

## 21 SUMMARY OF MITIGATION MEASURES

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## 21.1 Introduction

This chapter was prepared Brock McClure Planning Consultants. This chapter provides a summary of mitigation measures proposed in Chapters 5 to 18. The appointed contractor will be required to adhere to the mitigation contained in the EIAR for the protection of the environment and to ensure sustainable development.

## 21.2 Mitigation Strategies

There are three established strategies for impact mitigation - avoidance, reduction and remedy. The efficacy of each is directly dependent on the stage in the design process at which environmental considerations are taken into account (i.e. impact avoidance can only be considered at the earliest stage, while remedy may be the only option available to fully designed projects).

### Avoidance

Avoidance is generally the fastest, cheapest and most effective form of impact mitigation. Environmental effects and consideration of alternatives have been taken into account at the earliest stage in the project design processes.

### Reduction

This is a common strategy for dealing with effects which cannot be avoided. It concentrates on the emissions and effects and seeks to limit the exposure of the receptor. It is generally regarded as the "end of pipe" approach because it does not seek to affect the source of the problems (as do avoidance strategies above). As such this is regarded as a less sustainable, though still effective, approach.

### Reducing the Effect

This strategy seeks to intercept emissions, effects and wastes before they enter the environment. It monitors and controls them so that acceptable standards are not exceeded. Examples include wastewater treatment, filtration of air emissions and noise attenuation measures.

### Reducing Exposure to the Impact

This strategy is used for impacts which occur over an extensive and undefined area. Such impacts may include noise, visual impacts or exposure to hazard. The mitigation is effected by installing barriers between the location(s) of likely receptors and source of the impact (e.g. sound barriers, tree screens or security fences).

### Mitigation by Remedy

This is a strategy used for dealing with residual impacts which cannot be prevented from entering the environment and causing adverse effects. Remedy serves to improve adverse conditions which exist by carrying out further works which seek to restore the environment to an approximation of its previous condition or a new equilibrium.

## 21.3 Population and Human Health

### Construction Stage

A bespoke and detailed Construction Environmental Management Plan (CEMP) has been prepared by AWN Consultants. The main purpose of a CEMP is to provide a mechanism for implementation of the various mitigation measures which are described in chapter 20 of the EIAR. The purpose of this report

is to summarise the possible impacts and measures to be implemented and to guide the Contractor who will be required to develop and implement the CEMP on site.

All personnel will be required to understand and implement the requirements of the CEMP and shall be required to comply with all legal requirements and best practice guidance for construction sites.

Project supervisors for the construction phase will be appointed in accordance with the Health, Safety and Welfare at Work (Construction Regulations) 2013, and a Preliminary Health and Safety Plan will be formulated during the detailed design stage which will address health and safety issues from the design stages, through to the completion of the construction phases.

Adherence to the construction phase mitigation measures presented in this EIAR will ensure that the construction of the proposed development will have an imperceptible and neutral impact in terms of health and safety.

### **Operational Stage**

The proposed development has been designed to avoid negative impacts on population and human health through:

1. The inclusion of a childcare facility within the proposed development;
2. Landscaping to mitigate against issues arising from microclimate conditions;
3. The inclusion of a comprehensive foul and surface water management system;
4. Mitigation measures are included, where relevant, to ensure the proposed development is constructed and operated in an environmentally sustainable manner in order to ensure minimal impact on the receiving environment.
5. Road Safety Audit prepared having regard to Design Manual for Urban Roads (DMURS) during its design,
6. Energy efficient measures; and,
7. High quality finishes and materials.

### **Monitoring**

Measures to avoid negative impacts on Population and Human Health are largely integrated in to the design and layout of the proposed development. Compliance with the design and layout will be a condition of any permitted development.

1. Monitoring will be undertaken by the Building Regulations certification process and by the requirements of specific conditions of a planning permission.
2. Monitoring of compliance with Health & Safety requirements will be undertaken by the Project Supervisor for the Construction Process.

## **21.4 Biodiversity**

The principal mitigation that should be considered in any development is avoidance of impact. Detailed consideration was therefore given by the design team to avoid direct or indirect impacts on the boundary.

### **Construction Stage**

#### **Mitigation Measures for Bats**

The following mitigation measures are proposed to ensure compliance with legislation within the Wildlife Acts 1976-2012, which protects bats and their roosts, during construction:

1. Alhambra house is a roost of at least three pipistrelles and a derogation has been secured for its removal from the NPWS of the Department of Housing, Local Government and Heritage. This licence must be updated to allow demolition to proceed. Dalwhinnie house was noted to be a roost to at least one pipistrelle bat. This building has secured a derogation to permit any work that would place the bats or their roost at risk. These house must be checked for bats prior to demolition, and an exclusion carried out if necessary. Roof tiles and ridge tiles must be removed by hand. The demolition must be supervised by an ecologist. St. Joseph's is a roost to a minimum of one Leisler's bat as noted on 18<sup>th</sup> April 2021. This building shall require a derogation to permit any work that would affect the roof level and place bats or their roost site at risk. The Derogation was approved on 6<sup>th</sup> May 2021. In addition, no work can take place on the house from May to September as bats may be breeding.
2. All buildings shall be surveyed for bats prior to demolition. In the eventuality of bats being noted or where the survey is inconclusive, a derogation shall be secured from NPWS by a suitably qualified ecologist and the conditions stipulated within the licence must be implemented. If bats are discovered at any stage of the development, building work must cease and the bat specialist and the NPWS Conservation Ranger must be contacted.
3. All trees shall be evaluated by a bat specialist prior to felling. Where trees with roost potential are identified, these must be examined in a manner sufficient to rule out bat usage. In the winter, this is only possible where a tree can be fully accessed by a bat specialist to examine all suitable crevices and cavities with a fibrescope. In the active periods of the year, a bat detector survey may be sufficient to identify roost trees and rule out unused trees. Where there is any doubt regarding the presence of bats within any tree or trees, an inspection of the trees from height access shall be undertaken by a bat specialist.

In the eventuality of bats being noted or where the survey is inconclusive, a derogation shall be secured from NPWS by a suitably qualified ecologist and the conditions stipulated within the licence must be implemented. If bats are discovered at any stage of tree felling, all felling or tree surgery must cease and the bat specialist and the NPWS Conservation Ranger must be contacted. The tree in question shall require a derogation from NPWS to allow felling and all mitigation agreed with NPWS shall be implemented.

