



**CROWN SQUARE**  
DEVELOPMENTS LIMITED

# Crown Square Development

## Building Life Cycle Report

July 2019



# 1.0 INTRODUCTION AND OVERVIEW

## 1.1 Planning Policy Context

The Sustainable Urban Housing: Design Standards for New Apartments – Guidelines for Planning Authorities were published in March 2018. These Guidelines introduced a requirement to include details on the management and maintenance of apartment schemes. This is set out in Section 6.11 to 6.14 – “Operation & Management of Apartment Developments”, specifically Section 6.13. This Building Lifecycle Report sets out to address the requirements of Section 6.13 of the Apartment Guidelines 2018.

Section 6.13 of the Apartment Guidelines 2018 requires that apartment applications shall:

“include a Building Lifecycle Report, which in turn includes an assessment of long term running and maintenance costs as they would apply on a per residential unit basis at the time of application.”

“demonstrate what measures have been specifically considered by the proposer to effectively manage and reduce costs for the benefit of residents.”

## 1.2 Site Location

The subject site extends to 5.1 ha and is located in the north-east of Galway City in Mervue, at the junction of the Monivea Road and Joyces’ Road (also known as Connelly’s Avenue). The IDA Business Park and Mervue Industrial Estate are located to the west/south-west of the site and the Eircom Telecommunications site immediately borders the subject site to the north-east. Medium density residential development is located to the east of the site along the Monivea Road. The site has vehicular access from Joyce’s Road and Monivea Road.



Figure 1: Indicative Site Location

Development permitted under PI. Ref. 06/223; ABP Ref. PL 61.220893 has previously commenced on site and substantial works have been completed. The south western/Monivea Road block has been constructed to ground level and the entire site has been excavated to facilitate a general lower basement level of +23.3m Ordnance Datum (OD). The partially constructed upper basement and ground floor levels are at +26.8m and +30.8m OD respectively. Following the onset of the economic recession, the development was put on hold and the site is currently boarded up. An Extension of Duration was granted until 12/09/2017 which has since expired. Phase 1 has been recently granted by Galway City Council on the 10th May 2019 under PI. Ref 18/363.

The subject lands are designated 'Commercial/Industrial' (CI) in the Galway City Development Plan 2017-2023 (GCDP), with a stated objective 'to provide for enterprise, light industry and commercial uses other than those reserved to the City Centre Zone'. The site is also identified as a 'Neighbourhood Centre'. Further information on the planning policy framework pertinent to the proposed site is provided in Section 6.

There are no Protected Structures or Recorded Monuments on the proposed site. The nearest Recorded Monument to the subject lands comprises a 18th/19th Century House (Recorded Number GA082-088), located circa 200 meters south of the site. The building is also designated as a Protected Structure under the extant GCDP (RPS no. 6002).

The Galway Bay Complex Special Area of Conservation (Site Code 000268) and Inner Bay Special Protection Area (Site Code 004031) are located circa 1km south-west of the proposed site.



Figure 2: Natura Sites (Source: My Plan.ie)



Figure 3: Cultural Heritage (Source: My Plan.ie)

### 1.3 Description of Proposed Development

The proposed development comprises residential, leisure, local service and ancillary accommodation on an integrated campus with commercial office, technology and hotel use. It is proposed as a phased development with Phase I (recently granted under PI Ref 18/363) comprising commercial and basement/ infrastructural works and with Phase II comprising residential, leisure, local service elements and basement/ infrastructural works. The proposed mix of uses are mutually compatible and support the viable completion of development on site, as well as complementing existing adjacent land use. Increased public access to the site facilities and amenities benefit both the local community and city.

The residential development comprises 287 no. apartment units with associated amenity and service accommodation. The site location, mixed-use and integrated nature of the development support the proposed development of a stand-alone leisure / fitness facility. It is anticipated that this facility will be available to all site users, including residents and to the public.

