St Ann's Redevelopment Trust

Environmental & sustainability principles for development

November 2017

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StART St Ann's Redevelopment Trust

CONTENTS

ISSUE HISTORY

Issue	Date	Description
1	03/2017	Draft Version
2	1/11/17	Updated in line with OPAL Principles
3	20/12/17	

1 Introduction

This document sets out the sustainability principles by which StART commits to be guided in its development of the St Ann's hospital site.

The overarching aim is to achieve a positive social and environmental impact. The principles are set against the One Planet Living framework (OPL)[1] . One Planet Affordable Living is an initiative of OPAL and Bioregional (and other partners) to make truly sustainable affordable living a reality. This framework was chosen because it is a clear and well recognised framework that has had proved successful for supporting delivery of sustainable communities across the world, such as the One Brighton development[2]. Importantly it has a stronger community focus than many other available sustainability frameworks.

One Planet Living uses ecological and carbon footprinting as its headline indicators; it is based on ten guiding principles of sustainability as a framework, shown below.

Figure 1 Sustainability requirements have been set against the One Planet Living Principles

Many of the principles are also addressed in planning requirements or the design brief. Other aspects go beyond the minimum standard required. Therefore principles in order to inform the other areas of the StART bid this document provides an indication of the capital costs, consultant costs and operational costs or benefits of the.

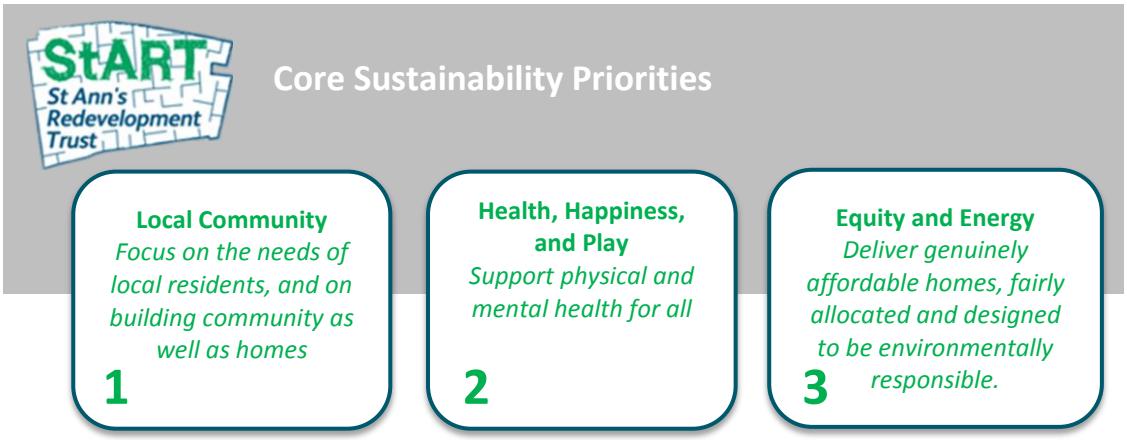
Development of the Sustainability Principles
The principles have been developed by the StART Environment Group in collaboration with various members of StART. Max Fordham have developed the principles further into the current format. Technical advice has also been provided by Elementa Consulting and OPAL.

The principles are presented below with anticipated cost impacts: Capital costs, consultant design costs, and operational costs or potential benefits (reduced maintenance or running costs).

[1] http://www.bioregional.co.uk/oneplanetliving/
[2] http://www.bioregional.com/one-brighton/

2 Core Sustainability Priorities

The following themes have been identified as Core Sustainability Priorities for the St Ann's Development by StART. These overlap with many other of the ten principles and have been used to inform the principles where possible.



3 One Planet Living Sustainability Principles

Health and happiness
All dwellings and surrounding landscape should be spaces that provide residents opportunity to thrive; passive design principles should be followed to reduce the operational cost to residents and maximise health through access to light and air.

