

PROPOSED LARGE-SCALE RESIDENTIAL DEVELOPMENT

AT SPA GLEN, MALLOW

ON BEHALF OF O'FLYNN CONSTRUCTION

BUILDING LIFECYCLE REPORT



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Introduction

The Sustainable Urban Housing: Design Standards for New Apartments, Guidelines for Planning Authorities (March 2018, updated December 2020) outlines guidelines and policies required for development and maintenance of apartments and multi-residential units.

Clauses 6.11 to 6.14 of the Guidelines relate to the “Operations & Management of Apartment Developments”, and Clause 6.13 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 of effectively manage and reduce costs for the benefit of residents.”

This Building Lifecycle Report sets out to address the requirements of these Guidelines and will demonstrate what measures have been specifically considered by the proposer to effectively manage and reduce costs for the benefit of residents.

Project Description: The proposal is for a Large-Scale Residential Development on the lands at Spa Glen, Mallow. The housing development will be comprising of 186 no. houses, duplexes. The proposed housing mix – 18no. 1 bed units (9.68%), 48no. 2 Bed Units (25.81%), 104no. 3 Bed Units (55.91%), and 16no. 4 Bed Units (8.60%). Supplementary to the units, the development is also proposing a Creche facility with a 50child capacity.

The scheme will have on-street parking for the 1bedroom duplex units as well as front curtilage parking for the houses. Secure bike storage for the units will be provided as required, adjacent to the duplex blocks as well as the Creche. The main entrances to the proposed development are from the Ballyvinter Road one to the west and one to the East of the existing dwelling Meadowbrook. There will be additional filtered permeability with two pedestrian and bicycle connections to Hazelbrooke Estate and the proposed shared pedestrian and bicycle trail leads to 4no. proposed uncontrolled crossing points; 1no connects to The Spa Glen Footpath on the north side of the N72 and the Spa Road, the other 3no. provide connections across the Ballyvinter Road linking to Tinley Park and Cairn Woods and this will allow for onward connections to the active travel route earmarked on the old railway line north of these existing estates.

Measures to Manage and Reduce Costs for the Benefit of Residents

2.1 Energy and Carbon Emissions The following are an illustration of the energy measures that are planned for the house and duplex dwellings to assist in reducing both carbon emissions and costs for the occupants.

Measure	Description	Benefit
BER Certificates	A Building Energy Rating (BER) certificate will be supplied for each unit in the proposed development, which provides detail of the energy performance of the dwellings. A BER is calculated assessing energy use for space and hot water heating, ventilation, and lighting and occupancy. It is proposed to target an A2/A3 rating for the houses, and	Higher BER ratings reduce energy consumption and running costs. Anticipated Ratings for this project are BER A2

	duplexes, which will equate to the following emissions: A2: 25-50 kwh/m2/yr. with CO2 emissions circa 10kgCO2/m2/yr.	
Fabric Energy Efficiency	The U-values being investigated will be in line with the requirements set out by the current regulatory requirements of the Technical Guidance Documents Part L: Conservation of Fuel and Energy – Dwellings 2019 (Refer to Appendix B). Thermal bridging at junctions between construction elements and at other locations will be minimised in accordance with Paragraphs 1.3.3 within TGD Part L.	Lower U-values and improved airtightness will help minimise heat losses through the building fabric, lower the energy consumption and thus minimise carbon emissions to the environment.
Energy Labelled White Goods	Energy Labelled White Goods The white-goods package, where planned for provision in dwellings will be of a high standard and have a high energy efficiency rating.	The provision of high rated appliances in turn reduces the amount of electricity required for occupants.
External Lighting	The external lighting is designed using the lighting simulation software DIALux and is in accordance with the following: <ul style="list-style-type: none"> ▪ CIBSE Lighting Guide LG – 6 ▪ IS EN 12464-2 ▪ CIE Guide regarding Illumination levels and “Obtrusive Light” to neighbouring properties ▪ HSA Regulations for Electricity ▪ ETCl National Rules for Electrical Installations ET 10101 	The site lighting has been designed to provide a safe environment for pedestrians, cyclists and moving vehicles, to deter anti-social behaviour and to limit the environmental impact of artificial lighting on existing flora and fauna in the area.

The following low energy technologies are being considered for the development, and during the detail design stage the specific combination from the list below will be decided on and then implemented to achieve A2/A3 BER Rating.

Measure	Description	Benefit
Natural Ventilation	Natural ventilation is being evaluated as a ventilation strategy to minimise energy usage and noise levels	Advantages of natural ventilation include: <ul style="list-style-type: none"> • Low noise impact for occupants and adjacent units. • Completely passive therefore no energy required with associated. • Minimal maintenance required. • Reduced environmental impact as minimal equipment disposal over life cycle. • Full fresh air resulting in healthier indoor environment.
Mechanical Ventilation Heat Recovery	Mechanical heat recovery ventilation will be considered to provide ventilation with low energy usage.	Mechanical Heat Recovery Ventilation provides ventilation with low energy usage. The MVHR reduces overall energy and ensures a continuous fresh clean air supply.
PV Solar Panels	PV solar panels are being considered which converts the electricity produced by the PV system (which is DC) into AC electricity.	PV solar panels offer the benefit of reducing fossil fuel consumption and carbon emissions to the environment.

