White Heather, South Circular Road, Dublin 8

BUILDING LIFE CYCLE REPORT

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INTRODUCTION

The Sustainable Urban Housing; Design Standards for New Apartments – Guidelines for Planning Authorities was published in July 2023 (hereafter referred to as the Apartment Guidelines). The Apartment Guidelines introduced a requirement to include details on the management and maintenance of apartment schemes. This is set out in Section 6 - "*Operation & Management of Apartment Developments*", specifically Section 6.12.

Section 6.12 of the Apartment Guidelines 2023 requires that apartment applications shall:

> *"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."*

This Building Life Cycle Report document sets out to address the requirements of Section 6.12 of the Apartment Guidelines. The report is broken into two sections as follows:

Section 01:

An assessment of long term running and maintenance costs as they would apply on a per residential unit basis at the time of application

Section 02:

Measures specifically considered by the proposer to effectively manage and reduce costs for the benefit of residents.

PROPOSED DEVELOPMENT

The proposed mixed-use Large-Scale Residential Development (LRD) will comprise the demolition of all existing commercial and warehouse buildings and structures on the site, and the construction of 250 no. residential units within six blocks (Blocks 01, 02(A/B), 03(A/B), 04(A/B), and two duplex blocks) ranging in height up to seven storeys. The development will include 12 no. studio apartments, 148 no. one-bedroom apartments, 74 no. two-bedroom apartments, 8 no. one-bedroom duplex units, and 8 no. two-bedroom duplex units.

All residential units will include private balconies or terraces, oriented north, south, east, or west.

The proposal also includes the conversion of the existing residential dwelling at 307/307A South Circular Road to a crèche with an associated external play area. A new kiosk/café and adjoining open space will be provided adjacent to 307/307A South Circular Road, along with car and bicycle parking. The development will provide public open spaces between Blocks 03 and 04, as well as to the north and south of the apartment blocks, the latter overlooking the Grand Canal, together with communal open spaces throughout the scheme. Vehicular, pedestrian, and cyclist access will be provided from the northeast of the site via South Circular Road, with additional pedestrian and cyclist access from the west via St James's Terrace.

The proposal also includes landscaping, public and communal open spaces, and all associated site development works required to facilitate the project. These works include boundary treatments, plant and waste management areas, and other service provisions, including ESB infrastructure.

SECTION 01

AN ASSESSMENT OF LONG TERM RUNNING AND MAINTENANCE COSTS AS THEY WOULD APPLY ON A PER RESIDENTIAL UNIT BASIS AT THE TIME OF APPLICATION

1.1. Property Management of the Common Areas of the development

A property management company will be engaged at an early stage of the development to ensure that all property management functions are dealt with for the development and that the running and maintenance costs of the common areas of the development are kept within the agreed Annual operational budget.

The property management company will enter into a contract directly with the Owners Management Company (OMC) for the ongoing management of the built development. This contract will be for a maximum period of 15 years and in the form prescribed by the PSRA.

The Property Management Company also has the following responsibilities for the apartment development once constructed:

- Timely formation of an Owners Management Company (OMC) – which will be a company limited by guarantee having no share capital. All future purchasers will be obliged to become members of this OMC.
- Preparation of annual service charge budget for the development common areas.
- Fair and equitable apportionment of the Annual operational charges in line with the Multi Units Development Act 2011 (MUD Act).
- 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 common areas.
- Transfer of documentation in line with Schedule 3 of the MUD Act.
- Estate Management.
- Third Party Contractors Procurement and management.
- OMC Reporting.
- Accounting Services.
- Corporate Services.
- Insurance Management.
- After Hours Services.
- Staff Administration.

1.2. Service Charge Budget

The property management company has a number of key responsibilities, primarily 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 lifts/ life safety systems, security, property management fee, etc., to the development common areas in accordance with the Multi Unit Developments Act 2011 (“MUD” Act).