#### Mitigation Measures for Birds

1. All trees shall be felled outside of the nesting season (March 1<sup>st</sup> to August 31<sup>st</sup>) unless it has been satisfied beyond question that there are no birds nesting within them by a suitably qualified ecologist. To ensure that bats are given adequate consideration, felling should avoid the period November to March unless it is possible for a bat specialist to examine all cavities and crevices prior to any felling or major surgery.
2. The design of the proposed development has not included features that would increase the risk of attracting and disorienting birds flying overhead. The lighting is low-level and directional and the materials used in the tall structures do not present the glass-wall high-reflective finish that has been shown to increase collision risk for certain bird species. Given the location and scale of the development and the nature of the receiving environment there is no obvious concern in relation to bird collision risk at the proposed development site.

#### Mitigation Measures for planting of native species

1. Native species shall be incorporated into the planting regime, such as hawthorn, guelder rose, honeysuckle, oak, elder etc. Bats will suffer a loss of feeding through a decline in insect abundance and availability. Where other climbers and shrubs are required, they should be taken from the approved list from the All-Ireland Pollinator Plan - <http://www.biodiversityireland.ie/wordpress/wp-content/uploads/Pollinator-friendly-planting-code-temporary-draft.pdf>. In addition, Hedgerows containing both medium and large trees should be planted within the new development.
2. The timing of tree and shrub removal within the site shall be staged to ensure that vegetation remains present to provide cover such as wind shelter and light blocking to allow bats to commute and insects to cluster and provide food for bats and birds as well as a substrate on which insects may breed. While species such as leylandii and cherry laurel are limited in their value overall, they do provide good cover throughout the year from wind and driven rain and serve as a shelter for insects and bats on inclement nights. Their retention can be of some benefit in providing valuable

cover to overwintering birds and may be used by starlings or thrush species. Given that they are present and mature within the site, it would be beneficial if they are removed in phases rather than immediately early into clearance procedures.

#### Mitigation Measures for other planting and treeline issues

1. The timing of tree and shrub removal shall be stages to ensure vegetation remains present to provide cover such as wind shelter and light blocking to allow bats to commute and insects to cluster and provide food for bats and birds as well as a substrate on which insects may breed.

### **Operational Phase**

#### Mitigation Measures for Bats

The following mitigation measures are proposed with regards the operation of the proposed development:

1. Five 2F and four 1MF swift and bat boxes shall be incorporated into the gables facing the tree protection zones within the proposed apartment blocks. They must be placed in a dark area. Monitoring of the attached bat boxes (not inbuilt 1MF boxes) shall take place within a year of the development being built, and the location of the bat boxes shall be changed if they are unused and their site is unsuitable.
2. Bats will suffer a loss of feeding through a decline in insect abundance and availability. Native shrubs and trees must be used within the new development. Where other climbers and shrubs are required, they should be taken from the approved list from the All-Ireland Pollinator Plan - <http://www.biodiversityireland.ie/wordpress/wp-content/uploads/Pollinator-friendly-planting-code-temporary-draft.pdf>
3. A "dark sky area" must be designated within the development to provide commuting and feeding corridors, and light spillage and pollution must be kept to a minimum with the use of cowls, caps, and low-level bollard lighting where possible. See Chapter 6 Biodiversity prepared by Brian Keeley for mitigation measure for lighting design.

#### Mitigation Measures for Breeding Birds

The following mitigation measure is proposed to provide additional nesting opportunities to local populations of breeding birds, to compensate for the removal of substantial amounts of vegetation from the proposed development site:

1. 10 no. bird boxes of varying designs are proposed for incorporation into the site to provide alternative nest sites for birds. These may be provided in green areas and gardens throughout the site. Boxes should not face south to ensure that eggs and the brooding females do not become overexposed to heat. Boxes must be in areas with cover or where cover will grow around the boxes to shield them from predators.

#### Mitigation Measures for Habitats (Invasive Species)

The proposed planting mixes have been reviewed by a competent ecologist to ensure that no species listed on the above references are included in the planting proposals. No mitigation measures are required for the operation of the proposed development.

### **Monitoring**

#### Construction Phase

1. Demolition of the houses Alhambra and Dalwhinnie, as well as roof works on the St. Joseph's house must be supervised by an ecologist.
2. All buildings shall be surveyed for bats prior to demolition. In the eventuality of bats being noted or where the survey is inconclusive, a derogation shall be secured from NPWS by a suitably qualified ecologist and the conditions stipulated within the licence must be implemented. If bats are discovered at any stage of the development, building work must cease and the bat specialist and the NPWS Conservation Ranger must be contacted.

3. All trees shall be evaluated by a bat specialist prior to felling. Where trees with roost potential are identified, these must be examined in a manner sufficient to rule out bat usage.
4. All equipment shall be checked and washed before introduction to the site to avoid introduction of alien invasive plant species.

### **Operational Phase**

1. All buildings shall be monitored on a regular basis to see if the lighting of the development is affecting birds and bats. Any bird collisions with buildings shall be monitored.
2. Bat and bird boxes shall be monitored on a regular basis if they are used by birds and bats, and the location of the bird and bat boxes shall be changed if they are unused and their site is unsuitable.

## **21.5 Land and Soils**

### **Construction Stage**

The following mitigation measures as set out in the CEMP Report will be taken at the construction site in order to prevent any spillages to ground of fuels and prevent any resulting soil and/or groundwater quality impacts:

1. Designation of bunded refuelling areas on the site (if required).
2. Provision of spill kit facilities across the site.
3. Where mobile fuel bowsers are used the following measures will be taken.
4. Any flexible pipe, pump, tap or valve will be fitted with a lock and will be secured when not in use.
5. All bowsers to carry a spill kit and operatives must have spill response training; and
6. Portable generators or similar fuel containing equipment will be placed on suitable drip trays.

In the case of drummed fuel or other potentially polluting substances which may be used during construction the following measures will be adopted:

1. Secure storage of all containers that contain potential polluting substances in a dedicated internally bunded chemical storage cabinet unit or inside concrete bunded areas;
2. Clear labelling of containers so that appropriate remedial measures can be taken in the event of a spillage;
3. All drums to be quality approved and manufactured to a recognised standard;
4. If drums are to be moved around the site, they should be done so secured and on spill pallets; and
5. Drums to be loaded and unloaded by competent and trained personnel using appropriate equipment.

### **Operational Stage**

During the operational phase of the proposed development there is limited potential for site activities to impact on the geological environment of the area.

1. Following best practice, the potential for the ground water to become polluted via oil spills will be reduced as far as is practical using an oil separator to take run off from carparking areas and passing through same prior to disposal.

