



ESTUARIES

OFFSHORE WIND FARM

FIVE ESTUARIES OFFSHORE WIND FARM

10.32 BENTLEY ROAD EVENING AND NIGHT-TIME CONSTRUCTION NOISE IMPACTS

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DEFINITION OF ACRONYMS

Term	Definition
BRNR n	Bentley Road Night-time Receptor number n .
dB	Decibel, SI unit used to quantify the magnitude of sound.
EIA	Environmental Impact Assessment.
L _{Aeq}	Equivalent continuous sound pressure level. The steady sound level which has the same energy as a time varying sound signal when averaged over the same time interval.
L _{WA}	Sound power level. The total sound power radiated by a source, in decibels.
NSR	Noise Sensitive Receptor.



1. GENERAL

1.1 INTRODUCTION

- 1.1.1 This document has been produced in response to Action Point 6, raised during Issue Specific Hearing 3 (ISH3). Action Point 6 specifies the requirement for the submission of a noise assessment for any night-time works at the junction between the A120 and Bentley Road, associated with Five Estuaries Offshore Wind Farm. This follows confirmation from National Highways that any works to the carriageway may need to be undertaken outside of traffic sensitive hours, designated to be between 06.00 and 20.00 hours, referred to hereafter as 'evening and night-time'.
- 1.1.2 6.3.9 Airborne Noise and Vibration [APP-091] assessed the noise impact of Bentley Road / A120 junction improvement works during the daytime; however, different noise thresholds apply for construction noise for different periods of the day. Table 9.4 and paragraph 9.2.38 set out the thresholds for night-time, evening and weekends, and daytime and Saturdays.

1.2 NIGHT-TIME CONSTRUCTION WORKS

- 1.2.1 Construction works that may be undertaken during the evening and night-time hours will be restricted to those which require a lane closure to be carried out safely. Any potential evening and night-time construction work will also be limited to the A120 and not Bentley Road.
- 1.2.2 The widening works all occur on Bentley Road and within the footway area of the A120. Therefore the excavation, drainage, kerbing and pavement construction works can all be undertaken with the A120 northbound lane open. This will constrain the contractor along the footway works area but will be manageable with the right phasing and plant selection. The exact nature of the evening and night time working is unknown and unconfirmed and would be subject to discussions with National Highways as part of detailed design. However, works that are currently envisaged which may need to be undertaken under closure conditions and therefore during the evening and night-time, would be the road markings where the existing hatching needs to be partially removed and new lines installed.



2. METHODOLOGY

2.1 STUDY AREA

2.1.1 A study area for the investigation of noise impacts of evening and night-time construction works has been defined based on the equipment that would be used and the distance at which the noise from this equipment would diminish to 45 dB L_{Aeq}. Paragraph 2.2.4 discusses the construction equipment and their sound power levels. At an unscreened distance of 460 m the noise level from this equipment will diminish to 45 dB L_{Aeq}; therefore, a study area has considered noise sensitive receptors (NSRs) within this distance from any road marking works due to take place on the A120. The NSRs that have been identified to be within the study area are listed in Table 2.1.

Table 2.1: Noise Sensitive Receptors within the Study Area

ID	Name	X	Y	Minimum distance to works, m
BRNR1	Pellens Cottage	611277	226566	41
BRNR2	The Nook	611232	226572	80
BRNR3	Jasmine Cottage	611144	226671	185
BRNR4	Spring Hall Cottage	611174	226285	330
BRNR5	Spring Hall	611224	226305	295
BRNR6	Bynes Farm	611371	226357	235
BRNR7	Byeways	611302	226511	75
BRNR8	Red House Farm	611498	226865	140
BRNR9	Byesland Orchard	611798	226908	405

2.1.2 Table 2.1 includes coordinates of the nearest façade to the construction works that is noted to contain a window and the approximate distance between this point and the nearest area of potential evening and night-time working.

2.2 ASSESSMENT METHOD

2.2.1 Construction noise levels have been calculated using the same method as all the other construction noise predictions that were carried out during the EIA, as summarised in APP-091 paragraphs 9.4.27 to 9.4.30, using the maximum design scenarios specified in Table 9.25 for Impact 4 (defined in APP-091 as the daytime noise and vibration impacts upon receptors due to road improvement works to Bentley Road and the junction of the A120).



