



7.0 Noise and Vibration

7.1 Introduction

- 7.1.1 This chapter of the ES has been prepared by WYG and considers the impact of the development on noise with regards to the proposed small-scale energy recovery facility on land at Swansea Depot, Clarion Close, Swansea.
- 7.1.2 The Chapter sets out the methodology followed in undertaking the assessment and provides a review of the baseline features and resources of the proposed site and surrounding area. Within this Chapter an assessment of on-site plant noise has been undertaken.
- 7.1.3 The Chapter focuses on the likely significant effects of the proposed development on existing identified sensitive receptors. To determine the magnitude of impact and significance of effect, the impact of the construction of the extension to the building; and operation of the proposed waste transfer and small-scale energy recovery facility, on baseline sensitive receptors has been assessed. For the purpose of this ES, the effects of such elements have been established based on whether adopted criteria are exceeded or not with the results presented in this Chapter.
- 7.1.4 A separate technical report is presented in Appendix 7.1 which provides further details of the assessment and findings presented within this Chapter.

7.2 Methodology and Scope

Policy Background

Policy Guidance (Wales)

- 7.2.1 Policy guidance with respect to noise is found in Technical Advice Note (Wales) 11 Noise – October 1997 (TAN)ⁱ.
- 7.2.2 The TAN provides advice on how the planning system can be used to minimise the adverse impact of noise without placing unreasonable restrictions on development or adding unduly to the costs and administrative burdens of business.
- 7.2.3 When likelihood of complaints about noise from industrial development can be assessed, Section B17, recommends using guidance in BS 4142: 1990, where appropriate.

Local Policy

- 7.2.4 Swansea Council have submitted the Swansea Local Development Plan 2010-2025 (the LDP) to the Ministers of the Welsh Government for the independent examination on 28th July 2017. Following formal acceptance of the submitted Swansea LDP on 4th August 2017, the Ministers of the Welsh Government have appointed Inspectors to conduct the independent examination to assess the soundness of the LDP.
- 7.2.5 Planning policies relevant to this assessment include, Resources and Public Health Protection, specifically RP2: Air, Noise or Light Pollution.
- 7.2.6 Although it is understood the final wording of the policy is subject to change, the policy discussed in the Swansea LDP examination documentⁱⁱ, proposes to separate Policy RP2 into two separate policies. Following this proposal, noise pollution is to be considered in a separate policy to Air & Light. The proposed wording for this Policy can be found below:

'RP 2A: Noise Pollution

Where development could lead to exposure to a source of noise pollution it must be demonstrated that appropriate mitigation measured will be implemented, and incorporated into the design of the development to minimise the effects on existing and future occupants. Noise sensitive developments will not be permitted unless effective/appropriate mitigation is carried out to prevent exposure to existing noise generating uses. Development which would cause or result in a significant increase in levels of environmental noise in an identified Noise Action Planning Priority Area, or would have unacceptable impacts on identified Quiet Area or the characteristics of tranquillity that led to the designation of a Quiet Area, will not be permitted.'

Scoping Assessment Stage

- 7.2.7 Relevant information in relation to this noise assessment, from consultations received by Swansea Council on 1st March 2018, regarding the proposal for a waste transfer and small-scale energy recovery facility, including the provision of an extension to the building is presented below
- 7.2.8 The Development Plan for the area is the City and County of Swansea Unitary Development Plan (UDP) (Adopted November 2008)ⁱⁱ, within which the following policies for noise are relevant:

'Policy ENV2

The siting of new development should give preference to the use of previously developed land over greenfield sites.

New development must have regard to the physical character and topography of the site and its surrounding by:

(xiii) Having full regard to existing adjacent developments and the possible impact of environmental pollution from those developments, as well as the crease of any environmental pollution to the detriment of neighbouring occupiers (including light, air and noise),'

'Policy ENV40

Development proposals will not be permitted that would cause or result in significant harm to health, local amenity, natural heritage, the historic environment or landscape character because of significant levels of air, noise or light pollution.'

