The Keadby 3 Low Carbon Gas Power Station Project

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The Keadby 3 (Carbon Capture Equipped Gas Fired Generating Station) Order

Land at and in the vicinity of the Keadby Power Station site, Trentside, Keadby, North Lincolnshire

Environmental Statement
Volume II - Appendix 9A: Construction Noise Assessment Methodology

The Planning Act 2008

The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017

Applicant: Keadby Generation Limited

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GLOSSARY

Abbreviation	Description
AGI	Above Ground Installation
BS	British Standard
CCGT	Combined Cycle Gas Turbine
CCP	Carbon Capture Plant
DCO	Development Consent Order
ES	Environmental Statement
Ha	Hectare
kV	Kilovolt - unit of power
kW	Kilowatt - unit of power
PCC	Power and Carbon Capture
NSR	Noise Sensitive Receptor

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TABLES

1.0 INTRODUCTION

1.1 Overview

1.1.1 AECOM Infrastructure and Environment Limited ('AECOM') has been commissioned by the Applicant to prepare a Development Consent Order (DCO) application for a proposed low carbon gas fired generating station on the Keady Power Station site at Keadby, Scunthorpe, DN17 3EF (hereafter referred to as the 'Proposed Development').

1.1.2 Section 2 of this appendix provides information on the approach and data used for the assessment of construction noise within **Chapter 9**: Noise and Vibration of the Environmental Statement (ES) (ES Volume I – **Application Document Ref 6.2**).

1.1.3 The terms of reference used to describe the Proposed Development in this report are broadly consistent with those defined within the main chapters of the ES and illustrated on **Figure 3.3:** Areas of the Site Referred to in the Environmental Statement (ES) (ES Volume III – **Application Document Ref. 6.4**).

1.1.4 The Proposed Development Site encompasses an area of approximately 69.4 hectares (ha) which includes circa 20.7ha of land for construction laydown.

1.1.5 The Proposed PCC Site comprises an area of approximately 18.7ha of the Proposed Development Site within the wider Keadby Power Station site that is located within Keadby Common. Overhead electricity transmission lines associated with the existing National Grid 400kV Substation bisect the Proposed PCC Site. Land to the south of these overhead lines within the Proposed PCC Site is proposed for administration/ control room/ warehouse buildings and car parking areas and an above ground installation (AGI) for the gas connection. The area of the Proposed PCC Site on which the power generation (Combined Cycle Gas Turbine (CCGT)), Carbon, Capture and Compression (CCP) and associated stacks will be developed is referred to as the 'Main Site' herein.

2.0 CONSTRUCTION NOISE ASSESSMENT METHODOLOGY

2.1 Overview

2.1.1 The indicative construction noise levels were calculated using the procedures for prediction of construction noise set out in BS5228-1:2009+A1:2014 (British Standards Institute (BSI), 2014a).

2.1.2 Free-field construction noise levels were predicted at up to twelve noise sensitive receptor (NSR) locations for the following construction activities:

- construction within the Proposed PCC Site:
  - early works including A18 and Mabey Bridge;
  - site enabling and preparation (site clearance, import/ export of materials, site preparation etc);
  - main civil works (including piling and foundation works, building erection, site based construction);
  - plant installation;
- River Water or Canal Water Abstraction Options:
  - cofferdam installation (sheet piling) either within the Stainforth and Keadby Canal (Canal Water Abstraction Option) or River Trent (River Water Abstraction Option);
- Electrical Connections (cable works to 132kV Electrical Connection Option):
  - assuming primarily below ground connection and construction techniques (e.g. topsoil strip and use of 'open-cut' methods);
- Mabey Bridge replacement:
  - assuming continuous flight auger piling which is expected to be the highest noise activity during this early works phase.

2.1.3 A full list of plant associated with each construction phase and associated sound power data from BS5228 (British Standards Institute (BSI), 2014a) and % on time is presented in Tables 1 and 2, below. The list of plant was sourced from other similar projects.

Table 1: Plant and Equipment Associated with Construction of the Proposed PCC Site

Plant/Equipment	Sound Power Level (dB) Referenced from BS 5228	% on time used in calculations (based on 12 hr working day)	Mobile or static?	Number in operation by stage of work		
				Site enabling and preparation	Main civil works (including piling and foundation works)	Plant installation
Compressors	108	100	Static	3	6	6
Hand-held pneumatic breaker	111	100	Static	3	0	0
Dump truck (tipping fill)	107	100	Mobile	2	2	0
Dump truck (pass-by)	115	100	Mobile	3	3	0
Wheeled Loader	108	100	Mobile	0	0	0
Lorry (delivery and collection)	108	100	Mobile	4	10	10
Water pump (20kW)	93	100	Static	0	0	0
Pre-cast concrete piling hydraulic hammer rig	117	100	Static	0	4	0
Hand-held welder (welding piles)	101	100	Static	0	1	0
Generator for welding	101	100	Static	0	1	0
Dumper (idling)	91	100	Mobile	0	0	0
Wheeled backhoe loader	95	100	Mobile	0	0	0
Tracked excavator	99	100	Mobile	5	5	0
Concrete mixer truck	108	100	Mobile	6	25	0

