

PORT OF TYNE - ES NOISE CHAPTER ADDENDUM

Port of Tyne

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Final

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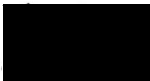
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EXECUTIVE SUMMARY

A noise assessment has been undertaken to determine the likely impacts arising from the proposed Wood Pellet Facility at the Port of Tyne. This document is an addendum to the Environmental Statement (ES) dated December 2013.

The noise assessment has taken into account the following changes in the proposed scheme:

- Continuous ship unloaders will be removed from the proposal;
- Vessels will be discharged using crane/grab, mobile hoppers and dump trucks;
- Dump trucks will discharge at Samson unloaders with the material conveyed onto three silos;
- There is potential for 2 vessels to be discharged at the same time.

An assessment in accordance with BS4142 has been undertaken. Results indicate that the likelihood of complaints due to noise arising from the proposed facilities would be below marginal significance. A comparison against the existing ambient noise levels indicates that the noise impact is likely to be minor as a worst case.

The noise levels predicted taking into account the latest changes in the proposal are, in general, lower than those reported in the ES.

1 INTRODUCTION**1.1 Background**

1.1.1 Parsons Brinckerhoff (PB) has been instructed by the Port of Tyne to prepare a noise assessment for the proposed Wood Pellet Facility. This report presents an addendum to the Port of Tyne ES Noise Chapter, dated December 2013, to reflect changes in the proposed facilities.

1.1.2 Changes in the proposal can be summarised as follows:

- Continuous ship unloaders will be removed from the proposal;
- Vessels will be discharged using crane/grab, mobile hoppers and dump trucks;
- Dump trucks will discharge at Samson unloaders with the material conveyed onto three silos
- There is potential for 2 vessels to be discharged at the same time

1.1.3 A glossary of acoustic terminology used in this chapter is presented in Appendix A.

2 LEGISLATION, POLICY AND GUIDANCE

2.1.1 The legislative framework and guidelines used in the noise and vibration assessment are outlined in the ES Noise chapter.

3 METHODOLOGY**3.1 General**

3.1.1 The assessment methodology described in the ES chapter has been followed in this addendum. The assessment has been prepared with a combining a desktop and site survey methodology. Baseline noise surveys were carried out to determine the existing noise climate representative of the nearest noise-sensitive receptors.

3.1.2 The likely noise impact arising from the facilities, including the proposed changes has been determined in accordance with BS4142. In addition, the significance of potential noise effects has been assessed by using a significance criteria developed for this project.

3.2 Baseline Noise Survey

3.2.1 Baseline noise surveys have been undertaken at the existing noise-sensitive receptors to determine the current noise climate in 2011 and 2013. Survey reports have been produced and these formed part of previous assessments for Port of Tyne. The surveys were conducted in accordance with BS7445.

3.2.2 Details of the survey are presented in Appendix 6.2 of the ES Noise Chapter.

3.3 Operational Noise Assessment

3.3.1 The wood pellet handling facilities will comprise of a combination of cranes and hoppers. These will be used to transfer the pellets into 30 tonne dump trucks. The dump trucks will then discharge at Samson unloaders and the material will be moved

to storage silos using an enclosed conveyor system. Subsequently, the pellets will be transferred to the rail head for loading onto trains.

- 3.3.2 The facilities will operate 24/7 and PB understands that the activities will not vary during day and night. Therefore, a single scenario has been modelled to represent the daytime and night-time periods.
- 3.3.3 The layout used in the model corresponds to drawing No. 2013/P0916/0011, Rev 0, Dated 4th December 2013.
- 3.3.4 The assessment considers the discharge of 2 simultaneous vessels. A combination of 6 mobile hoppers and 6 harbour cranes (Liebherr 320 and 550) has been modelled as shown on the site layout to represent the unloading activities. Acoustic data equivalent to the grabs and cranes has been incorporated into the model. The unloading operations have been modelled to be continuous (i.e. 100% on time) as a worst case scenario.
- 3.3.5 A total of 6 dump trucks have been modelled on the quay. It is understood that more trucks will be operational, however, 6 trucks will be a typical number of dump trucks operating simultaneously (i.e. 6 dump trucks with 100% on time).
- 3.3.6 Conveyors and train unloading have not been changed in this iteration.
- 3.3.7 Table 1 presents a summary of the noise sources used in the model and associated acoustic data.