- 7.2.9 The 'Waste Planning Practice Guide' which supplements TAN 21: 'Waste' lists the planning issues associated with municipal solid waste incinerators: Noise, vibration, odour, dust, air emissions and bioaerosols. Each of these issues will need to be addressed within any planning submission.
- 7.2.10 It is noted there are residential properties some 160m to the east of the site on Clos Yr Fendrod and Pant Yr Blawd Road. The proximity of these dwellings, given the nature of the proposed activities taking place at the site, particularly if operated on a 24/7 basis, will introduce the potential to result in significant disturbance to these properties.
- 7.2.11 In order to assess the impacts upon these properties it will be necessary for the application to be supported by noise assessment, which should be based on the proposed operations that would take place at the premises and must consider the impacts upon the nearest residential receptors or any other receptors that may be impacted by virtue of the prevailing topography or climatic conditions. The application will therefore need to be accompanied by sufficient information to demonstrate that the proposals would be in compliance with criterion (xiii) of policy EV2 (Siting and location) and policy EV40 (Air, Noise and Light Pollution).
- 7.2.12 The comments above, have been incorporated into the noise assessment. The closest residential have been considered and are presented in Table 7.6 (illustratively shown in Appendix 7.1). The impacts of proposed



Chapter 7 – Noise and Vibration

operations on these properties, have been assessed and is presented in Section 7.5 'Likely significant environment effects of the scheme'.

7.2.13 There are no significant sources of vibration proposed on the development site and therefore vibration has been scoped out of this assessment.

Assessment Methodology

7.2.14 The EIA Regulations require the description of the forecasting methods used to assess the effect on the environment. Therefore, the EIA has been based on a widely used and accepted 'significance matrix assessment approach' which is based on the characteristics of the impact (magnitude and nature) and the sensitivity of the receptor. This allows the relative significance of effects to be determined on a scale and ultimately the significant effects determined, as explained in the following sub sections. Where a deviation from the approach has been undertaken, reference has been made in the appropriate sections.

7.2.15 In order to enable the assessment of the proposed development in terms of impact significance, Tables 7.1–7.3 present equivalent noise levels and associated actions with the target noise level criteria identified. The noise level criteria detailed below have been derived from standards and design guidance:

- IEMA (Institute for Environmental Management and Assessment) 'Guidelines for Environmental Noise Impact Assessment October 2014'^{iv};
- BS 4142:2014 'Methods for rating and assessing industrial and commercial sound'; and
- BS 5228-1:2009+A1:2014 'Code of practice for noise and vibration control on construction and open sites'^{vi}

Construction Noise

7.2.16 The effects of construction noise associated with the project have been assessed in accordance with BS 5228-1:2009+A1:2014 'Code of practice for noise and vibration control on construction and open sites' henceforth referred to as BS 5288-1.

7.2.17 This has been chosen as a suitable method for noise and vibration control, relating to construction and open sites, where work activities/operations generate significant noise levels. The standard also provides guidance concerning methods of predicting and measuring noise and assessing its impact on those exposed to it.

7.2.18 Based upon the guidance within BS 5228-1, levels of noise associated with the construction of the development have been predicted at local residential receptors using CADNA (Computer-Aided Design for Noise Abatement) model. Noise emissions from equipment used during the construction phase, have been obtained from the BS522 Annex C of BS 5228-1 and included within the assessment.

7.2.19 On construction sites, noise limits from construction works are generally set with reference to the need to avoid speech interference in buildings adjacent to the site. BS 5228-1 gives advice on maximum levels of construction site noise during daytime hours (taken to be 07:00 to 19:00 hours).

7.2.20 The advice is that the noise levels outside the nearest window of the occupied room closest to the site boundary should not exceed:

- 70 dB(A) in rural, suburban and urban areas away from main roads and industrial noise; and
- 75 dB(A) in urban areas near main roads or in heavy industrial areas.

7.2.21 The following terms in Table 7.1 below will be used to describe the potential noise impacts from construction noise, when assessed in accordance with BS 5228-1.