Having due regard to the proposed site's designated 'Neighbourhood Centre' status, other complementary and neighbourhood facilities are proposed as follows:

- Restaurant
- Cafe/Coffee shop
- Convenience store
- Medical Centre (potential Primary Care Centre)
- Pharmacy
- Other small retail/service units (e.g. hairdresser)

## 2.0 Assessment of Long Term Running & Maintenance Costs

### 2.1 Owners Management Company and Property Management Company

The Owners Management Company will engage a suitably qualified Property Management Company at an early stage of the development to ensure that all property management functions are dealt with for the development and that the maintenance and running costs of the development's common areas are kept within agreed budgets. The Property Management Company will enter into a contract directly within the Owners Management Company (OMC) for the ongoing management of the completed development.

The Property Management Company will use best practice policies and procedures to oversee the management of the entire development. It is envisaged that the proposed development will be managed under a structure as outlined in figure 1 below. The operation of a highly visible management regime is one of the key objectives of the development and is in line with good estate management practices. The Estate Director will be responsible for the overall management of the development and their key responsibilities will be; team management, health and safety, risk management, mobility management, implementation of estate policies and procedures, tenant management, security, cleaning and maintenance.

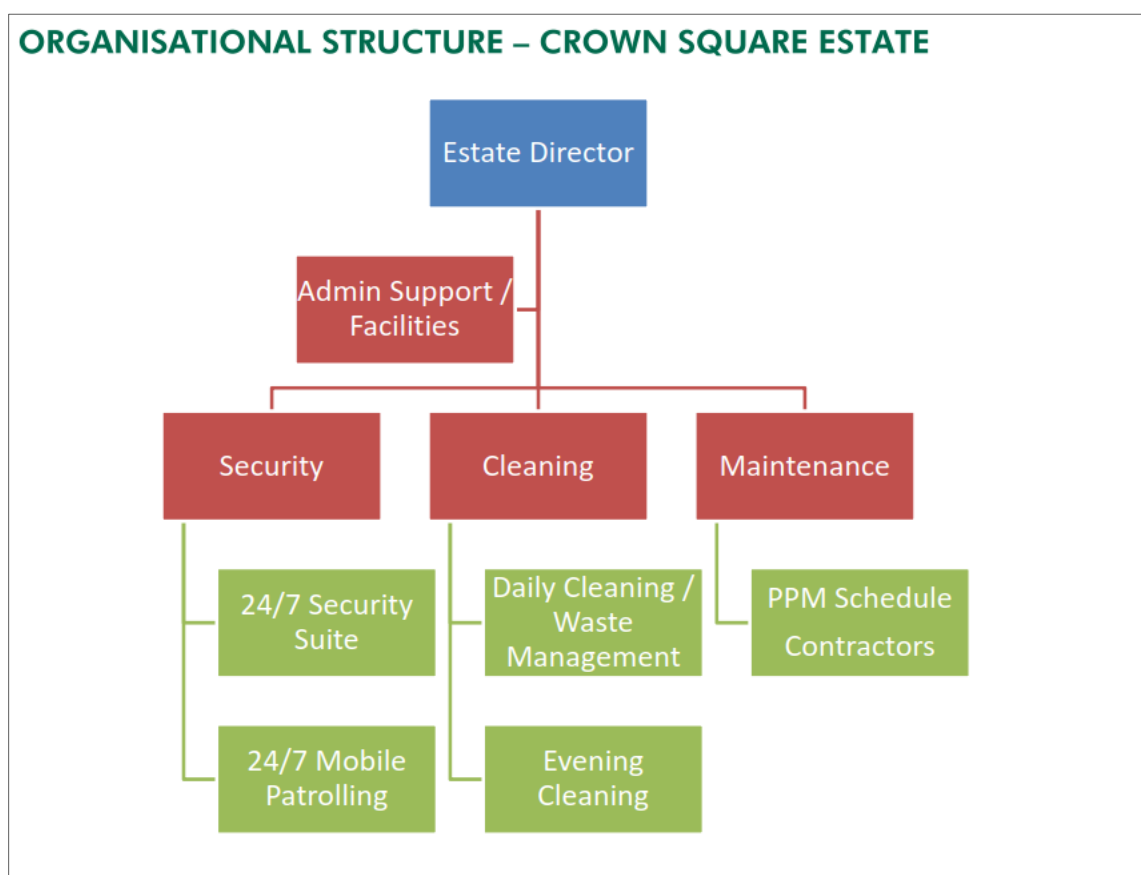


Figure 4 – Crown Square Proposed Estate Management Organisational Structure

### 2.2 Property Management of Common Areas

The proposed development has been designed and configured to provide the occupants, residents and neighbours with generous communal facilities and social spaces within the development. The following is proposed:

