8 CLIMATE

8.1 Introduction

This chapter assesses the likely significant effects of the proposed development on climate; including a qualitative assessment of construction and operational effects on carbon and an assessment of wind effects as well as a daylight and sunlight analysis. The wind, daylight and sunlight assessments herein considers only off site effects. More detailed reports including offsite and onsite effects are included in the reports contained in Appendix 8.1 and 8.2.

Air Quality is addressed separately in Chapter 7.

Article 94 of the Planning and Development Regulations 2001, as amended, and Schedule 6, paragraph 2 thereof requires -

"2. Additional information, relevant to the specific characteristics of the development or type of development concerned and to the environmental features likely to be affected, on the following matters…

(e) (i) a description of the likely significant effects on the environment of the proposed development resulting from, among other things— …

(VI) the impact of the proposed development on climate (for example the nature and magnitude of greenhouse gas emissions) and the vulnerability of the proposed development to climate change,

Chapter 3 provides a full description of the proposed development and Chapter 4 describes the construction strategy. The following aspects are particularly relevant to the climate assessment:

- Design:
    - Aspects relating particularly to the design and location of the proposed development where it is in proximity to residential and commercial properties or in areas publicly accessible. A Wind Study and a Daylight and Sunlight Analysis have been prepared and are appended to this EIAR (Appendix 8.1 and 8.2 respectively) to assess the potential effect on surrounding building users.
- Operation:
    - Aspects relating particularly to the operation include the energy usage of the building, which also forms part of the design considerations.
- Construction:
    - Aspects relating particularly to the construction of the proposed development, include sourcing and disposal of materials during the construction phase.

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Refer to Chapter 1 for details on relevant qualifications and experience.

8.2 Assessment Methodology

8.2.1 General

8.2.1.1 Carbon Emissions

The climate assessment for the construction and operational phases estimates the potential for greenhouse gas (GHG) emissions over the design life of the proposed development.

EU greenhouse gas emission reduction targets and reduction obligations for Ireland are split into two broad categories. The first category covers the large energy and power (i.e. energy intensive) industry which have their emissions controlled under the EU Emissions Trading Scheme (ETS). The second category deals with the non-Emissions Trading Scheme (non-ETS) sectors such as agriculture, transport,

residential, commercial, waste and non-energy intensive industry. The proposed development will operate within the non-ETS sector.

The results of this assessment have been compared against the EPA`s projected GHG emissions for both the non-Emission Trading Scheme (ETS) sector and total emissions for two years, 2020 and 2025[1].

8.2.1.2 Wind, Daylight and Sunlight

A wind, daylight and sunlight assessment was carried out to ascertain the impact of the proposed development, as detailed in Appendix 8.1 and 8.2.

Wind Analysis

In order to determine the predicted wind patterns around the proposed development, airflow simulations were undertaken using Computational Fluid Dynamics (CFD) software (Phoenics / Flair).

This enabled an assessment of the site wind conditions, calculating zones of high pressure, negative pressure, and predicted air velocities/directions for varying wind conditions.

An initial 3D representational model of the proposed buildings and their immediate surroundings was created representing the proposed development and existing neighbouring buildings. Simulations were undertaken for 12 cardinal wind directions.

The CFD simulations utilised wind profiles accounting for terrain effects. Allowing for the urban nature of the site, a boundary layer profile representative of suburban terrain was utilised.

Daylight and Sunlight Analysis

The BRE Site Layout Planning for Daylight and Sunlight Design Guide provides guidance with regards to sunlighting and shading to external Amenity spaces for new developments.

A 3D model was utilised to assess the daylight, shadow and sunlight impacts. The OSI land registry compliant map was used to define the location of the neighbouring amenity space in conjunction with Google Maps aerial view. The shadow cast of the building was analysed through the day for the Spring Equinox and the Summer Solstice against the existing site. The internal Average Daylight Factors (ADF) for each of the living areas and bedrooms were assessed against BRE guideline targets.

