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LIFE CYCLE REPORT

FOR

PORTMARNOCK SOUTH PHASE 1D,
STATION ROAD, PORTMARNOCK,
CO. DUBLIN

Project Reference:	J629
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Contents

1. INTRODUCTION

The Sustainable Urban Housing; Design Standards for New Apartments – Guidelines for Planning Authorities (2018) (hereafter referred to as the SUH Guidelines) introduced a requirement to include details on the management and maintenance of apartment schemes. This is set out in Section 6.11 to 6.14 - "*Operation & Management of Apartment Developments*", specifically Section 6.13.

Section 6.13 of the SIH Guidelines requires that apartment applications shall:

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

This Building Life Cycle Report document sets out to address the requirements of Section 6.13 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.

2. PROPOSED DEVELOPMENT

The proposed development (Phase 1D), generally comprises: -

- 172no. residential units consisting of 22no. duplexs and 150no. houses ranging in heights between 1.5 and 3 storeys.
- Provision of public open space including Skylark Park and extension to Railway Linear Park and Townland Boundary Linear Park.
- Vehicular access to serve the development is proposed off the existing / under construction access points on roads serving the St. Marnock's Bay development.
- A new vehicular road is proposed to serve the proposed development which will connect with Moyne Road. The permanent road includes the provision of a new junction with Moyne Road and SuDS features to control surface water run-off.
- Upgrade of existing temporary foul water pumping station and storage tank to increase capacity.
- All associated and ancillary site development, infrastructural, landscaping and boundary treatment works.

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

a. 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 OMC for the ongoing management of the built development. Note This contract will be for a maximum period of 3 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 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.

b. Service Charge Budget

The property management company has a number of key responsibilities with first and foremost being 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 by 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 30year 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.

4. MEASURES SPECIFICALLY CONSIDERED BY THE PROPOSER TO EFFECTIVELY MANAGE AND REDUCE COSTS FOR THE BENEFIT OF RESIDENTS.

4.1. ENERGY AND CARBON EMISSIONS

By taking due consideration of the energy and carbon emissions associated with the individual units of the proposed development will reduce the overall impact of the development on the environment, whilst reducing individual unit running costs for residents. The following are an illustration of the energy measures that are planned for the units to assist in reducing costs for the occupants:

Measure	Description	Benefit
BER Certificates	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	Higher BER ratings reduce energy consumption and running costs.
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, 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 with Appendix D within the Technical Guidance Documents Part L. See below Table 1 of Part L, Building Regulations.	Lower U-values and improved air tightness is being considered to help minimise heat losses through the building fabric, decrease energy consumption and thus minimise carbon emissions to the environment.
Energy Labelled White Goods	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 - A plus; Fridge Freezer - A plus; Dishwasher - AAA Washer/Dryer - B	The provision of high rated appliances in turn reduces the amount of electricity required for occupants.
External Lighting	The proposed lighting scheme within the development consists of 28 Watt LED luminaires mounted on 8 metre columns as indicated on the drawings. The luminaire selected is the Thorn 96268430 R2L2 S 24L35 NR 740 CL1. This luminaire was selected for the following reasons; 4000K CCT LED High efficiency 119 lm/W Minimum colour rendering: 70 Zero Upward Light Output Ratio (ULOR) LM80 >15 years using TM21-11 test results Driver current < 750mA Minimum IK08 impact resistance At least IP65 ingress protection Meets or exceeds all other DCC Specification criteria. 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.	The site lighting will be 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.

4.2 Low energy technologies

The following low energy technologies 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 Compliance with Part L 2019, A2/A3 BER Rating and striving to reach the upcoming NZEB (Near Zero Energy Building) standards:

