

8.1 Green infrastructure, open space & air quality

Key issues

- Lambeth, Southwark Mayoral and national policy exists on open space but policy has not prevented some erosion of open space.
- Intensification of land use in the neighbourhood, bringing new residents, workers and visitors, inevitably leads to additional stresses on open space.
- Environmental effects – the risk of flooding, poor access to open space, noise and air pollution etc – impact on the health and well-being of the community.
- Public agencies are not adequately joined up and opportunities are missed to embed green infrastructure in developments and public realm schemes, particularly at an early stage.
- Air quality is an increasing concern for residents and businesses in the area and there is support for local approaches to improve it alongside city-wide policy.

Consultation and Evidence

Summary of results of consultation and evidence for Policies P 1 – P6; Green Infrastructure, open space and air quality is at Appendix 1, Page 43.

Policies P1, P2, P3, P4, P5, P6 : Green infrastructure, open space & air quality

No	Policies
P1	Applications which propose any permanent reduction of existing open space (other than open space that is ancillary to, and / or within the curtilage of a building) will not be supported unless : a). New open space of equivalent quantity is created within the Neighbourhood Plan area which replaces open space lost as a result of the development. b). The quality and amenity value of proposed open space both is as good as the lost open space, meets the additional needs arising from the development, and where the space lost was publicly accessible, equivalent public access be provided to the proposed open space.
P2	Major developments (of any land use) which are likely to intensify, to a material degree, pressures on existing publicly accessible open space should contribute - in a manner and to an extent related to the development - to the improvement of such open space or provide additional publicly accessible open space where feasible.
P3	a). Subject to the character of surrounding built form, roofs should be flat where feasible, and be designed to include roof planting. The roof area should be accessible to occupants of the building, subject to safety and amenity considerations. b). Where it can be demonstrated that it is either inappropriate or not feasible to meet the requirement P3a, a range of alternative climate change mitigation approaches must be considered, and implemented where feasible.

P4	<p>All major developments should be encouraged to meet the following criteria:</p> <ul style="list-style-type: none"> a). Include amenity space designed for the exclusive use of occupants. This should be provided primarily on levels away from the ground floor, for example via green roofs and terraces. Some ground floor private amenity space may be provided for the exclusive use of the building's occupants, but the majority of ground floor open space should be publicly accessible. b). Ensure that the design of publicly accessible open space incorporates public seating and enables ease of pedestrian movement. c). Have regard to guidance for development document in Appendix 9 d). Address and mitigate any temporary major loss of amenity in surrounding public open space during construction phases through financial compensation, ring-fenced for green infrastructure projects to be delivered in the neighbourhood area. There may be other infrastructure projects to be delivered in the neighbourhood area. There may be other appropriate measures which could mitigate such major loss of amenity. e). The impact of development on trees is addressed elsewhere in the development plan. Where it is impracticable to identify suitable locations for new trees, alternative forms of replacement or compensation - for example on-street planters, rain gardens and green walls – could be considered acceptable.
P5	<p>Air Quality</p> <ul style="list-style-type: none"> a). Given the high levels of air pollution in the area, development proposals must show how they contribute to the improvement of air quality in South Bank and Waterloo. Such measures include, but are not limited to: <ul style="list-style-type: none"> i) of developments incorporating car parking with car free developments and electric vehicle charging points, or such other technology which encourages the take up of sustainable transport. ii) Incorporation of air filtration systems to improve indoor air quality for occupants. iii) Implementation of green infrastructure. iv) The use of low-pollution vehicles during construction. v) Freight consolidation arrangements. b). The Neighbourhood Plan has identified a network of pedestrian routes ('greenways') through the area which are situated away from heavy traffic, air pollution and noise (shown in Appendix 10). The Plan supports developments along these routes which: <ul style="list-style-type: none"> i) Create an improved, pedestrian friendly streetscape, encouraging walking as the primary mode, as set out in local and TfL guidance.' ii) Contribute to an improvement in air quality and a reduction in noise levels. c). Measures to encourage cycling will be explored, especially via routes that seek to protect cyclists from heavy traffic, air pollution and noise. d). Development of Waterloo Station should demonstrate that any measures capable of being regulated by development management, to reduce emissions of diesel vehicles, have been investigated.

P6	The utilisation of vacant development sites with planning consent for temporary activity such as sports pitches and food growing is encouraged. All major proposals must be accompanied by a construction and phasing plan that identifies opportunities for temporary uses, both community and commercial. Where planning permission is required to bring sites into temporary use, this will normally be supported.
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Rationale for policies

The objective for this theme is increasing the amount and quality of space where evidence indicates pressure on existing space and to protect local people from the damaging effects of air pollution.

Policy P1 – This in effect supports Lambeth’s Local Plan Policy EN1, and is included with the intention of applying the key ambitions of that policy to the Southwark section of the neighbourhood area.

Policy P2 – Due to the unique pressure on public open space in this Central London environment, there should be a policy which addresses the effect of major developments (of any land use) can have in exacerbating existing pressure on publicly accessible open space. The policy applies to all developments over 10 residential units or 1,000 m², in the case of non-residential developments. This is the Government’s definition of ‘major development.’

Rationale for sub-sections :

P3a. Intensive green roofs should be designed so as to provide the following benefits:

- amenity uses for the building’s occupants (to relieve pressure on existing open spaces)
- improvement to the neighbourhood’s biodiversity (to encourage wildlife)
- reduction of CO₂ (to reduce the urban heat island effect and global warming)
- improvement of air quality, (to mitigate high levels of air pollution), and
- sustainable urban drainage (to mitigate flood risk)

Roofs which provide a number of simultaneous benefits, including particularly new open space for the enjoyment of residents are to be supported before other forms of climate change mitigating approaches. Local people agreed that intensive green roof gardens for the use of the building’s occupants reduced the pressure on existing open spaces and were therefore preferable to other approaches, such as brown roofs or solar panels. Alongside intensive roofs, other benefits, such as planting to improve the biodiversity of the area should be incorporated into plans for roofs. Plant machinery should where possible be installed inside the building.

P3b. An extensive survey of the area was carried out in 2012 for the South Bank and Waterloo Business Improvement Districts by LRS Consultancy, which assessed roofs in the neighbourhood area for their ability to accommodate green infrastructure. An alternative climate change mitigation approach might, subject to all townscape and viability considerations, include the potential for securing additional green roofs on existing buildings in the neighbourhood area.

The Green Infrastructure audit may be accessed here:
www.wearewaterloo.co.uk/service/planting-greening

P4a. In line with London Plan guidance, all flats above ground floor level should be delivered with private amenity space in the form of balconies or terraces. Again, this reduces the pressure on existing publicly accessible open space in the area. At the ground floor, although developments will need to deliver some private space for residents (e.g. bike racks, refuse areas, ground floor gardens for flats), in the main, as much space as possible – certainly the majority – should be accessible to the public, including indoor winter gardens at ground floor. These principles apply to non-residential developments also.

