11 CLIMATE (DAYLIGHT / SUNLIGHT)

11.1 INTRODUCTION

IN2 Engineering Design Partnership (IN2) has been commissioned by the Applicant to carry out an analysis of the impact of the Proposed Development on lands at Portmarnock, Co. Dublin on sunlight and daylight access in the surrounding area.

This analysis was undertaken in accordance with industry best practice guidelines for sunlight in the BRE publication "Site Layout Planning for Daylight and Sunlight – A guide to good practice (Third Edition / 2022 Edition)" as prescribed in "Sustainable Urban Housing: Design Standards for New Apartments (2023 version)". These are guidelines issued under section 28 of the 2000 Planning and Development Act (as amended).

A scoping exercise was conducted to identify the neighbouring dwellings which would require a detailed study of impact on daylight and sunlight availability. In terms of sunlight, appropriate separation distances are achieved between the Site and the neighbouring buildings to the North, therefore, no significant adverse impacts are expected in relation to daylight. Neighbouring buildings to the West of the development will be assessed for impacts on sunlight using the decision chart in the BRE publication "Site Layout Planning for Daylight and Sunlight – A guide to good practice (Third Edition)/2022 Edition.

This Chapter and assessment have been completed in compliance with Part X of the Planning and Development Act 2000 (as amended) which transposes into Irish law the requirements of the EU EIA Directive 2014/52/EU of the European Parliament and of the Council of 16 April 2014 amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment and having regard to the guidance outlined in the EPA documents Guidelines on information to be contained in Environmental Impact Assessment Reports 2022 as outlined under Chapter 1: Introduction of this EIAR.

This chapter has been prepared by William O'Donnell. William O'Donnell is a Chartered Engineer (CEng) and member of Engineers Ireland. He has over 20 years' experience of low energy design and building simulation and is responsible for overseeing Daylight and Sunlight Analysis on all projects.

11.2 ASSESSMENT METHODOLOGY

11.2.1 Scoping

The BRE Guide provides guidance on site layout and planning to maintain adequate daylight and sunlight access to new and existing dwellings.

The BRE Guide states: -

> "*2.2.4 Loss of light need not be analysed if the distance of each part of the new development from the existing window is three or more times its height above the centre of the existing window…*
>
> *2.2.5 …Measure the angle to the horizontal subtended by the new development at the level of the centre of the lowest window. If this angle is less than 25° for the whole development then it is unlikely to have a substantial effect on the diffuse skylight enjoyed by the existing building.*
>
> *2.2.6 Any reduction in the total amount of skylight can be calculated by finding the VSC at the centre of each main window …*
>
> *2.2.8 Where room layouts are known (for example if they are available on the local authority's planning portal), the impact on the daylighting distribution in the existing buildings should be found by plotting the no sky line in each of the main rooms …"*

Through design development and analysis of the final architectural design, we confirm these criteria have been incorporated into the design of the Proposed Development. Appropriate separation distances, subtend angles, VSC, APSH or no skyline are achieved as detailed in Section 4.0 of the submitted Daylight & Sunlight Analysis Report.

11.2.2 Context under Technical Guidance Documents

The BRE publication "Site Layout Planning for Daylight and Sunlight – A guide to good practice (Third Edition) Decision Chart was followed in order to assess the potential impact on sunlight availability on the neighbouring dwellings.

The neighbouring buildings (Phase 1B, Lima Building & St. Helen's on Station Rd, and Mount Carmel & Sea Crest Lodge on Coast Rd) that are adjacent to the North of the Proposed Development are sufficiently distant from it to ensure that their access to sunlight is unaffected. The dwellings to the West of the Proposed Development are not far enough away from the Site, therefore using the decision chart, they are assessed for subtend angle.

Neighbouring buildings which were determined to have a subtend angle below 25°, as per the methodology in the BRE publication "Site Layout Planning for Daylight and Sunlight – A guide to good practice (Third Edition)/2022 Edition, were therefore exempt from the VSC, APSH and No Sky Line assessment.

