Alexandra Basin Redevelopment 2

Bringing Dublin Port To 2040

Environmental Impact Assessment Report

Appendix 12-2 Noise Management Plan

Volume 3



CALAFORT ÁTHA CLIATH
DUBLIN PORT

TETRA TECH

Appendix 12-2 Noise Management Plan

1 Introduction

This Noise Management Plan (NMP) details the environmental monitoring and noise/vibration mitigation measures that will be implemented during the works to minimise the effects of the site operations on environmental receptors. The NMP will be finalised in the event that development consent is obtained, in order to incorporate additional requirements pursuant to conditions attached to statutory consents, and methods and plant in use by the appointed Contractor.

This NMP will be fully in accordance with the following documents;

- ABR2 Project EIAR Terrestrial Noise & Vibration chapter and mitigation measures therein when prepared;
- British Standard BS5228:2009+A1:2014 Noise & vibration control on construction and open sites;
- NRA Guidelines for the Treatment of Noise and Vibration in National Road Schemes (2004);
- NRA Good Practice Guidance for the Treatment of Noise during the Planning of National Road Schemes (2014)'
- Dublin City Council (DCC) – Air Quality Monitoring and Noise Control Unit's Good Practice Guide for Construction and Demolition.

The purpose and aims of the NMP are to:

- Establish noise guidance criteria to be used;
- Detailed outline of monitoring programme to be adopted including information on instrumentation, monitoring locations, monitoring procedure/methodology;
- Detailed outline of all proposed mitigation measures to control and minimise noise from all phases and areas of construction activity;
- Outline of management procedures for ensuring that the appropriate mitigation measures are appropriately managed;
- Outline of procedures for liaising with the public and Dublin City Council.

The proposals for noise monitoring and noise mitigation measures included in this document relate to the entire duration of construction works associated with the ABR2 Project.

The Noise Management Plan will be finalised when Contractors are appointed, and liaison with Dublin City Council has taken place with regard to approval of the updated NMP. The updated NMP will detail the specific roles and responsibilities of personnel related to the implementation of the NMP.

2 Mitigation Measures

Mitigation measures will include the requirements for best practice and adherence to the following relevant Irish policies, strategies, legislation, and guidelines, or recognised international guidelines where Irish guidelines are not available:

(a) The construction noise and vibration levels arising from the proposed development shall not exceed Noise Threshold Limits in BS5229BS5228:2009+A1:2014 (Part 1), set out in Table 1.

(b) Mitigation measures likely to be included in the EIAR, shall be adhered to, in compliance with British Standard BS5228:2009+A1:2014 – Noise and vibration control on construction and open sites. In relation to noise (Part 1), such mitigation includes:

- Ensuring that mechanical plant and equipment used for the purpose of the works are fitted with effective exhaust silencers and are maintained in good working order;
- Careful selection of quiet plant and machinery to undertake the required work where available;
- All major compressors will be 'sound reduced' models fitted with properly lined and sealed acoustic covers which should be kept closed whenever the machines are in use;
- Any ancillary pneumatic percussive tools will be fitted with mufflers or silencers of the type recommended by the manufacturers;
- Machines in intermittent use will be shut down in the intervening periods between work;
- Ancillary plant such as generators, compressors and pumps will be placed behind existing physical barriers, and the direction of noise emissions from plant including exhausts or engines will be placed away from sensitive locations, in order to cause minimum noise disturbance. Where possible, in potentially sensitive areas, acoustic barriers of enclosures will be utilised around noisy plant and equipment.
- Handling of all materials will take place in a manner which minimises noise emissions;
- Audible warning systems will be switched to the minimum setting required by the Health & Safety Authority.

A complaints procedure shall be operated by DPC throughout the construction phase and the Contractor will be instructed to make all efforts to address any noise issues at the nearest noise sensitive properties.

Table 1: Noise Threshold Limits at Nearest Noise Sensitive Receptors

	Threshold Limits [dB(A)]		
	Category A	**Category B**	**Category C**
Night-time (23:00 - 07:00)	45	50	55
Evening and Weekends (19:00 - 23:00 Weekdays, 13:00-23:00 Saturdays, 07:00-23:00 Sundays)	55	60	65
Weekday daytime (07:00-19:00) and Saturdays (07:00-13:00)	65	70	75

Section 12.1.4 of the Terrestrial Noise and Vibration EIAR Chapter includes the total risk assessment completed for the ABR2 Project based on the details included within this guide. As stated in Section 12.4 of the EIAR Chapter, the ABR2 Project falls into the high risk category in the total risk assessment, albeit marginally so. Table 2 to Table 7 provide details of the good practice measures outlined in the guide for high-risk projects. These measures only include the noise-related elements included within the guide.