### **Monitoring**

#### **Construction Stage**

1. Adherence to the "Construction & Environmental Management Plan (CEMP)". The developer will be responsible for ensuring adherence with this report. If construction works are not in accordance with the plan, then the developer will ensure that this is remedied.
2. Construction monitoring of the works (e.g. inspection of existing ground conditions on completion of cut to road sub-formation level in advance of placing capping material, stability of excavations etc.).
3. Inspection of fuel / oil storage areas. If these are found to be sub-standard then the developer will ensure that they are made fit for purpose.
4. Monitoring cleanliness of adjacent road network, implementation of dust suppression and provision of vehicle wheel wash facilities. If these measures are found to be inadequate and the adjacent road network is negatively impacted, the developer will ensure that this is remedied and will ensure that dust suppression measures are implemented more regularly and all vehicles exiting the site use vehicle wheel wash facilities provided.
5. Monitoring of contractor's stockpile management (e.g. protection of excavated material to be reused as fill; protection of soils from contamination for removal from site).
6. Monitoring sediment control measures (sediment retention ponds, surface water inlet protection etc.). The developer is responsible for ensuring that these measures are fit for purpose. If they are found to be inadequate, then the development will ensure that they are made good and fully utilised.
7. Soil removed during the construction phase will be monitored to maximise potential for re-use on site.
8. The quantities of topsoil, subsoil and rock removed off site will be recorded.

### **Operational Stage**

Proposed monitoring during the operational phase in relation to the water and hydrogeological environment are as follows:

1. A management company on site will ensure the system is regularly inspected and maintained. Areas of the site with significant SuDS features will remain in the charge of this company.
2. The performance of all SuDS features will be monitored by the management company during the life of the development.
3. Monitoring of the installed gullies will be required to prevent contamination and increased runoff from the site.

## **21.6 Water**

### **Construction Stage**

In order to minimise the potential impact of the construction phase of the proposed development on the surrounding surface water and groundwater environs, the following construction stage mitigation measures are to be included in the plan and be implemented in full.

1. Any excess surface water on site to be discharged to the ground via soakaways or discharged to the network system.
2. Designated impermeable cement washout areas must be provided.
3. Any *in-situ* concrete work to be lined and areas bunded (where possible) to stop any accidental spillage.
4. Any spoil or waste material generated from the construction process is to be temporarily stored at an approved location on site, before being removed to an accepting licensed waste disposal facility.

5. All new infrastructure is to be installed and constructed to the relevant codes of practice and guidelines.
6. All surface water infrastructure is to be pressure tested by an approved method during the construction phase and prior to connection to the public networks, all in accordance with Local Authority Requirements.
7. Connections to the public network are to be carried out to the approval and / or under the supervision of the Local Authority prior to commissioning.
8. All new drains are to be inspected by CCTV survey post construction; to identify any possible physical defects for rectification prior to operational phase. All new water mains to be tested and sterilised in accordance with Irish Water requirements.
9. Care will be required for the environmental management of the site to ensure that no potential contamination issues are experienced which may impact on the overall surface water quality.
10. The construction of the development will be carried out in accordance with the Construction and Environmental Management Plan in order to prevent accidental onsite oil spillages and the regular maintenance of onsite plant to eliminate potential risks. A Construction & Environmental Management Plan (CEMP) is submitted with this planning application.
11. Implement best practice construction methods and practices complying with relevant legislation to avoid or reduce the risk of contamination of watercourses or groundwater.
12. The CEMP, incorporating the measures in the EIAR, will be developed, and implemented during the construction phase. Site inductions will include reference to the procedures and best practice as outlined.
13. Surface water runoff from areas stripped of topsoil and surface water collected in excavations will be directed to on-site settlement ponds where measures will be implemented to capture and filter sediment laden runoff prior to, as approved, discharge to a temporary soakaway or the surface water sewer system network.
14. Weather conditions and seasonal weather variations will also be taken account of when planning stripping of topsoil and excavations, with an objective of minimizing soil erosion.
15. The extent of sub-soil and topsoil stripping to be minimised to reduce the rate and volume of the run-off during construction until the topsoil and vegetation are replaced.
16. Concrete batching will take place off site or in a designated area with an impermeable surface.
17. Concrete wash down and wash out of concrete trucks will take place off site or in an appropriate facility.
18. Discharge from any vehicle wheel wash areas is to be directed to on-site settlement ponds/soakaways.
19. Oil and fuel stored on site for construction should be stored in designated areas. These areas shall be bunded and should be located away from surface water drainage and features.
20. Refuelling of construction machinery shall be undertaken in designated areas away from surface water drainage to minimise potential contamination of the water environment. Spill kits shall be kept in these areas in the event of spillages.
21. Hazardous construction materials shall be stored appropriately to prevent contamination of watercourses or groundwater.
22. Spill kits should be kept in designated areas for re-fuelling of construction machinery.
23. Dewatering measures should only be employed where necessary.

### **Operational Stage**

Sustainable Urban Drainage Systems (SuDS) will be incorporated fully into the development, in order to improve the quality of the surface water discharging from site and reduce the runoff volume and



rate. The surface water drainage design, for this development, was designed in accordance with the Local Authority requirements. All SuDS measures will be provided in accordance with the Greater Dublin Strategic Drainage Study Regional Drainage Policy Volume 2 - New Development (GDSDS-RDP Volume 2). Specific design requirements for SuDS systems are established by the Construction Industry Research and Information Association's publication CIRIA C753 – The SuDS Manual.

The following measures will be employed:

1. Surface water runoff from the development will be collected by an appropriately designed system with contaminants removed prior to discharge via SuDS measures and a petrol interceptor.
2. Foul water will be drained to a fully separate system.
3. A regular maintenance and inspection programme of the flow control devices, soakaway storage facilities, gullies and petrol interceptor will be implemented during the Operational Phase to ensure the proper working of the development's networks and discharges.
4. Operational refuse will be removed from site using licenced waste management contractors.

### **Monitoring**

#### **Construction Stage**

Proposed monitoring during the construction phase in relation to the water and hydrogeological environment are as follows:

1. Adherence to the 'Construction and Environmental Management Plan'. If construction works are found to be not in accordance with the plan, then the developer will ensure that measures are put in place to ensure compliance.
2. Monitoring cleanliness of adjacent road network, implementation of dust suppression and vehicle wheel wash facilities. If these measures are found to be inadequate or inadequately implemented, then the developer will ensure that measures are put in place to remedy this.
3. Monitoring of run-off from the site including pumping / dewatering. If these measures are found to be inadequate or inadequately implemented, then the developer will ensure that measures are put in place to remedy this.
4. Monitoring sediment control measures (sediment retention ponds, surface water inlet protection etc.) If these measures are found to be inadequate or inadequately implemented, then the developer will ensure that measures are put in place to remedy this.
5. Monitoring of discharge from sediment retention ponds (e.g. pH, sediment content). If these measures are found to be inadequate or inadequately implemented, then the developer will ensure that measures are put in place to remedy this.
6. A dust management programme will be implemented during the construction phase of the development. If these measures are found to be inadequate or inadequately implemented, then the developer will ensure that measures are put in place to remedy this.

