



**Client:** NEW IRELAND ASSURANCE COMPANY PLC

**Project:** DRIVE THRU COFFEE SHOP, LUCAN RETAIL PARK

**Title:** DESCRIPTION OF THE PROPOSED UTILITIES &  
ENERGY SUSTAINABILITY REPORT

**Date:** MARCH 2022

**Revision:** P2

**TABLE OF CONTENTS**

INTRODUCTION.....	4
<b>1 SECTION 1: UTILITY INFRASTRUCTURE .....</b>	<b>4</b>
1.1 ELECTRICITY (ESB NETWORKS) .....	5
1.2 BROADBAND (EIR & VIRGIN MEDIA) .....	5
1.3 SITE LIGHTING .....	5
<b>2 SECTION 2: ENERGY &amp; SUSTAINABILITY.....</b>	<b>5</b>
2.1 POINT OF USE ELECTRIC WATER HEATERS.....	6
2.2 NATURAL VENTILATION.....	6
2.3 ELEMENTAL U-VALUES AND AIR FILTRATION .....	6
2.4 AIR SOURCE HEAT PUMPS .....	6
2.5 VENTILATION HEAT RECOVERY .....	6
2.6 BUILDING ENERGY MANAGEMENT SYSTEMS .....	7
2.7 SMART METERING.....	7
2.8 ECAR CHARGING POINTS .....	7
2.9 LIGHTING.....	7
CONCLUSION.....	8

P2	ISSUED FOR PLANNING	FB	ST	NP	NP	04/03/22
P1	PRE-PLANNING – For Comment	FB	CG	NP	NP	29/11/21
Revision	Purpose	Originated	Checked	Reviewed	Authorised	Date

## INTRODUCTION

This report is prepared on behalf of New Ireland Assurance Company PLC in relation to the new drive thru coffee shop development at the existing Lucan Retail Park, Lucan Road, Ballydowd, Lucan. The application site is bound by Lucan Road to the North and East and the existing Retail Park to the South and West.

The proposed development consists of the construction of 1 no. drive thru coffee shop. The unit will consist of 170sq.m. of shop and a maximum building height of 6.8m. The proposal also includes minor changes to the existing parking area.

The proposed development also includes for the provision of 12 no. cycle parking spaces (8 public and 4 staff), 2 no. disabled parking spaces, 2 no. Ecar charging points and an external yard area. Access to the facility will be done by modifying the existing Lucan Retail Park parking area.

This report has been divided into two sections: Utility Infrastructure and Energy & Sustainability.



Figure 1- Site Location Map

## 1 SECTION 1: UTILITY INFRASTRUCTURE

The utility infrastructure to serve the proposed Shop Development will be tied into the existing service provider network systems along Lucan Road and N4 Lucan Bypass. The entrance to the proposed development is from the parking area extension. It is envisaged that services will enter the development at the site entrance availing of existing services already in place.

The site services drawing (refer to dwg T024-PMEP-00-00-DR-ME-01) is provisional only and is subject to approval/discussion with each utility provider.

The site services drawing has been populated to include ESB, Virgin services and EIR services and quantity indicated are an estimation based on previous experience with the various utility providers.

*(Note: The description of utility services to the development as outlined below is subject to utility applications being completed and final design from each service provider issued).*

### 1.1 ELECTRICITY (ESB NETWORKS)

ESB Networks have been contacted and an existing ESB network map for the area surrounding the proposed development has been obtained.

There are existing ESB Networks infrastructure in the vicinity of the site. Due to nature of the business for this development, the anticipated load on the existing ESB's network is minimal and only a 400V underground feeder cable from the nearby substation is anticipated.

### 1.2 BROADBAND (EIR & Virgin Media)

EIR and Virgin Media have been contacted and existing services map for the area surrounding the proposed development has been obtained.

There are existing Networks infrastructure in the vicinity of the site. A formal application cannot be made at this stage but will be made as soon as the planning permission is granted.

The infrastructure will allow for multiple broadband providers. It is envisioned that EIR can connect into the new development from the existing adjacent Lucan Road and Virgin Media can connect from the N4 Lucan Bypass motorway.

Provision for 2 No 100mm communication ducts will be installed at the site entrance linking to each of the networks infrastructure. All chambers will be suitably traffic rated for the area in which they are being installed.

### 1.3 SITE LIGHTING

Each light fitting will be a highly efficient Led light fitting controlled via an individual Photoelectric Control Unit (PECU) from a nearby mini pillar. The PECU will switch the external light fittings on and off at dusk and dawn respectively.

Refer to the site lighting layout and lux levels drawings, detailed on T024-PMEP-00-00-DR-E-01 & T024-PMEP-00-00-DR-E-02 respectfully.

For details of the proposed site lighting design, please refer to the Site Lighting Report and the site lighting drawings included with this application.

## 2 SECTION 2: ENERGY & SUSTAINABILITY

This section outlines the proposed energy efficiency and sustainability objectives under consideration for the proposed Drive Thru development.