Table 7.1 Impact Significance Criteria and Actions for Construction Noise

Effect Level	Noise Level Criteria	Action/Justification
Negligible	Fixed Limits: In rural areas noise levels exceed 50dB	No Action Required
	In urban areas noise levels exceed 55dB	Complaints Relating to Plant Noise Unlikely
Minor	Fixed Limits: In rural areas noise levels exceed 60dB	Mitigate to achieve total noise levels below relevant category threshold
	In urban areas noise levels exceed 65dB	
Moderate	Fixed Limits: In rural areas noise levels exceed 70dB	Mitigate to achieve total noise levels below relevant category threshold
	In urban areas noise levels exceed 75dB	
Major	Fixed Limits: In rural areas noise levels exceed 80dB	Mitigate to achieve total noise levels below relevant category threshold
	In urban areas noise levels exceed 85dB	

Operational Noise

Small-Scale Energy Recovery Facility Plant Noise Assessment

7.2.22 The effects of operational noise associated with the project have been assessed in accordance with BS 4142:2014, 'Methods for rating and assessing industrial and commercial sound', henceforth referred to as BS 4142:2014. The use of this guidance is in replacement to the recommended guidance BS4142:1990, 'Method for rating industrial noise affecting mixed residential and industrial areas' which was superseded in 1997 and then again in 2014.

This standard sets down the following guidelines for assessing the likely effects of sound on people who might be inside or outside a dwelling or premises used for residential purposes, based upon difference between the measured background noise level and the rating level of the source under consideration. In particular, the standard states:

- “a) Typically, the greater the difference, the greater the magnitude of the impact.
- b) A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context.
- c) A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context.
- d) The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context.”

7.2.23 The following terms in Table 7.2 below will be used to describe the potential noise impacts from the operation of plant, when assessed in accordance with BS 4142:2014.



Table 7.2 Impact Significance Criteria and Actions for Plant Noise associated with the Small-Scale Energy Recovery Facility

Effect Level	BS 4142 Rating Level Compared with Background Noise Level (dB)	Action/Justification
Negligible	BS4142 Score of zero or lower	No Action Required Score of zero or lower is an indication of the sound source having a low impact
Minor	BS4142 Score of +5 or lower	No Action Required Difference of +5dB likely to be an indication of low impact Mitigate to achieve: BS4142 Score of + 5 or lower
Moderate	BS4142 Score greater than +5	Difference of up to +10dB likely to be an indication of a significant adverse effect Mitigate to achieve: BS4142 Score of + 5 or lower
Major	BS4142 Score of + 10 or higher	Reduce as far as practicable depending on context Justification: +10dB above existing background is an indication of a likely significant adverse impact

7.2.24 In addition to noise levels, the significance of the impact depends on the individuals affected and to the acoustic features present which may be assessed subjectively or objectively as appropriate. Section 9 of BS 4142:2014 recommends that correction factors be applied to the specific noise level if the noise contains certain acoustic features such as:

- tonality
- impulsivity
- other sound characteristics which are readily distinctive
- intermittency

7.2.25 In order to enable the assessment of the proposed development, in terms of magnitude, Table 7.2 presents equivalent noise levels and associated actions with the target noise level criteria identified, however it should be noted that the significance of an industrial sound source depends upon both the margin by which the rating level exceeds the background sound level and the overall context in which the sound occurs.

Overall Noise Level Change Assessment

7.2.26 To assess the effects of the overall change in noise levels because of the scheme, reference has been made to the IEMA Guidelines for Environmental Noise Impact Assessment (2014); the criteria in Table 7.3 shown below has been used to determine whether the change in overall noise levels, as a result of the proposed development, will have an impact on the closest sensitive receptors.

7.2.27 Within this assessment, external ambient noise levels, at nearby sensitive receptors in the current existing verified noise climate and with the addition of combined noise sources from the proposed Development has

been assessed (including proposed plant associated with a small-scale energy recovery facility, HGV movements and parking).

