

Installation of rooftop solar PV and heat pump system at SCD Leisure Clondalkin, Nangor Road, Clondalkin, Dublin 22, D22 E283

Part 8 Planning report



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1. Project Overview

South Dublin County Council propose to undertake works aimed at decarbonising and improving the energy efficiency of the existing electrical and heating system at Clondalkin Leisure Centre (SCD Leisure Clondalkin, Nangor Road, Clondalkin, Dublin 22, D22 E283).

The works to achieve decarbonisation and energy efficiency improvements across the building will include:

- Installation of a rooftop solar PV array, with an estimated area of 1300m², with associated site works.
- Installation of a heat pump system to be located on the split level roof, adjacent to the existing plant room, with associated site works. The heat pump system comprises of 3 No. 128kW Air Source Heat Pumps. A 2m louver fence will be installed around the compound area above the existing parapet, for visual screening.
- Installation of a 1 No. 19kW Air Source Heat Pump on the roof of the building.

These works will be supported by internal building modifications, the majority of which are concentrated in existing mechanical plantrooms.

The proposed project is part of a wider proposal to decarbonise SDCC's buildings with the largest energy consumption and greenhouse emissions. Decarbonising involves the reduction or elimination of carbon emissions from how the building is heated/powered/used. The Baseline Emissions profile published in the SDCC's Climate Action Plan 2024-2029 identified 6 buildings owned by SDCC that are considered significant energy users and have the highest emissions reduction potential. Clondalkin Leisure Centre is one of the 6 critical buildings identified.

To deliver the decarbonisation and energy efficiency of the building, an Energy Performance Contract (EPC) has been procured by SDCC. This contract structure includes the delivery of capital works projects, as set out in this proposal, followed by a services phase during which the Energy Services Company that has installed the measures will be responsible for the efficient operation of the equipment. The structure of the EPC requires that this Energy Services Company guarantees energy savings associated with the energy and carbon saving measures being implemented, and they are incentivised to ensure that these are operated in the most efficient manner possible for the duration of the contract. For the Clondalkin Leisure Centre, the overall capital works projects are estimated to reduce energy consumption in the region of 57% and reduce carbon emissions in the region of 50%.

SDCC have worked closely with SEAI (Sustainable Energy Agency Ireland) to ensure that the project is aligned with overarching national policy and appropriate funding streams, and the project has received support from the SEAI Pathfinder programme. The Pathfinder programme offers support to public sector bodies that are implementing building retrofit and heat decarbonisation projects. The project has been prepared in line with the requirements of the Infrastructure Guidelines and has undergone detailed appraisal of the alignment of the project with the principles of the Infrastructure Guidelines and overarching national policy.

The proposal has undergone Screening for Appropriate Assessment in accordance with Article 6(3) of the Habitats Directive (92/43/EEC) and Screening for Environmental Impact Assessment under the EIA Directive 2011/92/EU, as amended by Directive 2014/52/EU.

In accordance with Article 81 of the Planning & Development Regulations 2001, as amended, the Planning Authority has made a determination and concluded that:

- (a) The proposed development, either individually or in combination with other plans and projects, will not result in likely significant effects on the qualifying interests, special conservations or the conservation objectives of any designated European Site. A Stage 2 Appropriate Assessment is therefore not required.
- (b) The proposed development would not be likely to have significant effects on the environment and that the proposed development is not of a class set out under Schedule 5 of the Planning and Development Regulations 2001, as amended, and therefore the completion of an EIAR is not required.

The authority has also made a determination under Article 6(3) of the Habitats Directive (92/43/EEC) that the proposed development, either individually or in combination with other plans and projects, will not result in likely significant effects on the qualifying interests, special conservations or the conservation objectives of any designated European Site.

Subject to planning approval, it is anticipated that the majority of works installation would occur between September and December of 2026, with some minor works potentially continuing into 2027. Careful planning and consideration have been taken to ensure that disruption to building users is minimised during the installation of these works.

2. Site Description and proposed works

SCC Leisure Clondalkin is located on Nangor Road, Clondalkin. The original building was constructed in 1970 and refurbished in 2007 while the newer building was constructed in 2007. The building has an area of 5,035 m².