8.2.2 Guidance and Legislation

8.2.2.1 Carbon Emissions

National

The Government of Ireland's Climate Action Plan[2] was published in 2019. It commits to achieving a net zero carbon energy systems objective for Ireland. The plan sets out a detailed sectoral roadmap to deliver a cumulative reduction in emissions. In relation to the Built Environment, of relevance to the proposed development, the plan proposes:

- Introducing stricter requirements for new buildings and substantial refurbishments, including:
    - More stringent building regulations apply since the second half of 2019, with all new buildings to be Near Zero Energy Building (NZEB); and
    - Better spatial planning will reduce the carbon emissions of new developments, and deliver a better quality of life, including shorter commute times, better connections

[1] EPA, 2019. Ireland's Greenhouse Gas Emissions Projections 2018-2040. Available at http://www.epa.ie/pubs/reports/air/airemissions/ghgprojections2018-2040/Greenhouse_Gas_Projections.pdf
[2] Climate Action Plan, Government of Ireland 2019

between our places of work and homes, and more vibrant, people-focused environments; and

- Increasing attention to Energy and Carbon ratings in all aspects of managing property assets.

The Climate Action and Low-Carbon Development National Policy Position[3] for Ireland was published in 2014. The Position provides a high-level policy direction for the adoption and implementation by Government of plans to enable the State to move to a low carbon economy by 2050.

The Climate Action and Low Carbon Development Bill 2020 was published by government in October 2020 and updated in March 2021. The Bill sets out the national objective of transitioning to a low carbon, climate resilient and environmentally sustainable economy in the period up to 2050. The Act provides for the preparation of National Mitigation Plans (the July 2017 Plan was quashed in July 2020) and Sectoral Plans which will specify policies to reduce greenhouse gas emissions for each sector.

In October 2014, the European Council reached political agreement on headline greenhouse gas emissions reduction targets in the context of the 2030 Climate and Energy Framework[4]. An overall EU reduction of at least 40% in greenhouse gas emissions by 2030 compared to 1990 levels is to be delivered collectively by the EU.

Ireland's 2030 target is to achieve a 30% reduction of non-Emissions Trading Scheme sector emissions on 2005 levels with annual binding limits set for each year over the period 2021-2030.

The EU ETS is implemented in Ireland under S.I. 490 of 2012[5] and amendments and S.I. No. 261 of 2010 and amendments. The legislative framework of the EU ETS was revised in 2018 to enable it to achieve the EU's 2030 emission reduction targets in line with the 2030 Climate And Energy Policy Framework and as part of the EU's contribution to the 2015 Paris Agreement[6] .

Local

Dublin City Council's Climate Change Action Plan[7] sets out how the council aims to improve energy efficiency and reduce greenhouse gas emissions in its own buildings and operations in addition to making Dublin more climate resilient. The plan focuses on five key action areas; energy and buildings, transport, flood resilience, nature-based solutions and resource management.

The energy and buildings area of this plan focuses on public lighting upgrades, building retrofits with energy performance guarantees and energy master planning.

8.2.2.2 Wind

Whilst no specific legislation is defined for wind assessment the best practice guidance for pedestrian wind comfort is the Lawson Criteria. The 'Lawson Criteria' scale has been developed as a means of assessing the long-term suitability of urban areas for walking or sitting without excessive air movement associated with wind forces. The Lawson Criteria scale, ranges from areas deemed suitable for long term sitting through to regions not suitable for pedestrian comfort, as wind effects and associated air velocities would be too excessive for significant periods of the year.

The Criteria allow for the predicted airflow patterns around buildings for all wind orientations and calculates average velocity applying weighting based on probability of occurrence throughout the year. Therefore, wind effects around buildings for prevailing wind conditions are deemed to have more of a potential impact to pedestrian discomfort, as these will occur on a more regular occurrence.

[3] Department of Communications, Climate Action & Environment, 2014. National Policy Position on Climate Action and Low Carbon Development

[4] European Commission, 2013. 2030 Climate & Energy Framework

[5] Irish Statute Book. 2012. EC Greenhouse Gas Emissions Trading Regulations

[6] Paris Agreement, 2015. https://ec.europa.eu/clima/policies/international/negotiations/paris_en

[7] DCC, 2019. Climate Change Action Plan 2019-2024.

8.2.2.3 Sunlight / Daylight

The Department of Housing Planning and Local Government (DoHPLG) Design Standards for New Apartments 2020[8] recommends that planning authorities should have regard to quantitative performance approaches to daylight provision outlined in guides like the BRE guide 'Site Layout Planning for Daylight and Sunlight'[9] or BS 8206-2: 2008 – 'Lighting for Buildings – Part 2: Code of Practice for Daylighting'[10]; thus ensuring that development proposers have the capability to satisfy minimum standards of daylight provision.

8.2.3 Study Area

8.2.3.1 Carbon Emissions

The potential impact of emissions of carbon due to the proposed development is considered in the context of Ireland's national climate change obligations.

8.2.3.2 Wind

The wind assessment takes account of the local areas that may be affected by the proposed development.