P4b. It is necessary to design public spaces in the South Bank and Waterloo neighbourhood which are flexible enough to fulfil several functions simultaneously.

Too often, the first resort of landscape architects working on large schemes which deliver a public realm element is to rely on easily maintained, usually hard materials rather than green infrastructure. Schemes often 'design out' resting places and seating to deter rough sleepers, and inevitably any others, from using public spaces. Spaces can do more to help pedestrians reach their destinations, through the use of desire lines and signage. More can be made of the opportunity to use lighting to make spaces safe and attractive. The primary concern of developers in delivering any publicly accessible area should be, simply, to encourage its use.

This could mean:

- Seating and outdoor tables for eating
- Grass, flowers and trees
- Decorative and architectural lighting
- Use of water features
- paths which meet desire lines

Appendix 9 gives examples of landscape design which encourages use.

P4c. Appendix 9 describes how developers should use landscaping and green infrastructure to meet the aspiration that the neighbourhood should represent an exemplar for functional landscape design.

P4d. The neighbourhood forum suggests a simple formula to determine the compensation which would be paid towards green infrastructure projects in the area. Coin Street Community Builders advertises a number of spaces for hire on the Coin Street estate. The cheapest of these by square metre is Doon Street Car Park, which is away from the riverside, which is priced at approximately £1 per square metre per day.

Should construction work be predicted to have an impact severe enough to prevent the reasonable enjoyment of any publicly accessible open space, the developer can be deemed to have taken it out of public use and should in effect lease it at the rate of £1 per square metre per day for the period of the impact. This funding should be used for improvements to green spaces in the neighbourhood area. Lesser impacts or impacts over a smaller area may still trigger compensation at a lower rate, as determined by the planning committee. Impacts are likely to be limited to light pollution, dust and noise created by construction. The above formula is merely a suggestion, and should be not seen as prescriptive. There may be other appropriate measures which could mitigate major losses of amenity in surrounding open space. The impact of construction on the amenity of such open space should be assessed on a case by case basis.

P4e. Given the difficulty in identifying suitable locations for new street trees, other green infrastructure, including trees in on-street planters, rain gardens and green walls would be considered acceptable the policy intention is to retain existing trees in the first instance before providing alternative green infrastructure.

P5a. The Love Lambeth Air project, carried out between November 2016 and April 2017 by Mapping For Change (www.wearewaterloo.co.uk/services/planting-greening), undertook to measure NO₂ with diffusion tubes at 34 sites across Lambeth, including sixteen sites in the South Bank and Waterloo neighbourhood area. None of the sites in the neighbourhood area met European targets of 40 µg/m³ (microgrammes per cubic metre), with an average of 51 µg/m³ across the sites. The project also asked local residents whether they felt that air quality was poor in the area, with 82.1% of respondents reporting their perception to be that air quality was often or always very poor. GLA evidence also supports the need for measures to reduce pollution in the area wherever possible and the policy seeks to ensure developers play their part in this.

P5b. The resident and business communities both describe a demanding environment in the South Bank and Waterloo neighbourhood, which is often suffered rather than enjoyed. Air pollution, noise, dirt, a lack of space to walk, and conflict with vehicles and bicycles regularly feature in these descriptions. In the same way as the Mayor of London has developed a network of Cycle Quietways intended for those who are not confident cycling on heavily trafficked main roads, SoWN has developed a network of streets – Greenways – which are designated as zones primarily for walking.

These streets will develop as places where traffic is less prevalent, or altogether absent; they will be quiet, less polluted, feature green pockets in which to rest, and will have wide pavements to encourage walking. Equally, they will be developed so as to provide a grid of streets which run in parallel to key desire lines, allowing pedestrians the choice to take Greenways rather than polluted streets as their walking routes. Evidence collected by SoWN and King's College showed pollution levels at 50 – 60% more than parallel streets which were less heavily trafficked. This evidence forms the basis for the policy which aims to protect a small network of streets from development which could increase pollution, and reduce opportunities for pedestrians to reduce their exposure to health damaging air.

Those who wish to develop on this network of streets will need to meet certain standards. Their developments will assume the minimum of car use and the maximum walking and cycling. Buildings will need to have particular regard to the degree to which they will require servicing from vehicles, taxis etc, will need to mitigate noise to a higher standard, and will need to provide green infrastructure which improves air quality. They will also need to be stepped back from the road.

In addition, developers will need to contribute to the improvement of the streetscape, either via a Section 278 agreement or through a CIL sum which contributes to a larger fund. This will enable the relaying of wider pavements, noise reducing highway surfaces, the implementation of seating and street trees, and the other elements which encourage people to walk through the area, as set out in the guidance. Ground floors should reflect Greenways principles and uses should not detract from the streets' function as peaceful walking routes.

P5d. Among the Love Lambeth Air project results, the worst of the measurements was from a diffusion tube measuring an average of 109,20ug/m³ - 273% over the legal limit – situated in the tunnels beneath Waterloo Station. These tunnels are primarily used by taxis serving Waterloo Station and, although a queuing system has been introduced which restricts the number of taxis that are allowed to join the queue, the system is not enforced and the tunnels, which should be clear of idling taxis, are regularly full. Feedback at pre-submission consultation stage was unequivocal in calling for measures which specifically dealt with this issue and SoWN would hope to engage with Network Rail as landowner and representatives of the LTDA to develop an approach of solving the air pollution caused by diesel taxis.

Further detail is provided in Appendix 10.

Policy P6 – Local people believe that in an area under such pressure for public spaces of different kinds, no development sites should be left vacant for extended periods of time, and instead should be put to use. Where vacant sites are left undeveloped after they have received - or have been denied - planning permission, developers should be encouraged where feasible to make them available to local charities and community organisations to create temporary allotments, sports pitches or other open spaces, taking advice from the community about what uses of open space are most needed.

Green infrastructure, open space & air quality: Other guidance

1. Green infrastructure projects should be an opportunity for volunteering, apprenticeships and training. Local examples demonstrate the value in involving local people in the implementation and upkeep of green infrastructure – health and well-being, new skills, reduction of deprivation and improving social cohesion.
2. Network Rail should take immediate steps to prevent the ongoing harmful effects of diesel vehicles serving Waterloo Station. Such measures should include:
 - a. Restricting the capacity of taxi ranks
 - b. Monitoring and enforcing against idling taxis and those breaking existing queuing rules

Appendix 9. Developer guidelines for the implementation of green infrastructure

Introduction

SoWN is especially short of open green space, and in the absence of sites which can provide large scale parks, it is especially important that schemes help to provide green infrastructure in meeting our first thematic objective

Green infrastructure, open space & air quality

- Protecting and creating open space and green infrastructure
- Minimising the impact of construction on open space
- Reductions in air pollution, noise pollution, and other negative environmental effects.

