

Contents

Introduction 10-1

Background 10-1

Methodology 10-1

Contributors / Author(s) 10-2

Sources of Information 10-2

Potential Impacts of the Proposed Development 10-2

Study Area 10-2

Nearest Noise Sensitive Receptors 10-2

Potential Noise Impacts from the Proposed Development 10-5

Potential Vibration Impacts from the Proposed Development 10-6

Interaction with Other Impacts 10-6

Planning and Development Framework 10-6

National Planning Framework – Project Ireland 2040 10-6

Local Planning Policy – Meath County Development Plan 2021-2027 10-6

Guidance Documents and Assessment Criteria 10-7

Noise arising during the construction stage 10-7

Noise arising from onsite operations 10-8

Quantifying significance of noise impacts 10-8

Receiving Environment 10-10

Survey Methodology 10-10

Survey Results 10-11

Assessment of Likely Significant Effects 10-12

Do-nothing Scenario 10-12

Potential Impacts during the Construction Stage 10-12

Potential Impacts during the Operational Stage 10-16

Cumulative Impacts 10-19

Mitigation 10-20

General Best Practice 10-20

Mechanical Plant 10-21

Vehicle Movement within Site Boundary 10-21

Monitoring 10-21

Residual Impact Assessment 10-21

Figures 10-22

Appendices.....

RECEIVED: 04/07/2025
 Meath County Council - Viewing Purposes Only!

Appendix 10-A Glossary of Terms.....

Tables

Table 10-1 Sensitive Receptors Considered 10-4

Table 10-2 Ecological Receptors within 2 km of site 10-5

Table 10-3 Applicable Construction Noise Thresholds (BS5228-1:2014+A1:2019)..... 10-7

Table 10-5 Example Impact Scale from the Change in Sound Levels (IEMA)..... 10-8

Table 10-6 Example of Relative Change Impact Rating (HS2 EIAR from IEMA) 10-9

Table 10-7 Relationship between Noise Impact, Effect and Significance (IEMA) 10-9

Table 10-8 Summary of Measured Noise Levels, Free Field dB..... 10-11

Table 10-9 Source Data for Construction Stage Assessment..... 10-14

Table 10-10 Predicted Construction Stage Noise Levels 10-15

Table 10-11 Source Data for Operation Stage Assessment..... 10-17

Table 10-12 Predicted Operational Stage Noise Levels..... 10-18

Table 10-13 Cumulative Operational Noise Levels 10-19

Figures

Figure 10-1 Noise Monitoring Locations & Receptors.....

RECEIVED: 04/07/2025
 Meath County Council - Viewing Purposes Only!

Introduction

Background

- 10.1 This Chapter of the Environmental Impact Assessment Report (EIAR), prepared by SLR Consulting Ireland on behalf of BD Flood Unlimited Company (BD Flood), addresses the potential noise and vibration effects of the proposed development at their existing sand and gravel pit at Baltrasna, Murrrens and Annagh townlands, Oldcastle, Co. Meath.
- 10.2 The proposed development being applied for under this current planning application is shown on EIAR **Figures 2-2 to 2-5** and will consist of:
- Extraction of sand and gravel (dry working) over a lateral extension extraction area of c. 4.2 hectares adjacent to the existing sand and gravel pit development permitted by planning permission KA/141129 (ABP PL17.245257) with access gained from the existing pit;
 - Restoration of the lands will form part of the overall adjacent sand and gravel pit restoration site, returning the lands to a combination of agricultural grazing and beneficial ecological habitat;
 - The development will be commensurate with the life of existing site permission (P. Ref. KA14/1129 & ABP PL.17.245257) which is due to expire in December 2036; and,
 - All associated site ancillary works within an overall application area of c. 5.8 hectares.
- 10.3 There is a portion (c. 4 hectares) of the existing permitted development of P. Ref. KA/141129 / ABP PL17.245257, located in the southwest area of the permitted extension which will now not be extracted due to the poor quality of the materials that has been tested to date. The area is referred to Area 1 shown on EIAR **Figure 1-3**.
- 10.4 The application site (shown as Area 2 on EIAR **Figure 1-3**) is a new proposed extension extraction area of c. 4.2 hectares that will effectively be a replacement source of sand and gravel materials with extraction to be commensurate with the life of P. Ref. KA14/1129 / ABP PL17.245257 which is due to expire in December 2036.
- 10.5 Area 2, i.e., the application site, is situated within the townland of Murrrens. The overall pit site traverses the three townlands of Baltrasna, Annagh and Murrrens.

