary of terms and phrases, which specifically relate to this Chapter of the EIAR, is provided in the Glossary of Terminology presented in Appendix 10-A.

## Methodology

- 10.15 The following sections of this EIAR Chapter describe the potential noise impacts associated with the proposed development. The following issues are addressed separately:
  - regulatory control framework for noise and vibration
  - methodology used to assess potential impacts from activities at properties (dwellings and farms) and sensitive ecological receptors
  - baseline conditions pertaining to existing background and ambient noise levels around the project site
  - noise and vibrations impact evaluation criteria
  - prediction of the noise and vibrations levels and identification of potential impacts
  - assessment of severity of impacts, with reference to the evaluation criteria
  - description of mitigation measures that will be incorporated into the design and operation of the scheme to eliminate or minimise the potential for noise and vibrations impact
  - a summary of any residual impacts
  - monitoring proposals.

## Consultations / Consultees

- 10.16 As this development constitutes Strategic Infrastructure Development (SID), a formal pre-application consultation exercise was undertaken with a number of prescribed bodies on the advice / directions of An Bord Pleanála, including Wicklow County Council, Transport Infrastructure Ireland, Fáilte Ireland and the Environmental Protection Agency. Consultations with Wicklow County Council were principally with officials from the Environment and Roads Departments.

- 10.17 Separate pre-planning consultations were also held with local residents and members of the general public in August and September 2024. A number of concerns were raised in the course of the public consultations in respect of potential noise impacts arising from the planned development, including
- an 'exponential increase' in noise pollution in the local area and along the proposed haul route;
  - potentially severe disruption to the peace and tranquillity of the local area;
  - an environment that is not only unpleasant but potentially also harmful to residents' mental and physical well-being;
  - implementation of mitigation measures to alleviate the increase in noise pollution, including that caused by heavy (HGV) traffic?
- 10.18 Details of these consultations and the feedback obtained therefrom is provided in a separate report submitted in support of the SID application to An Bord Pleanála. Specific feedback in respect of noise and vibration has been considered and addressed as appropriate in drafting this EIA Chapter.
- 10.19 Following a review of published development plans and site surveys, it was considered that there was no requirement for any formal external consultations to be carried out in respect of noise and vibration for the purposes of this assessment.

## Contributors / Author(s)

- 10.20 The noise impact assessment presented in this Chapter was prepared by SLR Consulting Ireland. The lead consultant for the study was Ronan Murphy MIOA BSc Environmental Management, Diploma Acoustics and Noise Control. Ronan is Principal Acoustic Consultant with 18 years of experience.

## Sources of Information

- 10.21 The prevailing noise levels at noise sensitive locations in the vicinity of the site and haulage routes was determined through on-site measurements. Empirical source data for expected activities during the construction and operational phases was then used to calculate potential noise impacts arising at the same noise sensitive locations.

## Limitations / Difficulties Encountered

- 10.22 This assessment is compiled based on published guidance documents, and site-specific field surveys. No difficulties were encountered in compiling the required information.

# POTENTIAL IMPACTS OF THE PROPOSED DEVELOPMENT

## Study Area

- 10.23 The application site comprises a former bedrock quarry located in the townlands of Ballinclare and Carrigmore, near the village of Kilbride, Co. Wicklow.
- 10.24 There are isolated private residential property and agriculture farms located throughout the surrounding rural landscape, predominantly along the local road network. The location and proximity of the nearest noise sensitive locations is identified in Table 10-1 below.
- 10.25 As noted above, vehicular access to the quarry will be via the L1157 Local Road (also known as the Breagura Road) and the R772 Regional Road. The haul route for HGV vehicles will avoid the L1113 Local Road (also known as the Carrigmore Road).

## Nearest Noise Sensitive Receptors

- 10.26 Noise sensitive receptors (NSR) are defined in the Environmental Protection Agency (EPA) *Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities* (NG4, 2016) as:

*“ny dwelling house, hotel or hostel, health building, educational establishment, place of worship or entertainment, or any other facility or other area of high amenity which for its proper enjoyment requires the absence of noise at nuisance levels”.*

- 10.27 The closest NSRs to the application site have been identified and assessed based on their distance from the application site boundary. The relevant NSR's located within 500 metres of the application site ('redline') boundary are identified in Table 10-1 below.

**Table 10-1**  
**Sensitive Receptors in Vicinity of Application Site Boundary**

Receptor Reference	Receptor	Distance to C&D Crushing Activities (m)	Distance to Soil Washing Activities (m)	Distance to Inert Waste Deposition Activities (m)
R1	Residential	420	720	540
R2	Residential	490	800	620
R3	Residential	550	850	675
R4	Residential	680	975	800
R5	Residential	660	960	790
R6	Residential	800	910	1090
R7	Residential	580	850	352
R8	Residential	490	740	210
R9	Residential	430	650	120
R10	Residential	520	425	200
R11	Residential	560	600	360
R12	Residential	780	540	360
R13	Residential	540	300	240
R14	Residential	620	620	390
R15	Residential	840	610	630

- 10.28 Additional consideration has been given to the proximity of potentially noise sensitive ecological receptors in the vicinity of the site.
- 10.29 There is one designated Natura 2000 and one pNHA site within a 2km radius of the application site at Ballinclare Quarry. These sites are identified in Table 10-2 below.

**Table 10-2**  
**Ecological Receptors Within 2 km of Application Site**

Natura 2000 Site	Site Code	Approximate Distance to Site (m)
Deputy's Pass Nature Reserve SAC	000717	1,600
Glenealy Woods pNHA	001756	1,100

- 10.30 The nature of proposed site operations and distance to these receivers is such that noise propagation from site and resultant noise levels at these locations would give rise to negligible impacts, as such impacts on these ecological receivers has not been considered further in the assessment.

## Potential Noise Impacts from the Proposed Development

- 10.31 The proposed development will include a number of activities and processes that have the potential to generate noise impacts.
- 10.32 Additional vehicular movement on the surrounding road network, both initially during the construction stage and longer term due to the import and export of material to and from the site.
- 10.33 The proposals provide for the construction of new site infrastructure. Ground clearance and excavation with heavy machinery, as well as general construction work during this period, will have the potential to give rise to noise impacts off-site.
- 10.34 Once operational, the material recovery / recycling processes will require use of a range of mobile heavy machinery and static mechanical plant to handle, sort and process incoming and outgoing material streams.
- 10.35 In addition to the ongoing material recovery / recycling activity, the proposed development also provides for the backfilling of the existing quarry void with waste materials, principally inert soil and stone.
- 10.36 The proposed operational hours are to be limited to 0800 to 1800 hrs, Monday to Friday, albeit with some loading and unloading of HGVs after 07.00 hours each day. There will be no work at weekends or on public holidays. The nature of the mechanical plant at the site is such that no plant or process will be run outside of normal operational hours, and as such there is no risk of noise impacts arising during the evening or night-time periods.

## Potential Vibration Impacts from the Proposed Development

- 10.37 The nature of onsite operations and the distance to the nearest noise sensitive locations is such that the risk of vibration impacts occurring during either the construction or operational phases is negligible and has therefore not been assessed further as part of this assessment.

## Interaction with Other Impacts

- 10.38 The potential impact of noise generated by the proposed development on sensitive receptors including residents and sensitive ecological receptors has been assessed in this Chapter of the EIAR. The impact of the proposed development activity on these receptors is further considered in Chapter 4 'Population and Human Health' and in Chapter 5 'Biodiversity'.

## PLANNING AND DEVELOPMENT FRAMEWORK

- 10.39 The following sections outline the overarching planning policy and legislation relevant to noise management in the extractive industry at the proposed site.

### National Planning Framework – Project Ireland 2040

- 10.40 The National Planning Framework (NPF) 2040 (published in February 2018) is a national planning framework for Ireland. The framework provides the policies for all regional and local plans. In the framework, the extractive industries are recognised as important for the supply of aggregates and construction materials to a variety of sectors.



- 10.41 National Planning Framework Objective 65 addresses noise related impact of development and identifies a requirement for Planning Authorities to:  
*“Promote the pro-active management of noise where it is likely to have significant adverse impacts on health and quality of life and support the aims of the Environmental Noise Regulations through national planning guidance and Noise Action Plans.”*
- 10.42 The National Planning Framework aims to support the following measures:
- Noise Management and Action Planning Measures to avoid, mitigate, and minimise or promote the pro-active management of noise, where it is likely to have significant adverse impacts on health and quality of life, through strategic noise mapping, noise action plans and suitable planning conditions.
  - Noise, Amenity and Privacy : This includes but is not limited to, good acoustic design in new developments, in particular residential development, through a variety of measures such as setbacks and separation between noise sources and receptors, good acoustic design of buildings, building orientation, layout, building materials and noise barriers and buffer zones between various uses and thoroughfares.
- 10.43 Quiet Areas The further enjoyment of natural resources, such as our green spaces and sea frontage, through the preservation of low sound levels or a reduction in undesirably high sound levels, is particularly important for providing respite from high levels of urban noise. As part of noise action plans, an extra value placed on these areas, in terms of environmental quality and the consequential positive impact on quality of life and health, due to low sound levels and the absence of noise, can assist in achieving this.

