RECEIVED: 29/01/2026

CONTENTS

INTRODUCTION 1
Background 1
Methodology 1
Contributors / Author(s) 2
Sources of Information 2
POTENTIAL IMPACTS OF PROPOSED DEVELOPMENT 2
Study Area 2
Nearest Noise Sensitive Receptors 2
Potential Noise Impacts from Proposed Development 4
Potential Vibration Impacts from Proposed Development 4
Interaction with Other Impacts 5
PLANNING AND DEVELOPMENT FRAMEWORK 5
National Planning Framework – Project Ireland 2040 5
Local Planning Policy – Wexford County Development Plan 2022-2028 5
GUIDANCE DOCUMENTS AND ASSESSMENT CRITERIA 7
Noise Arising from On-site Operations 7
Noise Arising During the Construction Stage 8
Noise Arising from Vehicular Traffic on Public Roads 8
Quantifying Significance of Noise Impacts 9
RECEIVING ENVIRONMENT 10
Survey Methodology 10
Survey Results 11
ASSESSMENT OF LIKELY SIGNIFICANT EFFECTS 12
Do-nothing Scenario 12
Noise Impacts During Construction Stage (and Restoration Stage) 13
Noise Impacts During Operational Stage 16
Potential Noise Impacts Associated with Additional Road Traffic 20
Cumulative Impacts 21
MITIGATION 21
General Best Practice 21
Screening 21
Plant & Machinery 21
Vehicle Movement within Site Boundary 22

RECEIVED: 29/01/2026

RESIDUAL IMPACT ASSESSMENT **22**
NOISE MONITORING **22**

TABLES

Table 10-1 Sensitive Receptors Considered 2
Table 10-3 Applicable Construction Noise Thresholds (BS5228-1:2014+A1:2019) 8
Table 10-4 Likely Impacts Associated with Change in Traffic Noise Level (DMRB, 2011) 9
Table 10-5 Relationship between Noise Impact, Effect and Significance (IEMA) 9
Table 10-6 Summary of Measured Noise Levels 11
Table 10-7 Source Data for Construction Stage (and Restoration Stage) Assessment 14
Table 10-8 Predicted Construction Stage (and Restoration Stage) Noise Levels 15
Table 10-9 Source Data for Operational Stage Assessment 18
Table 10-10 Predicted Operational Stage Noise Levels 19

FIGURES

Figure 10-1 Noise Monitoring Locations and Receptors

APPENDICES

Appendix 10-A Glossary of Terms

RECEIVED: 29/01/2026

INTRODUCTION

Background

10.1 This Chapter of the Environmental Impact Assessment Report (EIAR), prepared by SLR Consulting Ireland on behalf of Anthony D'Arcy Ltd. addresses the potential noise and vibration effects of the continued use and extension of the existing sand & gravel pit at Ballymacoonoge, Glentire & Ballynamonabeg Tds., southeast of Ballaghkeen, Co. Wexford.

10.2 The proposed development, for which planning permission is being sought, is located on an application site of 23.2 hectares. The proposed development comprises the following elements (refer also to **EIAR Figures 2-2** to **2-4)**:

- Continued use and extension of the existing sand & gravel pit
- Extraction and processing of sand & gravel over a lateral extension extraction area of c. 10.9 hectares adjacent to the existing sand and gravel pit development permitted by planning permission 20191259 with access gained from the existing pit.
- An existing wheel wash facility is provided adjacent to site office and will be maintained throughout the life of the development
- Topsoil and overburden will be stripped to obtain access to the underlying sand and gravel resource and will be placed in landscaped screening berms for final restoration of the extraction area.
- Extraction of in-situ sand and gravel to within 2 m of the in-situ groundwater table using a mechanical excavator;
- Transfer of excavated sand and gravel to the existing mobile screening plant located within the floor of the existing pit
- Continued processing of excavated sand and gravel using mobile plant located within the floor of the pit
- Continued stockpiling of processed aggregates around the mobile screening plant, as required;
- Dispatch of processed aggregates off-site via the existing site access road and its junction with the R744 regional road
- Restoration of the lands to agricultural use.

Methodology

10.3 The following sections of this EIAR Chapter describe the potential noise impacts associated with the proposed pit extension 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 impact evaluation criteria;
- prediction of the noise levels and identification of potential impacts;
- assessment of severity of impacts, with reference to the evaluation criteria;
- description of mitigation measures to be incorporated into the design and operation of the scheme to eliminate or minimise potential noise impact, and
- a summary of any residual impacts.

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10.4 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 **Appendix 10-A**.

Contributors / Author(s)

10.5 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

10.6 The prevailing noise levels at noise sensitive locations in the vicinity of the site and haulage routes was determined through onsite 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

10.7 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 PROPOSED DEVELOPMENT

Study Area

10.8 The application site is located to the south of Ballaghkeen, Co. Wexford, refer to Figure 10-1.

Nearest Noise Sensitive Receptors

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

"Any 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".