The options set out are all viable options and it is viewed that there is sufficient flexibility in the planning assessment to allow for one or more of these options to be implemented.

The sustainable options being investigated assist in achieving reduced overall energy consumption and usage within the retail and residential components.

The sustainable options being investigated assist in achieving reduced overall energy consumption and usage within the building and within the overall site. The development will also comply with Nearly Zero Energy Building (NZEB) Standards and Part L of the Building Regulations.

## 2.1 POINT OF USE ELECTRIC WATER HEATERS

The use of point of use electric heaters would mitigate the standing heat losses associated with centralised hot water storage systems and their pipework. This in turn reduces the load on the primary heat source.

## 2.2 NATURAL VENTILATION

Natural ventilation is being evaluated as a ventilation strategy to minimise energy usage. The main advantages of natural ventilation are:

- Low noise impact for occupants.
- Completely passive, therefore no energy required with associated installations.
- Minimal maintenance required.
- Reduced environmental impact as minimal equipment disposal over life cycle.
- Full fresh air intake resulting in healthier indoor environment.

## 2.3 ELEMENTAL U-VALUES AND AIR FILTRATION

Lower U-values and improved air tightness will minimise heat losses through the building fabric, reducing energy consumption and thus minimise carbon emissions to the environment. The U-values being evaluated will, at minimum, be in line with those required by the current regulatory requirements of the Technical Guidance Documents Part L, titled "*Conservation of Fuel and Energy Buildings other than Dwellings*".

Thermal bridging at junctions between construction elements and at other locations will be minimised in accordance with Paragraphs 1.2.4.2 and 1.2.4.3 outlined in the Technical Guidance Documents Part L.

## 2.4 AIR SOURCE HEAT PUMPS

An air to water heat pump is planned to provide space heating and domestic hot water. An air source heat pump is a system which transfers heat from outside to inside a building. The air to water heat pump absorbs heat from outside air and releases it inside the building, via radiators, underfloor heating and/or domestic hot water supply.

These systems have high efficiencies which contribute to the Renewables Requirements in TGD Part L/NZEB.

## 2.5 VENTILATION HEAT RECOVERY

Where mechanical ventilation is required, consideration will be given to the provision of heat recovery within the air handling units. The recovered energy can be used to either preheat or cool the incoming fresh air. This would reduce the heating and cooling loads from the primary plant.

Air conditioning to the shopping space will be done via efficient VRF system consisting of an external condenser and ceiling mounted fan coil units.

These systems have high efficiencies which contribute to the Renewables Requirements in TGD Part L/NZEB.

## 2.6 BUILDING ENERGY MANAGEMENT SYSTEMS

A Building Energy Management Systems (BEMS), is being considered for the automatic monitoring and control of a range of building services including heating, ventilation, and lighting. A BEMS can provide potential energy and cost savings of:

- Optimising the efficient operation of shop
- Monitoring and data logging energy usage of the building
- Increasing energy awareness by the building's users
- Prioritizing low / green energy systems over fossil fuel energy sources

## 2.7 SMART METERING

Smart metering will be allowed for the LV Distribution Boards with the function of interfacing and communicating to the site's building energy management system (BEMS).

## 2.8 ECAR CHARGING POINTS

Within the new drive thru coffee shop development the provision of 2 No. Electric Vehicle (EV) charging points are proposed as indicated on the drawings included within this application.

Ducts for future Electric Vehicle (EV) charging points are proposed as indicated on the drawings included within this application for the remaining of the parking areas within the new drive thru coffee shop development.

## 2.9 LIGHTING

The proposed lighting installation is in line with the measures outlined in this document along with IS EN 13201-1 2015 & IS EN 13201-2 2015, the Society of Light & Lighting Guide 06 & Technical Guidance Document for Reduction of Obtrusive Light & Light Pollution.

As a result, the choice of the most appropriate LED street lighting in addition to lighting controls to provide the site lighting requirements will be based on the following:

- LED Fittings: LEDs have extremely good colour rendering capability, long lifespans, and excellent energy performance. Where possible throughout the site, the use of LEDs shall take preference over other light sources as a means of providing controllable, suitable and energy efficient lighting.

We are also evaluating a number of lighting control methods such as:

- Time Control System: These controls can be set up to switch on and off the lighting based on the expected occupancy levels within areas and have an override available using a light switch
- Daylight harvesting control: This type of control is based on photocell control, which detects the amount of light available. They can be used in all areas to turn lights on, off and/or dim as required.
- Dimming function: Similarly, to Daylight Linked Controls and using photocell control, the photocell is connected to the luminaires to maintain a pre-set lux level at the working plane areas throughout the day.

## **CONCLUSION**

### **Section 1: UTILITY INFRASTRUCTURE:**

Based on the initial review, there is sufficient utility infrastructure in the area for Drive Thru Coffee Shop, Lucan Retail Park.

### **Section 2: ENERGY & SUSTAINABILITY:**

The potential energy efficient options detailed above are all being evaluated at present. The options listed above will be assessed and confirmed at detail design stage.