



NOISE IMPACT ASSESSMENT
Circle K, Ninth Lock

Rp001N 2022071 (Circle K, Ninth Lock)
21 April 2022

TABLE OF CONTENTS

1.0 INTRODUCTION	4
2.0 DEVELOPMENT DESCRIPTION	4
3.0 ASSESSMENT CRITERIA.....	5
3.1 BS4142:2014	5
3.2 World Health Organisation (WHO)	5
4.0 ENVIRONMENTAL NOISE SURVEY	6
4.1 Background Sound Level.....	7
5.0 NOISE PREDICTIONS.....	8
5.1 <i>SoundPLAN</i> Noise Modelling.....	8
5.2 Source Noise Levels	8
5.3 Receptors	9
5.4 Predicted Noise Levels	9
6.0 NOISE ASSESSMENT	10
6.1 BS 4142:2014 Noise Assessment	10
6.1.1 <i>Daytime</i>	10
7.0 CONCLUSION	11

3.0 ASSESSMENT CRITERIA

There are two types of assessment criteria in relation to the predicted noise levels from this type of site. BS 4142:2014 is an assessment methodology that can be described as using noise change criteria, where the predicted noise levels are compared to the existing background noise levels.

Another method of assessment compares the predicted noise levels to absolute noise levels such as the World Health Organisation Guidelines, which outline absolute noise levels.

3.1 BS4142:2014

BS 4142:2014, *Methods for rating and assessing industrial and commercial sound*, describes methods for assessing whether noise levels are likely to give rise to an adverse impact by comparison of the background noise level with the noise emissions from the facility under assessment.

The Standard introduces the concept of a Rating Level (L_{Ar}) to account for the fact that certain characteristics of the noise source can increase the likelihood of an adverse impact. These characteristics include noise sources of an irregular nature or that contain distinguishable, discrete tonal noise.

Where applicable, a correction is added to the measured or predicted Specific Noise Level (L_{Aeq}) to determine the Rating Level. Note that all noise levels are assessed at an amenity area of the property under consideration.

BS 4142:2014 requires that the measured Rating Level (L_{Ar}) is compared to the Background Level (L_{A90}), measured in the absence of the noise under assessment, to determine the likelihood of an adverse impact. The greater this difference, the greater the likelihood of an adverse impact as follows:

- A difference of +10dB or more is likely to be an indication of a significant adverse impact, depending on the context.
- A difference of around +5dB is likely to be an indication of an adverse impact, depending on the context.
- 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.

3.2 World Health Organisation (WHO)

Example noise limits can be found in World Health Organisation (WHO) publication *Guidelines for Community Noise*, 1999 which states the following:

“To protect the majority of people from being seriously annoyed during the daytime, the sound pressure level on balconies, terraces and outdoor living areas should not exceed 55 dB L_{Aeq} for a steady, continuous noise.”

and

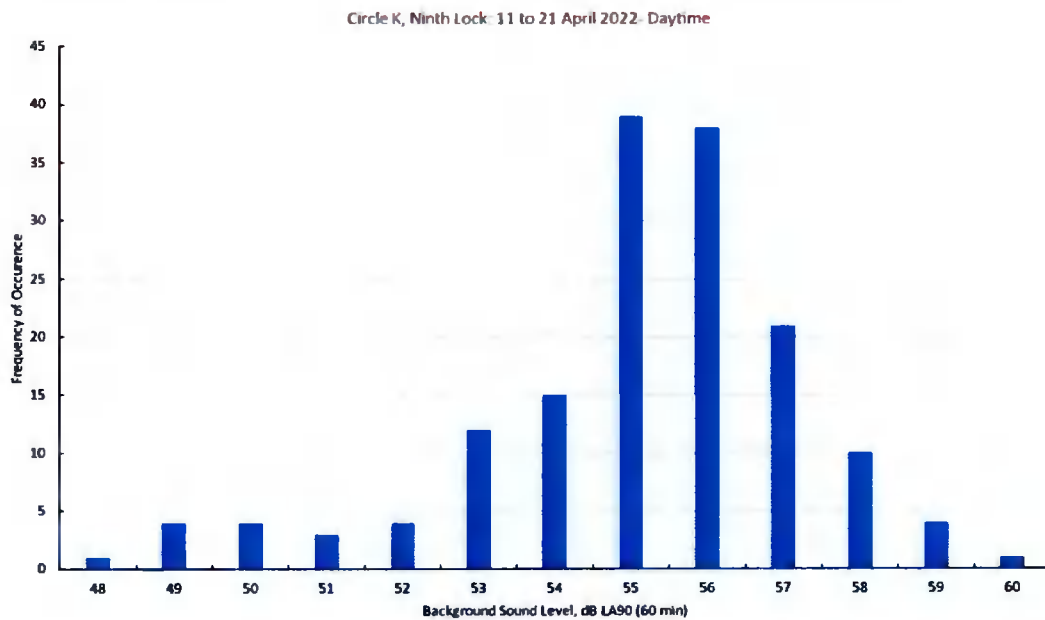
“For a good night’s sleep, the equivalent sound level should not exceed 30dB(A) for continuous background noise, and individual noise events exceeding 45dB(A) should be avoided.”

4.1 Background Sound Level

Background sound pressure levels were determined for the purposes of the BS4142 assessment. The standard uses a typical background level ($L_{A90,T}$) in the absence of the specific sound under consideration.

The daytime results are presented in Figure 2. Daytime background noise levels are from 07:00 to 23:00 every day.

Figure 2: Histogram showing frequency distribution of daytime background sound levels



Based on analysis of the data presented in Figure 2, the average noise level of 55.1dB L_{A90} , the median level of 55.4dB L_{A90} and the modal level of 55dB L_{A90} and guidance from BS 4142:2014, 55dB L_{A90} has been chosen as the appropriate and representative background noise levels for the daytime period.

There will be no operation of the car wash during the night-time period, and as a result analysis of the measurement period has not been undertaken.

5.3 Receptors

Seven receptors were identified representing the nearest residential properties in the vicinity of the proposed development site. The location of these receptors is detailed in Table 3 and shown in Appendix A.

Table 3: Noise Sensitive Receptors

Location	Co-ordinates
R1 – 1 Ninth Lock Road	306831, 232187
R2 – 4 Canal Way	306804, 232235
R3 – 2 Cappaghmore	306740, 232243

All receptors were considered in the external amenity area at a height of 1.5m.

5.4 Predicted Noise Levels

The predicted noise levels (L_{Aeq} to the nearest dB) at each receptor location for each scenario are shown in Table 4.

Table 4: Predicted Noise Levels

Location	Predicted Specific Daytime Noise Level (dB) $L_{Aeq, 1hr}$
R1	49.0
R2	44.5
R3	36.8

7.0 CONCLUSION

A noise impact assessment has been carried out for a proposed car wash, car wash plant room and associated structures at Circle K Service Station, Ninth Lock, Clondalkin, Dublin.

For this assessment, background noise levels were measured on the boundary the site between 11 – 21 April 2022. The background noise level measured at this location was deemed representative of the background noise levels in the vicinity of the site.

The predicted noise levels at each of the nearest sensitive receptors were assessed against BS 4142:2014 limits and WHO recommended noise levels.

It was found that operational noise from the proposed development is likely to have a low impact during the daytime period.

For the reasons outlined within this report, Irwin Carr Consulting is of the opinion that noise generated by the proposed development should not adversely impact neighbouring properties and therefore should not be considered a negative determining factor when assessing this application.

APPENDIX B SOUNDPLAN NOISE MAP CONTOURS