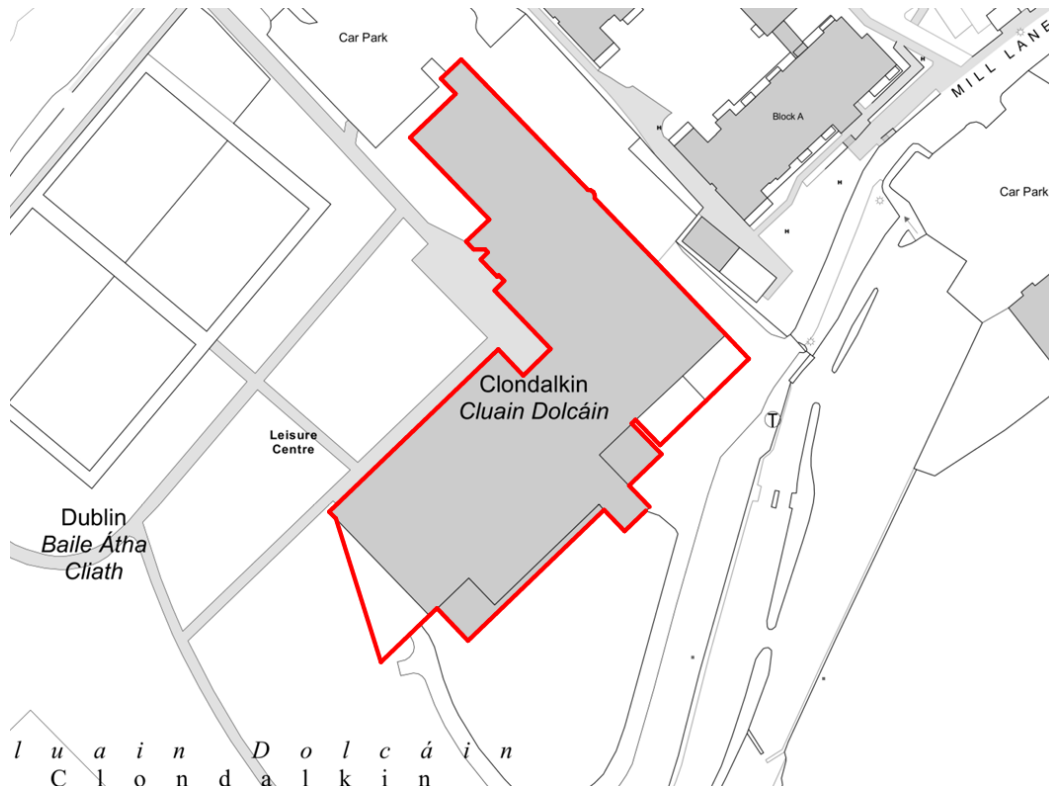


Figure 1: Red line boundary of the building

The buildings contain a dry sports facility, a 25 m x 17 m pool, gym, creche and studios for classes. The building is currently heated by gas boilers, and a major component of the proposed works would be related to upgrading this heating system to incorporate low-carbon heat pump systems.

The proposed works comprise:

- Installation of a rooftop solar PV array, with an estimated area of 1300m², with associated site works.
- Installation of a heat pump system to be located on the split level roof, adjacent to the existing plant room, with associated site works. The heat pump system comprises of 3 No. 128kW Air Source Heat Pumps. A 2m louver fence will be installed around the compound area above the existing parapet, for visual screening.
- Installation of a 1 No. 19kW Air Source Heat Pump on the roof of the building.

The installation of a heat pump system

The building is currently heated by gas boilers, and a major component of the proposed works is to upgrade this heating system to incorporate low-carbon heat pump systems. The upgrade works comprise of 4 No. External Air Source Heat pump units, with the following specification.

Reference	Manufacturer	Model	Dimensions
ASHP 01	Rhoss	WinPACK ECO HT65	L: 3660mm H: 2000mm D: 1520mm
ASHP 02	Rhoss	WinPACK ECO HT65	L: 3660mm H: 2000mm D: 1520mm
ASHP 03	Rhoss	WinPACK ECO HT65	L: 3660mm H: 2000mm D: 1520mm
ASHP 04	Rhoss	MidiPACK-PI	L: 1635mm H: 1670mm D: 600mm

Manufacturer: Rhoss
Family: WinPACK ECO HT65
Model: THAETU 4140 HT65 P1
Webcode: WKE45
Heating Capacity: 128.2kW
SCoP @ 55°C: 3.55
Starting Current: 173.6A
Nominal Current: 81.4A
Electrical Supply: 400-3-50
Dimensions(mm): L: 3660 H: 2000 D: 1520
Empty Weight: 1535kg

Quantities:

- Clondalkin Leisure Centre – 3no.



