Cory Environmental Holdings Limited

CORY DECARBONISATION PROJECT

Environmental Permit Application: Noise and Vibration Management Plan

CORY ENVIRONMENTAL HOLDINGS LIMITED
SEPTEMBER 2025

PUBLIC

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1 INTRODUCTION

1.1 SCOPE

1.1.1. Cory Environmental Holdings Limited (hereafter referred to as 'Cory') is applying to the Environment Agency (EA) under The Environmental Permitting (England and Wales) Regulations 2016 (Environmental Permitting Regulations) for an Environmental Permit (EP) to operate a Carbon Capture Facility (CCF). Cory has instructed WSP to produce an Outline Noise Management Plan (ONMP) in relation to the Cory Decarbonisation Project (the Proposed Scheme). The aims of the ONMP are to:

- identify activities with the potential to cause a noise impact; and
- set out an effective noise management strategy to minimise noise pollution from the development site (the Site).

1.1.2. This ONMP is based on information from the Environmental Statement (the ES) accompanying the application for a Development Consent Order (DCO) for the Cory Decarbonisation Project. Therefore, this ONMP sets the principles for noise management of the Proposed Scheme and it will be updated to a detailed Noise Management Plan (NMP), in compliance with EA Guidance[1][2], to provide details of the measures set in the ONMP that would be implemented to manage the noise emissions from the Site. The NMP will complement with the control of operational noise secured with Requirement 20m of the Draft DCO.

1.1.3. This document focuses on the management of potential noise impact only. The Proposed Scheme will not generate an adverse vibration impact during operation.

1.2 SITE DESCRIPTION

The Site is located within the London Borough of Bexley, within the Belvedere Industrial Area, a Strategic Industrial Location[3], as shown in Figure 1-1. The Belvedere Industrial Area includes a number of industrial estates, including:

- Hailey Road Industrial Estate, approximately 60m south of the Site Boundary;
- Fishers Way Industrial Estate, approximately 80m east of the Site Boundary;
- Waldrist Way Industrial Estate, approximately 330m southwest of the Site Boundary;
- Crabtree Manorway North, approximately 600m east of the Site Boundary; and
- River Wharf Business Park, approximately 600m east of the Site Boundary.

1.2.1. The Crossness Sewage Treatment Works, which is operated by Thames Water, is located approximately 230m to the west of the Site Boundary, comprises a disused sludge incinerator and the Crossness Pumping Station, which is operated separately by the EA.

[1] Risk assessments for your environmental permit - GOV.UK
[2] Noise and vibration management: environmental permits - GOV.UK
[3] The London Borough of Bexley (2023). 'Bexley Local Plan Polices Map.' Available at: https://bexleycouncil.maps.arcgis.com/apps/instant/sidebar/index.html?appid=47d8febb1093429f964cf6500d0c691e

1.2.2. The closest residential properties located in Clydesdale Way are approximately 120m to the southeast of the Site at its closest point. Community facilities lie within 120m of the Site Boundary including the Morgan Public House, approximately 95m south (on the A2016 Picardy Manorway) and Travelodge London Belvedere approximately 110m south.

1.2.3. The Site is split into the following zones:

- Riverside 1 and Riverside 2;
- Carbon Capture Facility; and
- Mitigation and Enhancement Area.

1.2.4. Of these zones, the Proposed Scheme includes fixed plant or pipework within the Riverside 1 and Riverside 2 zones and within the Carbon Capture Facility. These two zones are therefore relevant to the ONMP.

RIVERSIDE 1 AND RIVERSIDE 2

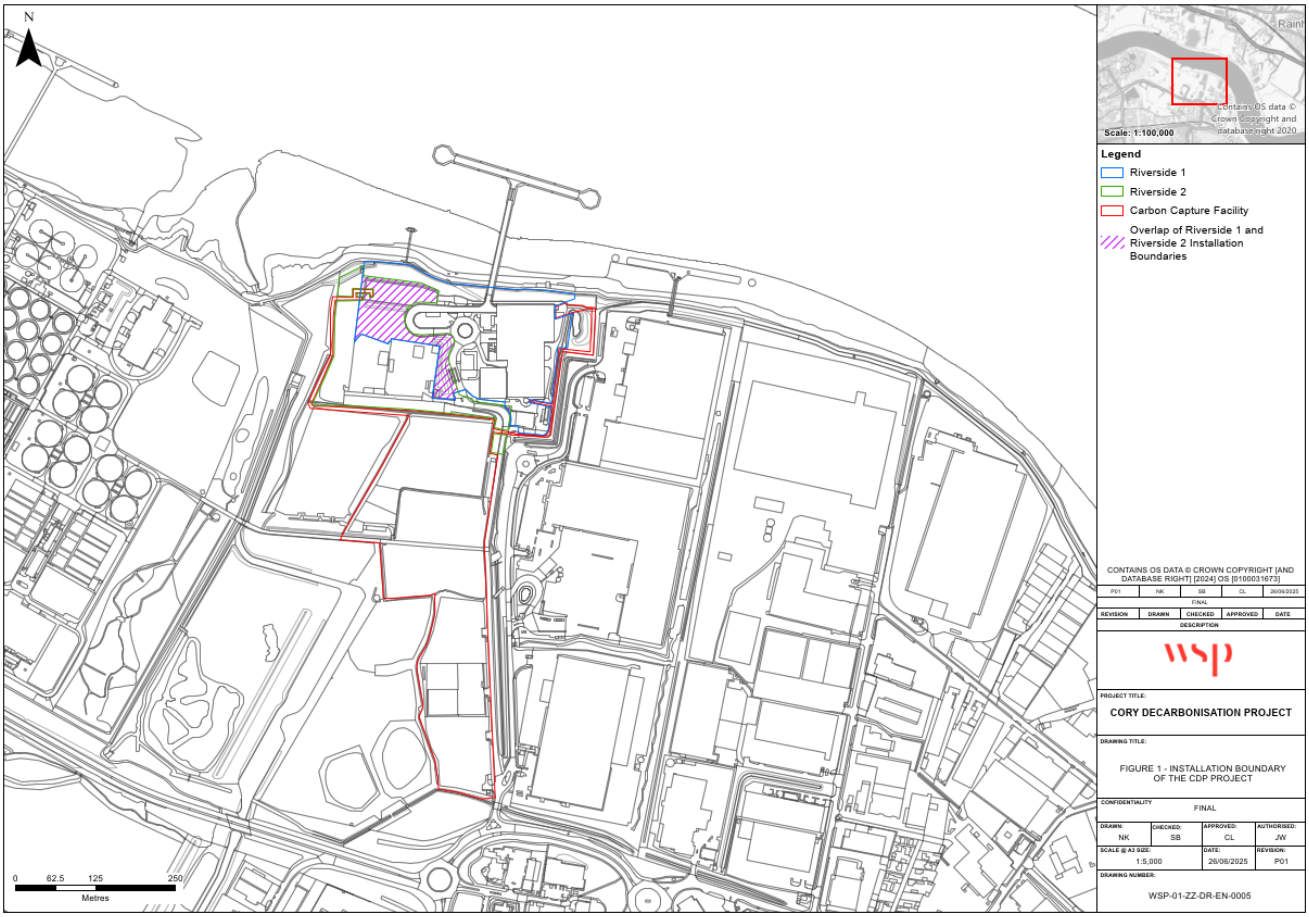
1.2.5. The Riverside 1 and Riverside 2 zone includes the following elements of the Proposed Scheme; the flue gas supply ductwork, steam extraction and condensate return pipework, liquid CO_2 and gaseous CO_2 pipework. The ductwork and pipework will be located on new elevated process pipe and duct bridges, installed as part of the Proposed Scheme.