Measure	Description	Benefit
Localised Plant	High Efficiency Split System Air Source Heat Pump is proposed for each unit. The heat pump should be fully compliant with Eco-Design Labelling Directive, both EN14825 and EN16147	High efficiency heat pump offers reliable and effective solution for the development.
Pumps	All pumps serving the plant to be A rated energy efficiency.	High efficiency band for appliances ensures reduction in required primary energy
External Heat Pump Unit	Each apartment/house will be fitted with Outdoor Heat Pump Unit which shall be located in utility or store and designed to provide space heating and DHW.	Remote access control offers the occupier to adjust the heating schedule to suit their needs.
Internal Heat Pump Unit	Each apartment/house will be fitted with a Indoor Heat Pump Unit which shall be located in utility or store and designed to provide space heating and DHW.	Remote access control offers the occupier to adjust the heating schedule to suit their needs.
Mechanical Demand Controled Ventilation	Demand controlled ventilation (DCV) system will serve each unit to provide high indoor air quality for the occupants.	DCV has a low energy fan and senses increased humidity levels to maintain high indoor quality while usin minimal amount of energy
ECAR Charging Points	Within the parking areas, ducting shall be provided from a local landlord distribution board 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 within the local centre 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.	Providing the option of E-car charging points will futureproof the development

4.3. SELECTION MATERIALS, FINISHES & TREATMENTS

The practical implementation of the Design and Material principles has informed design of building facades, internal layouts and detailing of the proposed buildings. Both aesthetics and durability played a central role in the design process, with the element of durability directly linked with the need and associated expense for the maintenance, upkeep or potential replacement of the selected materials. This design approach has been applied in equal part to both the external building envelope and the landscaping scheme. Some of these specific design measures include the following:

4.3.1. BUILDINGS

All proposed 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	Window are provided to stair cores where possible providing natural daylight to circulation areas.	Avoids the requirement for continuous artificial lighting
Ventilation	Openable window sections are provided to stair cores within the development where possible providing Natural/Passive ventilation to common circulation areas.	Openable window sections are provided to all stair cores within the development providing natural daylight and ventilation throughout all common areas. Avoids costly mechanical ventilation systems and associated maintenance and future replacement.
Ventilation	Natural ventilation though grills, louvres and tree pits are proposed to provide fresh air to basement and sub-basement areas.	Avoids costly mechanical ventilation systems and associated maintenance and future replacement
Landscaping	External paved and landscaped areas	All of these require low/minimal maintenance. Landscaped areas support the wider SUDS strategy for the development. Resilient landscape design shall minimize ongoing maintenance in the future.
Roofs	All roof construction to apartment block include robust roof systems to ensure longevity of the membrane	Best practise in roof detailing and design protects the roof membrane and will thus minimize ongoing maintenance in the future.

4.3.2 MATERIAL SPECIFICATION

Measure	Description	Benefit
Durability	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.
Rainwater drainage	Central rain water gullies at roof level to collect rain water. Gullies connected with fusion welded HDPE pipework routed within the building in risers to GF level and into local storm drain network	High level of craftsmanship and material quality will reduce the maintenance requirements
Roof Accessories	Detailed desing will indicate what services will penetrate through the roof level. Fall arrest will be provided on the greeen roofs by post fix galvanized anchors fixed to the structural screed/pre-cast concrete slabs. Each anchor will then be linked by a cable running line to clip a harness.	
Roof Construction	Roof construction to apartments includes pre-cast concrete roof slabs with concrete topping screed laid to falls to central gullies. Waterproofing provided by a bituminous layer covered with insulation and green/brown roof build up.	Best practise in roof detailing and design protects the roof membrane and will thus minimize ongoing maintenance in the future.
External Walls	The architectural approach to the scheme proposed the extensive use of robust materials of brickwork and render to the building envelope. All external walls shall be combination of brick, render and metal panels	These traditional materials will require minimal on-going maintenance and have a longer life-cycle expectancy
External Windows & Doors	Use of factory finished and alu clad windows and doors. All windows shall be double glazed windows with a combined thermal transmittance not greater than 1.2W/m2K. All windows shall comply with BS EN ISO 10077-1: 2006 - 'Thermal performance of windows, doors and shutters.	Requires no on-going maintenance.
Balconies	Galvanized and powder coated steel frame and surrounding balustrade for balconies.	Requires no on-going maintenance.
Internal Floors	Detailed interior design will include combination of wood, tiles and carpet	High level of craftsmanship and material quality will reduce the maintenance requirements
Internal Walls	Taped and jointed internal partition walls, reinforced concrete walls with dry lined face at party wall locations	High level of craftsmanship and material quality will reduce the maintenance requirements
Internal Ceilings	Suspended ceiling made up of metal stud work and plasterboard which is taped and jointed	High level of craftsmanship and material quality will reduce the maintenance requirements
Internal Carpentry & joinery	Fitted kitchends and fitted wardrobes to all bedrooms	High level of craftsmanship and material quality will reduce the maintenance requirements
Internal Balustrades & handrails	All internal balustrades & handrails to be sand blasted, primed and painted	High level of craftsmanship and material quality will reduce the maintenance requirements

