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Building Life-Cycle Report
for Apartments & Houses
Planning Application for 178 Dwellings and a neighbourhood centre with crèche on lands at Kilmashogue House and Coill Avon house, Whitechurch Road, Rathfarnham, Dublin 16

Proposed Residential Development on Lands at Kilmashogue House and Coill Avon house, Whitechurch Road, Rathfarnham, Dublin 16

Prepared for An Bord Pleanála by JFOC Architects
on behalf of BCDK Ltd. and Coill Avon Ltd.

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Disclaimer

Without Prejudice to the generality of this Building Life-Cycle Report, the information provided is indicative and subject to change following development of the project through the planning application stage, detailed design and construction. As far as possible information is correct at the time of submission to the relevant authority for consideration.

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1. Introduction

This Development Life-Cycle Report has been prepared by JFOC Architects for the entire proposed residential development at Edmondstown, Whitechurch Road, Rathfarnham, Dublin 16.

The purpose of this report is to provide an initial 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 to effectively manage and reduce costs for the benefit of the residents. It is also intended to establish the method in which areas of communal space that will contribute to a high-quality public realm can be made viable in tandem with public open spaces that will be taken-in-charge by South Dublin County Council.

Sections 6.11 to 6.14 of the Sustainable Urban Housing; Design Standards for New Apartments - Guidelines for Planning Authorities relates to the "Operations & Management of Apartment Developments". This report has been prepared in accordance with the requirement of section 6.13 of 'Sustainable Urban Housing: Design Standards for New Apartments. Guidelines for Planning Authorities' (December 2020), which states that any planning application for apartment developments "shall include a building life-cycle report which in turn includes 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 ensures compliance with the Multi-Unit Developments Act, 2011, which sets out legal requirements regarding the management of apartment developments, and consideration of the long-term running costs of the apartment building.

While not necessary under the Multi-Unit Developments Act, 2011, in conjunction with an assessment of the multi-unit apartment element of the development, this report also considers the proposed housing units as a holistic part of the whole development neighbourhood.

2. Proposed Development Description

This Building Life-Cycle Report relates primarily to the apartment units and secondly to the housing units associated with the residential scheme located on Lands at Kilmashogue House and Coill Avon house, Whitechurch Road, Rathfarnham, Dublin 16.

The proposed development on a site that extends to 6.77 hectares includes the derelict Kilmashogue House (southern lands) and Coill Avon house (northern lands), adjacent roads in the control of South Dublin County and Dun Laoghaire Rathdown County Councils and consists of the following developments: -

- Demolition of Kilmashogue House and outbuildings and demolition of Coill Avon house and outbuildings;
- The refurbishment and re-use of 2 no. stone outbuildings for community use, to be incorporated into an area of public open space on the southern lands;

- The construction of a mixed-use development comprising neighbourhood centre and 178 no. residential units comprising 72 no. houses, 38 no. apartments and 68 no. duplex apartments;
- The 72 no. houses will comprise 2, 2.5 and 3-storey detached, semi-detached and terraced units to include:-
    - 6 no. 2-bed houses;
    - 45 no. 3-bed houses;
    - 21 no. 4-bed houses;
- The 38 no. apartments and 68 no. duplex apartments are located across 7 no. buildings ranging in height from 3 to 5-storey consisting of 1 no. Block A/B, 1 no. Block C, 1 no. Block E, 1 no. Block S and 3 no. Blocks T-type as follows: -
    - **Block A/B:** 5-storey over basement and podium accommodating 10 no. 1-bed apartments, 16 no. 2-bed duplex apartments and 1 no. 3-bed duplex apartment with associated balconies/terraces;
    - **Block C:** 5-storey over basement accommodating 4 no. 1-bed apartments and 8 no. 2-bed duplex apartments with associated balconies/terraces;
    - **Block E:** 4-storey over basement accommodating 8 no. 1-bed apartments and 16 no. 2-bed duplex apartments with associated balconies/terraces;
    - **Block S:** 3-storey accommodating 2 no. 2-bed duplex apartments and 1 no. 3-bed apartment and 1 No. 3-bed duplex apartments with associated balconies/terraces;
    - **Block T:** 3no. 3-storey buildings accommodating 6 no. 1-bed apartments, 18 no. 2-bed duplex apartments, 9 no. 3-bed apartments and 6 no. 3-bed duplex apartments, all with associated balconies/terraces;
- Block A/B and Block C are arranged around a landscaped podium. The neighbourhood centre is located below this podium and accommodates a 2-level creche (313m^2) at lower ground and ground floor level, and 3 no. retail/non-retail/cafe service units (470m^2) at ground level;
- The basement below Block A/B and Block C accommodates 50 no. car parking spaces, bicycle parking, bin stores, plant and staff service area (80m^2);
- The basement below Block E accommodates 35 no. car parking spaces, bicycle parking, bin store and plant;
- A section of link street with footpath and cycle path (approx. 438 linear metres) extending from the junction of Whitechurch Road and College Road on an alignment parallel to the M50, to provide access to the southern development lands and incorporating a bus turning circle;
- Upgrade works to College Road including a new two-way cycle track and relocated footpath from the Whitechurch Road junction to provide connectivity to the Slang River pedestrian/cycle Greenway;
- A new signalised crossroads junction to connect the proposed link street with Whitechurch Road and College Road;
- Upgrade to the existing vehicular access at the entrance to Coill Avon house on Whitechurch Road;
- Foul sewer drainage works along Whitechurch Road from the Kilmashogue junction to the existing junction at Glinbury housing estate;

- All landscaping, surface car parking, boundary treatments, infrastructure works, ESB substation, and associated site works and services.