Methodology

- 10.6 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 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 that will be incorporated into the design and operation of the scheme to eliminate or minimise the potential for noise impact, and
 - a summary of any residual impacts.
- 10.7 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 EIR, is provided in **Appendix 10-A**.

Contributors / Author(s)

- 10.8 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

- 10.9 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

- 10.10 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

- 10.11 The application site is located within a rural area referred to as 'The Murrens', located c. 4 km west of Dromone and 6 km southwest of Oldcastle town, refer to EIR **Figure 1-1**. It is directly adjacent to an existing sand and gravel pit and is intended to form an extension to it.
- 10.12 The application site and the overall site are located within a rural agricultural landscape. There are isolated private residential properties and agriculture farms located throughout the surrounding rural landscape, predominantly along the local road network.
- 10.13 The haul route for vehicles will be via local road L68181 to the north and then either the R195 regional route to the east or L7159 to the west.

Nearest Noise Sensitive Receptors

- 10.14 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"*.
- 10.15 There are few residences in the immediate vicinity of the site, with the residential pattern comprising isolated farm dwellings and one-off housing developments along the local roads. The closest property is located c. 235 m south of the application site, with six further

properties within 500 m of the application site, all in the south/southeast direction. In total there are c. 29 residential properties within a 1km radius of the application site. These are shown in **Figure 10-1**.

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

Table 10-1 Sensitive Receptors Considered

Reference	Description	Co-ordinates (Irish Transverse Mercator)	
		X	Y
R01	Residential	652,502	773,819
R02	Residential	652,422	773,746
R03	Residential	652,430	773,714
R04	Residential	652,496	773,720
R05	Residential	652,767	773,723
R06	Residential	652,670	773,625
R07	Residential	652,077	773,658
R08	Residential	652,000	773,672
R09	Residential	651,564	774,057
R10	Residential	652,857	774,806
R11	Residential	652,869	774,843
R12	Residential	652,884	774,878
R13	Residential	652,934	773,535
R14	Residential	652,448	773,464
R15	Residential	652,419	773,376
R16	Residential	652,408	773,334
R17	Residential	652,399	773,099
R18	Residential	652,301	773,115
R19	Residential	651,369	774,180
R20	Residential	651,293	774,175
R21	Residential	652,886	775,254
R22	Residential	652,962	775,185
R23	Residential	652,716	775,153
R24	Residential	652,658	775,205
R25	Residential	652,547	775,218
R26	Residential	652,918	774,949
R28	Residential	653,040	773,460
R29	Residential	653,068	773,442

RECEIVED: 04/07/2025
Meath County Council Viewing Purposes Only!

- 10.17 Additional consideration has been given to the proximity of potentially noise sensitive ecological receptors in the vicinity of the site.
- 10.18 There are three designated sites within a 2 km radius of the application site at Murrens. These sites are identified in **Table 10-2** below.

Table 10-2 Ecological Receptors within 2 km of site

Natura 2000 Site	Site Code	Approximate distance to site (m)
White Lough, Ben Loughs and Lough Doo SAC	001810	Approximately 700m southwest
Lough Bane and Lough Glass SAC	002120	Approximately 1.9km southeast
Lough Naneagh pNHA	001814	Approximately 425m northwest

- 10.19 It is understood that the qualifying interests in the White Lough, Ben Loughs and Lough Doo / Lough Bane and Lough Glass SAC's include benthic vegetation and crawfish. Neither of which would be classified as noise sensitive.
- 10.20 Likewise, the Lough Naneagh pNHA site is recommended as a NHA due to the presence of transitional fen and lake habitats. Neither of which are considered as inherently noise sensitive.
- 10.21 Impacts on ecological receptors has therefore not been considered further in the assessment.