CARBON CAPTURE FACILITY

1.2.6. This zone includes the land intended for the construction of two Carbon Capture Plants[4], to be located in the centre of the Site to the south of Riverside 1 and Riverside 2. The Carbon Capture Facility zone also includes the following elements: compression, conditioning, liquefaction, refrigeration, venting, liquefied CO_2 storage and loading and supporting plant. The scope of this permit application covers the landside activities as the loading activities and Proposed Jetty will be operated by a third party and is covered by marine consents including River Works Licence.

[4] The evolving design is on the basis of two Carbon Capture Plants, however as part of ongoing design development the potential for a single Carbon Capture Plant will be considered. Two Carbon Capture Plants is considered as a worst-case.

Figure 1-1 – Site Boundary Location Plan



1.3 MAINTENANCE AND REVIEW OF THE ONMP

1.3.1. This ONMP forms part of the wider Environmental Management System (EMS) for the Site.

1.3.2. The detailed noise management plan (NMP) will be developed before the Proposed Scheme becomes operational and will be reviewed every three years, or sooner if any of the following occur:

- if there are changes to the site operations, management systems or infrastructure relevant to noise; or
- noise complaints as a result of noise pollution from the Site.

1.3.3. The NMP will be held within an online system with a hard copy on Site.

1.3.4. The Operations Manager will hold responsibility for the implementation of the NMP including the training of relevant staff.

1.3.5. Operational staff will made aware of the NMP and will be given training on the noise management procedures held within it as part of their Site induction training. Training will be carried out by the Site Training Manager. Bi-annual refresher training, which will also include training on the NMP, will be provided by the Site Training Manager.

1.3.6. A process will be implemented to manage noise complaints. The responsibility for maintaining records of complaints and associated investigations is held by the Operations Manager. Further information regarding the complaints process is provided in Section 5.

1.3.7. Any noise monitoring, whether as part of ongoing procedures or where required to investigate a noise complaint, will be carried out by someone who is competent in noise measurements.

1.4 RELEVANT SECTOR GUIDANCE ON WHICH THIS ONMP IS BASED

1.4.1. This section sets out the sector guidance on which this ONMP is based. It has been developed with reference to the noise management plan template (version 1.1) from the EA and the EA's guidance; Noise and vibration management: environmental permits[5].

BS 4142. 2014+A1:2019 METHODS FOR RATING AND ASSESSING INDUSTRIAL AND COMMERCIAL SOUND

1.4.2. This standard describes methods for rating and assessing sound in order to provide an indication of its likely effect upon nearby dwellings or premises used for residential purposes.

1.4.3. The 'specific sound level' from the Proposed Development (dB, L_s) at a noise sensitive receptor is used to derive a 'rating level' by applying appropriate corrections taking into account the perceptibility of distinguishing characteristics (i.e., tonal elements, impulsivity, intermittency) at the assessment location(s). This is then compared with the existing 'background sound level' (dB, L_{A90}) at that location in order to derive an initial impact estimation.

1.4.4. When considering the actual level of impact, BS 4142 emphasises the importance of the considering all pertinent contextual factors prior to modifying the initial impact estimation.

BS 8233:2014 GUIDANCE ON SOUND INSULATION AND NOISE REDUCTION FOR BUILDINGS

1.4.5. BS 8233[6] provides benchmark noise criteria for various internal building uses, including sleeping / resting. It also provides guideline noise criteria for external areas such as gardens and patios.

BS 7445:2003 - DESCRIPTION AND MEASUREMENT OF ENVIRONMENTAL NOISE

1.4.6. BS 7445:2003[7] provides a description of the quantities and methods used when measuring outdoor environmental noise.