Those buildings failing to have a subtend angle below 25° were assessed for VSC, APSH and No Sky Line.

These assessments determined that the Proposed Development will not have an impact on the daylight and sunlight availability of the neighbouring buildings.

11.2.3 Assessment Methodology

A three-dimensional digital model of the Proposed Development, and of existing buildings in the area was constructed by IN2 based on drawings supplied by the Design Team; and with reference to satellite and aerial photography. Trees and boundary planting were not included in this model as per the recommendations in Appendix G of the BRE Guide.

11.2.4 Definition of Effects on Sunlight Access

The assessment of the impact of the Proposed Development on sunlight access had regard to the Guidelines on the Information to be Contained in Environmental Impact Assessment Reports prepared by the Environmental Protection Agency, and to Directive 2011/92/EU (as amended by Directive 2014/52/EU) on the assessment of the likely effects of certain public and private projects on the environment.

The list of definitions given below is taken from Table 3.3: Descriptions of Effects contained in the Guidelines on the Information to be Contained in Environmental Impact Assessment Reports prepared by the Environmental Protection Agency (EPA). Some comment is also given below on what these definitions might imply in the case of sunlight access. The definitions from the EPA document are in italics.

- ***Imperceptible:*** *An effect capable of measurement but without significant consequences. The definition implies that the development would cause a change in the sunlight received at a location, capable of measurement, but not noticeable to the casual observer. If the development caused no change in sunlight access, there could be no effect.*
- ***Not Significant:*** *An effect which causes noticeable2 changes in the character of the environment but without significant consequences (the footnote "2" to the word "noticeable" is: "for the purposes of planning consent procedures"). The definition implies that the development would cause a change in the sunlight received at a location, which is capable of measurement and capable of being noticed by an observer who is taking an active interest in the extent to which the proposal might affect sunlight access.*
- ***Slight:*** *An effect which causes noticeable changes in the character of the environment without affecting its sensitivities. For this definition to apply, the amount of sunlight received at a location would be changed by the construction of the development to an extent that is both*

capable of measurement and is noticeable to a minor degree. However, the sunlight environment within an existing building should remain largely unchanged.

- ***Moderate:*** *An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends. In this case, a development must bring about a change in the sunlight environment within an existing building; and this change must be consistent with a pattern of change that is already occurring, is likely to occur, or is envisaged by policy. A moderate effect would occur where other developments were bringing about changes in sunlight access of similar extent in the area.*
- ***Significant:*** *An effect which, by its character, magnitude, duration or intensity alters a sensitive aspect of the environment. The definition implies that the existence of the development would change the extent of sunlight access in a manner that is not "consistent with existing and emerging baseline trends". For example, a development resulting in a "significant" diminution of sunlight access would reduce sunlight to the extent that minimum standards for sunlighting are not met and artificial lighting is required for part of the day.*
- ***Very Significant:*** *An effect which, by its character, magnitude, duration or intensity significantly alters most of a sensitive aspect of the environment. The definition implies that the existence of the development would change the extent of sunlight access to a considerable degree and in a manner that is not "consistent with existing and emerging baseline trends". For example, a "very significant" effect would occur where a development would result in sunlight received in a room falling well below the minimum standards for sunlighting and where artificial lighting would be required in that room as the principal source of lighting all the time.*
- ***Profound:*** *An effect which obliterates sensitive characteristics. Examples of development resulting in a "profound" effect on sunlight access would include facilitating sunlight access to a room in an existing building where the existing room has none (e.g. as a result of the demolition of a building) or by removal of all access to sunlight within an existing building.*

In relation to sunlight access, it is conceivable that a development could result in positive effects, but this implies that a development would involve a reduction of the size or scale of built form (e.g. such as the demolition of a building, which might result in an increase in sunlight access). Though that is possible, it is usually unlikely as most development involves the construction of new obstructions to sunlight access.