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 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 Multi Unit Development Act 2011.

In line with the requirements of the MUD Act, 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.

A sample format of the typical BIF report is set out in Appendix A.

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 has not been included in this document.

SECTION 02

MEASURES SPECIFICALLY CONSIDERED BY THE PROPOSER TO EFFECTIVELY 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 units to assist in reducing costs for the occupants.

<table>
<tr><th>Measure</th><th>Description</th><th>Benefit</th></tr>
<tr><td>BER Certificates</td><td>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/m2/yr with CO2 emissions circa 10kgCO2/m2 year
A3 – 51-75 kwh/m2/yr with CO2 emissions circa 12kgCO2/m2 /year</td><td>Higher BER ratings reduce energy consumption and running costs.</td></tr>
<tr><td>Fabric Energy Efficiency</td><td>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, titled “Conservation of Fuel and Energy Buildings other than Dwellings”.

Thermal bridging at junctions between construction elements and at other locations will be minimised in accordance Paragraphs 1.2.4.2 and 1.2.4.3 within the Technical Guidance Documents Part L. See below Table 1 of Part L, Building Regulations.

Table 1 Maximum Elemental U-value[1] (W/m²K)
<table><tr><th>Column 1
Fabric Elements</th><th>Column 2 Area Weighted Average Elemental U-Value (U_m)</th><th>Column 3
Average Elemental U-value Individual Element or Section of Element</th></tr><tr><td>Roofs[2]
Pitched roof
- Insulation at ceiling
- Insulation on slope

Flat roof</td><td>
0.16
0.16

0.20</td><td>

0.3

</td></tr><tr><td>Walls[2]</td><td>0.21</td><td>0.6</td></tr><tr><td>Ground Floors[2, 3]</td><td>0.21</td><td>0.6</td></tr><tr><td>Other exposed floors[2]</td><td>0.21</td><td>0.6</td></tr><tr><td>External personnel doors, windows[4] and rooflights[6]</td><td>1.6[5]</td><td>3.0</td></tr><tr><td>Curtain Walling</td><td>1.8</td><td>3.0</td></tr><tr><td>Vehicle access and similar large doors</td><td>1.5</td><td>3.0</td></tr><tr><td>High usage entrance door[7]</td><td>3.0</td><td>3.0</td></tr><tr><td>Swimming Pool Basin[8]</td><td>0.25</td><td>0.6</td></tr></table>Notes:
1. The U-value includes the effect of unheated voids or other spaces.
2. Reasonable provision would also be achieved if the total heat loss through the roof, wall and floor elements did not exceed that which would be the case if each of the area weighted average U-value (Um) for these elements set out in Column 2 were achieved individually.
3. Where the source of space heating is underfloor heating, a floor U-value of 0.15 W/m²K should generally be satisfactory.
4. Excludes display windows and similar glazing but their impact on overall performance must be taken into account in EPC and CPC calculation.
5. In buildings with high internal heat gains a less demanding area-weighted average U-Value for the glazing may be an appropriate way of reducing overall primary energy and CO_2 emissions. Where this can be shown then the average U- value for windows can be relaxed from the values given above. However values should be no worse than 2.2 W/m²K.
6. This is the overall U-value including the frame and edge effects, and it relates to the performance of the unit in the vertical plane so, for roof-lights, it must be adjusted for the slope of the roof as described in Section 11.1 of BR 443.
7. High Usage Entrance door means a door to an entrance primarily for the use of people that is expected to experience larger volumes of traffic, and where robustness and/ or powered operation is the main performance requirement. To qualify as a high-usage entrance door the door should be equipped with automatic closers and except where operational requirements preclude it, be protected by a lobby.
8. Where a swimming pool is constructed as part of a new building, reasonable provision should be made to limit heat loss from the pool basin by achieving a U-value no worse than 0.25 W/m²K as calculated according to BS EN 13370.</td><td>Lower U-values and improved air tightness is being considered to help minimise heat losses through the building fabric, lower of energy consumption and thus minimise carbon emissions to the environment.</td></tr>
<tr><td>Energy Labelled White Goods</td><td>The white good package planned for provision in the apartments will be of a very high standard and have a high energy efficiency rating. It is expected that the below appliance ratings will be provided:
• Oven - B
• Fridge Freezer - B
• Dishwasher - B
• Washer/Dryer - C</td><td>The provision of high rated appliances in turn reduces the amount of electricity required for occupants.</td></tr>
<tr><td>External Lighting</td><td>The proposed lighting scheme within the development consists of 8m and 6m pole mounted fittings as indicated on the drawings. The lighting scheme will be designed in accordance with the Dublin City Council Taking In Charge standards. The design will incorporate the following:
• Minimal light pollution
• Low voltage LED lamp standards
• Adequate provision for illumination to pedestrian and traffic</td><td>The site lighting will be designed to provide a safe environment for pedestrians, cyclists and moving vehicles, to deter anti-social behavior and to limit the environmental impact of</td></tr>
</table>