ISO 9613-2

1.4.7. ISO 9613-2[8&9] describes a method for calculating the attenuation of sound during propagation outdoors in order to predict the levels of environmental noise at a distance from a variety of sources. The method predicts the equivalent continuous A-weighted sound pressure level. The method was revised recently in 2024 and subsequent to that, the major noise modelling software manufacturers have been implementing, testing and validating the method in their software packages with software updates generally becoming available in the second half of 2024. Consequently, the modelling carried out for the ES, on which this NMP has been based, made use of the previous (1996) version of this propagation method, in accordance with best practice at the time. The effect of the 2024

[5] Noise and vibration management: environmental permits - GOV.UK. Accessed 15/08/2025
[6] The British Standards Institution (2014). BS 8233: 2014 Guidance on Sound Insulation and Noise Reduction for Buildings
[7] The British Standards Institution (2003). BS 7445-1:2003 Description and measurement of environmental noise - Guide to quantities and procedures
[8] International Organization for Standardization (1996). ISO 9613-2:1996, Attenuation of sound during propagation outdoors, Part 2: General method of calculation.
[9] International Organization for Standardization (2024). ISO 9613-2:2024 Acoustics. Attenuation of sound during propagation outdoors - Engineering method for the prediction of sound pressure levels outdoors.

revision to the method has however been considered here in terms of its effect on the modelled sound levels and the conclusions of the assessment including any changes to the mitigation requirement.

2 RECEPTORS

2.1 RECEPTOR LIST

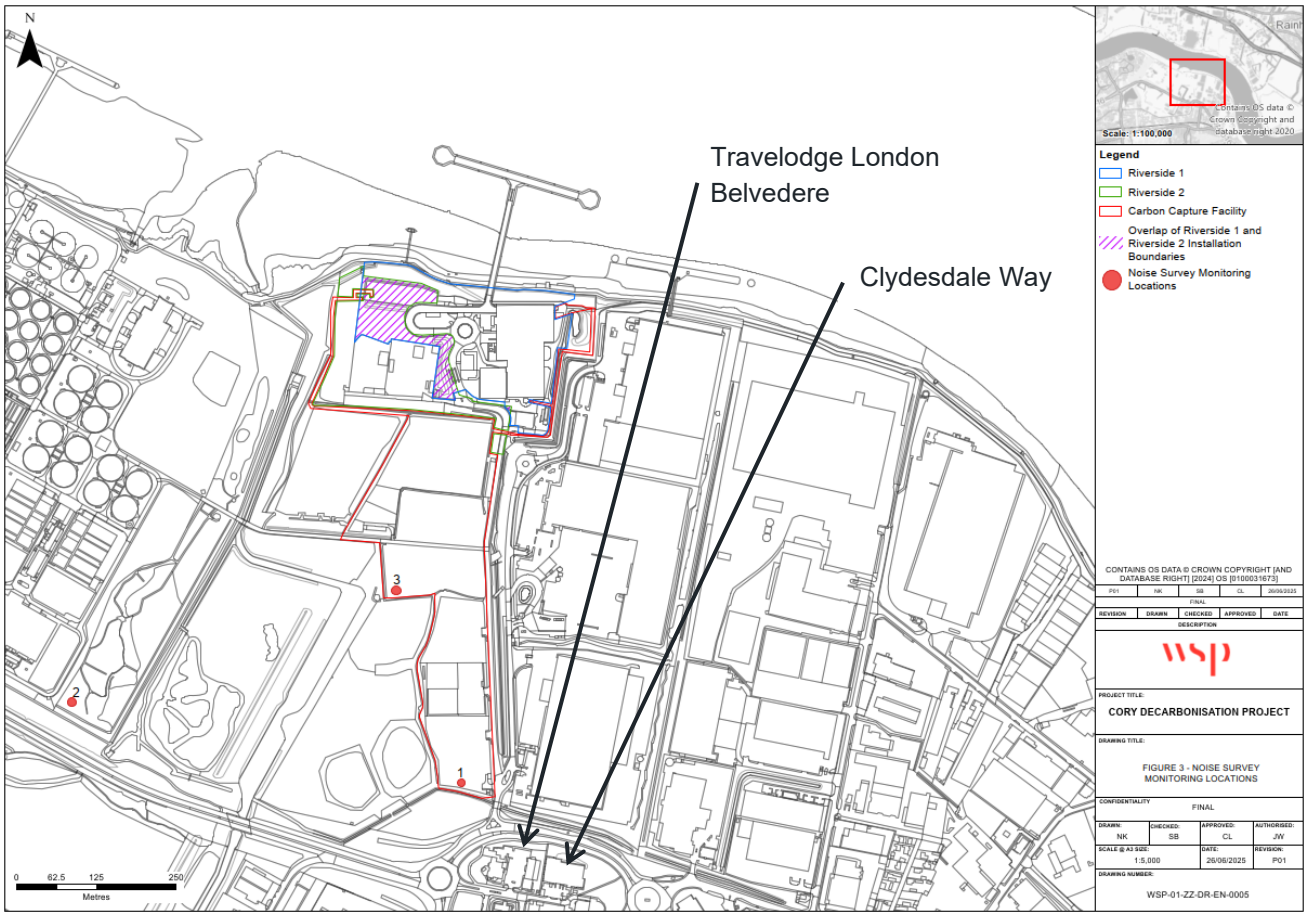
2.1.1. The nearest noise sensitive receptors (NSRs) within 600m of the Site have been considered. An assessment of noise effects has been carried out at a selection of the closest NSRs, in order to produce a robust assessment.

2.1.2. The following NSRs have been considered. They are shown in Figure 2-2:

- Residential properties on Clydesdale Way (approximately 120m southeast of the Site Boundary); and
- Hospitality facilities: Travelodge London Belvedere (approximately 110m south of the Site Boundary).