- 2.2.2 The magnitude of impact for evening and night-time construction noise has been defined in the same manner as the EIA, as summarised in APP-091 paragraphs 9.5.4 to 9.5.6 and Table 9.14. The threshold values referenced in Table 9.14 [APP-091] are set for this assessment to the BS5228 ‘evening and weekends’ and ‘night-time’ periods using Category B, provided in Table 9.4 [APP-091] to be 60 dB L_{Aeq} between the hours of 20.00 and 23.00 and 50 dB L_{Aeq} between the hours of 23.00 and 06.00.
- 2.2.3 It is noted that Category A, applicable to areas with low levels of ambient noise, was assumed to be a representative worst case in the EIA when considering the entire cable corridor, where the majority of receptors were away from major roads. DEFRA noise mapping has been used to indicate the likely ambient noise levels within the study area to be between 45 dB L_{Anight} and 60 dB L_{Anight} , which places NSRs in Category B or C. Due to the elevated ambient noise levels around the A120, Category B is justified as a worst case for evening and night-time works in this area.
- 2.2.4 The installation of new road markings in such a limited area would be done using a road marking machine or hand held painting tools (paint pot and spreader). These are non motorized and hence can be conducted with little noise other than the vehicle that transports and potentially heats the paint. The removal of the existing road markings can be carried out using several different types of equipment, including mechanical scabbling or hydro blasting. A noise level of 87 dB L_{Aeq} at a distance of 10 m has been provided by the Applicant’s onshore civil engineering designer as representative of these methods. Equipment would be in operation and generating noise for approximately 25% of the time.
- 2.2.5 A sound power level has been calculated from the sound pressure level and the percentage usage, using Equation 1 of Volume 6, Part 6, Annex 9.2: Onshore Airborne Noise Construction Sound Power Details [APP175]. The calculated sound power level is 109 dB L_{WA} .



3. NOISE IMPACTS FROM EVENING AND NIGHT-TIME CONSTRUCTION WORKS

3.1.1 If required, the evening and night-time construction works will be completed within one working week (five evenings and nights). Noise levels at the NSRs will be the greatest for a few hours when works are at their closest and will quickly diminish as works progress further away. Table 3.1 presents the external night-time construction noise levels when equipment is closest to the listed NSR.

Table 3.1: Evening and Night-time Construction Noise Levels

ID	Name	Calculated Construction Noise, dB L _{Aeq}	Impact based on construction time	
			20.00 – 23.00	23.00 – 06.00
BRNR1	Pellens Cottage	68	Low	Low
BRNR2	The Nook	62	Low	Low
BRNR3	Jasmine Cottage	54	Negligible	Low
BRNR4	Spring Hall Cottage	48	Negligible	Negligible
BRNR5	Spring Hall	49	Negligible	Negligible
BRNR6	Bynes Farm	51	Negligible	Low
BRNR7	Byeways	62	Low	Low
BRNR8	Red House Farm	56	Negligible	Low
BRNR9	Byesland Orchard	46	Negligible	Negligible

3.1.2 Night-time construction noise levels are up to 68 dB L_{Aeq}, which is a high impact if sustained for a period of 10 or more days in any 15 consecutive days. As all night-time works will be completed within five days, an impact of this duration would be of low magnitude, as per Table 9.14 of APP-091. This low magnitude of impact upon a medium sensitive receptor results in a temporary **minor** effect, which is not significant in EIA terms. Notwithstanding this, it is recommended that best practice construction noise mitigation measures, as set out in section 4.3 of 9.21: Code of Construction Practice, Rev B [REP1-041] are employed to minimise any impacts. In addition, residents of properties that have the potential to be exposed to a low impact (BRNR1-3 and BRNR6-8) will be informed of when evening and night-time works are planned, and where possible, works closest to these NSRs will be prioritised to be carried out between the hours of 20.00 and 23.00.