Potential Noise Impacts from the Proposed Development

- 10.22 The proposed development is identical to the current operations being carried out on site that include a number of activities and processes that have the potential to generate noise impacts, these include:
- Ground clearance of the proposed extraction area with heavy machinery will have the potential to give rise to noise impacts offsite;
 - Once operational, the extraction process will require use of heavy machinery for removal and handling of material.
- 10.23 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 the formation of boundary treatment.
- 10.24 In relation to road traffic on public roads. The proposed development will generate no additional road traffic above that already permitted by the existing development. As such, the impact of road traffic noise is considered negligible and has not been considered further in this assessment.
- 10.25 The proposed hours for operations (extraction, processing and haulage) at the site will be 06:00 hours to 20:00 hours Monday to Friday inclusive and 06:00 hours to 14:00 hours on Saturdays. No operations will be carried out on Sundays or Public Holidays¹. 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.

¹ DoEHLG 2004 Quarry & Ancillary Activities Guidelines for Planning Authorities – Section 4.7 (b)

Potential Vibration Impacts from the Proposed Development

- 10.26 The nature of onsite operations (i.e. no 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.
- 10.27 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 L68181, potential vibration impacts from road traffic are deemed to be negligible and have not been assessed further as part of this assessment.

Interaction with Other Impacts

- 10.28 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'.

Planning and Development Framework

- 10.29 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

- 10.30 The National Planning Framework (NPF) 2040² (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.
- 10.31 National Planning Framework Objective 65 addresses noise related impact of development and identifies a requirement for Planning Authorities to:
- 10.32 *"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."*
- 10.33 There are no specific policies in relation to noise emissions in NPF for mineral extraction or production of construction aggregates and materials. The stated general development objective is to facilitate the development while at the same time protect the environment.

Local Planning Policy – Meath County Development Plan 2021-2027

- 10.34 The current Meath County Development Plan details policies and objectives which provide for the planning and future sustainable development of the County between 2021 and 2027.
- 10.35 Development Plan Objective **DM OBJ 64** provide the following in respect to extractive industries:

² Draft First Revision to the National Planning Framework (issued July 2024)

- All applications for extractive industry development shall comprehensively address the following criteria as part of a pre-application discussion and/or planning application proposal:
 - Impact on Natura 2000 sites, NHAs, sites of ecological importance, geological or geomorphological heritage features; (Refer to Chapter 8 Cultural Heritage for further information);
 - Effective control of emissions and dust;

Guidance Documents and Assessment Criteria

Noise arising during the construction stage

- 10.36 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.
- 10.37 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.
- 10.38 BS 5228-1:2009+A1:2014 sets out guidance on permissible noise levels relative to the existing noise environment. **Table 10-3** sets out the values which, when exceeded, signify a significant effect at the facades of residential receptors.

Table 10-3 Applicable Construction Noise Thresholds (BS5228-1:2014+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 <u>less</u> 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 <u>higher</u> 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.		

- 10.39 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 onsite operations

- 10.40 The extant planning permission for the site (Ref. KA14/1129) outlines the following condition in respect of operational noise (as set out in Condition 6 of the An Bord Pleanála final grant PL17.245257):
6. *During the operational phase of the proposed development, the noise level from within the boundaries of the site measured at noise sensitive locations in the vicinity, shall not exceed:*
 - a. *an $L_{A,T}$ value of 55 dB(A) during the period 0800 to 2200 hours. The T shall be (one hour)*
 - b. *an L_{AeqT} value of 45 dB(A) at any other time. The T shall be (15 minutes). Night-time emissions shall have no tonal component.*
- 10.41 These thresholds are in effect, 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)³ and the DoEHLG (2004) Guidelines for Planning Authorities (*Quarries and Ancillary Activities: Guidelines for Planning Authorities*)⁴.
- 10.42 It is deemed appropriate that these thresholds would apply to operational noise from the proposed development.

Quantifying significance of noise impacts

- 10.43 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.
- 10.44 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 10-5**.

Table 10-4 Example Impact Scale from the Change in Sound Levels (IEMA)

Long-Term Impact Classification	Short-Term Impact Classification	Sound Level Change dB L_{pAeqT} (+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

- 10.45 The criteria above reflect the key benchmarks that relate to human perception of sound. A change of 3 dB is generally considered to be the smallest change in environmental noise that is perceptible to the human ear under most normal conditions. A 10 dB change in noise represents a doubling or halving of the noise level. The difference between the minimum

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

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.