4.4 LANDSCAPING

Measure	Description	Benefit
Site Planning	Generous and high-quality landscape with ecological corridors designed within the proposed development. Pedestrians prioritized over the car. Significant tree planting and soft landscaping within courtyards and public spaces	Natural attenuation and landscape maintenance preferable
Paving Materials	Use of 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.	Required ongoing maintenance significantly reduced through use of robust materials installed proven details.
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.

4.5 WASTE MANAGEMENT

Measure	Description	Benefit
Construction and Demolition Waste Management Plan	The application is accompanied by an Outline Construction and Demolition Waste Management Plan prepared by AWN Consulting Ltd.	The report demonstrates how the scheme has been designed to comply with best practice.
Operational Waste Management Plan	The application is accompanied by an Outline Operational Waste Management Plan prepared by AWN Consulting Ltd.	The report demonstrates how the scheme has been designed to comply with best practice.
Storage of Non-Recyclable Waste and Recyclable Household Waste	Bins for commercial properties are located adjacent and ease of access for waste collection truck is considered.	Easily accessible by commercial premises users.
	Inclusion of location for centralised bin storage system on ground floor to serve the apartment building. Domestic waste management strategy: Grey, Brown and Green bin distinction. Competitive tender for waste management collection.	Easily accessible by all residents and minimises potential littering of the scheme Helps reduce potential waste charges.
Composting	Organic waste bins to be provided throughout.	Helps reduce potential waste charges.

4.6 HEALTH & WELL BEING

Measure	Description	Benefit
Sunlighting	The design, separation distances and layout of the apartment block 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 and a universal access statement is provided within the design statement of this submission.	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 Secure bicycle stands – covered by CCTV Routine access fob audits	Help to reduce potential security/management costs
Natural Amenity	Adjacent coastal areas, Lanscaped plaza located in the local centre of the development.	Proximity and use of parks promotes a healthy lifestyle
	Generous green spaces as part of the development. Great care shall be taken to preserve and retain existing townland hedgerow boundary.	Facilitates community interaction, socialising and play – resulting in improved wellbeing. Protection of biodiversity around the development minimizes impact and creates sense of place.

4.7 MANAGEMENT

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. The documents will include simple guides for using the building services aim to inform the building occupants on effective strategies to use less resources, efficient appliances, efficient use of their heating/hot water controls and efficient transport/ commuting.

4.8 TRANSPORT

Detailed review on the impact of the development is included in Traffic & Transport Assessment Report prepared by JBB.