## Local Planning Policy – Wicklow County Development Plan 2022-2028

- 10.44 The current Wicklow County Development Plan 1016-2022 includes a number of policies and objectives for the planning and sustainable development of the County.
- 10.45 The Noise Pollution Objectives identified by the County Development Plan are as follows:
- CPO 15.12 To implement the Wicklow County Council Noise Action Plan 2018-2023 (and any subsequent Plan) in order to avoid, prevent and reduce the harmful effects, including annoyance, due to environmental noise exposure
  - CPO 15.13 To enforce, where applicable, the provisions of the Environmental Protection Agency (EPA) Acts 1992 and 2003, and EPA Noise Regulations 2006.
  - CPO 15.14 To regulate and control activities likely to give rise to excessive noise (other than those activities which are regulated by the EPA).
  - CPO 15.15 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.
  - CPO 15.16 To require activities likely to give rise to excessive noise to install noise mitigation measures to undertake noise monitoring and to provide an annual monitoring audit.

## GUIDANCE DOCUMENTS AND ASSESSMENT CRITERIA

### Noise Arising During Construction Stage

- 10.46 There is no published statutory Irish guidance relating to the maximum permissible noise level that may be generated during the construction phase of a project. British Standard BS 5228-1:2009+A1:2014 *Code of Practice for Noise and Vibration Control on Construction and Open Sites - Noise* sets out procedure to assess and control construction noise impacts.

- 10.47 One of the approaches for deriving appropriate construction noise limits is for the designation of a noise sensitive receptor into a specific category (A, B or C) based on existing ambient noise levels in the absence of construction noise. This then sets a threshold noise value that, if exceeded at this location, indicates a significant noise impact is associated with construction activities.
- 10.48 BS 5228-1:2009+A1:2014 sets out guidance on permissible noise levels relative to the existing noise environment. Table 10-3 below sets out the values which, when exceeded, signify a significant effect at the facades of residential receptors.

**Table 10-3**  
**Applicable Construction Noise Thresholds (BS5228-1:2009+A1:2014)**

Assessment Category and Threshold Value Period	Threshold Values, $L_{Aeq,T}$ dB		
	Category A <sup>Note A</sup>	Category B <sup>Note B</sup>	Category C <sup>Note C</sup>
Night (23:00 to 07:00 hrs)	45	50	55
Evenings and Weekends <sup>Note D</sup>	55	60	65
Daytime (07:00 – 19:00 hrs) and Saturdays (07:00 – 13:00 hrs)	65	70	75

- Note A Category A: threshold values to use when ambient noise levels (when rounded to the nearest 5dB) are less than these values
- Note B Category B: threshold values to use when ambient noise levels (when rounded to the nearest 5dB) are the same as Category A values
- Note C Category C: Threshold values to use when ambient noise levels (when rounded to the nearest 5dB) are higher than category A values
- Note D Periods defined as 19:00 to 23:00 hrs weekdays, 13:00 to 23:00 hrs Saturdays and 07:00 to 23:00 hrs Sundays.

- 10.49 Further clarification on prevailing noise climate and relevant construction stage noise thresholds have been discussed in Section 10.83.

## Noise Arising from Onsite Operations (EPA NG4)

- 10.50 Site operations will be classified as a waste management activity under the Waste Management Act (1996, as amended) and as such, the facility will require a waste licence from the Environmental Protection Agency.
- 10.51 Relevant guidance in respect of noise thresholds and requirements for waste / licensed activities is set out in the Agency's *Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities* (NG4, 2016).
- 10.52 In setting appropriate Noise Criteria, the NG4 guidance stipulates that the site location must be screened to determine potential classification as either a "quiet area" as per the Agency publication *Environmental Quality Objectives - Noise in Quiet Areas* (EPA, 2003) or an area of a "low background noise".
- 10.53 An area can be classified as a potentially quiet area if the following criteria are satisfied:
- At least 3 km from urban areas with a population >1,000 people;
  - At least 10 km from any urban areas with a population >5,000 people;
  - At least 15 km from any urban areas with a population >10,000 people;
  - At least 3 km from any local industry;
  - At least 10 km from any major industry centre;



- At least 5 km from any National Primary Route, and;
  - At least 7.5 km from any Motorway or Dual Carriageway.
- 10.54 In this instance, the application site and nearest noise sensitive dwellings are located between 1,000 and 1,500 metres from the M11 motorway which runs immediately east of the site (within 400m of the application site boundary). As such, the site does not satisfy the criteria to be classified as a “quiet area” as per the NG4 guidelines.
- 10.55 In addition to quiet area screening, a series of attended noise measurements has to be completed at the nearest NSR’s to determine prevailing noise levels and to screen for potential low background noise levels.
- 10.56 An area can be considered as having low background noise levels when the following criteria are satisfied:
- Average Daytime Background Noise Level  $\leq 40$  dB  $L_{AF90}$ , and
  - Average Evening Background Noise Level  $\leq 35$  dB  $L_{AF90}$ , and
  - Average Night-time Background Noise Level  $\leq 30$  dB  $L_{AF90}$ .
- 10.57 The NG4 guidance states that the average background noise level for a specific period is the “arithmetic average of the measured  $L_{AF90}$  noise levels during the relevant period” and that low background noise levels are deemed to be present if “all three of the criteria are satisfied”.
- 10.58 The appropriate noise criteria applicable to the operation can be determined by reference to Table 10-4 below.

**Table 10-4**  
**EPA NG4 Operational Criteria Screening**

Scenario	Daytime Noise Criterion, dB $L_{Ar,T}$ (07:00 to 19:00 hrs)	Evening Noise Criterion, dB $L_{Ar,T}$ (19:00 to 23:00 hrs)	Night-time Noise Criterion, dB $L_{Aeq,T}$ (23:00 to 07:00 hrs)
Quiet Area	Noise from the licensed site to be at least 10dB below the average daytime background noise level measured during the baseline noise survey.	Noise from the licensed site to be at least 10dB below the average evening background noise level measured during the baseline noise survey.	Noise from the licensed site to be at least 10dB below the average night-time background noise level measured during the baseline noise survey.
Areas of Low Background Noise	45dB	40dB	35dB
All other Areas	55dB	50dB	45dB

- 10.59 Further clarification on prevailing noise climate and relevant operational noise thresholds is provided in later sections of this Chapter.

## Noise Arising from Vehicular Traffic on Public Roads

- 10.60 There are no specific guidelines of limits relating to traffic related sources along the local or surrounding road network. In this instance, in order to assess the potential noise impact from prospective changes in road traffic, Table 10-5 below offers guidance as to the likely degree of impact associated with a particular change in traffic noise level (Highways Agency Design Manual for Roads and Bridges HA 213/08).

**Table 10-5**  
**Likely Impacts Associated with Change in Traffic Noise Level (DMRB, 2011)**

Change in Sound Level	Magnitude of Impact
0	No Change
0.1 – 0.9	Negligible
1.0 – 2.9	Minor
3.0 – 4.9	Moderate
> 5	Major

## Quantifying Significance of Noise Impacts

- 10.61 The *Guidelines for Noise Impact Assessment* produced by the Institute of Environmental Management and Assessment (IEMA) are generally recognised as established good practice standards for scope, content, and methodology of noise impact assessment.
- 10.62 These guidelines address the key principles of noise impact assessment and are applicable to all development proposals where noise effects are likely to occur. These guidelines state that for any assessment, the noise level threshold and significance should be determined by the assessor, based upon the specific evidence and likely subjective response to noise. An example impact scale offered by the IEMA guidelines is shown in Table 10-6 below.

**Table 10-6**  
**Example Impact Scale from the Change in Sound Levels (IEMA)**

Long-Term Impact Classification	Short-Term Impact Classification	Sound Level Change dB L <sub>pAeqT</sub> (+ive or -ive) T = either 16hr day or 8hr night
Negligible	Negligible	≥ 0 dB and < 1 dB
	Minor	≥ 1 dB and < 3 dB
Minor	Moderate	≥ 3.0 dB and < 5 dB
Moderate	Major	≥ 5.0 dB and < 10 dB
Major		≥ 10.0

- 10.63 The criteria above reflect the key benchmarks that relate to human perception of sound. A change of 3dB is generally considered to be the smallest change in environmental noise that is perceptible to the human ear under most normal conditions. A 10dB change in noise represents a doubling or halving of the noise level. The difference between the minimum perceptible change and the doubling or halving of the noise level is split to provide greater definition to the assessment of changes in noise level.
- 10.64 To determine the overall noise impact, the magnitude and sensitivity Noise Effects Descriptors are presented in Table 10-7.

**Table 10-7**  
**Noise Effects Descriptors (IEMA)**

Noise Effect Levels	Description
Very Substantial	Greater than 10 dB $L_{Aeq}$ change in sound level perceived at a highly sensitive noise receptor
Substantial	Greater than 5 dB $L_{Aeq}$ change in sound level at a noise-sensitive receptor, or a 5 to 9.9 dB $L_{Aeq}$ change in sound level at a highly sensitive noise receptor
Moderate	A 3 to 4.9 dB $L_{Aeq}$ change in a sound level at a sensitive or highly sensitive noise receptor, or a greater than 5 dB $L_{Aeq}$ change in sound level at a receptor of some sensitivity
Slight	A 3 to 4.9 dB $L_{Aeq}$ change in a sound level at a receptor of some sensitivity
None / Not Significant	Less than 2.9 dB $L_{Aeq}$ change in sound level and/or all receptors of negligible sensitivity to noise or marginal to the zone of the influence of the proposed development

10.65 As recognised in the IEMA guidance, there are however many factors which affect people's perception and their responses to noise. Guidance on assessment of the magnitude of noise impact and the significance of the effects are presented in Table 10-8.