10.10 The nearest noise sensitive receptors to the proposed site primarily comprise residential dwellings located in Ballaghkeen to the north of the site, and adjacent to the roads enclosing the proposed extraction area to the east, west and south.

10.11 The closest receptors have been identified and assessed based on their distance to key working areas identified within the proposed development. The receptors considered as part of the noise impact assessment have been summarised in **Table 10-1** below.

Table 10-1
Sensitive Receptors Considered

Reference	Description	Co-ordinates (Irish Transverse Mercator)	
		X	Y
R01	Residential	707,531	637,336
R02	Residential	707,559	637,356
R03	Residential	707,610	637,362
R04	Residential	707,639	637,331

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Reference	Description	Co-ordinates (Irish Transverse Mercator)	
		X	Y
R05	Residential	707,672	637,347
R06	Residential	707,663	637,312
R07	Residential	707,679	637,310
R08	Residential	707,699	637,324
R09	Residential	707,744	637,317
R10	Residential	707,753	637,366
R11	Residential	707,773	637,349
R12	Residential	707,787	637,337
R13	Residential	707,812	637,336
R14	Residential	707,832	637,314
R15	Residential	707,809	637,271
R16	Residential	707,842	637,244
R17	Residential	707,880	637,225
R18	Residential	707,924	637,213
R19	Residential	707,955	637,197
R20	Residential	707,984	637,182
R21	Residential	708,039	637,177
R22	Residential	708,193	637,174
R23	Residential	708,273	637,114
R24	Residential	708,238	637,082
R25	Residential	708,118	636,904
R26	Residential	708,079	636,857
R27	Residential	707,982	636,808
R28	Residential	707,982	636,720
R29	Residential	707,884	636,726
R30	Residential	707,871	636,701
R31	Residential	707,859	636,653
R32	Residential	707,785	636,436
R33	Residential	707,689	635,985
R35	Residential	707,605	636,024
R36	Residential	707,591	635,997
R37	Residential	707,581	635,965
R38	Residential	707,467	636,197
R39	Residential	707,334	636,281
R40	Residential	707,308	636,565

Reference	Description	Co-ordinates (Irish Transverse Mercator)	
		X	Y
R41	Residential	707,288	636,603

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10.12 There are no potentially noise sensitive protected habitats within the vicinity of the site.

Potential Noise Impacts from Proposed Development

10.13 The proposed extension development is identical to the current (previously permitted) operations carried out within the existing pit area. It includes a number of activities and processes that have the potential to generate noise impacts, principally:

- Ground clearance of the proposed extraction area with heavy machinery will have the potential to give rise to noise impacts offsite; and,
- Once operational, the extraction process will require use of machinery for excavation, removal and handling of material.

10.14 In addition to ongoing material extraction and processing, the proposed development will also include the restoration of the site to agricultural land as well as some boundary treatment works, refer to EIAR Figure 2-4 – Proposed Landscaping & Restoration Plan.

10.15 The proposed hours for operations (extraction, processing and haulage) will continue as per the existing pit under planning permission ref. 20191259 condition 11: 08:00 hours to 18:00 hours Monday to Friday only, there will be no operations on Saturday, Sunday or Public Holidays. The nature of mechanical plant onsite 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 period.

Potential Vibration Impacts from Proposed Development

10.16 The nature of onsite operations (i.e. absence of any blasting, piling or drilling) 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.

10.17 It has been found that ground vibration produced by road traffic are unlikely to cause perceptible structural vibration in properties located near to well-maintained and smooth road surfaces (TII, 2004). Considering the good state of repair of the R744, potential vibration impacts from road traffic are deemed to be negligible and have not been assessed further as part of this assessment.

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Interaction with Other Impacts

10.18 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 Chapter 5 'Biodiversity' of this EIAR.

PLANNING AND DEVELOPMENT FRAMEWORK

10.19 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

10.20 The National Planning Framework (NPF) 2040[1] (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.

10.21 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."

10.22 There are no specific policies in relation to noise emissions for mineral extraction or production of construction aggregates and materials in the NPF. The stated general development objective is to facilitate development, while at the same time protecting the environment.

Local Planning Policy – Wexford County Development Plan 2022-2028

10.23 The current Wexford County Development Plan details policies and objectives which provide for the planning and future sustainable development of the County between 2022 and 2028.

10.24 The Development Plan outlines the following objectives for the extractive industry:

Objective ED116 To require extractive and processing industries to be appropriately sited, designed and managed to avoid significant adverse impacts on their surrounding environment, amenities, road/public safety, and built and natural heritage. The Council will have regard to 'Quarries and Ancillary Activities' (DEHLG, 2004) in its considerations on quarrying (as may be updated in the lifetime of this Plan)

10.25 The Development Plan outlines the following objectives in respect of noise:

Objective N01 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 Actions Plans.

Objective N02 To have regard to the provisions of the Environmental Protection Agency (EPA) Acts 1992 and 2003 and the Environmental Protection Agency Act (Noise) Regulations 1994 when assessing planning applications.

