7.0 Sustainability

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7.0 Sustainability

7.1 Introduction

Sustainability initiatives have been embedded throughout the proposed Chalk Farm Road redevelopment. These initiatives have been driven by high expectations with sustainable and environmental principles that were set out within the development brief, but also greatly informed by the feedback received during the pre-application process. In addition to this, the design is looking to address national, regional and local planning policies as well as to incorporate best practice and bespoke 'project specific' sustainable and environmental aspirations.

Full details can be found in the Sustainability Statement and Energy Statement submitted as part of the planning application and prepared by Whitecode Consulting on behalf of the Applicant. For the new proposed buildings, the target is a BREEAM Excellent rating. A summary of each of the respective sustainability strategies incorporated in the design is provided below:

Environmental:
Residents Comfort - Good Health and Wellbeing
- Overheating analysis indicates that internal thermal comfort levels can be achieved
- Air filtration provided as part of the new mechanical ventilation systems will maintain good internal air quality
- Private external amenity will provide high quality space with access to direct sunlight
- Incorporation of biophilic design elements connects occupants with nature

Sustainable land-use and ecology
- Increase in net biodiversity
- Contribution to the local wildlife
- Diverse planting at various levels including living roofs
- Habitat creation has been incorporated into the scheme through living roofs, shrub/tree/hedge planting, and artificial habitats for bats and birds with boxes

Sustainable Water Cycle
- Sustainable water management incorporated through extensive blue roof system and attenuation tanks
- Rainwater recovery system to dramatically reduce freshwater consumption

Energy Strategy and Whole Life Carbon Emissions
- Reducing operational energy consumption
- Energy efficient building fabric design, reducing heating and cooling demand
- 5th generation heat network providing heating and cooling
- Utilising on site low carbon heat pump technologies
- Maximising on site renewable generation through solar photo-voltaic panels
- Reducing the embodied carbon of the development at point of construction and across the life of the development

Wider Sustainability Considerations
The proposals aim to provide significant social value to the local community during both construction and operation. This includes:
- Regular public consultation exercises
- Priority for local suppliers and sub-contractors
- On-site apprenticeships and work placements
- Provision of additional amenities for community use
- Place making and way-finding will add to the wider community
- Provision of new accessible public realm
- Improved way-finding and pedestrian accessibility
- Cycling storage facilities to reduce car-based travel

Social Economic:
Social Value
Social Value of the development during construction and beyond, such as:
- Creation of new local jobs
- On-site apprenticeships and work placements
- Priority of local suppliers and sub-contractors
- Place making

Aerial View of the Proposed Development

7.2 Residents' Comfort - Good Health and Wellbeing

Air Quality
Poor air quality along Chalk Farm Road originates from the high numbers of vehicles travelling through the area and the surrounding roads. To protect residents from the high level of air pollution experienced at certain areas of the site, a background ventilation strategy, that does not rely on openable windows will be adopted. A Mechanical Ventilation with Heat Recovery (MVHR) system will be installed for each dwelling which will filter incoming air and provide heating and cooling when required. The use of openable windows will be at the discretion of the occupants and will not form part of the primary ventilation strategy. The proposals will not include any installation of combustion plant (natural gas-fired Combined Heat and Power (CHP) or boilers). An electric fuelled strategy will be installed for heating and hot water. Therefore, it is unlikely to adversely affect the local air quality for existing neighbouring residential properties, as well as future occupants of the proposed development.

Acoustic Comfort
Internal ambient noise levels are typically determined by two main factors:

- Internal noise generated by building services plant and equipment
- Intrusive external noise breaking in through the building façade (road traffic noise, railway noise, aircraft noise, etc)

Acoustic comfort has been achieved for the proposed development through the targeting of internal ambient noise level ranges as per guidance from BS 8233 and Approved Document E. In specific locations on site the external noise levels exceed the necessary levels to allow the use of openable windows to combat overheating. As such, it has been necessary to allow for MVHR systems in the buildings to maintain more acoustic and thermal comfort for the residents. All dwelling will still have openable windows to give the occupier the choice and provide the necessary purge ventilation when required.

Thermal Comfort - Overheating
As per Policy SI 4 of the London Plan, the proposed development looks to minimise adverse impacts on the urban heat island through design, layout, orientation, materials and the incorporation of green infrastructure.