10.46 To determine the overall noise impact, the magnitude and sensitivity Noise Effects Descriptors are presented in **Table 10-5**.

Table 10-5 Example of Relative Change Impact Rating (HS2 EIAR from 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

10.47 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 10-6**.

Table 10-6 Relationship between Noise Impact, Effect and Significance (IEMA)

Magnitude (Nature of Impact)	Description of Effect (On a Specific Sensitive Receptor)	Significance
Substantial	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	Beneficial 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

- 10.48 Compliance noise monitoring is completed annually (twice per year) to determine compliance with the extant noise conditions.
- 10.49 The most recent monitoring was conducted by BHP Laboratories on 24th May 2024 and 27th August 2024.
- 10.50 It is understood that the survey was conducted in accordance with the procedures outlined in ISO 1996-2:2017 *Acoustics - Description, measurement and assessment of environmental noise - Determination of sound pressure levels* using Class 1 Sound Level Meters.
- 10.51 The locations of compliance noise monitoring locations are shown in **Figure 10-1**.
- 10.52 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.

- $L_{A90,T}$ - The A-weighted noise level exceeded for 90% of the measurement period. This parameter is often used to describe the background noise.
- $L_{A10,T}$ - 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.

Survey Results

10.53 Noise monitoring results for the baseline survey on are provided in **Table 10-7**.

Table 10-7 Summary of Measured Noise Levels (2024), Free Field dB

24 May 2024				
Location	Time	Sound Pressure Levels (dB 2×10^{-5} Pa)		
		$L_{Aeq,1hr}$	$L_{A10,1hr}$	$L_{A90,1hr}$
N1	12:05 - 12:20	46	51	35
N2	12:30 - 12:45	50	53	41
N3	12:35 - 12:50	54	58	35
N4	12:10 - 12:25	45	47	42
N5	13:10 - 13:25	40	43	33
N6	13:00 - 13:15	60	60	39

27 August 2024				
Location	Time	Sound Pressure Levels (dB 2×10^{-5} Pa)		
		$L_{Aeq,1hr}$	$L_{A10,1hr}$	$L_{A90,1hr}$
N1	11:00-11:15	57	50	41
N2	09:40-09:55	50	45	36
N3	09:45-10:00	48	48	36
N4	11:15-11:30	47	49	43
N5	10:20-10:35	39	42	35
N6	10:30-10:45	51	54	40

10.54 The following general observations are made in respect of the May 2024 compliance noise monitoring undertaken around the application site:

- Measured noise levels at monitoring point **N1** were dominated by road traffic noise and birdsong, residual site noise was audible at low levels;
- Measured noise levels at monitoring point **N2** were dominated by birdsong as well as wind borne noise from foliage on adjacent trees/hedges, silage harvesting nearby dominating background noise levels, site noise was not audible;
- Measured noise levels at monitoring point **N3** were dominated by birdsong as well as wind borne noise from foliage on adjacent trees/hedges, silage harvesting nearby dominating background noise levels, site noise was not audible;

- Measured noise levels at monitoring point **N4** were dominated by screening plant located on the adjacent quarry, in addition to intermittent birdsong and wind borne noise from foliage on adjacent trees/hedges, site noise was not audible;
 - Measured noise levels at monitoring point **N5** were dominated by intermittent low level farming activity nearby as well as wind borne noise from foliage on adjacent trees/hedges, site noise was not audible; and,
 - Measured noise levels at monitoring point **N6** were dominated by road traffic noise on the R195, site noise was not audible.
- 10.55 The following general observations are made in respect of the August 2024 compliance noise monitoring undertaken around the application site:
- Measured noise levels at monitoring point **N1** were dominated by road traffic noise and birdsong, residual site noise was audible at low levels with the exception of a banging tailboard;
 - Measured noise levels at monitoring point **N2** were dominated by birdsong as well as wind borne noise, HGV traffic dominating background noise levels, site noise was not audible;
 - Measured noise levels at monitoring point **N3** were dominated by birdsong as well as wind borne noise, HGV traffic dominating background noise levels, site noise was not audible;
 - Measured noise levels at monitoring point **N4** were dominated by screening plant nearby;
 - Measured noise levels at monitoring point **N5** were dominated by wind borne noise from foliage on adjacent trees/hedges, birdsong and road traffic, site noise was not audible; and,
 - Measured noise levels at monitoring point **N6** were dominated by road traffic noise on the R195 and wind borne noise from foliage on adjacent trees/hedges, site noise was not audible.
- 10.56 Monitoring locations N5 and N6 are located in closest proximity to the nearest noise sensitive receptors to the proposed development.
- 10.57 At both of these locations, noise from the existing site operations was not audible, as such they can be deemed to be representative of baseline noise conditions.