[1] Draft First Revision to the National Planning Framework (issued July 2024)

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Objective N03	To have regard to the Wexford County Council Noise Action Plan 2019-2023, in particular Appendix B Roadways Qualified for Noise Mapping, Appendix C Strategic Noise Maps and Appendix D Potential Noise Hotspots, in the preparation of future local area plans and to ensure that planning applications comply with the provisions and requirements of that plan, and any future revisions/update to it.
Objective N04	To incorporate the aims of the present and future noise action plans into local area plans and in the assessment of planning applications to protect larger areas from road noise.
Objective N05	To regulate and control activities likely to give rise to excessive noise, other than those activities which are regulated by the Environmental Protection Agency.
Objective N06	To ensure new development does not cause an unacceptable increase in noise levels affecting noise sensitive properties. Proposals for new development with the potential to create excessive noise will be required to be accompanied by a construction and/or operation management plan to control such emissions.
Objective N07	To ensure that future developments are designed and constructed so as to minimise noise disturbance taking into account the multi-functional uses of streets including residential, movement and recreation as provided for in the Design Manual for Urban Roads and Streets (Department of Environment, Heritage and Local Government, 2013).
Objective N08	To require activities likely to give rise to excessive noise to install noise mitigation measures and monitors. The provision of a noise audit may be required where appropriate. Objective N09 To minimise noise from traffic by promoting development patterns that combine walking, cycling and public transport. Objective N10 To carryout traffic management measure such as reduction of speed limits, traffic flow control, mitigation of environmental noise hotspots, traffic congestion management, road surface improvements and road maintenance and the promotion of the use of electric vehicles. Objective N11 To encourage, or require at the discretion of the Planning Authority, developers to produce a sound impact assessment and implement mitigation measures for developments proposed near major roads (i.e. traffic volumes in excess of 3 million vehicles per annum or otherwise on a case by case basis). Objective N12 To ensure that future developments are designed and constructed in accordance with best practice to minimise noise disturbances through good acoustic design.

GUIDANCE DOCUMENTS AND ASSESSMENT CRITERIA

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Noise Arising from On-site Operations

10.26 The EPA (2006) publication *Environmental Management Guidelines for Environmental Management in the Extractive Industry* (Non-Scheduled Minerals) (EMG-EMEI)[2] recommends the following in respect of noise:

- *In relation to quarry developments and ancillary activities, it is recommended that noise from the activities on site shall not exceed the following noise ELVs at the nearest noise-sensitive receptor:*
  - *Daytime: 08:00–20:00 h L_{Aeq} (1h) = 55 dBA*
  - *Night-time: 20:00–08:00 h L_{Aeq} (1h) = 45 dBA*
- *Note: 95% of all noise levels shall comply with the specified limit value(s). No noise level shall exceed the limit value by more than 2 dBA.*

10.27 The DoEHLG (2004) Guidelines for Planning Authorities (*Quarries and Ancillary Activities: Guidelines for Planning Authorities*[3]) recommends similar limit values.

10.28 The EMEI guidelines also provide some guidance in respect of low background noise levels, tonal noise and environmental mitigation works:

- Where existing background noise levels are very low, lower noise ELVs may be appropriate;
- Audible tones or impulsive noise should be avoided at night;
- It is also appropriate to permit higher noise ELVs for short-term temporary activities such as construction of screening bunds, etc., where these activities will result in a considerable environmental benefit.

10.29 In relation to short-term temporary activities such as construction of screening bunds, due to the reduced duration of these works and the direct and potentially long-term benefits arising, it would be deemed appropriate that noise from these works should be limited to the values derived from the ABC Method of BS 5228-1:2009+A:2014 *Noise and Vibration Control on Construction and Open Sites - Noise* as described in Sections 10.33 to 10.36.

10.30 The extant planning permission for the site (An Bord Pleanála final grant Ref. 20191259) outlines the following condition in respect of noise:

> *12 (a) Noise emanating from the development shall not cause to be measured at the facing elevation outside of any existing dwelling in the area, during the hours 07:00 – 21:00 at a noise level of 55 dB(A) ($L_{Aeq,1hour}$) and during the hours 20:00 to 07:00 and on Sundays and Bank holidays at a noise level of 42 dB(A) $L_{Aeq,1hour}$. Any noise shall not be tonal in nature of have any tonal element which is 5 dB(A) above the adjacent frequencies.*

10.31 It is noted that that daytime threshold as set out in the extant permission for the site is identical to those set out in the EPA (2006) publication *Environmental Management Guidelines for Environmental Management in the Extractive Industry (Non-Scheduled Minerals)* (EMG-EMEI)[4] and the DoEHLG (2004) Guidelines for Planning Authorities (*Quarries and Ancillary Activities: Guidelines for Planning Authorities*[5]).