2.1.3. A number of footpaths and public rights of way are situated within the vicinity of the Site. However, as their use is transitory, they are considered to have a low sensitivity to noise and noise affecting users of these routes would not be considered significant pollution. Therefore, they have not been considered further.

Figure 2-2 – NSRs and Noise Monitoring Locations



3 NOISE SOURCES AND PROCESSES

3.1 NOISE IMPACT ASSESSMENT CONCLUSION

3.1.1. A noise impact assessment (NIA) in accordance with BS 4142 is included within the permit application, based on the NIA carried out for the ES but updated to consider the revised methodology in ISO 9613.

3.1.2. A detailed acoustic model of the Proposed Scheme and surrounding area was produced using CadnaA® noise mapping software.

3.1.3. Baseline noise monitoring was carried out at three locations. Figure 2-2 shows the nearest NSRs and the noise monitoring locations.

3.1.4. As stated in Section 1.4, BS 4142 follows a two-step approach. Firstly, an initial estimate of impact is derived. Following this, the context in which the sound occurs is considered which may modify the initial impact estimation.

3.1.5. Table 3-1 presents the results of the initial estimate of noise impacts.

Table 3-1 – Initial Estimate of Noise Impacts

Time Period	Background sound level $L_{A90,\,T}$ dB	Specific sound level L_S dB	Acoustic feature correction (1)	Rating sound level, $L_{Ar,T}$ dB	Excess of rating sound level over background sound level, dB
Clydesdale Way					
Daytime	54	50	+3	53	-1
Night-time	49	50	+3	53	+4
Travelodge London Belvedere					
Daytime	54	51	+3	54	0
Night-time	49	51	+3	54	+5

Table note:

1. An acoustic feature correction of +3 dB has been applied based on the assumption the air source heat pump fans associated with heat transfer station will have a tonal component. This is considered to be a precautionary approach as full, one-third octave band data for the plant is not available at this time.

3.1.6. At both NSRs, the initial estimate indicates a low impact (barely audible or detectable noise) during the daytime and an adverse impact (audible or detectable noise) at night.

3.1.7. To determine the final significance of the impact, the context has been considered. The key contextual considerations are:

- **frequency of exposure:** The backup air source heat pump (ASHP) fans associated with the heat transfer station are the greatest source of noise at both NSRs. The ASHP fans will be in use as back up when thermal capacity cannot be provided by Riverside 1 or Riverside 2 and are estimated on a conservative basis to be active for approximately 1,500 hours per year, which is approximately 17% of the time. This would support a downward modification to any estimated impact magnitude.
- **the established use of the Site:** The Proposed Scheme is located within an existing large commercial/industrial area and therefore will not be out of character with the existing noise climate. This would support a downward modification to any estimated impact magnitude.
- **the sensitivity of the receptor**: The exposed facades of the residential development on Clydesdale Way and the Travelodge London Belvedere are orientated towards a busy A-road (A2016 Picardy Manorway) and consequently are designed with acoustic façade mitigation to minimise any potential noise impact. Furthermore, the Travelodge London Belvedere includes air conditioning minimising the need to open windows during periods of hot weather. This would support a downward modification of the initial impact estimation.
- **the character of the residual sound compared to the character of the specific sound**: The characteristics of the sound, being industrial in nature, are similar to that of the prevailing noise environment which is dominated by existing industrial/commercial noise and road traffic noise. This would support a downward modification of the initial impact estimation.
- **the level of the residual sound compared to the level of the specific sound**: The level of the ambient sound (60 dB $L_{Aeq,16h}$ during the day and 55 dB $L_{Aeq,8h}$ during the night), is higher than the predicted specific sound level (51 dB $L_{Aeq,T}$) generated by the operation of the Proposed Scheme at NSRs on Clydesdale Way and the Travelodge London Belvedere. This would support a downward modification of the initial impact estimation.

3.1.8. The contextual factors set out above support a downward modification of the initial estimate of the impact and would indicate that the noise from the Proposed Scheme would be barely audible or detectable at the nearest NSRs.

3.1.9. Requirement 20 of the Draft Development Consent Order for the Cory Decarbonisation Project (the Draft DCO) secures a night-time rating level $L_{Ar,Tr}$, of 49 dB (equal to the representative background sound level). Therefore, to ensure compliance with the Requirement, noise mitigation developed during the detailed design stage will be required to reduce noise levels arising from the operation of the Proposed Scheme. Cory is willing to implement noise mitigation measures to satisfy Requirement 20 of the Draft DCO and the measures will be included in the detailed version of the NMP.

THE REVISED VERSION OF ISO 9613, PUBLISHED IN 2024

3.1.10. ISO 9613 was revised in 2024[10]. The new version was published on 31st January 2024 and has subsequently been implemented and validated in noise modelling software packages.

[10] International Organization for Standardization (2024). ISO 9613-2:2024 Acoustics. Attenuation of sound during propagation outdoors - Engineering method for the prediction of sound pressure levels outdoors

3.1.11. The noise model has been re-run using the updated version of ISO 9613. The updated initial estimate of impacts is presented in Table 3-2. Following this, the contextual factors are re-examined to determine the final significance of the impact.

Table 3-2 – Initial Estimate of Noise Impacts Using the 2024 Revision of ISO 9613

Time Period	Background sound level $L_{A90,T}$ dB	Specific sound level L_S dB	Acoustic feature correction	Rating sound level, $L_{Ar,T}$ dB	Excess of rating sound level over background sound level, dB
Clydesdale Way					
Daytime	54	52	+3	55	+1 (*-1*)
Night-time	49	53	+3	56	+7 (+4)
Travelodge London Belvedere					
Daytime	54	53	+3	56	+2 (0)
Night-time	49	53	+3	56	+7 (+5)

3.1.12. Predicted sound levels at the nearest NSRs are 2-3 dB higher using the revised (2024) version of ISO 9613. The revised initial estimate of the noise impact remains below an adverse impact (barely audible or detectable noise) during the day and an adverse impact (audible or detectable noise) at night.

