

## Application for Planning Permission

### Town and Country Planning Act 1990 (as amended)

#### Publication of applications on planning authority websites

Please note that the information provided on this application form and in supporting documents may be published on the Authority's website. If you require any further clarification, please contact the Authority's planning department.

### Site Location

**Disclaimer:** We can only make recommendations based on the answers given in the questions.

If you cannot provide a postcode, the description of site location must be completed. Please provide the most accurate site description you can, to help locate the site - for example "field to the North of the Post Office".

Number

Suffix

Property Name

Tesco Express

Address Line 1

Mead Rd,

Address Line 2

Abbeymead,

Address Line 3

Town/city

Gloucester

Postcode

GL4 5GL

Description of site location must be completed if postcode is not known:

Easting (x)

386342

Northing (y)

216489

Description

## Applicant Details

### Name/Company

Title

Mr

First name

Andy

Surname

Horwood

Company Name

Tesco

### Address

Address line 1

Kestrel Way

Address line 2

Address line 3

Town/City

Welwyn Garden City

Country

United Kingdom

Postcode

AL7 1GB

Are you an agent acting on behalf of the applicant?

Yes

No

### Contact Details

Primary number

\*\*\*\*\* REDACTED \*\*\*\*\*

Secondary number

Fax number

Email address

## Site Area

What is the measurement of the site area? (numeric characters only).

Unit

## Description of the Proposal

Please note in regard to:

- **Fire Statements** - From 1 August 2021, planning applications for buildings of over 18 metres (or 7 stories) tall containing more than one dwelling will require a 'Fire Statement' for the application to be considered valid. There are some exemptions. [View government planning guidance on fire statements](#) or [access the fire statement template and guidance](#).
- **Permission In Principle** - If you are applying for Technical Details Consent on a site that has been granted Permission In Principle, please include the relevant details in the description below.
- **Public Service Infrastructure** - From 1 August 2021, applications for certain public service infrastructure developments will be eligible for faster determination timeframes. See help for further details or [view government planning guidance on determination periods](#).

### Description

Please describe details of the proposed development or works including any change of use

Has the work or change of use already started?

- Yes  
 No

## Existing Use

Please describe the current use of the site

Is the site currently vacant?

- Yes  
 No

**Does the proposal involve any of the following? If Yes, you will need to submit an appropriate contamination assessment with your application.**

Land which is known to be contaminated

- Yes
- No

Land where contamination is suspected for all or part of the site

- Yes
- No

A proposed use that would be particularly vulnerable to the presence of contamination

- Yes
- No

## Materials

Does the proposed development require any materials to be used externally?

- Yes
- No

## Pedestrian and Vehicle Access, Roads and Rights of Way

Is a new or altered vehicular access proposed to or from the public highway?

- Yes
- No

Is a new or altered pedestrian access proposed to or from the public highway?

- Yes
- No

Are there any new public roads to be provided within the site?

- Yes
- No

Are there any new public rights of way to be provided within or adjacent to the site?

- Yes
- No

Do the proposals require any diversions/extinguishments and/or creation of rights of way?

- Yes
- No

## Vehicle Parking

Does the site have any existing vehicle/cycle parking spaces or will the proposed development add/remove any parking spaces?

- Yes
- No

## Trees and Hedges

Are there trees or hedges on the proposed development site?

- Yes
- No

And/or: Are there trees or hedges on land adjacent to the proposed development site that could influence the development or might be important as part of the local landscape character?

- Yes  
 No

**If Yes to either or both of the above, you may need to provide a full tree survey, at the discretion of the local planning authority. If a tree survey is required, this and the accompanying plan should be submitted alongside the application. The local planning authority should make clear on its website what the survey should contain, in accordance with the current 'BS5837: Trees in relation to design, demolition and construction - Recommendations'.**

## Assessment of Flood Risk

Is the site within an area at risk of flooding? (Check the location on the Government's [Flood map for planning](#). You should also refer to national [standing advice](#) and your local planning authority requirements for information as necessary.)

- Yes  
 No

Is your proposal within 20 metres of a watercourse (e.g. river, stream or beck)?

- Yes  
 No

Will the proposal increase the flood risk elsewhere?

- Yes  
 No

How will surface water be disposed of?

- Sustainable drainage system  
 Existing water course  
 Soakaway  
 Main sewer  
 Pond/lake

## Biodiversity and Geological Conservation

**Is there a reasonable likelihood of the following being affected adversely or conserved and enhanced within the application site, or on land adjacent to or near the application site?**

**To assist in answering this question correctly, please refer to the help text which provides guidance on determining if any important biodiversity or geological conservation features may be present or nearby; and whether they are likely to be affected by the proposals.**

a) Protected and priority species

- Yes, on the development site  
 Yes, on land adjacent to or near the proposed development  
 No

b) Designated sites, important habitats or other biodiversity features

- Yes, on the development site  
 Yes, on land adjacent to or near the proposed development  
 No

c) Features of geological conservation importance

- Yes, on the development site  
 Yes, on land adjacent to or near the proposed development  
 No

### Supporting information requirements

Where a development proposal is likely to affect features of biodiversity or geological conservation interest, you will need to submit, with the application, sufficient information and assessments to allow the local planning authority to determine the proposal.

Failure to submit all information required will result in your application being deemed invalid. It will not be considered valid until all information required by the local planning authority has been submitted.

Your local planning authority will be able to advise on the content of any assessments that may be required.

## Foul Sewage

Please state how foul sewage is to be disposed of:

- Mains sewer
- Septic tank
- Package treatment plant
- Cess pit
- Other
- Unknown

Are you proposing to connect to the existing drainage system?

- Yes
- No
- Unknown

## Waste Storage and Collection

Do the plans incorporate areas to store and aid the collection of waste?

- Yes
- No

Have arrangements been made for the separate storage and collection of recyclable waste?

- Yes
- No

## Trade Effluent

Does the proposal involve the need to dispose of trade effluents or trade waste?

- Yes
- No

## Residential/Dwelling Units

Does your proposal include the gain, loss or change of use of residential units?

- Yes
- No

## All Types of Development: Non-Residential Floorspace

Does your proposal involve the loss, gain or change of use of non-residential floorspace?

Note that 'non-residential' in this context covers all uses except Use Class C3 Dwellinghouses.

Yes

No

## Employment

Are there any existing employees on the site or will the proposed development increase or decrease the number of employees?

Yes

No

## Hours of Opening

Are Hours of Opening relevant to this proposal?

Yes

No

## Industrial or Commercial Processes and Machinery

Does this proposal involve the carrying out of industrial or commercial activities and processes?

Yes

No

Is the proposal for a waste management development?

Yes

No

## Hazardous Substances

Does the proposal involve the use or storage of Hazardous Substances?

Yes

No

## Site Visit

Can the site be seen from a public road, public footpath, bridleway or other public land?

Yes

No

If the planning authority needs to make an appointment to carry out a site visit, whom should they contact?

The agent

The applicant

Other person

## Pre-application Advice

Has assistance or prior advice been sought from the local authority about this application?

Yes

No

## Authority Employee/Member

**With respect to the Authority, is the applicant and/or agent one of the following:**

**(a) a member of staff**

**(b) an elected member**

**(c) related to a member of staff**

**(d) related to an elected member**

It is an important principle of decision-making that the process is open and transparent.

For the purposes of this question, "related to" means related, by birth or otherwise, closely enough that a fair-minded and informed observer, having considered the facts, would conclude that there was bias on the part of the decision-maker in the Local Planning Authority.

Do any of the above statements apply?

Yes

No

## Ownership Certificates and Agricultural Land Declaration

### Certificates under Article 14 - Town and Country Planning (Development Management Procedure) (England) Order 2015 (as amended)

Please answer the following questions to determine which Certificate of Ownership you need to complete: A, B, C or D.

Is the applicant the sole owner of all the land to which this application relates; and has the applicant been the sole owner for more than 21 days?

Yes

No

Can you give appropriate notice to all the other owners/agricultural tenants? (Select 'Yes' if there are no other owners/agricultural tenants)

Yes

No

## Certificate Of Ownership - Certificate B

**I certify/ The applicant certifies that:**

I have/The applicant has given the requisite notice to everyone else (as listed below) who, on the day 21 days before the date of this application, was the owner\* and/or agricultural tenant\*\* of any part of the land or building to which this application relates; or

The applicant is the sole owner of all the land or buildings to which this application relates and there are no other owners\* and/or agricultural tenants\*\*.

\* "owner" is a person with a freehold interest or leasehold interest with at least 7 years left to run.