**Table 10-8**  
**Relationship between Noise Impact, Effect and Significance (IEMA)**

Magnitude (Nature of Impact)	Description of Effect (On a Specific Sensitive Receptor)		Significance
Substantial	Beneficial	Receptor Perception = Marked Change Causes a material change in behaviour and/ or attitude, e.g., individuals begin to engage in activities previously avoided due to preceding environmental noise conditions. Quality of life enhanced due to change in character of the area.	More Likely to be Significant  (Greater justification needed- based on impact magnitude and receptor sensitivities- to justify a non-significant effect)
Moderate		Receptor Perception = Noticeable Improvement Improved noise climate resulting in small change in behaviour and/ or attitude, e.g., turning down volume of television; speaking more quietly; opening windows. Affects the character of the area such that there is a perceived change in the quality of life.	↕
Slight		Receptor Perception = Just Noticeable Improvement Noise impact can be heard but does not result in any change in behaviour or attitude. Can slightly affect character of the area but not such that there is a perceived change in quality of life.	(Greater justification needed- based on impact magnitude and receptor sensitivities- to justify a significant effect)  Less Likely to be Significant
Negligible	N/A = no discernible effect on receptor		Not Significant

Magnitude (Nature of Impact)	Description of Effect (On a Specific Sensitive Receptor)		Significance
Slight	Adverse	Receptor perception = non-intrusive Noise impact can be heard, but does not cause change in behaviour or attitude, e.g., turning up volume of television, speaking more loudly, closing windows. Can slightly affect the character of the area but not such that there is a perceived change in the quality of life.	Less Likely to be Significant  Greater justification needed- based on impact magnitude and receptor sensitivities- to justify a significant effect)
Moderate		Receptor Perception = Intrusive Noise impact can be heard and causes small changes in behaviour and/or attitude, e.g., turning up volume of television; speaking more loudly; closing windows. Potential for non-waking sleep disturbance. Affects the character of area such that there is a perceived change in the quality of life.	↕  Greater justification needed- based on impact magnitude and receptor sensitivities- to justify a non-significant effect)
Substantial		Receptor perception = Disruptive Causes material change in behaviour and /or attitude, e.g., avoiding certain activities during periods of intrusion. Potential for sleep disturbance resulting in getting to sleep, premature awakening, and difficulty in getting back to sleep. Quality of life diminished due to change in character of area.	More Likely to be Significant
Severe		Receptor Perception = Physically Harmful Significant Changes in behaviour and/or an inability to mitigate effect of noise leading to psychological stress or psychological effects, e.g., regular sleep deprivation / awakening; loss of appetite, significant, medically definable harm, e.g., auditory and non-auditory.	Significant

## RECEIVING ENVIRONMENT

### Survey Methodology

- 10.66 An environmental noise survey was completed to establish the prevailing noise levels in the vicinity of the nearest noise sensitive receptors to the site and associated haul routes.
- 10.67 The survey was conducted by SLR Consulting Personnel in accordance with the procedures outlined in ISO 1996-2:2017 *Acoustics — Description, measurement and assessment of environmental noise - Determination of sound pressure levels*.
- 10.68 The noise monitoring locations selected for the purposes of the baseline noise survey are shown in Figure 10-1 and comprise the following:
- N01 is located adjacent the nearest dwelling north of the site, the microphone was installed at a position equal distance to the road as the façade of the dwelling;
  - N02 at the entrance laneway of the nearest dwelling located to the southeast of the site on the L1157 (Breagura Road);
  - N03 adjacent to the nearest dwelling immediately west of the site, the microphone was installed at a position equal distance to the road as the façade of the dwelling

- N04 is located along the Breagura Road, the position is representative of prevailing noise levels at NSRs located to the east of the site, in close proximity to the M11 Motorway and along the proposed haul route to and from the application site.
- 10.69 All measurements were completed using a Class 1 Sound Level Meter (Larson Davis 831 SLM). The sound level meter was calibrated before and after the survey. The calibration deviation was determined to fall within the acceptable range based on the meter specification (+/- 0.8 dB in this instance). The sound level meter was calibrated to traceable standard by a UKAS (United Kingdom Accreditation Service) accredited laboratory within 12 months preceding the measurement.
- 10.70 Measurements were completed at four measurement positions between the hours of 09:41 and 13:38 hrs on Thursday, 20<sup>th</sup> June 2024. Measurement periods were 15 minutes with a total of three rounds of monitoring completed at each location on a cyclical basis.
- 10.71 In addition to subjective observations on key sources contributing to the prevailing noise climate, the following noise level indices were recorded:
- $L_{Aeq,T}$  - The A-weighted equivalent continuous noise level over the measurement period, and effectively represents an “average” value.
  - $L_{AFMax,T}$  - The maximum RMS A-weighted sound pressure level occurring within a specified time period. Measured using the “Fast” time weighting.
  - $L_{AFMin,T}$  - The minimum RMS A-weighted sound pressure level occurring within a specified time period. Measured using the “Fast” time weighting.
  - $L_{A10,T}$  - The A-weighted noise level exceeded for 10% of the measurement period. This parameter is often used to describe intermittent noise sources such as road traffic.
  - $L_{A90,T}$  - The A-weighted noise level exceeded for 90% of the measurement period. This parameter is often used to describe the background noise.
- 10.72 The weather conditions were generally conducive to environmental noise surveys with light to gentle south-westerly breeze (<4 m/s) present. External ambient air temperature of ~ 18°C was observed.
- 10.73 All measurements were completed under free-field conditions (i.e., at least 3.5 m from the nearest vertical reflecting surface, with the microphone approximately 1.5 m above ground level).
- 10.74 All noise levels are recorded in ‘A-weighted’ decibels, dB(A). A-weighting is the process by which noise levels are corrected to account for the non-linear frequency response of the human ear. All noise levels are quoted in dB(A) relative to a sound pressure of 20 Pa.
- 10.75 Additional reference has been made to a series of attended noise measurements completed by SLR Consulting at position along the L1157 road on Monday 17<sup>th</sup> May and Tuesday 18<sup>th</sup> May 2021.

## Survey Results

- 10.76 Noise monitoring results for the baseline survey on are provided in Table 10-9 overleaf.

**Table 10-9**  
**Baseline Measured Noise Levels 2024 Survey**

Location	Time	Free Field Sound Pressure Levels (dB 2x10 <sup>-5</sup> Pa)				
		L <sub>Aeq</sub>	L <sub>AFMax</sub>	L <sub>AFMin</sub>	L <sub>A10</sub>	L <sub>A90</sub>
N01	10:40 - 11:10	55	78	47	56	48
	12:02 - 12:33	55	72	47	55	48
	13:23 - 13:53	55	74	43	56	47
N02	10:03 - 10:33	52	77	37	51	42
	11:20 - 11:50	48	81	20	41	27
	12:44 - 13:14	41	68	19	40	31
N03	09:41 - 10:11	50	72	31	48	34
	10:59 - 11:29	57	75	29	59	33
	12:23 - 12:54	52	72	30	53	32
N04	10:22 - 10:52	53	76	29	50	34
	11:43 - 12:13	51	81	29	49	31
	13:04 - 13:34	49	73	30	49	33

10.78 The following observations are made in respect of the baseline noise monitoring undertaken around the application site in June 2024:

- The dominant intermittent noise at position N01 was road traffic on the adjacent L1113 Local Road (Coolbeg Road). Background noise levels were influenced primarily by noise from the adjacent stream culvert.
- The dominant intermittent noise at position N02 was road traffic on the L1157 Local Road (Breagura Road). Background noise levels were influenced by distance road traffic from the M11 Motorway to the east. A tractor was operating in a field nearby during the first measurement period, influencing both the measured L<sub>Aeq</sub> and L<sub>A90</sub> values.
- Measured baseline noise levels at N03 were mainly dominated by road traffic noise on the adjoining local road, natural noises were audible when traffic abated.
- Measured baseline noise levels at N04 were mainly dominated by road traffic noise on the adjacent local road. Background noise levels were influenced by more distant road traffic along the M11 Motorway.

10.79 The results of the survey have been summarised in Table 10-10 overleaf.

**Table 10-10**  
**Summary of Measured Noise Levels 2024**

Monitoring Location	Average Free Field Sound Pressure Levels (dB 2x10 <sup>-5</sup> Pa)		
	L <sub>Aeq,T</sub>	L <sub>Aeq,T</sub> Rounded to nearest 5 dB as per BS5228	L <sub>A90</sub> <sup>1</sup> for NG4
N01	55	55	47
N02	49	50	33
N03	54	55	33
N04	51	50	33

10.80 For ease of reference the measured baseline noise levels measured across the local road network during the 2021 survey, identified as R1 to R7, are presented in Table 10-11 below. The corresponding noise survey locations are shown in Figure 10-2.