- Landscaped communal central open spaces,

- Supervised concierge desks positioned at the entrance to each office building from the central communal landscaped area,
- Dedicated secure underground parking
- Secure bike spaces
- Secure logistics yard for coordination of large delivery and refuse vehicles at basement -2
- Commercial, residential and hotel general and refuse storage at basement -2.

It is proposed to limit internal site vehicular access primarily to the basement levels with emergency access only mixing with pedestrian and cycle access at ground level. Delivery and service vehicle access will be provided in a centrally managed and secure basement facility. A double height secure logistics area at lower basement level will be used to coordinate the management of site deliveries and service vehicles.

### **2.2.1 Placemaking**

A key component of the Property Management companies' remit will be fostering, encouraging and ensuring a sense of place is developed and maintained within the development and its surrounds. Place making is essentially creating a community through events, classes, food markets and a high level of engagement with staff in each tenant organisation and the surrounding community that encourages them to interact with each other and make use of the surrounding environment.

It is proposed that this will be done by linking the occupiers of the various buildings and member of the surrounding community together by hosting events and activities that encourage them to interact with each other. Examples of this may include:

- Organising out door fitness classes, such as Boot Camp or Yoga classes,
- Setting up clubs and societies, such as running or book clubs,
- Hosting events, such as food markets, exhibitions or performances

We have visited a number of developments with similarities to the Crown Square Development, in terms of size and location, where the on-site Property Management team have successfully created a sense of place by being the focal point of daily events which links the occupiers with local businesses and the community.

### **2.2.2 Deliveries Management**

It is proposed that deliveries will be managed via the double height secure logistics area at lower basement level. Delivery vehicles will access the logistics area from the entrance off the Monivea Road. Deliveries may be either set-down here for onward delivery via smaller vehicle or delivered directly to the associated buildings back of house area.

### **2.2.3 Maintenance Management**

It is proposed that the maintenance of the development will be managed by a suitably qualified Maintenance Manger who will ensure that all maintenance works is undertaken in accordance with servicing requirements. It will be the responsibility of the Property Management company to ensure all maintenance works are undertaken when required and to the required standard.

### **2.2.4 Management of Car and Bicycle Parking**

Car parking will be provided in the basement levels for occupants and residents of the Development. There are approximately 1,377 car parking spaces provided for the entire development (Phase 1 and 2 combined). The car park is accessed from both the Monivea and Joyce Road entrances. The car park will be managed by the estate director who is responsible for mobility management. The Estate Director (or Mobility Manager) will regulate the allocation of parking spaces and will ensure any on-site illegal or inconsiderate parking is appropriately dealt with.

It is intended to reduce the number of people travelling to the development by car and encourage more sustainable modes of transport. The Mobility Manager will encourage more sustainable modes of transport by providing information to all tenants on public transport options, on-site bicycle facilities and any information relating to sustainable transport options that becomes available during the life of the development. For further information please refer to the Crown Square Development Mobility Management Plan.

The car-park is intended for occupant and resident parking only with a minimum number of visitor parking. The Car Park split per user is envisaged to be broken down as follows:

- **Commercial Office Parking**

It is proposed that the majority of office user parking will be accommodated at the lower basement level. There will also be spaces on the upper basement level allocated to both office user and office guest parking.

- **Hotel Parking**

It is proposed that hotel car parking will be accommodated at the upper basement level.

- **Residential Parking**

It is proposed that the residential parking will be accommodated at the lower basement level.

- **Ancillary and Leisure Parking**

It is envisaged that the Ancillary and Leisure user parking will be located at lower basement level.