The proposed tenure of the development is 90% Private/Build to Sell and 10% Part V Social Housing. Throughout the development a range of open spaces and amenities are provided which are available to residents of the various apartment units. The total public open space in the development is 0.69ha (16%). There is also the provision of 0.1231Ha. of communal shared spaces, located beside each of the larger apartment buildings. This communal space and some public open spaces will form part of the Management Company area. Other public open spaces are proposed to be taken-in-charge by the council.

The two large apartment buildings include basement carparking, and lift access to all upper level dwellings. Some ground floor units have street level own-door access. In the duplex blocks, the ground floor simplex units each have own-door access, while the duplex units at first floor level share access with a maximum of only one other unit. All units have their own private garden, balcony, or winter garden and benefit from communal spaces with public open spaces close by. Please refer to drawings enclosed with the application for details of the site, apartments and duplexes. Shared bin storage and secure bicycle storage has been facilitated, as illustrated on the enclosed drawings. AWN have prepared an operational waste management plan in support of the proposed development.

All apartments have been designed to meet or exceed the standards put forward in the 'Sustainable Urban Housing: Design Standards for New Apartments (2020)' and similarly in terms of the housing provision, all houses have been designed to meet or exceed the standards put forward in the 'Quality Housing for Sustainable Communities (2007)' . Please refer to the Schedule of Accommodation and the Housing Quality Assessment that accompany this planning application.

3. Assessment of Long-Term Running and Maintenance Costs as they Would Apply on a per Residential Unit Basis

3.1. Property Management of the Development

A Property Management Company (PMC) would be engaged at early stages of the development to oversee the long term running and maintenance costs of the apartments and their associated communal spaces and public realm as well as the exterior elevations on behalf of the Owners Management Company (OMC). Within the apartment building, they will also undertake the management of internal circulation including staircases, other common areas, and landscaping. Throughout the site, the streetscapes and public realm are intended to be taken-in-charge by South Dublin County Council. The OMC will enter a contract with the PMC for no more than 3 years, after which it will be re-tendered, as prescribed by the PRSA.

Upon completion of scheme, responsibilities of the Property Management Company will include:

- Timely formation of the OMC. All future purchasers will be obliged to become members of the OMC.
- Estate Management
- Preparation of an annual Service Charge Budget for the development communal areas.
- Equitable apportioning of annual operational charges in line with the Multi Unit Development Act (MUD) 2011
- Engagement of Independent Legal representation on behalf of the OMC in keeping with the MUD – including completion of Developer OMC Agreement and transfer of common areas.
- Third Party Contractors procurement and management
- Accounting Services
- Corporate Services
- Insurance Management
- After-Hours Services
- Staff Administration

The overall development will benefit from the utilisation of a Planned Preventative Maintenance (PPM) programme. The PPM will be completed annually for the apartment building and public realm to include the shared external common areas. Consideration will be given to the ongoing maintenance of the buildings assets in an effort to protect the asset lifecycle and to identify when replacements/upgrades are required. Items covered will guide which services are required, the timing and number of occurrences of same. Typical PPM programmes will detail the timing of the visits for fire alarm maintenance, lift maintenance, the landscaping specification, along with waste management protocols.

The Housing Agency provide useful guidance for the OMC the 'Owner's Management Companies – A Concise Guide for Directors'. The ten key Considerations for directors of owners' management companies outlined therein are:

1. Director's Duties
2. Board effectiveness

3. Performance versus conformance
4. The company constitution and register of members
5. Finances, cash and debtors
6. Company accounts and statutory audit
7. The role of the company secretary
8. Outsourcing
9. Annual general meetings
10. Dispute resolution

3.2. Service Charge Budget

The property management company has several key responsibilities including the compiling of the service charge budget for the development for agreement with the OMC.

The service charge budget covers items such as cleaning, landscaping, refuse management, utility bills, insurance, maintenance of mechanical/electrical, life safety systems, security, property management fee, etc., to the development common areas in accordance with the MUD Act 2011.

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 for 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 life-cycle period. The BIF report will identify those works which are necessary to maintain, repair, and enhance the premises over the 30-year life-cycle period, as required by the MUD 2011. Each year at a General Meeting of members, the OMC will determine the contribution to be made to the Sinking Fund, having regard to the BIF report.

Note: the detail associated with each element heading i.e. specification and estimate of the costs to maintain / repair or replace, can only be determined after detailed design and the procurement/construction of the development and therefore a BIF report is not included in this document however a typical BIF table is attached as Appendix A.

4. Measures to effectively manage & reduce costs for the benefit of residents

4.1. Design Proposals

Located on the periphery of Rathfarnham, and inside the M50, the proposed development at a density of 41 dwellings per hectare represents an appropriate and efficient use of land. Houses are generally 2 – 3 storeys in height, while the apartments are provided in a five storey block at the neighbourhood centre in the south eastern section, and a second four storey apartment building in the north western section of the site. Both of these larger apartment buildings benefit from basement carparking, and access to all apartments by lift. The design is efficient with the duplex typologies proposed allowing for reduced circulations spaces. The southern boundary of the site is lined with 3 storey duplex apartments consisting of own door simplex apartments at ground floor, and duplex units at first and second floor. This pattern of development minimises the level of shared circulation that is required for the units in these smaller buildings, and there are no lifts and limited corridors proposed. The duplex style arrangement ensures an efficient level of circulation versus apartment space and thus service charges and maintenance costs faced by residents into the future are kept at reasonable levels.