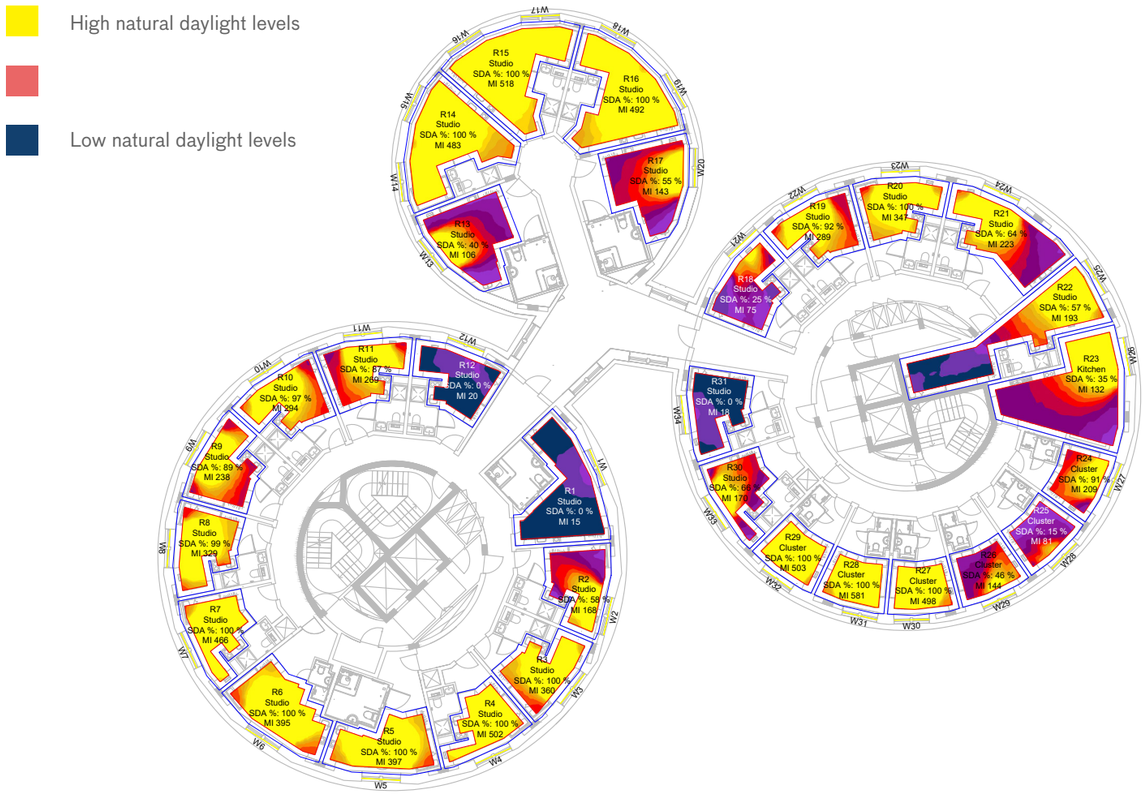
Heat has been limited from entering the building through the use of shading, fenestration, insulation and low solar transmittance values. The form factor of the building and its cylindrical shapes also reduces the duration of time and angle of exposure to solar radiation. The energy strategy doesn't circulate high temperature hot water throughout the building and the use of LED and energy efficient equipment minimising the internal heat generation.

Mechanical ventilation with heat recovery is provided to all occupied spaces for the purposes of background fresh air provision. However, mechanical ventilation alone is not used as a sole means of maintaining thermal comfort.

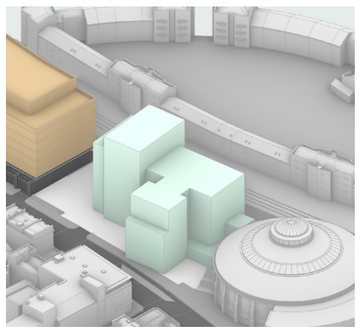
While some parts of the development are hindered by air quality and noise issues, the majority of spaces are not and can therefore use natural ventilation methods operated by the occupants of either building. Manually openable windows are provided for use at their discretion.

In the minority of spaces where natural ventilation cannot be utilised, comfort cooling will be provided by heat pumps. However, all dwelling windows have been designed to be openable, regardless of overheating strategy, and adaptable should local air quality and noise levels reduce. Dynamic simulation modelling has been undertaken to explore the implementation of the GLA Cooling Hierarchy and full details and results can be found in the supporting Energy Statement included as part of this planning application.