- **Bicycle Parking**

There are approximately 1104 no. secure bicycle storage spaces provided within the development. Cyclist shower facilities, including showers, bathrooms, storage areas, drying rooms and secure lockers are provided at upper basement level. Access to the proposed development for cyclists will be accommodated via a dedicated bicycle ramp. Bicycle parking spaces will be equipped with Sheffield-type bicycle stands.

There is visitor bicycle parking provided at Ground Floor level and an area for the provision of the existing 'Coke Zero' Galway Bike scheme has also been provided for consideration.

The Operational Management Plan, included as part of this submission, provides further details on the Car Parking Strategy for the entire development.

## **2.3 Service Charge Budget**

The Property Management Company will have a number of key responsibilities most notably, the compiling of the service charge budget for the development for agreement with the OMC.

In accordance with the MUD Act 2011, the service charge budget typically covers items such as cleaning, landscaping, external lighting, CHP management, refuse management, utility bills, insurance, maintenance of mechanical / electrical lifts / life safety systems, security, property management fee within the development common areas.

This service charge budget also includes an allowance for a sinking fund and this allowance is determined following the review of the Building Investment Fund (BIF) report prepared by the OMC.

The BIF report once adopted by the OMC, determines an adequate estimated annual cost provision requirement based on the needs of the development over a 30-year cycle period, as required by the Multi-Unit Developments (MUD) Act, 2011. In

line with the requirements of the MUD Act 2011, the members of the OMC will determine and agree each year at a General Meeting of the members, the contribution to be made to the Sinking Fund, having regard to the BIF report produced.

Notwithstanding the above, it should be noted that the detail associated with each element heading in the BIF report, can only be determined after detailed design and the procurement and construction of the development.

## **3.0 Measures to Manage & Reduce Costs**

### **3.1 Treatments, Materials & Finishes**

The design and material selection of the of the overall site development is intended to break down the impact or apparent appearance of the large scale of development. The permitted design of commercial development of hotel, office and ancillary amenity has a range of materials reflecting function and scale. Offices are substantially glazed with some stone façade elements. The hotel presents as a more solid identifiable block with (different) stone cladding and a very open glazed ground floor – similar to the ground level public amenity facilities in the office buildings.

Aside from the functionally driven difference in appearance of residential as compared with office buildings, a conscious decision has been made to make the appearance of the residential element different. This works at two levels; one relates to scale and appearance and the other to durability and simplicity of finish for maintenance over time.

The resultant materials specified are simple, thoughtful and robust. The material palette deliberately simple and clear so as to create order between the elements and to have a connection to its context. The material selection has been chosen with care to enhance the soft landscape and to create a garden scheme that is pleasant yet durable for the residents.

The public and private façades are a warm brick and self-finished render with grey polyester powder coated aluminium framed composite windows. Aluminium side panels are shown where privacy is needed. All of the mentioned materials will help create a building that resists deterioration and which is easily maintained and managed.

### **3.2 Buildings**

The proposed apartment buildings are designed in accordance with the Building Regulations, in particular Part D 'Materials and Workmanship', which includes all elements of the construction. The Design Principles and Specification are applied to both the apartment units and the communal / amenity parts of the development.

The apartments are proposed in three blocks (designated G, H and J) forming two U-shaped garden courtyards at upper ground level. Their height steps back from Monivea Road. Block J to Monivea Road incorporates street level retail units. Blocks G and J are located at an upper ground level of 31.8m OD surrounded by their communal open space. There are further smaller garden courtyards 'cut out' of the upper ground level and which provide daylight and ventilation to parts of the lower ground floor residential and other accommodation.

The scheme provides for a total of 288 apartments on upper ground level and above floors. Each apartment benefits from private amenity area (balcony / terrace), open plan living areas and equally sized bedrooms. The floor plates were designed and glazing areas were increased to ensure each apartment had adequate natural daylight. Each apartment has a view of the landscaped gardens and the orientation of the buildings ensures that the courtyard enjoys sun throughout the day. The lower ground level accommodates private residential bicycle parking, and communal amenity facilities. These are separate from the adjacent neighbourhood facilities. The basement accommodates car parking, waste management and other ancillary/utility service areas.