Measure	Description	Benefit
Access to Public Transport (DART)	The Portmarnock Train Station is located adjacent to the local centre and approximately 400m to the northwest of the rest of the proposed development. This equates to an approximate 6 to 7 mins walk from the development to the train station and provides linkages to Dublin City Centre.	The DART and light rail provides an alternative high frequency public transport option to the bus for commuting to the city centre. 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)	A number of bus routes service the proposed development vis the Coast Road located to the east of the site. These services include: 32- From Talbot St. To Malahide 32x- Malahide Towards UCD Belfield (Express) 102-Sutton to Dublin Airport	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.
Permeable Connections (Walking & Cycling)	Provision and subsequent maintenance of dedicated pedestrian and cycle infrastructure on-site, and their connectivity with the public road network providing convenient access to local services including shops, schools, restaurants and doctor's surgeries. The proposed cycle path is located adjacent to the proposed development. It is proposed to provide direct access to the greenway from the development.	Ensure the long-term attractiveness of walking and cycling to a range of local education, retail and community facilities and services.
Bicycle Storage	Ensure the long-term attractiveness of walking and cycling to a range of local education, retail and community facilities and services.	Accommodates the uptake of cycling and reducing the reliance on the private motor vehicle and encourages use of amenity spaces provided to stimulate a more vibrant and active series of open spaces.
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.
E-car Facilities	Ducting shall be provided to serve a minipillar adjacent to future E-car charging car park spaces. This will enable the management company the option to install a number of E-car charging points within the car parking layout to cater for E-car demand of the residence. A full re-charge can take from one to eight hours using a standard charge point.	To accommodate the growing demand for E-car which assist in decarbonising society and reducing oil dependency. Providing the option of E-car charging points will allow occupants to avail of economically efficient and environmentally friendly electric car
Car Sharing	The scheme will include designated car sharing spaces for exclusive use of the residents. There will be five car parking spaces for provided for a car sharing scheme such as "Go Cars" within the development. "Go Car" is a pay-as-you-drive scheme which allows subscribed members to share in the use of a pool of vehicles by reserving a time allocation online in advance.	Reduces the reliance on the private motor vehicle and reducing oil dependency. Also cost saving, convenience (no responsibility for insurance, tax, fuel, maintenance) for the residents, less traffic congestion and less parking pressure.

APPENDIX A: ITEMS INCLUDED IN A TYPICAL BIF

The BIF table below illustrates what would be incorporated for the calculation of a Sinking Fund. It is based on a Apartment Block A in the development.

BUILDING INVESTMENT FUND (SINKING FUND) ESTIMATION

Example Apartment Block

Specification to be finalized at detailed design stage

REF	ELEMENT	LIFE EXPECTANCY
1	**ROOFS**	
1.01	Replacement roof covering incl. insulation to main roofs	25
1.02	Replacement parapet details	18
1.03	Replace roof access hatches	25
1.04	Specialist Roof Systems - Fall arrest	25
2	**ELEVATIONS**	
2.01	Decorate plaster finishes to apartment core & bin storage	18
2.02	Minor repairs and preparation for decorations of rendered areas (if applicable)	18
2.03	Replace exit/ entrance doors	25
2.04	Replace Rainwater goods	25
2.05	Recoat powder coated Finishes to balconies	20
2.06	Periodic replacement and overhauling of external fixings	5
2.07	Replace Balcony floor finishes	25
3	**STAIR CORES & LOBBIES**	
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 nosings	12
3.08	Replace ceramic floors tiles	20
5	**M&E SERVICES**	
5.01	General - Internal relamping	7
5.02	Replace Internal light fittings	18
5.03	Replace External light fittings (lights at entrance lobbies)	18
5.04	Replace smoke detector heads	18
5.05	Replace manual break glass units	18
5.06	Replace Fire alarm panel	18
5.07	Replace lift car and controls	25
5.08	Replace AOV's	25
5.08	Replace security access control installation	15

5.09	Sump pumps replacement	15
5.1	External Mains Water connection	20
5.12	Electrical Mains and Sub Mains distribution	20
5.13	Emergency Lighting	20
6	**EXTERIOR**	
6.01	Repaint car parking	12
6.02	New tarmac	60
6.03	External boundary treatments - Recoat powder coated Finishes to railings	60
6.04	Replace cobble block areas	18
6.05	10 year cutback & thinning of trees. Overhaul landscaping generally	10
6.06	Replace CCTV provision	12
6.07	External Handrails and balustrade	18

APPENDIX B: PHASES OF THE LIFE CYCLE OF BS7543; 2015

Table 1 - Categories of Design Life for Buildings (from BS 7543:1992)

Category	Description	Building Life	Examples
1	Temporary	Up to 10 yrs	Site huts; temporary exhibition buildings
2	Short life	Min. 10 yrs	Temporary classrooms; warehouses
3	Medium Life	Min. 30 yrs	Industrial buildings; housing refurbishment
4	Normal life	Min. 60 yrs	Health, housing and educational buildings
5	Long life	Min. 120 yrs	Civic and high quality buildings