Figure 2: Specification of the Large 128kW capacity air source heat pump

Manufacturer: Rhoss
Family: MidiPACK-PI
Model: THAITP 135 P10
Webcode: MDI07
Heating Capacity: 22kW
SCoP @ 55°C: 3.78
Max Current: 34.5A
Nominal Current: 24.1A
Electrical Supply: 400-3-50
Dimensions(mm): L: 1635 H: 1670 D: 600
Empty Weight: 365kg

Quantities:

- Clondalkin Leisure Centre – 1no.



Figure 3: Specification of the DHW heat pump

The three large heat pumps are to be installed adjacent to the first floor plantroom, which is accessible from the split level roof. The area is enclosed by an existing 1m parapet at roof level. A 2m louver will be installed around the compound area above the parapet, with an existing railing removed.

The small domestic hot water (DHW) heat pump is to be installed on the roof on the eastern side of the building.

The locations were selected based on proximity to the plant room facilities to minimise heat losses in the system, while limiting impact on the existing facilities and building users.

Details of the Noise Impact Assessment undertaken are included in Section 5 below.



Figure 4: Render of the proposed 3No. 128kW heat pumps to be located on the split-level roof on the western side of the building

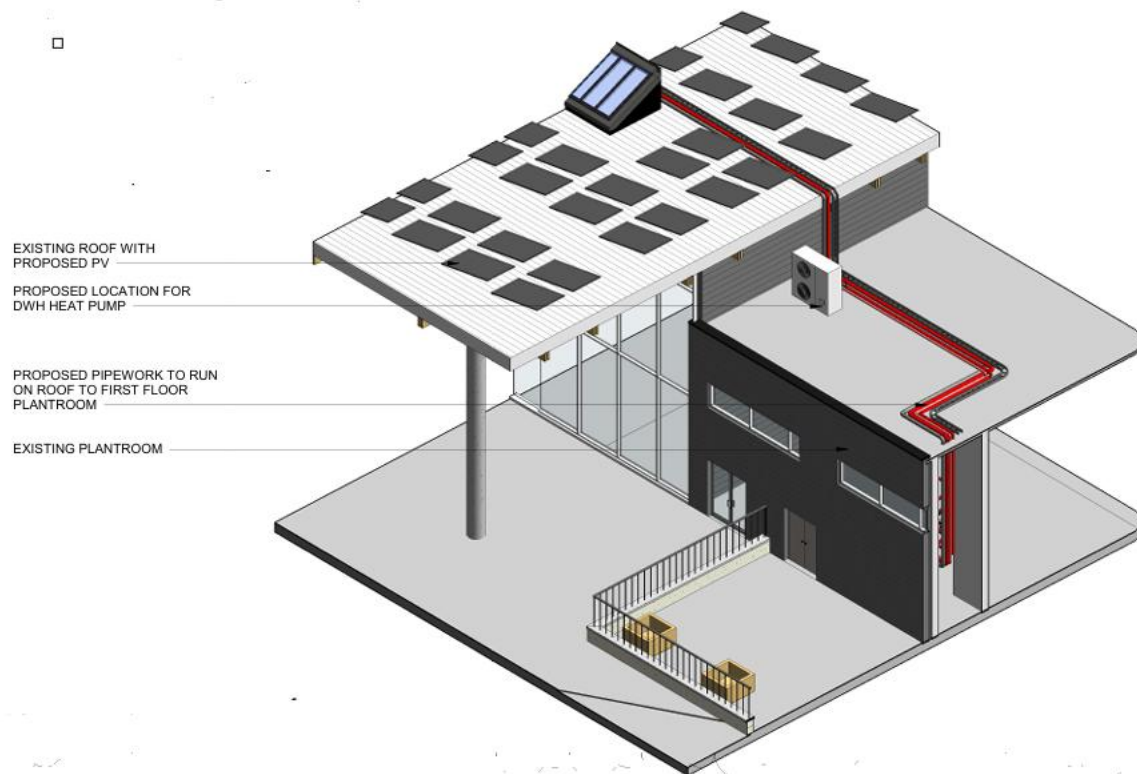


Figure 5: Location of the proposed 1No. DHW heat pump to be located on the roof on the eastern side of the building

The installation of rooftop solar PV array

It is proposed that a large solar PV array will be installed on a significant portion of the roof of the building, as shown in Figure 6 below. This solar PV installation will result in a significant portion of electrical demand of the building being produced on-site, and this will reduce the operational energy costs of the building.