Table 1: Noise Sources used in the Model

Source	Acoustic Data	On time
30T Dumper Wagon	Sound Power Level 108 dB(A)	100%
Mobile Hoppers	Sound Power Level 95 dB(A)	100%
Diesel Harbour Crane	Sound Power Level 91 dB(A)	100%
Belt Conveyors	Sound Pressure Level 72 dB(A) at 1m	100%
Rail Loading	Sound Pressure Level 85 dB(A) at 1m	100%
Vibrafloor	Sound Pressure Level 70 dB(A) at 1m	100%
Bulk Unloaders	Sound Pressure Level 85 dB(A) at 1m	100%
Filters	Sound Pressure Level 85 dB(A) at 1m	100%

- 3.3.8 The operational noise impact, due to its industrial nature, has been assessed in accordance with BS4142. The rating noise levels predicted at each of the receptors have been compared against the existing background noise climate during daytime and night-time. Therefore, the likelihood of complaints arising from residents due to the activities associated with the application has been determined for the periods of daytime and night-time.
- 3.3.9 In addition, the change in ambient noise levels has been assessed by comparing the total noise levels, including predicted values, against the existing ambient noise levels $L_{Aeq,T}$ dB. The significance of operational noise impact in the long term has been assessed in accordance with the following criteria set out in the ES:

- Not Significant (NS): less than 3dB;

- Minor: between 3dB and 5dB;
- Moderate: between 5dB and 10dB; and
- High: more than 10dB.

4 RESULTS

4.1.1 An assessment has been undertaken to determine the likelihood of complaints from nearby residents. Tables 2 – 4 present the noise levels predicted at each of the noise-sensitive receptors for the daytime, evening and night-time periods. The rating noise levels are compared to the measured background noise levels L_{A90} dB. Advice is given on the likelihood of complaints, based on the BS4142 criteria.

4.1.2 A correction (i.e. 5dB) has not been added to the predicted noise levels as it is considered that the activities will not contain any tonal characteristics, or will be of an intermittent or impulsive nature.

Table 2: BS4142 Noise Assessment – Daytime

NSR Location	NSR 1 The Captains Row	NSR 2 Temple Town	NSR 3 Hudson Street	NSR 4 Newcastle Road	NSR 5 Slake Road	NSR 6 Coble Dene	NSR 7 West Holborn	NSR 8 Windmill Hill
Predicted Plant Noise Level, L_{Aeq} dB	43	45	42	44	41	35	40	42
Acoustic Feature Correction, dB	0	0	0	0	0	0	0	0
Rating Level, dB	41	45	42	43	41	34	45	41
Typical Daytime Background Level, L_{A90} dB	50	58	59	60	44	55	49	53
Excess of Rating Over Background, dB	-9	-13	-17	-17	-3	-21	-4	-12

Table 3: BS4142 Noise Assessment – Evening

NSR Location	NSR 1 The Captains Row	NSR 2 Temple Town	NSR 3 Hudson Street	NSR 4 Newcastle Road	NSR 5 Slake Road	NSR 6 Coble Dene	NSR 7 West Holborn	NSR 8 Windmill Hill
Predicted Plant Noise Level, L_{Aeq} dB	43	45	42	44	41	35	40	42
Acoustic Feature Correction, dB	0	0	0	0	0	0	0	0
Rating Level, dB	41	45	42	43	41	34	45	41
Typical Daytime Background Level, L_{A90} dB	40	47	44	51	41	43	43	47
Excess of Rating Over Background, dB	1	-2	-2	-8	0	-9	2	-6

Table 4: BS4142 Noise Assessment – Night-time

NSR Location	NSR 1	NSR 2	NSR 3	NSR 4	NSR 5	NSR 6	NSR 7	NSR 8
	The Captains Row	Temple Town	Hudson Street	Newcastle Road	Slake Road	Coble Dene	West Holborn	Windmill Hill
Predicted Plant Noise Level, L_{Aeq} dB	43	45	42	44	41	35	40	42
Acoustic Feature Correction, dB	0	0	0	0	0	0	0	0
Rating Level, dB	41	45	42	43	41	34	45	41
Typical Daytime Background Level, L_{A90} dB	38	45	37	42	39	41	40	44
Excess of Rating Over Background, dB	3	0	5	1	2	-7	5	-3

4.1.3 It can be seen from the tables above that, during the daytime, evening and night-time periods, the likelihood of complaints would be below marginal significance. None of the receptors would be subject to a noise impact such that complaints are likely (i.e. 10dB above existing background noise levels). It should be noted that these results indicate that receptors would be exposed to a lower impact in comparison to those presented in the ES.

4.1.4 Figure 1 (see Appendix B) presents the predicted operational noise levels at a height of 4m.

4.1.5 In addition to BS4142, an assessment has been made to determine the likely change in ambient noise levels at the nearest receptors during daytime, evening and night-time. The significance of impacts has also been determined, in accordance with the criteria introduced in the methodology section of this chapter. Tables 5 – 7 present a summary of these results.