These guidelines can also be used in satisfying our other objectives, particularly

Streetscape & transport

- Encouraging sustainable transport and reducing vehicular traffic through the neighbourhood
- Supporting key public realm improvements which contribute to the sense of place

The Planting Guidelines in SoWN should be seen as part of the wider GI policy for our neighbourhood and beyond. Countrywide principles for GI in the development of planning policy are well set out in:

Planning for a healthy environment – good practice guidance for green infrastructure and biodiversity Town & Country Planning Association & The Wildlife Trusts (July 2012) ¹ and we have included particularly relevant statements for each guideline.

This document describes the context in which our planting guidelines must be read, and is a helpful guide to getting the most out of sites through GI.

The amount of GI that should be provided, along with its character and distribution, ultimately depends on the individual nature of the location and its specific circumstances, the type of development, and the contribution it can make to improving ecological connectivity. In restricted urban areas such as SoWN, GI connectivity, water quality, flood mitigation, etc are amongst a range of high level GI goals that we cannot accomplish, but yet must work towards. A principle of no net loss of GI should be used, rather than the UK general aim that a minimum of 40% (DCLG (2009) of the total land should constitute GI (including private gardens and living roofs, as well as any individual site).

There is also Government Planning Guidance on Green Infrastructure which the SoWN NP follows.²

¹ <http://www.wildlifetrusts.org/sites/default/files/Green-Infrastructure-Guide-TCPA-TheWildlifeTrusts.pdf>

² <http://Planningguidance.communities.gov.uk/blog/guidance/natural-environment/green-infrastructure/Green-Infrastructure>
Paragraph: 027 Reference ID: 8-027-2160211

What is green infrastructure?

Green infrastructure is a network of multifunctional green space, urban and rural, which is capable of delivering a wide range of environmental and quality of life benefits for local communities.

Green infrastructure is not simply an alternative description for conventional open space. As a network it includes parks, open spaces, playing fields, woodlands, but also street trees, allotments and private gardens. It can also include streams, canals and other water bodies and features such as green roofs and walls.

Why is green infrastructure important to delivering sustainable development?

Green infrastructure is important to the delivery of high quality sustainable development, alongside other forms of infrastructure such as transport, energy, waste and water. Green infrastructure provides multiple benefits, notably ecosystem services, at a range of scales, derived from natural systems and processes, for the individual, for society, the economy and the environment. To ensure that these benefits are delivered, green infrastructure must be well-planned, designed and maintained. Green infrastructure should, therefore, be a key consideration in both local plans and planning decisions where relevant.³

Generally, these guidelines cover the multitude of possibilities raised in delivering Green Infrastructure solutions as part of new development in SoWN. They are supported by photographs and are intended to provide a guide to quality. It is preferred that Developers put forward their own, site specific-solutions in seeking to address the nine main points in the Guidelines to follow.

³ Revision date: 1 21 2160
Paragraph: 028 Reference ID: 8-028-20160211
Revision date: 1 21 2160

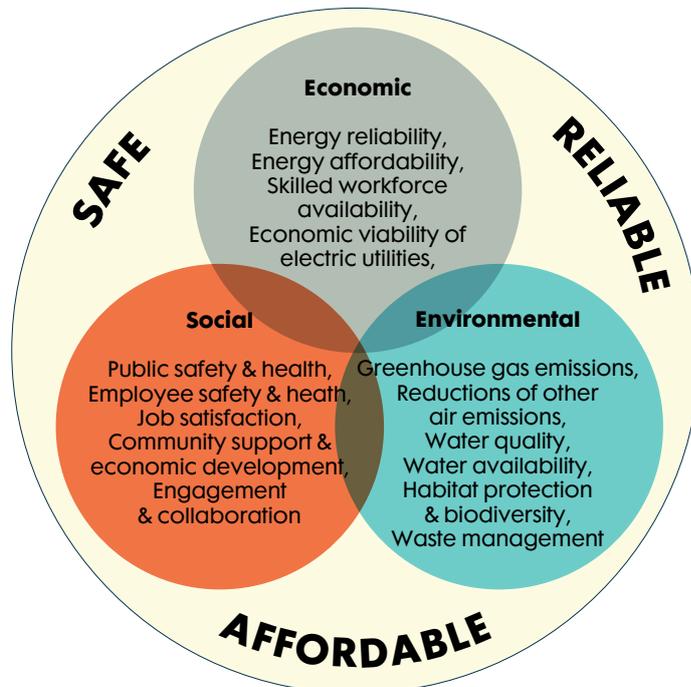
The Guidelines

What do we want the guidelines to achieve?

We want to make sure that developers understand their responsibility and commitment to the following issues both when planning their development, and during its lifespan:

- 1 Climate Change, inc SuDS
- 2 Greening: planting in all its forms
- 3 Improved accessibility
- 4 Improved pedestrian realm
- 5 Greater biodiversity
- 6 Improved Air Quality & Healthy landscapes
- 7 A Sense of Place
- 8 Well Maintained Places.

In all cases, we wish these guidelines to encourage developers to use high quality solutions which demonstrate best practice and are offered with evidence to support the chosen methods. The photographs we have provided in this appendix provide a variety of solutions but we also wish to encourage developers to put forward creative and innovative solutions and those which are multi-tasking, tackling the issues holistically (at early concept design and master planning phases).



All the issues come under a wider heading of sustainability, and any planning application coming forward to Lambeth or Southwark will be required to address sustainability challenges, giving solutions which are in the scope of the development. These guidelines are intended to cover the implementation of Green Infrastructure, but developers should note that being sustainable should recognise the inter-relatedness of the 'three pillars of sustainability.'

If the developer is not able to meet obligations on his own site and is seeking to provide or improved alternative public open space elsewhere, these guidelines should still be followed.

1. Climate Change including SuDS.

Meeting the challenge of climate change

Green infrastructure can help urban, rural and coastal communities mitigate the risks associated with climate change and adapt to its impacts by storing carbon; improving drainage (including the use of sustainable drainage systems) and managing flooding and water resources; improving water quality; reducing the urban heat-island effect and; where appropriate, supporting adaptive management in coastal areas. Green infrastructure networks also help species adapt to climate change by providing opportunities for movement.⁴

Managing urban run-off is just one of a number of issues which are increasingly pressing as the demonstrable effects of climate change on our urban environment become more marked.