This vertical separation of private and public residential as utility services provides for the maintenance of high amenity in their separation while maximum efficiency in operation and use over the lifetime of the building.



### **3.3 Construction Methodology**

The primary structure from basement to upper ground floor (residential) level is in-situ reinforced concrete frame (column and flat slab). This includes a 'transfer' slab structure at upper ground level allowing for a change in structural grid and methodology (from in-situ to pre-cast concrete) between commercial/other space below and residential above. This also provides for adaptability over time in the commercial / other spaces.

The transfer slab structure also provides for a 400-500mm step down to facilitate landscape treatment of the public open space and communal open spaces which are designed for heavy traffic and landscape planting.

The construction methodology proposed includes high quality detailing and materials will maximise efficiency and indoor environment quality. The structural scheme provides support for masonry outer leaf, finished in brick or zinc. The glazed balconies are supported with a proprietary thermal connector back to structure. A flat roof system and associated sedum/green roof system is proposed on tapered insulation designed to falls on the concrete slab. Polyester powder coated aluminium framed composite windows and doors and glass balustrades to balconies are the secondary building elements that will help reduce construction and maintenance costs.

### **3.4 Material Specification**

Consideration is given to the requirements of Building Regulations in relation to durability and design

life. The development is designed to incorporate the guidance, best practice principles to ensure that the long-term durability and maintenance of materials is an integral part of the design and specifications of the proposed development.

In-situ reinforced and pre-cast concrete structure is proposed for the residential blocks providing robust enclosure and separation of dwelling units as well as a suitable support to the secondary façade enclosing elements.

High quality brickwork and render finish is proposed on the external facade. These will require minimal ongoing maintenance or associated costs. The use of highly specified, robust factory finished windows and doors and glass balustrade balconies will also reduce ongoing maintenance costs.

A preliminary specification has been drafted so as to ensure quality from the outset. Some key elements and materials chosen are listed below:

#### **3.4.1 Brick:**

- a) Lower ground level public open space, Neighbourhood Centre facades.
- b) Monivea Road
- c) Public facing element of residential blocks.

#### **3.4.2 Render:**

Residential blocks, primarily courtyard elevations.

#### **3.4.3 Metal Cladding/Zinc:**

Residential blocks – upper floor roof levels.

#### **3.4.4 Metal Cladding / Painted Steel Frame:**

Some balcony structures.

### **3.4.5 Roof:**

Standing Seam Zinc Roof with U-value achieving insulation and stainless-steel coping to parapets. Warm accessible flat roof with Sedum/ Paved finish with U-value achieving tapered insulation and green roof top layer.

### **3.4.6 Metal Frame Glazing:**

Ground and Lower Ground Floor Shop Fronts and Neighbourhood Centre facades.

### **3.4.7 Windows and doors:**

Proprietary system double & triple glazed composite timber/ ppc aluminium framed window system to comply with Part L 'Conservation of fuel and energy' and satisfy U-value and fire regulations. Commercial curtain wall glazing to shop fronts and public amenity space.

## **3.5 Landscaping**

The landscaped space between and around buildings and the site edges provides public amenity and biodiversity. It is also an integral part of the architectural design of the site. Design extends to both soft and hard landscape and supports an accessible, safe and high-quality approach to building approach and site permeability.

One of the challenges to completion of the previously commenced development is the design of landscape at an appropriate scale both hard and soft over areas of basement car-parking. The integration of the recently planning office/ commercial use with proposed residential use is facilitated by a sharing of public open space and the separation of residential from public space by ground level change and landscape treatment.

The proposed landscape design of the whole site is a significant improvement on the previously (2006) permitted scheme design with less hard landscaping/vehicular access at ground level and increased pedestrian and landscape permeability. A key element of the architectural design is the proposed removal of the hard line of leylandii trees from the public realm along the Monivea Road. This provides an opportunity for a wider, shared landscape margin between the public road and the building line including cycle lane, bus and other vehicular off-road set-down.

There are two distinct landscaped zones from a management and maintenance point of view.