Table 5: Change in Ambient Noise Levels – Daytime

NSR Location	NSR 1	NSR 2	NSR 3	NSR 4	NSR 5	NSR 6	NSR 7	NSR 8
	The Captains Row	Temple Town	Hudson Street	Newcastle Road	Slake Road	Coble Dene	West Holborn	Windmill Hill
Predicted Plant Noise Level, L_{Aeq} dB	43	45	42	44	41	35	40	42
Existing Ambient Noise Level L_{Aeq} dB	54	71	67	67	51	62	53	57
Total Noise Level L_{Aeq} dB	54	71	67	67	52	62	53	57
Excess of Total over Existing, dB	0	0	0	0	+1	0	0	0
Significance	NS	NS	NS	NS	NS	NS	NS	NS

Table 6: Change in Ambient Noise Levels – Evening

NSR Location	NSR 1	NSR 2	NSR 3	NSR 4	NSR 5	NSR 6	NSR 7	NSR 8
	The Captains Row	Temple Town	Hudson Street	Newcastle Road	Slake Road	Coble Dene	West Holborn	Windmill Hill
Predicted Plant Noise Level, L_{Aeq} dB	43	45	42	44	41	35	40	42
Existing Ambient Noise Level L_{Aeq} dB	51	71	62	64	44	46	53	57
Total Noise Level L_{Aeq} dB	52	71	62	64	46	46	53	57
Excess of Total over Existing, dB	0	0	0	0	+2	0	0	0
Significance	NS	NS	NS	NS	NS	NS	NS	NS

Table 7: Change in Ambient Noise Levels – Night-time

NSR Location	NSR 1	NSR 2	NSR 3	NSR 4	NSR 5	NSR 6	NSR 7	NSR 8
	The Captains Row	Temple Town	Hudson Street	Newcastle Road	Slake Road	Coble Dene	West Holborn	Windmill Hill
Predicted Plant Noise Level, L_{Aeq} dB	43	45	42	44	41	35	40	42
Existing Ambient Noise Level L_{Aeq} dB	44	62	55	59	41	42	46	47
Total Noise Level L_{Aeq} dB	46	62	55	59	44	43	47	48
Excess of Total over Existing, dB	0	0	0	0	+3	0	0	0
Significance	NS	NS	NS	NS	Minor	NS	NS	NS

4.1.6 From the tables above it can be seen that the change in noise levels during the operational phase at the nearest receptors would be +3dB as a worst case during night-time. Therefore, the effect would be minor as a worst case.

5 MITIGATION MEASURES

5.1.1 The assessment concludes that the dominant noise sources would be the dump trucks. The sound power levels used in this assessment should be considered as an upper limit.

5.1.2 In addition, as a secondary noise contributor, the assessment concluded that the noise level of the conveyors should not exceed $L_{Aeq,T}$ 73 dB at 1m. It is expected that this value would be met through the implementation of enclosed conveyors.

6 CONCLUSION

6.1.1 A noise assessment has been undertaken to assess the likely noise impact due to changes in the proposed wood pellet facility at Port of Tyne.

6.1.2 A noise model was created using software CadnaA to determine the likelihood of complaints arising from residents due to the operation of the proposal. The significance of effects for the construction and operation has been determined.