11.3 RECEIVING ENVIRONMENT

The Site is that illustrated on Dwg. Nos. 6158D-PP-005, 6158D-PP-0006 & 6158D-PP-007 – 'Site Layout Plan', prepared by Burke Kennedy Doyle Architects.

11.4 CHARACTERISTICS OF THE PROPOSED DEVELOPMENT

The Proposed Development (Phase 1F) comprises in summary of the following components: -

- 296no. units (254no. houses and 42no. apartments/duplexes ranging from 1.5 – 3 storeys in height).
- Provision of public open space, including southern Monument Park (which also formed part of Racecourse Park development permitted under ABP Ref.: JP06F.311315
- A total of 289no. car parking spaces and 1455no. bicycle parking spaces.
- Vehicular access to serve the development will be provided from Station Road via existing road serving St. Marnock's Bay ('Monument View') and 3no. permitted roads serving St. Marnock's Bay ('Skylark Park Court', 'Skylark Park Drive' and an extension of 'Monument View') permitted under ABP Ref. ABP-312112-21 as amended by FCC Reg. Ref. LRD0037/S3, and also a new existing permanent road to the south which connects to Moyne Road (permitted under Phase 1D ABP Ref. ABP-312112-21, as amended by FCC Reg. Ref. LRD0037/S3

- A new (temporary) rising main to serve this phase and previous development phases (1A to 1E inclusive) c. 1.7km long, running from the interim St. Marnock's Pumping Station at Station Road/The Avenue (constructed under ABP Reg. Ref. 300514-17 & upgraded under ABP Reg. Ref. 312112-21) passing through the Racecourse Park development permitted under ABP Ref.: JP06F.311315 and connecting to the North Fringe Sewer at a point which is located south of Moyne Road and the Mayne River within the townland of Stapolin, Baldoyle, Dublin 13
- Upgrade of interim St. Marnock's Pumping Station and storage at Station Road/The Avenue as required and all associated and ancillary site development and reinstatement.
- All associated and ancillary site development, infrastructural, landscaping and boundary treatment works.

A full project description is provided in Chapter 3: Description of Proposed Development.

11.5 POTENTIAL IMPACT OF THE PROPOSED DEVELOPMENT

Analysis determined that there would be not significant impact on the Proposed Development.

11.5.1 Proposed Development

11.5.1.1 Construction Stage

The potential impact of the construction phase of the Proposed Development on sunlight access is likely to be, initially, lesser than the potential impact of the completed development. As the Proposed Development nears completion, the potential impact of the emerging development is likely to be similar in all material respects to that of the completed development. It is noted that temporary structures and machinery (e.g. hoarding, scaffolding, cranes, etc.) have the potential to result in changes in sunlight access in buildings, although any additional impacts arising from temporary structures or machinery are likely to be temporary and minor.

11.5.1.2 Operational Stage

All impacts described in this section will be permanent. Impacts described as "imperceptible" and "not significant" are considered to be neutral in character. Any reduction in sunlight access resulting in a "slight", "moderate", "significant", "very significant" or "profound" impact would usually be considered to be negative in character, unless otherwise indicated. Any increase in sunlight access resulting in a "slight", "moderate", "significant", "very significant" or "profound" impact would usually be considered to be positive in character, unless otherwise indicated.

Overview of the Potential Impact of the Proposed Development on Sunlight Access to Existing Buildings Outside the Site

IN2's analysis indicates that the construction of the Proposed Development will result in no change in sunlight access within neighbouring existing buildings. The potential impact of the Proposed Development on sunlight access within neighbouring existing buildings surrounding the Site is, therefore, likely to be imperceptible.

Given that the potential for development to result in impacts on sunlight access diminishes with distance, it is the finding of IN2's analysis the Proposed Development will have no undue adverse impact on sunlight access within buildings in the wider area surrounding the Site.