[2] https://www.epa.ie/pubs/advice/general/EPA_management_extractive_industry.pdf
[3] https://www.epa.ie/pubs/advice/general/EPA_management_extractive_industry.pdf
[4] https://www.epa.ie/pubs/advice/general/EPA_management_extractive_industry.pdf
[5] https://www.epa.ie/pubs/advice/general/EPA_management_extractive_industry.pdf

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10.32 Considering that the site will not operate outside of daytime hours, it is deemed appropriate that these thresholds would also apply to operational noise from the proposed development.

Noise Arising During the Construction Stage

10.33 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* is typically adopted by local authorities for the control of construction noise impacts.

10.34 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 the construction activities.

10.35 BS 5228-1:2009+A1:2014 sets out guidance on permissible noise levels relative to the existing noise environment. **Table 10-3** overleaf sets out the values which, when exceeded, signify a significant effect at the facades of residential receptors.

Table 10-2
Applicable Construction Noise Thresholds (BS5228-1:2014+A1:2019)

Assessment Category and Threshold Value Period	Threshold Values, $L_{Aeq,T}$ dB		
	Category A Note A	Category B Note B	Category C Note C
Night (23:00 to 07:00 hrs)	45	50	55
Evenings and Weekends Note D	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 5 dB) are less than these values*

Note B *Category B: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are the same as Category A values*

Note C *Category C: Threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) 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.*

10.36 The applicable construction noise limits based on the prevailing noise climate in the absence of existing noise from the site shall be 65 dB $L_{Aeq,12hour}$.

Noise Arising from Vehicular Traffic on Public Roads

10.37 There are no specific guidelines on noise limits generated by traffic 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 10-3** 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).

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Table 10-3
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

10.38 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.

10.39 As recognised in the IEMA guidance, there are however many factors which affect people's perception and response to noise. Guidance on assessment of the magnitude of noise impact and the significance of the effects are presented in **Table 10-4**.

Table 10-4
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) ↕ (Greater justification needed- based on impact magnitude and receptor sensitivities- to justify a significant effect) Less Likely to be Significant
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.	
Negligible	N/A = no discernible effect on receptor		Not Significant
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-

RECEIVED: 29/01/2026

Magnitude (Nature of Impact)	Description of Effect (On a Specific Sensitive Receptor)		Significance
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 character of area such that there is a perceived change in the quality of life.	to justify a 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.	Greater justification needed- based on impact magnitude and receptor sensitivities- to justify a non-significant effect) 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

10.40 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.

10.41 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*.

10.42 The noise monitoring locations selected for the purposes of the baseline noise survey are shown in **Figure 10-1** and comprise the following:

- **N1** is located at the edge of the pit at its most southeasterly point.
- **N2** is located at a corner of a field at the southwest limit of the current site.

10.43 All measurements were completed using a Class 1 Sound Level Meter (NTi Audio XL3). 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.

10.44 Attended noise measurements were completed at survey location N1 and N2 between 15:42 and 16:47 hrs. on 27th August 2025 and 09:17 and 10:26 hrs on 17th October 2025 during which time the existing sand & gravel pit was fully operational.

10.45 Measurement periods were 15 minutes for all locations with a total of three rounds of measurements completed at each measurement position.

RECEIVED: 29/01/2026

10.46 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.

10.47 During the attended measurements, weather conditions were generally conducive to environmental noise surveys with light to gentle south-westerly breeze (<1 to 4 m/s) present. External ambient air temperature of ~ 29°C was observed. Weather conditions varied during the unattended measurements with periods of elevated wind and rainfall.

10.48 All measurements were completed under free-field conditions (i.e., at least 3.5 m from the nearest vertical reflecting surface), attended measurements were conducted at a height of 1.5m above ground level.

10.49 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.

Survey Results

10.50 Noise monitoring results for the baseline survey on are provided in **Table 10-5**.

Table 10-5
Summary of Measured Noise Levels

Date	Location	Time	Sound Pressure Levels (dB RE $2x10^{-5}$ Pa)		
			$L_{Aeq, 1hr}$	$L_{A10, 1hr}$	$L_{A90, 1hr}$
27/8/2025	N1	16:47	50	53	38
	N2	15:42	46	49	41
17/10/2025	N1	10:26	56	58	45
	N2	9:17	45	47	43

10.51 The following general observations are made in respect of the August/October 2025 compliance noise monitoring undertaken around the application site:

27/8/2025

- Measured noise levels at monitoring point **N1** were dominated by noise from the operational pit. Foliage rustling in the wind also contributed.
- Measured noise levels at monitoring point **N2** were also dominated by noise from the operational pit. Foliage rustling in the wind also contributed.

RECEIVED: 29/01/2026

17/10/2025

- Measured noise levels at monitoring point **N1** were dominated by noise from the operational pit. Birdsong was also contributory to the sound profile.
- Measured noise levels at monitoring point **N2** were also dominated by noise from the operational pit, as well as birdsong and distant road traffic.

Note: No tonal or impulsive noise was observed during the monitoring. Due to the separation distance and screening of receptors from the monitoring locations, potential corresponding noise levels at the nearest noise sensitive receptors will be lower than the measured values.