\*\* "agricultural tenant" has the meaning given in section 65(8) of the Town and Country Planning Act 1990



**Name of Owner/Agricultural Tenant:**

L C P Securities Ltd

**House name:**

**Number:**

**Suffix:**

**Address line 1:**

Kingswinford

**Address Line 2:**

**Town/City:**

West Midlands

**Postcode:**

DY6 7NA

**Date notice served (DD/MM/YYYY):**

31/01/2022

**Person Family Name:**

Person Role

The Applicant

The Agent

Title

Mr

First Name

Andy

Surname

Horwood

Declaration Date

07/02/2022

Declaration made

## Declaration

I / We hereby apply for Full planning permission as described in this form and accompanying plans/drawings and additional information. I / We confirm that, to the best of my/our knowledge, any facts stated are true and accurate and any opinions given are the genuine options of the persons giving them. I / We also accept that: Once submitted, this information will be transmitted to the Local Planning Authority and, once validated by them, be made available as part of a public register and on the authority's website; our system will automatically generate and send you emails in regard to the submission of this application.

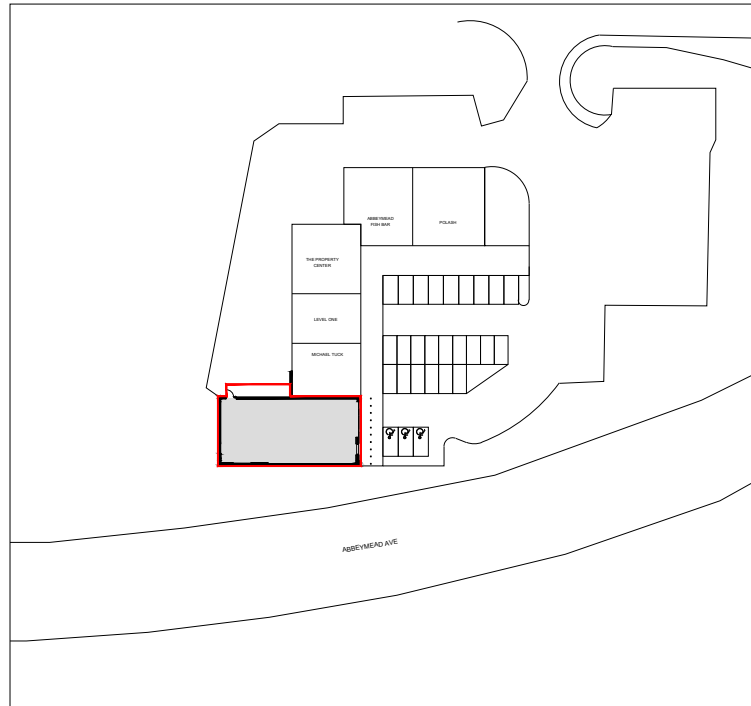
I / We agree to the outlined declaration

Signed

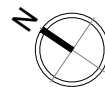
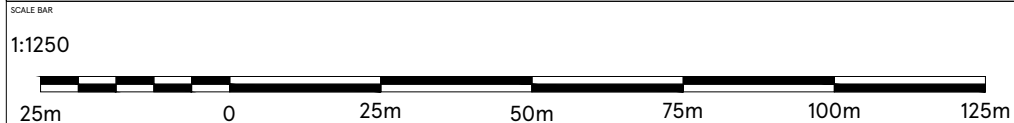
Andy Horwood

Date

08/02/2022



— Site Boundary shown in Red line



DRAWING NO  
01\_2346\_01A

SCALE  
1:1250@A4

DATE  
07.02.2022

CHECKED BY  
SHIKHA

DRAWN BY  
MATHURAA

STORE TYPE  
EXPRESS

STORE NAME  
GLOUCESTER MEAD ROAD

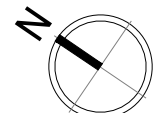
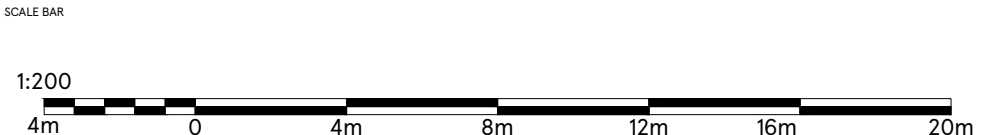
CONTENT  
LOCATION PLAN

**TESCO**  
FEASIBILITY PLANNING  
STORE PLANNING DEPARTMENT  
PROPERTY SERVICES  
HIGHWOODS BUILDING, KESTREL WAY  
WELWYN GARDEN CITY, HERTFORDSHIRE, AL7 1GB UK  
TELEPHONE: [REDACTED]

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ABBEYMEAD AVE



DRAWING NO  
02\_2346\_02A

SCALE  
1:200@A3

CHECKED BY  
SHIKHA DEY

DRAWN BY  
PARUL SHARMA

STORE TYPE  
EXPRESS

STORE NAME  
GLOUCESTER MEAD ROAD

CONTENT  
EXISTING SITE PLAN\_PLANT

**TESCO**  
FEASIBILITY PLANNING  
STORE PLANNING DEPARTMENT  
PROPERTY SERVICES  
HIGHWOODS BUILDING, KESTRAL WAY  
WELWYN GARDEN CITY, HERTFORDSHIRE, AL7 1GB UK  
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# KR06973

Gloucester Mead Express

## Noise Impact Assessment...

**Standard:** British Standard 4142: 2014

**Site:** Gloucester Mead Express

**Address:** Mead Road  
Abbeymead  
Gloucester  
Gloucestershire

**Postcode:** GL4 5GL

**Customer:** Tesco Stores Ltd

**Address:** Shire Park  
Kestrel Way  
Welwyn Garden City  
Hertfordshire

**Postcode:** AL7 1GA

**Issue:** Version 1.0


**Date:** 18<sup>th</sup> November 2021

**Status:** Current Document

KR Associates (UK) Ltd

**Quietly confident...**

## Revisions...

<b>KR06973</b>	Project	Gloucester Mead Express			
	Title	Noise Impact Assessment - Proposed Replacement Plant			
	Standard	British Standard 4142: 2014 + A1: 2019			
Issue	Date	Details of Revision			
v1_0	18/11/2021	Description	Report issue for submission to Local Authority		
		Signature			
		Name	Mr. R. Scrivener	Miss N Truman	Mr R Scrivener
		Position	Technical Director	Project Manager	Technical Director

## Disclaimer...

This report is strictly confidential and is designed to meet the requirements of the customer. It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party. No Liability is accepted outside the scope of this report in strict accordance with the standard terms and conditions.

## KR Associates...

KR Associates (UK) Ltd (Company No. 04813349) registered office at 56 Bassett Green Road, Southampton. SO16 3DX.

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# 1. Executive Summary....

## 1.1. Instruction

KR Associates (UK) Ltd have been instructed by Tesco Stores Ltd to undertake an environmental noise survey at the Gloucester Mead Express located at Mead Road, Abbeymead in Gloucester to determine if the installation of the replacement CO2 packaged gas cooler will have a significant adverse impact in terms of noise on the local noise sensitive properties.

## 1.2. Executive Summary (Repeated at Section 7)

### 1.2.1 Assessment Position

The residential dwelling in Mead Road at the side of the site is located 20m from the dedicated plant area at the side of the site where it is proposed to locate the replacement packaged CO2 gas cooler.

### 1.2.2 Background Noise Measurements

Day Time (07:00 – 19:00)			Evening (19:00 – 23:00)			Night Time (23:00 – 07:00)		
L <sub>Amax,1h</sub>	L <sub>Aeq,1h</sub>	L <sub>A90,1h</sub>	L <sub>Amax,1h</sub>	L <sub>Aeq,1h</sub>	L <sub>A90,1h</sub>	L <sub>Amax,15m</sub>	L <sub>Aeq,15m</sub>	L <sub>A90,15m</sub>
65 - 90 dB	60 - 76 dB	45 - 58 dB	64 - 77 dB	49 - 62 dB	37 - 51 dB	51 - 81 dB	38 - 64 dB	32 - 54 dB
Modal Background		44 dB	Modal Background		37 dB	Modal Background		32 dB

### 1.2.3 Criterion at Assessment Position

To comply with the revised version of the National Planning Policy Framework (“NPPF”) and the guidance within the Local Plan, the resultant noise levels at the nearest residential dwellings are at least 5 dB below the underlying background noise levels when assessed in accordance with British Standard 4142: 2014 + A1: 2019.

### 1.2.4 Mitigation Measures

No specific mitigation measures are required as the selected replacement packaged CO2 gas cooler has been designed to meet the requirements of the Local Authority.

