

SSEN Transmission Bingally 400 / 132 kV Substation Environmental Appraisal Volume 3 Appendix O

February 2025





T R A N S M I S S I O N

APPENDIX O NOISE MODEL CONFIGURATION

1.1 Introduction

- 1.1.1 A 3D noise model has been prepared in CadnaA 2023 MR2 for the purpose of predicting sound pressure levels from identified noise sources in the construction and operational of the Proposed Development.
- 1.1.2 Ground height point data at resolution of 10 m by 10 m grid has been used to define the ground topology across the Proposed Development and at all key Noise Sensitive Receptors and the intervening land.
- 1.1.3 Ground type was assumed to be absorptive (G = 1) in all areas except at the proposed substation site.
- 1.1.4 The following subsections highlight modelling parameters used in this assessment with respect to each phase of the project.

1.2 Construction Phase

- 1.2.1 The applied sound propagation calculation methodology is defined with in *BS* 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites. Noise.
- 1.2.2 The 3D model has been used to calculate sound pressure levels at NSRs for:
 - Plant and equipment used as part of the access track preparation work
 - The plant and equipment has been represented by a single point source located 1.5m above the ground at the closest approach to each NSR from the access track, The broadband A-weighted sound power level of the point source has been set according to the list of plant given in Volume 1, Chapter 13 Noise and Vibration, Table 13-13. Each point source is the sole contributor to the predicted sound level at its corresponding NSR.
 - Vehicles using the haul road in the peak month.
 - The total number of daily HGV / non-HGV in the peak month were used as the basis for the predictions. Vehicles using the access track were represented as a steady state moving point source along the line of the access track at 10km/h. The HGV and non-HGV contributions were modelled separately (at 1.5m and 0.5m above ground respectively) and their respective contributions were summed at each NSR to provide the total predicted sound pressure level for daytime and evening periods.
 - The sound power level of 108.1 dB L_{wA} for the HGV movements on the access track are based on BS 5228-1 Appendix C Reference C2.34
 - The sound power level of 97.5 dB L_{wA} for the non-HGV movement on the access track are based on the IMAGINE Source Model. *The Noise Emission Model for European Road Traffic. Deliverable 11 of the IMAGINE project.* IMA55TR-060821-MP10, January 11th, 2007.
- 1.2.3 Receptors at NSRs were located at a height of 1.5 m above the ground in free-field conditions.

1.3 Operational Phase

- 1.3.1 The applied sound propagation calculation methodology is defined within ISO 9613-2:1996 Acoustics — Attenuation of sound during propagation outdoors. Part 2: General method of calculation
- 1.3.2 The primary operational noise emission from the two Supergrid Transformers (SGTs) have been represented as point sources located within the proposed substation site at a height of 4 m.



TRANSMISSION

- 1.3.3 The applied sound power level and spectrum have been described within **Volume 1, Chapter 13 Noise and Vibration** directly.
- 1.3.4 Receptors at NSRs were located at a height of 4 m above ground in free-field conditions.