#### **Operational Stage**

1. A management company on site will ensure the system is regularly inspected and maintained. Areas of the site with significant SuDS features will remain in the charge of this company.
2. The performance of all SuDS features will be monitored by the management company during the life of the development.
3. Monitoring of the installed gullies will be required to prevent contamination and increased runoff from the site.

## 21.7 Noise & Vibration

### Construction Phase

With regard to construction activities, best practice control measures for noise and vibration from construction sites are found within BS 5228 (2009 +A1 2014) *Code of Practice for Noise and Vibration Control on Construction and Open Sites Parts 1 and 2*. Predictions indicate that significant construction noise impacts are expected to occur when work is ongoing at boundary locations adjacent to noise sensitive locations, hence the contractor will ensure that all best practice noise and vibration control methods will be used. In this regard, various mitigation measures can be considered and applied during the construction of the proposed development, such as:

1. Limiting the hours during which site activities likely to create high levels of noise or vibration are permitted;
2. Establishing channels of communication between the contractor/developer, Local Authority and residents;
3. Appointing a site representative responsible for matters relating to noise and vibration;
4. monitoring typical levels of noise and vibration during critical periods and at sensitive locations;
5. All site access roads will be kept even so as to mitigate the potential for vibration from lorries.

Furthermore, it is envisaged that a variety of practicable noise and vibration control measures will be employed. These may include:

1. No blasting is to occur;
2. Selection of plant with low inherent potential for generation of noise and/ or vibration;
3. Solid site hoarding is to be provided which will act as a noise barrier;
4. Erection of barriers as necessary around noisy processes and items such as generators, rock breaker, heavy mechanical plant or high duty compressors;
5. Placing of noisy / vibratory plant as far away from sensitive properties as permitted by site constraints and the use of vibration isolated support structures where necessary.

### Operational Stage - Inward Noise Impact

As is the case in most buildings, the glazed elements and ventilation paths of the building envelope are typically the weakest element from a sound insulation perspective. In general, all wall constructions (i.e. block work or concrete and spandrel elements) offer a high degree of sound insulation, much greater than that offered by the glazing systems. Therefore, noise intrusion via the wall construction will be minimal.

In this instance the facades highlighted in Figure 9.6 of chapter 9 Noise and Vibration will be provided with glazing and ventilation that have sufficient sound insulation performance to achieve the internal ambient noise level criteria. This assessment has determined that based on the current architectural plans performance values as set out in Table 21.1 and Table 21.2 will be required. Other facades in the development have no minimum requirement for sound insulation.

Façade	Octave Band Centre Frequency (Hz)						R <sub>w</sub>
	125	250	500	1k	2k	4k	
RED	22	29	35	45	44	44	40
ORANGE	22	24	30	42	40	22	36

Table 21.1 - Sound Insulation Performance Requirements for Glazing, SRI (dB)

Façade	Octave Band Centre Frequency (Hz)						D <sub>ne,w</sub>
	125	250	500	1k	2k	4k	
RED	35	40	40	50	55	55	48
ORANGE	35	35	35	42	42	42	40

Table 21.2 - Sound Insulation Performance Requirements for Ventilation, SRI (dB)

The overall R<sub>w</sub> and D<sub>ne,w</sub> outlined above are provided for information purposes only. The over-riding requirement is that the glazing and ventilation systems have sufficient acoustic performance to achieve the internal ambient noise criteria which may also be achieved using alternative glazing and ventilation configurations.

The assessment has demonstrated that the recommended internal noise criteria can be achieved through consideration of the proposed façade elements at the design stage. The calculated glazing and ventilation specifications are preliminary and are intended to form the basis for noise mitigation at the detailed design stage. Consequently, these may be subject to change as the project progresses.

### **Monitoring**

#### **Construction Phase**

1. The contractor will be required to ensure construction activities operate within the noise limits set out within this assessment. The contractor will be required to undertake regular noise and vibration monitoring at locations representative of the closest sensitive locations to ensure the relevant criteria are not exceeded. In particular vibration monitoring will be required at St Joseph's House.

#### **Operational Phase**

1. Noise or vibration monitoring is not required once the development is operational.

## **21.8 Air Quality and Climate**

### **Construction Stage**

The proactive control of fugitive dust will ensure the prevention of significant emissions. The key aspects of controlling dust are listed below. Full details of the dust management plan can be found in Appendix 10.3 of chapter 10 Air Quality and Climate. These measures have been incorporated into the overall Construction Environmental Management Plan (CEMP) prepared in respect of the proposed development.

In summary the measures which will be implemented will include:

1. Hard surface roads will be swept to remove mud and aggregate materials from their surface while any un-surfaced roads will be restricted to essential site traffic.
2. Any road that has the potential to give rise to fugitive dust will be regularly watered, as appropriate, during dry and/or windy conditions.
3. Vehicles exiting the site shall make use of a wheel wash facility where appropriate, prior to entering onto public roads.
4. Vehicles using site roads will have their speed restricted, and this speed restriction must be enforced rigidly. On any un-surfaced site road, this will be 20 kph, and on hard surfaced roads as site management dictates.
5. Public roads outside the site will be regularly inspected for cleanliness and cleaned as necessary.
6. Prior to demolition blocks should be soft striped inside buildings (retaining walls and windows in the rest of the building where possible, to provide a screen against dust).
7. During the demolition process, water suppression should be used, preferably with a hand-held spray. Only the use of cutting, grinding or sawing equipment fitted or used in conjunction

with a suitable dust suppression technique such as water sprays/local extraction should be used.

8. Drop heights from conveyors, loading shovels, hoppers and other loading equipment should be minimised, if necessary fine water sprays should be employed.
9. Avoid explosive blasting, using appropriate manual or mechanical alternatives.
10. Material handling systems and site stockpiling of materials will be designed and laid out to minimise exposure to wind. Water misting or sprays will be used as required if particularly dusty activities are necessary during dry or windy periods.
11. During movement of materials both on and off-site, trucks will be stringently covered with tarpaulin at all times. Before entrance onto public roads, trucks will be adequately inspected to ensure no potential for dust emissions.