- a) There is a site wide public open space in the form of two significant public open spaces as well as a 'linear park' along the north and east boundaries.
- b) The residential element has access controlled communal open space as well as private balcony space.

## **3.6 Waste Management**

An Operational Waste Management Plan (OWMP) has been prepared by our Environmental Consultant, MKO for this development which details the estimated quantity of waste arisings and the strategy for the management of waste during the operation of the development. This document will be implemented and further developed as the development is operated.

The OWMP aims to ensure waste management prescriptions that adhere to a waste management hierarchy are implemented at this site thus ensuring re-use, recycling and recovery of waste opportunities are maximised and that disposal of waste to landfill will be considered as the last resort. The OWMP sets out the proposal for waste collection at the site to ensure that waste collections are completed in the required intervals so as to prevent any potential impact on the surrounding environment.

Please refer to the Operation Waste Management Plan which accompanies this application.

### **3.7 Human Health and Wellbeing**

The quality of the immediate built environment whether it is the dwelling unit or external environment has a significant impact on health and wellbeing. This is not a particularly dense development by current national standards and seeks to develop the opportunity created by the non-completion of a previous mixed-use development of the site in this established inner suburban area of the city. The design objective has been to create a distinctive new open landscape with high residential amenity. Communal open space as well as public open space have been designed to provide appropriate levels of privacy and security

The apartments have been designed with the health and wellbeing of the user in mind. Individual apartment units have been designed to comply with current apartment design guidelines with floor areas in excess of minimum area criteria. Access to daylight, sunlight and view over landscaped spaces has driven the block and apartment unit planning. Block planning has broken down the scale of development cascading from public through communal to private open space.

The units have been designed to comply with the building regulations as required, including landscape for compliance with Part M accessibility requirements. The scheme has been designed to incorporate passive surveillance of communal areas for security and to promote positive use of external space for all.

Another factor in of the health and wellbeing proposal of the scheme is the communal amenity spaces. These areas will provide spaces for residents to gather, to relax, to work, to exercise which will foster a sense of community. These spaces have been designed to link with the garden landscape with natural ventilation and ample sunlight.

### **3.8 Residential Management**

The Property Management Company will have the following responsibilities once the development is completed:

- Timely formation of an Owners Management Company. All future purchasers will be typically obliged to become members;
- Preparation of annual service charge budget for the development's common areas;
- Apportioning of the Annual operational charges in line with the Multi Unit Development (MUD) Act (equitable division);
- Engagement of independent legal representation on behalf of the OMC in keeping with the MUD Act - including completion of Developer OMC Agreement and transfer of the common areas;
- Estate Management / Third Party Contractors Procurement and Management;
- OMC Reporting / Accounting Services /Corporate Services /Insurance Management;
- After Hours Services and Staff Administration.

The management of the property will be ultimately be the responsibility of the final owners. Consideration has been given to ensuring homeowners have a clear understanding of the property which they will own and the following will be provided at a minimum to ensure homeowners have a clear understanding of their property. Homeowner packs will be provided to new residents which will include a homeowner's manual to provide information to purchasers in relation to their new property. This pack will typically include details of the property such as information in relation to connection with utilities and communication providers, contact details for all relevant suppliers and instructions for the use of any appliances and devices in the property

A resident's pack prepared by the operational management company will also be provided and will include information on contact details for the managing agent, emergency contact details, transport links and a clear set of rules and regulations for tenants of the property. This will ensure residents are appropriately informed, so any issues can be addressed in a timely and efficient manner and ensure the successful operation of this build to let scheme.

## 4.0 Energy & Carbon Emissions

### 4.1 Design

Landlord services shall be provided to common stair cores and underground car parking.

This will include general plant, site lighting, common stairwells/core (lifts etc), and emergency lighting and fire alarm services.

The commercial units and the hotel shall be provided with a standalone energy centre providing heating, cooling, domestic hot water services and ventilation as required.

The commercial units, offices and hotel shall be provided with both heating and cooling. This shall be provided through high efficiency air source heat pump technology. Simultaneous heating and cooling can be provided as necessary. The heat pump technology shall be based on the new environmentally friendly R32 gas.