	The panels are typically placed on the south facing side of the building for maximum heat gain and in some instances, can also be used to assist the heating system.	They also reduce the overall requirement to purchase electricity from the grid. The surplus energy generated maybe fed into the grid and this will provide an income roff setting home owners overall energy costs.
Air to Water Heat Pump	Air to water heat pumps, will be evaluated for use in the house duplex dwellings	Air to water heat pumps, are highly efficient appliances used for space and hot water heating in the development. This is particularly the case where combined in new build housing where air tightness and insulation levels are very high.
ECAR Charging Points	Ducting for EV charging points will be provided to the on-street parking spaces for the Duplexes within the scheme. All on curtilage parking spaces will be EV Charging ready	Providing the option of E-car charging points will allow occupants to avail of the ever-improving efficient electric car technologies.

2.2 Buildings

The houses and duplex dwellings are all designed in accordance with the Building Regulations, in Particular Part D Materials and Workmanship which includes all elements of the construction, where the design principles and specification are applied to the residential units and the Creche building.

Specific design measures being investigated are:

Design Measure	Benefit
Daylighting	Reduces artificial lighting requirement. Natural
Natural / passive ventilation system	Avoids costly mechanical ventilation systems and associated maintenance and future replacement
Secure bicycle storage for first floor duplex units & Creche, with direct access to bicycle routes	Encourages bicycling by providing greater accessibility and ease of use
Roof construction includes significant areas of traditional pitched roofs including traditional tiled coverings.	Minimises ongoing maintenance
External paved and landscaped areas	These will require low / minimal maintenance

2.3 Materials

The proposal seeks to meet the requirements of the Building Regulations with particular reference to BS 7543:2015, 'Guide to Durability of Buildings and Building Elements, Products and Components', Ares (2020)5101012 Manual of Standard Building Specifications which provides guidance on the design life and predicted service life of buildings and their parts, ensuring that the long-term durability and maintenance of materials is an integral part of the specification of the proposed development.

The scheme is designed and specified in accordance with Phases of the Life Cycle of BS7543; 2015 Figure 04 (Appendix C). The dwellings are designed to incorporate the guidance, best practice principles and mitigations of Annexes of BS 7543: 2015 including: Annex A Climatic agents affecting durability; Annex B Guidance on materials and durability; Annex C Examples of UK material or component failures; Annex D Design Life Data sheets.

Materials chosen including brickwork, render systems, powder-coated aluminium framed double-glazed windows and doors, metal rainscreen cladding, glazed balcony guardings, powder-coated aluminium railings and steel frame deck all require minimum on-going maintenance and reduce ongoing associated costs.

Measure Description	Benefit
<p>Consideration is given to the requirements of the building regulations and includes reference to BS 7543:2015, "Guide to Durability of Buildings and Building Elements, Products and Components", which provides guidance on the durability, design life and predicted service life of buildings and their parts</p> <p>All common areas of the scheme, and their durability and performance are designed and specified in accordance with Figure 4: Phases of Life Cycle BS 7543:2015. The dwellings are designed to incorporate the guidance, best practice, principles and mitigations of Annexes of BS 7543:2015 including-</p> <p>Annex A- Climatic Agents affecting durability</p> <p>Annex B- Guidance on materials and durability</p> <p>Annex C- Design Life data sheets</p>	<p>Ensures that the long-term durability and maintenance of materials is an integral part of the design and specification of the proposed development.</p>
<p>Use of brickwork and pigmented render systems to envelope</p>	<p>Requires no ongoing maintenance</p>
<p>Factory finished alu-clad windows and doors.</p>	<p>Requires no ongoing maintenance</p>

2.4 Landscape

High quality landscape design strategies and the use of robust materials are employed to minimise ongoing maintenance and ensure the costs are reduced. Refer to DMNA Landscape Design Statement for further detail.

Measure	Description	Benefit
Site Layout and Design	<ul style="list-style-type: none"> • High quality mature landscape with emphasis on biodiversity. • Pedestrians are prioritised over the car • Tree planting and soft landscaping within streets, courtyards and public spaces. • SUDs drainage system and landscape maintenance preferable. 	Provides for high levels of water absorption and natural attenuation on site to slow water discharge and minimise any risk of localised water pooling.
Materials	Use of robust, good quality paving and decking materials, with robust and proven details. Durable and robust equipment (ex. play, exercise, fencing etc.) to be used throughout.	Require minimum on-going maintenance and reduces frequency of required repair.
Planting	The use of native and strategically located non-native plants will provide optimum biodiversity and aesthetic values. This varied profile is designed to provide a diversity of landscape	Low-cost, availability, ease of establishment and reduced requirements for maintenance.
SUDS and NBS	It is proposed to use Sustainable Urban Drainage Systems (SUDS) and Nature Based Systems (NBS) for managing stormwater for the proposed development. These systems are environmentally beneficial, causing minimal or no long-term detrimental damage. They are often regarded as a sequence of management practices, control structures and strategies to efficiently and sustainably drain surface water while minimising pollution and managing the impact of water quality of local water bodies.	<ul style="list-style-type: none"> • Attenuate Stormwater run-off at source and site control areas • Reduce stormwater run-off leaving site • Reduce pollution impact and improve water quality of water bodies • Replicate the natural characteristics of rainfall runoff for the site • Recharge the groundwater profile • Biodiversity and ecology benefits • Protect natural flow regimes in watercourses