Schemes need to show that they can be responsive to less predictable weather conditions. For example, by the provision of:

- Water Reducing measures
- Rain Gardens & swales – slowing the amount of time it takes for excessive surface run off to drain away.
- Permeable pavements
- Diverted roof gutters
- Green Roofs (in all their forms, see 5)
- Drainage which is self-cleaning, such open channels as part of streetscape
- Greater planted areas of plant size diversity whose root structure increases the holding capacity of the soil

Schemes should also attempt to mitigate for extremes where possible for example in the provision of:

- Shading/ pergolas which double as rain-cover (planted pergolas and greened bush shelters are good examples of this)
- Wall and roof planting to add a natural temperature control system to buildings (see 5). Planted walls and roofs keep buildings cooler as heat in the city builds up. In the winter they provide additional insulation.
- Allowing some areas to collect excess water to protect more vulnerable spots.

⁴ <http://Planningguidance.communities.gov.uk/blog/guidance/natural-environment/green-infrastructure/>
Revision date: 11 02 2016
National Planning Policy Framework
Paragraph: 031 Reference ID: 8-031-2016021

2. Greening: Planting in all its forms.

A / Timing

Before measures can be taken to install planting, the developer must make plans to include planting at such as stage in the project design that the resulting planting is an inevitable part of the development, and that the conditions for such planting are optimised to ensure its long term, health existence. This includes consideration of planting issues at early structural and infrastructural stages to allow substantial root zones & soakaways, and when drainage design favours re-use, irrigation and SuDS.

B / Infrastructure & Below Ground Services

Cables, pipework (and occasionally other structures) can impede the planting of trees and other plants – this should not be an obstacle to planting and the expectation is that new development, particularly development which disrupts the pavements and roads outside the site boundary, should involve new planting despite the services, perhaps in large scale above ground planters. Manholes and other access points should be detailed and positioned so that services can be accessed whilst allowing the maximum possible planted area or pedestrian zone.

C / Right Plant Right Place

The key to good maintenance lies in correct plant selection with a commitment to maintenance which is appropriate to the planting situation. Proposals which show planting, but don't accompany it with thoughtful maintenance solutions are unlikely to result in the longevity of the planted scheme. Mature plantings may require less maintenance after establishment, so well designed schemes should allow for the reduction of maintenance efforts after the early establishment of the plantings.

In order to assess that the developer is suggesting a suitable planting layout and species, it is suggested that development proposals are accompanied by a site analysis which acknowledges the micro-climatic conditions of the place, including, when appropriate, wind testing, and designed planting plans and lists of species, alongside their architectural proposals.

Contrary to belief, there are a number of specially selected and grown tree species available especially for urban settings - see 'Traditional Urban Tree Strategies: time for change?' which sets out ideas and practical notions to include, rather than easily exclude trees from urban development. Specialist producers, such as Barchams also provide clear advice on suitable species.

D / Planting for People

Planting should make spaces more desirable for people (on foot, in vehicles and within buildings). Places with a green aspect are known to induce a sense of calm, and factors such as scent, colour, seasonality and the sheer beauty of massed floral planting should not be underestimated. 'Amenity' planting should be avoided, or should be created with greater thought for people, rather than simply for security. Urban wilderness, when well-constructed, can counterbalance the rigidity and formality of buildings and standard urban rows.

E / Collaboration

Where possible, a community relationship may be established which not only helps the developer to meet his obligations to Green Infrastructure, but helps to engage the community in the planting and the development. Local Organisations⁵ have assisted in the implementation and maintenance of a variety of local schemes.

3 Improved Accessibility

Issues to do with the more detailed design of pedestrian areas are covered below. Improved Accessibility means that more people, no matter the state of their mobility, can feel free and are able to venture out in South Bank and Waterloo

A / Wider design issues

Developments which seek to show that pedestrian routes on and adjacent to the site have been well considered and put pedestrians first (not just users of the development) are encouraged. Early design can consider pedestrian routes in their wider context, providing clear links to other routes and landmarks near the site.

Crowding should be avoided and where a development is proposed which would generate a high footfall, or be a neighbour to pavements where high footfalls already exist, studies should be provided which present evidence that the proposed design for pavements on the site, an/or the impact on pavements adjacent to the site by the development, have been used to underpin a mitigating solution. TfL provide extensive guidance.⁶

Where pavements are adjacent to roads, designs should consider measures to mitigate the effects of pollution and road noise.

B / Permeability

Routes through larger sites are vitally important, and large sites which present barriers to natural movement should be avoided. The creation of more possibilities for people to inhabit and pass through public space is vital.

C / Ease of transit

All users, no matter what their level of ability should be able to use and navigate public space in SoW. Less able users should not be forced to take routes which are not part of the mainstream transit options.

D / Signage & Lighting

Signage and wayfinding should be well located and legible, and also be imbued with a sense of place; Improving legibility, through better signage and improved identity such as providing navigable landmarks. In this respect, public art may be proposed, and it can be the case that an integrated strategy for art and public realm will allow a number of GI and sustainability topics to be handled as one.

Lighting should be given due thought and appropriate solutions put forward which show the nature of the intended lighting effect on the development, and adjacent area. High beam security lights are to be avoided. Lighting should enhance the experience of the place and make the areas attractive and feel safe without unduly over-lighting the place. In some places the timing of light effects will be crucial and evidence that this has been considered will be sought. Illuminated planting is particularly lovely in urban locations, making planting more desirable in the evenings.

E / Encouraging the public to be in the open air (see 7).

F / Accessibility through safety and cleanliness.

Providing public space that is clean, free of litter; Spaces and streets which are regularly cleaned feel safer & more desirable, and the value of the materials and detailing used during construction last longer if there is regular cleaning. Footfall is higher when space is well-cared for (which increases site value through increased footfall).

- G / Providing space that is refuge: safe and relaxing – including the separation of different transport modes and the removal of pedestrians and cyclists from congested and polluted routes, and the separation of cyclists and pedestrians where high speed cyclists are a danger.
- H / Creating Connected space – making WiFi/broadband publically accessible in outdoor spaces. The availability of WiFi technology via hotspots is currently desirable, and in the future there are like to be other technologies which help connect spaces with users, and embed a sense of ownership. Real-time billboards may be appropriate in some places.
- I / Creating public spaces, or improving existing public realm (including smaller paths and spaces) which are well connected to other places and follow the desire lines of users.
- J / GI and Streetscape should be relevant and amenable to people of all ages and backgrounds
- K / Promoted links – development of streetscape should involve strong link with existing local organisations so that new places are quickly embedded in the community – for example – Old Vic performances on Waterloo Millennium Green, or the connecting of similar service types though signage and specialised trails.