Table 2: General Considerations

General Considerations	
All site staff shall be briefed on noise mitigation measures and the application of best practicable means to be employed to control noise.	All sites
Good Quality site hoarding should be erected to maximise the reduction in noise levels.	Medium and high risk sites
The contact details of the contractor and site manager shall be displayed to the public, together with the permitted operating hours, including any special permissions given for out of hours work.	Medium and high risk sites
The site entrance shall be located to minimise disturbance to noise sensitive receptors.	Medium and high risk sites
Internal haul routes shall be maintained and steep gradients shall be avoided.	Medium and high risk sites
Material and plant loading and unloading shall only take place during normal working hours unless the requirement for extended hours is for traffic management (i.e. road closure) or health and reasons (application must be made to DCC a minimum of 4 days prior to proposed works).	All sites
Use rubber linings in chutes, dumpers and hoppers to reduce impact noise.	Medium and high risk sites

General Considerations	
Minimise opening and shutting of gates through good coordination of deliveries and vehicle movements.	Medium and high risk sites

Table 3: Mitigation for Plant

Plant	
Ensure that each item of plant and equipment complies with the noise limits quoted in the relevant European Commission Directive 2000/14/EC.	All sites
Fit all plant and equipment with appropriate mufflers or silencers of the type recommended by the manufacturer.	All sites
Use all plant and equipment only for the tasks for which it has been designed.	All Sites
Shut down all plant and equipment in intermittent use in the intervening periods between work or throttle down to a minimum.	All sites
Power all plant by mains electricity where possible rather than generators.	Medium and high risk sites
Maximise screening from existing features or structures and employ the use of partial or full enclosures for plant.	Medium and high risk sites
Locate movable plant away from noise sensitive receptors.	All sites

Table 4: Mitigation for Vehicle Activity

Vehicle Activity	
Ensure all vehicle movements (on site) occur within normal working hours. (Other than where extension of work requiring such movements has been granted in cases of required road closures or for health and safety reasons).	All sites
Plan deliveries and vehicle movements so that vehicles are not waiting or queuing on the public roads. If unavoidable engines should be turned off.	Medium and high risk sites
Minimise the opening and closing of the site access through good coordination of deliveries and vehicle movements.	Medium and high risk sites
Plan the site layout to ensure that reversing is kept to a minimum.	Medium and high risk sites

Vehicle Activity	
Where reversing is required use broadband reverse sirens or where it is safe to do so disengage all sirens and use banksmen.	Medium and high risk sites
Rubber/neoprene or similar non-metal lining material matting to line the inside of material transportation vehicles to avoid first drop high noise levels.	Medium and high risk sites

Table 5: Mitigation for Demolition

Demolition Phase	
Employ the use of acoustic screening; this can include planning the demolition sequence to utilise screening afforded by buildings to be demolished.	Medium and high risk sites
If working out of hours for Health and Safety reasons (following approval by DCC) limit demolition activities to low level noise activity unless absolutely unavoidable.	All sites
Use low impact demolition methods such as non-percussive plant where practicable.	Medium and high risk sites
Use rotary drills and 'bursters' activated by hydraulic or electrical power or chemically based expansion compounds to facilitate fragmentation and excavation of hard material.	High risk sites
Avoid the transfer of noise and vibration from demolition activities to adjoining occupied buildings through cutting any vibration transmission path or by structural separation of buildings.	Medium and high risk sites
Consider the removal of larger sections by lifting them out and breaking them down either in an area away from sensitive receptors or off site.	High risk sites

Table 6: Mitigation for Ground Works and Piling

Ground Works and Piling Phase	
The following hierarchy of groundwork/piling methods should be used if ground conditions, design and safety allows: • Pressed in methods, e.g., hydraulic jacking • Auger/bored piling; • Diaphragm walling;	Medium and high risk sites

Ground Works and Piling Phase	
• Vibratory piling or vibro-replacement; Driven Piling or dynamic consolidation.	
The location and layout of the piling plant should be designed to minimise potential noise impact of generators and motors.	Medium and high risk sites
Where impact piling is the only option utilise a non-metallic dolly between the hammer and driving helmet or enclose the hammer and helmet with an acoustic shroud.	Medium and high risk sites
Consider concrete pour sizes and pump locations. Plan the start of concrete pours as early as possible to avoid overruns.	Medium and high risk sites
Where obstructions are encountered, work should be stopped and a review undertaken to ensure that work methods that minimise noise are used.	Medium and high risk sites
When using an auger piling rig do not dislodge material from the auger by rotating it back and forth. Use alternate methods where safe to do so.	Medium and high risk sites
Prepare pile caps using methods which minimise the use of breakers, e.g., use hydraulic splitters to crack the top of the pile.	Medium and high risk sites