Lifecycle costs are also determined by the durability and maintenance requirements of materials. We have selected high quality materials and finishes across the project. Durable, low-maintenance, familiar cladding materials such as brick and render minimise the impact of façade maintenance. Balconies and winter gardens are designed to be capable of fabrication off-site, resulting in higher standard of finish, reducing damage during construction and improved durability. Materials proposed for use on duplex apartment building elevations and to surface level bicycle store and ESB substation are durable and of a quality that will not need regular fabric replacement or maintenance outside general day-to-day care. The choice of high quality and long-lasting materials such as brickwork, aluminium, and render as well as considered hardscaping and landscaping in the public, semi-public and private realms will contribute to lower maintenance costs for future residents and occupiers.

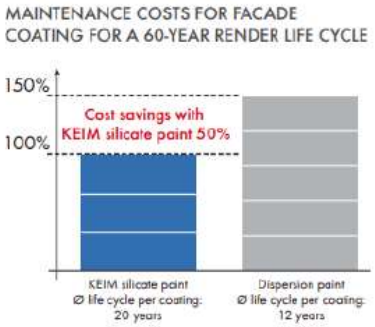
This report reflects the outline material descriptions and examples of typical materials and systems used for schemes of this nature and their associated lifespans and maintenance requirements. All information is therefore indicative subject to detailed design development. As the building design develops this document will be updated and a schedule will be generated from the items below detailing maintenance and replacement costs over the lifespan of the materials and development constituent parts. This will enable a robust schedule of building component repair and replacement costs so that running and maintenance costs of the development are kept within the agreed annual operational budget.
A general outline of the primary materials used in the scheme can be found below;
Measures are addressed under four main headings:

- External Building Fabric Material Selection
- Internal Building Fabric Material Selection
- Energy and Building Services
- Landscape Material Selection

4.2. External Building Fabric Material Selection

Materials have been selected with a view to longevity, durability and low maintenance with Consideration given to Building Regulations and include reference to BS 7543:2015 'Guide to Durability of Buildings and Building elements, Products and Components'

Please refer to the Materials and Finishes Section of the Architectural and Urban Design Report accompanying this planning application.

Measure	Description	Benefit
Brickwork	While bricks have a high embodied energy, they are an extremely durable material. They are aesthetically pleasing, and continue to be attractive as they age and develop a patina. Brickwork proposed in this application is expected to have a lifespan of 100+ years. The mortar pointing however has a shorter lifespan of 25-50 years. In general, given their durability, brickwork finishes require little maintenance. Most maintenance is preventative: checking for hairline cracks, deterioration of mortar, plant growth on walls, or other factors that could signal problems or lead to eventual damage.	Extremely durable, with low maintenance requirements. Preventative maintenance by monitoring mortar joint deterioration ensures longevity of material. Attractive finish.
Keim Render Finish	Keim Mineral Paint or similar. KEIM Mineral Paints were developed over 140 years ago and are used globally to provide extremely long lasting, protective, and durable coatings with a reputation for being the best paints in the world. KEIM paints penetrate and chemically bond with the mineral substrate onto which they are applied, becoming an integral part of the surface, whereas oil based paints merely form a skin on the surface. KEIM Mineral Paints are natural, water-borne liquid silicate paints which produce an extremely durable, colour-fast, sustainable protective finish with high vapour permeability, which work in harmony with the environment	Extremely durable, with low maintenance requirements. 
Aluminium Cladding to	Aluminium sheeting panels with a	Aesthetic impact, durability and

Parapets and Balcony Fascias	typical life expectancy of 25 years.	weathering. Annual inspection and cleaning every 5 years
Slate/ Tile Roofs	Slate/ Tile roofs with a typical life expectancy of 60+ years with good maintenance.	Aesthetic impact, durability and weathering. Annual inspection and cleaning every 5 years
Flat Roof – Green Roof	Green roof sedum on a builtup insulated bituminous membrane base. Average lifecycle of 15-35 years on most green roofs. Lifecycle will be extended with robust proven detailing to adjoining roof elements and appropriate and regular maintenance of the roof materials. Quarterly maintenance visits to include inspection of drainage layer and outlets and removal of any blockages to prevent ponding. Inspection of vegetation layer for fungus and decay. Carry out weeding as necessary. No irrigation necessary with sedum blankets Please refer to the Bauder Green Roofs Manual in the CS Consulting Report and to the Engineering Services Report for further details. Note that Bin stores are also proposed to have green roofs.	A green roof will add to the character of the overall scheme, as well as providing attenuation to storm water run-off and less burden on rainwater goods, increased thermal and sound insulation to the building and increased bio-diversity. Natural soft finishes can provide visual amenity for residents where roof areas are visible or accessible from within areas of the scheme. Sedum roofs are a popular and varied choice for green roofs requiring minimal maintenance.
Flat Roof	Small areas of flat roofs on other areas Average lifecycle of 18-35 years on most flat roofs. It is expected that all will be warm deck roofs.	Flat roof technology is now as reliable as traditional roofs and adds to the contemporary nature of the scheme.
Windows and Doors	All units double glazed with thermally broken frames in Aluminium or uPVC. All opening sections in windows to be fitted with suitable restrictors. Include for all necessary ironmongery; include for all pointing and mastic sealant as necessary; fixed using stainless steel metal straps screwed to masonry reveals; include for all bends, drips,	Excellent airtightness and low maintenance. In areas of poor noise quality, a higher specification has been made to eliminate any impairment on the quality of life of the inner environment as per the advice contained in the Inward Noise Assessment Report prepared by