Table 7.3 Noise Level Criteria and Actions (Overall Change in Noise Levels)

Effect Level	Noise Level Criteria	Action / Justification
Negligible	Up to 3.0 dB Change or a Reduction in Noise Levels	No Action Required – Change in noise levels unlikely to be perceptible
Minor	Up to 4.9 dB Increase in Noise Levels	No Action Required Slight Impact at Receptor of Some Sensitivity
Moderate	3.0 to 5.0 dB Change in Noise Levels at receptor of high sensitivity or Up to 5.0 dB Increase in Noise Levels	Mitigate to achieve: Increase in Noise Levels of less than 3.0 dB (high sensitivity) or Increase in Noise Levels of less than 5.0 dB (receptor of some sensitivity)
Major	Greater than 5.0 dB Increase in Noise Levels	Mitigate to achieve: Increase in Noise Levels of less than 5.0 dB

Receptor Sensitivity

7.2.28 Key receptors to noise generally include individual or groups of residential properties, hospitals and schools. Table 7.4 provides examples of the difference sensitivities which can be assigned to different receptors according to WYG’s assessment methodology.

Table 7.4 Methodology for Assessing Sensitivity of Noise

Sensitivity	Example of Receptor
High	Residential properties (Permanent tenants) and schools and hospitals
Medium	Transient residential receptors such as users of hotels*
Low	Commercial premises

*Financially involved properties are considered as medium sensitivity receptors

7.2.29 Within the assessment of the likely significant effects of development, all identified receptors have been considered as having high sensitivity.

Effect Magnitude

7.2.30 Guidance with regard to assessing the magnitude of noise impacts is available within the Guidelines for Environmental Noise Impact Assessment, published by IEMA in 2014. The guidance indicates broad parameters with respect to categorising the significance of the basic noise change.

Effect Significance

7.2.31 The level of significance of each effect is determined by combining the magnitude of impact presented in Tables 7.1-7.3 with the sensitivity of the receptor. Table 7.5 shows how the interaction of magnitude and sensitivity can be combined to determine the significance of an environmental effect.

7.2.32 If an impact magnitude is negative, then the resulting effect is described as being adverse; if an impact magnitude is positive the resulting effect is classed as being beneficial.



Table 7.5 Significance of Effects Matrix

		Sensitivity of Receptor			
		High	Medium	Low	Negligible
Magnitude/Scale of Change	Major	Major	Major-Moderate	Moderate	Minor
	Moderate	Major-Moderate	Moderate	Minor	Neutral
	Minor	Moderate	Minor	Neutral	Neutral
	Negligible	Minor	Neutral	Neutral	Neutral

7.2.33 For the purpose of this EIA, thresholds between a significant and not significant effect in EIA terms have been described below:

- A construction phase effect identified as being of major-moderate significance or greater is considered to be significant. This equates to noise levels at identified residential receptors of greater than 75dB(A) as a result of the construction work.
- The effect of noise from plant associated with a small-scale energy recovery facility, identified as being of a moderate significance or greater is considered significant in EIA terms. This equates to noise levels being between 0.0dB - 5.0dB, at existing residential receptor locations as a result of the proposals.
- An overall change in noise level effect, identified as moderate significance or greater is considered significant in EIA terms. This equates to a change in noise levels between 3.0dB – 4.9dB

Limitations of the Assessment

7.2.34 The noise levels used within the model for proposed waste transfer and small-scale energy recovery facility plant, has been verified to sound pressure levels provided by Adfield Environmental Systems and Lindner. The details of the boiler and incinerator plant are based on noise levels at a similar site. Additionally, a professional assumption of the sound level reduction performance of the building structure has been made, when assessing the break noise.

7.2.35 Construction noise levels are based on typical fixed and mobile plant noise levels presented within BS 5228-1. A limitation of the construction noise assessment is that specific plant and techniques at this stage are not known, therefore a professional assumption has been made on the type used within the assessment. The construction operations have been located where construction work is anticipated and operating simultaneously for a total of 15 minutes every hour.

7.3 Baseline Environment

Existing baseline

7.3.1 A baseline monitoring survey was undertaken at ten locations from Thursday 5th April 2018 to Tuesday 10th April 2018. Attended short term measurements were undertaken at six locations during day, evening and night-time periods with four additional locations being measured unattended over a 121-hour period

7.3.2 Noise sources found in the area include: frequent road traffic noise along the A48, distantly from the M4, Church Road, Blawd Road and Upper Fforest Way as well as frequent trains and planes. Some residential noise could also be heard at most locations, including muffled conversation and people occasionally walking by.