**Table 10-11**  
**Baseline Measured Noise Levels 2021 Survey**

Location	Date	Time	Free Field Sound Pressure Levels (dB 2x10 <sup>-5</sup> Pa)			
			L <sub>Aeq,T</sub>	L <sub>AMax</sub>	L <sub>A10</sub>	L <sub>A90</sub>
R1_2021	17/05/2021	08:29-08:59	65	90	58	39
	17/05/2021	12:35-13:05	65	90	59	39
	17/05/2021	17:00-17:30	65	88	60	41
R2_2021	17/05/2021	13:08-13:38	65	86	65	54
	17/05/2021	07:55-08:25	64	89	65	54
	18/05/2021	09:04-09:34	64	89	64	52
R3_2021	17/05/2021	09:37-10:07	56	78	54	45
	17/05/2021	13:41-14:11	53	75	53	44
	18/05/2021	08:29-08:59	56	78	57	48
R4_2021	17/05/2021	10:21-10:51	59	84	57	46
	17/05/2021	14:14-14:44	61	86	58	47
	18/05/2021	09:03-09:33	57	81	56	47

<sup>1</sup> Arithmetically averaged as per NG4 requirements



Location	Date	Time	Free Field Sound Pressure Levels (dB 2x10 <sup>-5</sup> Pa)			
			L <sub>Aeq,T</sub>	L <sub>AMax</sub>	L <sub>A10</sub>	L <sub>A90</sub>
R5_2021	17/05/2021	10:54-11:24	60	81	64	45
	17/05/2021	14:47-15:17	59	76	63	44
	18/05/2021	09:36-10:06	59	78	64	42
R6_2021	17/05/2021	11:28-11:58	63	81	65	45
	17/05/2021	15:30-1600	67	91	69	45
	18/05/2021	10:10-10:40	65	84	65	42
R7_2021	17/05/2021	07:54-08:24	57	80	57	39
	17/05/2021	12:01-12:31	58	81	56	37
	17/05/2021	16:27-16:57	61	82	57	41

10.81 The 2021 survey notes indicate that the noise climate at all monitored locations was dominated, as would be expected, by road traffic noise on the surrounding road network.

## Clarification of Assessment Criteria

### Construction Stage Noise Limits

- 10.82 The hours of construction for the proposed development will be limited to the daytime period, Monday to Friday from 07:00 to 18.00 hrs, with no works on weekends or public holidays.
- 10.83 The applicable construction noise limits based on the prevailing noise climate and BS5228-1 thresholds have been summarised in Table 10-12 below.

**Table 10-12**  
**Applicable Construction Noise Limits**

Monitoring Location	Baseline Noise Level (L <sub>Aeq</sub> , dB), rounded to nearest 5 dB	BS5228-1:2009 +A1:2014 ABC Method Category	Applicable Noise Threshold (L <sub>Aeq,T</sub> )
N01	55	A	65
N02	50	A	65
N03	55	A	65
N04	50	A	65

- 10.84 Whilst low background noise levels have been identified as present during the daytime period, the expected duration of the proposed construction works is such that a lower threshold value should not be required to prevent excessive impacts arising at the nearest noise sensitive locations.

## Operational Stage Noise Limits

- 10.85 The prevailing noise levels in the vicinity of the nearest noise sensitive locations range between 49 and 55 dB  $L_{Aeq,T}$  and 33 to 47 dB  $L_{A90,T}$ . Intermittent road traffic on the surrounding roads is the dominant influence in all instances.

- 10.86 The extant planning permission for the site outlines the following condition in respect of operational noise:

*Equivalent sound levels attributable to all onsite operations associated with the development shall not exceed 55 dBA  $L_{eq}$  over a continuous one hour period between 0800 hours and 1800 hours on Monday to Friday inclusive, and 0800 hours and 1300 hours Saturday, when measured at any noise sensitive receptor. Sound levels shall not exceed 45 dBA over a continuous one hour period at any other time.*

*Reason: in the interest of residential amenity*

- 10.87 It is noted that measured background noise levels at three of the baseline survey locations are below the EPA NG4 “low background noise” criteria of  $\leq 40$  dB  $L_{A90}$ .
- 10.88 It is important to note that the “low background noise” criteria outlined in NG4 guidelines apply if measured noise levels during the day, evening and night period ALL fall below the relevant thresholds.
- 10.89 The intention of the NG4 “low background noise” criteria is to provide additional protection to noise sensitive locations in the vicinity of sites that would be required to operate on a continuous basis, such as pharmaceutical, food processing or manufacturing plants, where noise would be generated to varying degrees over all time periods.
- 10.90 In the case of the proposed development at Ballinclare Quarry, all noise generating activities and mechanical plant use will be restricted entirely to daytime periods. Noise impacts will not arise outside of normal permitted daytime operational periods.
- 10.91 The potential noise generating properties of the proposed mechanical plant items and waste management activities proposed are also nearly identical to those previously employed at the site when it previously operated as a quarry.
- 10.92 In light of the above, and having regard to the historical land use and the extant permission for the site, it is proposed that a threshold of 50 dB  $L_{AR,T}$  for on-site specific noise be applicable at noise sensitive locations in the vicinity of the application site. This threshold is deemed to offer sufficient protection to surrounding noise sensitive receptors.
- 10.93 In addition to the overall site-specific noise threshold, the presence of either tonal or impulsive characteristics would, if present, incur an additional rating of 5 dB on measured noise levels. Tonal and impulsive noise will be measured and assessed in accordance with the relevant procedures outlined in the EPA’s NG4 guidance.

## ASSESSMENT OF LIKELY SIGNIFICANT EFFECTS

### Do-nothing Scenario

- 10.94 At present, the prevailing noise climate is influenced predominantly by intermittent road traffic along the local road network and agricultural activity on adjacent landholdings.

- 10.95 Over time, changes in the prevailing noise levels would be impacted by variations in road traffic volumes as well as changes in the land use of the adjacent sites. Whilst it is expected that road traffic volumes would gradually increase, it would be difficult to assume whether the adjacent landholdings would remain in dairy and beef farming activities. Overall, it would be expected that prevailing noise levels would remain generally similar in the short-to-medium term.

## Potential Impacts During Construction Stage

- 10.96 A limited period of construction is expected to facilitate construction and /or installation of the additional site infrastructure required to service the proposed development. Key works will include the construction and installation of:
- the new industrial shed (portal frame structure) at the paved area to the west of the existing access road which will house crushing and screening equipment and process / recover / recycle inert C&D wastes;
  - the soil recycling plant at the former concrete / asphalt yard which will produce construction grade sand and gravel aggregate from imported excess soil and stone;
  - the new weighbridge along the inbound lane of the quarry access road; and
  - the additional wheelwash facility on the eastern side of the former concrete / asphalt yard.
- 10.97 The decommissioning of the existing quarrying and asphalt production plant will also be required and is expected to occur over a slightly more extended period.
- 10.98 A range of construction plant items will be required to facilitate the construction of the new site infrastructure, these shall include:
- 13 to 20 tonne excavator with digging bucket and breaker;
  - Dumper truck for removal of topsoil;
  - Loader for backfilling aggregate;
  - Hand tools (angle grinder, nail gun, circular saw) for construction and installation of formwork and cutting rebar for foundation and ramps;
  - Concrete truck for installation of foundation and retaining walls for weighbridge;
  - Petrol poker for settling concrete in formwork; and,
  - Mobile crane for lifting and installation of weigh bridge and wheelwash;
- 10.99 Construction noise calculations have been conducted generally in accordance with British Standard BS5228-1:2009+A1:2014.
- 10.100 At the present time, a construction programme including specific plant items is not available and predictions of construction related noise cannot be completed without introducing a degree of uncertainty.
- 10.101 The proposed construction works would be completed in a number of phases, however. It is expected that the works would likely be completed consecutively without any overlap period due to the likelihood of the same machinery being required for each phase of work.
- 10.102 It is possible to reduce this uncertainty somewhat by presenting assessing worst-case noise levels using empirical source data set out in BS5228-1:2009+A1:2014 guidance.
- 10.103 Table 10-13 outlines source noise data based on the list of plant items listed in Para 10.97 above.

**Table 10-13**  
**Source Data for Construction Stage Assessment**

Phase	Source	BS5528 Ref	Noise Level at 10 m (dB L <sub>Aeq,1hr</sub> )	Qty	20LogN Corr.	Activity as % of 12 hr	Corr. to L <sub>Aeq,12hr</sub>	Activity L <sub>Aeq,12hr</sub>	Phase Total L <sub>Aeq,12hr</sub>
Erection of C+D Recycling Shed Superstructure	Teleporter (60 kW/10 t)	C.2.35	71	1	0	67	-2	69	79
	Wheeled mobile crane (lifting) (275 kW/35 t)	C.4.43	70	1	0	67	-2	68	
	Wheeled mobile crane (idling) (275 kW/35 t)	C.4.44	60	1	0	67	-2	58	
	Angle grinder (grinding steel) (2.3 kW)	C.4.93	80	1	0	67	-2	78	
	Miscellaneous Hand Tools	Other	59	1	0	67	-2	57	
Site Preparation / Constructed Wetlands	Tracked excavator (170 kW/30 t)	C.2.16	75	1	0	67	-2	73	87
	Articulated dump truck (tipping fill) (187 kW/23 t)	C.2.32	74	1	0	67	-2	72	
	Wheeled loader x (184 kW/23 t)	C.10.17	84	1	0	67	-2	82	
	Articulated dump truck x (239 kW/23 t)	C.10.19	87	1	0	67	-2	85	

Phase	Source	BS5528 Ref	Noise Level at 10 m (dB $L_{Aeq,1hr}$ )	Qty	20LogN Corr.	Activity as % of 12 hr	Corr. to $L_{Aeq,12hr}$	Activity $L_{Aeq,12hr}$	Phase Total $L_{Aeq,12hr}$
Weighbridge and Wheelwash	Teleporter (60 kW/10 t)	C.2.35	71	1	0	67	-2	69	79
	Wheeled mobile crane (70 t)	C.3.30	70	1	0	67	-2	68	
	Lorry movements on access road (350 kW/36 t)	C.11.5	80	1	0	67	-2	78	
	Miscellaneous Hand Tools	Other	59	1	0	67	-2	57	

10.104 Predictions of construction related noise impacts have been made having regard to the following :

- the existing topography of the site and extant boundary berms provide some inherent acoustic screening. For the construction phase a screening correction of between -10 dB and -15 dB has been applied to noise sensitive receptors off-site;
- a correction of +3 dB has been applied to all predicted values to model reflections from the façade;
- no correction has been applied to receptor positions in conversation areas;
- all noise sources have been modelled at a height of 2 metres above ground; and
- propagation assumes 80% soft ground cover for all receptors.