Assessment of Likely Significant Effects

Do-nothing Scenario

- 10.58 At present, the prevailing noise climate is influenced by a range of activities including site noise from the existing permitted operation, noise from the adjacent quarry, road traffic on local roads as well as agricultural activity on the adjacent landholdings.
- 10.59 Overall, it would be expected that prevailing noise levels would remain generally similar in the medium term.

Potential Impacts during the Construction Stage

- 10.60 A limited period of construction is expected to be carried out. It is anticipated that the construction stage works as outlined below would be carried out within a 3-to-6-month period.

- Extension of fixed field conveyor system using standard construction techniques;
 - Construction of perimeter fencing;
 - Topsoil and overburden will be stripped to obtain access to the underlying sand and gravel resource and will be either placed in landscaped screening berms or stored for final restoration of the extraction area.
- 10.61 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 model has been based on, and has made the following general assumptions:
- A ground absorption factor of 0.8 (predominantly soft ground) between the Site boundary and the NSRs;
 - Wind speed: 3 m/s;
 - Wind direction: worst-case (source to receiver: downwind);
 - Ambient temperature: 10°C;
 - Humidity: 70%;
 - A reflection factor of 3;
 - Building dimensions and plant dimensions based on the drawings and 3D model provided by the Client; and,
 - Detailed topographical data for the Site and surrounding area.
- 10.62 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.
- 10.63 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.
- 10.64 **Table 10-8** outlines source data based on the mechanical plant expected to be operational during this period.
- 10.65 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.

Noise & Vibration 10

Table 10-8 Source Data for Construction 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 (170 kW/30 t)	C.2.16	100	99	102	101	97	94	91	86	103
Articulated dump truck (37 t)	C.10.18	115	113	111	109	106	102	99	94	111

10.66 The predicted noise levels for each of the nearest NSR during the construction phase has been summarised in **Table 10-9**.

Table 10-9 Predicted Construction Stage Noise Levels

Receptor Reference	Threshold Applicable (dB LAeq,12hour)	Predicted Noise Level (dB LAeq,12hour)
R01	65	41
R02	65	39
R03	65	38
R04	65	38
R05	65	26
R06	65	35
R07	65	35
R08	65	35
R09	65	30
R10	65	23
R11	65	30
R12	65	30
R13	65	32
R14	65	34
R15	65	32
R16	65	32
R17	65	29
R18	65	29
R19	65	29
R20	65	28
R21	65	27
R22	65	27
R23	65	24
R24	65	28
R25	65	28
R26	65	29
R28	65	30
R29	65	29

- 10.67 The predicted construction noise levels as presented in **Table 10-9** demonstrate that construction noise levels will fall below the adopted threshold of 65 dB $L_{Aeq,12hr}$ at the nearest noise sensitive locations.

Potential Impacts during the Operational Stage

- 10.68 The proposed extraction process will involve transportation of extracted material to the primary aggregate processing area via a conveyor belt system. This is expected to significantly reduce noise levels due to the necessity to operate and load articulate dumper trucks in the extraction area.
- 10.69 For the purposes of assessment, predicted operational noise impacts of the proposed extraction area have been assessed on the basis that processing would be conducted in three phases, phase 1 occurring in the northern section of the extraction area, phase 2 occurring in the middle of the extraction area and phase 3 occurring in the southern end of the extraction area.
- 10.70 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 model has been based on, and has made the following general assumptions:
- A ground absorption factor of 0.8 (predominantly soft ground) between the Site boundary and the NSRs;
 - Wind speed: 3 m/s;
 - Wind direction: worst-case (source to receiver: downwind);
 - Ambient temperature: 10°C;
 - Humidity: 70%;
 - A reflection factor of 3;
 - Building dimensions and plant dimensions based on the drawings and 3D model provided by the Client; and,
 - Detailed topographical data for the Site and surrounding area.
- 10.71 **Table 10-10** outlines source data used for operational plant.
- 10.72 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.