ASSESSMENT OF LIKELY SIGNIFICANT EFFECTS

Do-nothing Scenario

10.52 At present, the prevailing noise climate is influenced primarily by site noise from the existing permitted operation, road traffic from local and regional roads, specifically the R744 leading into Ballaghkeen as well as typical agricultural activity.

10.53 Overall, it would be expected that prevailing noise levels would remain generally similar in the short term until the expiration of the current grant of permission.

Noise Impacts During Construction Stage (and Restoration Stage)

RECEIVED: 29/01/2026

10.54 A limited period of pre-commencement construction work is anticipated at the application site. The following construction stage works will likely be undertaken over an initial 3 month period:

- Construction of perimeter fencing; and,
- Stripping of topsoil to obtain access to the underlying sand and gravel resource and will be placed in landscaped screening berms for future use in final restoration of the extraction area.

10.55 Similar earthworks activities will take place during the restoration stage and this assessment therefore is also representative of predicted noise levels during restoration.

10.56 Construction noise levels have been predicted using a proprietary software-based noise model, CadnaA. The calculation algorithms set out in ISO 9613-2:2024 *Acoustics – Attenuation of sound during propagation outdoors – Part 2 General method of calculation* have been used. The following parameters / criteria have been used in the noise model:

- A ground absorption factor of 1 (soft ground cover) between the Site boundary and the NSRs;
- Wind speed: 3 m/s;
- Wind direction: worst-case (source to receiver: downwind);
- Ambient temperature: 10ºC;
- Humidity: 70%;
- A reflection factor of 3;
- Proposed pit layout shown on EIAR Figure 2-2; and,
- Detailed topographical data for the Site and surrounding area.

10.57 The assessment assesses worst-case noise levels using empirical source data set out in BS5228-1:2009+A1:2014 guidance.

10.58 **Table 10-7** outlines source data based on the mechanical plant expected to be operational during this period.

10.59 All sound pressure levels have been converted to sound power levels by considering the measurement distance and measurement condition, assumed to be hemispherical for all data.

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Table 10-6
Source Data for Construction Stage (and Restoration Stage) Assessment

Source	BS5528 Ref	Octave Band Centre Frequency (Hz) Sound Power Levels (dB RE 10_{-12} W)								Total dB L_{WA}
		63	125	250	500	1 k	2 k	4 k	8 k	
Tracked excavator 125 kW, 25 t	C.2.19	123	112	107	101	98	96	92	85	106
Articulated Dump Truck (23 t)	C.8.14	116	112	110	101	103	99	94	88	108

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10.60 The predicted noise levels for each of the nearest noise sensitive receptors (NSR) during the construction stage (and restoration stage) has been summarised in **Table 10-7** below.

Table 10-7
Predicted Construction Stage (and Restoration Stage) Noise Levels

Receptor Reference	Threshold Noise Level Applicable ($dB L_{Aeq,12hour}$)	Predicted Noise Level ($dB L_{Aeq,12hour}$)
R01	65	41
R02	65	41
R03	65	40
R04	65	41
R05	65	40
R06	65	42
R07	65	36
R08	65	41
R09	65	41
R10	65	38
R11	65	41
R12	65	41
R13	65	39
R14	65	41
R15	65	42
R16	65	42
R17	65	38
R18	65	41
R19	65	40
R20	65	40
R21	65	34
R22	65	27
R23	65	33
R24	65	35
R25	65	38
R26	65	39
R27	65	33
R28	65	39
R29	65	37

Receptor Reference	Threshold Noise Level Applicable (dB $L_{Aeq,12hour}$)	Predicted Noise Level (dB $L_{Aeq,12hour}$)
R30	65	37
R31	65	39
R32	65	35
R33	65	37
R35	65	38
R36	65	37
R37	65	33
R38	65	41
R39	65	40
R40	65	46
R41	65	47

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10.61 The predicted construction stage (and restoration stage) noise levels as presented in **Table 10-7** demonstrate that noise levels will fall below the adopted threshold of 65 dB $L_{Aeq,12hr}$ at the nearest noise sensitive locations.

Noise Impacts During Operational Stage

10.62 The proposed extraction process will involve transportation of extracted material to the existing mobile screening plant via articulated dump truck. Mechanical excavation of sand & gravel will be carried out by loading shovel.

10.63 For the purposes of assessment, predicted operational noise impacts of the proposed extraction areas have been assessed on the basis that processing would be conducted in three phases, Phase 1 comprising extension to the southeast of the existing pit, Phase 2 extending to the southwest, then Phase 3 to the southeast once more

10.64 Operational noise levels have been predicted using a proprietary software-based noise model, CadnaA. The calculation algorithms set out in ISO 9613-2:2024 *Acoustics – Attenuation of sound during propagation outdoors – Part 2 General method of calculation* have been used. The following parameters / criteria have been used in the noise model:

- A ground absorption factor of 1 (soft ground cover) has been assumed between the Site boundary and the NSRs; a ground factor of 0.5 (mixed ground, made up of stockpiled soil and partially compacted aggregate surfaces) within the site;
- Wind speed: 3 m/s;
- Wind direction: worst-case (source to receiver: downwind);
- Ambient temperature: 10ºC;
- Humidity: 70%;
- A reflection factor of 3;
- Proposed site layout as shown on EIAR Figure 2-2; and,
- Detailed topographical data for the Site and surrounding area.