	flashings, thermal breaks etc. Aluminium has a typical lifespan of 45-50 years. Required maintenance: Check surface of windows and doors regularly so that damage can be detected at early stage and remedial action taken. Silicone seals and gaskets should be checked to ensure they are intact and secure. Check fixings and furniture and lubricate at least once a year. Ensure regular cleaning regime. Check for condensation on frame from window and ensure ventilation louvres are operable. Refer to Materials & Finishes Report in the Architectural Design Statement & Noise Report prepared by AWN Consulting Engineers.	AWN Consulting Engineers.
Balconies	• Concrete balcony system to engineer's detail, or • Powder-coated steel frame balcony system to engineer's detail or • Thermally-broken farrat plate connections to main structure of building. Lifecycle: • Metal structure has a typical life expectancy of 70 years dependent on maintenance of components. • Concrete structures have a high embodied energy, however it is an extremely durable material. Concrete frame has a typical life expectancy of over 80 years. Maintenance: Relatively low maintenance required. Check balcony system as per manufacturer's specifications. Check all hardware components for wear. Check elements for signs of wear and/or weathering. Check for structural damage or modifications.	Minimal ongoing maintenance
Winter Gardens	Winter gardens add to the amenity and	Minimal ongoing maintenance.

	usability of balconies that are located closest to the M50, allowing residents a greater degree of control of their environment. Winter garden glazing will be fully retractable and in accordance with the appropriate guidance and regulations	
Balustrades & Handrails	• Metal balustrades • Fixing in accordance with manufacturer's details General glass and metal items with a 25-45 year lifespan Regular visual inspection of connection pieces for impact damage or alterations	Minimal ongoing maintenance
Fall Arrest System for Roof Maintenance Access	• Latchways Constant Force B1 Fall Restraint System/B2 Fall Arrest System • Installation in accordance with BS 7883 by the system manufacturer or a contractor approved by the system manufacturer. 25-30 years. Generally steel finishes to skyward facing elements can be expected to maintain this life expectancy. Required maintenance: Check and reset tension on the line as per manufacturer's specifications. Check all hardware components for wear (shackles, eye bolts, turn buckles). Check elements for signs of wear and/or weathering. Lubricate all moving parts. Check for structural damage or modifications.	Fall protection systems are a standard life safety system, provided for safe maintenance of roofs and balconies where there is not adequate parapet protection. A FPS must comply with relevant quality standards.

4.3. Internal Building Fabric Material Selection

Measure	Description	Benefit
Floors – apartment stair cores and entrances	Selected anti-slip porcelain or ceramic floor tile with inset mat well at entrance doors as required. Life span of 20- 25 years.	Low maintenance and easily cleaned.
Floors – lobbies/corridors	Selected carpet inlay on underlay. 13 years life span typically. Regular cleaning required	Attractive aesthetic for residents and flexibility to change in the future.
Walls	Selected paint finish with primer. Wall protection at heavy traffic areas with plasterboard substrate adjacent to cores where furniture moving will damage wall fabric. Finish lifespan of 2- 10	Attractive aesthetic for residents and flexibility to change appearance in the future.

	years, regular maintenance required	
Ceilings	Selected paint finish with primer to skimmed plasterboard ceiling.	Decorative and durable finish
Internal balustrades and handrails	Painted metal balustrade or proprietary glazed panel system face fixed to stair stringer/landing edge with polished stainless steel brackets and clamps to manufacturers installation details.	Durable finish.
Internal Doors and Frames	Selected primed and painted solid internal doors. Glass and aluminium door system to glazed entrances.	Durable finish with regular inspection and maintenance.

4.4. Energy Performance, Carbon Emissions and Building Services

Energy Strategy: All dwellings in the proposed development will be required to minimise overall energy use and to incorporate an adequate proportion of renewable energy in accordance with Building Regulations Part L 2019, Conservation of Energy & Fuel (hereinafter referred to as Part L) and anticipated future revisions. The Regulations require that the energy consumption and carbon emissions of every dwelling is assessed using the DEAP software and that reductions of 70% in energy consumption and 65% in carbon emissions are achieved when compared to a baseline dwelling. The baseline against which this reduction is to be measured is considered to be a dwelling which is constructed to comply with the 2005 version of Building Regulations Part L. It is also a requirement that all new dwellings are provided with a renewable energy source. The regulations state that 20% of the total energy consumed within the dwelling must be provided from renewable thermal sources (solar thermal, biomass, heat pumps) or renewable electrical sources (Photovoltaic, Micro-wind). In practical terms, for a multiple unit development, this requirement is usually met by incorporating PV panels at roof level, incorporating air source heat pump technology or by adding an element of biomass or micro-CHP to a district heating scheme. Based on the current design all of the proposed dwellings in the Edmondstown SHD development are expected to comply with the requirements of Part L 2019. Preliminary calculations have been completed using the DEAP 4.2.0 software tools released by the SEAI and these indicate that the dwellings will meet the new standard . The BER calculations that have been prepared indicate that all dwellings will achieve an A2 rating.