4. Improved Pedestrian Realm

Walking is by a long way the most common form of transport, but all too often, pedestrians must divert their route to avoid hoardings, suffer bumpy pavements, become disoriented by poorly signposted routes, struggle with the fumes of traffic jams or compete with cyclists for limited space, to name but a few. With topics of well-planted pavements and walkways covered above, other improvements for the enhancement of space for pedestrians are:

- A / Detailed hardscape
 - Good walking routes are well constructed from high-quality materials.
 - Level changes should be carefully handled and easy to negotiate whether stepped or ramped.
 - There should be places for stopping and resting and walkways should be designed to allow walkers, wheelchair users, buggy users etc to pass without clashing. Creating areas for all ages to linger and sit, and making sure that the seating available is high quality, with a mixture of seat heights, backrests and armrests, and close to (but not right by) bins;
- B / Collaboration – good pavement design will require the careful positioning, or design around streetscape elements such as manholes, signage, lamp columns, parking meters, car charging points etc. High quality proposals will have considered such street furniture early in the life of the design so that comprehensive proposals are put forward for consideration at planning. Ease of movement may be greatly helped by removing pavement clutter/combining signage.
- C / Anti-social Behaviour
 - The pedestrian realm should be design so that anti-social behaviour is appropriately accommodated, and that, having done so, more appropriate behaviours are likely. Activities that are enjoyed by some, and are not illegal, can be found intimidating by other people. This includes skateboarding, drinking, overcrowding, littering, etc.
 - Measures should be taken to deter illegal activities such as urination, rough sleeping, graffiti etc.

D / Shared Surfaces

The NP seeks to increase the quantum of green and publically accessible open space in the SoWN area. Where appropriate, the stopping up of streets to traffic or the creation of shared space may be appropriate, particularly if it allows the developer to deliver façade to façade public realm, complete with planting including more substantial trees. This is particularly applicable to Greenways and Quiet Routes.

E / Greenways

Routes on which pedestrians are prioritised and can walk separate from and unhindered by other transport modes. They involve the removal of pedestrian routes from faster, noisier, more dangerous and more polluting forms of transport

Greenways may be pedestrian only routes but could be shared surfaces or wide pavements. Greenways, especially in their early stages of development may be aspirational unbroken routes, the delivery of which is piecemeal as funding and opportunity arises. This should not be seen as detrimental or counter to the development of a strong area-wide Greenway strategy, but part of its natural evolution. It allows for the development of green nodes, which users can mentally link to create their own quieter and more interesting routes.

F / Streetscape – a holistic approach

The consideration of all elements of the public realm as important areas of responsibility and consideration – pavements, verges, driveways, pull-ins, street furniture, signage and posts, railings, manholes, kerbs, advertising signs and hoardings, and slip roads. Even if elements are out of the direct control of the developer they should be fully considered as part of the proposal in order that the highest quality completed design is delivered.

A balanced streetscape is desirable – one which includes hard and soft landscape elements. Streetscape should be both recognisably part of the neighbourhood, being appropriate and in keeping – but, importantly, must provide local or nodal distinctiveness, moments of joy and excitement as well as simple repetition and understated design for calmness.

Streetscape should be appropriate to the **hierarchy** of the street: – walking transport routes remaining clutter free,

G / Active frontages

These are supported, particularly where they also activate networks and link to other desirable active locations. The following should feature: seats, signs, flowers, shade, space for café seating, bike stands located unobtrusively, surveillance cameras and lights positioned to be effective but not dominating, post boxes are frequent, Bins are well located and sized for use with frequent monitoring, WiFi is available; community information boards are visible and free to use, those owning, renting or using street-fronted property are encouraged to take ownership of their space by cleaning and maintaining it.

H / Strong design clarity on detailing and use for less frequented streets should be detailed to avoid problems, especially those of overspill from busier streets such as anti-social behaviour, urination, graffiti, rubbish dumping, paucity of cleaning, etc. Off-street parking, delivery and rubbish collection are regular uses but anti-social use can result and proposals should explain how these issues can be avoided.

5 Increased Biodiversity

It is generally recognised that levels of biodiversity are now critically low and in SoWN we have made a commitment which recognises the positive impact on this issue that quality development can make. There are high level Government guidelines which set the issues of biodiversity loss in context.⁷ Despite the strongly urban nature of SoWN, all developers can make a positive impact on net biodiversity, and there are existing green infrastructure projects to consider, alongside their own which can contribute to an integrated approach. This guideline is to encourage developers to take measure to encourage the proliferation of nature on their sites and to an increase in the number of plant species to be grown on the site or designated replacement site within SoWN;

- A / An increased mix of species types for example increasing the range of plant sizes/ increasing the range of flowering times;
- B / Providing a mix of both deciduous and evergreen species; increasing the range of species which support a diverse insect and bird population;
- C / Increasing the range of species resistant to drought and increasing temperature fluctuations; working with reputable nurseries to provide plant mixes which are suitable to site microclimate; providing a wide range of plant species which allow planned maintenance;
- D / including in the landscape plan a demonstrable strategy to maintain the biodiversity of the site over 5, 10 and 20 year plans, with arrangements to replace species as they die or are succeeded.
- E / Biodiversity must not be reduced as a result of any new development in SoWN

Biodiversity for wildlife – Suitable biodiversity enhancements include additional floral planting, and floral planting that extends the season for flowers to encourage and feed urban bees. Planting charts showing floral seasonality will be required alongside planting Plans and schedules.

⁷ Section 40 of the Natural Environment and Rural Communities Act 2006, which places a duty on all public authorities in England and Wales to have regard, in the exercise of their functions, to the purpose of conserving biodiversity. A key purpose of this duty is to embed consideration of biodiversity as an integral part of policy and decision making throughout the public sector, which should be seeking to make a significant contribution to the achievement of the commitments made by Government in its Biodiversity 2020 strategy.

In considering how development can affect biodiversity, and how biodiversity benefits could be delivered through the Planning system, it is useful to consider:

- the policies and commitments in Biodiversity 2020;
- the contents of any existing biodiversity strategies covering the relevant local or neighbourhood Plan area and any local biodiversity action Plans;
- the potential effects of a development on the habitats or species on the Natural Environment and Rural Communities Act 2006 section 41 list (in Biodiversity 2020)
- whether an ecological survey is appropriate;
- the factors listed in guidance on local ecological networks that supports National Planning Policy Framework paragraph 117.

The statutory obligations in regard to international and national designated sites of importance for biodiversity must also be considered.