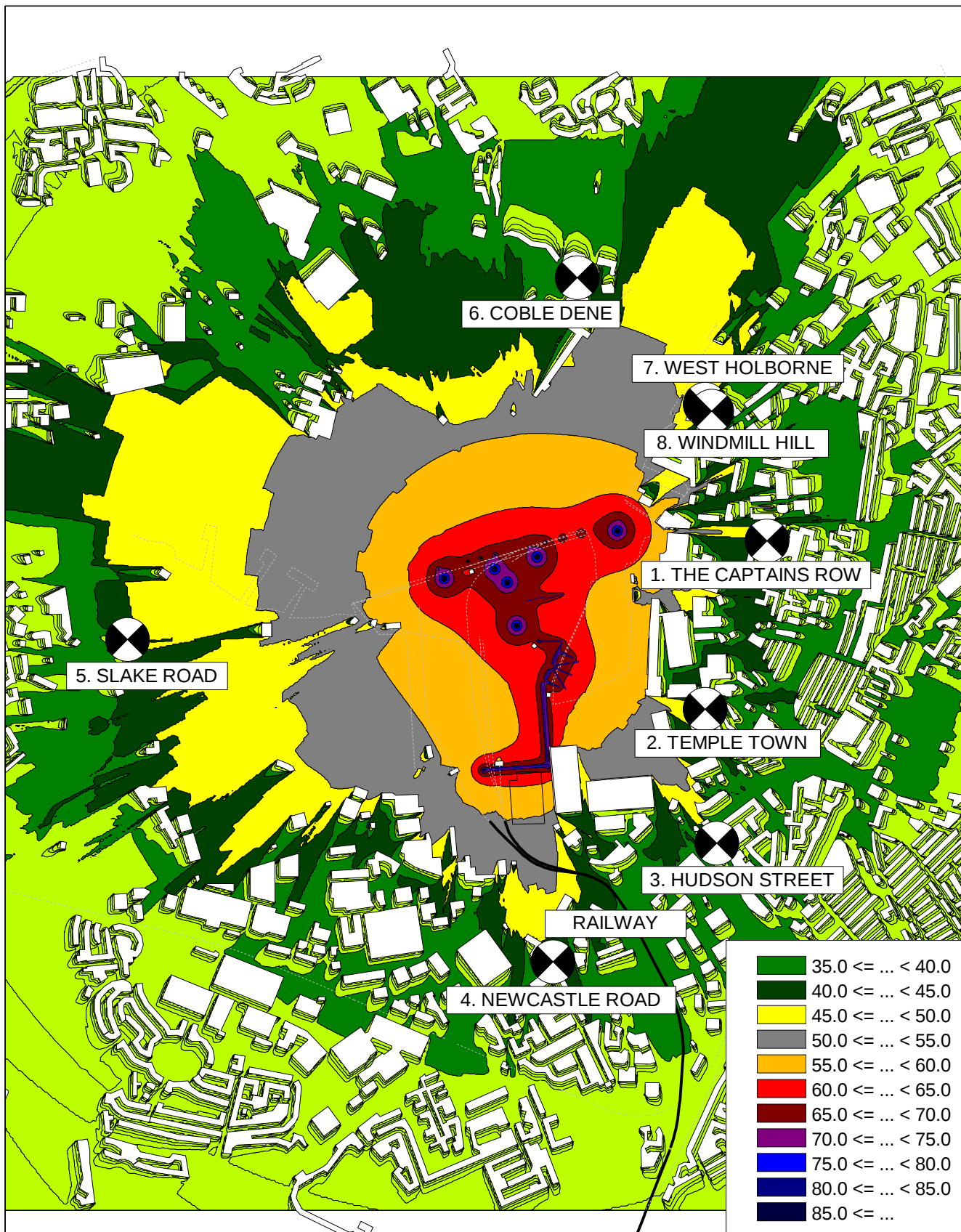
- 6.1.3 During operation of the scheme, it is expected that complaints due to noise would be below marginal significance. A study of the change in ambient noise levels suggests that the significant of noise effects would be minor as a worst case, for the night-time period.
- 6.1.4 Receptors would be exposed to a lower impact in comparison to results associated with the ship unloading process presented in the ES.

APPENDIX A – GLOSSARY OF TERMS

GLOSSARY OF TERMS

Ambient Noise	The total sound in a given situation at a given time, usually composed of sound from many sources near and far.
A – Weighting	A-weighting has been found to give the best correlation between perceived and actual loudness. Measurements to which this weighting has been applied are described as being in dB(A).
Background Noise Level, $L_{A90,T}$	The dB level exceeded for 90% of a given time interval, T.
Decibel (dB)	A logarithmic unit for measuring the relative loudness of noise, i.e. the sound level.
Environmental Noise	Noise governed by environmental legislation, and usually enforced by local authorities. Also termed “nuisance”.
Free Field Noise Level	The noise level measured away from any reflecting surfaces.
Hertz (Hz)	Unit of frequency, equal to one cycle per second. Frequency is related to the pitch of the sound.
$L_{Aeq, T}$	The equivalent continuous sound level. It provides an “average” sound level over a defined period of time (T).
L_{Amax}	The maximum sound level measured.
Specific Noise	The noise source under investigation for assessing the likelihood of complaints.
Rating Level	The specific noise level plus any adjustment for the characteristic features of the noise.

APPENDIX B – FIGURE



Contains Ordnance Survey Data
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Client / Project:

PoT - Wood Pellet Facility

Title:

Predicted Noise Levels

Drawn: MM	Checked: EO
Methodology: ISO 9613 (LAeq,T at 4m)	
Date: 03/11/14	Scale: NTS A4 Sheet: 1 of 1
Project Number: 3511540C	Drawing Number: Figure 1
	Revision: 1

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