10.65 **Table 10-9** outlines source data used for operational plant.

10.66 All sound pressure levels have been converted to sound power levels by considering the measurement distance and measurement condition, assumed to be hemispherical for all data.

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Table 10-8
Source Data for Operational Stage Assessment

Source	BS5528 Ref	Octave Band Centre Frequency (Hz) Sound Power Levels (dB RE 10^{-12} W)								Total dB L_{WA}
		63	125	250	500	1 k	2 k	4 k	8 k	
Tracked excavator 125 kW, 25 t	C.2.19	123	112	107	101	98	96	92	85	106
Wheeled loading shovel 184 kW, 23 t	C.6.34	82	82	71	73	69	67	66	58	104
Screening unit 51 kW, 17t	C.10.15	112	110	107	107	102	102	99	92	109

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10.67 The predicted noise levels for each of the nearest noise sensitive receptors (NSR) during the operational phase has been summarised in **Table 10-9**.

Table 10-9
Predicted Operational Stage Noise Levels

Receptor Reference	Threshold Applicable Day Noise Limit (dB $L_{Aeq,1hr}$)	Predicted Operational Noise Level (dB $L_{Aeq,1hr}$)		
		Phase 1	Phase 2	Phase 3
R01	55	44	42	41
R02	55	44	42	41
R03	55	43	41	40
R04	55	44	43	42
R05	55	41	41	39
R06	55	44	43	42
R07	55	37	36	34
R08	55	44	42	41
R09	55	44	43	42
R10	55	40	39	37
R11	55	44	42	41
R12	55	42	42	41
R13	55	40	40	38
R14	55	43	42	41
R15	55	44	43	42
R16	55	44	43	42
R17	55	42	40	38
R18	55	43	43	42
R19	55	42	41	40
R20	55	42	41	39
R21	55	35	35	30
R22	55	36	33	28
R23	55	32	32	27
R24	55	34	36	32
R25	55	37	40	37
R26	55	39	39	36
R27	55	33	40	34
R28	55	40	42	38

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Receptor Reference	Threshold Applicable Day Noise Limit (dB $L_{Aeq,1hr}$)	Predicted Operational Noise Level (dB $L_{Aeq,1hr}$)		
		Phase 1	Phase 2	Phase 3
R29	55	38	37	33
R30	55	36	34	33
R31	55	40	40	34
R32	55	37	39	34
R33	55	42	42	40
R35	55	43	44	43
R36	55	42	43	42
R37	55	36	38	35
R38	55	48	51	48
R39	55	47	47	42
R40	55	50	48	47
R41	55	51	49	48

10.68 It can be seen from the results presented in **Table 10-9** that the noise levels generated during the operational phase will fall well below the relevant day-time noise threshold limit of 55 dB(A) at the nearest noise sensitive receptor as set out in the DoEHLG (2004) and EPA (2006) guidelines for the sector, and condition 12 a) attached to existing planning permission ref. 20191259 for the existing sand & gravel pit:

12 a) Noise emanating from the development shall not cause to be measured at the facing elevation (outside) of any existing dwelling in the area, during the hours 0700 – 2100 at a noise level of 55 dB(A) (LAeq 1 hour).

Potential Noise Impacts Associated with Additional Road Traffic

10.69 In addition to site-based construction and operational noise, the potential impact of additional development generated traffic over the local road network requires assessment.

10.70 The proposed level of traffic generated by the existing sand & gravel pit and the proposed development is / will be low – a maximum of 3 to 4 heavy goods vehicle (HGV / truck) trips per hour, at the maximum annual extraction rate output of 200,000 tonnes per year.

10.71 Typically, an increase of 25% in road traffic volumes would be required to give rise to a 1 dB increase in road traffic noise levels. In this instance, the volume of additional scheme traffic onto the R744 will result in less than 1% increase in overall AADT levels, as such the impacts will be negligible for noise sensitive receptors located adjacent the R744.

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Cumulative Impacts

10.72 In essence, cumulative impacts are those which result from incremental changes caused by other past, present, or reasonably foreseeable actions together with those generated by the proposed development. Therefore, 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.

10.73 The results of the baseline noise survey confirms that the levels of noise from existing permitted operations (at the time of the survey in August 2025) are relatively low. A review of planning applications in the vicinity of the site was conducted. The review confirms that there will be no permitted but not operational developments with potential noise generating operations located in the vicinity of the application site.