7.3.3 At night, a distant generator/humming sound can be heard (from the generator unit within the Biffa site) as well as distant road traffic noise from M4.

7.3.4 Full details of the noise baseline monitoring survey and meteorological conditions are provided in Appendix 7.1.

Sensitive Receptors

7.3.5 The closest existing sensitive receptors have been selected to enable an assessment to be undertaken of the potential noise effect of the proposed development.

7.3.6 For this assessment, all receptors are classed as being of **high** sensitivity.

7.3.7 Table 7.6 below represent the worst-case residential receptors with respect to the proposed development.

Table 7.6 Sensitive Receptor Locations

Ref.	Description	Closest Source	Approximate Distance to Source (m)	Height (m)
R1	5, Cwrt y Fedwen, Tregof Village	HGV Parking	407.0	1.5/4.0
R2	10, Cwrt y Fedwen, Tregof Village	HGV Parking	421.0	1.5/4.0
R3	3, Cwrt y Fedwen, Tregof Village	HGV Parking	434.0	1.5/4.0
R4	Pant y Blawd, Pantblawd Road	HGV Parking	156.0	1.5/4.0
R5	Tudor House, Pantyblawd Road	HGV Parking	171.0	1.5/4.0
R6	27, Pantyblawd Road	HGV Parking	167.0	1.5/4.0
R7	25, Pantyblawd Road	HGV Parking	177.0	1.5/4.0
R8	2, Clos y Fendrod	HGV Parking	188.0	1.5/4.0
R9	6, Clos y Fendrod	Building Services Plant	164.0	1.5/4.0
R10	10, Clos y Fendrod	Building Services Plant	163.0	1.5/4.0
R11	14, Clos y Fendrod	Building Services Plant	160.0	1.5/4.0
R12	23, Clos y Fendrod	Building Services Plant	180.0	1.5/4.0
R13	62, Church Road, Llansamlet	Building Services Plant	362.0	1.5/4.0
R14	Plough & Harrow, 57-59 Church Road	Building Services Plant	351.0	1.5/4.0

Future baseline

7.3.8 The future baseline surrounding the development site is unlikely to change given the proposals.



7.4 Mitigation within the Submitted Design

Construction

7.4.1 It is assumed that the BS 5228-1 guidance which provides methods to minimise noise from the site, will be appropriately followed.

7.5 Likely Significant Environmental Effects of the Scheme

Construction Phase Effects

- 7.5.1 Noise levels from potential construction activity associated with the development of the Site have been assessed in accordance with BS 5228-1 criteria which indicate if a significant effect is likely to occur at noise sensitive properties.
- 7.5.2 Point sources representing all likely items of plant have been represented in the model and in the case of mobile plant these have been placed in worst case locations with respect to nearby noise sensitive receptors. Table 7.7 shows predicted levels of construction noise at existing receptors for comparison with the recommended fixed noise limit criteria of 75 dB(A) as shown in Table 7.1. Further details of plant used within the assessment is presented in Appendix 7.1
- 7.5.3 As the proposed development only includes the provision of an extension to the building and installation of a waste transfer and small-scale energy recovery facility, it is unlikely to cause a significant effect. It should also be noted that due to the existing use of the site (i.e. a waste management and transport depot, located within an industrial estate), it is unlikely to change the existing ambient noise environment.

Table 7.7 Construction Phase Noise Assessment Results (Fixed Limits Method)

Ref	Construction Noise Level (dB(A))	Criteria (dB(A))	Within Recommended fixed noise limit
R1	51.8	75.0	Yes
R2	51.7	75.0	Yes
R3	52.2	75.0	Yes
R4	49.7	75.0	Yes
R5	49.1	75.0	Yes
R6	54.7	75.0	Yes
R7	51.9	75.0	Yes
R8	53.0	75.0	Yes
R9	50.2	75.0	Yes
R10	50.3	75.0	Yes
R11	52.4	75.0	Yes
R12	53.0	75.0	Yes
R13	43.1	75.0	Yes
R14	45.3	75.0	Yes

7.5.4 The results show the predicted construction noise levels at all receptors are within the 75dB(A) noise level limit. The magnitude of the impact is assessed as **Negligible** and the sensitivity of the receptors have been assessed as high, therefore the effect will be **Minor Adverse** and thus **Not Significant**.