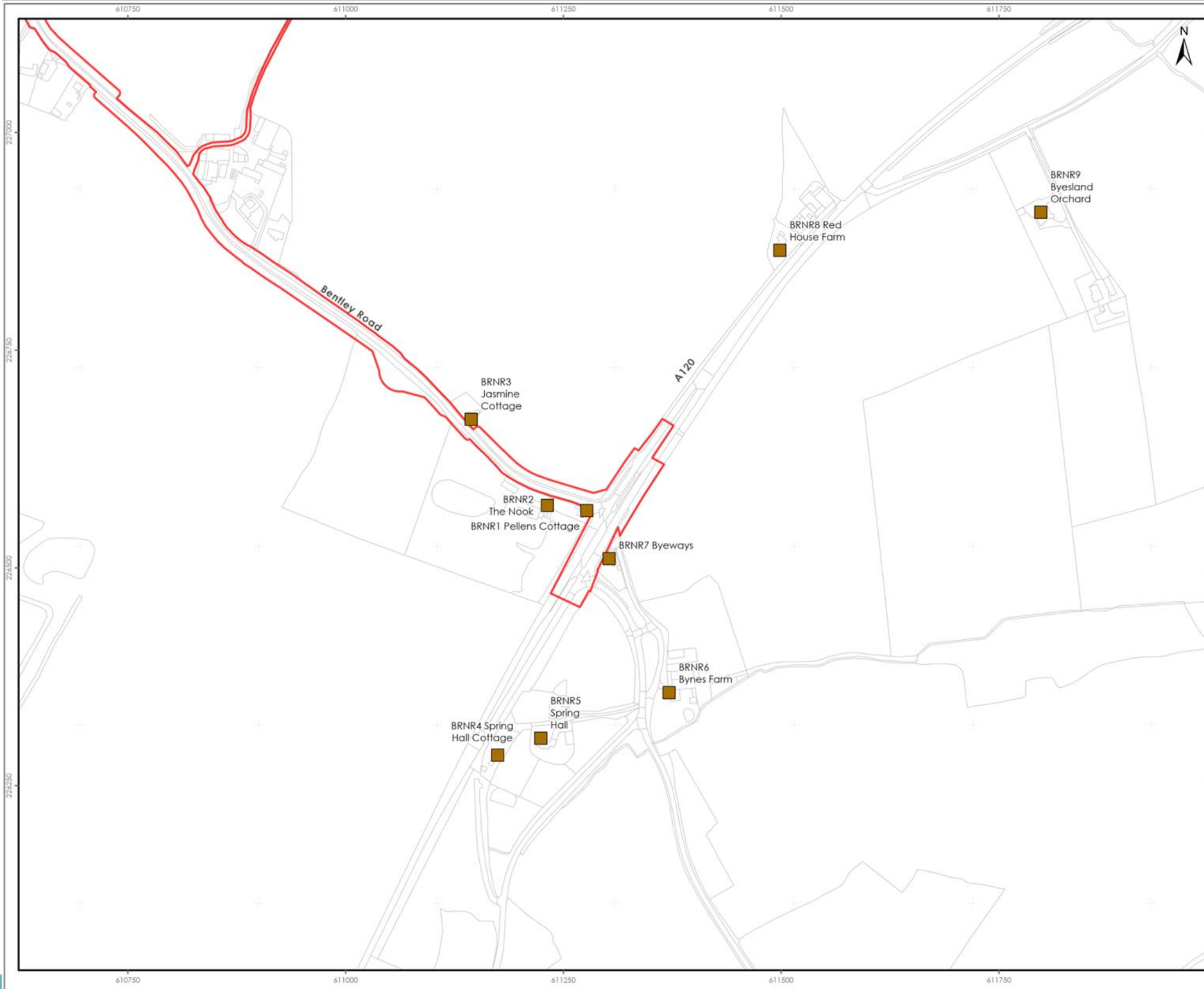
4. CONCLUSION

- 4.1.1 An assessment of the potential noise impacts resulting from evening and night-time construction works on the A120 has been carried out in response to an Action Point raised during Issue Specific Hearing 3. A study area has been defined by the minimum distance at which construction noise could be experienced at a level of 45 dB L_{Aeq} (external and unscreened). A total of nine noise sensitive receptors have been identified within the study area.
- 4.1.2 Evening and night-time construction works on the A120 that generate noise will be limited to the removal of existing road markings and are anticipated to be completed within one working week (five evenings and nights).
- 4.1.3 Noise will be at a greatest when construction work is being carried out at the closest point to the noise sensitive receptor and will quickly diminish as works move further away. Whilst high levels of construction noise are calculated for the evening and night-time period, they will be short and as such considered to be a low magnitude of impact, which upon a medium sensitive receptor is a temporary minor effect and considered in EIA terms to be not significant. Notwithstanding this, mitigation measures in the form of best practice are employed to minimise any impact.



5. REFERENCES

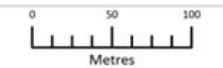
- British Standards Institution (2014), 'BS 5228-1:2009+A1:2014. Code of practice for noise and vibration control on construction and open sites – Part 1: Noise'. London: British Standards Institution.
- Department for Environment Food & Rural Affairs (2023), 'Road Noise – All Metrics – England Round 4'. Available online <https://environment.data.gov.uk/explore/562c9d56-7c2d-4d42-83bb-578d6e97a517> (Accessed November 2024)



LEGEND

- Order Limits
- Night-Time Construction Noise Assessment Location

ID	Name	X	Y
BRNR1	Pellens Cottage	611277	226566
BRNR2	The Nook	611232	226572
BRNR3	Jasmine Cottage	611144	226671
BRNR4	Spring Hall Cottage	611174	226285
BRNR5	Spring Hall	611224	226305
BRNR6	Bynes Farm	611371	226357
BRNR8	Red House Farm	611498	226865
BRNR7	Byeways	611302	226511
BRNR9	Byesland Orchard	611798	226908



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PROJECT TITLE:
FIVE ESTUARIES OFFSHORE WINDFARM

DRAWING TITLE:
BENTLEY ROAD NIGHT-TIME CONSTRUCTION NOISE ASSESSMENT LOCATIONS

VER	DATE	REMARKS	Drawn	Checked
1	20/11/2024	Deadline 4	JO	JRS

DRAWING NUMBER: 1

SCALE: 1:4,000 PLOT SIZE: A3 SHEET: OSGB 1936 PROJECTIONS: British National Grid





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