### 1.2.5 Assessment of Noise Levels

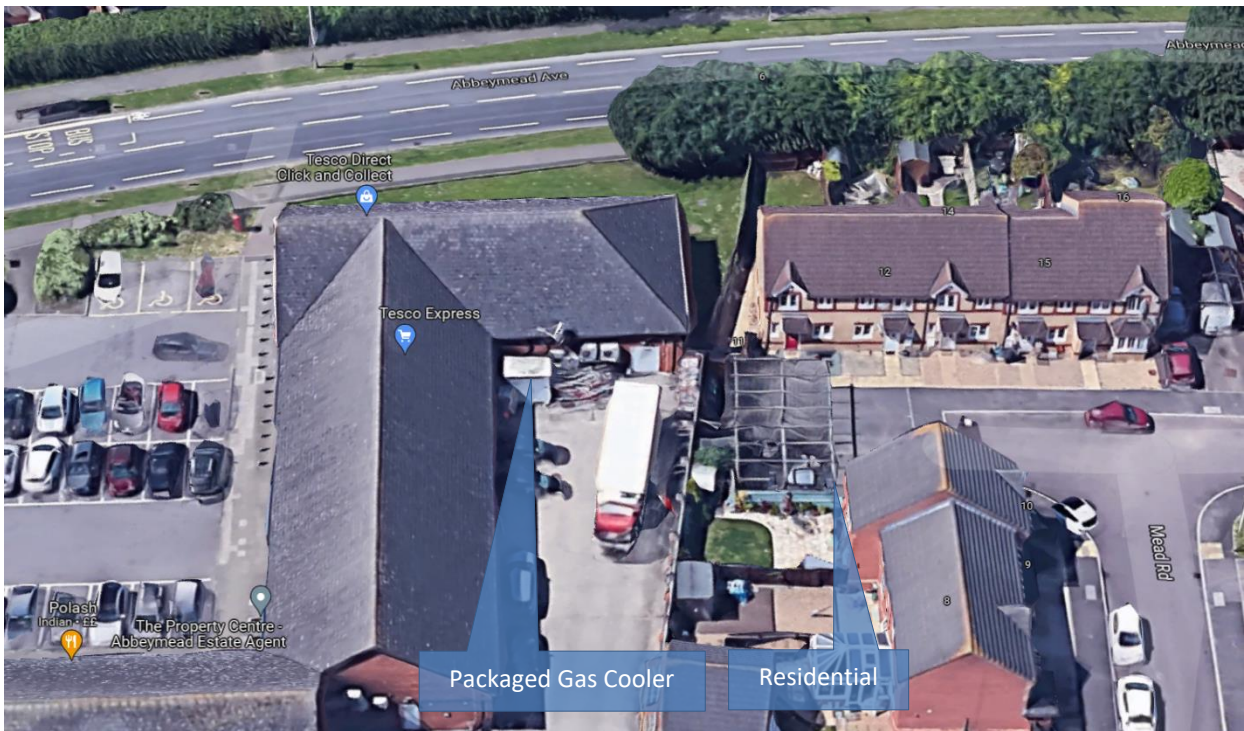
Day Time (07:00 – 19:00)			Evening (19:00 – 23:00)			Night Time (23:00 – 07:00)		
L <sub>Aeq,1h</sub>	L <sub>A90,1h</sub>	BS4142	L <sub>Aeq,1h</sub>	L <sub>A90,1h</sub>	BS4142	L <sub>Aeq,1h</sub>	L <sub>A90,1h</sub>	BS4142
37 dB	44 dB	-7 dB	32 dB	37 dB	-5 dB	27 dB	32 dB	-5 dB

### 1.2.6 Conclusions

The resultant noise levels from the proposed mechanical equipment will result in noise levels that comply in full with the Local Plan and are at levels that are very unlikely to give rise to complaints from residents.

## 2. Site Location...

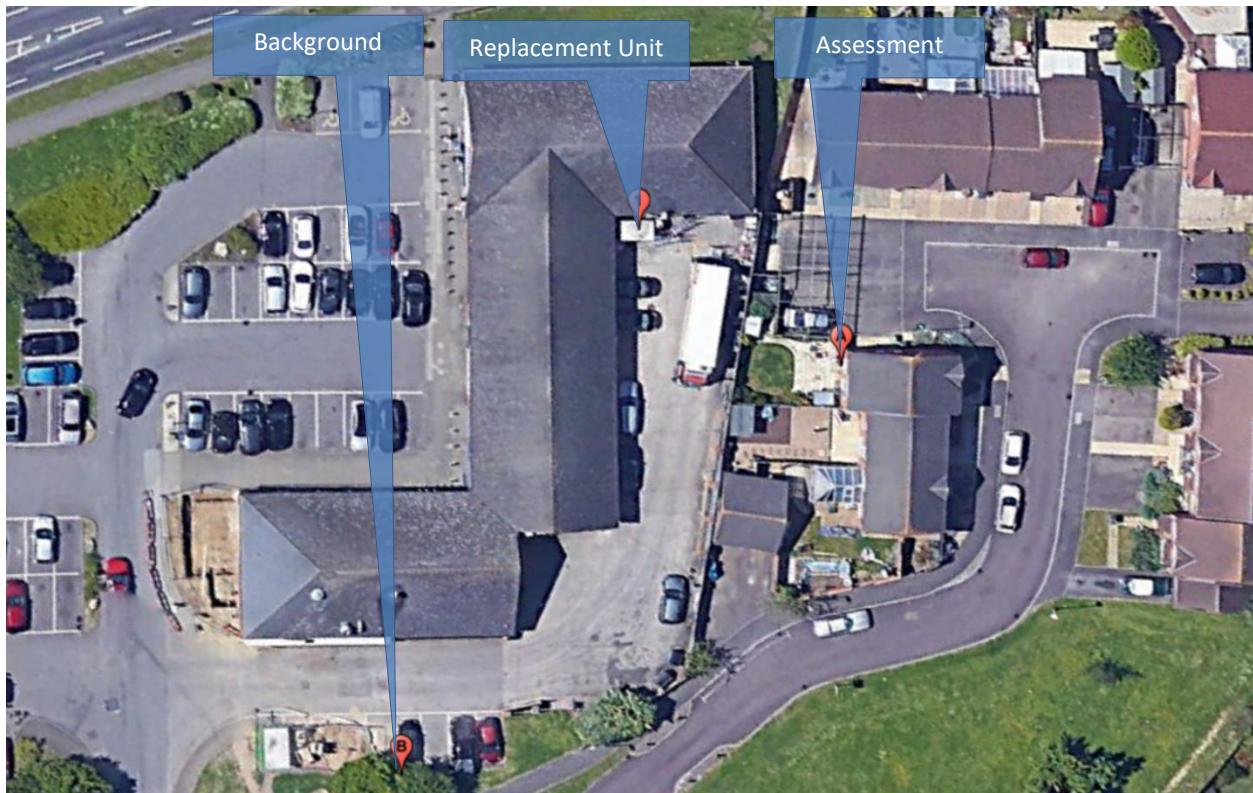
### 2.1. General Location of Site



Site Plan (Imagery © Google 2021)

The Tesco Express is located in a small local centre off Abbeymead Avenue with other retail properties. It is proposed to locate the replacement packaged gas cooler within the service yard at the side of the site which is around 20m from the residential dwelling in Mead Road which backs onto the service yard.

## 2.2. Key Positions (Source, Assessment & Background)



Position	Description	Latitude	Longitude	Elevation
Sources	Dedicated plant area at the side of the site	51.846852 <sup>0</sup>	-2.199777 <sup>0</sup>	2 m
Assessment	Residential dwelling in Mead Road at the side of the site	51.847032 <sup>0</sup>	-2.199742 <sup>0</sup>	4 m
Background	At the rear of the site	51.846878 <sup>0</sup>	-2.199056 <sup>0</sup>	4 m

## 2.3. Locations and Distances of Individual Source Positions

Position	Relative Distance	Latitude	Longitude	Elevation
Source 1	20 m to assessment position	51.846852 <sup>0</sup>	-2.199777 <sup>0</sup>	2 m