8.2.3.3 Daylight and Sunlight

The potential daylight and sunlight impact was assessed for the proposed and consented development and neighbouring properties which could be impacted as detailed in Appendix 8.2.

8.2.4 Site Visits

A site visit was undertaken in the preparation of this chapter.

8.2.5 Consultation

During the pre-application meetings, Dublin City Council indicated that the relevant sunlight/daylight standards should be met or exceeded for the proposed development at 42A Parkgate Street. The design team is confident that these have been addressed during the development process as reported in 'Parkgate Daylight & Sunlight Analysis Report', see Appendix 8.1 and 8.2.

8.2.6 Categorisation of the Baseline Environment

8.2.6.1 Carbon Emisisons

A desk-based study of the baseline environment of the proposed development was undertaken in order to inform this assessment. The most recent EPA report1 on greenhouse gas emissions and projections were used in order to determine the baseline environment for carbon emissions.

[8] DoHPLG, 2020. Sustainable Urban Housing: Design Standards for New Apartments Guidelines for Planning Authorities

[9] Building Research Establishment (BRE) 2018.Site Layout Planning for Daylight and Sunlight' (2nd edition)

[10] BS 8206-2: 2008 – 'Lighting for Buildings – Part 2: Code of Practice for Daylighting

8.2.6.2 Wind, Daylight and Sunlight

The wind assessment was carried out utilising the European Wind Atlas 10 year averaged wind data for Dublin 53°26'N 06°15'W as a baseline.

Sunlight assessments were carried out for the longitude and latitude for the site, with daylight calculations derived against the CIE 10,000Lux uniform sky.

8.2.7 Impact Assessment Methodology

8.2.7.1 Carbon Emissions

An assessment of carbon emissions was carried out in order to determine the likely significant effects of greenhouse gas emissions (Mt CO_2 equivalent) predicted due to the construction phase of the proposed development, relative to Ireland's projected baseline for 2020, as reported by the EPA. This assessment focuses on the embodied carbon of the material used during the construction phase; concrete, reinforcement, glazing, façade and brickwork, timber, plasterboard, insulation and fill material.

The Environment Agency's Carbon Calculator[11] has been used to estimate potential greenhouse gas emissions due to construction activities in terms of carbon dioxide equivalency (CO_2e). The tool calculates the embodied CO_2e of materials plus the CO_2e associated with their transportation. The results of the assessment are compared to Ireland's projected carbon emissions, as outlined in Table 8.2.

As permitted under ABP-306569-20, the main sources of energy use during the operational phase will be from electricity and heating. As part of the proposed development, four onsite boilers will be provided onsite. These boilers will be of an indicative size of 600kW.

An Energy Analysis Report has been prepared as part of the planning documentation. This report outlines the current building regulations framework and the requirement to achieve a Nearly Zero Energy Building (NZEB) for all new developments. The NZEB standard is demonstrated using the Dwelling Energy Assessment Procedure (DEAP) software. The principal energy use associated with residential developments as assessed under DEAP is the domestic hot water to showers, sinks, basins etc. which accounts for over half of the total annual energy consumption for an apartment.

8.2.7.2 Wind

The predicted effects of wind were determined for the proposed development and surrounding site in order to assess Pedestrian Comfort.

Site Wind Analysis was undertaken utilising Computational Fluid Dynamics (CFD) software (Phoenics/ Flair). CFD originated in the aeronautics industry but can be applied to the built environment in order to enable assessment of wind effects on buildings in a "virtual wind tunnel".

The CFD analysis involved creating a 3D representational model of the proposed Parkgate Street buildings in the context of their surrounding urban environment and adjacent buildings. Wind profile boundary layers were applied, applicable to urban terrain, for varying wind speeds and directions.

Predicted pressures and velocity vectors in the vicinity of the buildings were calculated for varying wind speeds and directions, accounting for turbulence effect, with derived parameters determined for Pedestrian Comfort (Lawson Criteria).

CFD enables graphical displaying of coloured contours, vectors and streamlines, allowing complex airflow phenomena to be visualised and understood.

[11] Environment Agency, 2016. Carbon Planning Tool.

8.2.7.3 Sunlight

The BRE Site Layout Planning for Daylight and Sunlight Design Guide [9] provides guidance with regard to sunlighting and shading to external amenity spaces within proposed developments.

The guidance recommends "that for it to appear adequately sunlit throughout the year, at least half of a garden or amenity area should receive at least two hours of sunlight on 21st March".