Please refer to the Energy Statement by Dynamic Design that accompanies this planning application.

4.5. BER Certificates

Description:

A Building Energy Rating (BER) certificate will be provided for each dwelling in the proposed development which will provide detail of the energy performance of the dwellings. A BER is calculated through energy use for space and hot water heating, ventilation, and lighting and occupancy. It is proposed to target an A2/A3 rating for the apartments this will equate to the following emissions:

- A2 – 25-50 kwh/m^2/yr. with CO_2 emissions circa 10kg CO_2/m^2/yr.
- A3 – 51-75 kwh/m^2/yr. with CO_2 emissions circa 12kg CO_2/m^2/yr.

Benefit:
A BER Certificate will show prospective buyers or tenants of a dwelling the energy performance of the building thus giving an indication of the running costs.

4.6. Passive Solar Design

Description:
Daylight in buildings creates a positive environment by providing connectivity with the outside world and assisting in the wellbeing of the building's inhabitants. Daylight also represents an energy source; it reduces the need for artificial lighting, particularly in dwellings where natural light alone is often sufficient throughout the day. The design intent is to maximise the use of natural daylight to enhance visual comfort and not compromise thermal performance. The proposed development will have glazing specified that will minimise thermal conduction (u-value) while allowing for sufficient daylight and maximising solar gain. Maximising solar gain within the limitations of thermal comfort allows for a portion of the space heating load to be met passively during the day.

A Daylight and Sunlight Analysis carried out on the proposed development by BPC Consulting Engineers demonstrates that *"the development itself is expected to experience good levels of internal daylight, with all rooms exceeding the minimum recommendations of the BRE Guide. With a higher ADF, indoor daylight will be sufficient for more of the year. Therefore, the apartments will rely less on electric lighting. In cases where the ADF is very high (>6%), care needs to be taken to mitigate potential overheating in summer and/or excessive heat loss in winter.*

The results show that the majority of amenity spaces tested in the proposed development meet the BRE's minimum recommendations for sunlight to gardens or open spaces. All areas meeting the criterion should appear adequately sunlit throughout the year. The back gardens of the Duplex Type T units do not meet the minimum recommendation for sunlight. The layout and orientation of these units have been developed to address the need raised by the planning authority to provide passive surveillance of the new link street. To mitigate the fact that these gardens are north facing, additional compensatory amenity spaces are provided to the front (south) of the units in the form of "winter gardens" for the middle units and front gardens for the end-terrace units. These spaces have minimal overshadowing and should enjoy excellent levels of sunlight through the year.

Overall, the development has been designed with due consideration for sunlight and daylight and largely meets the recommendations as set out in the BRE Guide – BR 209 "Site Layout Planning for Daylight and Sunlight, A guide to good practice (2011)." Please refer to the Daylight and Sunlight Report by BPC Consulting Engineers that accompanies this planning application for further details.

Benefit:
Good level of daylight within the development will ensure that occupants rely less on artificial lighting and heating.

4.7. Fabric Energy Efficiency

Description:
In order to limit the heat loss through the building fabric the thermal insulation for each of the plane elements of a new dwelling must meet or better the area weighted average elemental U-Values (Um) as specified by Part L, listed in Table 1 (column; Part L 2018).
Benefit:
Lower U-values and improved air tightness is being considered to help minimise heat losses through the building fabric, lower energy consumption and thus minimise carbon emissions to the environment.

4.8. E-Car Charging Points

Description:
Ducting shall be provided from a local landlord distribution board to designated E-Car charging car park spaces. Management of this will be the responsibility of the Management Company and will enable them the option to install E-Car charging points within the carpark to cater for E-Car demand of the residence. This system operates on a single charge point access card. A full re-charge can take from one to eight hours using a standard charge point.

Benefit:
Providing the option of E-Car charging points will allow occupants to avail of the ever-improving efficient electric car technologies. We are proposing to provide a minimum of 10% - Approx. 30 No. - electrical vehicle charging points in the development. Ducting will also be provided to facilitate the installation of additional electrical vehicle charging points in the future if required.

4.9. LED Lighting

Description:
Lighting accounts for approximately 12% of all residential energy use. As homes become more energy efficient, lighting consumes an increasingly larger proportion of the total energy used. Selecting efficient fixtures and lamps helps reduce energy use. High-efficiency light fixtures and lamps use up to 75% less energy, produce less waste heat, and last longer than traditional incandescent lighting. It is proposed to provide 100% of lighting outlets to be low energy (LED).

Benefit:
LED lighting will ensure that running costs are kept to a minimum.

4.10. Landscape Material Selection

Description:
The landscape design approach is to provide a variety of high-quality durable communal recreation areas for residents around the apartment buildings which feature a range of quality tree, shrub and herbaceous planting. Hard landscape paving and decking materials will be robust and durable and installed using proven details to minimise maintenance requirements. High slip resistance paving materials will ensure safety for all.

Benefit:
Proven planting details for trees, shrubs and hedging will ensure growth will be robust and future maintenance as minimal as possible.