Solar PV array with an estimated area of 1300m² is proposed, with the following specification:

- Deep Blue 3.0 505W MBB Half Cell Module
- Width of panel 1130mm
- Length of panel 2090mm
- Depth 20mm
- Solar panels will remain in fixed position.
- Solar panels will be provided with anti glare coating designed to minimise reflectance effects, as recommended by the Glint and Glare assessment.

The building is located within the Casement Aerodrome Solar Safeguarding Zone, and a Glint & Glare assessment has therefore been carried out to ensure that the proposed array will not have negative impact on sensitive surrounding receptors. Details of the Glint and Glare Assessment undertaken are included in Section 5 below.

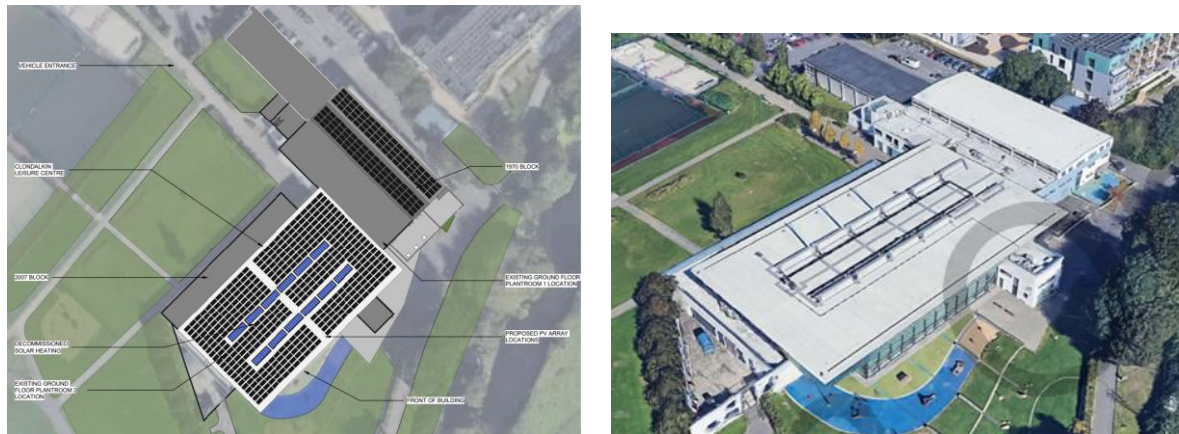


Figure 6: Proposed solar PV array to be installed on the building roof

Energy and Carbon Savings

The works under the Energy Performance Contract are estimated to reduce energy consumption by 57% and carbon emissions by 50%.

This comprises the following estimates:

- Energy Saving of approximately 1,623,000 kWh/year, with associated financial benefit.
- Carbon Emissions Saving of approximately 307,000 kg CO₂ / year.

This installation of a heat pump system, as outlined above, is a necessary part of achieving these potential targets.

3. Project objectives and policy alignment

The Climate Action and Low Carbon Development (Amendment) Act 2021 is driving the requirement for Ireland to achieve a 51% reduction in greenhouse gas emissions by the end of 2030. With the introduction of carbon budgets and sectoral ceilings, as a Local Authority, South Dublin County Council is required to reduce our direct carbon emissions by 51%. SDCC owned buildings account for 45% of the Council's total energy demand and 40% of Council's total emissions.

This project aims to decarbonise and improve the energy efficiency of the Clondalkin Leisure Centre and will significantly contribute towards meeting the targets. The structure of this project is centered around a performance guarantee, which ensures that ongoing operational performance delivers efficiency, as well as ensuring a high-quality service is provided to building users.

This project demonstrates SDCCs commitment to decarbonisation, climate action, and making progress towards achieving the Public Sector Climate Action Mandate. This Public Sector Climate Action Mandate also requires that public bodies, including Local Authorities, take actions to “lead by example” to demonstrate that decarbonisation and energy efficiency are achievable, and worthwhile goals for organisations to pursue.