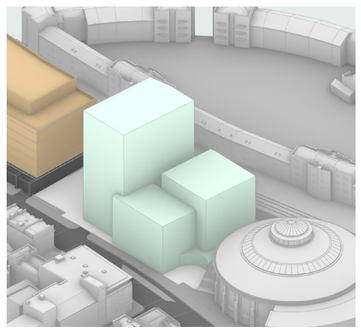
Internal daylight
Achieving a balance between thermal comfort and internal daylight within dwellings was a main drive when establishing window and glazing ratio, glazing properties and the buildings form. A number of tests during the design process were done to ensure that all windows within elevations are providing maximum internal daylight levels resulting in bright and airy space, but at the same time, no excessive heat enters the buildings during hot summer days. We believe that a right balance has been achieved especially when considering the well lit, high quality amenity spaces also available to the students.



Initial form factor studies demonstated the efficiencies of cylindrical building forms.



0.72 SVR



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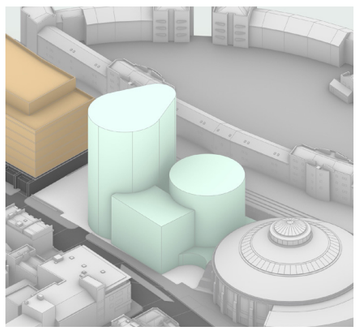

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Form Factor = Surface to Volume Ratio

7.3 Sustainable Land - Use and Ecology

Living Roofs
Sustainability and biodiversity is at the heart of the redevelopment of 100 Chalk Farm Road. Green Roofs and external amenities are introduced almost at every level, maximising greenery on site.

A large shared podium not only provides a green space amenity for residents of the development, but also acts as a backdrop to new public realm amenity on the level below adjacent to the Roundhouse.

All roofs are used either as an amenity space for residents or as green roofs designed specially for wildlife due to their exceptional sun exposure. A number of bird and bat boxes are introduced on one of the highest PBSA roofs to increase biodiversity. The roof of the Affordable Building is also an ideal location for PV panels that will support energy usage on the Site and be designed together with a living roof that will cool the area surrounding the panels and increase efficiency.

Fragmented roofs and terraces throughout the whole development are providing a diverse number of amenities for residents to gather and meet. Different uses such as productive gardens, play spaces, lush greenery gardens, together with different sun exposures will meet the varied needs of each resident.

Biodiversity
Enhanced biodiversity that is compliant with Camden Planning Guidance includes 2,781 sqm of green spaces including 800 sqm of green roofs and 18 new additional trees. A variety of different greenery spaces are providing exceptional diverse spaces for wildlife and opportunities to introduce diverse species throughout the site, such as:

- Extensive roof greening
- Intensive roof terraces and podiums
- New Communal Gardens for Residents
- New Accessible Public Realm

To encourage wildlife to the site the proposal includes the use of diverse native species and species of benefit to wildlife, and to provide foraging opportunities for birds, bats, invertebrates and other fauna.

Living roofs are creating a mosaic of habitats which is achieved through a combination of extensive roof system and separate spaces for naturally self-seeded plants of local provenance. This would target local species such as house sparrow and bats, such as common pipistrelle.

Furthermore, residents and contractors will be encouraged to undertake horticultural best practice such as:

- The use of peat-free composts, mulches and soil conditioners;
- Discourage the use of pesticides (herbicides, insecticides, fungicides and slug pellets); and
- The use of non-residual pesticides.

Level 6 private student terrace

New accessible public amenity space adjacent to The Roundhouse

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7.4 Sustainable Water Cycle

Water management - Blue Roof System
The drainage system in London was designed for a much smaller population and it is currently working beyond its capacity, especially during heavy rainfall.

The London Plan establishes standards that each larger development has to present during the planning process and demonstrate a satisfaction of prescribed greenfield run off rates. The design proceeded on the basis that runoff rates will be limited to that of a greenfield site following a 1-in-100 year rainfall event with a 40% allowance for climate change.