<http://Planningguidance.communities.gov.uk/blog/guidance/natural-environment/biodiversity-ecosystems-and-green-infrastructure/>

Measures to increase Bio-diversity include:

- Increasing the amount of planted area on the proposal site
- Green Roofs (see images) primarily a planted roof incorporating a mix of species:
Include recognised suppliers and systems
Difference between intensive & extensive (soil depth/species mix/ maintenance and watering etc). Includes Bio-solar roofs.
- Brown roofs (of a much lower planted density and consisting of rubble for bird and insect habitat; only suitable where green roofs would not be suitable eg higher altitudes; must be quiet locations in order to encourage birdlife, esp. Black Redstarts) – should be qualified by a reputable and experienced ecologist– could potentially be acceptable but could be subject to the same scrutiny as green roofs.
- Green Walls - Covering existing or new vertical walls and surfaces with planting. Plants may be self-clinging, climbing/twining and clambering; fixed to cables and wires; rooted in tiered specialist containers. Consideration should be given to appropriateness of location, watering system, sunlight & orientation; Species selection & maintenance; Proprietary systems & suitable suppliers.
- Window boxes and planted balconies
- Making sure above ground planters are used if pavement services are too congested.

6 Improving Air Quality & Creating Healthy Places

'All plants are sensitive to the effects of air pollution, to a varying degree. It is not surprising that air pollution poses an important threat to the health of greenspaces within our towns and cities, given that they are generally located close to large potential sources of pollution.

Historically, the major air pollution problem in both urban and industrial areas has been associated with high levels of smoke and sulphur dioxide (SO₂) arising from the combustion of sulphur-containing fossil fuels for domestic and industrial purposes. Over the past 40 to 50 years, the decline in coal as a fuel source, combined with a series of Clean Air Acts and cleaner fuels/ new burning technologies, has led to a successful reduction in the emission of these pollutants.

The major threat to clean air is now posed by traffic emissions. Both petrol and diesel-engine motor vehicles emit a wide variety of pollutants, principally carbon monoxide (CO), nitrogen oxides (NO_x), volatile organic compounds (VOCs) and particulates (PM₁₀) all of which can have an increasing impact on urban air quality. In addition, photochemical reactions resulting from the action of sunlight on nitrogen dioxide (NO₂) and VOCs from vehicles leads to the formation of ground-level ozone (O₃), a secondary long-range pollutant.

The EPSRC-funded [Pollutants in the Urban Environment \(PurE\)](#) project has developed a framework for the risk assessment of pollutants in the urban environment with recommendations for planting schemes which work in the tested conditions.⁸

A / Monitoring – BY OTHERS

B / Improving Air Quality

In addition to the measures in other guidelines above which increase the range of plants and their quantity, there is some research which point to species selection that is especially suitable for the more polluted routes through SoWn. Such species are firstly more tolerant to high levels of environmental pollution (and often equally tolerant to drought/flood) and these include London Plane trees. There are other species whose foliage is a more active reducer of pollution, whereby the plant can convert some harmful substances to less noxious chemicals.

The positioning of plants is also important, shrubs and taller perennials placed between pavements/cycleways and the trafficked road can have a marked reducing effect on immediate levels of environmental pollution. The same is true when spaces between openable windows and roads are planted rather than left hardscaped.

C / Avoiding Polluted Areas

Measures which help to divert people from more to less polluted routes are to be encouraged. Such routes can be promoted as developments along them promote their healthier locations. See Greenways above.

Promoting healthy communities

Green infrastructure can improve public health and community wellbeing by improving environmental quality, providing opportunities for recreation and exercise and delivering mental and physical health benefits. Green infrastructure also helps reduce air pollution, noise and the impacts of extreme heat and extreme rainfall events.⁹

A / GI for Health

As well as better air quality, developers should strive to create places and add GI to their project in direct acknowledgement that this contributes to the health and wellbeing of their tenants and residents as well as the wider community. Some of these measure are simple – with good planting schemes and adding trees being the major 'quick wins'. However, we acknowledge that some places in SoWN present problems for tree planting and wider landscape, and all small-scale efforts must be made to add greenery where possible, since even a view of green, rather than buildings can promote well being.

B / Play & exercise

Opportunities for promoting more active routes should be encouraged; routes along greenways may be longer, allowing more exercise and such routes can easily include dual-use street furniture (part bench/part balance beam for example).

C / Such equipment makes for teen hang-outs as well as providing exercises for older residents and any measure which encourage a generation mix further contribute to wellbeing. GI and Streetscape should be relevant and amenable to people of all ages and backgrounds.

⁸ <http://www.forestry.gov.uk/fr/urgc-7eff6x>

⁹ Revision date: 11 02 2016
National Planning Policy Framework
Paragraph: 031 Reference ID: 8-031-20160211

7 Sense of Place

The design of a development should aim to reflect and enhance the area's locally distinctive character. In achieving this, existing biodiversity features of environmental, historical or cultural interest, such as habitats of principal importance, open spaces, and routes long used by local communities, should all be conserved and integrated into the design. Private gardens can also be a key determinant of local distinctiveness. GI can be harnessed as a positive 'place-shaping' tool, and where appropriate can be used to positively transform local character.

'Conserving and enhancing the natural environment

The components of green infrastructure exist within the wider landscape context and should enhance local landscape character and contribute to place-making. High quality networks of multifunctional green infrastructure provide a range of ecosystem services and can make a significant contribution to halting the decline in biodiversity.'¹⁰

'Requiring good design

Well-designed green infrastructure helps create a sense of place by responding to, and enhancing, local landscape character. Green infrastructure can also help create safe and accessible environments in new development and the regeneration of brownfield sites in existing built up areas.'¹¹

¹⁰ Revision date: 11 02 2016
National Planning Policy Framework
Paragraph: 031 Reference ID: 8-031-2016021

¹¹ Revision date: 11 02 2016
National Planning Policy Framework
Paragraph: 031 Reference ID: 8-031-2016021

8 Well Maintained Places

Reference has been made within the individual guidelines above, to the importance of developed maintenance strategies for GI proposals. Generally, at planning, the maintenance schedule of the landscape proposals are subject to condition. It is the intention of the NP that this commitment to full maintenance of the proposal site, and contributions to surrounding open space and GI, impacted by the development, or frequented by its inhabitants should form a well-conceived element of the proposals at planning.

There are collaborations to be made with local service suppliers for such tasks which would add to the inclusivity and social sustainability of new developments and engender more community minded building.

The quality and depth of pre-planning consultations should be considered with strong links with the local neighbourhood, and an attitude of helpfulness being part of the development proposal from the outset.

'How should green infrastructure be planned for in the long term?