With regard to domestic hot water for the offices this shall also be provided via an air source heat pump. The hotel hot water requirements shall be provided by gas fired water heaters with an efficiency rate of up to 96%.

The electrical installation shall incorporate all low energy systems such as LED lighting and controls and variable speed drives for pumps, lifts etc. With regard to the possible restaurant/server units, consideration shall be given to natural gas for water heating and cooking.

Fresh air shall be provided through air handling units incorporating thermal wheel technology and inbuilt heat pumps having a high COP and compliant with ErP EcoDesign 2018.

The units shall all have separate meters for water and electricity for the tenants to monitor and target their usages.

Each residential unit shall have a wet system to provide heating, with a Mechanical Ventilation with Heat Recovery (MVHR) unit to provide fresh tempered air.

The wet system shall be served by an air source heat pump, which will also supply the domestic hot water.

The units shall all have separate meters for water and electricity for the tenants to monitor and target their usages.

The electrical installation shall incorporate all low energy systems such as LED lighting and controls and variable speed drives for pumps, etc.

## 4.2 Nearly Zero Energy Building Standard (NZEB)

The development will be designed and constructed so as to ensure that the energy performance of the building is such as to limit the amount of energy required for the operation of the building and the amount of CO2 emissions associated with this energy use insofar as is reasonably practicable. The key issues have been outlined within this section and the proposed design solutions to demonstrate compliance with regulations.

### Thermal Insulation

The proposed thermal insulation standards shall be in line with current Part L 2017 (nZEB) regulations, the development shall meet the minimum requirements set by the building regulations as shown below.

<b>Maximum average elemental U-Value (W/m<sup>2</sup>K)</b>	
Pitched Roof, insulation horizontal at ceiling level	0.16
Pitched roof, insulation on slope	0.16
Flat Roof	0.20
Walls	0.21
Ground Floor	0.21
Other exposed floors	0.21
External personnel doors, windows and rooflights	1.6
Vehicle access and similar large doors	1.5
Curtain Walls	1.8

The U Values shall be designed in the context of the balance of heat loss and heat gain, overheating, Building Regulations, Building Energy Rating and comfort conditions. These shall be improved upon where possible limiting the heat loss and, where appropriate, maximizing the heat gains through the fabric of the building.

### Passive energy measures

The design shall endeavour to employ passive energy measures to minimise energy consumption.

Passive design strategies will use ambient energy sources instead of purchased energies - electricity and natural gas - these shall include where applicable daylighting, natural ventilation, solar energy and heat pump technology.

Renewable energy will be provided in compliance with Part L 2017 (nZEB) i.e. the nearly zero or very low amount of energy required shall be covered to a significant extent by energy from renewable sources, including energy from renewable sources produced onsite or nearby.

With regard to the most suitable renewable building technologies, this site shall employ a combination of air source heat pump technology and photovoltaics.

As part of the proposed development the following strategies and technologies will be incorporated to provide a new high efficiency installation;

- Where possible equipment will be listed on the SEAI Triple E register
- An intelligent, computer-based BMS - building management system - ensuring control systems are set correctly for different weather conditions and occupancy levels. Operational costs can be reduced by maintaining appropriate temperatures and ensuring that heating equipment and controls are operated and managed correctly.