Noise & Vibration 10

Table 10-10 Source Data for Operation 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	
Excavator	C2.16	100	99	102	101	97	94	91	86	103
Conveyor	C10.22	99	96	90	91	94	90	86	79	97
Loader	C4.13	111	100	98	97	93	92	85	77	99

10.73 The predicted noise levels for each of the nearest NSR during the operational phase has been summarised in **Table 10-11**.

Table 10-11 Predicted Operational Stage Noise Levels

Receptor Reference	Threshold Applicable Day (dB LAeq,1hr)	Threshold Applicable Night (dB LAeq,15min)	Predicted Operational Noise Level (dB LAeq,1hr)		
			Phase 1	Phase 2	Phase 3
R01	55	45	28	29	30
R02	55	45	27	28	29
R03	55	45	27	28	28
R04	55	45	26	27	28
R05	55	45	15	18	19
R06	55	45	24	25	26
R07	55	45	27	28	28
R08	55	45	27	28	28
R09	55	45	29	29	29
R10	55	45	13	16	16
R11	55	45	28	29	28
R12	55	45	28	28	28
R13	55	45	21	22	22
R14	55	45	24	25	25
R15	55	45	23	24	24
R16	55	45	22	23	24
R17	55	45	20	21	21
R18	55	45	20	21	21
R19	55	45	29	29	29
R20	55	45	28	29	28
R21	55	45	27	27	27
R22	55	45	26	26	26
R23	55	45	27	27	27
R24	55	45	29	29	29
R25	55	45	31	31	31
R26	55	45	27	28	28
R28	55	45	20	20	21
R29	55	45	20	20	20

10.74 It can be seen from the results presented in **Table 10-11** that the noise levels generated during the operational phase will fall well below both the relevant day and night thresholds.

Cumulative Impacts

- 10.75 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.
- 10.76 In addition to site noise from the extant permitted site operations, there is also an operational third-party quarry to the north of the site. Representative noise levels from both existing on and offsite operations were captured during the 2024 compliance noise survey.
- 10.77 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 10-12**.

Table 10-12 Cumulative Operational Noise Levels

Receptor	Proxy Baseline Survey Location	Sound Pressure Level ($L_{Aeq,T}$ dB RE 2×10^{-5} Pa)			Difference	IEMA Long Term Impact Rating
		Existing Noise Levels	Maximum Operational Noise Level	Cumulative		
R01	N6	60	30	60	+ 0	Negligible
R02	N6	60	29	60	+ 0	Negligible
R03	N6	60	28	60	+ 0	Negligible
R04	N6	60	28	60	+ 0	Negligible
R05	N6	60	19	60	+ 0	Negligible
R06	N6	60	26	60	+ 0	Negligible
R07	N5	40	28	40	+ 0	Negligible
R08	N5	40	28	40	+ 0	Negligible
R09	N3	54	29	54	+ 0	Negligible
R10	N4	45	16	45	+ 0	Negligible
R11	N4	45	29	45	+ 0	Negligible
R12	N4	45	28	45	+ 0	Negligible
R13	N6	60	22	60	+ 0	Negligible
R14	N6	60	25	60	+ 0	Negligible
R15	N6	60	24	60	+ 0	Negligible
R16	N6	60	24	60	+ 0	Negligible
R17	N6	60	21	60	+ 0	Negligible
R18	N6	60	21	60	+ 0	Negligible
R19	N3	54	29	54	+ 0	Negligible
R20	N3	54	29	54	+ 0	Negligible