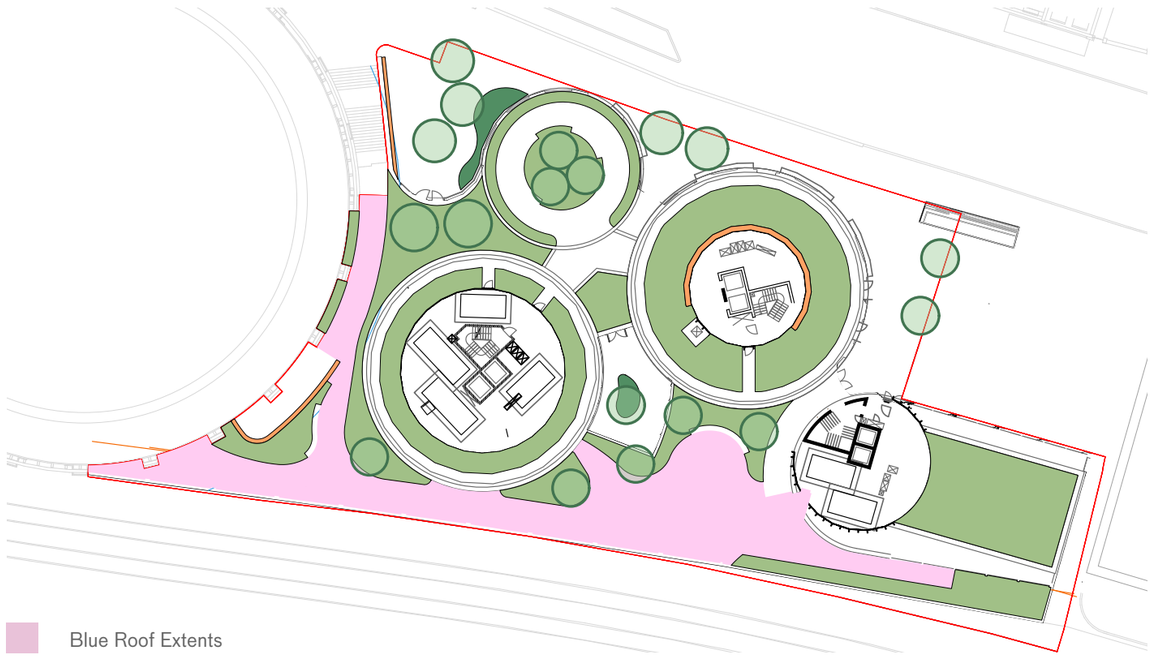
The surface water strategy aims to utilise green and blue roofs on all flat roofs within the development as the main form of runoff control. Due to the complexity of the scheme (the number of roofs), greenfield rates cannot be achieved and a best approach is proposed with runoff rates from each roof, restricted as much as possible. There will also be a provision for below ground attenuation storage tanks at Ground Floor to capture and attenuate surface water from any hardstanding areas not attenuated by blue roofs.

Water Demand Reduction and Water Efficiency
Water consumption of the development in operation has been reviewed as part of the proposal and in accordance with London Plan Policy SI 5 water consumption, which will be limited to 105 litres or less per head per day for the residential aspect of development.

This reduction of the water consumption will be achieved with the careful specification of water components including:

- Dual Flush Cisterns on WC's
- Lower flow/ aerated taps
- Selection of water saving white goods

Rain Water Recovery System
Further to this, the scheme will look to include a rainwater recovery system that will utilise the blue roof water for use in WC flushing and irrigation. This has the potential to limit the WC flushing of mains cold water by up to 30%. An water monitoring strategy will be included to provide smart metering and leak detection where deemed worthy. This will give the end users the ability to manage and monitor the water consumption of the development.



7.5 Whole Life Carbon Emissions

Operational Energy & Carbon
The energy strategy for the development has been developed in accordance with the GLA's energy hierarchy: Be Lean, Be Clean, Be Green. A standalone energy statement document has been developed in support of the development and will be submitted as part of the planning submission.

The first stage of the hierarchy was to look to limit the energy demand of the proposals. This has been achieved by utilisation of an energy efficient building fabric, reducing the heating and cooling demand.

Locally across the development, efficiently distributed heat pumps within the dwellings and supporting spaces enable the provision of heating, cooling and hot water. This has negated the need for gas combustion on site to meet the heating and hot water demands. This heat pump technology runs off electricity as the national grid decarbonises further lowering the carbon footprint of the residents.

Further to the heat pump technology, solar photovoltaics have also been included on the development to generate on-site energy. Consideration has been given to the location of the solar photovoltaics panels and a balance has be stuck between maximising on site energy generation, increasing biodiversity and provision of amenity spaces.