APPENDIX C: PHASES OF THE LIFE CYCLE OF BS7543; 2015

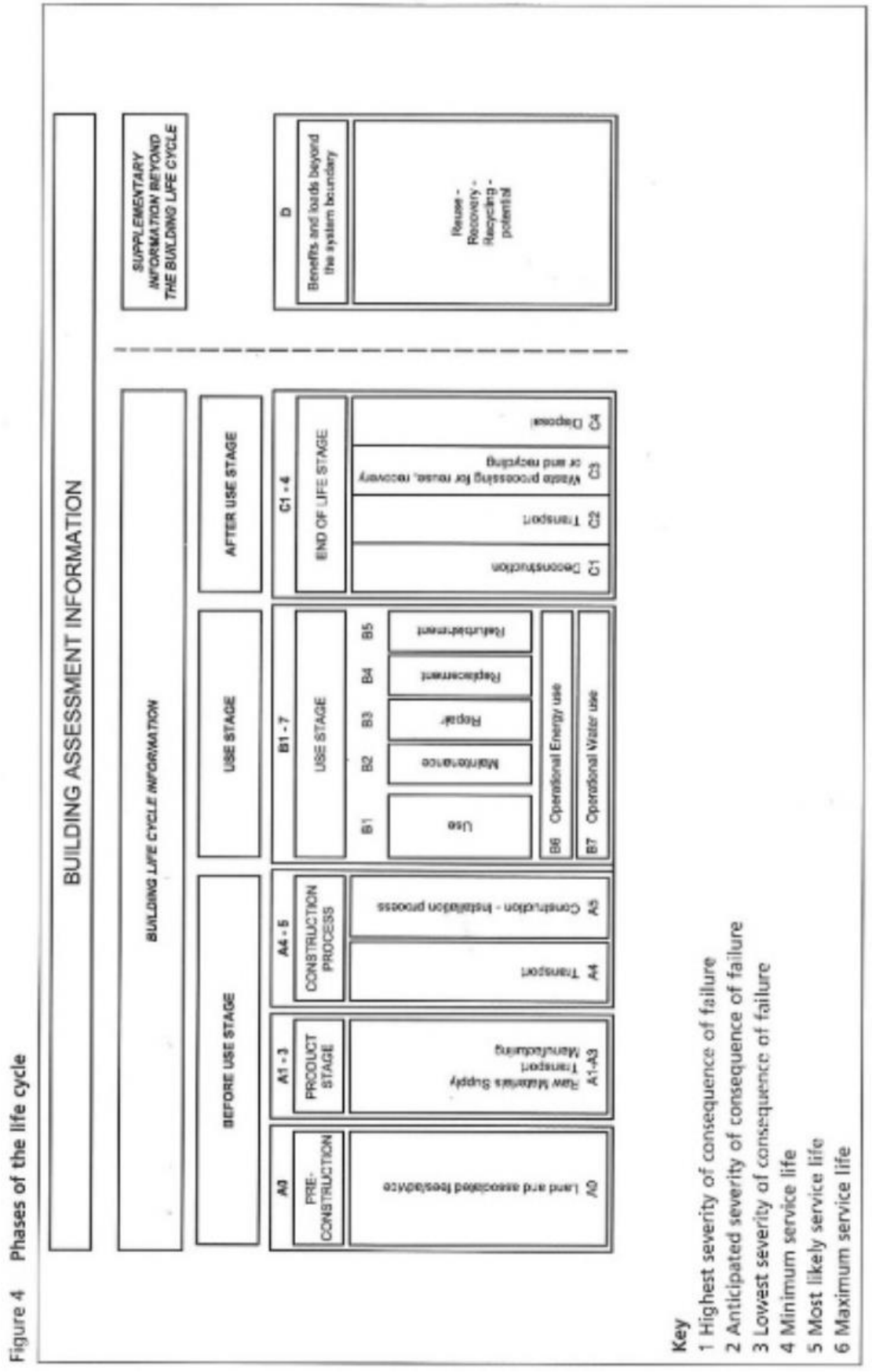

Figure 4 Phases of the life cycle