Measure	Description	Benefit
	flow areas will be provided in accordance with BS standards and Disabled Access Certificate 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.	artificial lighting on existing flora and fauna in the area.

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

Measure	Description	Benefit
Air Source Heat Pump (ASHP)	As part of the domestic hot water strategy for apartments, heat pumps will be used. These systems extract heat energy from air and, using a refrigerant cycle, raise the temperature of the heat energy using a refrigerant vapour compression cycle. For apartments, there are products which incorporate air source heat pump technology but which do not require the traditional "outdoor unit" making them suitable for apartments. These are general referred to as "Exhaust Air Heat Pumps" and are capable of extracting energy from the air within the apartment through a ducting system. .	Air source heat pumps use electrical energy from the grid to drive the refrigerant cycle but do so extremely efficiently. Modern heat pumps will typically provide 3 to 4 times more heat energy to the dwelling than the electrical energy they consume. The heat pump efficiency as well as the ongoing electricity grid decarbonisation make them a low carbon option for domestic hot water generation.
Natural Ventilation	Natural ventilation is being evaluated as one ventilation strategy to minimise energy usage and noise levels.	The main advantages of natural ventilation are: • Completely passive therefore no energy required. • Reduced environmental impact as minimal equipment disposal over life cycle.
Mechanical Ventilation Heat Recovery	Mechanical heat recovery ventilation (MVHR) will be considered to provide ventilation with low energy usage.	• MVHR provides tempered fresh air to occupied spaces. • Heat is removed from exhaust air stream and transferred into the fresh air supply stream negating the need to use energy to heat the air • MVHR also reduces the heating load on the boiler plant by eliminating cold air
Solar Photovoltaic (PV) Panels	Solar PV Panels will be installed for in order to meet the renewable energy contribution required by Part L of the Building Regulations. These panels convert sunlight into electricity which can be used within the building. The panels are typically placed facing South, South-East or South-West to maximise the solar exposure.	PV Solar Panels offer the benefit of reducing fossil fuel consumption and carbon emissions to the environment. They also reduce the overall requirement to purchase electricity from the grid.
ECAR Charging Points	Ducting shall be provided from local landlord distribution boards to designated E-car charging car park spaces. This will enable the management company the option to install a number of E-car charging points to cater future E-car demand of the residents.	Providing the option of E-car charging points will futureproof the development

2.2. Materials

The practical implementation of the Design and Material principles has informed design of building facades, internal layouts and detailing of the proposed apartment buildings.