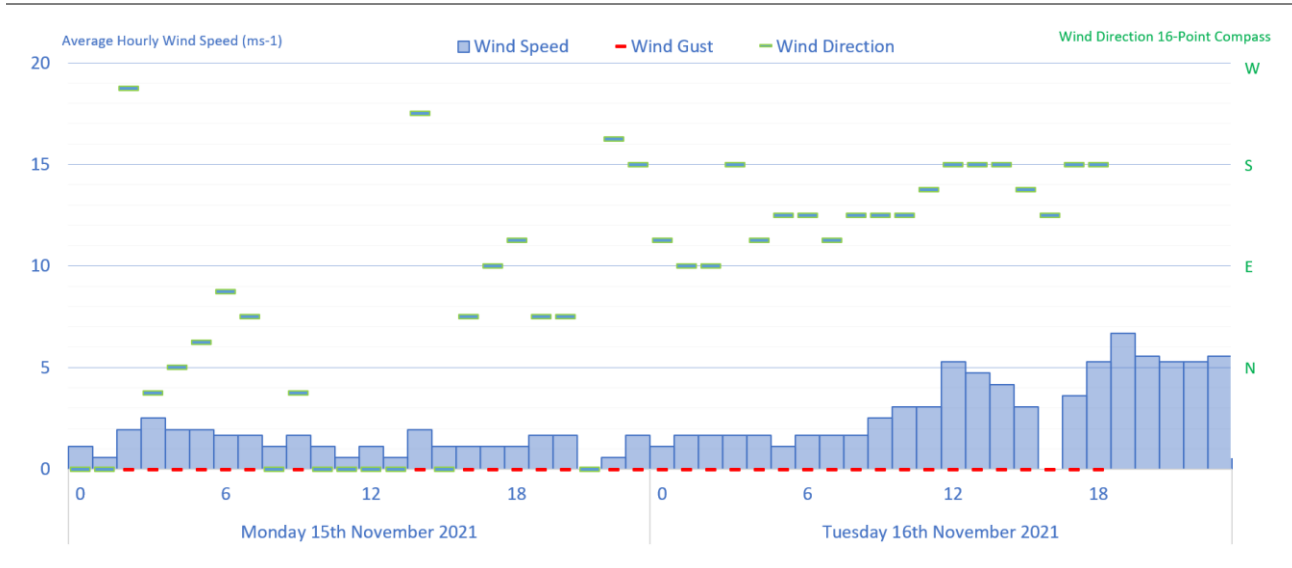
## 2.4. Free Field Source Sound Pressure Levels at 10m

Source	Description of Source	Sound Pressure at 10m – Annex C 13487: 2003		
		07:00 – 19:00	19:00 – 23:00	23:00 – 07:00
Source 1	Packaged ECO2 Mini CO2 Gas Cooler	L <sub>p(10)</sub> 40 dB	L <sub>p(10)</sub> 35 dB	L <sub>p(10)</sub> 30 dB

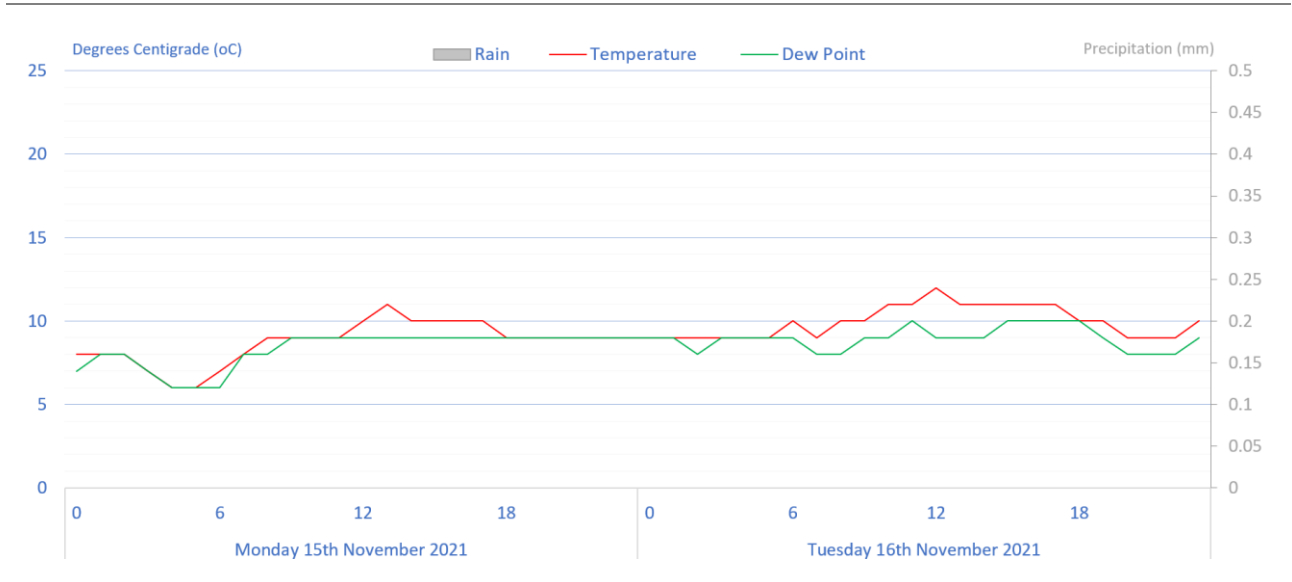
### 3. Background Noise Levels...

#### 3.1. Weather During Survey

##### 3.1.1 Wind Speed, Gust and Direction



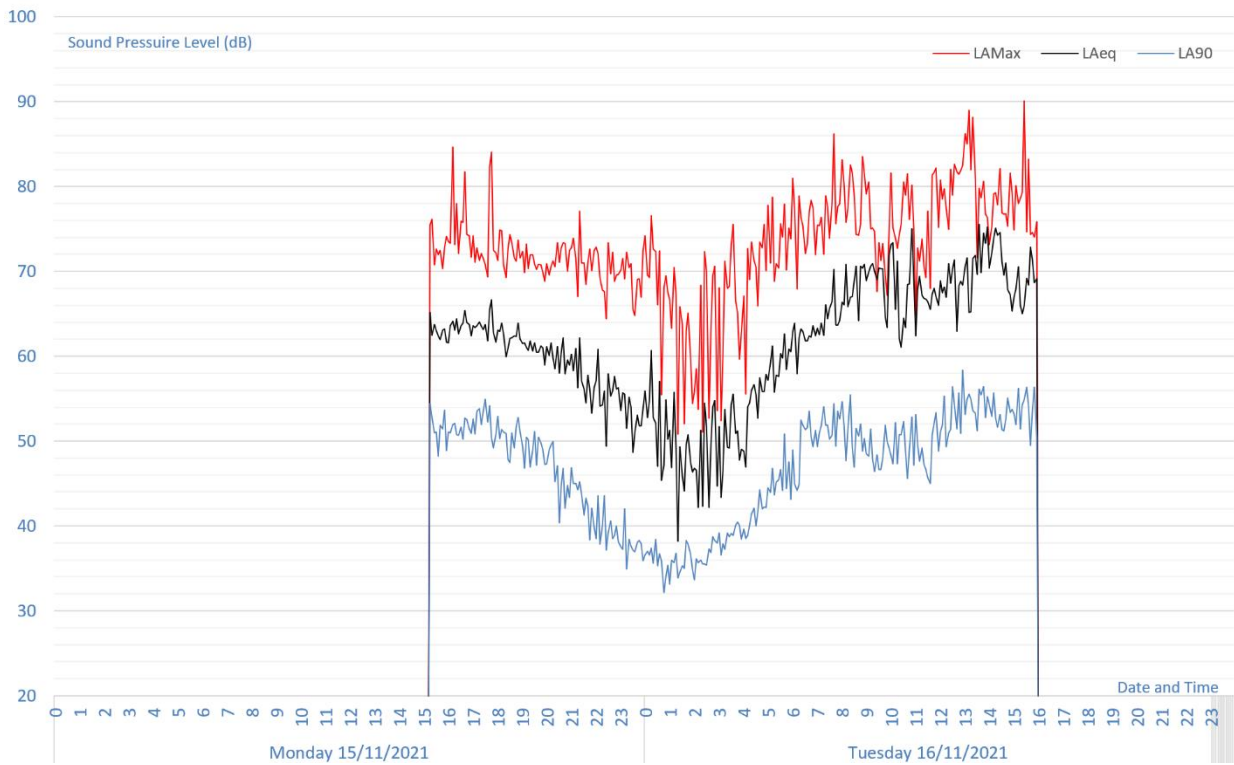
##### 3.1.2 Rainfall, Temperature and Dew Point



##### 3.1.3 Impact of Weather

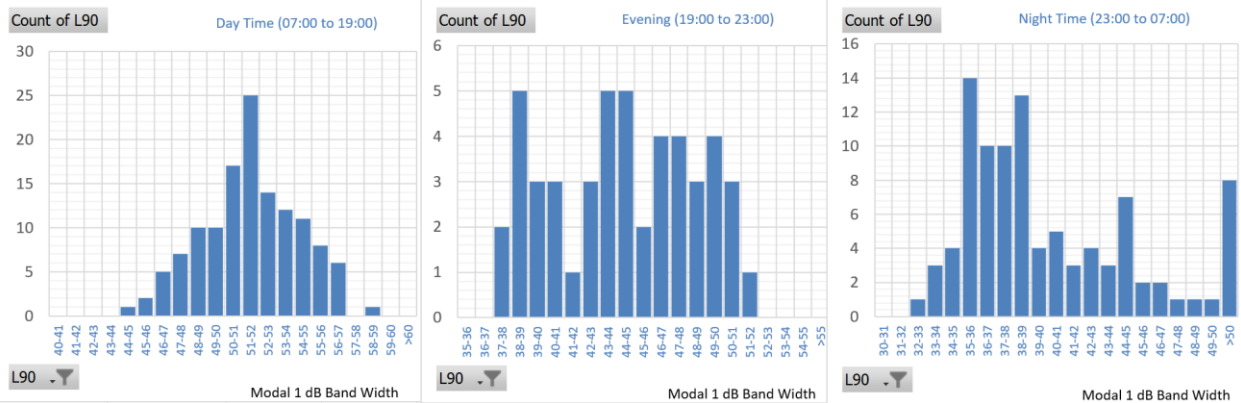
An analysis of the background data recorded on site indicates that the prevailing weather did not adversely impact the results. The wind speed was on average below 5.0ms<sup>-1</sup> and there was no precipitation during the survey period.