SDCC have progressed this project in alignment with various relevant Council plans and policies, including;

- South Dublin County Council Corporate Plan 2025-2029
- South Dublin County Council Climate Action Plan 2024 - 2029,
- South Dublin County Council County Development Plan 2022 – 2028

3.1 South Dublin County Council Corporate Plan 2025-2029



Figure 7: The Seven Goals of the SDCC Corporate Plan 2025-2029

The SDCC Corporate Plan identifies “Climate Leadership” as one of the seven Goals of the plan and identifies an objective to *“make South Dublin a low carbon and climate resilient county”*. Each of the seven Goals includes targets and indicators, and these indicators under the “Climate Leadership” Goal include *“Number of retrofit works to improve the energy efficiency of council-owned buildings”*, and the *“% Local authority energy savings”*.

The proposed project directly promotes this goal by demonstrating the Councils commitment to meaningful climate action by decarbonising significant energy and emission producing buildings. The structure of this project ensures progress will be achieved against these indicators as the project includes an energy performance guarantee that ensures ongoing maintenance and performance are a central aspect of the project. This will ensure that the anticipated reductions in operational energy costs continue for the life of the project and protects against the “rebound effect” that is often seen in energy retrofit projects. This rebound effect occurs when energy savings from efficiency measures are negated over time

as occupants use more energy than required to maintain a comfortable environment, and this negatively impacts energy and financial savings.

The SDCC Corporate Plan also identifies creating “*A Better Place*” that will “*Deliver the infrastructure and facilities required to serve our growing population*” as a key Goal of the plan. The proposed project delivers on this goal by contributing to the modernisation and upgrading of existing buildings to contribute to the ongoing to ensure continued delivery of high-quality public and community facilities.

3.2 South Dublin County Council Climate Action Plan 2024 – 2029

The SDCC Climate Action Plan sets out a range of actions across the six theme areas of Energy & Buildings, Transport, Flood Resilience, Nature Based Solutions, Circular Economy & Resource Management and Citizen Engagement, and these areas are aligned to national climate policy to deliver the transition to a climate resilient and sustainable economy.

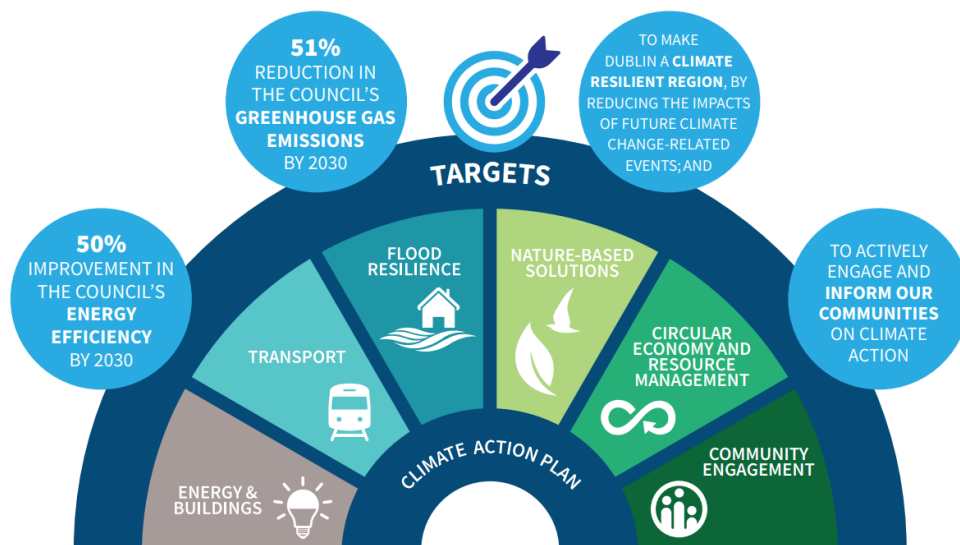


Figure 8: The six action areas of the SDCC Climate Action Plan 2024-2029

Action E8 of the CAP specifically identifies the progression of this project as part of a wider Energy Performance Contract as an action required in order to improve energy efficiency and reduce carbon emissions in SDCC buildings as outlined below. The SDCC Climate Action Plan identifies Clondalkin Leisure Centre as one of “the most crucial buildings” to implement renewable energy projects at in order to meet the 2030 climate action targets that apply to South Dublin County Council

Improve Energy Efficiency and reduce Carbon Emissions in SDCC Buildings							
E8	Progress Energy Performance Contracts (EPC) to deliver energy efficiency targets for SDCC owned buildings with significant energy usage, including the Leisure Centres, County Hall and Library, and Clondalkin Civic Offices.	EPC awarded; Measurement and verification of savings	Planned Commencement: Ongoing. Duration: until 2029.	Mitigation	Full Accountability	EWCC - Climate Action, Energy	CODEMA, Housing, Social and Community Development (HSCD); Corporate Performance and Change Management (CPCM); Leisure Centre Management