4.11. Site Layout & Landscaping Design

Description:
In this development the quality of life of the pedestrian and cycle user has been prioritised. The scheme caters for these two user groups through strong integrations with the context where possible. High quality landscaping for both hard surfaces (for the cycle, pavements and greenway) and soft landscaping with planting and trees. The landscape design by Ait Urbanism + Landscape Architects is fully compliant with requirements for Part M / K of the Technical Guidance Documents on this sloping site and will provide level access and crossings for wheelchair users and pedestrians with limited mobility. Please refer to Ait Urbanism + Landscape Architect's 'Landscape Design Report' for further details on Landscaping Design.

Benefit:
Plenty of room for cycles and pedestrians, strong links to local amenities at Marlay Park and ST Thomas Regional Sports Campus. Wheelchair user-friendly.

4.12. Paving & Decking Materials

Description:
Sustainable, robust materials, with high slip resistance to be used for paving. Durable and hardwearing equipment (e.g. play, exercise, fencing etc.) to be used throughout. Please refer to Ait Urbanism + Landscape Architects 'Landscape Design Report' for further details on landscape materials.

Benefit:
Robust materials and elements reduce the frequency of required repair and maintenance.

4.13. Streets

Description:
Sustainable, robust materials in compliance with South Dublin County Council's taking in charge requirements are to be used on all roads and pavements. Please refer to Ait Urbanism + Landscape Architects 'Landscape Design Report' for further details on Landscape Materials.

Benefit:
Robust materials and elements reduce the frequency of required repair and maintenance while the different character of the materials and design will influence the user's behaviour.

4.14. Soft Landscape

Description:
Planting proposals have been formulated to complement the local setting as well as being fit for purpose in respect of private and public realm uses and spatial constraints imposed by garden sizes and the width of planting strips.

Benefit:
Reduction in the frequency of required soft landscape maintenance.

4.15. Sustainability & Biodiversity

Description:
Sustainability aspects of the proposed development include the retention of trees and hedgerows along site boundaries and the use of native trees where possible across the site. The overall objective is to enhance the biodiversity potential of the site in addition to providing seasonal interest and variety. Judiciously placed flowering shrub and groundcover planting have been included to further promote biodiversity (pollinator species attracting insects and birdlife).
Please refer to Ait Urbanism + Landscape Architects 'Landscape Design Report' for further details on Sustainability & Biodiversity. This report outlines how the overall landscape strategy allows appropriate existing green infrastructural assets to be protected and built upon to strengthen green infrastructural links across the site and to the surrounding environment.

Benefit:
Enhanced sustainability of long-term estate management.

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5. Building Design

5.1. Own Door Access

Description:
Houses are provided with own door access, and the ground floor simplex apartments in the duplexes also have own-door access. Some of the ground floor units in the four storey apartment building in the north west area of the site also have own door access from the street. The first-floor duplex apartments also benefit from either own door access, or a shared access via a staircase shared with only one other apartment maximum.

Benefit:
This innovative approach minimises the need for shared circulation cores and corridors and their associated maintenance costs as well as the potential for these areas to generate anti-social behaviour. This approach also gives the resident a sense of ownership over their "home" whether it is a house or apartment.

5.2. Shared Spaces

Description:
The apartment buildings are designed with a mix of simplex and duplex apartments in a configuration that ensures fewer corridors are required – there is no corridor at the ground floor or fourth floor of the four storey apartment building, and no corridor at the first or fifth floors of the five storey apartment building in the neighbourhood centre. Circulation space is at a minimum within the buildings. The outward looking buildings ensure high levels of passive surveillance, and significant areas of shared external space. The two basements for carparking of the apartment buildings ensures that space is used efficiently and the public realm is not dominated by cars, improving the quality and amenity of streets and public spaces for all.

Benefit:
The apartments have been designed as a mix of duplex and simplex apartments in a very efficient manner. The distribution of carparking into shared carparking courtyards, with open spaces beside the duplex apartment blocks, ensures a very high quality in the public realm. Cars have been removed from the streetscape in so far as possible, allowing for more public open space and shared private space. This is of great benefit to both the apartment residents and the community as a whole.

5.3. Daylighting to Apartments and Houses

Description:
Where possible, as outlined in 'Sustainable Urban Housing: Design Standards for New Apartments Guidelines for Planning Authorities' to have regard for quantitative performance approaches to daylight provisions 'outlined in guides like the BRE guide 'Site Layout Planning for Daylight and Sunlight' (2nd edition) or BS 8206-2: 2008 – 'Lighting for Buildings – Part 2: Code of Practice for Daylighting' when undertaken by development proposers which offer the capability to satisfy minimum standards of daylight provision'. Please refer to the detailed Daylight and Sunlight Report prepared by BPC Consulting Engineers that accompanies this submission.

There are a small number of single aspect apartments (11 in total) proposed in this scheme, none of which are north facing. 6% of dwellings are single aspect, 57% are dual aspect, and 37% are triple aspect.

Benefit:
Maximises the presence of continuous daylighting, thus reducing the expense of artificial lighting.

5.4. External Lighting

Description:
External lighting will comply with the latest standards and achieve:

- Low-level lighting
- Utilise low voltage LED lamps
- Minimum upward light spill

Each light fitting shall be controlled via an individual Photoelectric Control Unit (PECU). The operation of the lighting shall be on a dusk-dawn profile. Please refer to the public lighting design by Redmond AMS Lighting Designers.