Detailed Analysis of the Potential Impact of the Proposed Development on Sunlight Access to Existing Buildings Outside the Site

The potential impact of the Proposed Development was assessed using the BRE publication "Site Layout Planning for Daylight and Sunlight – A guide to good practice (Third Edition) 2022 as detailed in Section 11.2 Scoping Assessment Methodology.

The neighbouring buildings (Phase 1B, Lima Building & St. Helen's on Station Rd, and Mount Carmel & Sea Crest Lodge on Coast Rd) that are adjacent to the north of the Proposed Development are sufficiently distant from it to ensure that their access to sunlight is unaffected. The dwellings to the west of the Proposed Development are not far enough away from the Site, therefore using the decision chart, they are assessed for subtend angle.

The dwellings to the west of the Proposed Development are not situated more than three times their height above the lowest window and therefore, using the BRE decision chart, they must also be assessed for subtend angle.

Neighbouring buildings which were determined to have a subtend angle below 25°, as per the methodology in the BRE publication "Site Layout Planning for Daylight and Sunlight – A guide to good practice (Third Edition)/2022 Edition, were therefore exempt from the VSC, APSH and No Sky Line assessment.

Those buildings failing to have a subtend angle below 25° were assessed for VSC, APSH and No Sky Line.

These assessments determined that the Proposed Development will not have an impact on the daylight and sunlight availability of the neighbouring buildings.

11.5.1.3 Do-Nothing Impact

In a "do nothing" scenario, the existing sunlight environment within neighbouring buildings will remain unchanged.

11.5.2 Cumulative

The Cumulative Development is the following:

- **Portmarnock South Phase 1D (ABP Ref. ABP-312112-21 as amended by FCC Reg. Ref. LRD0037/S3) – Under Construction**

  172no. residential units, provision of Skylark Park, provision of new road connection to Moyne Road and upgrade of existing temporary foul water pumping station and 24 wastewater storage tank.

  Extension south of the Phase 1A railway linear park.

  Permission was granted by An Bord Pleanála on 10 May 2022 subject to 31no. condition

  Construction for this phase of development commenced in December 2023.

- **Portmarnock Pumping Station (FCC Reg. Ref. F21A/0389 – ABP Ref. ABP-314663-22)**

  Permission was sought by Irish Water (now Uisce Éireann) on 19 July 2021 for a Wastewater Pumping Station. The proposal generally comprised of modification of Portmarnock Bridge pumping station including decommissioning of redundant above and below ground plant and equipment, including the demolition of the control building.

  Permission was granted by An Bord Pleanála on 27 June 2024.

- **Racecourse Park (ABP Ref. JP06F.311315)**

  FCC applied to An Bord Pleanála under Section 177AE of the Planning and Development Act 2000, as amended, to carry out a park development project at the Racecourse Park located between Baldoyle and Portmarnock, Co. Dublin. Broadly, the proposal includes: -

  - 4.5km of new walking and cycling routes including a bridge over the Mayne river and the repair to the railway underpass.

- Public lighting along key walking and cycling routes.
- Expanding the existing car park to cater for up to 161no. car parking spaces. Upgrading and expanding the existing playground.
- A Skate park and Teenage Adventure Playground.
- A Multi use games area.
- A dog run.
- A Bowls green.
- Four grass football pitches.
- A viewing platform.
- Tracing of circular archaeological feature through soft landscaping and removal of existing fence.
- Extension of existing reedbed south of Mayne river and creation of new brackish grassland north of Mayne river.
- All landscaping works in the park.
- This new substantial park amenity will be within c. 1 – 5 km of the proposed development
- (and wider Portmarnock lands) once completed.

Permission was granted by An Bord Pleanála on 20 September 2022.