Figure 9: Extract of action E8 of the SDCC Climate Action Plan regarding the delivery of an Energy Performance contract

Action E15 of the CAP outlines the intention to install solar PV arrays on council-owned buildings, and this project will deliver on this action as solar PV is included in this proposal. The installation of this solar PV, along with efficiency gain across the building, will result in significant carbon, as well as annual bill savings due to reduced electricity imports at the building.

3.3 South Dublin County Council County Development Plan 2022 – 2028

Chapter 10 of the SDCC County Development Plan on Energy outlines a vision to “*Deliver a green society and circular economy adaptable to new technologies, a home and place of employment for people and industries striving towards reducing their carbon footprint*”. The plan outlines various policies and objectives to support the decarbonisation and optimisation of energy performance in both new and existing buildings across the County.

Objective 3 of Policy E7 specifically outlines support for the installation of solar PV on council-owned buildings, as will be delivered in this project.

E7 Objective 3:

To support and encourage the ongoing delivery of solar technology on Council owned buildings and sites in accordance with the South Dublin Climate Action Plan.



Figure 10: Extract of Policy E7, Objective 3 of the SDCC County Development Plan supporting the installation of solar PV on council buildings

4. Environmental Impact Assessment and Appropriate Assessment

Summary of findings

The proposal has undergone Screening for Appropriate Assessment in accordance with Article 6(3) of the Habitats Directive (92/43/EEC) and Screening for Environmental Impact Assessment under the EIA Directive 2011/92/EU, as amended by Directive 2014/52/EU.

In accordance with Article 81 of the Planning & Development Regulations 2001, as amended, the Planning Authority has made a determination and concluded that:

- (a) The proposed development, either individually or in combination with other plans and projects, will not result in likely significant effects on the qualifying interests, special conservations or the conservation objectives of any designated European Site. A Stage 2 Appropriate Assessment is therefore not required.
- (b) The proposed development would not be likely to have significant effects on the environment and that the proposed development is not of a class set out under Schedule 5 of the Planning and Development Regulations 2001, as amended, and therefore the completion of an EIAR is not required.

The authority has also made a determination under Article 6(3) of the Habitats Directive (92/43/EEC) that the proposed development, either individually or in combination with other plans and projects, will not result in likely significant effects on the qualifying interests, special conservations or the conservation objectives of any designated European Site.

Full details can be found in the reports:

- ‘Report to Inform EIA Screening for Proposed Energy Works at SCD Leisure Clondalkin, Nangor Road, Clondalkin, Dublin 22’ (P26147-FT-ENG-XX-RP-EN-0002)
- ‘Report to Inform Appropriate Assessment Screening for Proposed Energy Works SCD Leisure Clondalkin, Nangor Road, Clondalkin, Dublin 22’ (P26147-FT-ENG-XX-RP-EN-0008)

5. Impact Assessments

5.1 Noise Impact Assessment

A Noise Impact Assessment has been prepared to examine any potential impact of operational noise from proposed heat pumps on the surrounding buildings, residential units, or users of the building, for both daytime and night time operational noise levels.

A baseline noise survey was undertaken to measure the existing noise levels in the area. A noise model of the proposed site was developed to predict the noise levels from the proposed 4 No. heat pumps to ensure any noise emitted from the system when operating does not cause nuisance to surrounding building users. This was undertaken in line with BS 4142 Guidance.

The BS4142 Assessment indicates that there will be a low impact on all noise sensitive receptors during the daytime and night time periods.

- The Daytime assessment indicates that there is likely a low impact on the noise sensitive locations as the specific sound is 5dB below the background levels and is lower than the residual sound. Context has also been considered.
- The Night-time assessment indicates that there is likely a low impact on the noise sensitive locations as the specific sound is 2dB below the background levels and is lower than the residual sound. Context has also been considered.

SDC2401-ALT-TLC-XX-RP-Z-80011 Noise Impact Assessment Report is included with the Part 8 application for detailed information on the assessment.