3.1.13. Once the contextual factors have been considered, as explained in Paragraph 3.1.7, it can be considered that the revised initial estimate can be modified and the impact during the night time can be reduced, indicating that the noise from the Proposed Scheme is barely audible or detectable at the nearest NSRs during the daytime and night-time.

3.1.14. The fifth contextual point in Paragraph 3.1.7 considers the level of the residual sound compared to the specific sound. The ambient sound level measured during the baseline survey for the night-time period was 55 dB L_{Aeq}. Although the specific sound level, $L_{S,}$ predicted at Travelodge London Belvedere and Clydesdale Way has increased by 2-3 dB, to 53 dB with the revised version of ISO 9613, it remains lower than this value. Therefore, this remains a key consideration to determine the revised final operational noise impact as barely audible or detectable.

3.1.15. As stated in paragraph 3.1.9, Requirement 20 of the Draft DCO secures a night-time rating level, $L_{Ar,Tr}$ of 49 dB for receptors at Clydesdale Way and the Travelodge London Belvedere. Therefore, noise mitigation developed during the detailed design stage will be required to reduce noise levels arising from the operation of the Proposed Scheme by 7 dB, as opposed to 5 dB as presented in the

DCO ES. The measures to achieve this noise level reduction will be included in the detailed version of the NMP.

CUMULATIVE NOISE IN COMBINATION WITH THE RIVERSIDE 1 AND THE RIVERSIDE 2 FACILITIES

3.1.16. During a pre-application meeting, the EA expressed a wish to understand cumulative noise impacts arising from Proposed Scheme in combination with the existing Riverside 1 facility and the Riverside 2 facility (currently under construction), which are both situated nearby, on the southern bank of the River Thames.

3.1.17. In support of this, predicted noise from Riverside 1 and Riverside 2 have been considered below. In addition, information regarding measured background sound levels carried out for the Riverside 1 and Riverside 2 planning applications have been sourced and compared with the background sound levels measured for the NIA carried out for the ES.

3.1.18. The Riverside 1 planning application noise impact assessment predicted a specific sound level, L_S of 34 dB from the development at receptors on North Road. North Road lies approximately 290m to the south of the Clydesdale Way and the Travelodge London Belvedere. Correcting for distance, this results in a predicted specific sound level, L_s of 35.5 dB at these NSRs. No corrections were applied for acoustic features, so the predicted specific sound level equals the rating level.

3.1.19. Predicted noise levels from Riverside 2 have been taken from the results of modelling carried out for and reported in a written noise monitoring scheme for the operation of Riverside Energy Park[11]. Noise from this development was predicted at the Hackney House apartments because they were new noise sensitive receptors subsequently built in the area. This receptor is the same as the receptor in the ES NIA referred to as Clydesdale Way. Given the large separation distance between the Riverside 2 development and both receptors, Clydesdale Way and the Travelodge London Belvedere, and the close proximity between them, the predicted noise level at the Travelodge London Belvedere is not expected to be significantly different to the predicted noise level at Clydesdale Way. The predicted specific sound level arising from the operation of Riverside 2 at these receptors is 39.4 dB. No corrections were applied for acoustic features, so the predicted specific sound level equals the rating level.

3.1.20. As stated in paragraph 3.1.9, Requirement 20 of the Draft DCO secures a night-time rating noise level, $L_{Ar,Tr}$ of 49 dB from the Proposed Scheme (equal to the background sound level), for receptors on Clydesdale Way and the Travelodge London Belvedere. Taking a cautious approach, it is assumed that an acoustic feature correction of +3 dB is required, so that a specific sound level L_S, of 46 dB would need to be achieved.

3.1.21. Logarithmically summing the predicted specific sound levels from Riverside 1, Riverside 2 and from the Proposed Scheme results in a cumulative predicted specific sound level L_S, of 47 dB. A rating level is calculated assuming the same acoustic feature correction of +3 dB would be applied to the cumulative specific sound level, resulting in a rating level, $L_{Ar,Tr}$ of 50 dB.

3.1.22. Table 3-3 presents an initial estimate of cumulative noise in accordance with BS 4142 based on the noise monitoring carried out for the ES NIA.

[11] Riverside Energy Park. Control of Operational Noise In accordance with Requirement 19, Schedule 2, of the Riverside Energy Park Order (2020) as amended. August 2021.

Table 3-3 – Calculated Cumulative Noise Level with the inclusion of predicted noise levels from Riverside 1 and Riverside 2

Time Period	Background sound level $L_{A90,T}$ dB	Specific sound level L_S dB (1)	Acoustic feature correction	Rating sound level, $L_{Ar,T}$ dB	Excess of rating sound level over background sound level, dB
Travelodge London Belvedere					
Daytime	54	47	+3	50	-4
Night-time	49	47	+3	50	+1

Table notes:

1. Logarithmic sum of predicted specific sound level from Riverside 1, Riverside 2 and from the Proposed Scheme

3.1.23. The initial estimate for the cumulative noise level, including the operation of Riverside 1, Riverside 2 and the Proposed Development, indicates a low impact (barely audible or detectable noise) during the daytime and at night.

3.1.24. Following this initial estimate of the impact, the context in which the sound occurs must be considered. Paragraph 3.1.7 sets out contextual factors relevant to noise from the Proposed Scheme in isolation and it is considered that these factors would also be relevant to the cumulative noise level. As all of the contextual factors would support a downward modification of the initial estimate of the impact this indicates that the noise from the Proposed Scheme would be barely audible or detectable at the nearest NSRs.