7.5.5 Furthermore, the effects of the decommissioning of the site has been considered as part of this assessment. The activities from the decommissioning of the site are broadly similar to those within the construction assessment and therefore can also be considered to negligible.

Operational Phase Effects

Small-Scale Energy Recovery Facility Plant Noise Assessment

- 7.5.6 This BS 4142:2014 assessment has been undertaken, to establish the noise from the proposed plant for the waste transfer and small-scale energy recovery facility. The assessment compares the typical existing background L_{A90} noise levels during operational hours (24 hours) at nearby sensitive receptor locations during daytime and night-time. Further details of the plant included within the assessment, is presented in Appendix 7.1
- 7.5.7 In order to account for any potential intermittency or tonality of noise from the plant, a +5 dB correction has been added before comparison with background levels to create the noise rating level.
- 7.5.8 All plant within the assessment has been considered to be operating 24 hours, thus a worst-case scenario has been considered. However, it is unlikely that all plant will be operating constantly e.g. the shredder is predicted to only be operating for 50% of the time.
- 7.5.9 Point sources, area sources and vertical area sources, have been included within the model to represent proposed internal and external plant. Table 7.8 below compares the existing measured background level at existing receptors with the predicted noise rating level from the proposed plant.
- 7.5.10 As part of the design mitigation, the site is proposed to install fast-closing doors in all areas of the site, and as such the assessment presented below have been undertaken with all doors closed.

Table 7.8 BS 4142 Building Services Plant and Breakout Noise Assessment

Reference	Existing Measured Background L_{A90}		Noise rating level from plant ($L_{A,Tr}$)		BS 4142 Score	
	Daytime	Night-time	Daytime	Night-time	Daytime	Night-time
R1	55	37	28	28	-22	-4
R2	55	37	28	28	-23	-5
R3	55	37	27	27	-23	-5
R4	44	39	29	29	-10	-5
R5	44	39	29	29	-10	-5
R6	44	39	31	31	-8	-3
R7	44	39	32	32	-7	-2
R8	44	39	34	34	-5	0
R9	44	39	28	28	-11	-6
R10	44	39	29	29	-10	-5
R11	44	39	29	29	-10	-5
R12	44	39	30	30	-9	-4
R13	40	35	23	23	-12	-7
R14	40	35	26	26	-9	-4

7.5.11 The Table above shows that the rating noise level, is predicted to be equal to or below background noise levels. The magnitude of the impact is assessed as **Negligible** and the sensitivity of the receptors have been assessed as high, therefore the effect will be **Minor Adverse** and thus **Not Significant**.



Overall Noise Level Change Assessment

7.5.12 A noise assessment has been undertaken to assess the effects of the introduction of the proposed waste transfer and small scale energy recovery facility. External L_{Aeq} noise levels, at nearby sensitive receptors in the current existing verified noise climate and with the addition of combined noise sources from the proposed development which includes plant associated with a small-scale energy recovery facility, HGV movements and parking, has been assessed. Further details of the data and calculations for HGV movements and parking can be found within Appendix 7.1

7.5.13 The change in noise levels, due to the proposed development during daytime and night-time, can be found in Tables 7.9 and 7.10 below.