10.74 Having regard to the guidance presented in **Table 10-4**, it can be confirmed that during peak operational output that the noise generation will likely result in Slight to Negligible Noise Impacts.

10.75 Predicted noise levels will comply with both the relevant construction and operational phase noise threshold / emission limit values including condition 12a) attached to planning permission ref. 20191259 for the existing sand & gravel pit.

MITIGATION

General Best Practice

10.76 The impact assessment has indicated that worst case construction (restoration) and operational noise levels will comply with both the relevant construction and operational phase noise threshold / emission limit values including condition 12a) attached to planning permission ref. 20191259 for the existing sand & gravel.

10.77 Notwithstanding, the Operator will continue to implement best practice noise mitigation and management measures in order to maintain acceptable noise levels at nearby noise sensitive receptors.

10.78 The following noise mitigation and management measures in place within the existing pit will continue to be implemented for the proposed development. There measures are in accordance with the DoEHLG (2004) and EPA (2006) guidelines for the sector.

Screening

10.79 The operational landscaping plan as shown on EIAR Figure 2-4 provides for screening berms around the perimeter of the proposed extension area and these will act as acoustic screens.

10.80 The mobile processing plant is and will continue to be located on the pit floor to maximise natural topographic screening to noise sensitive receptors.

Plant & Machinery

10.81 All plant and machinery items will continue to be properly and regularly maintained and operated according to the manufacturers' recommendations, in such a manner as to avoid causing excessive noise.

10.82 All plant and machinery will continue to 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.

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Vehicle Movement within Site Boundary

10.83 Access / internal haul roads will continue be kept clean and maintained in a good state of repair, i.e., any potholes are filled, and large bumps removed, to avoid unwanted rattle and "body-slap" from heavy goods vehicles.

10.84 Haul road grades will continue to be kept as low as possible to reduce engine / break noise from site machinery.

10.85 Vehicles waiting within the site will continue to be prohibited from leaving engines running and there will be no unnecessary revving of engines.

10.86 Care will continue to be taken when unloading vehicles to reduce or minimise potential noise disturbance to residents.

RESIDUAL IMPACT ASSESSMENT

10.87 The adoption and implementation of best practice noise mitigation and management measures as outlined above will ensure residual noise impacts at the nearest noise sensitive receptors are minimised to the extent that any noise arising from construction stage, operational stage and restoration stage will result in a negligible impact.

NOISE MONITORING

10.88 Noise monitoring surveys will be carried twice per year to establish operational noise emissions from activities within the site.

10.89 Noise monitoring shall be carried out at the three locations shown on Figure 10-1.

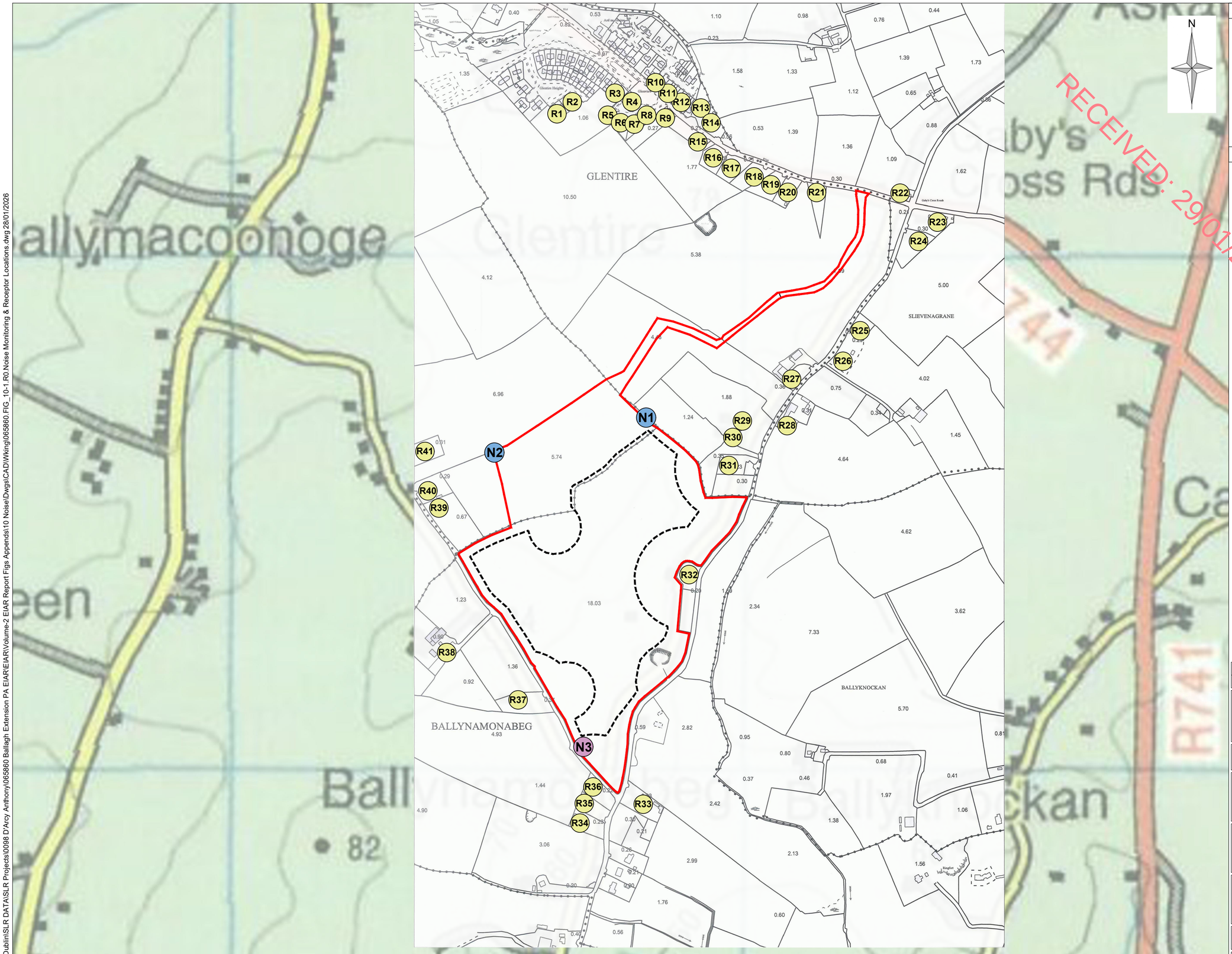
10.90 The surveys shall be completed by a Competent Person in accordance with the EPA *Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities* (NG4). The surveys shall be completed using a Class 1 Sound Level meter.