3.1.25. Table 3-4 compares baseline measurements carried out for the Riverside 1 and Riverside 2 planning applications with those carried out for the ES.

Table 3-4 – Comparison of Baseline Noise Levels

Noise Monitoring Location	Baseline noise levels adopted in the planning application noise assessments			
	L_{Aeq}, dB		L_{A90}, dB	
	Daytime	Night-time	Daytime	Night-time
Riverside 1				
North Road	52	48	48	44
Riverside 2				
Hackney House Apartments	60	54	54	45
Proposed Scheme				
MP1	60	55	54	49

Noise Monitoring Location	Baseline noise levels adopted in the planning application noise assessments			
	L_{Aeq}, dB		L_{A90}, dB	
	Daytime	Night-time	Daytime	Night-time
(Representative of the nearest NSRs to the south of the Site)				

3.1.26. Baseline noise levels have increased gradually over the period between when noise monitoring was carried out for the Riverside 1 planning application, the Riverside 2 planning application and the Proposed Scheme planning application. It is likely that over this period, road traffic noise has contributed to an increase in baseline noise levels. It is considered unlikely that noise from the existing Riverside 1 development contributes significantly to the baseline noise level at MP1 as the predicted noise level, L_S of 36 dB (when adjusted for distance to the Travelodge, as described above), is more than 10 dB below the current measured baseline noise level.

3.1.1. The level of the ambient sound measured at Clydesdale Way and the Travelodge London Belvedere (60 dB $L_{Aeq,16h}$ during the day and 55 dB $L_{Aeq,8h}$ during the night), is higher than the predicted cumulative noise level, including the operation of Riverside1, Riverside 2 and the Proposed Development, of 51 dB L_S. As noted in paragraph 3.1.24, this supports a downward modification of the initial impact estimation indicating that the noise from the Proposed Scheme would be barely audible or detectable at the nearest NSRs.

3.1.2. The operation of the Proposed Scheme would not affect the operational noise levels arising from Riverside 1 and Riverside 2.

3.2 NOISE SOURCES

3.2.1. Table 3-5 presents a list of the noise sources included in the noise model. As a worst-case, all noise sources are modelled as operating continuously.

Table 3-5 – Operation Noise Source Assumptions

Noise Source	Sound Power Level L_{WA} dB (A)	Height (m)	Information Source
Stack(s)	103	60[12]	Sound power level equivalent to the stack for Riverside 2, excludes the Absorber Column(s). Height of the Absorber Column(s) and Stack(s) is 113m
Flue Gas Fan	85	9.8	Based on similar development (professional judgement).

[12] A precautionary height of 60m was used for the Stack(s) to represent a worst-case assessment in terms of noise propagation from this component to the nearest noise sensitive receptors.

Noise Source	Sound Power Level L_{WA} dB (A)	Height (m)	Information Source
Pumps	104	1	WKC Group Pump Noise Calculator, 450kW rich solution pump, assumed worst-case speed range.
Pumps associated with solvent/waste tanks	96	1	WKC Group Pump Noise Calculator, 100kW pump, assumed 1500rpm speed range.
Back Pressure turbines	85	6	Based on similar development (professional judgement).
33/11kV Transformers	78	6	Based on NEMA TR1 and IEEE standards for specifying sound pressure and converting to sound power.
132/33kV Transformers	86	6	Based on NEMA TR1 and IEEE standards for specifying sound pressure and converting to sound power.
CO_2 Vents	110	11.6	Based on similar development (professional judgement).
CO_2 Compressors	90	11	The CO_2 compressors are a part of the Compression Plant.
Refrigeration Package	98	1	Based on similar development (professional judgement).
Cooling Solution	93	15	Assumed as part of design based on similar developments.
Backup ASHP	98	7.75	Assumed as part of design based on similar developments, height assumed to be 2.5m above the roof of building as a worst case.

3.2.2. There are emergency pressure relief valves associated with the onsite LCO_2 temporary storage. These valves will release LCO_2 should pressure within the temporary storage become too great, to avoid damage. As the valves will only be used in emergency situations and are not considered part of typical activities, they have not been included within the main assessment.