10.105 The predicted noise levels for each of the nearest NSRs during the construction phase has been summarised in Table 10-14 below.

**Table 10-14**  
**Predicted Construction Stage Noise Levels**

Receptor Reference	Threshold Applicable (dB $L_{Aeq,12hour}$ )	Predicted Construction Noise Level					
		C+D Steel Shed Superstructure		Site Preparation / Wetland Construction		Weighbridge and Wheelwash Construction	
		Distance	dB $L_{Aeq,12hour}$	Distance	dB $L_{Aeq,12hour}$	Distance	dB $L_{Aeq,12hour}$
R1	65	440	44	115	64	570	42
R2	65	530	43	180	60	650	41
R3	65	615	41	290	56	740	40
R4	65	610	36	290	51	680	35
R5	65	540	37	320	50	600	37
R6	65	490	38	350	49	520	38
R7	65	470	39	570	45	450	39
R8	65	580	37	950	41	530	38
R9	65	720	40	385	54	850	38
R10	65	750	40	380	54	870	38
R11	65	750	40	430	53	890	38
R12	65	720	40	425	53	850	38
R13	65	720	40	460	52	850	38

Receptor Reference	Threshold Applicable (dB $L_{Aeq,12hour}$ )	Predicted Construction Noise Level					
		C+D Steel Shed Superstructure		Site Preparation / Wetland Construction		Weighbridge and Wheelwash Construction	
		Distance	dB $L_{Aeq,12hour}$	Distance	dB $L_{Aeq,12hour}$	Distance	dB $L_{Aeq,12hour}$
R14	65	620	36	730	43	590	37
R15	65	840	34	1200	39	780	34
SAC (RE1)	NA	1600	30	1600	36	1600	28
pNHA (RE2)	NA	1100	33	1100	39	1100	31

- 10.106 The predicted construction noise levels as presented in Table 10-14 demonstrate that construction noise levels will fall below the adopted threshold of 65 dB  $L_{Aeq,12hr}$  at the nearest noise sensitive locations. Construction noise would therefore be considered to give rise to temporary slight to moderate impacts.
- 10.107 Notwithstanding the findings of the construction phase noise impact assessment, best practice construction noise and vibration management practice should be adhered to and implemented as a matter of course. Further details in respect of these practices are presented and discussed later in this Chapter (Paras 10.135 to 10.154)
- 10.108 The predicted construction noise levels at the nearest nature conservation area (Deputy's Pass SAC and Glenealy Woods pNHA) are expected to fall in the region of 28 to 31 dB  $L_{Aeq,1hr}$ . It should however be noted that noise levels predicted in accordance with BS5528-1 calculation methods introduce some uncertainty at distances greater than 300m due to the impact of meteorological conditions on attenuation.
- 10.109 The predicted values are also presented in terms of the  $L_{Aeq,T}$  rather than the maximum noise ( $L_{Amax(F)}$ ) parameter which is more representative of discrete or impulsive noise events. It would be expected that maximum noise ( $L_{Amax(F)}$ ) levels could be of the order of 15 to 20 dB higher than the equivalent  $L_{Aeq,T}$  values due to the intermittent nature of some of the noise sources. As such, the resultant calculated maximum noise levels in the vicinity of nature conservation areas would be of the order of 43 to 51dB  $L_{Amax(F)}$ .

## Potential Impacts During Operational Stage

- 10.110 The primary sources of noise during the operational phase of the proposed development will include handling and movement of waste and non-waste by-product materials within the application site, the operation of the soil recycling plant, crushing and screening of C&D waste and backfilling / restoration of the former quarry.
- 10.111 The soil washing plant shall comprise a loading hopper, a number of soil screens in series with connecting conveyor systems, a primary wastewater treatment tank (thickener), a buffer tank holding sludge and recycled water, an elevated plate press and filter cake discharge area.
- 10.112 The waste recovery shed will house additional crushing and screening equipment for the purpose of processing inert C&D waste (principally solid / reinforced concrete, bricks, ceramics and solid bituminous waste mixtures).



- 10.113 Backfilling of the quarry will primarily entail the use of bulldozers, wheeled loaders and dumper trucks.
- 10.114 In all instances, mobile noise sources in the form of vehicular movement from incoming and outgoing dumper trucks as well as handling of materials with wheeled loaders and excavators are expected to be intermittently present across the site.
- 10.115 Table 10-15 outlines source data based on the list of plant items identified above.

**Table 10-15**  
**Source Data for Operational Phase Assessment**

Phase	Source	BS5528 Ref	Noise Level at 10 m (dB $L_{Aeq,1hr}$ )	Qty	20LogN Corr.	Activity On Time %	Corr. to $L_{Aeq,1hr}$	Activity $L_{Aeq,1hr}$	Total $L_{Aeq,1hr}$
C+D Recycling Shed	Semi-mobile screen/stockpiler, Screen stockpiler (56 kW/15 t)	C.10.14	81	1	0	67	-2	79	86
	Crushing concrete/rubble, Tracked crusher (172 kW/47 t)	C.1.14	82	1	0	67	-2	80	
	Transport of material, Wheeled loader ж (184 kW/23 t)	C.10.17	84	1	0	67	-2	82	
	Ground excavation/earthworks, Tracked excavator (107 kW/22 t)	C.2.21	71	1	0	67	-2	69	
C+D Handling in Yard	Transport of material, Articulated dump truck ж (239 kW/23 t)	C.10.19	87	1	0	67	-2	85	88
	Transport of material, Wheeled loader ж (184 kW/23 t)	C.10.17	84	1	0	67	-2	82	
	Lorry movements on access road, Lorry ж (350 kW/36 t)	C.11.5	80	1	0	67	-2	78	
	Distribution of material, Articulated dump truck (tipping fill) (187 kW/23 t)	C.2.32	74	1	0	67	-2	72	

Phase	Source	BS5528 Ref	Noise Level at 10 m (dB L <sub>Aeq,1hr</sub> )	Qty	20LogN Corr.	Activity On Time %	Corr. to L <sub>Aeq,1hr</sub>	Activity L <sub>Aeq,1hr</sub>	Total L <sub>Aeq,1hr</sub>
Soil Washing Plant	Field conveyor system, Conveyor drive unit (37 kW)	C.10.21	76	1	0	67	-2	74	85
	Semi-mobile screen/stockpiler, Screen stockpiler (56 kW/15 t)	C.10.14	81	1	0	67	-2	79	
	Field conveyor system, Feed hopper conveyor drive unit (6 kW)	C.10.22	69	1	0	67	-2	67	
	Transport of material, Wheeled loader ж (184 kW/23 t)	C.10.17	84	1	0	67	-2	82	
	Ground excavation/earthworks, Tracked excavator (107 kW/22 t)	C.2.21	71	1	0	67	-2	69	
Waste Deposition (all phases)	Transport of material, Wheeled loader ж (184 kW/23 t)	C.10.17	84	1	0	67	-2	82	87
	Ground excavation/earthworks, Tracked excavator (107 kW/22 t)	C.2.21	71	1	0	67	-2	69	
	Earthworks, Bulldozer ж (250 kW/35 t)	C.5.14	86	1	0	67	-2	84	
	Dumping brick rubble, Articulated dump truck (dumping rubble) (250 kW/28 t)	C.1.11	80	1	0	67	-2	78	

- 10.116 Although the C+D processing / crushing activities are to be located within a covered shed, it has been conservatively been assumed for assessment purposes that the shed doors will be open on two sides during processing. As such, no further correction has been applied to take account of potential sound insulation offered by the building fabric.
- 10.117 Predictions of operational related noise impacts have been made having regard to the following :
- the existing topography of the site and extant boundary berms provides some inherent acoustic screen. For the operational phase, a screening correction of between -10 dB and -15 dB has been applied to noise sensitive receptors off-site;
  - a correction of +3 dB has been applied to all predicted values to determine reflections from the façade;
  - no correction has been applied to receptor positions in the conversation areas;
  - all sources have been modelled at a height of 2 metres above ground; and,
  - propagation assumes 80% soft ground cover for all receptors.
- 10.118 The predicted noise levels for each of the nearest NSRs during the operational phase has been summarised in Table 10-16 below.