5.2 Glint and Glare Assessment for Solar PV

A Glint and Glare Assessment was carried out by Macro Works Ltd to determine the potential for solar reflectance effects upon aviation receptors in respect of proposed roof-mounted solar PV installations on the roof the existing Tallaght Leisure Centre Complex. Macro Works' relevant experience includes twenty years of analysing the visual effects of a wide range of infrastructural and commercial development types. This experience includes numerous domestic and international wind and solar energy developments.

The Planning Development (Solar Safeguarding Zone) Regulations 2022 identify Casement Aerodrome as requiring solar safeguarding zones. Casement Aerodrome is located approximately 3.2km southwest of the proposed development and comprises 2 runways and an Air Traffic Control Tower (ATCT), as shown in Figure 11 below.

With regard to aviation receptors, the SGHAT assessment returned a 'Pass' result for runway approach paths associated with both the Casement Aerodrome. In

relation to the ATCT, the assessment returned a ‘Fail’ result for Casement Aerodrome, with the results showing a theoretical potential for Green Glare for a total of 27 minutes over the course of a year. A subsequent visibility analysis confirmed the potential for visibility of the Panel Array PA1 at Casement ATCT.

Notwithstanding this finding, the report outlined a number of mitigating factors are relevant to the assessment of potential glint and glare effects:

- Commitment for the inclusion of the use of anti reflective coating designed to minimise reflectance effects (less than 3% reflectance)
- the distance from the ATCT to the proposed development and the numerous existing structures within the surrounding and intervening landscape that already emit similar or greater levels of reflectance, forming part of the established visual environment.

It is noted by Macroworks that the potential reflectance period relates to a total of 27 minutes per year. In this regard, the potential for the ATCT to experience any reflectance emanating from the proposed rooftop array is extremely limited.

SDC2401-ALT-CLC-XX- RP-Z-80013 Aviation Glint and Glare Assessment is included with this Part 8 application for detailed information on the assessment.

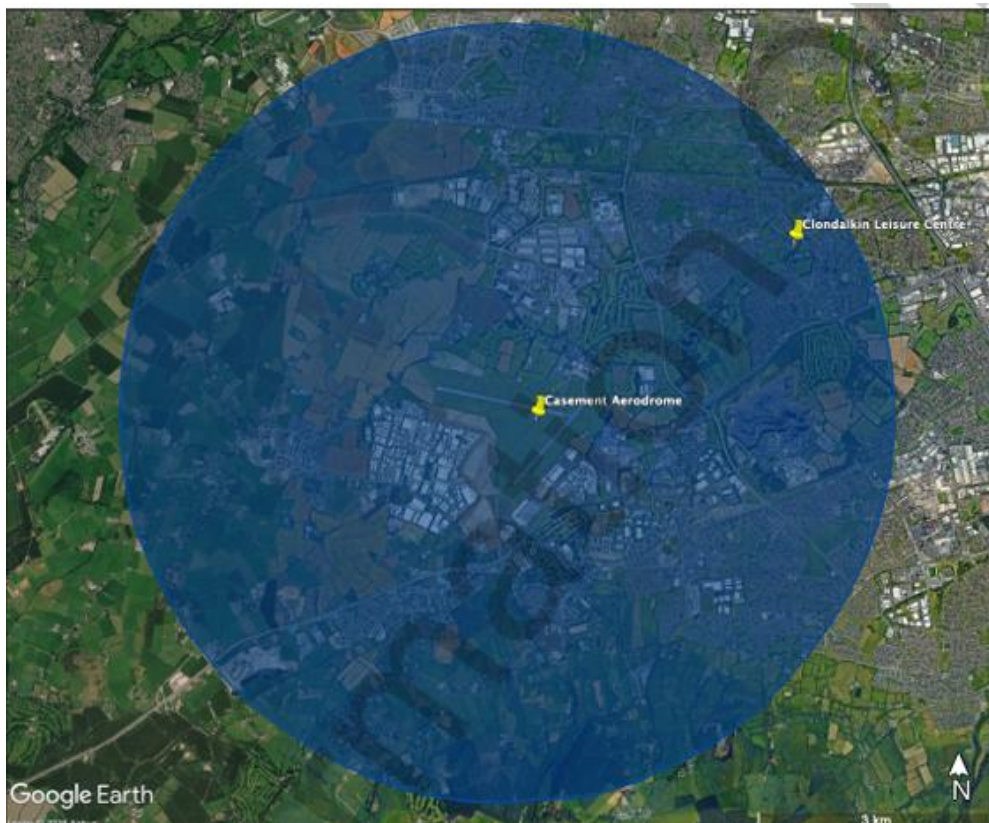


Figure 11: Map of Clondalkin Leisure Centre within Casement Aerodrome Solar Safeguarding Zone

6. Construction phase plan and potential disruption

The contract to carry out the proposed works has been awarded to Alternative Heat Ltd, and the project team has carried out a detailed risk assessment of the building specific risks that apply to the proposed works at Clondalkin Leisure Centre.