Whole Life Carbon & Energy
The Applicant has commissioned Whitecode Consulting to carry out a Whole Life Carbon assessment of the proposed design since concept design stage to consider holistically operational and embodied emissions. Whole life carbon emissions are the total greenhouse gas emissions arising from a development over its lifetime, from the emissions associated with raw material extraction, the manufacture and transport of building materials, to installation/ construction, operation, maintenance and eventual material disposal.

Operational carbon emissions will make up a declining proportion of a development's whole life carbon emissions as operational carbon targets become more stringent. To fully capture a development's carbon impact, a whole life carbon approach is needed to capture its upfront, in use, operational and end of life emissions associated with its eventual material disposal.

A comprehensive WLC assessment was carried out in accordance with the BS EN 15978, and the RICS Professional Statement 'Whole life carbon assessment for the built environment 2017'. Discussions were also had with design team members to provide options, ideas and comparative analysis for low carbon approaches to architectural, structural, and services design strategies.

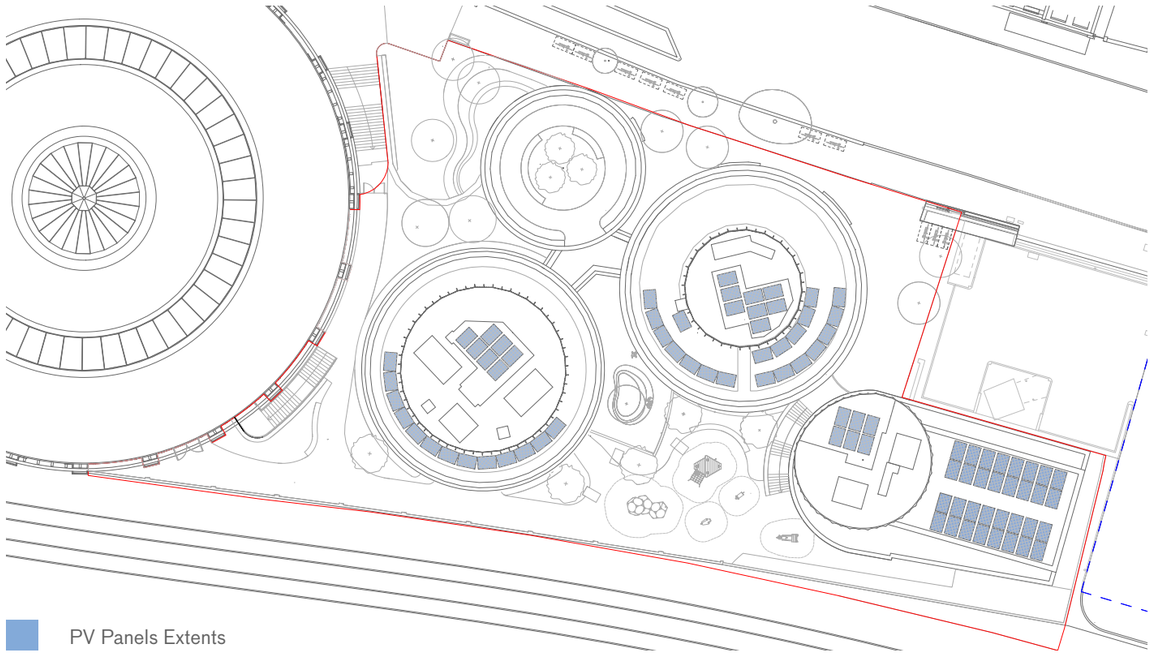
Based on the assessment result, a range of suitable embodied carbon reduction options were proposed and provided design guidance to the design team to encourage and facilitate the use of low-carbon materials. Based on accepted low embodied carbon options the embodied carbon emissions of the development have been reduced for the following reasons:

- Concrete to have high cement replacement content
- Brickwork to be locally sourced with demolished brick reused in landscaping
- Optimise the depth of concrete slabs

Existing vs Proposed Energy Use
Whitecode, the sustainability consultants working on the application, have engaged with the wider design team to compare the existing buildings to the proposed development looking at a like for like basis on floorspace. Investigations have also been carried out looking at alternative redeveopment options for the site which can be found in the WLC & Retrofit Document which form part of the planning application.

There are significant carbon emission reductions that can be achieved from the operational phase of the proposed development when comparing the existing and proposed due to the measures implemented in the design and outlined throughout this chapter. This is possible thanks to the steps that can be implemented throughout the process of a new build scheme.