Benefit:
Lighting will be designed to achieve the required standards, provide a safe environment for pedestrians, cyclists, and vehicular traffic, provide surveillance and limit the impact on the artificial lighting on surrounding existing flora and fauna. Having PECU allows for the optimum operation of lighting which minimizes costs.

6. Low Energy Technologies Considered

6.1. E-Car Charging Points

Description:
Ducting shall be provided from a local landlord distribution board to designated E-Car charging car park spaces. Management of this will be the responsibility of the Management Company and will enable them the option to install E-Car charging points within the carpark to cater for E-Car demand of the residence. This system operates on a single charge point access card. A full re-charge can take from one to eight hours using a standard charge point. It is proposed that 10%of car parking spaces will be provided with EV charging points, with ducting provided to houses.

Benefit:
Providing the option of E-Car charging points will allow occupants to avail of the ever-improving efficient electric car technologies.

6.2. Combines Heat & Power (CHP)

Description:
Combined Heat and Power, (CHP), is a technology that may be evaluated in the event a number of apartments remain in a single ownership. This technology generates electricity and captures the waste heat from the generation unit that can be used within the development.

Benefit:
CHP can achieve energy efficiencies by reusing waste heat from the unit to generate heat required for space heating & domestic hot water services in the apartment developments.

Please refer to the Sustainability Report prepared by Dynamic Designs Consulting Engineers for further details.

7. Health & Well Being

7.1. Natural Daylight

Description:
Design and orientation of the buildings has been optimized to achieve a good quality of natural daylight to the units. Please refer to BPC Engineers Daylight and Sunlight Analysis.

Benefit:
Good level of daylight within the development will contribute towards wellbeing and ensure that occupants rely less on artificial lighting.

7.2. Accessibility

Description:
All units, including access and egress, will comply with the requirements of Part M/K as well as being designed in accordance with 'Building for Everyone: A Universal Design Approach' and 'Universal Design Guidelines for Homes in Ireland'. Please refer to the Universal Design Statement that accompanies this application.
Benefit:
Reduces the level of adaptation, and associated costs, potentially necessitated by residents' future circumstances.

7.3. Private Open Space

Description:
Provision of private open space for each dwelling.
Benefit:
Facilitates private interaction with outdoors, increasing health benefits.

7.4. Public Open Space

Description:
Provision of public open space.
Benefit:
Facilitates communal interaction with outdoors and a biodiverse environment, increasing health benefits.

7.5. Security

Description:
Passive surveillance is incorporated into the design with all streets and public open spaces addressed by active street frontage from various angles. The removal of blind internal common areas and blind external space reduces the prospect of generating anti-social behaviour. The site is completely open access with the exception of private amenity spaces.
Benefit:
Reduce the risk of crime, littering within the scheme and reduction of potential waste charges.

7.6. Natural Amenity

Description:
A number of active and passive green spaces are proposed throughout the scheme. Please refer to the detailed landscape design proposals prepared by Ait Urbanism + Landscape Architects for details.

Benefit:
Facilitates community interaction, socialising and play – resulting in improved wellbeing.

8. Waste Management

8.1. Construction & Operational Waste Management Plan

Description:
This application is accompanied by a Construction Waste Management Plan prepared by CS Consulting Engineers and an Operational Waste Management Plan prepared by AWN Consulting Ltd.
Benefit:
These reports demonstrate how the scheme has been designed to comply with best practice both during the construction and operational phases of the development.

8.2. Storage of Non-recyclable Waste and Recyclable Household Waste

Description:
Each duplex and simplex apartment unit has access to a shared, covered and locked bin store. The size, number and distance of secure bin storage from each dwelling has been considered and evaluated as appropriate by AWN Consulting Engineers. Each house is provided with a bin store either in the rear garden or adjacent to the driveway entrance. Domestic waste management strategy: Grey, Brown and Green bin distinction with a competitive tender for waste management collection.
Benefit:
Access to all residents to reduce the risk of littering within the scheme and reduces potential waste charges.

9. Management

Description:
Consideration has been given to ensuring the residents have a clear understanding of the subject property. Proper understanding of correct use will have a long-term benefit in terms of proper maintenance cycles and durability. As such it is intended that once a purchaser completes their sale, a homeowner box will be provided which will include:

- Homeowner manual – this will provide important information for the purchaser on details of their new property. It typically includes details of the property such as MPRN and GPRN, Information in relation to connect with utilities and communication providers, Contact details for all relevant suppliers and User Instructions for appliances and devices in the property.
- Safety File prepared by the PSDP as required under Health and Safety Legislation
- A Residents Pack prepared by the OMC which will typically provide information on contact details for the Managing agent, emergency contact information, transport links in the area and a clear set of rules and regulations.

Benefit:
Residents are informed as soon as possible so that any issues can be addressed in a timely and efficient manner.

10. Transport & Accessibility

10.1. Access to Public Transport

Description:
The site is located at the edge of Rathfarnham, inside the M50, with access to Public Transport by Bus as outlined in the Mobility Management Plan by NRB and the Design-Statement by JFOC Architects. The site is within 15 minutes walk of Whitechurch Green Bus route.
Benefit:
The availability, proximity and access to public transport services contributes to reducing the reliance on the private motor vehicle for all journey types.