8.3 Baseline Conditions

8.3.1 Carbon Emissions

In July 2020, the EPA released the report Ireland's Greenhouse Gas Emissions Projections 2019-2040 [12]

This report stated that total national greenhouse gas emissions in 2018 were estimated to be 60.9 million tonnes carbon dioxide equivalent (Mt CO2eq). This is 1.1% lower than emissions in 2017. Ireland's greenhouse gas emissions for the energy intensive industries (known as the ETS sectors) were recorded to be 15.5 Mt CO_2 eq. in 2018.

Table 8.1 outlines the projected emissions for the residential and non-ETS sector With Existing Measures and With Additional Measures scenarios.

Projections	Year	Non-ETS Sector Only (Mt CO_2 eq.)	Residential Sector Only (Mt CO_2 eq.)	Total (Mt CO_2eq)
Projections (with existing measures)[13]	2020	46.1	6.3	52.4
	2025	45.0	5.8	50.8
Projections (with additional measures)[14]	2020	45.4	6.2	51.6
	2025	40.8	4.7	45.5

Table 8.1: Projected Emissions for the ETS Sector and Total Emissions (EPA, 2019)[12]

Current projections by the EPA indicate that Ireland will exceed its greenhouse gas emissions reduction targets in 2020 and 2030.

8.3.2 Wind, Daylight and Sunlight

The current site comprises of low rise buildings up to two storeys in height. There are a number of other developments in the vicinity, which could be impacted by the proposed development, including those referenced in Appendix 21.1 of Chapter 21, Cumulative and Interactive Effects. Existing wind, daylight and sunlight data were used in the assessment, as detailed in Section 8.2.6.

In terms of microclimate assessment, wind data for the nearest available meteorological station at Dublin Airport was utilised. Analysis is based on frequency of hourly wind speeds and direction data included in European Wind Atlas for Dublin Airport. It may be noted that wind data and subsequent analysis is therefore based on hourly averages and does not include for example, intermittent gusting

[12] EPA, 2020. Ireland's Provisional Greenhouse Gas Emissions 2019 – 2040.

[13] The With Existing Measures scenario assumes that no additional policies and measures, beyond those already in place by the end of 2018 (latest national greenhouse gas emission inventory), are implemented. (EPA, 2020)

[14] The With Additional Measures scenario assumes implementation of the With Existing Measures scenario in addition to, based on current progress, further implementation of Government renewable and energy efficiency policies and measures including those set out in the National Renewable Energy Action Plan (NREAP) and the National Energy Efficiency Action Plan (NEEAP) and more recently Ireland's National Development Plan 2018-2027 (EPA, 2020).

effects. The Windrose for Dublin Airport (01 January 1942 to 31 December 2014) is illustrated in Figure 8.1.

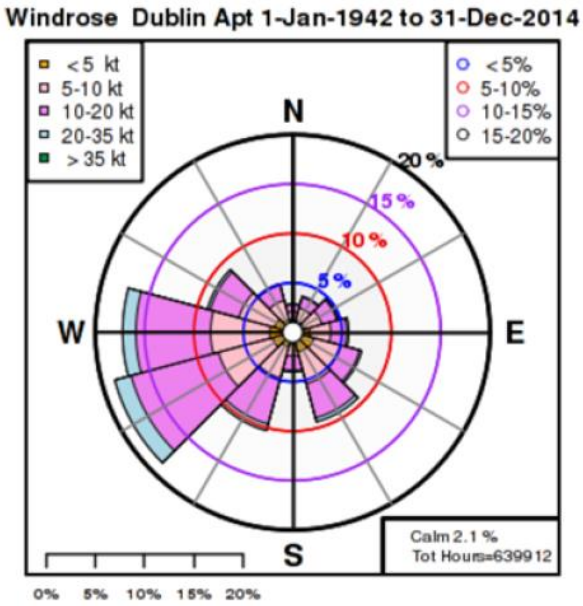

Figure 8.1: Windrose for Dublin Airport

The rose diagram illustrates the frequency that wind will be from a certain direction and at what speed. It can be seen how the prevailing South Westerly winds entirely predominate for Dublin due to Atlantic gulf stream, with only lower occurrence from other directions- notably South East, which tend to occur during warm summer weather due to offshore breeze effects.

Furthermore, higher wind speeds (which accentuate pedestrian discomfort) occur almost entirely for prevailing South Westerly conditions and therefore will predominate in terms of the potential impact on pedestrian comfort.