Requirement	Capital cost	Consultant cost	Operational cost (+/-)
All dwellings to meet or exceed minimum London Housing Design Guide Standards	Current minimum standard	n/a	n/a
All dwellings should apply passive design principles. A passive design approach will be valued for its environmental and wellbeing benefits (such as connection to outside).	Covered below	Covered below	Covered below
Daylight: All buildings should have access to direct sunlight and aim to achieve at least 1.5% Daylight factor (DF) in livings spaces and kitchens, and ideally 2%. It is a priority for the homes (and atriums or other communally used spaces if any) to have natural light. Effort should be made to provide natural light to corridors as well.	Minimal	No	n/a
Thermal comfort: • Dwellings should be designed to meet CIBSE TM59[3] as a minimum with a fully integrated upgrade strategy for meeting 2050 climate[4]. • Dwellings should where possible, be dual aspect targeting a minimum 75% on site. Tenure, resident vulnerability, and running costs must be considered as part of overheating design.	Yes	No	May reduce running costs – may increase maintenance costs (e.g. external shading)

[3] CIBSE TM59 is the current industry methodology for testing the thermal comfort of dwellings.
[4] Tested using Design Summer Year weather file DSY2 2050

It is a priority for StART to achieve high quality outcomes for internal space and comfort standards relating to • Ceiling heights – London Housing Design Guide minimum. Consider higher floors at ground level. • Accessibility and adaptability – At least 90% Building Regs Part M Category II (adaptable) and 10% Part M Category III (wheelchair accessible) • Internal Noise Levels – daytime: 35dB $L_{Aeq,T}$, nighttime: 30dB $L_{Aeq,T}$ in habitable rooms [5] • Sound insulation – Airborne sound insulation of 50 DnT,w + Ctr (dB) (minimum values) and Impact sound insulation of 57 L'nT,w (dB) (maximum values)[6] • Air quality – external air pollution will be considered in the energy and ventilation strategy and the development will seek to minimise air pollution. Internal air quality will be improved by using low solvent (volatile oxide compound content) and formaldehyde products (paints, varnishes, timber etc) will be used. • The Mayor may introduce a new Air Quality Positive Standard for new developments that should be followed if applicable. If newer national or London standards are released over the lifetime of the project these will be reviewed and considered for adoption.	Increased capital cost on ground floors Acoustic standards will have an additional cost implication	Possibly	n/a
A wellbeing strategy should be developed at concept stage, stage by reviewing emerging evidence around the impact of design on health and well-being, and preferably with input by an environmental psychologist[7]. The design team will be required to report at regular stages on and how this has been addressed within the design.	Unknown	Yes	n/a
All main entrances to houses, ground floor flats and communal entrance lobbies should be visible from the public realm	n/a	n/a	n/a
Public spaces and pedestrian routes to be designed to be overlooked and safe.	Unknown	No	n/a

Equity and local economy

One of the central principles of StART is to plan and organise a community-led development with the full participation of local people, to provide genuinely affordable homes for people on local incomes.

Requirement	Capital	Consultant	Operational

[5] In line with Home Quality Mark certification credit 11. May be difficult on dwellings next to the railway or St Ann's road, will require advice from an acoustician.

[6] Taken from Home Quality Mark certification credit 11, review by acoustician in relation to the scheme will be required

[7] There is increasing evidence that urban design, building design and interior design can have a significant effect on people's health and happiness. Bringing in specialist knowledge would help the development to tweak the design to incorporate key factors and the latest emerging evidence in this area.

	cost	cost	cost (+/-)
One of the central principles of StART is to provide genuinely affordable homes led by the local community.	n/a	n/a	n/a
Running and maintenance costs should be a key factor considered when developing the servicing strategy for the development to ensure tenants are not locked into unreasonably high running costs.	n/a	Yes	Reduced running costs
There is a preference for all commercial lets to be independent or genuinely benefitting the local population	n/a	n/a	n/a

Culture and community

Strengthening culture and community is at the heart of StART's community-led, bottom-up approach.