### 3.2. 24-hour Background Measurements



Day Time (07:00 – 19:00)			Evening (19:00 – 23:00)			Night Time (23:00 – 07:00)		
L <sub>Amax,1h</sub>	L <sub>Aeq,1h</sub>	L <sub>A90,1h</sub>	L <sub>Amax,1h</sub>	L <sub>Aeq,1h</sub>	L <sub>A90,1h</sub>	L <sub>Amax,15m</sub>	L <sub>Aeq,15m</sub>	L <sub>A90,15m</sub>
65 - 90 dB	60 - 76 dB	45 - 58 dB	64 - 77 dB	49 - 62 dB	37 - 51 dB	51 - 81 dB	38 - 64 dB	32 - 54 dB

### 3.3. Modal Analysis of Background Data



Day Time (07:00 to 19:00)		Evening (19:00 to 23:00)		Night Time (23:00 to 07:00)	
Standard Deviation ( $\sigma$ )	2.61	Standard Deviation ( $\sigma$ )	4.08	Standard Deviation ( $\sigma$ )	5.06
Geometric Average	52 dB	Geometric Average	44 dB	Geometric Average	40 dB
Modal Value	44 dB	Modal Value	37 dB	Modal Value	32 dB

## 4. Criterion...

### 4.1. National Planning Policy Framework 2021

#### 4.1.1 Scope of Standard

The revised National Planning Policy Framework published in 2021 provides an assumption in favour of sustainable development that meets the three overarching objectives: economic, social, and environmental. Paragraph 11 provides guidance for decision makers:

*“For decision-taking this means:...*

*c) approving development proposals that accord with an up-to-date development plan without delay; or*

*d) ...granting permission unless...*

*i) the application of policies in this Framework... provides a clear reason for refusing development proposed; or*

*ii) any adverse impacts of doing so would significantly and demonstrably outweigh the benefits....”*

#### 4.1.2 Conserving and Enhancing the Natural Environment

Paragraph 174 of the NPPF provides the following guidance on noise:

*“Planning policies and decisions should contribute to and enhance the natural and local environment by:*

*e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of ...noise pollution...”*

#### 4.1.3 Appropriate Development

Paragraph 185 of the NPPF requires the development to be appropriate for its location:

*“Planning... decisions should also ensure that new development is appropriate for its location...*

*a) mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development - and avoid noise giving rise to significant adverse impacts on health and the quality of life;<sup>65</sup>*

*b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value...*

*65 See Explanatory Note to the Noise Policy Statement for England: 2010”*

### 4.2. Noise Policy Statement for England: 2010

#### 4.2.1 Scope of Standard

The Noise Policy Statement for England published in 2010 defines three aims:

*“Avoid significant adverse impact on health and the quality of life.*

*Mitigate and minimise adverse impacts on health and quality of life; and*

*Contribute to the improvement of health and the quality of life.”*

## 4.2.2 Criterion

The NPSE defines significant adverse and adverse impact in terms of noise:

*“LOAEL – Lowest Observed Adverse Effect Level*

*This is the level above which adverse effects on health and quality of life can be detected.*

*SOAEL – Significant Observed Adverse Effect Level*

*This is the level above which significant adverse effects on health and quality of life occur.”*

## 4.3. Night Noise Guidelines (“NNG”)

The European Union and the World Health Organisation published the document *“Night Noise Guidelines for Europe”* in 2009.

### 4.3.1 Recommendation for Health Protection

*“Below the level of 30 dB  $L_{night, outside}$  no effects on sleep are observed except for a slight increase in the frequency of body movements during sleep due to night noise.*

*.... 40 dB  $L_{night, outside}$  is equivalent to the lowest observed adverse effect level (LOAEL) for night noise.*

*Above 55 dB the cardiovascular effects become the major public health concern.”*

For reference the  $L_{night, outside}$  is the average outside noise level calculated over an 8-hour period (EU: 2002/49/EC).

### 4.3.2 Description of Effect of Change in Noise Level

Noise Level Change (dB)	Subjective Response	Significance
0.1 – 2.9	Barely perceptible	Minor Impact
3.0 – 5.9	Noticeable	Moderate Impact
6.0 – 9.9	Up to a doubling of loudness	Substantial Impact
10.0 or more	More than a doubling of loudness	Major Impact

## 4.4. British Standard 4142: 2014 + A1: 2019

### 4.4.1 Testing Standard...

British Standard 4142: 2014 + A1: 2019 provides a method for assessing the likely effects of sound from industrial or commercial nature on *“people who might be inside or outside a dwelling used for residential purposes.”*

### 4.4.2 Criterion

The standard provides 3-levels of impact based on the calculated Rating Levels:

*“A difference of around +10 dB 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.*

*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.”*

### 4.4.3 Feature Correction

It is appropriate to add a character correction where there is a new source that cannot be measured in line with British Standard 4142: 2014 + A1: 2019. The 3 methods for approaching this are the subjective, objective, and reference methods. In this report the subjective method is used.

Section 9.2 Subjective Method	Perceptibility to noise sensitive façades	Correction
Tonality Ranging from not tonal to prominently tonal	Not tonal	+0
	Just perceptible	+2
	Clearly perceptible	+4
	Highly perceptible	+6
Impulsivity Considering both the rapidity and any overall change in sound levels	Not impulsive	+0
	Just impulsive	+3
	Clearly impulsive	+6
	Highly impulsive	+9
Readily Distinctive Characteristic is neither tonal nor impulsive	Is not present	+0
	Is present	+3
Intermittency Identifiable “on/off” conditions	Is not present	+0
	Is present	+3



## 4.5. Local Authority Requirements

### 4.5.1 Local Plan

The Gloucester City Council Joint Core Strategy was fully adopted in December 2017 including Policy SD14 entitled “Health and Environmental Quality.”

*“1. High-quality development should protect and seek to improve environmental quality. Development should not create or exacerbate conditions that could impact on human health or cause health inequality.*

*2. New development must:*

- i. Cause no unacceptable harm to local amenity including the amenity of neighbouring occupants;*
- ii. Result in no unacceptable levels of air, noise, water, light or soil pollution or odour, either alone or cumulatively, with respect to relevant national and EU limit values;*
- iii. Result in no exposure to unacceptable risk from existing or potential sources of pollution....”*

### 4.5.2 Proposed Criterion

The Local Authority will require the plant to be at least 5 dB below the background noise level to comply with the Local Plan and ensure complaints are not received from the local residents.

## 5. Calculations of Noise Levels...

### 5.1. ISO 9613 – Part 2:1996

The International Standards Organisation (“ISO”) published ISO 9613 – Part 2: 1996 entitled “*Acoustics – Attenuation of sound during propagation outdoors – Part 2: General method of calculations*” which details the corrections that are required to establish the resultant noise levels of the existing and proposed plant at the assessment position.

#### 5.1.1 Source Directivity ( $D_c$ )

A correction is made to account for the location of the source and the effect of additional reflective surfaces excluding the ground and is contained within section 6 of ISO 9613 - Part 2: 1996.

Number of Surfaces	Correction in dB ( $D_c$ )
1 Reflective Surface	+3 dB
2 Reflective Surfaces	+6 dB
3 Reflective Surfaces	+9 dB

#### 5.1.2 Geometric Divergence ( $A_{div}$ )

A correction is made for the distance between the source and assessment position using the following formula defined in section 7.1 of ISO 9613-Part 2: 1996.

Formula	Symbols
$A_{div} = 20 \cdot \text{Log}_{10} ( d/d_0) +11$	$A_{div}$ = Reduction due to Geometric Divergence (dB) $d$ = Distance from source to receiver (m) $d_0$ = reference distance (1m)

#### 5.1.3 Ground Absorption ( $A_{gr}$ )

A correction is made for the effect of the ground between the source and receiver depending on whether it is considered hard or soft ground.