At all times, these procedures will be strictly monitored and assessed. In the event of dust nuisance occurring outside the site boundary, movements of materials likely to raise dust would be curtailed and satisfactory procedures implemented to rectify the problem before the resumption of construction operations.

### Climate

Impacts to climate during the construction stage are predicted to be imperceptible however, good practice measures can be incorporated to ensure potential impacts are lessened. These include:

1. Prevention of on-site or delivery vehicles from leaving engines idling, even over short periods.
2. Ensure all plant and machinery are well maintained and inspected regularly.
3. Minimising waste of materials due to poor timing or over ordering on site will aid to minimise the embodied carbon footprint of the site.

### **Operational Phase**

The impact of the operational traffic associated with proposed development on air quality and climate is predicted to be imperceptible with respect to the operational phase in the long term. Therefore, no site specific mitigation measures are required.

### **Monitoring**

#### **Construction Phase**

Monitoring of construction dust deposition at the boundary of site with nearby sensitive receptors during the construction phase of the proposed development is recommended to ensure mitigation measures are working satisfactorily. This can be carried out using the Bergerhoff method in accordance with the requirements of the German Standard VDI 2119. The Bergerhoff Gauge consists of a collecting vessel and a stand with a protecting gauge. The collecting vessel is secured to the stand with the opening of the collecting vessel located approximately 2m above ground level. The TA Luft limit value is 350 mg/(m<sup>2</sup>\*day) during the monitoring period between 28 - 32 days

#### **Operational Phase**

There is no monitoring recommended for the operational phase of the development as impacts to air quality and climate are predicted to be imperceptible.

## 21.9 Wind and Microclimate

### Construction Phase

The effects on wind microclimate at the Site during the construction phase have been assessed using professional judgement.

As construction of the Proposed Development progresses the wind conditions at the site would gradually adjust to those of the completed development, and mitigation measures would need to be implemented before completion and operation.

### Operational Phase

If the wind conditions exceed the threshold, these conditions become unacceptable for favourable pedestrian activities and mitigation measure should be accounted for.

Mitigation measures include:

1. **Landscaping:** the use of vegetation to protect buildings from wind
2. **Sculptural screening (solid or porous):** to either deflect the wind or bleed the wind by removing its energy.
3. **Canopies and Wind gutters:** horizontal canopies are used to deflect the wind and redirect the wind around the building and above the canopy.

In particular, it is possible to summarise the different flow features and the corresponding mitigation option as follows:

1. **Downwash Effects:** when wind hits the windward face of a tall building, the building tends to deflect the wind downwards, causing accelerated wind speeds at pedestrian level and around the windward corners of the building. This can occur when Tall and wide building facades face the prevailing winds.
2. **Downdraft Effects:** When the leeward face of a low building faces the windward face of a tall building, it causes an increase in the downward flow of wind on the windward face of the tall building. This results in accelerated winds at pedestrian level in the space between the two buildings and around the windward corners of the tall building.

#### Mitigation options:

- To mitigate unwanted wind effects, it is recommended to introduce a base building or podium with a step back and setting back a tower relative to the base building, the downward wind flow can be deflected, resulting in reduced wind speed at pedestrian level.
  - Landscaping the base building roof and tower step back, wind speeds at grade can be further reduced, and wind conditions on the base building roof can improve.
3. **Funnelling Effects:** Wind speed is accelerated when wind is funnelled between two buildings. This is referred to as the "wind canyon effect". The intensity of the acceleration is influenced by the building heights, size of the facades, building separation distance and building orientation. Similar effect can be noticed when a bridge is connecting two buildings, the wind passing below the bridge is accelerated, therefore pedestrians can experience high uncomfortable velocities of wind.

#### Mitigation Options:

- A horizontal canopy on the windward face of a base building can improve pedestrian level wind conditions. Parapet walls around a canopy can make the canopy more effective.
- Sloped canopies only provide partial deflection of downward wind flow.
- A colonnade on the windward face of the base building provides the pedestrian with a calm area where to walk while being protected or a breeze walking space outside the colonnade zone.

4. **Landscape Trees Modelling (Using Porous Media)** Through CFD Modelling, it is possible to implement the effects of landscaping trees on the wind flowing through an urban environment. Urban landscape managers, local councils and architects can now observe and assess the effects of landscaping trees in their urban landscape models. The landscape trees are simulated as comprising effects of porous zones within the urban environments. This is an essential tool for accurately assessing the actual wind speed and pattern at a pedestrian level when landscape are available. Figure from 11.26. to Figure 11.27. show the modelling approach of utilizing porous media within the CFD numeric code to implement the effect of landscape within the Proposed development.

### **Monitoring**

There is not particular requirement to monitor the wind impact during construction phase as the designated amenity areas will not be in use during this phase of the project.

## **21.10 Landscape and Visual Impact Assessment**

### **Construction Phase**

Apart from (a) the measures incorporated in the proposed design (see operational phase detail below), (b) the measures for tree protection (as recommended in the Arboricultural Report prepared The Tree File Ltd), and (c) standard best practice construction site management (e.g. erection and maintenance of site hoarding, orderly storage of materials and vehicles, etc.), no additional mitigation measures are proposed for townscape and visual effects.

### **Operational Phase**

The townscape and visual effects on all receptors are predicted to be neutral or positive. Therefore, no mitigation measures other than those incorporated into the design proposal are considered necessary. Some of the key mitigation measures built into the proposal include:

1. The retention, refurbishment and reuse of St Joseph's House as an integral part of the development. The condition of the building and its immediate surroundings would be improved, with the dual intention of (a) conserving the building as a cultural/ architectural asset, and (b) lending maturity, identity/ character, landscape and visual amenity to the new neighbourhood.
2. The retention of the key groups of trees on the site The retention of the trees would (a) conserve a key landscape feature/ characteristic of the site, (b) retain some of the site's biodiversity value, (c) function as a landscape/ visual buffer for the new buildings and (d) provide landscape and visual amenity for the new neighbourhood.
3. The considered arrangement of built form and height along Leopardstown Road, along with the steps in height, folded elevations, variations in façade design and materials and the high degree of articulation. The photomontages for Viewpoints 1-5 show that while the proposed development would change the character of the wide urban thoroughfare by enclosing the street on one side, the collective street elevation of Blocks C, D and F would form an attractive, visually interesting composition.
4. The landscape treatment of the Leopardstown Road streetscape. The proposed Blocks C, D and F are sufficiently set back from the street edge that a substantial green frontage to the street can be established, incorporating low ornamental shrub planting, a line of street trees, some retained trees and privacy hedging for the ground floor apartments. This design solution allows the buildings to address the street in a way that will generate urban character while also softening the street-building interface and enhancing visual amenity.
5. The reduction in scale of Block F. The greatest potential for negative visual impacts (and other impacts on existing residential amenities) is in the south west corner of the site where two terraces of houses back onto the site boundary (Sir Ivor Mall and Minstrel Court). A previous

assessment identified the potential for a negative visual effect on the houses of Sir Ivor Mall, which would result from the 3-8 storey Block F which was proposed at that time. Block F has been redesigned and scaled down to 3-6 storeys to mitigate this impact. The assessment of Viewpoint 13 found that the effects can now be classified neutral.