Requirement	Capital cost	Consultant costs	Operational cost (+/-)
Play • A mix of high-quality natural play should be provided external to dwellings and opportunity for incorporating play into dwellings should also be considered.[8] • Children will be involved in the planning of play provision and open spaces • The emerging design should be reviewed by a play specialist.	A certain amount of play space will be required as a minimum	Yes	No
Gathering spaces should be encouraged for all ages, including spaces for teenagers.	No	No	No
Community activities such as green gyms, community events, education, etc should be encouraged to enhance a sense of community.	Maybe		Yes
StART will be a Community Developer and as such community will be at the heart of the design and delivery.	n/a	n/a	n/a
The development should be tenure blind in fit-out quality and in external appearance	Yes	No	No
There is a shared ambition with the health trust to integrate the residential and health aspects of the development. This could include a soft border between the sites and shared allotment use	Unknown	No	Maybe

Land and Nature

Love of the natural features of the site and a desire to protect them has been one of the central reasons community have become interested in the St Ann's site and has attracted volunteers to join StART. Additionally StART wants to use the site's natural assets to provide health benefits to the community through community involvement in their management.

Requirement	Capital cost	Consultant costs	Operational cost (+/-)
Nature Conservation • The Development to preserve existing trees wherever possible, and plant new trees, taking account of long-term sustainability. • The woodland area next to the railway line is designated a local Site of Importance to Nature	Yes (certain amount required by Planning)	No	Yes

[8] Play should not be considered limited to installed facilities but should be considered throughout the landscaping.

Conservation (SINC) and will be protected and managed accordingly. • StART to work with local and national Nature Conservation groups to preserve and enhance the natural environment and biodiversity. • Wildlife provision should be considered both in fabric of buildings and green spaces, taking into account local Biodiversity Action Plan target species			
Integrating and enhancing nature • Nature should be incorporated into buildings through green/brown roofs, green facades or climbing greenery. • Habitat should be incorporated for foraging and nesting for both invertebrate and vertebrate wildlife. • Landscape should be designed to manage water efficiently, and create green corridors and useful green infrastructure. Attention will be paid to the existing green corridor parallel to the railway line and to a continuous green corridor connecting the site to Chestnuts Park. • External lighting should be designed to minimise conflict with wildlife protection and wildlife corridors. • Plants should be selected to enhance air quality by capturing airborne pollution and dust	Yes, however green roofs and adequate landscaping required for planning and recognised as enhancing sale values	No	Maintenance
Use of nature • Green gyms should be encouraged where groups are organised to maintain and improve a green space as a form of keeping fit	n/a	n/a	Not anticipated
Public Realm / Landscape: • Incorporate a variety of amenity & therapeutic green spaces – informal recreation spaces, housing green spaces, domestic gardens, village green, urban commons, allotments, community gardens, other incidental space • Streets and squares should be designed as social places with a clear relationship to surrounding buildings • Space should be allocated for communal gardening and food-growing projects • Communal open space shall be accessible to wheelchair users and other disabled people. • The urban heat island effect should be mitigated, by providing shade, shelter and moisture release • Design should aim to provide screening from traffic noise and visual intrusion • Water features should be considered, some for children's play. Consider feeding by rainwater collection	Many aspects will have additional costs but should mainly be incorporated into the scheme already. Many aspects required by planning as standard	No	Maybe; Dependent on maintenance model and proportion of community led maintenance

Sustainable Water

Equity is one of StART's Core Sustainability Principles. Minimising the development's environmental impact and use of resources is recognised as an important part of living equitably.