Receptor	Proxy Baseline Survey Location	Sound Pressure Level ($L_{Aeq,T}$ dB RE 2×10^{-5} Pa)			Difference	IEMA Long Term Impact Rating
		Existing Noise Levels	Maximum Operational Noise Level	Cumulative		
R21	N4	45	27	45	+ 0	Negligible
R22	N4	45	26	45	+ 0	Negligible
R23	N4	45	26.9	45	+ 0	Negligible
R24	N4	45	29.3	45	+ 0	Negligible
R25	N4	45	30.7	45	+ 0	Negligible
R26	N6	60	27.6	60	+ 0	Negligible
R28	N6	60	20.5	60	+ 0	Negligible
R29	N6	60	20.2	60	+ 0	Negligible

10.78 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 in the vicinity of the site, the potential noise impacts arising from the proposed during will be negligible.

Mitigation

General Best Practice

- 10.79 The impact assessment has indicated that worst case construction and operational noise levels will fall within the adopted criterion.
- 10.80 Notwithstanding, it will be a requirement for the operator to employ and implement best practice noise and vibration management techniques in order to maintain acceptable noise levels at nearby noise sensitive receptors.
- 10.81 BS5228-1:2014+A1:2019 *Code of practice for noise and vibration control on construction and open sites – Noise* and BS5228-2:2014+A1:2019 *Code of practice for noise and vibration control on construction and open sites – Vibration* is the best practice standard for management of noise and vibration on construction and open sites such as quarries and sand and gravel pits.
- 10.82 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.

Mechanical Plant

- 10.83 All plant items will be properly and regularly maintained and operated according to the manufacturers' recommendations, in such a manner as to avoid causing excessive noise.
- 10.84 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

- 10.85 Access / internal haul roads will 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.
- 10.86 Vehicles waiting within the site will be prohibited from leaving their engines running and there will be no unnecessary revving of engines.
- 10.87 Care will be taken when unloading vehicles to reduce or minimise potential noise disturbance to residents.

Monitoring

- 10.88 It will be necessary that the operator continues to complete annual compliance noise surveys (twice per year) to establish operational noise emissions from the site.
- 10.89 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).
- 10.90 The surveys shall be completed using a Class 1 Sound Level meter.