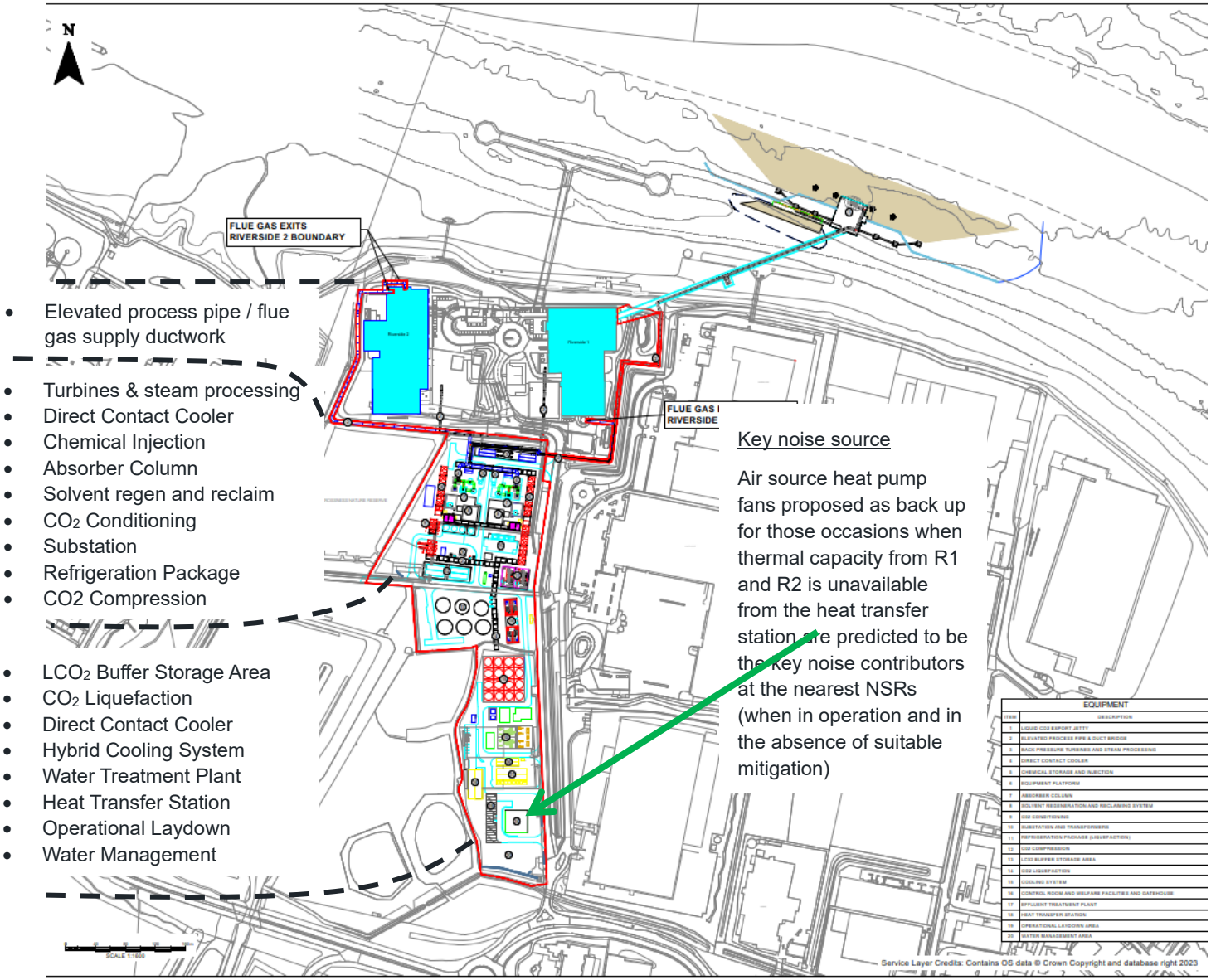
3.2.3. A noise level of 45 dB, $L_{Aeq,T}$ from the pressure relief valve has been predicted at the nearest NSR. Assuming a partially open window reduces the external noise level by 15 dB, the internal noise level would not exceed the L_{Aeq} or L_{max} night-time noise criteria identified within BS 8233[18]. Therefore, given the predicted level of noise and the low likelihood of occurrence, it is considered that this source would not result in noise pollution.

3.3 OVERVIEW OF NOISE PROCESSES AND EMISSIONS

3.3.1. The CCF is likely to contain the elements listed below. Figure 3-3 shows the main processing areas on an indicative site layout plan and highlights the key noise source contributing to the overall noise levels at NSRs.

- Two Carbon Capture Plants, each comprising:
  - Flue Gas Pre-Treatment (to include the Direct Contact Cooler);
  - Absorber Column;
  - Solvent Regeneration System; and
  - Rich Solvent/Lean Solvent Heat Exchanger.
- Two CO_2 Compression, Conditioning and Liquefaction Plants, each comprising:
  - Compression;
  - Dehydration;
  - Liquefaction and Refrigeration; and
  - Vent stack.
- Liquified CO_2 (LCO_2) Storage and Loading, to include:
  - Temporary Onshore Storage; and
  - Marine Loading and Boil-Off Gas (BOG) Processing.
- Supporting Plant, comprising:
  - Cooling System (shared between the Carbon Capture Plants);
  - Flue Gas Supply Ductwork (for each of the Carbon Capture Plants if there are two);
  - Stream Extraction and Steam Processing (for each of the Carbon Capture Plants if there are two);
  - Back Pressure Turbine and Generator (for each of the Carbon Capture Plants if there are two);
  - Chemical Storage and Distribution Handling Facilities (shared between the Carbon Capture Plants);
  - Solvent Storage (shared between the Carbon Capture Plants); and
  - Effluent Treatment Plant.

Figure 3-3 – Indicative Equipment Layout



4 CONTROL MEASURES AND PROCESS MONITORING

4.1 BEST AVAILABLE TECHNIQUES (BAT)

4.1.1. This section describes what action(s) will be taken to prevent and / or minimise the risk of noise pollution using BAT.

4.1.2. As stated in paragraph 1.1.2, this ONMP is based on information from the ES. As such, it is based on a preliminary design which is subject to change as the design progresses. The information in this section represents measures which are likely to be feasible and effective in complying with the commitments made in relation to noise within the DCO and avoiding significant noise pollution from the Proposed Scheme. However, this ONMP will be updated into a detailed management plan to take account of any material changes that would affect the mitigation or management of noise emissions from the Site.

4.1.3. Detailed noise modelling will be carried out of the final design to confirm the actual mitigation measures proposed. The modelling results will be used to inform the procurement of equipment. During procurement, test data for fixed plant and building elements will be reviewed to confirm that the level of noise from each item of significant noise-emitting equipment is either no higher than the level included in the noise model or, taken in combination, would comply with the commitments made in relation to noise within the DCO and would not lead to significant noise pollution.

4.1.4. This document will then be updated to reflect any changes that are necessary to the information presented here.

4.1.5. The main noise generating activities on-site are listed in Table 4-6, together with information on BAT to minimise noise emissions.