Table 7: Monitoring

Monitoring	
Establish pre-existing levels of ambient noise by baseline monitoring or use of the noise maps.	Medium and high risk sites
Carry out regular on-site observation monitoring and checks/audits to ensure that BPM is being used at all times. Such checks shall include; • Hours of work • Presence of mitigation measures • Number and type of plant • Construction methods Site reviews must be recorded and made available for inspection.	High risk sites
Monitor noise and vibration continuously during demolition, piling, excavation and sub and superstructure works at agreed locations and report to DCC at agreed intervals and in an agreed format.	High risk sites

Monitoring	
To comply with this the following must take place. The monitoring locations for existing sites as agreed with officers of Dublin City Council must remain in situ. If additional monitoring is required this will be provided and the new locations will be agreed with Dublin City Council. For all new sites the monitoring locations must be agreed with Dublin City Council. The results of the monitoring must be forwarded to officers of the Air Quality Monitoring and Noise Control Unit every two weeks in the following format: Provide the construction noise level as defined in British Standard 5228 and the peak particle velocity readings for the hours of operation of the site. This will include the construction noise level for any overtime period worked outside of normal working hours. Provide a report detailing and discussing the noise and vibration levels over the reporting period. If a breach is recorded the follow up action that took place to prevent any further breaches must be included in the report. This information must be provided in electronic format. If results are required owing to complaints the results will be provided as soon as possible by the contractor to Dublin City Council.	
Appraise and review working methods, processes and procedures on a regular basis to ensure continuous development of BPM	Medium and high risk sites
The 'ABC' Method detailed in Paragraph E.3.2 of BS 5228-1:2009 shall be used to determine acceptable noise levels for day, evening and night time work.	Medium and high risk sites
Vibration levels must be kept below 1.0 mm/sec (PPV) where possible. Where levels are expected to exceed this value residents must be warned and an explanation given.	Medium and high risk sites
Contact details for the site manager and liaison officer should be displayed prominently on the site hoarding.	Medium and high risk sites
All staff should be briefed on the complaints procedure and the mitigation requirement and their responsibilities to register and escalate complaints received.	Medium and high risk sites
Send regular updates at appropriate intervals to all identified affected neighbours/ businesses via a newsletter and post relevant information on the site hoarding. Also make the information available via email/website including weekly noise monitoring reports.	Medium and high risk sites
Arrange regular community liaison meetings at appropriate intervals including prior to commencement of the project.	High risk sites
Meet regularly with neighbouring construction sites to ensure activities are coordinated to minimise any potential cumulative issues.	High risk sites

3 Noise Monitoring Programme

Noise surveys will be conducted in accordance with BS7445: Description and Measurement of Environmental Noise. All measurements will be made using Type 1 precision digital sound levels meters and associated hardware, which will conform to BS EN 60804. Sound level meters will be periodically calibrated in accordance with BS7580: Sound Level Meter Verification. The following parameters will be recorded as a minimum: LAeq, Lamax, Lamin, LA10 and LA90.

The existing noise monitoring stations that have been in place to monitor noise levels associated with the ABR and MP2 Projects will be maintained throughout the duration of the ABR2 Project.

All data will be collected and analysed on a weekly basis and the analysed data will be fed back to DPC and the Contractors on a weekly basis with a view to reviewing the compliance of construction phase activities in the context of any relevant conditions in planning approval if granted, and the thresholds/requirements included in this CEMP. This will also include any liaison requirement with Dublin City Council in this regard.

Any noise nuisance issues associated with the construction phase activities will be immediately assessed and analysed in relation to the recorded noise levels and all correspondence with DPC, the Contractor, Dublin City Council and the residents will be conducted with the appropriate level of urgency. This will include the appropriate liaison with DPC and the Contractor to control activities to ensure that the construction phase activities are in line with any relevant planning conditions and the CEMP.

4 Reporting

Interim synoptic reports will be produced on a regular basis, usually calendar months, and submitted to Dublin City Council and the project liaison group.

Summary data and graphical outputs for each year of the construction phase will form part of an Annual Environmental Report. The data will be prepared in an analytical output that will aim to provide a concise representation of the construction phase noise levels from the Port and will aim to avoid presentation of lengthy datasets.

5 Equipment

The number and location of noise meters will be agreed with Dublin City Council. These will operate for the entire duration of the construction phase. Permanent secure noise monitoring stations have previously been established at the marina adjacent to Pigeon House Road, at East Wall Road, and at Clontarf as part of the ABR and MP2 Projects' Noise Management Plans for nearby sensitive noise receptors. These existing monitoring sites will be maintained for the ABR2 Project subject to approval as above.

The noise meters used will conform to the description of a Type 1 precision digital sound level meters as described in the relevant noise guidance documentation. All equipment will be calibrated at regular intervals.