Type of ground	Correction in dB ( $A_{gr}$ )
Hard Ground	+ 3 dB
Soft Ground	+ 0 dB

#### 5.1.4 Atmospheric Absorption ( $A_{atm}$ )

As the source was less than 100m from the receiver position (assessment position) no correction was made for atmospheric absorption.

### 5.1.5 Barrier Effect ( $A_{bar}$ )

A correction is made for any barrier in the direct line of sight between the source and the assessment position and is detailed in section 7.4 of ISO 9613-Part 2: 1996. For clarity, the  $K_{met}$  meteorological correction has been ignored and  $C_2$  equals 40 and  $C_3$  equals 1.

Formula	Symbols
$A_{bar} = 10 \cdot \text{Log}_{10} [3 + (40 \cdot \delta / \lambda) - A_g]$ <p>*Note 1</p> <p>where <math>\delta = a + b - r</math> and <math>\lambda = c / f</math></p>	$A_{bar}$ = Effective barrier attenuation (dB) $A_{gr}$ = Total Ground Absorption (dB) *Note 1: Only apply the $A_{gr}$ correction if $A_{gr} > 0$ $\delta$ = Path difference (m) $a$ = Distance from source to barrier head (m) $b$ = Distance from barrier head to assessment position (m) $r$ = Distance from source to assessment position (m) $\lambda$ = Wavelength of sound (m) $c$ = Speed of sound – Assumed to be 342 $\text{ms}^{-1}$ $f$ = Octave band centre frequency (Hz)

## 5.2. Calculation of Plant Noise Levels

### 5.2.1 Day Time (07:00 to 19:00)

Day Time (07:00 to 19:00)		Source	ISO 9613 – Part 2: 1996 Corrections					Assessment
Ref	Description	$L_w$	$D_c$	$A_{div}$	$A_{gr}$	$A_{atm}$	$A_{bar}$	$L_p$
1	Packaged ECO2 Mini CO2 Gas Cooler	68 dB	+3 dB	-37 dB	+3 dB	-0 dB	0 dB	37 dB

### 5.2.2 Evening (19:00 to 23:00)

Evening (19:00 to 23:00)		Source	ISO 9613 – Part 2: 1996 Corrections					Assessment
Ref	Description	$L_w$	$D_c$	$A_{div}$	$A_{gr}$	$A_{atm}$	$A_{bar}$	$L_p$
1	Packaged ECO2 Mini CO2 Gas Cooler	63 dB	+3 dB	-37 dB	+3 dB	-0 dB	0 dB	32 dB

### 5.2.3 Night Time (23:00 to 07:00)

Night Time (23:00 to 07:00)		Source	ISO 9613 – Part 2: 1996 Corrections					Assessment
Ref	Description	$L_w$	$D_c$	$A_{div}$	$A_{gr}$	$A_{atm}$	$A_{bar}$	$L_p$
1	Packaged ECO2 Mini CO2 Gas Cooler	58 dB	+3 dB	-37 dB	+3 dB	-0 dB	0 dB	27 dB

### 5.3. Assessment of Average Noise Levels (BS 4142: 2014 + A1: 2019)

BS 4142: 2014	Day Time - 07:00 to 19:00	Evening – 19:00 to 23:00	Night Time – 23:00 to 07:00
Residual Noise Levels	L <sub>Aeq,1 hour</sub> 67 dB	L <sub>Aeq,1 hour</sub> 59 dB	L <sub>Aeq,15 minutes</sub> 53 dB
Specific Noise Levels	L <sub>Aeq,1 hour</sub> 37 dB	L <sub>Aeq,1 hour</sub> 32 dB	L <sub>Aeq, 15 minutes</sub> 27 dB
Impulsivity Feature	+0 dB	+0 dB	+0 dB
Tonality Feature	+0 dB	+0 dB	+0 dB
Rating Noise Levels	L <sub>Aeq,1 hour</sub> 37 dB	L <sub>Aeq,1 hour</sub> 32 dB	L <sub>Aeq, 15 minutes</sub> 27 dB
Background Noise Levels	L <sub>A90,1 hour</sub> 44 dB	L <sub>A90,1 hour</sub> 37 dB	L <sub>A90, 15 minutes</sub> 32 dB
BS 4142 Assessment	-7 dB (Low Impact)	-5 dB (Low Impact)	-5 dB (Low Impact)
Uncertainty (95% Confidence, k=2)	+/- 1.86 dB	+/- 2.01 dB	+/- 2.11 dB

## 6. Conclusions...

### 6.1. Assessment Position

The residential dwelling in Mead Road at the side of the site is located 20m from the dedicated plant area at the side of the site where it is proposed to locate the replacement packaged CO2 gas cooler.

### 6.2. Background Noise Measurements

Day Time (07:00 – 19:00)			Evening (19:00 – 23:00)			Night Time (23:00 – 07:00)		
L <sub>Amax,1h</sub>	L <sub>Aeq,1h</sub>	L <sub>A90,1h</sub>	L <sub>Amax,1h</sub>	L <sub>Aeq,1h</sub>	L <sub>A90,1h</sub>	L <sub>Amax,15m</sub>	L <sub>Aeq,15m</sub>	L <sub>A90,15m</sub>
65 - 90 dB	60 - 76 dB	45 - 58 dB	64 - 77 dB	49 - 62 dB	37 - 51 dB	51 - 81 dB	38 - 64 dB	32 - 54 dB
Modal Background		44 dB	Modal Background		37 dB	Modal Background		32 dB

### 6.3. Criterion at Assessment Position

To comply with the revised version of the National Planning Policy Framework (“NPPF”) and the guidance within the Local Plan, the resultant noise levels at the nearest residential dwellings are at least 5 dB below the underlying background noise levels when assessed in accordance with British Standard 4142: 2014 + A1: 2019.

### 6.4. Mitigation Measures

No specific mitigation measures are required as the selected replacement packaged CO2 gas cooler has been designed to meet the requirements of the Local Authority.

### 6.5. Assessment of Noise Levels

Day Time (07:00 – 19:00)			Evening (19:00 – 23:00)			Night Time (23:00 – 07:00)		
L <sub>Aeq,1h</sub>	L <sub>A90,1h</sub>	BS4142	L <sub>Aeq,1h</sub>	L <sub>A90,1h</sub>	BS4142	L <sub>Aeq,1h</sub>	L <sub>A90,1h</sub>	BS4142
37 dB	44 dB	-7 dB	32 dB	37 dB	-5 dB	27 dB	32 dB	-5 dB

### 6.6. Conclusions

The resultant noise levels from the proposed mechanical equipment will result in noise levels that comply in full with the Local Plan and are at levels that are very unlikely to give rise to complaints from residents.

### 6.7. Uncertainty

Day Time (07:00 – 19:00)	Evening (19:00 – 23:00)	Night Time (23:00 – 07:00)
+1.86 dB (k=2, 95% Confidence)	+2.01 dB (k=2, 95% Confidence)	+2.11 dB (k=2, 95% Confidence)

## 7. Appendix A - BS 4142:2014 + A1: 2019 Information to Be Reported...

### 7.1. a) Competency

	Name	Role	Competency
1)	Mr. R. Scrivener	Director	Master of Science Degree in Acoustics and Noise Control (MSc) Member of the Institute of Acoustics (MIOA)

### 7.2. b) Source Under Investigation

	Source Number	Description		
1)	Source 1	Packaged ECO2 Mini CO2 Gas Cooler		
	Description of Source	Source Location	Hours of Operation	Mode of Operation
	Source 1	Dedicated plant area at the side of the site	24-hour	Continuously on Demand
	Description of Operation	Period	Conditions	Load
2)	All Sources	Day Time (07:00 to 19:00)	Ambient Temp 32°C	Maximum Load (100%)
3)		Evening (19:00 to 23:00)	Ambient Temp 28°C	Part Load (60%)
4) 5)		Night Time (23:00 to 07:00)	Ambient Temp 24°C	Part Load (40%)
	Description of Premises	The Tesco Express is located in a small local centre off Abbeymead Avenue with other retail properties. It is proposed to locate the replacement packaged gas cooler within the service yard at the side of the site which is around 20m from the residential dwelling in Mead Road which backs onto the service yard.		