Requirement	Capital cost	Consultant costs	Operational cost (+/-)
Dwellings designed to meet 100 l/p/day[9] without rainwater recycling	n/a	n/a	Reduce running costs
Follow the Sustainable Urban Drainage System (SUDS) hierarchy minimising water stored in attenuation tanks and maximising additional site benefits (such as ecological enhancement)	Unknown	No	May increase maintenance costs
Design drainage to cope with future climate rainfall predictions	Yes	No	No additional maintenance expected
Rain gardens and water features to be investigated, including using some for play	Yes	No	Yes
Collect rainwater for irrigation where it can be stored at ground level or without significant processing costs	Yes	No	Small maintenance costs/ reduced irrigation costs
Contractors will be required to set low water construction targets and report regularly on progress	No	No	n/a

Local and sustainable food

Enhance health and the environment through the support and promotion of healthy eating

Requirement	Capital cost	Consultant costs	Operational cost (+/-)
Space to be allocated for communal gardening and food-growing projects[10]	Yes	No	Maybe
The development will put in place a sustainable food strategy that could include: • Promoting a strong food culture on site through educational programs or food events • Enabling sustainable food deliveries to the site (such as providing space for organic food box delivery) • Building links with local markets or groups • Considering edible food in the planting and tree selection	Maybe	Yes	Yes

[9] Enhanced Home Quality Mark level of water efficiency.

[10] See Streatham Common co-operative as an example

Travel and transport

Equity is one of StART's Core Sustainability Principles. Minimising the development's environmental impact and use of resources is recognised as an important part of living equitably. Low impact transport such as walking and cycling is also recognised as important for its health benefits.

Requirement	Capital cost	Consultant costs	Operational cost (+/-
• Routes to complement existing networks of streets, paths and public spaces. • Routes to take account of the surrounding environment (lighting, traffic, other impacts).	n/a	n/a	n/a
• The design should follow the Healthy Street Approach.[11] This encourages active lifestyles and reduces car dependence. • passive supervision of public space with housing and other buildings arranged to overlook the public realm including footways located to increase sense of safety, especially after dark • Accessible routes to schools, shops and community facilities which are attractive and safe for all users, including children, elderly and mobility impaired people. Children's independent mobility should be considered. • Spaces for drop-off, deliveries, emergency services, maintenance, and needs of disabled drivers to be considered for close proximity to building entrances.	Required for planning	No	No
secure covered and uncovered cycle parking close to active street frontages, including provision for both residents and visitors	Required by planning	n/a	n/a
Car & van club provision takes priority over individual private car ownership. 40% of spaces have electric charging points including all car share spaces	Yes (20% currently a minimum)	No	No
Aspiration for community facilities to include cycle hire and repair			

Materials and products

Equity is one of StART's Core Sustainability Principles. Minimising the development's environmental impact and use of resources is recognised as an important part of living equitably.

Requirement	Capital cost	Consultant costs	Operational cost (+/-
Conduct a demolition audit during RIBA[12] Stage 1/2. Find opportunities for reuse from products available on site or other local waste. Aim for some key construction elements to incorporate waste materials	Probably not	Yes	n/a
Design to prioritise local, renewable and low-impact construction materials.	Does not have to	No	n/a
Conduct lifecycle analysis of some key material impacts or selection choices throughout design	No	Yes	n/a
100% timber to be responsibly sourced. All key materials to	Yes	No	n/a

[11] https://www.london.gov.uk/what-we-do/health/transport-and-health/healthy-streets-london

[12] Royal Institute of British Architects (RIBA) Construction Stages terminology; Stage 1 = Feasibility stage, RIBA Stage 2 = Concept Design Stage

have responsible sourcing certification or demonstrably lower impact			
Consider durability and adaptability in building design (changing demographics in dwellings and adaptable uses in commercial units)	Maybe	No	Reduced maintenance
Develop a strategy for supporting low-consumption lifestyles in line with a One Planet lifestyle e.g. education programmes; resident OPAL champion group; site-wide competitions on reducing impact	No	Maybe	Yes
Develop a sharing facility including possible reuse and swap shops	No (assuming space available)	No	Yes

Zero waste

Equity is one of StART's Core Sustainability Principles. Minimising the development's environmental impact and use of resources is recognised as an important part of living equitably.