8.4 Likely Significant Effects

8.4.1 Do-Nothing Scenario

In the scenario where the proposed development did not proceed as planned, none of the construction or operational impacts as set out in this chapter would occur. The impact on climate would remain as is outlined in the baseline condition in Section 8.3.

8.4.2 Assessment of effects during construction

8.4.2.1 Carbon Emissions

Direct Effects

The estimated carbon footprint of the proposed development during the construction phase is approximately 8 ktonnes of CO_2eq, as outlined in Table 8.3. The predicted results are compared to the EPA's Projected non-ETS Sector CO_2eq emissions for non-ETS and residential sectors in 2025 assuming additional measures, as a worst case.

Estimated CO2eq during Construction Phase of Block A (Mtonnes)	Projected non ETS Sector / residential sector CO_2eq emissions in 2025 with additional measures (Mtonnes)	As a percentage of 2020 non ETS /residential Sector CO2eq emissions with existing measures
0.008	40.8 / 4.7	0.02% / 0.17%

Table 8.2: Estimated Carbon output during the construction phase

As a percentage of the projected 2025 non ETS Sector CO_2eq emissions (with additional measures) the estimated impact is 0.17% for the residential sector annual emissions, and 0.02% for the total annual non-ETS emissions.

Non ETS carbon allowances for the residential sector are assumed to be incorporated within the projected non ETS allowances. Carbon allowances are reduced annually, forcing industry to minimise emissions. On this basis, the effects to climate are considered slight, negative, long-term.

As improvements in sustainability and recycling measures are progressed throughout the construction industry it is expected that the embodied carbon calculated as part of this assessment can be taken as a worst case, as with time this figure will improve.

Indirect Effects

There is the potential for carbon emissions to be generated from construction vehicles accessing the site. However, due to the scale of traffic predicted (5 two-way trips per peak hour), no significant indirect effects are predicted during the construction phase of the proposed development.

Cumulative

Appendix 21.1 of Chapter 21, Cumulative and Interactive Effects, outlines the proposed and permitted developments within 1 km of the proposed development. A review of these projects potential impacts on each topic cumulatively with the proposed development during the construction phase has been undertaken, with no significant impacts predicted.

8.4.2.2 Wind

Direct Effects

No direct effects are predicted during the construction phase of the proposed development.

Indirect Effects

No indirect effects are predicted during the construction phase of the proposed development.

Cumulative

Appendix 21.1 of Chapter 21, Cumulative and Interactive Effects, outlines the proposed and permitted developments within 1 km of the proposed development. A review of these projects potential impacts on each topic cumulatively with the proposed development during the construction phase has been undertaken, with no significant impacts predicted.

8.4.2.3 Sunlight and Daylight

Direct Effects

No direct effects are predicted during the construction phase of the proposed development.

Indirect Effects

No indirect effects are predicted during the construction phase of the proposed development.

Cumulative

Appendix 21.1 of Chapter 21, Cumulative and Interactive Effects, outlines the proposed and permitted developments within 1 km of the proposed development. A review of these projects potential impacts on each topic cumulatively with the proposed development during the construction phase has been undertaken, with no significant impacts predicted.

8.4.3 Assessment of effects during operation

8.4.3.1 Carbon Emissions

Direct Effects

As permitted under ABP-306569-20 and outlined in Section 8.2.7.1, there are four 600kW boilers proposed as part of the proposed development. Due to the size of the boilers they do not fall under Greenhouse Gas Permitting scheme.

Table 8.3 below summarises the results of the operational CO_2 assessment as outlined in the Energy Analysis Report that has been included in the planning application documents. This option complies with the requirement to achieve a Nearly Zero Energy Building (NZEB) for new developments.

Estimated CO_2eq during Construction Phase of Block A (Mtonnes)	**Projected non ETS Sector / residential sector CO_2eq emissions in 2025 with additional measures (Mtonnes)**	**As a percentage of 2020 non ETS /residential Sector CO_2eq emissions with existing measures**
0.008	40.8 / 4.7	0.02% / 0.17%

Table 8.3: Results for NZEB assessment for three options

All three options considered for Parkgate Street will achieve NZEB compliance and would be suitable options for this development. All three options considered rely on Heat Pump technology which uses the energy released from a phase change of the refrigerant to deliver more heating energy than inputted to the system. The application of this technology for each solution results in variable CO_2 emissions. However, the total CO_2 emissions, even for the worst-case option are not deemed significant in the context of Ireland's non-ETS and residential sector baseline for 2020 (with additional measures, refer to Table 8.1). No significant direct effects are therefore predicted during the operational phase of the proposed development.