2.2.1.Buildings

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 common parts of the building and specific measures taken include:

Measure Description	Benefit
Daylighting to circulation areas	Avoids the requirement for continuous artificial lighting where feasible
Natural/Passive ventilation system to circulation areas	To be utilized where possible, to minimise mechanical ventilation systems and associated maintenance and future replacement
Natural ventilation to carpark	To be utilized where possible, to minimize mechanical ventilation systems and associated maintenance and future replacement. Natural intake and mechanical extract ventilation proposed.
External paved and landscaped areas	All of these require low/minimal maintenance
Roof construction includes significant areas (~75%) of standard flat roof construction with maintenance access to be facilitated.	Minimises ongoing maintenance

2.2.2.Material Specification

Measure Description	Benefit
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. All common parts of the proposed Apartment buildings and, the durability and performance of these are designed and specified in accordance with Figure 4; Phases of the Life Cycle of BS7543; 2015. (Please see Appendix B for this figure). The common parts 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	Ensures that the long-term durability and maintenance of Materials is an integral part of the Design and Specification of the proposed development.

Use of brickwork, bronze anodized metal cladding, and metal spandrels to envelope.		Requires no on-going maintenance.
Use of factory finished and alu-clad windows and doors, and glazed balconies		Requires no on-going maintenance.

2.3. Landscape

Measure	Description	Benefit
Site Planning	The landscape and open space strategy has been developed around the objective of connecting a new entrance plaza with the linear park within the Z9 lands. The new plaza forms an interface with the public realm at the SCR junction and will calm traffic and establish the pedestrian priority focus of the public route through the site. Planted green buffers along the west and northern boundaries serve to mitigate any potential impact of the development on the neighboring dwellings.	Natural attenuation and landscape maintenance preferable and to be implemented where possible.
Green Roofs	Use of green roofs and traditional roof coverings with robust and proven detailing to roof elements. 	Attenuation reduces the burden on vulnerable rainwater goods, resulting in fewer elements that could require replacement or repair.
Paving and Decking Materials	Use of robust, high-quality paving and decking materials, with robust and proven details	Required ongoing maintenance significantly reduced through use of robust materials installed with proven details.
Materials	Sustainable, robust materials, with high slip resistance to be used for paving. Durable and robust equipment (e.g. play, exercise, fencing etc.) to be used throughout.	Robust materials and elements reduce the frequency of required repair and maintenance.

Planting details	Proven trees staking details. Shrub, hedging, herbaceous and lawn installation planting details provided.	Correctly installed planting will develop into well established and robust soft landscape reducing future maintenance.

2.4. Waste Management

The following measures illustrate the intentions for the management of Waste.

Measure	Description	Benefit
Resource & Waste Management Plan	This application is accompanied by a Resource & Waste Management Plan prepared by ???	The Plan demonstrates how the scheme will comply with national, regional, and local waste legislation along with best practice.
Operational Waste Management Plan	This application is accompanied by an Operational Waste Management Plan prepared by ???	The Plan demonstrates how the scheme has been designed to comply with national regional, and local waste legislation, waste bye-laws, along with best practice.
Storage of Non-Recyclable Waste and Recyclable Household Waste	Inclusion of centralised communal waste storage areas for apartments, with enough space to accommodate weekly storage of bins for dry mixed recyclable, organic waste, mixed non-recyclable waste and glass.	Easily accessible by all residents, facilities management personnel and the waste contractor(s), minimises potential littering of the scheme, reduce potential waste charges and does not limit waste contractor selection.
	Domestic waste management strategy: Dry mixed recyclable, glass, mixed non-recyclable waste and organic waste segregation.	Helps reduce potential waste charges and does not limit waste contractor selection.
	Security restricted waste storage rooms.	Reduce potential for fly tipping by residents and non-residents.
	Well signed waste storage rooms and waste receptacles.	Help reduce potential cross contamination of waste and reduce waste charges.
Composting	Organic waste receptacles to be provided in the communal waste storage areas.	Helps reduce potential waste charges and compliance with national policy and legislation regarding segregation of biodegradable waste.

2.5. Health & Well Being

The following are illustrations of how the health and well-being of future residents are considered.