Requirement	Capital cost	Consultant costs	Operational cost (+/-
The Development seeks to promote the **circular economy**, and will investigate opportunities throughout the design such as designing for adaptability and refit as well as, this could include; a dedicated space for residents to put unwanted items for reuse sharing schemes for tools such as power tools; Car sharing schemes	Yes	Maybe	Maybe
Construction waste • Construction waste will be minimised, with all contactors required to investigate opportunities to minimise waste generation, this could include: packaging take back schemes, 'just-in-time' delivery, use of standard sized components. • Target and report on zero waste to landfill	No Yes	No	n/a

Operational waste
• Establish strategies to reduce waste by at least 25 per cent from local average rates. This could include:
  • Education around waste and recycling at point of occupancy and through community events
  • Resident waste champions
• Composting facilities will be available on site either for council collection or for reuse on site as part of the landscaping strategy.
	Unlikely – depends on strategy
	
	No
		No	Maybe
			
			Maybe

Zero carbon energy

Equity is one of StART's Core Sustainability Principles. Minimising the development's environmental impact and use of resources is recognised as an important part of living equitably. Delivery of homes with low energy demand will help to prevent fuel poverty.

Requirement	Capital cost	Consultant costs	Operational cost (+/-
Follow the Energy Hierarchy as set out in the London Plan and achieve Zero Carbon in operation as required by the GLA. This could include 35% reductions on site and remaining emissions offset through a Haringey carbon fund.	No – Planning requirement	No	n/a
• The design will be based on a 'fabric first' approach with controllable natural ventilation. • The development will achieve the minimum Fabric Energy Efficiency Standards for zero carbon homes (based on SAP[13] modelling), i.e. 39 kWh/m^2/year for space heating (and cooling if applicable).	Yes the aim should be to do what is currently required – but do it well, not just for compliance	Yes	Reduce running costs
High quality building services should be selected that minimise complexity, are robust, energy efficient, and easy to maintain.	Yes	Maybe	Reduced running costs
The site should incorporate 30% low-carbon heat and power generation on site, or connect to a local low carbon heat network (not fuelled by fossil fuels). The development should investigate the opportunity for using waste heat from the hospital in collaboration with the NHS. Strategies will need to fully consider the Mayor's air quality plans set out in the Draft London Energy Strategy[14]. When selecting low-carbon heat and power generation consider whole life costing and future carbon intensity of the electricity grid to ensure the strategy remains low-carbon into the future[15].	Yes	No	Reduced running costs
Consider how the site could transition to zero carbon by 2050 in deciding the heating and domestic servicing strategy.	No – Planning requirement	Yes	n/a
Consider setting up a StART CESCo (Community-owned energy services company) which could own the renewable assets, run by the local community. Feasibility would depend on whether it could develop a revenue stream.[16]	Yes	Yes	Unknown
Design and construction delivery Design, and Construction will take account of the BSRIA[17] Soft Landings Core Principles to improve quality, usability	No	Yes	Reduced running / maintenance

[13] The Standard Assessment Procedure is the National methodology for calculating domestic energy consumption.

[14] 4.3.3a Through the new London Plan, the Mayor will consider policies so that all new large-scale developments in London are 'Air Quality Positive', and maintain Air Quality Neutral requirements for all other developments

[15] As the electricity grid becomes less carbon intensive in future electricity will become more favourable than it currently appears using the required compliance methods.