- Set appropriate hot water temperatures - Excessive heating of hot water is wasteful and could scald staff or guests. The optimum temperature for stored hot water is 60°C which is adequate to kill Legionella bacteria and is sufficiently warm for staff and guests to use.
- Match ventilation to demand - Ventilation requirements may vary at different times and in different parts of a building throughout the day. Check that operating times for ventilation and cooling systems are consistent with the occupancy patterns of the building, unless ventilation is being used to provide cooling overnight.
- Low energy fans for ventilation systems
- Installing variable-speed drives to ensure pumps and fans only operate at the speeds necessary to meet demand. This reduction in speed saves energy and there are corresponding heating and cooling cost savings too.
- High efficiency motors – low loss and variable speed types with good controls
- LED lighting for both general and emergency lighting
- Automatic lighting controls to minimise electricity consumption where applicable
- Heat metering – every circuit will be provided with its own heat meter to allow quantification across the different areas.
- Water Saving Measures -wasting water is literally throwing money down the drain. All hospitality businesses could benefit from the installation of water conserving devices such as:
  - Tap controls – these switch taps off after a certain time and are useful in communal areas such as toilets and leisure facilities in hotels.
  - Spray taps and water efficient showerheads – these reduce the volume of water coming out of a tap or shower and can reduce consumption without diminishing the service to the customer, provided the water pressure is adequate.
  - Urinal flush controls – these help to reduce unnecessary flushing in toilets.
  - Rainwater harvesting - this is the process of collecting and the storing rainwater that falls on your property. Rainwater shall be collected at carpark level then in turn be distributed to each building. Each building shall be provided with a break tank and distribution system for rainwater and the water shall be used for flushing toilets. Rainwater harvesting is a simple way to reduce your environmental impact and reduce your water usage.
  - Heat recovery - It costs money to heat the air inside a building and it may be possible to reclaim some of that energy.
  - There is increasing recognition of the benefits of future proofing against increasing fuel costs through energy efficiency and using sustainable technologies. The final design solution will incorporate where possible the most energy efficient systems to provide a complete new operational and sustainable system.

### **4.3 Transport & Accessibility**

The proposed scheme is supported by a Mobility Management Plan (MMP) which sets out the key infrastructural proposals and modal split targets for the development in general terms and will be further developed when the development is occupied. The MMP should be considered as a dynamic process where a package of measures and campaigns are identified, piloted and monitored on an ongoing basis. The nature of the plan therefore changes during its implementation in that some measures prove successful and are therefore retained while others are not supported and are discarded. It is important that the plan retains the support of users and receives continuous monitoring. Feedback and active management of the plan is required for it to continue to be successful.

The appointment of a Mobility Manager, from the start, as part of the site operations team, to co-ordinate the initial period of occupation by all the site users is necessary. In the fullness of time, a travel co-ordinator as part of a steering group is considered vital for the success of the plan. The steering group may comprise of representatives of the whole

development i.e. commercial and residential. The MMP will need to be reviewed on a regular basis within the steering group with updates occurring as improvements to the transport network in the vicinity of the development site are implemented.

The objectives of the MMP for the proposed development are as follows:

- To encourage/increase the use of public transport, walking and cycling for staff and visitors and for work-related travel and to facilitate travel by bicycle, bus and train.
- To reduce the overall number of single occupant vehicles trips for journeys to work and work-related travel.
- To integrate mobility management into the development decisions, policies and practices to work closely with governing bodies on means and use of transport services around the vicinity of the development site
- To provide information and have resources readily available to increase awareness and continue education on sustainable modes of travel for both staff and visitors to the development.
- To increase car-pooling amongst staff.

Please see the enclosed MMP prepared by Punch Consulting Engineers for further details.

## 5.0 Conclusion

In summary, this Building Lifecycle Report addresses the requirements of Section 6.13 of the Sustainable Urban Housing: Design Standards for New Apartments – Guidelines for Planning Authorities. Section 6.13 of the Apartment Guidelines 2018 requires that apartment applications shall:

*"include a Building Lifecycle Report, which in turn includes an assessment of long term running and maintenance costs as they would apply on a per residential unit basis at the time of application, as well as demonstrating what measures have been specifically considered by the proposer to effectively manage and reduce costs for the benefit of residents."*

This Building Lifecycle Report provides an assessment of the long term running & maintenance costs, the measures to manage and reduce costs and the energy strategy for the proposed development. The report outlines how the development will be designed and constructed so as to ensure that the energy performance of the development is such as to limit the amount of energy required for its overall operation.

Therefore, it is submitted that this Building Lifecycle Report outlines how the proposed development accords fully with the proper planning and sustainable development of the area, the Sustainable Urban Housing: Design Standards for New Apartments while providing an attractive, high quality, contemporary development which enhances the development of the western area of the city.