10.2. Cycling and Pedestrian Permeability

Description:
Cycling and Pedestrian permeability have been prioritised in the design of this development. In particular, dedicated cycle lanes are provided on the main access route into the site. Direct pedestrian and cycle links have been prioritised. Improved cycle connectivity from the site along College Road and connecting with the River Slang Greenway, plus cycle connectivity to the Tibradden Sports Campus under construction to the south will be of great benefit to the neighbourhood and community.
Benefit:
Ensures long-term attractiveness of walking and cycling to a range of local facilities.

10.3. Bicycle Storage

Description:
Dedicated, secure bicycle parking for each dwelling is provided for at the rate set out in 'Sustainable Urban Housing: Design Standards for New Apartments' of one unit per bedroom and 1 per 2 units for visitors. Within the duplex and simplex apartment units, secure, dedicated bicycle parking is catered for at that ratio. Houses have direct access to rear gardens to provide secure bicycle storage. Please refer to the accompanying 'Schedule of Accommodation' and 'Quality Housing Assessment' for details of the bicycle storage provided for the development.

Benefit:
Accommodates the uptake of cycling and reduces the reliance on the private motor vehicle.
Minimum provision

10.4. E-Car Charging Points

Description:
Ducting shall be provided from a local landlord distribution board to designated E-Car charging car park spaces. Management of this will be the responsibility of the Management Company for the apartment building and will enable them the option to install additional E-Car charging points for apartments to cater for E-Car demand of the residence. This system operates on a single charge point access card. A full re-charge can take from one to eight hours using a standard charge point.

A total of 30 no. electrical vehicle parking spaces are proposed and equates to 10% of the car parking provision. In addition, ducting will be provided for the provision of additional EV charging points for individual houses should they be required. The requirement for EV charging has been considered in the sizing of ESB Sub-stations for the proposed scheme.

Benefit:
Providing the option of E-Car charging points will allow occupants to avail of the ever-improving efficient electric car technologies.

10.5. Car Sharing

Description:
Carparking for the development is regulated to encourage the use of adjacent public transport infrastructure. While car sharing services such as Go-Car is already a popular option in city locations such as Dublin and Cork, it is expected to be used more widely in the future. The management company should designate a visitor carparking space for car sharing when available or required in the future.
Benefit:
Reduces the reliance on the private motor vehicle and reducing oil dependency.

RIAI

JFOC ARCHITECTS

Appendix A

Items included in a Typical BIF – not specific to this development.

The BIF table below illustrates what would be incorporated for the calculation of a Sinking Fund.

BUILDING INVESTMENT FUND (SINKING FUND) CALCULATIONS			
Ref	**Element**	**Life Expectancy**	**Cost**
1	**Roofs**		
1.1	Replacement felt roof covering incl. insulation to main roofs/ overhaul to green roofs.	18	
1.2	Replacement parapet details	18	
1.3	Replacement/ repairs to facias	18	
1.4	Replace roof access hatches	26	
1.5	Specialist Roof Systems - Fall arrest	26	
1.6	Overhaul waterproofing details to penthouse paved areas	12	
2	**Elevations**		
2.1	Recoat metal panels to penthouse apartments	25	
2.2	Minor repairs and preparation for decorations of rendered areas	18	
2.3	Replace exit/ entrance doors	25	
2.4	Replace Rainwater goods	25	
2.5	Recoat powder coated Finishes to balconies / Grills to Basement vents	20	
2.6	Periodic replacement and overhauling of external fixings	5	
2.7	Replace Balcony floor finishes	25	
3	**Common Areas**		
3.1	Decorate Ceilings	7	
3.2	Decorate Walls	7	
3.3	Decorate Joinery	7	
3.4	Replace fire doors	25	
3.5	Replace carpets (stairwells & lobbies)	12	
3.6	Replace entrance mats	10	
3.7	Replace nosings	12	
3.8	Replace ceramic floors tiles Entrance lobbies	20	
3.9	Fixed Furniture & Equipment - Provisional Sum	18	
4	**Basement & Car Parking**		
4.1	Remove/ Replace ceiling insulation	25	
4.2	Repaint parking spaces & Numbering	7	

4.3	Replace store doors, ironmongery & digi-locks	15	
4.4	Replace Bike stands	25	
4.5	Replace basement access control at entrance & core entrances	12	
5	**M&E Services**		
5.1	General - Internal re-lamping	7	
5.2	Replace Internal light fittings	18	
5.3	Replace External light fittings (lights at entrance lobbies)	18	
5.4	Replace smoke detector heads	18	
5.5	Replace manual break glass units/ disabled refuge call points	18	
5.6	Replace Fire alarm panel	18	
5.7	Replace lift car and controls	25	
5.8	Replace Smoke Vent AOV's	25	
5.9	Replace security access control installation	15	
5.10	External Mains Water connection	20	
5.11	Electrical Mains and Sub Mains distribution	20	
5.12	Emergency Lighting	20	
5.13	Overhaul and/or replace Waste Pipes, Stacks & Vents	20	
5.14	Central Heat Pump Plant	20	
5.15	Central Boilers	15	
6	**Exterior**		
6.1	External boundary treatments - Recoat powder coated Finishes to railings	60	
6.2	Replace external signage	18	
6.3	Replace cobblelock areas	18	
6.4	15-year cutback & thinning of trees. Overhaul landscaping generally	20	
6.5	Replace CCTV provision	12	
6.6	External Handrails and balustrade	18	