[16] Source: OPAL document

[17] Building Services Research and Information Association

and operational performance of the dwellings. This should include client and design team Soft Landings Champions as well as handover and initial aftercare through construction teams. Client soft landings champion will play a key role in decisions around building procurement.			costs
Contractors will be required to set low energy construction targets and report regularly on progress.	No	No	n/a
A percentage of units will be tested for air tightness after two years.	n/a	Yes	
Where appliances (fridges, freezers, washing machines, etc.) are provided, they are required to have an A+ rating under the EU Energy Efficiency Labelling Scheme.	Yes		Reduced running costs
All homes should have electricity and heat sub-meters. During design a strategy should be put in place for helping tenants to reduce their energy bills through increased energy literacy, ongoing support, and data provision.	No	Maybe	Employment cost of a support worker / reduce running costs
Refurbished buildings Existing buildings should be refurbished to very low energy standards.[18] Standard to be developed.	Yes	n/a	n/a

4 StARTs Sustainability Principles in response to the Mayor's Ambition

This section highlights some of the current relevant planning policies and anticipated planning policies. The planning policy response it also

4.1 Current London Plan

The London Mayor is responsible for strategic planning in London, with requirements set out within the London Plan.

The London Plan 'Spatial Development Strategy for Greater London', published in March 2015 (consolidated with alterations since 2011), forms the statutory development plan for Greater London.

Policy 5.2: London Plan, Policy 5.2 'Minimising Carbon Dioxide Emissions' requires that all new domestic developments be zero carbon. Non-domestic buildings are required to demonstrate carbon dioxide emissions as per building regulation requirements. Any submitted for planning after 2019 will be required to be zero carbon.
Carbon reductions should be achieved through the following energy hierarchy:

- Be lean - use less energy
- Be clean - supply energy efficiently
- Be green - use renewable energy

Policy 5.7: 'Renewable Energy' states that all major developments should aim to reduce carbon dioxide emissions by 20% through the use of on-site renewable technologies if feasible.

Policy 5.9: 'Overheating and Cooling' aims to reduce the impact of the urban heat island effect and encourage the design of places and spaces to avoid overheating.

This is supported by the Mayor of London's **Sustainable Design and Construction SPG** where it is recognised that overheating is not fully assessed by carbon dioxide emissions models and encourages dynamic thermal modelling to minimise the risk of overheating. TM49 'Probabilistic Design Summer

[18] These principles require further research and consideration. Condition surveys are probably required. Could be completed upon acquiring the site.

Years for London' has been developed to help design for the temperature a building is likely to be exposed to over its lifetime.

Major of London's Housing SPG: Provides design guidance for new housing developments within Greater London, which include:

- Minimise the number of single aspect dwellings, in particular those which are north facing, exposed to adverse noise levels, or contain three or more bedrooms
- All dwellings should provide good daylight provision for at least one habitable room for part of the day, preferably living areas and/or kitchen/dining spaces
- Developments should demonstrate how the risk of overheating has been minimised without reliance on mechanical cooling
- Potable water consumption no greater than 105 litres per person per day
- Incorporation of Sustainable Urban Drainage Systems

4.2 Draft New London Plan

The New London Plan is due for Adoption in autumn 2019. The Draft London Plan gives an indication of some of the likely policies. Some of the key relevant to the sustainability principles include:

Policy S4 Play and informal recreation:

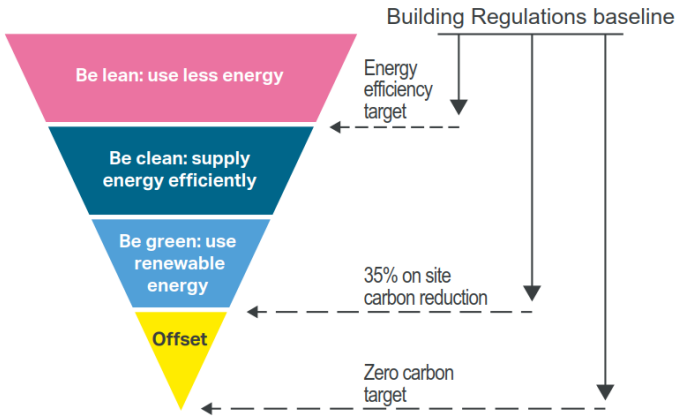
1) *Development proposals should increase opportunities for play and informal recreation and enable children and young people to be **independently mobile***
2) *incorporate accessible routes for children and young people to existing play provision* (not more than 400 metres away)*, schools and youth centres, within the local area, that enable them to play and move around their local neighbourhood safely and independently*
3) *for large-scale public realm developments, incorporate incidental play space to make the space more playable*