Measure	Description	Benefit
Natural / Day Light	The design, separation distances and layout of the apartment blocks have been designed to optimize the ingress of natural daylight/ sunlight to the proposed dwellings to provide good levels of natural light.	Reduces reliance on artificial lighting thereby reducing costs.
Accessibility	All units will comply with the requirements of Part M/K.	Reduces the level of adaptation, and associated costs, potentially necessitated by residents' future circumstances.
Security	The scheme is designed to incorporate passive surveillance with the following security strategies likely to be adopted: • CCTV monitoring details • Car registration recognition at entrance gate • Secure bicycle stands – covered by CCTV • Routine access fob audits	Help to reduce potential security/management costs.
Natural Amenity	The proposed development is adjacent to and opens the Grand Canal between Camac Bridge and Sally's Bridge, both providing natural amenity for the development and revitalising this section of the canal itself.	Facilitates community interaction, socialising and play – resulting in improved wellbeing

2.6. Management

Consideration has been given to the ensuring the homeowners have a clear understanding of their property

Measure	Description	Benefit
Home User Guide	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. • **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.	Residents are as informed as possible so that any issues can be addressed in a timely and efficient manner.

2.7. Transport

Measure	Measure Description	Benefit
Access to Public Transport (LUAS / Light Rail)	The Luas Reline Fatima Station is located within a convenient walking distance (approx. 9-minute walk travel time) of the proposed residential development. This in turn gives ready access to mainline Hueston and Connelly stations.	The availability, proximity and ease of access to high quality public transport services contributes to reducing the reliance on the private motor vehicle for all journey types.
Access to Public Transport (Bus Services)	The bus route numbers; 27, 56A, 65A, 68, 68A, 77A and 121, all run adjacent to the proposed development. In addition, the high frequency No.151 bus route run a circa 5-minute walk from the proposed development.	The proximity, frequency and range of additional destinations served by these local bus services enhance the accessibility levels of the proposed residential development in addition to providing a viable and practical sustainable alternative to journeys undertaken by the private motor car.

Bicycle Storage	The provision of high-quality secure bicycle parking facilities, for both short term and long-term parking requirements.	Accommodates the uptake of cycling and reducing the reliance on the private motor vehicle.
Motorcycle Parking	The implementation of secure, attractive, best practice motorcycle parking facilities for residents.	Reduces the reliance on the private motor vehicle in parallel with reducing oil dependency.
ECAR Facilities	Ducting will be provided from a local landlord distribution board to designated ecar charging car park spaces.	To accommodate the growing demand for ECARS which assist in decarbonising society and reducing oil dependency.
Car Sharing	The scheme will include 2 designated car sharing spaces for exclusive use of the residents.	Reduces the reliance on the private motor vehicle and reducing oil dependency.

APPENDIX A:

ITEMS INCLUDED IN A TYPICAL BIF

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**	**Amount**
1.00	**Roofs**		
1.01	Replacement felt roof covering incl. insulation to main roofs/ overhaul to green roofs.	18	
1.02	Replacement parapet details	18	
1.03	Replacement/ repairs to facias	18	
1.04	Replace roof access hatches	25	
1.05	Specialist Roof Systems - Fall arrest	25	
1.06	Overhaul waterproofing details to penthouse paved areas	12	
2.00	**Elevations**		
2.01	Recoat metal panels to penthouse apartments	25	
2.02	Minor repairs and preparation for decorations of rendered areas	18	
2.03	Replace exit/ entrance doors	25	
2.04	Replace Rainwater goods	25	
2.05	Recoat powder coated Finishes to balconies / Grills to Basement vents	20	
2.06	Periodic replacement and overhauling of external fixings	5	
2.07	Replace Balcony floor finishes	25	
3.00	**Stair cores & lobbies (3No. Cores)**		
3.01	Decorate Ceilings	7	