2.5 Waste Management

The intentions for the management of waste include:

Measure	Description	Benefit
Storage of Non-Recyclable Waste and Recyclable Household Waste	Domestic waste management strategy: Grey and blue bin distinction. Competitive tender for waste management collection	Helps reduce potential waste charges and disposal to landfill.
Composting	Organic waste brown bins to be provided throughout.	Helps reduce potential waste charges and disposal to landfill where organic waste breakdown and release methane

2.6 Health and Wellbeing

All of the housing in the development has been designed with the health and wellbeing of the user in mind. Separation distances, layout of the units, circulation, provision of internal resident's amenity rooms, and private amenity spaces have all been carefully considered and tested to optimise the ingress of natural daylight/sunlight to the proposed dwellings, in addition to the provision of generous glazed windows and doors. This will reduce reliance on artificial lighting, and thereby reduce costs. The development has been designed to meet Part M building regulation requirements and the considered layouts enable easy access for all within the units themselves, the circulation, amenity, and shared courtyard areas.

The external communal areas all enjoy favourable orientation and passive surveillance from overlooking dwellings – creating comfortable and secure places to be. A large open space play area is located centrally within the scheme with further smaller open space amenity areas distributed across the development most are linked via the proposed shared pedestrian and bicycle trails incorporated into the site layout. The site is linked via the two vehicular entrance points on to the existing Ballyvinitter Road where space for a future bus stop and shelter is allocated opposite dwellings 187-188. Excellent permeability will be created with shared pedestrian and bicycling trails and three uncontrolled road crossing points integral to the design. Two crossing points will create permeability with other existing dwellings and estate developments in the Spa Glen-Ballyvinitter District generally and direct connection with the adjoining Hazelbrooke development with 2 filtered permeability connections. Access to the west is facilitated with a further crossing point to connect directly to N72 road with existing footpaths leading directly to Mallow town centre or to Fair Street via the Spa Springs Road. The development will have public and private bike storage to encouraging cycling as an easy and healthy mode of transport. Where there is no direct access to the trail network the bicycle symbol will be incorporated on street finishes to indicate clearly to motorists that the street space is shared.

2.7 Management

Consideration has been given to ensure the homeowners have a clear understanding of their property. Once a purchaser completes their sale, a homeowner box will be provided which will include: Homeowner manual which 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.

2.8 Transport

The following are illustrations of how well connected the proposed scheme to the benefit of potential occupants.

Measure	Description	Benefit
Access to Public Transport (Bus Services)	Provision has been made to accommodate a future bus stop and shelter opposite dwelling 187 & 188. From Mallow Town Park Stop 631061, currently a 22minute walk or an 8minute bicycle journey. There are daily bus services, on the hour linking Mallow with Botharbue 242, Donaraile 243, Cork, Limerick, Shannon Airport and Galway 51, Local Link Mallow-Fermoy route together with the bookable Local Link Avondhu Service Mallow-Fermoy-Blarney. There is also a rural bus service connecting the surrounding areas to the town together with school bus services. Mallow Station located 1.6km from the site has main line rail services to and from Cork, Dublin and Tralee and is part of the Cork city commuter rail network. It is currently a 29min walk or a 9minute bicycle journey.	These rail and bus services provide access to a range of additional destinations and facilities. The proximity, frequency and range of additional destinations served by these bus routes enhances the accessibility of the proposed residential development in addition to providing viable and practical sustainable alternative to journeys undertaken by the private motor car.
Permeable Connections	The development site is in a key nodal location and the proposed trails within the design together with the two filtered connections and two crossing points will ensure it is permeable with the general Spa Glen -Ballyvinitter Neighbourhood. The provision for active transport within and through the development to a further crossing point on the west side of the site will deliver permeability between Mallow town (via The Spa Glen N72), the education campus (via the Spa Springs Road) and the Neighbourhood.	Ensure the long-term attractiveness of walking and cycling to a range of local education, retail and community facilities and services.
Bicycle Storage	The provision of sheltered bicycle parking facilities to the duplex units and the Creche facility	Accommodates the uptake of cycling and reducing the reliance on the private motor vehicle
E-Car Facilities	Ducting will be provided to on-street parking places to facilitate EV. On curtilage parking will easily accommodate EV charging.	To accommodate the growing demand for E-car vehicles which assist in de-carbonising society and reducing oil dependency.