Table 4-6 – Actions and procedures which will be in place to achieve BAT

Activity which produces noise [1] [2]	Control measures (BAT)	Contribution to overall impact
Stack(s)	Not required	Not significant
Flue Gas Fan	Not required	Not significant
Pumps	Not required	Not significant
Pumps associated with solvent/waste tanks	Not required	Not significant
Back Pressure turbines	Not required	Not significant
33/11kV Transformers	Not required	Not significant
132/33kV Transformers	Not required	Not significant
CO_2 Vents	Not required	Not significant
CO_2 Compressors	Not required	Not significant
Refrigeration Package	Not required	Not significant

Activity which produces noise [1] [2]	Control measures (BAT)	Contribution to overall impact
Cooling Solution	Not required	Not significant
Backup ASHP Fans	The following noise control measures are considered feasible and effective at reducing noise from the ASHP fans associated with heat transfer station. These measures will be reviewed during detailed design and the most appropriate measures adopted. Any one measure would provide the attenuation required to result in a reduction in noise levels such that the operational noise rating levels do not exceed the operational noise limits above: ▪ locating the ASHP fans further away and behind the water heating facility, such that the building acts as a barrier to the noise from the fans; or ▪ selecting quieter ASHP fans; or ▪ erecting an acoustic barrier around the ASHP fans.	Dominant

Table notes:

1. All plant is conservatively assumed to operate continuously.
2. It is estimated that the backup ASHP fans would be active for approximately 17% of the time, when sufficient when thermal capacity cannot be provided by Riverside 1 or Riverside 2. However, when operational, they may run for extended periods. The modelling assumes continuous operation.

4.2 ONSITE MONITORING PROCEDURES

4.2.1. The Draft DCO requires the submission of a written noise mitigation plan to the London Borough of Bexley for approval, prior to commissioning, which will demonstrate how the noise limits set out in Table 4-7 will be achieved.

4.2.2. The noise mitigation plan will be produced once the design has been finalised and a main contractor has been appointed. It will include details of the mitigation measures to be employed, the onsite monitoring procedures that will be carried out to maintain the mitigation measures in good working order and the noise monitoring that will be carried out.

4.2.3. Noise monitoring is discussed further in the next section.

4.2.4. Onsite monitoring will include regular (twice a year) checks carried out by competent site personnel to ensure that the equipment and associated noise control measures (e.g., enclosures, louvres, lagging) are adequately maintained. This will include visual inspections and listening, to identify potential issues, e.g. new tones, rattling etc.

4.2.5. If issues are identified, simple remedial action will be considered in the first instance (e.g., securing metal plates, lubricating mechanical parts, repairing lagging). It should be noted that local changes in equipment noise will not necessarily result in significant changes to overall plant noise emissions so the need for more detailed remedial action would be reviewed on a case-by-case basis.

Table 4-7 – Operational Noise Limits, Extracted from the Draft Development Consent Order for the Cory Decarbonisation Project

Location	Day-time Operational Noise Limit $L_{Ar, Tr}$ dB	Night-time Operational Noise Limit $L_{Ar, Tr}$ dB
Clydesdale Way	54	49
Travelodge London Belvedere Hotel	54	49

Table note:

The noise limits in this table relate to normal Site operating conditions. Additional measures are set out in the Draft DCO in relation to noise resulting from emergency situations.

4.3 MONITORING OFF SITE SOUND LEVELS

4.3.1. Noise monitoring will be carried out to demonstrate that the noise from the Proposed Scheme does not give rise to significant noise pollution and complies with the requirements of the DCO, which includes a commitment in terms of receptor noise limits, as described above.

4.3.2. A commissioning survey and assessment will be carried out in accordance with BS 4142, to demonstrate that noise from the Site would comply with these commitments. The process is outlined below.

- Noise measurements will be carried out at positions representative of the NSRs listed in Table 4-7.
- If significant sources of extraneous noise are present, further noise measurements may be necessary to minimise their influence, e.g., measurements carried out at night or monitoring close to equipment followed by predicting noise at NSRs.
- The results will be assessed in accordance with BS 4142. The assessment will consider factors such as the difference between the noise from the Proposed Scheme and the existing background sound level, the nature of the noise being generated, its frequency, duration and the time of day at which it occurs.
- The survey and assessment will be conducted by a suitably qualified person.

4.3.3. In addition, noise monitoring will be carried annually out at locations within the Site boundary to identify significant increases in noise from the Proposed Scheme. In addition, noise-related complaints will be reviewed on a case-by-case basis to determine if noise monitoring is warranted. Once detailed design is finalised, the NMP will provide further details of the locations, parameters and frequency of noise monitoring.

5 COMPLAINTS REPORTING

5.1.1. Complaints may be received via telephone, e-mail, post or in person. Staff, on receipt of a complaint shall record them on:

- A Complaint Record Form; or
- the intranet complaint recording system.

5.1.2. As a minimum, the following details shall be recorded:

- contact details for the complainant;
- the time and date when the complaint was received;
- a full description of the nature of the complaint; which should include:
  - the duration of the complaint; and
  - the location of the complainant(s) at the time of the complaint.
- the wind speed and direction as well as other weather conditions at the time of the complaint;
- information regarding the operation of the plant at the time of the complaint;
- potential causes of the complaint; and
- whether it has been possible to rectify the complaint and if so, the action taken, or if it requires further investigation.

5.1.3. They shall provide these details to the Operations Manager, who shall:

- input details of the complaint into the intranet complaint recording system (if not already done);
- evaluate the complaint; and
- arrange for the complaint to be investigated and dealt with.

5.1.4. The person investigating the complaint shall record into the intranet complaint recording system:

- the actions taken by the person resolving the complaint;
- the close out date;
- confirmation by the person resolving the complaint that it has been resolved.

5.1.5. The Operations Manager shall sign within the intranet complaint recording system to confirm that the complaint has been resolved.

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