Table 7.9 Overall Change in Noise Levels L_{Aeq} (Daytime)

Location	External L_{Aeq} Noise Level at 1 metre from façade (Existing Baseline)	External L_{Aeq} Noise Level at 1 metre from façade (with Proposed)	Difference Between Existing and Proposed
R1	63.4	63.4	0.0
R2	63.4	63.4	0.0
R3	63.4	63.4	0.0
R4	52.8	52.9	0.1
R5	52.8	52.8	0.0
R6	52.8	52.9	0.1
R7	52.8	52.9	0.1
R8	52.8	52.9	0.1
R9	50.6	50.7	0.1
R10	50.6	50.7	0.1
R11	50.6	50.7	0.1
R12	50.6	50.7	0.1
R13	47.5	47.5	0.0
R14	47.5	47.6	0.1

Table 7.10 Overall Change in Noise Levels L_{Aeq} (Night-time)

Location	External L_{Aeq} Noise Level at 1 metre from façade (Existing Baseline)	External L_{Aeq} Noise Level at 1 metre from façade (with Proposed)	Difference Between Existing and Proposed
R1	57.2	57.3	0.1
R2	57.2	57.3	0.1
R3	57.2	57.3	0.1
R4	48.4	49.5	1.1
R5	48.4	48.9	0.5
R6	48.4	49.1	0.7
R7	48.4	49.1	0.7
R8	48.4	49.2	0.8
R9	48.4	49.0	0.6
R10	48.4	49.0	0.6
R11	48.4	49.5	1.1
R12	48.4	49.0	0.6
R13	46.2	46.3	0.1
R14	46.2	46.4	0.2

7.5.14 The tables above show that the greatest difference between existing and proposed is 1.1dB. The magnitude of the impact is assessed as **Negligible** and the sensitivity of the receptors have been assessed as high, therefore the effect will be **Minor Adverse** and thus **Not Significant**.

7.6 Additional Mitigation, Compensation and Enhancement Measures

Construction Phase

7.6.1 No mitigation measures are required for the proposed development’s construction noise.

Operational Phase

7.6.2 No mitigation measures are required for the proposed development’s operational noise.

7.7 Assessment Summary and Likely Significant Residual Environmental Effects

Construction Phase

7.7.1 In terms of construction noise levels, the results of the assessment indicate that the noise impact will be **Minor Adverse** and therefore **Not Significant**.

Operational Phase

7.7.2 In terms of operational noise levels, the results of both assessments indicate that the noise impact will be **Minor Adverse** and therefore **Not Significant**.

7.8 Cumulative impacts

7.8.1 No cumulative impacts are considered within this assessment.



Table 7.11 Assessment Summary and Residual Environmental Effects (Noise and Vibration)

Summary description of the identified impact	Sensitivity of Receptor	Impact Magnitude	Significance and Nature of Effect	Additional Mitigation	Residual Impact Magnitude	Residual Significance and Nature of Effect	Confidence Level
Construction							
Construction	High	Negligible	Minor Adverse Not Significant	None Required	Negligible	Minor Adverse Not Significant	High
Operation							
Noise from plant associated with energy recovery facility	High	Negligible	Minor Adverse Not Significant	None Required	Negligible	Minor Adverse Not Significant	High
Overall Change in Noise Levels	High	Negligible	Minor Adverse Not Significant	None Required	Negligible	Minor Adverse Not Significant	High



7.9 References

- i Planning Guidance (Wales), October 1997, Technical Advice Note (Wales) 11, Noise
- ii Swansea Council, 26th March 2018, Swansea LDP Examination, Statement of Swansea Council, Matters Arising from Hearing Session 14, Human and Environmental Health.
- iii City and County of Swansea Unitary Development Plan (UDP) (Adopted November 2008)
- iv IEMA (Institute for Environmental Management and Assessment) 'Guidelines for Environmental Noise Impact Assessment October 2014'
- v BS 4142:2014 'Methods for rating and assessing industrial and commercial sound'
- vi BS 5228-1:2009+A1:2014 'Code of practice for noise and vibration control on construction and open sites' Part 1: Noise

7.10 Glossary

Term	Definition
CADNA	Computer Aided Noise Abatement
DMRB	Design Manual for Roads and Bridges
HGV	Heavy Goods Vehicle
LOAEL	Lowest Observed Adverse Effect Level
PPG	Planning Practice Guidance
SOAEL	Significant Observed Adverse Effect Level
UKAS	United Kingdom Accreditation Service