As with other forms of infrastructure, green infrastructure requires sustainable management and maintenance arrangements to be in place if it is to provide benefits and services in the long term. Arrangements for managing green infrastructure, and for funding its management over the long-term, should be identified as early as possible when planning green infrastructure and factored into the way that it is designed and implemented.'¹²

¹² Revision date: 11 02 2016
National Planning Policy Framework
Paragraph: 032 Reference ID: 8-032-2160211

Appendix 10. Greenways: walking routes through the neighbourhood area

Greenways: Design Guidance

This is a Design Guide which forms a strategy for developing a Green Web in the SoWn area. It describes design intentions in the creation of six Greenways which are conceived as pedestrian friendly, linear parks across the area.

It is envisaged that developers would be involved by sponsorship, Section 106, direct intervention in public realm Greenways close to developments or designing in destinations into their projects.

This Greenways Design Guide is divided into three themes:

- Destinations – points of interest along the way
- Routes – green corridors from one side of the SoWn area to another
- Human Needs – places to recharge.

A Destinations

A.1 Destination Points - points of interest along the way

Greenways must offer destination/ node points along the routes in order to encourage walking by offering a sense of arrival, a goal or reward. They will help avoid any tedium at the slower pace of movement on foot. They may be places to pause, to sit, to talk and may be anything from a single seat to a piazza outside the NT.

A.2 Naming Routes and Signage

Routes and destinations should have names. Perhaps:

A	River Greenway	Lambeth Palace along the river to Blackfriars Bridge
B	Jubilee Greenway	St Thomas' Hospital past Jubilee Gardens and RNT to Oxo
C	Marsh Greenway	ArchBishop's Park along Lower Marsh to Southwark Station
D	Imperial Greenway	Imperial War Museum to Valentine Place (pedestrianised?)
E	Thespian Greenway	RNT past the Pld Vic to the IWM
F	Oxo Greenway	Oxo Tower to Ufford Street Recreation Ground

There is potential to extend the grid and to link more recreational greenways to incorporate other green spaces:

- 1 South end of Greenway B at St Thomas', through Upper Marsh to ArchBishop's Park on Greenway C.
- 2 RFH past Green Room, around Imax through St Johns churchyard to Greenway E at Secker Street.
- 3 From Blackfriars Bridge, end of Greenways A & B, south down Renne Street to Christchurch Gardens, along Roupell Street to link with Greenway E and Link 2.
- 4 Waterloo Station concourse down Spur Road through Millennium Green down Coral and Pearman Streets to Greenway D at Frazier Street.
- 5 From Leake Street Pocket Park, along Leake Street and Chicheley Street to Greenway B at Jubilee Garden.

Signage – See Appendix GI Framework 3d

A.3 Features and Activities

A destination can be a mix of physical features and activities such as places to eat, benches, views, natural elements and other items of interest. The feature may be a place to rest, a water fountain, shade, or a place for people watching. Some Greenways, such as the River Greenway (A) are so full of features and activities, it may be in need of a place of solace.

A.4 Local Unique Characteristics

The area is characterised as having paths, edges, nodes and landmarks and districts. Landmarks should be visible and distinct within the landscape.

See Appendix G1 Framework 3k & 7.

A.5 Few Negative Features

Whilst there will inevitably be some negative elements, social destinations should have none and be kept well maintained. Consideration should be made to the property side of the route. Cars should not be parked in front of gardens, planted areas encouraged in place of gravel, broken walls and fences repaired and wheelie bins found a home.

See Appendix G1 Framework 8.

A.6 Merging with Adjacent Resources

The SoWN area is fortunate to have many resources which can be merged into the Greenways. Use should be made of space which are often bypassed, such as St Johns churchyard and the landscaped areas in front or within public buildings.

Cafes, pub gardens, museums and theatres can offer courtyards where people from the Greenway can rest. Opportunities are there for commerce which may include coffee shops, cafes and appropriate kiosks (smoothies or health related foods). These may offer bike racks, seats and drinking fountains.

A.7 Access for All Ages and Abilities

Greenways should be accessible to all ages and abilities and RNIB and Age Concern guidelines should be followed. At interactions with vehicular streets, Braille Trails and Slow Crossings should be considered.

They should appeal to the child as well as the adult and be fully inclusive. Play equipment may be placed at destination points – existing play spaces such as at Ufford Street can be discovered.

See Appendix G1 Framework 3c

B Routes

B.1 Optimal Distances between Destinations

Some Greenways will need no additional destination points, but those to the south will benefit. The River Greenway is a world class walk, but Greenways E and D which link the important destinations of the National Theatre and the Imperial War Museum need interim destinations along the route. There should be 4-6 destinations on each Greenway.

B.2 Separation/ Hierarchy of Walkers and Wheeled Travellers

The final destination of those visiting the SoWN area may be the station, the theatre or Lower Marsh and visitors who wish to walk there should be offered an attractive, memorable and safe experience.

In the dense urban environment of the SoWN district, Greenways are inevitably going to be along existing trafficked streets. Traffic volumes and speeds should be low to allow a comfortable, safe and pleasant experience for pedestrians. Speed limits should be 20 mph and on occasion 15 mph.

Some roads, such as Valentine Place, can be kept car free with the exception of emergency vehicles and residents. With the increase in residential use of the area, this would allow the street to be safer and greener.

B.3 Sense of Flow

Design should aim at continuity for pedestrians with raised pavement crossings to provide a level route along the length of the Greenway. Routes should be 'lines of desire': direct, attractive with minimum of pressure from traffic.

Flow is challenged at crossings. These can be enlivened with designed interventions and signage, but safety must be paramount.

Cyclists should be taken through junctions on clearly defined lanes.

B.4 Relationship with Arts

Greenways are landscape architecture with direct a tie to the arts. The use of gateways and art and sculpture will encourage an improved sense of public ownership.

B.5 Repetitive Small Features/ Branding

While destinations are large landmarks with defining features, smaller elements with defining features on a Greenway such as benches, water fountains, rubbish bins or signs could be similar to offer a sense of orientation, order and predictable maintenance to the route. Preferred environments make sense or offer legibility and coherence.

The WeAreWaterloo planters and seats are a local example of this.

B.6 Avoid Obstacles

Pedestrians should be offered good pavements, free of obstructions. Greenways should be defined as special routes, free from obstructions with signs and meters repositioned in the road space. Where a Greenway runs beside a busy road or by the backs of buildings, shielding devices can be introduced to avoid them being major obstacles to users of the Greenways.

B.7 Urban Arrangements

Where shared use with vehicular traffic is inevitable, strategies must be found to prioritise pedestrian usage.

These may include:

- Signalised crossings
- Joint use with cyclists on a low flow, low speed, tree-lined street
- Raised pavements indicating priority for pedestrians
- Where pavements are narrow, plant in build-outs
- Cycles and pedestrians cross on raised table
- Widen pavements to take trees and create promenade leaving one-way traffic and counter-flow cycle lane
- Widened footway sufficient for shared use on footway appropriate beside busy road
- Raised zebra crossings on main road for shared use
- Raised table with signals.