Indirect Effects

There is the potential for carbon emissions to be generated from vehicles accessing the site. However, due to the scale of traffic predicted (26 car parking spaces), no significant indirect effects are predicted during the operational phase of the proposed development.

Cumulative

Appendix 21.1 of Chapter 21, Cumulative and Interactive Effects, outlines the proposed and permitted developments within 1 km of the proposed development. An assessment of these projects potential impacts on each topic cumulatively with the proposed development during the operational phase has been undertaken. No significant impacts are envisaged cumulatively.

8.4.3.2 Wind

Direct Effects

The potential for direct wind effects due to the proposed development were assessed against the Lawson Criteria as detailed within the wind analysis report included in Appendix 8.1. The analysis was carried out for two amenity types, namely ground level and roof top amenity.

This analysis undertaken identified that the proposed development was determined to not introduce any adverse wind effects to the rooftop amenity space, with the space generally deemed suitable for short/long term sitting activity, provided a balustrade/wind screening is provided, with a minimum height of 2 metres required.

The analysis also identified no deterioration of wind conditions at ground level nor local roof level amenities of the permitted scheme as a result of the tower redesign.

Therefore, no significant effects are predicted to occur.

Indirect Effects

No indirect effects are predicted during the operational phase of the proposed development.

Cumulative

Appendix 21.1 of Chapter 21, Cumulative and Interactive Effects, outlines the proposed and permitted developments within 1 km of the proposed development. An assessment of these projects potential impacts on each topic cumulatively with the proposed development during the operational phase has been undertaken. No significant impacts are envisaged cumulatively.

8.4.3.3 Sunlight and Daylight

Direct Effects

The potential for direct sunlight and daylight effects of the proposed development were assessed against BRE guideline criteria as detailed within the daylight and sunlight analysis report included in Appendix 8.2.

The assessment identified that the tower redesign has no impact on the overall daylight compliance rate of the development when compared against the previous submitted scheme. Whilst one further space in the existing scheme has now just fallen marginally below the BRE guidelines (1.4% achieved/ 1.5% target) the redesign of the tower itself has resulted in full compliance where previously one space did not achieve the BRE guidelines. Refer to Appendix 8.2.

Neighbouring buildings on Montpelier Hill have also been assessed. The quantitative analysis concluded that dwellings would not be adversely affected by the proposed development in terms of receipt of natural light or sunlight. Additionally, Appendix 8.2 provides further analysis which identifies that the shadow of the tower would only be incident on the dwellings for part of one hour per day.

Indirect Effects

No indirect effects are predicted during the operational phase of the proposed development.

Cumulative

Appendix 21.1 of Chapter 21, Cumulative and Interactive Effects, outlines the proposed and permitted developments within 1 km of the proposed development. An assessment of these projects potential impacts on each topic cumulatively with the proposed development during the operational phase has been undertaken. No significant impacts are envisaged cumulatively.

8.5 Mitigation Measures and Monitoring

8.5.1 Mitigation

8.5.1.1 Mitigation During Construction

Carbon Emissions

Due to the nature of effects predicted in Section 8.4.2, no mitigation measures are proposed during the construction phase of the proposed development.

Wind

As no significant impacts are predicted during the construction phase, no further mitigation measures are proposed.

Daylight and Sunlight

As no significant impacts are predicted during the construction phase, no mitigation measures are proposed.

8.5.1.2 Mitigation During Operation

Carbon Emissions

As the proposed development complies with the NZEB criteria for new developments, no mitigation measures are proposed during the operation phase of the proposed development.

Wind

As outlined in Section 8.4.3, the analysis undertaken identified that the proposed development was determined to not introduce any adverse wind effects to the rooftop amenity space, with the space generally deemed suitable for short/long term sitting activity, provided a balustrade/wind screening is provided, with a minimum height of 2 metres required.

Daylight and Sunlight

The design development has ensured that there are no significant effects associated with sunlight and daylight. As a result, no mitigation measures are proposed during the operation phase of the proposed development.

8.6 Monitoring

8.6.1 Mitigation During Construction

As no significant impact is predicted to occur during the construction phase of the proposed development, no monitoring measures are required.

8.6.2 Mitigation During Operation

As no significant impact is predicted to occur during the operational phase of the proposed development, no monitoring measures are required.

8.7 Residual Effects

No significant residual impacts are predicted on climate during the construction or operational phase of the proposed development.