### 7.3. c) Subjective Impression of Source at Assessment Position

1)	Dominance	Source will not be dominant at residential facade
	Audibility	Source will not be audible at residential facade
2)	Residual Noise Sources	Residual noise due to local road traffic

### 7.4. d) Existing Contexts

	Type of Receptor	Period	Sensitivity	Description
1)	Residential	Day Time (07:00 to 19:00)	Low	Noise can disturb outside amenity space and internal living space
		Evening (19:00 to 23:00)	Moderate	Noise can interrupt people trying to get to sleep
		Night Time (23:00 to 07:00)	High	Noise can disturb sleeping

## 7.5. e) Relative Positions

1)	Assessment Position	Residential dwelling in Mead Road at the side of the site.		
		BS 4142:2014 Criteria	Details	Compliance with Criteria
		Section 6	1.0m from façade (external)	Position is valid
2)	Source Measurement	The source sound power levels were supplied by the client. It is believed the sound power levels were established in accordance with BS EN 13487:2003.		
	Justification	The client supplied the noise levels for the proposed plant.		
3)	Background Position	At the rear of the site.		
	Justification	BS 4142:2014 Criteria	Details	Compliance with Criteria
		Section 6.2	3.5m to any reflecting surface	Complies
		Section 6.2	Height 1.2m to 1.5m	Complies
		Section 6.2	1 <sup>st</sup> floor 1m to facade	Not applicable
		Section 6.2	Measurement Height	3.5m
			Distance to Reflecting Surface	1.0m
To record remote background levels, the noise meter had to be left in a secure position. The position represented the assessment position within the constraints of the site.				
4)	Topography, surfaces etc.	Hard and Flat		
5)	Relative Distances	The plant is located 20.4 m from the assessment position.		
6)	Dimensioned sketch	See maps and images.		

## 7.6. f) Noise Measurement Equipment Calibration

1)	Type	Sound Level Meter	Microphone	Calibrator
		NL-32	UC-53A	NC-74
2)	Manufacturer	Rion	Rion	Rion
3)	Serial Number	01103394	317919	35084210
4)	Certificate Number	UCRT20/1512	UCRT20/1512	U38253
	Calibration Date	18 <sup>th</sup> June 2020	18 <sup>th</sup> June 2020	28 <sup>th</sup> June 2021

## 7.7. g) Noise Measurement Equipment Operation Test

1)	Ref. Level of Calibrator	94 dB
2)	Meter Reading Before	94 dB – Meter operation checked. Meter in good working order.
	Meter Reading After	94 dB - Meter operation checked. Meter in good working order.

## 7.8. h) Weather Conditions

1)	Wind Speed	See weather information
	Wind Direction	
2)	Temperature Inversion	Unlikely to have occurred
3)	Precipitation	None – See section 3.1
4)	Fog	None
5)	Wet Ground	Not within the measurement period – See section 3.1
6)	Frozen Ground or Snow	Not within the measurement period – See section 3.1
7)	Temperature	See section 3.1
8)	Cloud Cover	Partly Cloudy

## 7.9. i) Date of Measurements

1)	Source Measurements	Unknown
	Background Measurements	15/11/2021

## 7.10. j) Measurement Time Interval

1)	Source Measurements	$T_m = 15$ minutes	
	Background Measurements	Day Time (07:00 to 19:00)	$T_m = 12$ hours
		Evening (19:00 to 23:00)	$T_m = 4$ hours
		Night Time (23:00 to 07:00)	$T_m = 8$ hours

## 7.11. k) Reference Time Interval

1)	Reference Time Interval	Day Time (07:00 to 19:00)	$T_r = 1$ hour
		Evening (19:00 to 23:00)	$T_r = 1$ hour
		Night Time (23:00 to 07:00)	$T_r = 15$ minutes

## 7.12. l) Specific Noise / m) Background Noise / n) Rating / o) Assessment / p) Conclusions

These details are all included within the body of the report and are not replicated within this section.

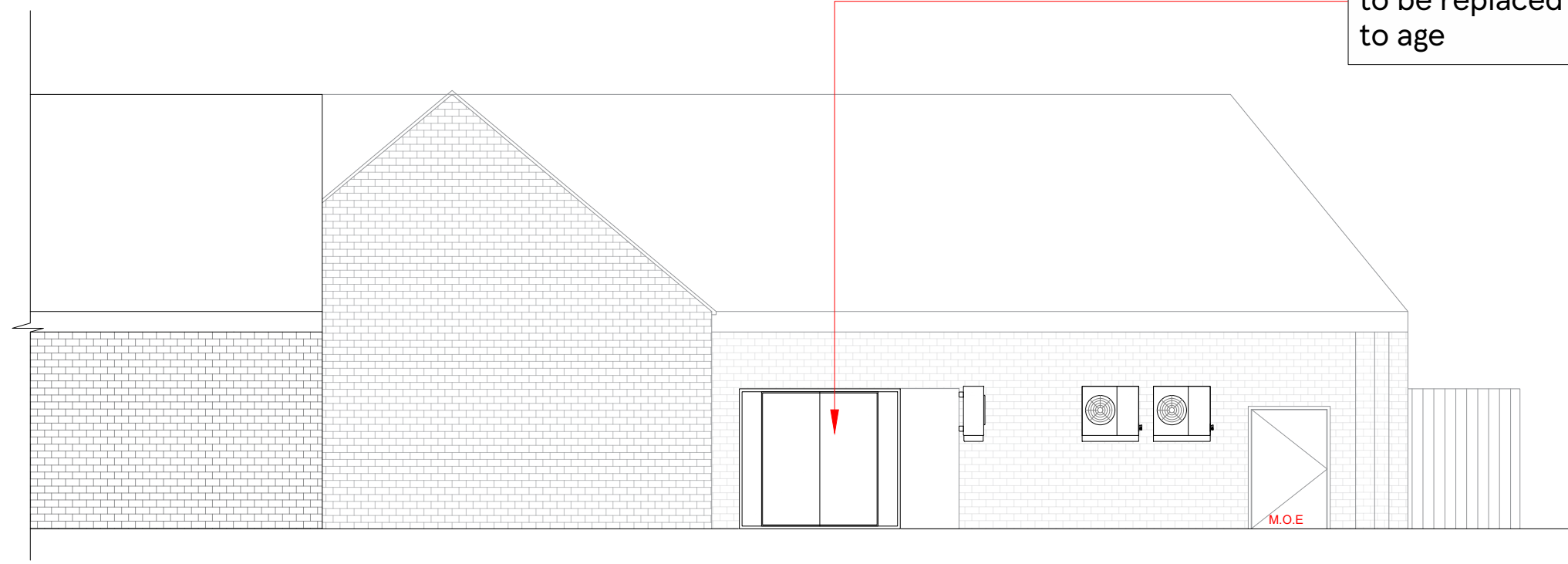
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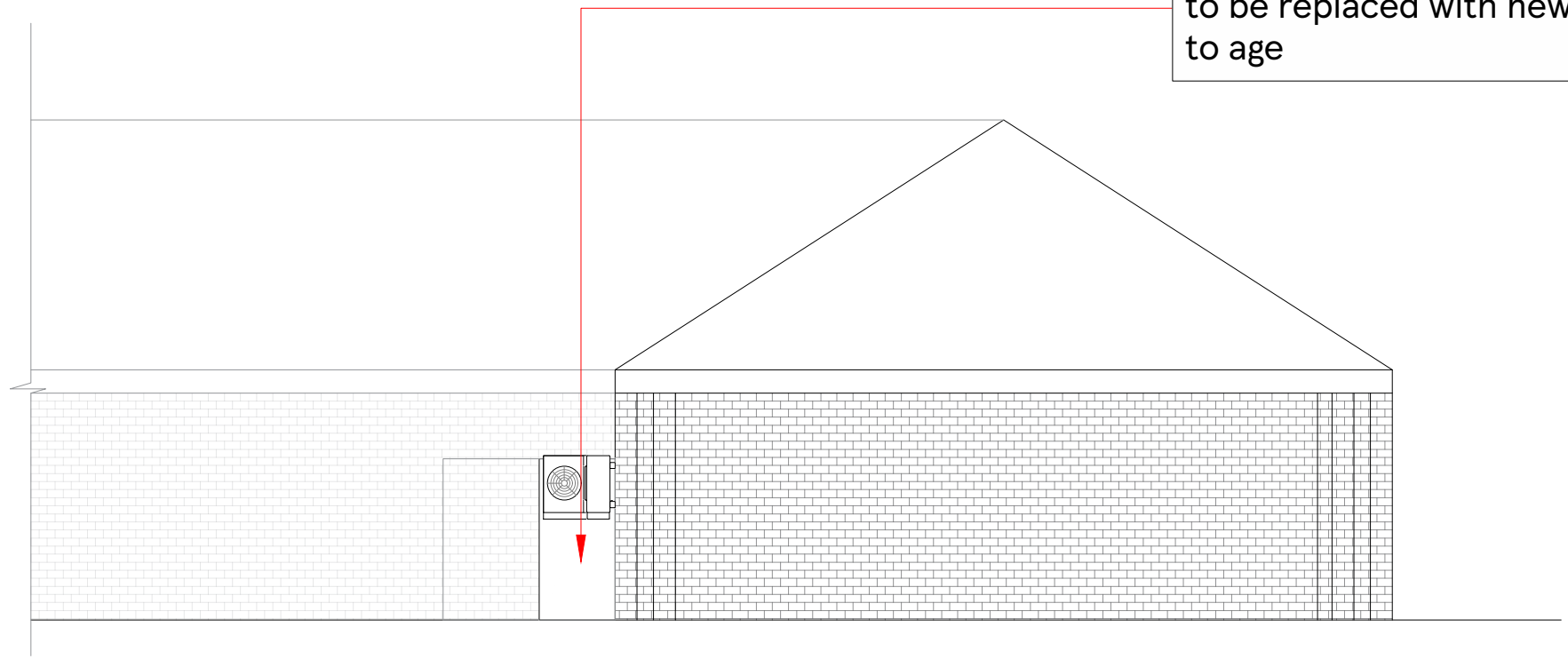