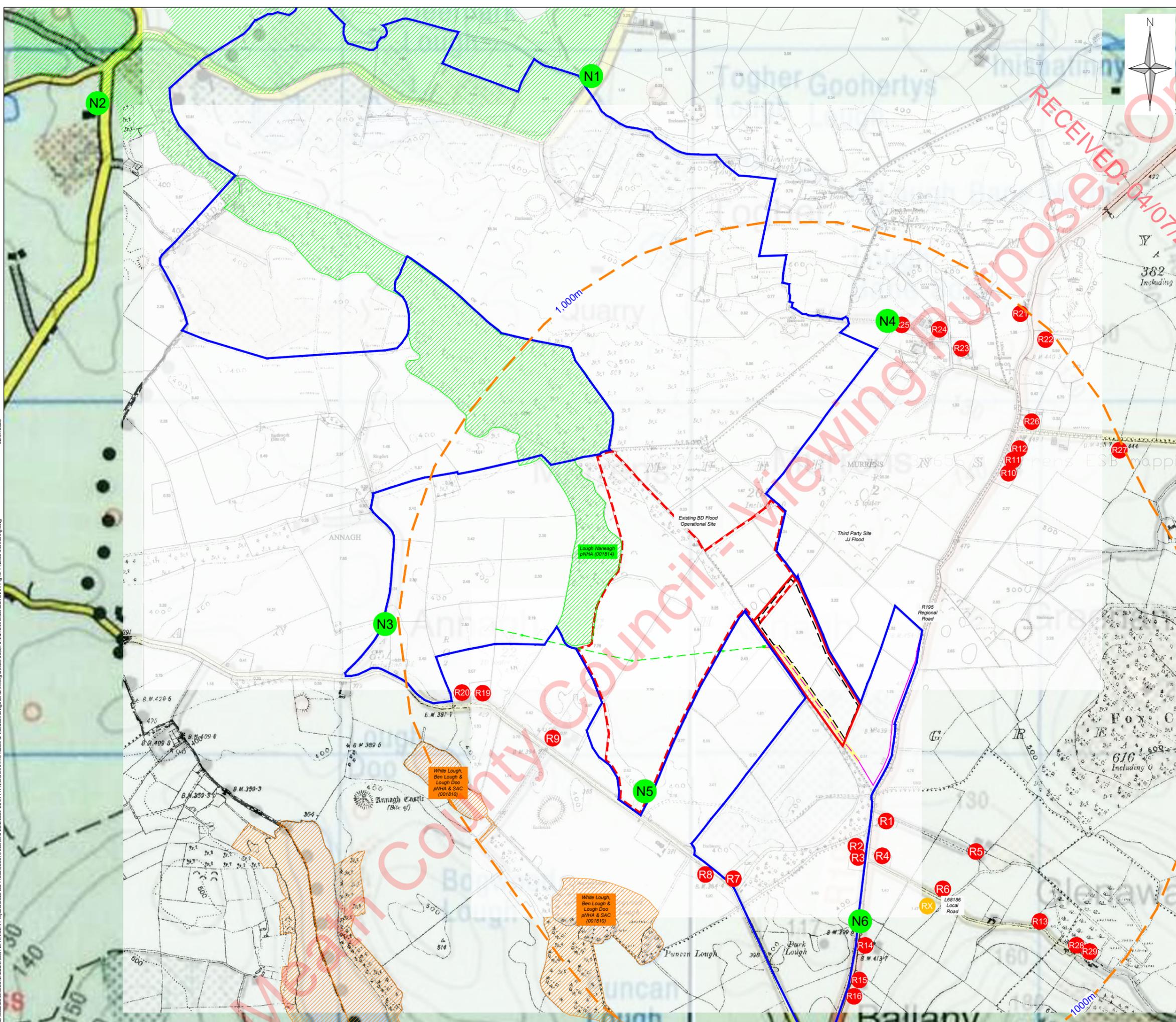
Residual Impact Assessment

- 10.91 During the construction stage, under a worst-case scenario for noise generation, there is potential for moderate to significant temporary negative impacts.
- 10.92 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 negligible impact.
- 10.93 The adoption and implementation of operational phase mitigation measures is expected to ensure that noise impacts are limited to negligible.

Figures

Figure 10-1 Noise Monitoring Locations & Receptors

RECEIVED: 04/07/2025
Meath County Council - Viewing Purposes Only!



Notes:

1. Based on Tailte Eireann Digital maps 2304, 2305, 2367, 2368; 6 inch raster scale maps MH014, MH015, WH004; and 50,000 scale Discovery Series maps 41 & 42

- Legend:**
- Landholding
 - Planning Application Area (c. 5.8 hectares)
 - Proposed Extraction Area (c. 4.2 hectares)
 - Planning Permission KA14/1129 (c. 28.5 hectares)
 - Distance Off-Sets from Planning Application Boundary 1km
 - R2 Residential Property Locations
Residences within 1km of Red Line Application Boundary
 - RX Residential Property permitted within the last 5 years but not yet constructed
 - N1 Existing Noise Monitoring Locations

Rev	Amendments	Date	By	Chk	Auth



Client
BD Flood Unlimited Company

Project
Sand & Gravel Pit Extension
The Murrins, Oldcastle, Co. Meath

Figure Title
Noise Monitoring Locations

Scale NTS @ A3	SLR Project No. 501.065670.00001		
Designed smcd	Drawn scmd	Checked lh	Authorised lh
Date 01/25	Date 01/25	Date 03/25	Date 03/25

Figure Number
Figure 10-1

Appendices

Appendix 10-A Glossary of Terms

RECEIVED: 04/07/2025

Meath County Council - Viewing Purposes Only!

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
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

RECEIVED: 04/06/2025
 Meath County Council - Viewing Purposes Only!

Acoustic Terminology

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 (2×10^{-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.
Fast Time Weighted	The speed at which the instrument responds to changes in amplitude of the measured signal. The response time of a fast 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} 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.
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	($L_r = L_{Aeq,T}$) 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 (L_p)	The logarithm of the ratio of a given sound pressure (p) to the reference sound pressure (p_0). The reference value for sound pressure is 20 μ Pa. Defined as:

$$L_p = 20 \log \left(\frac{p}{p_0} \right)$$