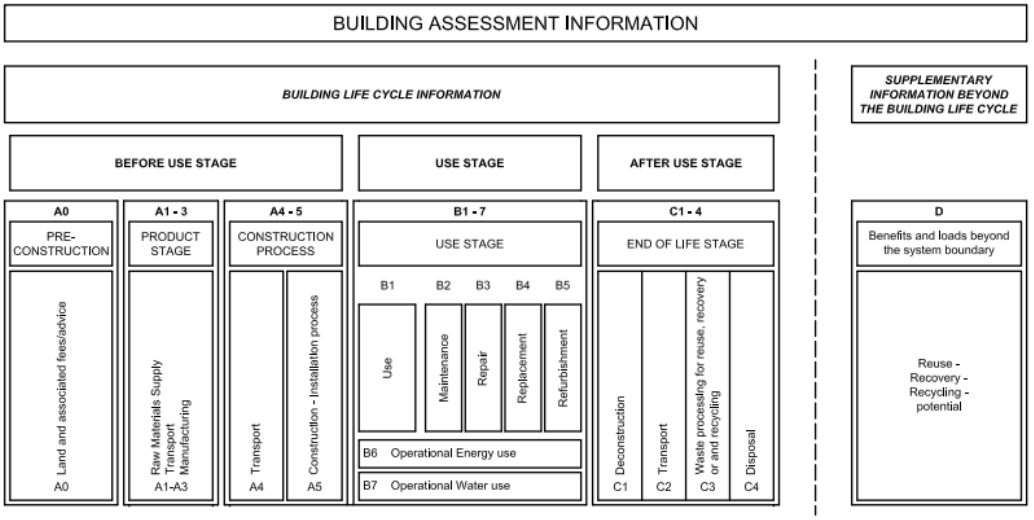
3.02	Decorate Walls	7	
3.03	Decorate Joinery	7	
3.04	Replace fire doors	25	
3.05	Replace carpets (stairwells & lobbies)	12	
3.06	Replace entrance mats	10	
3.07	Replace nosing's	12	
3.08	Replace ceramic floors tiles Entrance lobbies	20	
3.09	Fixed Furniture & Equipment - Provisional Sum	18	
4.00	**Basement & Car Parking**		
4.01	Remove/ Replace ceiling insulation	25	
4.02	Repaint parking spaces & Numbering	7	
4.03	Replace store doors, ironmongery & digi-locks	10	
4.04	Replace Bike stands	25	
4.05	Replace basement access control at entrance & core entrances	12	
5.00	**M&E Services**		
5.01	General - Internal re-lamping	7	
5.02	Replace Internal light fittings	20	
5.03	Replace External light fittings (lights at entrance lobbies)	15	
5.04	Replace smoke detector heads	10	
5.05	Replace manual break glass units/ disabled refuge call points	10	
5.06	Replace Fire alarm panel	15	
5.07	Replace lift car and controls	20	
5.08	Replace AOV's	30	
5.08	Replace security access control installation	15	
5.09	Sump pumps replacement	10	
5.10	External Mains Water connection	20	
5.12	Electrical Mains and Sub Mains distribution	20	

5.13	Emergency Lighting	25	
5.14	Overhaul and/or replace Waste Pipes, Stacks & Vents	20	
6.00	**Exterior**		
6.01	External boundary treatments - Recoat powder coated Finishes to railings	60	
6.02	Replace external signage	18	
6.03	Replace cobblelock areas	18	
6.04	15-year cutback & thinning of trees. Overhaul landscaping generally	20	
6.05	Replace CCTV provision	15	
6.06	External Handrails and balustrade	18	

APPENDIX B:

Phases of the life Cycle of BS7543; 2015

Figure 4 **Phases of the life cycle**



Key
1 Highest severity of consequence of failure
2 Anticipated severity of consequence of failure
3 Lowest severity of consequence of failure
4 Minimum service life
5 Most likely service life
6 Maximum service life