**Table 10-16**  
**Predicted Operational Stage Noise Levels from Individual Activities**

Receptor	Threshold (dB L <sub>Aeq,T</sub> )	Predicted Noise Level (dB L <sub>Aeq,1hour</sub> )					
		Waste Deposition P1	Waste Deposition P2	Waste Deposition P3	C+D Crushing	C+D Handling	Soil Washing
R1	50	46	42	42	46	44	41
R2	50	44	41	41	44	42	40
R3	50	43	40	40	43	41	39
R4	50	47	43	41	43	41	39
R5	50	44	41	37	39	37	35
R6	50	47	43	39	40	38	36
R7	50	47	46	44	40	37	39
R8	50	44	41	37	38	36	41
R9	50	42	40	39	41	39	38
R10	50	42	40	39	41	39	38
R11	50	42	40	39	41	39	38
R12	50	42	40	39	41	39	38

Receptor	Threshold (dB L <sub>Aeq,T</sub> )	Predicted Noise Level (dB L <sub>Aeq,1hour</sub> )					
		Waste Deposition P1	Waste Deposition P2	Waste Deposition P3	C+D Crushing	C+D Handling	Soil Washing
R13	50	42	40	39	41	39	38
R14	50	47	47	46	43	40	42
R15	50	45	43	40	40	37	42
SAC(RE1)	NA	34	34	34	34	31	33
pNHA(RE2)	NA	38	38	38	37	35	36

10.119 It is noted that in many instances, the individual activities modelled in Table 10-16 would be occurring simultaneously across the application site and that only the waste deposition activities at the quarry void would be completed on a phased basis. The predicted worst case operational noise levels have therefore been presented in Table 10-17 below.

**Table 10-17**  
**Predicted Operational Noise Levels**

Receptor Reference	Applicable Daytime Operational Threshold (dB L <sub>Aeq,T</sub> )	Predicted Operational Noise Levels (dB L <sub>Aeq,1hr</sub> )		
		Phase 1 Backfilling with all C+D and Soil Washing	Phase 2 Backfilling with all C+D and Soil Washing	Phase 3 Backfilling with all C+D and Soil Washing
R1	50	50	49	49
R2	50	48	47	47
R3	50	47	46	46
R4	50	49	47	46
R5	50	46	44	42
R6	50	48	45	43
R7	50	48	47	46
R8	50	47	45	44
R9	50	45	45	44
R10	50	45	44	44

Receptor Reference	Applicable Daytime Operational Threshold (dB $L_{Aeq,T}$ )	Predicted Operational Noise Levels (dB $L_{Aeq,1hr}$ )		
		Phase 1 Backfilling with all C+D and Soil Washing	Phase 2 Backfilling with all C+D and Soil Washing	Phase 3 Backfilling with all C+D and Soil Washing
R11	50	45	44	44
R12	50	45	45	44
R13	50	45	45	44
R14	50	49	49	49
R15	50	47	46	46
SAC (RE1)	50	39	39	39
pNHA (RE2)	50	42	42	42

10.120 The predicted noise levels presented in Table 10-17 indicate that even under worst case operational conditions, the relevant operational noise threshold of 50 dB  $L_{Aeq,T}$  would be achievable subject to the adherence to best practice noise management practices outlined later in this Chapter (in Paras 135 to 154)

## Additional Traffic on Public Roads

- 10.121 In addition to site-based construction and operational noise, the potential impact of additional development generated traffic on the local road network needs to be assessed.
- 10.122 Typically, an increase of 25% in road traffic volumes would be required to give rise to a 1dB increase in road traffic noise levels. Due to the nature of the proposed operations, whilst the proposed development will not give rise to a 25% increase in overall AADT levels, the additional HGV traffic would represent a potentially significant increase in road traffic volumes of the order of 40%.
- 10.123 Due to the fact that approximately 94% of the additional road traffic generated by the proposed development will be HGVs, it is more appropriate to consider the potential noise generated during peak hours from HGVs.
- 10.124 The noise level associated with a discrete noise event, such as a passing vehicle movement, may be expressed in terms of its Sound Exposure Level ( $L_{AX}$ ). The Sound Exposure Level can be used to calculate the contribution of a series of events to the overall noise level in a given period based on the following formula:

$$L_{Aeq,T} = L_{AX} + 10\log_{10}(N) - 10\log_{10}(T) + 20\log_{10}(r_1/r_2) \text{ dB}$$

where

- $L_{Aeq,T}$  is the equivalent continuous sound level over the time period T (in seconds);
- $L_{AX}$  is the “A-weighted” Sound Exposure Level of the event considered (dB);
- N is the number of events over the course of time period T;
- $r_1$  is the distance at which the  $L_{AX}$  value has been measured; and,
- $r_2$  is the distance to the assessment location.

- 10.125 Typical Sound Exposure Level values for HGVs travelling at low speeds (i.e. 15 to 45 kmph) would be of the order of 82 dB L<sub>AX</sub> at 5 metres from the vehicle. For light vehicles travelling at similar speeds, the value would be of the order 67 dB L<sub>AX</sub> at 5 metres from the vehicle. These figures are based a series of controlled measurements completed on vehicles in good repair travelling on a well surfaced tarmac road. An arbitrary correction of +3 dB would be appropriate to reflect similar vehicle movement at moderately higher speed of 80 kmph as is currently permitted along the L1157 / Breagura Road.
- 10.126 It is understood that when operating at maximum capacity, hourly HGV traffic movements for the proposed development would average out at approximately 30 per hour (equivalent to 15 trips per hour). It is expected that staff and other LGV movement would likely occur earlier and later than the expected peak for HGV movements to and from the application site.
- 10.127 The predicted road traffic noise level arising from increased HGV traffic levels at the nearest noise sensitive locations along the L1157 / Breagura Road is presented in Table 10-18 below.

**Table 10-18**  
**Predicted Noise Level Associated with Peak Hourly HGV Along L1157**

Receptor	Distance to Haul Route	Screening	Predicted Noise Level	Proxy for Prevailing Noise Levels	Prevailing Noise Levels	Cumulative Noise	Change	DMRB Impact Rating
R24	18	-5	46	N4	51	53	+ 2	Minor
R25	20	-5	45	N4	51	53	+ 1	Minor
R26	5	-5	57	N4	51	60	+ 9	Major
R38	10	--	56	R3_2021	56	60	+ 4	Moderate
R39	45	--	43	R3_2021	56	56	--	No Change
R44	10	-5	51	R4_2021	59	60	+ 1	Minor
J18 Café	5	-5	57	R5_2021	60	63	+ 3	Moderate
R45	8	--	58	R5_2021	60	63	+ 3	Moderate
R46	10	--	56	R5_2021	60	62	+ 2a	Minor

- 10.128 In terms of potential impact, making reference to the DMRB impact assessment rating, the road traffic noise level arising from hourly HGV movements arising when the proposed development is operating at maximum capacity would be considered as minor to major for receptors located along the L1157 Breagura Road.
- 10.129 It is important to note that two of the noise sensitive receptors with the greater potential impact, properties R26 and R45, are owned by the Applicant. In order to reflect potentially reduced sensitivity of any residents of these dwellings to noise generated from the site, it is reasonable to adopt some leniency in impact ratings and thresholds.

10.130 Additional mitigation measures will be required to reduce potential impact of noise on these receptors. Suitable mitigation measures are outlined in Paras 135 to 154 of this Chapter.

## Cumulative Impacts

- 10.131 In essence, cumulative impacts are those which result from incremental changes caused by other past, present, or reasonably foreseeable future development or activities, together with those generated by the proposed development. The potential impacts of the proposed development cannot be considered in isolation but must be considered in addition to impacts already arising from existing or planned development.
- 10.132 A planning search undertaken to determine if there were any other planned developments in the vicinity of the application site did not identify any other potentially significant source of noise or ground-borne vibration, either approved or planned within 2km of the application site. As a result, no potential for significant cumulative noise related impact has been identified. The cumulative impact of the proposed development on local noise and vibration levels is therefore assessed as insignificant.
- 10.133 To identify the potential impact of ongoing, continuous site activities, the predicted specific noise levels have been logarithmically added to existing ambient noise levels. The cumulative levels have been compared to the existing ambient noise levels at each of the noise sensitive locations for each time-period. The cumulative assessment is presented in Table 10-19 below.

**Table 10-19**  
**Cumulative Operational Noise Levels**

Receptor	Proxy Baseline Survey Location	Sound Pressure Level ( $L_{Aeq,T}$ dB RE $2 \times 10^{-5}$ Pa)			Difference	IEMA Long Term Impact Rating
		Existing Noise Levels	Maximum Operational Noise Level	Cumulative		
R1	N1	55	50	56	+ 1	Negligible
R2	N1	55	48	56	+ 1	Negligible
R3	N1	55	47	56	+ 1	Negligible
R4	N1	55	49	56	+ 1	Negligible
R5	N1	55	46	56	+ 1	Negligible
R6	N1	55	48	56	+ 1	Negligible
R7	N1	55	48	56	+ 1	Negligible
R8	N1	55	47	56	+ 1	Negligible
R9	N1	55	45	55	+ 0	Negligible
R10	N1	55	45	55	+ 0	Negligible
R11	N1	55	45	55	+ 0	Negligible



Receptor	Proxy Baseline Survey Location	Sound Pressure Level ( $L_{Aeq,T}$ dB RE $2 \times 10^{-5}$ Pa)			Difference	IEMA Long Term Impact Rating
		Existing Noise Levels	Maximum Operational Noise Level	Cumulative		
R12	N2	49	45	51	+ 2	Negligible
R13	N2	49	45	51	+ 2	Negligible
R14	N4	51	49	53	+ 2	Negligible
R15	N4	51	47	53	+ 1	Negligible

10.134 With reference to the Guidelines for Noise Impact Assessment published by the Institute of Environmental Management and Assessment (IEMA) and based on the prevailing noise levels measured during the baseline noise survey, the cumulative medium-term noise impact from the proposed development, once it is established, will be negligible.