Example of PV panels



7.6 Wider Sustainability Considerations

Materials
Using sustainable building materials and products promotes conservation of dwindling non-renewable resources. In addition, integrating sustainable building materials into building projects can help reduce the environmental impacts associated with the extraction, transport, processing, fabrication, installation, reuse, recycling, and disposal of these source materials.

The Proposed Development will look to limit the use of environmentally harmful products and processes related to materials through the following means:

- Calculation and reduction of the Embodied Carbon for the development. Further details are provided in the standalone Energy Statement (incl. Whole Life Carbon Assessment)
- Specification of the main elements in the building fabric and services will achieve either an A or A+ rating under the BRE's Green Guide rating system
- Timber will be 100% responsibly & legally sourced
- Materials will be sourced locally, where possible
- All insulation materials will have zero Ozone depleting Potential and low Global Warming Potential (GWO<5)

Waste
Key to the development will be the management of waste. This will be in terms of waste prevention, reuse and minimisation as well as engaging in circular economy to improve resource efficiency. In relation to waste the following methods and measures will look to be incorporated, where feasible:

- Implementation of the waste hierarchy;
- Rejecting unsustainable materials where an alternative exists. Implementation of a Site Waste Management Plan with waste efficiency targets in accordance with the BREEAM assessment;
- Zero waste to landfill by using materials with low environmental impact. Specific targets will be set to limit waste generation and minimise waste to landfill. This includes achieving the following targets:
  - Construction and demolition – 95% reuse/ recycling/recovery
  - Excavation – 95% beneficial use
- The spatial allowance for dedicated operational recycled and non-recycled waste areas

Construction Site Management
In terms of environmental management during construction, the following measures will be implemented:

- Target a high score using the Considerate Constructors Scheme
- The principal contractor will operate an Environmental Management System (EMS) which has been third party certified (ISO14001:2015);
- The principal contractor will evaluate the risks, plans and implements actions to minimise the identified risks. Including; vehicle movement, pollution, tidiness, health & wellbeing and security;
- On site monitoring of energy and water as well as vehicle movement for waste and materials.

Sustainable Transport
The development will promote sustainable travel through the following measures:

- Fully car free, the site will encourage car free active travel due to its proximity to public infrastructure
- Secure cycle storage facilities both long term and short will be provided on the site.

Further details can be found in Transport Assessment and Travel Plan submitted as part of this planning application.

Whole Life Carbon Cycle

7.7 Social Value

The scale and mix of the proposed development will generate notable economic and social benefits for the area of Chalk Farm Road and Camden more widely, contributing to principles of sustainable growth.

These include delivering a range of regeneration benefits such as provision of new affordable homes. The resultant economic benefits which arise from resident's expenditure, an increase in employment opportunities in the area, fiscal benefits to Camden Council and a new community and leisure space including improved open and outdoor spaces.

In these ways, the proposed development at 100 Chalk Farm Road will contribute to the economic, housing and regeneration aspirations of Camden and the GLA. Significant social value to the local community will also be provided during both construction and operation.

Construction
During the construction phases social value will be provided through the following:

- Creation of new local jobs
- On-site apprenticeships and work placements
- Prioritisation of local suppliers and sub-contractors

The positive economic impacts of the proposed development will extend beyond construction employment to include the generation of indirect benefits for the local economy.

By investing in the development, there will be considerable expenditure on construction materials, goods and other services that will be purchased from a wide range of suppliers. This development has far-ranging benefits both locally and further afield as it filters down the supply chain, and via the induced impacts of employment.

Operation
The Proposed Development is an ambitious mixed use scheme which will deliver new homes for all generations, be that those renting affordable housing or those accupying rooms within the purpose built student accommodation. The scheme will also be complemented by new retail and leisure space, including a cafe and extenal public amenity.

One of the strengths of the scheme is that some of the commercial uses are flexible, so that the mix of occupiers are responsive to market demand.

Once finished, the development will provide socio-economical value to the local community through the following:

- Provision of additional amenities for community use including a new public amenity space
- Provision of resident gardens
- Long lasting employment space facilitated through the ground floor commercial units
- Introduction of sustainable and diverse mix of tenures and resident apartments for all generations
- Creation of flexible small retail unit that is more affordable and respond to local context and needs
- New playspace accessible for all children within the development.

Proposed playspace for children living within the development

Proposed street fronting flexible retail unit

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