### **Monitoring**

#### **Construction Stage**

1. The retention of existing trees on site is an important element of the proposal. Any unplanned loss of trees could result in negative townscape and visual impacts.
2. The planning application is accompanied by an Arboricultural Report prepared by The Tree File Ltd., which includes a detailed Tree Protection Plan. It includes the requirement that (a) all tree works should be undertaken under the guidance of the project arborist, (b) that site works potentially affecting the trees to be retained should be monitored, and (c) that on completion of site works the retained trees are to be reviewed and their future management needs specified.
3. The implementation of the Tree Protection Plan is the only monitoring required in respect of potential townscape and visual impacts.

#### **Operational Stage**

Monitoring of avoidance, remedial and mitigation measures is not relevant to the assessment of visual impacts on the built environment in the case of the subject application.

## **21.11 Material Assets - Traffic and Transport**

### **Construction Stage**

**Identified Effect:** Additional HGV traffic along proposed designated haul route which will have a slight short-term adverse effect on the local road network during the construction works.

#### **Mitigation Measures:**

1. Tracked excavators will be moved to and from the Site on low-loaders and will not be permitted to drive onto the adjacent roadway.
2. The applicant shall at all times keep all public and private roads and footpaths entirely free of excavated materials, debris and rubbish.
3. Public roads outside the Site shall be regularly inspected for cleanliness, as a minimum on a daily basis, and cleaned as necessary. A road sweeper will be made available to ensure that public roads are kept free of debris.
4. The applicant shall be responsible for and make good any damages to existing roads or footpaths caused by his own contractors or suppliers transporting to and from the Site.
5. The contractor shall confine his activities to the area of the Site occupied by the works and the builders' compound, as far as practicably possible, during any particular phase of the works.

**Identified Effect:** Additional construction personnel car / light vehicle movements which will have an insignificant short-term adverse effect on the local road network during the construction works.

#### **Mitigation Measures:**

1. All construction workers will be encouraged to use public transport, and also to car share where appropriate. On site staff car parking can also be provided to ensure no construction workers will be required to park on adjacent roads or streets.
2. No daytime or night-time parking of site vehicles or construction staff vehicles will be permitted outside agreed areas.

**Identified Effect:** Construction vehicle movements and works on Leopardstown Road when forming the new junction with the proposed development or when undergoing service connections on the public road, which will have a slight short-term adverse effect on traffic movements on these roads in the vicinity of the proposed development.

**Mitigation Measures:**

1. Construction work will be limited to normal working hours; that are 07.00 – 19.00 on weekdays and 08.00 – 14.00 on Saturdays. All deliveries of materials, plant and machinery to the Site and removals of waste or other material will take place within the permitted hours of work. Vehicle movements will be planned to ensure arrival and departure times are maintained inside the agreed working hours.
2. Deliveries will be co-ordinated to prevent queuing of vehicles adversely affecting traffic flow and to minimise disruption to local traffic. They will be timed and coordinated to avoid conflict with collection of waste, other deliveries (particularly to adjoining owners), and rush hour traffic. Large deliveries will be scheduled outside peak traffic hours to minimise disruption.
3. Properly designed and designated access and egress points to the construction site will be used to minimise impact on external traffic.

**Identified Effect:** Construction works and construction vehicle movements on the local road network will have a slight short-term adverse effect on pedestrian and cycle movements on these roads in the vicinity of the proposed development, for example due to pedestrians and cyclists having to give way at the construction access to the Site and / or divert around construction works on these roads.

**Mitigation Measures:**

1. Priority to keep construction vehicles and pedestrians apart.
2. Separate entry and exit gateways will be provided for pedestrians and vehicles with a gate man in attendance to interface with the traffic and public to facilitate safe access and egress of vehicles.
3. Firm, level, and well-drained pedestrian walkways will be provided.
4. Measures will be implemented to ensure drivers driving out onto public roads can see both ways along the footway before they move on to it.
5. Footpaths will not be blocked resulting in pedestrians having to step onto the carriageway.
6. The final Construction Traffic Management Plan will be submitted and agreed with the planning authority prior to the commencement of any development.

**Operational Phase**

**Identified Effect:** The likely effect of the proposed development will be additional traffic which may have a slight long-term adverse effect on the adjoining road network.

The following traffic mitigation measures shall be implemented for the operational phase of the development:

1. A Mobility Management Plan has been prepared for the proposed development which includes recommended mitigation measures to reduce usage of private cars and increase the use by residents and patrons within the development of more sustainable modes of travel, such as including good cycle parking provision, will further promote the greater use of sustainable travel modes. It is projected that successful implementation of the mobility management mitigation measures included will reduce the vehicular trip generation from the proposed development below that included for in the Traffic Impact Assessment for the proposed development. For further details refer to the *Traffic & Transport Assessment and Mobility Management Plan* included separately with the wider response to the Further Information Request for the proposed development.



2. A Stage 2 Road Safety Audit will be undertaken at the detailed design stage to ensure that the final design is in accordance with the RSA Guidelines prior to the commencement of construction. A Stage 3 post construction and pre-opening of the proposed development in accordance with RSA guidelines to address any potential road safety issues related to the completed scheme.
3. During the operational phase of the development it is projected that the adjoining road network can readily accommodate the additional traffic from the proposed development. Full details of traffic modelling assumptions and results are included in the *Traffic & Transport Assessment and Mobility Management Plan* report completed by ILTP for the proposed development, included separately with the wider response to the Further Information Request for the proposed development.