10.91 The results of the noise monitoring surveys shall be submitted to Wexford Co. Council for record purposes.

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FIGURES

Figure 10-1
Noise Monitoring Locations and Receptors



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Notes:

1. Based on 1:2,500 OSI Place Mapping - Map No. 5145-D & 5146-C

Legend:

- PLANNING PERMISSION AREA (c.23.2 Hectares)
- EXTRACTION BOUNDARY
- R25 — RECEPTOR LOCATION
- N2 — NOISE MONITORING LOCATION
- N3 — PROPOSED ADDITIONAL NOISE MONITORING LOCATION

Rev	Amendments	Date	By	Chk	Auth

SLR

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Client: ANTHONY D'ARCY LTD.

Project: SAND & GRAVEL PIT AT BALLYMACOONOGE, GLENTIRE & BALLYNAMONABEG TOWNLANDS BALLAGHKEEN, CO. WEXFORD

Figure Title: NOISE MONITORING & RECEPTOR LOCATIONS

Scale	SLR Project No.
1:5,000 @ A2	065860.00001

Designed	Drawn	Checked	Authorised
EW	EW	TP	TP
Date: 01/26	Date: 01/26	Date: 01/26	Date: 01/26

Figure Number: **FIGURE 10-1** Rev.: **0**

\\slr.local\eu\Offices\IE\Dublin\SLR DATA\SLR Projects\0098 D'Arcy Anthony\065860 Ballagh Extension PA EIAR\EIAR\Volume-2 EIAR Report Figs Appends\10 Noise\Dwgs\CAD\Wking\065860.FIG_10-1 R0.Noise Monitoring & Receptor Locations.dwg 28/01/2026

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Appendix 10-A
Glossary of Terms

Glossary of Terminology

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

Acoustic Terminology

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Ambient Sound	Totally encompassing sound in a given situation at a given time, usually composed of sound from many sources near and far. Comprises of the residual sound and the specific sound when present.
Background Sound	The level of sound measured in the absence of extraneous noise sources.
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 ($2x10^{-5}$ 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.
Fast Time Weighted	The speed at which the instrument responds to changes in amplitude of the measured signal. The response time of a fats time-weighted instrument is 0.125 seconds.
Free-Field Level	The sound pressure level measured away from any reflective surfaces.
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}	The maximum A-weighted sound pressure level recorded over the period stated. LAmax is sometimes used in assessing environmental noise where occasional loud noises occur, which may have little effect on the overall L_{eq} noise level but will still affect the noise environment. Unless described otherwise, it is measured using the 'fast' sound level meter response.
Reference Time Interval (T)	Specified interval over which the specific sound level is determined.
Residual Sound	Ambient sound remaining at the assessment location when the specific sound source is suppressed to such a degree that it does not contribute to the ambient sound.
Residual Sound Level (Lr)	(= $L_{Aeq,T}$) Equivalent continuous A-weighted sound pressure level of the residual sound at the assessment location over a given time interval, T.
Sound Pressure	The difference between the pressure caused by a sound wave and the ambient pressure of the medium the sound wave is passing through. Measured in Pascals.
Sound Pressure Level (Lp)	The logarithm of the ratio of a given sound pressure (p) to the reference sound pressure (p0). The reference value for sound pressure is 20 µPa. Defined as: $$L_p = 20log\left(\frac{p}{p_0}\right)$$