Mitigation measures have been put in place for each of the risks identified, and these measures are reflected in the Health and Safety Plan prepared by Alternative Heat Ltd. A summary of the main risks during the construction phase that have been identified and mitigation measures that have been put in place are outlined below.

Risk identified	Mitigation measures in place
Public safety risks from high pedestrian activity near council services, car parks, shops, public transport links and nearby facilities	Secure hoarding and fencing, clear warning signs, directional pedestrian signage, and a clean, organised site.
Traffic disruption and congestion affecting roads, car parks, staff, visitors and service users	Construction Traffic Management Plan, off-peak deliveries and heavy vehicle movements, alternative parking options, and maintained access routes.
Temporary restricted access to the leisure centre and disruption to services.	Careful access planning, clear signage, communication with council staff and service users, and regular updates on planned works and timelines.
Noise and vibration affecting nearby residential areas, schools, offices, businesses and leisure centre operations.	Low-noise machinery, vibration-controlled equipment, restricted hours for high-noise activities, advance notice to affected parties, and regular noise/vibration monitoring.
Dust and air quality issues	Water suppression, dust extraction systems, covered skips and loose materials, regular cleaning of access roads, air quality monitoring, and corrective action where limits are exceeded
Emergency access restrictions for the leisure centre and surrounding facilities	Emergency routes and hydrants kept clear and signposted, staff briefed on emergency procedures, and coordination with emergency services during works
Construction waste and debris causing pedestrian hazards, environmental damage or visual pollution	Waste segregation, safe storage and disposal, use of licensed waste carriers, regular waste removal, and maintaining a tidy site

Weather-related delays and hazards such as slippery surfaces, flooding or unsafe materials during windy conditions	Materials and equipment secured, anti-slip surfaces used, drainage provided to prevent pooling, and weather delays built into the project timeline
Reputational and community impact from poor communication or mismanagement of disruption	Regular communication with council staff, residents and businesses, clear timelines, public updates, and visible site contact information
Security and emergency preparedness risks due to high daily footfall and continuous public activity	Coordinated response planning, clear site controls, emergency access planning, and staff briefings

7. Timeline for implementation

It is anticipated that works will commence between September and December 2026, with some minor works potentially continuing into 2027. Disruption to building users during this period should be minimal as the majority of works will be concentrated in existing plantrooms, and outdoor areas. Where there is potential for disruptive levels of noise relating to the works, this will be communicated to building and facilities managers to ensure that works can be scheduled at times that minimise disruption to building users.

8. Schedule of Associated Drawings and Reports

Drawing Number	Drawing Title	Scale	Version
SDC2401-ALT-CLC-XX-PL-U-00006	Site Location Plan	1:1000	P02
SDC2401-ALT-CLC-XX-PL-U-00001	Clondalkin Leisure Centre Site Plan	1:500	P03
SDC2401-ALT-CLC-XX-PL-U-00002	Clondalkin Leisure Centre – ASHP Compound General Arrangement Plan	1:100 at A1	P03
SDC2401-ALT-CLC-XX-PL-U-00003	Clondalkin Leisure Centre – ASHP Compound Renders	1:1 at A1	P03
SDC2401-ALT-CLC-XX-PL-U-00005	Clonkalkin Leisure Centre – Solar PV Site Plan	1:500	P03
SDC2401-ALT-CLC-XX-RP-Z-80011	Noise Impact Assessment Report		P02

SDC2401-ALT-CLC-XX-RP-Z-80013	Glnt and Glare Assessment Report		P02
P26147-FT-ENG-XX-RP-EN-0002	Report to Inform EIA Screening for Proposed Energy Works at SCD Leisure Clondalkin, Nangor Road, Clondalkin, Dublin 22'		Rev 1
P26147-FT-ENG-XX-RP-EN-0008	Report to Inform Appropriate Assessment Screening for Proposed Energy Works SCD Leisure Clondalkin, Nangor Road, Clondalkin, Dublin 22'		Rev 1