## MITIGATION

10.135 Where necessary, the three established strategies for impact mitigation are avoidance, reduction, and remedy. Where it is not possible or practical to mitigate all impacts, then the residual impacts must be clearly described in accordance with the system for impact description set out in the EPA Guidelines.

## Construction Phase

10.136 This noise impact assessment has indicated that worst-case construction noise levels will fall within the applicable construction noise threshold limit (65dBA) at nearby NSRs.

10.137 Notwithstanding this, the Applicant intends to implement best practice construction noise and vibration management techniques throughout the construction phase in order to further reduce the noise and vibration impact to nearby noise sensitive receptors.

## Construction Noise and Vibration Management Plan

10.138 Prior to commencement of works, the Applicant (and any appointed Contractors) will compile and submit to Wicklow County Council a Construction Noise and Vibration Management Plan (NVMP). The plan shall:

- Outline management processes and mitigation measures to be utilised to remove or reduce significant noise impacts from the intended construction works;
- Define noise and vibration monitoring and reporting;
- Include method statements for each phase of the works including associated specific measures to minimise noise and vibration in so far as is reasonably practicable for the specific works covered by the plan and a detailed appraisal of the resultant construction noise and vibration generated.

10.139 The Applicant will also proactively engage with the local community and notify the public and potential noise / vibration sensitive premises before the commencement of any works which would be likely to generate any appreciable levels of noise or vibration, explaining the nature and duration of the works.

- 10.140 The Applicant will also distribute information circulars informing the local community of the progress of site-based construction works which will also highlight any likely periods of significant noise and vibration.
- 10.141 BS5228-1:2009+A1:2014 *Code of practice for noise and vibration control on construction and open sites – Noise* and BS5228-2:2009+A1:2014 *Code of practice for noise and vibration control on construction and open sites – Vibration* are the best practice standard for management of noise and vibration on construction sites and due regard will be had to these when planning and undertaking the construction phase works.
- 10.142 The standards include guidance on several aspects of construction site mitigation measures, including, but not limited to:
- Selection of quiet and or low vibration emitting plant;
  - Control of noise sources;
  - Screening;
  - Hours of work;
  - Liaison with the public; and
  - Monitoring.

## Operational Phase

- 10.143 The Applicant also intends to implement best practice construction noise and vibration management techniques throughout the operational phase of the proposed development to control, and where possible, further reduce the noise and vibration impact to nearby noise sensitive receptors.

## Mechanical Plant

- 10.144 All plant and equipment (both fixed and mobile) will be properly and regularly maintained and operated according to the manufacturers' recommendations, in such a manner as to avoid causing excessive noise.
- 10.145 All plant will be fitted with effective exhaust silencers which are maintained in good working order to meet manufacturers' noise rating levels. Any defective silencers will be replaced immediately.

## Vehicle Movement within Site Boundary

- 10.146 Access / internal haul roads will be kept clean and maintained in a good state of repair, specifically any uneven surfaces will be repaired, potholes filled, and large bumps removed to avoid unwanted rattle and "body-slap" from heavy goods vehicles.
- 10.147 All vehicles delivering and operating on the site will have white noise reversing alarms fitted.
- 10.148 Vehicles waiting within the application site will be prohibited from leaving their engines running and there will be no unnecessary revving of engines.
- 10.149 Care will be taken when unloading vehicles to reduce or minimise potential for noise disturbance to nearby residents.

## Vehicle Movements on Public Roads

- 10.150 HGVs / trucks accessing and egressing the proposed development will be required to adhere to a 60 kmph speed limit travelling along on the L1157 to ensure road traffic noise impacts at the nearest noise sensitive receptors are minimised. Details on the monitoring and enforcement of this requirement are presented in Chapter 14 of this EIAR (Traffic).

- 10.151 All HGVs / trucks travelling to and from the application site will be required to be kept and maintained in good working order.
- 10.152 Any deliveries to the proposed development site will be programmed to arrive during daytime hours only.

## Monitoring

- 10.153 The Applicant will undertake an annual compliance noise survey to establish operational noise emissions arising at the application site and demonstrate compliance with noise emission thresholds set by any grant of planning permission or waste licence issued by the EPA.
- 10.154 The survey shall be completed by a Competent Person in accordance with the EPA *Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities* (NG4) using a Class 1 Sound Level meter.

## RESIDUAL IMPACT ASSESSMENT

- 10.155 During the construction stage, under a worst-case scenario for noise generation, there is potential for moderate to significant temporary negative impacts.
- 10.156 The adoption and implementation of best practice Construction Noise Management practices should ensure residual impacts are minimised to the extent that construction noise should give rise to slight negative temporary impacts for the most part and moderate brief impacts on limited occasions.
- 10.157 During the operational phase, on-site activity arising from general recovery, recycling, soil washing, aggregate processing and landfilling activities has the potential to give rise to minor medium-term noise impacts.
- 10.158 Additional road traffic noise on public roads has the potential to give rise to minor to major noise impacts, depending on the proximity of the receptor location to the L1157 Local Road. Impacts for properties set back from the road are typically classified as minor.

### **FIGURES**

**Figure 10-1**  
**Noise Receptors and Monitoring Locations**

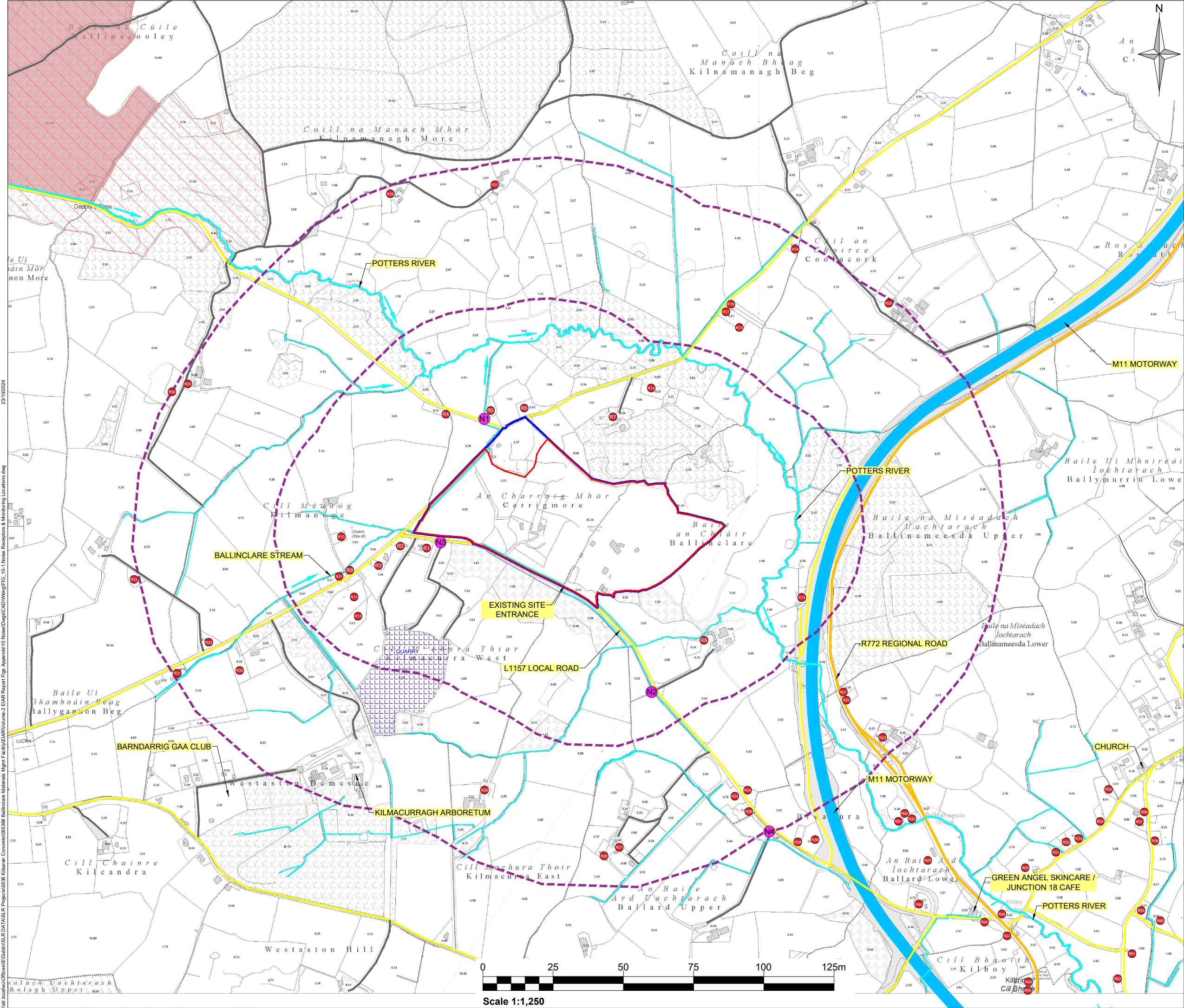
**Figure 10-2**  
**Noise Survey Monitoring Locations along Local Roads**





23/10/2024

\\slr-local\au\Offices\IE\Dublin\SLR Data\SLR Projects\0036 Kilnaran Concrete\065366 Ballinclare Materials Mgmt Facility\EIAR\Volume-2 EIAR Report Files\Appendix10 Noise\Receptors\10-1 Noise Receptors and Monitoring Locations.dwg



**Notes:**  
1. EXTRACT FROM ORDNANCE SURVEY 1:2,500 / 1:5,000 MAP SERIES: 4137-B & 4137-D.  
2. EXISTING SITE SURVEY (MAY 2016) PROVIDED BY KILSARAN CONCRETE.