## Monitoring

### Construction Stage

1. A site liaison officer will be identified as a single contact point for the planning authority and local community to deal in a prompt and efficient manner with any issues that may arise in relation to construction traffic and activity on the public road.
2. Public roads outside the Site shall be regularly inspected for cleanliness, as a minimum on a daily basis, and cleaned as necessary. A road sweeper will be made available to ensure that public roads are kept free of debris.
3. Site personnel will be present on the public road at the site access junction at all times during the construction of the proposed access to facilitate the safe movement of:
  - Construction vehicles to and from the Site
  - Road users in the vicinity of the site access or any construction works on these roads

### Operational Stage

1. As part of the Mobility Management Plan for the proposed development it is recommended that a Mobility Manager be appointed by the Management Company. The Mobility Manager will also be involved in monitoring of the modes of travel to and from the proposed development. This ideally will be done on an annual basis. Monitoring of travel patterns will facilitate the provision of sustainable transport modes and ensure that modal targets are met.

## **21.12 Material Assets - Utilities**

### Construction Stage

1. The construction works contractor shall liaise with the relevant utilities provider prior to works commencing, with on-going consultation throughout the proposed development. Where new services are required, the construction works contractor shall apply to the relevant utility provider and adhere to the requirements outlined in the connection permit / licence.
2. The Contractor will be obliged to put measures in place to ensure that there are no interruptions to existing services unless this has been agreed in advance with the relevant service provider. Please refer to section 8.10.1 of the water chapter for further mitigation measures.
3. All works in the vicinity of utilities apparatus will be carried out in ongoing consultation with the relevant utility company or local authority and will be in compliance with any requirements or guidelines they may have.
4. Where new services or diversions to existing services are proposed, the Contractor will apply to the relevant utility company for a connection permit where appropriate and will adhere to their requirements.

5. Mitigation measures proposed in relation to the drainage and water infrastructure comprise the following:
6. Surface water runoff from areas stripped of topsoil and surface water collected in excavations will be directed to on-site settlement ponds where measures will be implemented to capture and treat sediment laden runoff prior to discharge of surface water at a controlled rate.
7. In the event of groundwater being encountered during the construction phase, mitigation measures will include dewatering by pumping to an appropriate treatment facility prior to discharge. Other measures would include excluding contaminating materials such as fuels and hydrocarbons from sensitive parts of the site i.e., highly vulnerable groundwater areas.
8. In order to reduce the risk of defective or leaking sewers, all new sewers should be laid in accordance with Irish Water standards, pressure tested, and CCTV surveyed to ascertain any possible defects.
9. The construction compound will include adequate staff welfare facilities including foul drainage and potable water supply. Foul drainage discharge from the construction compound will be removed off site to a licensed facility until a connection to the public foul drainage network has been established.
10. The construction compound's potable water supply shall be protected from contamination by any construction activities or materials.
11. Where possible backup network supply to any services will be provided should the need for relocation or diversion or existing services be required otherwise relocation or diversion works will be planned to incur minimal impact, with users notified in advance of any works.
12. Connections to the existing gas and telecommunications networks will be coordinated with the relevant utility provider and carried out by approved contractors.

### **Operational Phase**

1. All new drainage lines (foul and surface water) will be pressure tested and will be subject to a CCTV survey to identify any possible defects prior to being made operational.
2. Sustainable Urban Drainage Systems (SuDS) will be incorporated fully into the development, in order to improve the quality of the surface water discharging from site and reduce the runoff volume and rate. The surface water drainage design, for this development, was designed in accordance with the Local Authority requirements. All SuDS measures will be provided in accordance with the Greater Dublin Strategic Drainage Study Regional Drainage Policy Volume 2 - New Development (GSDS-RDP Volume 2). Specific design requirements for SuDS systems are established by the Construction Industry Research and Information Association's publication CIRIA C753 – The SuDS Manual.
3. Following best practice, the potential for the storm water to become polluted via oil spills will be reduced as far as is practical (e.g., using a Klargestor Bypass Interceptor for basement drainage) or similar approved to take run off from carparking areas and passing through same prior to disposal to the on-site surface water system.
4. Water conservation methods such as the use of low flush toilets and low flow taps should be incorporated into dwellings to reduce water volumes and related treatment and abstraction costs of the development.
5. Similarly, water conservation methods would reduce the demand on the public water supply network and the loading on the foul sewer network.

### **Monitoring**

#### **Construction Phase**

1. The contractor will adhere to the Construction and Environmental Management Plan. The contractor will monitor the status of the surrounding network of services during the course

of the works, to ensure that there are no negative consequences as a result of the construction works.

### **Operational Phase**

1. All internal potable water & drainage services within the proposed building will be (monitored by the management firm) & their maintenance personnel will routinely inspect and carry out maintenance as required. The external potable water and foul connections to the public system will be maintained by Irish Water and connection to the surface water system will be maintained by Irish Water.

## **21.13 Material Assets - Waste Management**

### **Construction Stage**

As previously stated, a project specific C&D WMP has been prepared in line with the requirements of the requirements of the *Best Practice Guidelines for the Preparation of Waste Management Plans for Construction and Demolition Projects* (DoEHLG, 2006), and is included as Appendix 15.1. Adherence to the high-level strategy presented in this C&D WMP will ensure effective waste management and minimisation, reuse, recycling, recovery and disposal of waste material generated during the demolition, excavation and construction phases of the proposed Development.

1. Prior to commencement, the appointed Contractor(s) will be required to refine / update the C&D WMP (Appendix 15.1) in agreement with DLRCC or submit an addendum to the C&D WMP to DLRCC, detailing specific measures to minimise waste generation and resource consumption, and provide details of the proposed waste contractors and destinations of each waste stream.
2. The Contractor will be required to fully implement the C&D WMP throughout the duration of the proposed construction and demolition phases.

A quantity of topsoil, sub soil, clay and made ground which will need to be excavated to facilitate the proposed Development. Any suitable excavated material will be temporarily stockpiled for reuse as fill or in landscaping, where possible, but reuse on site is expected to be limited and the majority of excavated material is expected to be removed offsite for appropriate reuse, recovery and/or disposal. Correct classification and segregation of the excavated material is required to ensure that any potentially contaminated materials are identified and handled in a way that will not impact negatively on workers as well as on water and soil environments, both on and off-site.