Plant/Equipment	Sound Power Level (dB) Referenced from BS 5228	% on time used in calculations (based on 12 hr working day)	Mobile or static?	Number in operation by stage of work		
				Site enabling and preparation	Main civil works (including piling and foundation works)	Plant installation
Truck mounted concrete pump and boom arm	108	100	Mobile	0	3	0
Poker vibrator	106	100	Mobile	0	0	0
Wheeled mobile telescopic crane	106	100	Static	2	4	4
Tower crane	105	100	Static	1	2	2
Lorry with lifting boom	105	100		1	0	1
Lifting platform	95	100	Static	0	0	1
Fork-lift truck	103	100	Mobile	0	0	1
Mini tracked excavator	102	100	Mobile	0	0	1
Electric core drill (drilling concrete)	113	100	Static	0	0	1
Concrete floor cutter	119	100	Static	0	0	1
Hand-held circular saw (cutting paving slabs)	112	100	Static	0	0	1
Roller	101	100	Mobile	0	0	0
Diesel generator for site cabins	94	100	Static	2	4	4
Diesel generator for site lighting	93	100	Static	1	2	2
Road sweeper	96	100	Mobile	1	1	1

Plant/Equipment	Sound Power Level (dB) Referenced from BS 5228	% on time used in calculations (based on 12 hr working day)	Mobile or static?	Number in operation by stage of work		
				Site enabling and preparation	Main civil works (including piling and foundation works)	Plant installation
Angle grinder	108	100	Static	1	1	1
Hand-held cordless bail gun	101	100	Static	0	0	1
Road planer (road construction)	110	100	Mobile	0	0	0
Vibratory compactor (asphalt)	110	100	Mobile	0	0	0
Asphalt paver and tipper lorry	105	100	Mobile	0	0	0
Electric water pump	96	100	Mobile	2	2	2
Screen Stockpiler	115	100	Mobile	0	0	0
Concrete breaker mounted on wheeled backhoe	120	100	Mobile	0	0	0
Tracked crusher	112	100	Mobile	0	0	0

Table 2: Plant and Equipment Associated with Construction (parts of Proposed Development not on the Main Site)

Plant/Equipment	Sound Power Level (dB) Reference from BS 5228	% on time (based on 12 hr day) used in calculations	Mobile or Static?	Construction Activity		
				Early Works (A18/ Mabey Bridge Replacement)	Sheet piling for cofferdam	Topsoil strip for electrical connections
Vibratory piling rig	116	100	Static	0	1	0
30T Backhoe	113	100	Mobile	0	0	1
CAT D5	106	100	Mobile	0	0	1
CAT D6	109	100	Mobile	0	0	1
CAT D8	120	100	Mobile	0	0	1
Compressors	108	100	Static	3	0	0
Dump truck (tipping fill)	107	100	Mobile	1	0	0
Dump truck (pass-by)	115	100	Mobile	2	0	0
Lorry (delivery and collection)	108	100	Mobile	5	0	0
Pre-cast concrete piling hydraulic hammer rig	117	100	Static	2	0	0
Hand-held welder (welding piles)	101	100	Static	1	0	0
Generator for welding	101	100	Static	1	0	0
Tracked excavator	99	100	Mobile	5	0	0
Concrete mixer truck	108	100	Mobile	12	0	0

Plant/Equipment	Sound Power Level (dB) Reference from BS 5228	% on time (based on 12 hr day) used in calculations	Mobile or Static?	Construction Activity		
				Early Works (A18/ Mabey Bridge Replacement)	Sheet piling for cofferdam	Topsoil strip for electrical connections
Truck mounted concrete pump and boom arm	108	100	Mobile	2	0	0
Wheeled mobile telescopic crane	106	100	Static	2	0	0
Tower crane	105	100	Static	2	0	0
Diesel generator for site cabins	94	100	Static	2	0	0
Diesel generator for site lighting	93	100	Static	2	0	0
Road sweeper	96	100	Mobile	1	0	0
Angle grinder	108	100	Static	1	0	0
Electric water pump	96	100	Mobile	1	0	0

3.0 REFERENCES

British Standards Institute (2014a) BS 5228-1:2009+A1:2014 – Code of practice for noise and vibration control on construction and open sites. Part 1: Noise