**Legend:**  

LAND INTEREST BOUNDARY (c. 36.0 HA)

PLANNING APPLICATION AREA (c. 32.6 HA)

500m / 1km OFFSET FROM PLANNING APPLICATION AREA

N1

 NOISE MONITORING LOCATION

R7

 RESIDENTIAL RECEPTOR WITHIN 1KM OF PLANNING APPLICATION AREA

002274 - DEPUTY'S PASS NATURE RESERVE SAC

001756 - GLENEALY WOODS pNHA

R772 - REGIONAL ROAD

LOCAL ROAD NETWORK

ACCESS TRACKS

220kV ELECTRIC OVERHEAD LINE

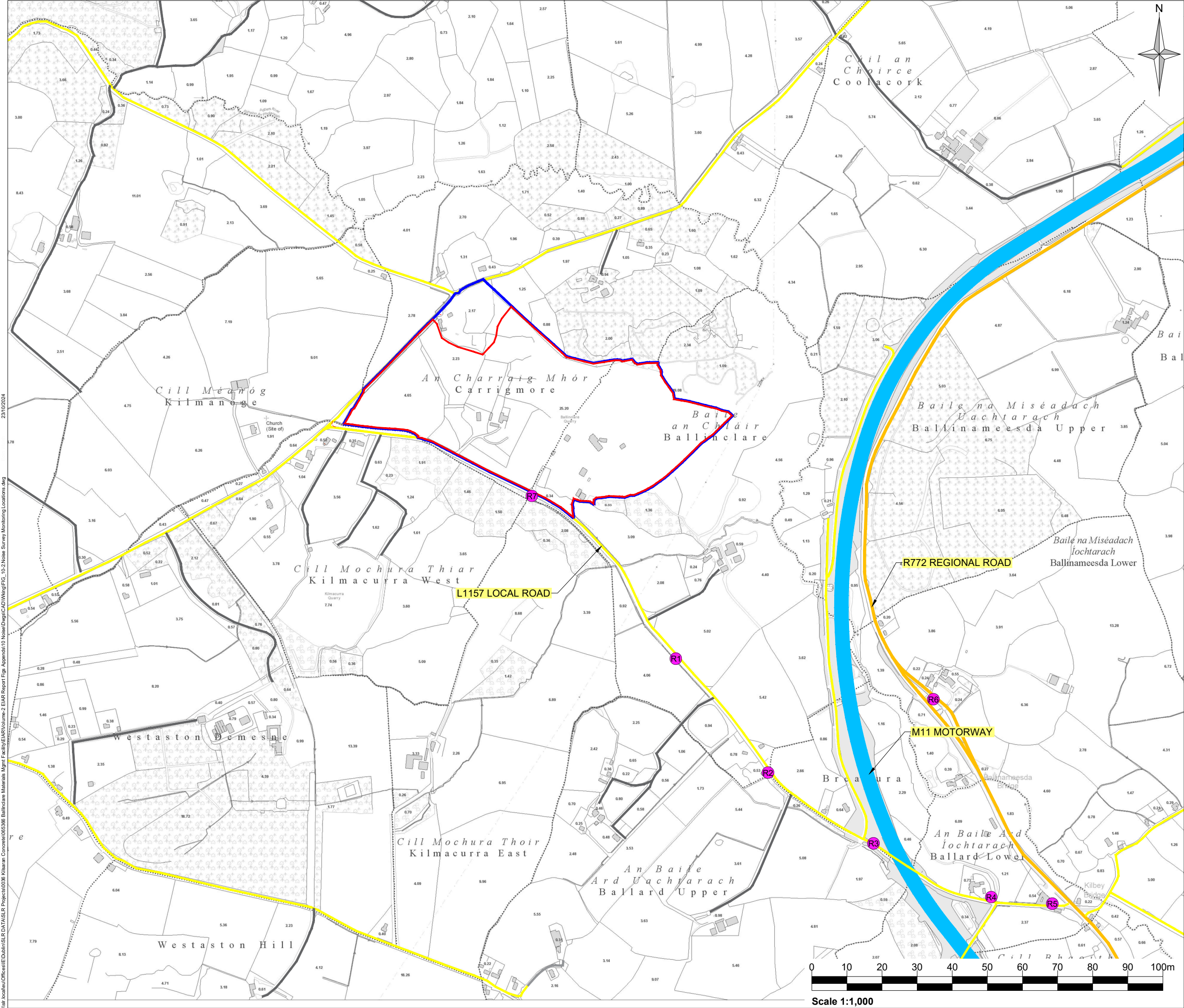
RIVER / STREAMS

Rev	Amendments	Date	By	Chk	Auth
<div> <b>SLR</b></div> <div><a href="http://www.slrconsulting.com">www.slrconsulting.com</a></div>					
Drawing Status & Suitability Code <b>FINAL</b>					
Client <b>KILSARAN CONCRETE</b> Ballinclare Quarry, Kilbride, Co. Wicklow.					
Project Environmental Impact Assessment Report Materials Recovery / Recycling Facility and Inert Landfill					
Drawing Title <b>NOISE RECEPTORS AND MONITORING LOCATIONS</b>					
Scale <b>1:1,250 @ A3</b>		SLR Project No. <b>065366.00001</b>			
Designed <b>EW</b>	Drawn <b>EW</b>	Checked <b>DL</b>	Authorised <b>DL</b>		
Date <b>10/24</b>	Date <b>10/24</b>	Date <b>10/24</b>	Date <b>10/24</b>		
Drawing Number <b>FIGURE 10-1</b>					Rev. <b>1</b>

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Notes:

1. EXTRACT FROM ORDNANCE SURVEY 1:2,500 / 1:5,000 MAP SERIES: 4137-B & 4137-D.

Legend:

LAND INTEREST BOUNDARY (c. 36.0 HA)

PLANNING APPLICATION AREA (c. 32.6 HA)

NOISE SURVEY MONITORING LOCATION

R772 - REGIONAL ROAD

LOCAL ROAD NETWORK

ACCESS TRACKS

Rev	Amendments	Date	By	Chk	Auth
<div><div><div></div><div>SLR</div></div><div>www.slrconsulting.com</div></div>					
Drawing Status & Suitability Code					
FINAL					
Client					
KILSARAN CONCRETE Ballinacree Quarry, Kilbride, Co. Wicklow.					
Project					
Environmental Impact Assessment Report Materials Recovery / Recycling Facility and Inert Landfill					
Drawing Title					
NOISE SURVEY MONITORING LOCATIONS					
Scale		@ A3		SLR Project No.	
1:1,000				065366.00001	
Designed	Drawn	Checked	Authorised		
EW	EW	DL	DL		
Date	Date	Date	Date		
10/24	10/24	10/24	10/24		
Drawing Number					Rev.
FIGURE 10-2					1



## **APPENDIX A**

### **Glossary of Terminology**



To assist the understanding of acoustic terminology and the relative change in noise, the following background information is provided.

The human ear can detect a very wide range of pressure fluctuations, which are perceived as sound. To express these fluctuations in a manageable way, a logarithmic scale called the decibel, or dB scale, is used. The decibel scale typically ranges from 0dB (the threshold of hearing) to over 120 dB. An indication of the range of sound levels commonly found in the environment is given in the following table.

**Table 10 A-1**  
**Noise Levels Commonly Found in the Environment**

Sound Level	Location
0dB(A)	Threshold of hearing
20 to 30dB(A)	Quiet bedroom at night
30 to 40dB(A)	Living room during the day
40 to 50dB(A)	Typical office
50 to 60dB(A)	Inside a car
60 to 70dB(A)	Typical high street
70 to 90dB(A)	Inside factory
100 to 110dB(A)	Burglar alarm at one metre away
110 to 130dB(A)	Jet aircraft on take off
140dB(A)	Threshold of Pain

**dB (decibel)** The scale on which sound pressure level is expressed. It is defined as 20 times the logarithm of the ratio between the root-mean-square pressure of the sound field and a reference pressure ( $2 \times 10^{-5}$  Pa).

**dB(A)** A-weighted decibel. This is a measure of the overall level of sound across the audible spectrum with a frequency weighting (i.e., 'A' weighting) to compensate for the varying sensitivity of the human ear to sound at different frequencies.

**$L_{Aeq}$**  is defined as the notional steady sound level which, over a stated period, would contain the same amount of acoustical energy as the A-weighted fluctuating sound measured over that period.

**$L_{10}$  &  $L_{90}$**  If a non-steady noise is to be described it is necessary to know both its level and the degree of fluctuation. The  $L_n$  indices are used for this purpose, and the term refers to the level exceeded for n% of the time. Hence,  $L_{10}$  is the level exceeded for 10% of the time and as such can be regarded as the 'average maximum level'. Similarly,  $L_{90}$  is the 'average minimum level' and is often used to describe the background noise. It is common practice to use the  $L_{10}$  index to describe traffic noise.

**$L_{Amax}$**  is the maximum A-weighted sound pressure level recorded over the period stated.  $L_{Amax}$  is sometimes used in assessing environmental noise where occasional loud noises occur, which may have little effect on the overall  $L_{Aeq}$  noise level but will still affect the noise environment. Unless described otherwise, it is measured using the 'fast' sound level meter response.