In some cases, cyclists should be banned, for instance on routes with a high pedestrian footfall. Alternatively, paving can be arranged so that there is a clear route for cyclists.

B.8 Views/ Trees

Long views down Greenways should be of trees and plants rather than cars. There should be a programme of planned maintenance of greening along the routes.

See Appendix GI Framework 2.

C Human Needs

C.1 Restorative Experience

The Greenways can be a restorative experience and spaces along them can be recharging stations. Interventions can be small. Disused areas can be revitalised such as has happened at Lower Marsh with the Leake Street pocket park.

See Appendix GI Framework 6a.

C.2 Opportunities for Healthy Activities

Priority should be made for active travel, fitness and health and convivial public places. Along the Greenways, sporting activities can be facilitated whether they be climbing walls, boule pitches, outdoor gyms or athletic arenas. A round Waterloo 5k 'park run' could be instigated for Saturday mornings.

See Appendix GI Framework 6b.

C.3 Social Bridges

In most cases, the urban environment does not facilitate interaction between strangers. If social capital is to be increased, and interaction improved between people who know each other and people who do not, environments that might foster positive interaction should be built.

See Appendix GI Framework 6c.

C.4 Green Links

Greenways should go through as many green spaces and parks as possible. Every green space in the SoWN area should be linked to a Greenway and sign posted. These are identified in A.2

C.5 Corporate responsibility

Businesses can make a contribution to the street scene in the way that they treat their frontages. They can make a real difference by arranging planting through 'give and gain' days. Further, there should be collaboration with local CBOs and NGOs.

See Appendix GI Framework 4g.

C6 Air Quality

The Greenways will take people along routes with better air quality.

See Appendix GI Framework.

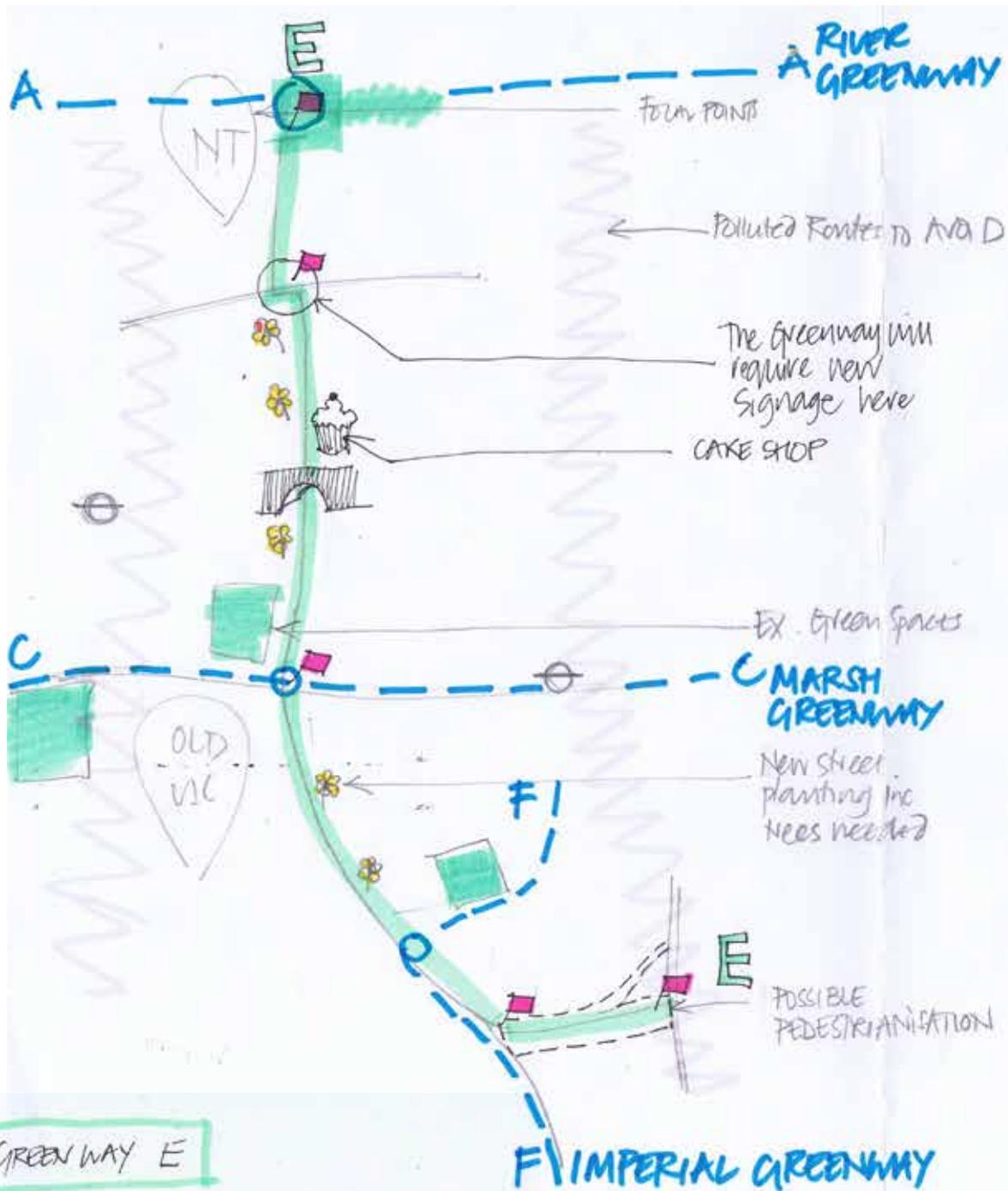
C7 Lighting

The Greenways should be as attractive at night as during the day. Lighting should be key to achieving a welcoming pedestrian experience after sunset.



Greenways in the South Bank & Waterloo neighbourhood

- | | |
|---|--|
| <ul style="list-style-type: none"> A. River Greenway: B. Jubilee Greenway: C. Marsh Greenway: D. Imperial Greenway: E. Theatre Greenway: F. Oxo Greenway: | <ul style="list-style-type: none"> Lambeth Palace along the river to Blackfriars Bridge St Thomas' Hospital past Jubilee Gardens and RNT to Oxo Archbishop's Park along Lower Marsh to Southwark Station Imperial War Museum to Valentine Place RNT past the Old Vic to the IWM Oxo Tower to Ufford Street Recreation Ground |
|---|--|



① - KEY ELEMENTS OF A GREENWAY
(HOW TO IDENTIFY POSSIBLE ROUTES)

② - ESTABLISHING A GREEN WEB