In addition, the following mitigation measures will be implemented:

1. Building materials will be chosen with an aim to 'design out waste';
2. On-site segregation of waste materials will be carried out to increase opportunities for off-site reuse, recycling, and recovery. The following waste types, at a minimum, will be segregated:
  - Concrete rubble (including ceramics, tiles, and bricks);
  - Plasterboard;
  - Metals;
  - Glass; and
  - Timber.
3. Left over materials (e.g., timber off-cuts, broken concrete blocks / bricks) and any suitable construction materials shall be re-used on-site, where possible;
4. All waste materials will be stored in skips or other suitable receptacles in designated areas of the site;
5. Any hazardous wastes generated (such as chemicals, solvents, glues, fuels, oils) will also be segregated and will be stored in appropriate receptacles (in suitably bunded areas, where required);

6. A Waste Manager will be appointed by the main Contractor(s) to ensure effective management of waste during the demolition, excavation and construction works;
7. All construction staff will be provided with training regarding the waste management procedures;
8. All waste leaving site will be reused, recycled, or recovered, where possible, to avoid material designated for disposal;
9. All waste leaving the site will be transported by suitably permitted contractors and taken to suitably registered, permitted, or licenced facilities; and
10. All waste leaving the site will be recorded and copies of relevant documentation maintained.
11. Nearby sites requiring clean fill material will be contacted to investigate reuse opportunities for clean and inert material, if required. If any of the material is to be reused on another site as by-product (and not as a waste), this will be done in accordance with Article 27 of the EC (Waste Directive) Regulations (2011). EPA approval will be obtained prior to moving material as a by-product. However, it is not currently anticipated that Article 27 will be used.

These mitigation measures will ensure that the waste arising from the construction phase of the proposed Development is dealt with in compliance with the provisions of the Waste Management Act 1996, as amended, associated Regulations and the Litter Pollution Act 1997, and the *EMR Waste Management Plan 2015 – 2021*. It will also ensure optimum levels of waste reduction, reuse, recycling and recovery are achieved and will promote more sustainable consumption of resources.

### **Operational Stage**

1. The Operator / Buildings Manager of the Site during the operational phase will be responsible for ensuring – allocating personnel and resources, as needed – the ongoing implementation of this OWMP, ensuring a high level of recycling, reuse, and recovery at the Site of the proposed Development.

In addition, the following mitigation measures will be implemented:

2. The Operator / Buildings Manager will ensure on-Site segregation of all waste materials into appropriate categories, including (but not limited to):
  - Organic waste;
  - Dry Mixed Recyclables;
  - Mixed Non-Recyclable Waste;
  - Glass;
  - Waste electrical and electronic equipment (WEEE);
  - Batteries (non-hazardous and hazardous);
  - Cooking oil;
  - Light bulbs;
  - Cleaning chemicals (pesticides, paints, adhesives, resins, detergents, etc.);
  - Furniture (and from time-to-time other bulky waste); and
  - Abandoned bicycles.
3. The Operator / Buildings Manager will ensure that all waste materials will be stored in colour coded bins or other suitable receptacles in designated, easily accessible locations. Bins will be clearly identified with the approved waste type to ensure there is no cross contamination of waste materials;
4. The Operator / Buildings Manager will ensure that all waste collected from the Site of the proposed Development will be reused, recycled, or recovered, where possible, with the exception of those waste streams where appropriate facilities are currently not available; and

5. The Operator / Buildings Manager will ensure that all waste leaving the Site will be transported by suitable permitted contractors and taken to suitably registered, permitted, or licensed facilities.

These mitigation measures will ensure the waste arising from the proposed Development during the operational phase is dealt with in compliance with the provisions of the Waste Management Act 1996, as amended, associated Regulations, *the Litter Pollution Act 1997*, the *EMR Waste Management Plan 2015 – 2021* and the DLRCC waste bye-laws. It will also ensure optimum levels of waste reduction, reuse, recycling and recovery are achieved.

#### **Monitoring**

1. The management of waste during the construction phase should be monitored to ensure compliance with relevant local authority requirements, and effective implementation of the C&D WMP including maintenance of waste documentation.
2. The management of waste during the operational phase should be monitored to ensure effective implementation of the OWMP by the building management company and the nominated waste contractor(s).

### **21.14 Archaeological and Cultural Heritage**

#### **Construction Stage**

The following proposed mitigation measures are subject to approval by DLR County Council and the National Monuments Service, Department of Housing, Local Government and Heritage:

1. A programme of archaeological monitoring of the ground reduction associated with the proposed development will be carried out. This should be carried out by a suitably qualified archaeologist under license and in accordance with the provisions of the National Monuments Acts 1930-2004.
2. If archaeological material is encountered, then it will be investigated and fully recorded. However, if significant archaeological material is encountered then the National Monuments Service (DoHLGH) will be notified. Resolution of any such significant material will be determined in consultation with the National Monuments Service (DoHLGH).
3. A written report will be prepared detailing the results of all archaeological work undertaken.

#### **Operational Stage**

No further mitigation required.

#### **Monitoring**

The mitigation measures recommended above would also function as a monitoring system to allow the further assessment of the scale of the predicted impacts and the effectiveness of the recommended mitigation measures. No further monitoring proposed with respect to effects to effects from operational phase.

### **21.15 Architectural and Built Heritage**

#### **Construction Stage**

1. The significance of St. Joseph's House (a Protected Structure) and the proximity of the Arkle Square Architectural Conservation Area have been carefully considered from the early design stages of this proposed scheme, and the scheme has been designed so as to mitigate and minimise any negative impacts on the architectural heritage of the site and its context.

2. Alterations to the fabric of St. Joseph's House have been permitted under the previous (existing) permission on the site, Reg. Ref. D17A/0334, PL06D. 249248. The proposed works in the subject application will not have any impact on the character, significance or fabric of the Protected Structure and will involve modern fabric only. The proposed works are necessary to improve the residential amenity and architectural quality of the development. The proposed works are minor in nature and will have no impact on the character of the Protected Structure.
3. The visual impact of the proposed development was considered during the early design stages of the proposed scheme, and these considerations guided design decisions. The siting of the new blocks at a distance from the Protected Structure, the landscape design and use of trees as visual screening and the stepping down in height of the various blocks mitigate the potential visual impact of the proposed scheme on the character of the setting of the Protected Structure.
4. In addition, the siting of the new blocks at a distance from the ACA and the stepping down in height of the various blocks mitigate the potential visual impact of the proposed scheme on the character of the ACA.

#### **Operational Stage**

No mitigation required.

#### **Monitoring**

1. The mitigation measures recommended above would also function as a monitoring system to allow the further assessment of the scale of the predicted impacts and the effectiveness of the recommended mitigation measures.
2. A suitably qualified conservation architect will be appointed to oversee the proposed works to St. Joseph's House (a Protected Structure).

### **21.16 Daylight & Sunlight**

#### **Construction Phases**

1. The subject application proposes the development of a large zoned site in a residential area. In these circumstances, scope for mitigation measures during the construction phase, which would preserve a sustainable level of density, is limited.

#### **Operational Phase**

1. The subject application proposes the development of a large zoned site in a residential area. In these circumstances, scope for mitigation measures during the operational phase, which would preserve a sustainable level of density, is limited.

#### **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.