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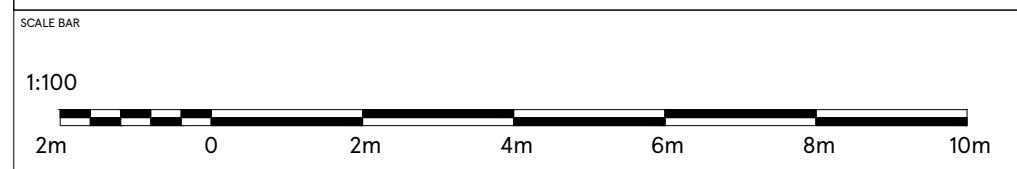


EAST ELEVATION

Existing Frog box gas cooler to be replaced with new due to age



NORTH ELEVATION

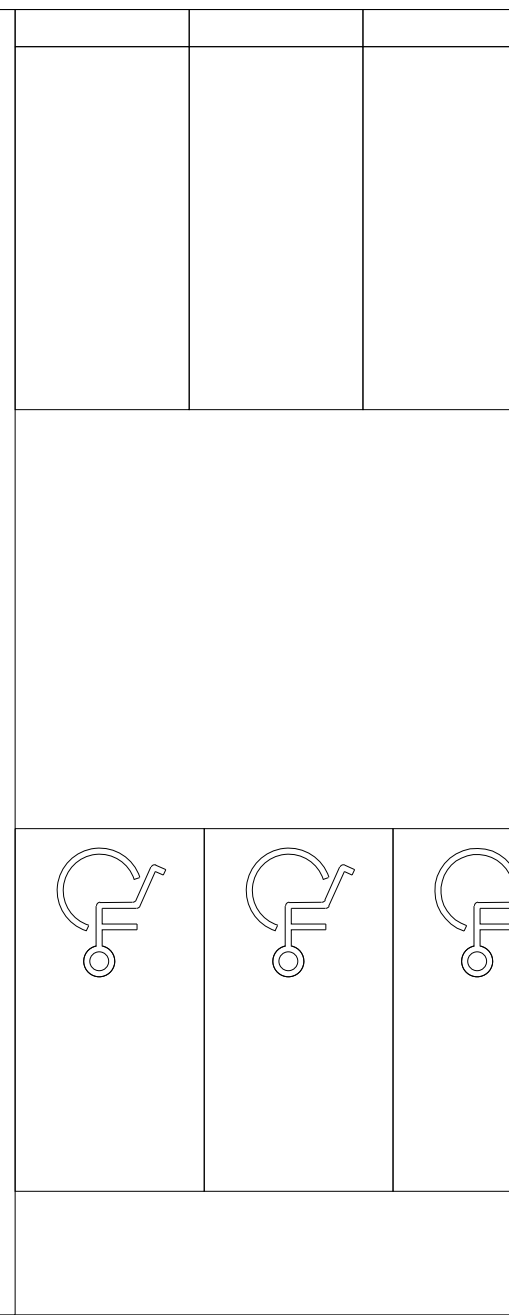


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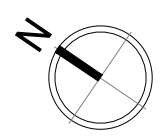
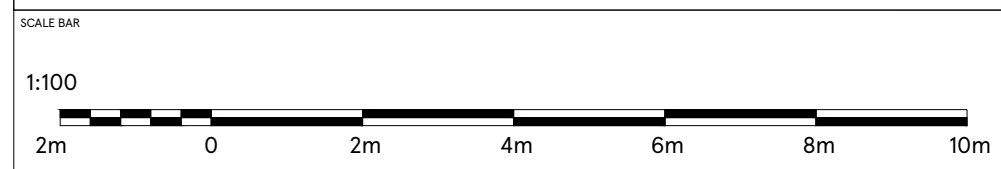
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CONTENT EXISTING ELEVATIONS_PLANT

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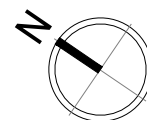
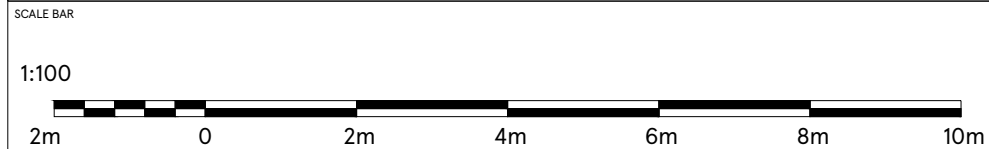
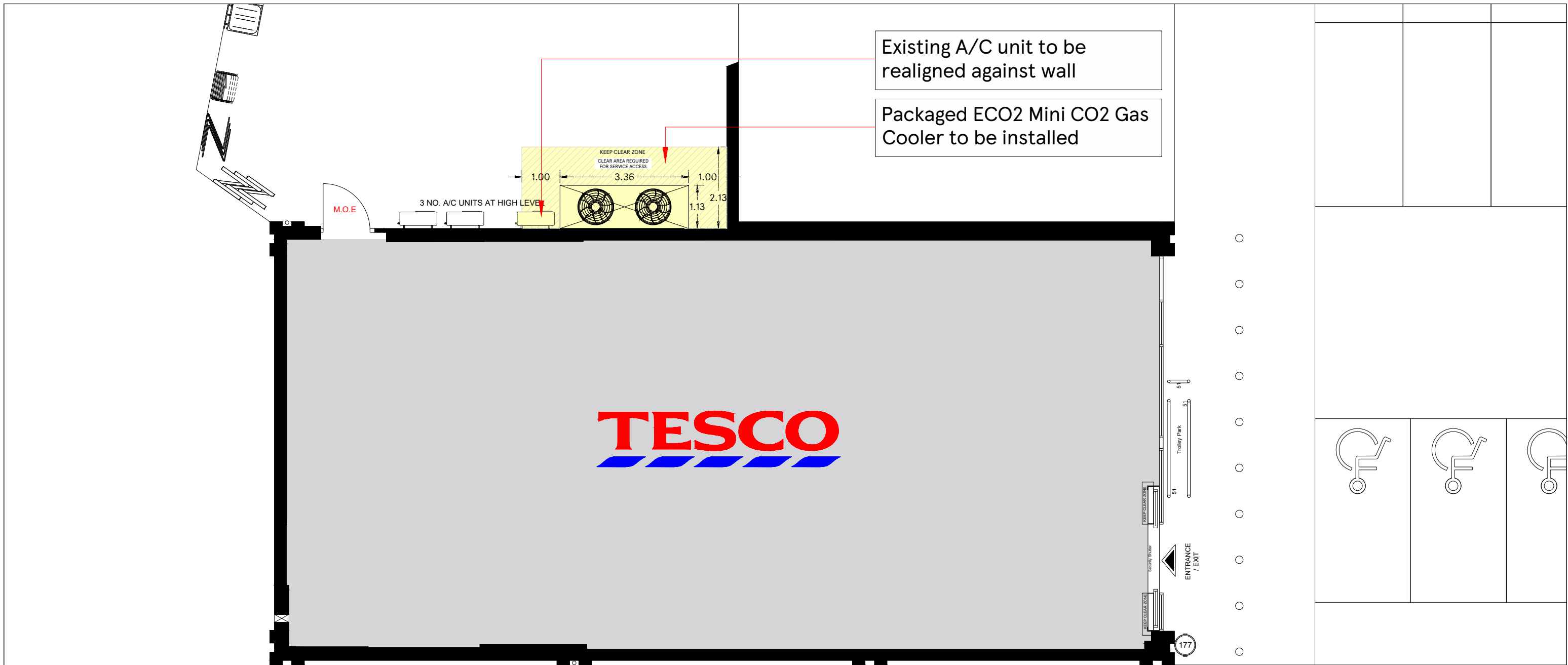
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