Policy G5 Urban greening: Major development proposals should contribute to the greening of London by including urban greening as a fundamental element of site and building design, and by incorporating measures such as high-quality landscaping
Policy G6 Biodiversity and access to nature Biodiversity enhancement should be considered from the start of the development process
Policy G7 Trees and woodlands: Trees and woodlands should be protected, and new trees and woodlands should be planted
Policy G8 Food: growing Encourage food growing in new developments

Policy SI2 Minimising greenhouse gas emissions: *Sites must comply with requirements from Policy 5.2 of the current London Plan. In addition*

- *For residential developments 10% of the reductions must be achieved through energy efficiency*
- *For non-domestic 15% of reductions must be achieved through energy efficiency.*
- *All developments to demonstrate how the development will achieve net-zero carbon on-site by 2050*
- *All major developments to monitor and report on their energy use for 5 years after completion.*
- *Energy strategies should consider demand-side response specifically through installation of smart meters and promoting short-term energy storage*
- *Energy strategies should detail how energy demand and carbon dioxide emissions post-construction will be monitored annually (for at least five years).*

Figure 9.2 - The energy hierarchy and associated targets



Source: Greater London Authority

Policy SI4 Managing heat risk: *Show steps to minimise overheating and avoid active cooling*

Policy SI7 Reducing waste and supporting the circular economy: *95% of all construction waste (construction, demolition, and excavation) to be recycled by 2040. Referable applications should promote circular economy outcomes and aim to be net zero-waste.*
Policy T5 Cycling
Policy T2 Healthy Streets: *Development proposals should:*
1) demonstrate how they will deliver improvements that support the ten Healthy Streets Indicators in line with Transport for London guidance.
2) reduce the dominance of vehicles on London's streets whether stationary or moving.
3) be permeable by foot and cycle and connect to local walking and cycling networks as well as public transport.

4.3 StART's response and ambitions

Policy S4 Play and informal recreation aligns with the second of the core principles, Health Happiness and Play. The requirements are addressed through the Culture and Community and Travel and Transport sections.

StART's focus on nature in the **Land and Nature** principles will complement London's ambition to be a national park city and Proposal 5.1.1f of the Draft London Environment Strategy through which the Mayor's seeks to back greater community involvement in the improvement and management of London's green spaces and natural environment. StART is in a unique position to be able to do this.

The **Land and Nature** principles address and align with policies G1 Green Infrastructure, G5 Urban greening, G6 Biodiversity and access to nature, G7 Trees and Woodland, G8 Food and Growing. Local and Sustainable food also aligns with Policy G8 Food and Growing

Policy SI2 Minimising greenhouse gas emissions is addressed in the **Zero Carbon Energy** principles. The principles align with the Draft London plan requirement. Additionally a challenging fabric efficiency target has been set that rewards efficient building form.

Policy SI4 Managing heat risk is addressed by the Thermal Comfort principles in the Health and Happiness section.

The Waste principles seek to address the circular economy as set out in Draft London Plan Policy SI7 Reducing waste and supporting the circular economy.

Policy T5 Cycling aligns with the Travel and Transport principles
Policy T2 Healthy Streets is addressed by the Travel and Transport principles as well as through elements of the Land and Nature principles – such as the 'Public Realm / Landscape' principles and the 'Integrating and enhancing nature' principles.

5 Governance

This section sets out how the Principles would be used.

The Principles should be used to form part of the brief for the Development design team and then later constructor and operational management.

The principles act as a starting point for the desired development standards in relation to sustainability. They will need to be reviewed, tested and updated at each stage of design to understand what will be possible.

At each stage a design review should be conducted by a panel to ensure the Sustainability Principles have been sufficiently incorporated. It is suggested that the StART Environment Group form the core of this panel.