- **Portmarnock South Phase 1E (FCC Reg. Ref. LRD0002/S3)**
  - 195no. residential units consisting of 26no. duplex / apartments and 169no. houses ranging in heights between 1.5 and 3 storeys.
  - Linear public open space along 'Monument View'.
  - A total of 189no. car parking spaces and 1,028no. bicycle parking spaces.
  - Vehicular access to serve the development is proposed off the existing / under construction access points on roads serving the St. Marnock's Bay development.
  - Upgrade of existing temporary foul water pumping station and storage tank to increase capacity.
  - All associated and ancillary site development, infrastructural, landscaping and boundary treatment works.
  - This development also comprised minor amendments to permitted site development works (road design / layout) at Phase 1D (ABP Ref. ABP-312112-21 as amended by FCC Reg. Ref. LRD0037/S3 refers).

  Permission was granted by Fingal County Council on 5 December 2024 subject to 27no. condition

  Construction for this phase of development commenced in December 2024.

- **DART+ Coastal North Railway Order 2024 (ABP-320164-24)**

  Córas Iompair Éireann (CIE) applied to An Bord Pleanála under Section 37(1) of the Transport (Railway Infrastructure) Act 2001 (as amended and substituted) for the DART+ Coastal North Railway Order. The DART+ Coastal North (Northern Line) involving railway improvement works from Connolly Station to Drogheda Station, inclusive of the Howth branch line from Howth Junction Station to Howth Station from East Wall Junction (to the north of Connolly Station) through to Drogheda.

  Case is due to be decided by 3 October 2025.

- **Greater Dublin Drainage Strategic Infrastructure Development (SID) (ABP-312131-21)**

  Irish Water applied to An Bord Pleanála under Section 37E of the Planning and Development Act 2000, as amended for the development of a new wastewater treatment plant, sludge hub centre, orbital sewer, outfall pipeline and regional biosolids storage facility and is referred to as the Greater Dublin Drainage project.

  Part of the route passes through the open space / bird quiet zone south of Phase 1D, 1E and 1F.

  Case is ongoing.

Through distance, subtend angle, VSC, APSH and NSL assessments it is the finding of IN2's analysis that the Proposed Development will have no undue adverse impact on sunlight access within buildings in the Cumulative Development. The potential impact of the Proposed Development on sunlight access within the Cumulative Development surrounding the Site is, therefore, likely to be imperceptible.

11.6 MITIGATION MEASURES (AMELIORATIVE, REMEDIAL OR REDUCTIVE MEASURES)

The subject application proposes the development of a greenfield site zoned for development, within the Development Plan. In these circumstances, during the construction or operational phases scope for mitigation measures, which would preserve a sustainable level of density, is limited.

11.7 RESIDUAL IMPACT OF THE PROPOSED DEVELOPMENT

11.7.1 Proposed Development

11.7.1.1 Construction Stage

As no ameliorative, remedial, or reductive development is proposed, the residual impact of the Proposed Development on sunlight access is predicted to be as described under Section 10.5.1.1 above.

11.7.1.2 Operational Stage

As no ameliorative, remedial, or reductive development is proposed, the residual impact of the Proposed Development on sunlight access is predicted to be as described under Section 10.5.1.2 above.

11.8 MONITORING

Monitoring of avoidance, remedial and mitigation measures is not relevant to the assessment of impacts on sunlight access in the case of the subject application because sunlight access determination is based on set parameters that do not change, namely: the suns annual movement through the sky, the location of the existing buildings, and the location and heights of the proposed buildings.

11.9 REINSTATEMENT

Reinstatement is not relevant to the assessment of impacts on sunlight access in the case of the subject application. It is intended that the Proposed Development will be permanent.

11.10 DIFFICULTIES ENCOUNTERED

It was neither possible nor practical for the Design Team to gain unfettered access to every parcel of private property within the study area surrounding the Site in order to carry out measured building

survey. Therefore, while IN2 have confidence that the three dimensional model used in the assessment of the impact of the proposal on sunlight access achieves a high degree of accuracy.