

Arup**Scotland**

Forth Ports plc

**Leith Docks
Development
Framework**

Sustainability Targets

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January 2005

This report takes into account the particular instructions and requirements of our client. It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

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1. INTRODUCTION

This report is developed from the SPeAR assessment undertaken by Arup on behalf of Forth Ports plc into the Leith Docks Development Framework. It draws from best practice in the UK and seeks to identify those areas where targets are appropriate, and sets outline targets appropriate at this early stage. The submission of a Framework which will be confirmed through the City of Edinburgh approval of Supplementary Planning Guidance. Once this is granted, a series of applications for planning consent can be brought forward. At that time, the outline targets set out in this document will be developed further taking into account the specific proposals for those sites.

This is a critical point, since the programme for the SPG envisages implementation over a fifteen to twenty year period, and the technology and advances in sustainable development is expected to improve. Therefore it is not appropriate to be restrictive at this stage, rather to set out the target areas and the thrust of target levels that are currently appropriate.

2. SUSTAINABLE DEVELOPMENT

It is now universally accepted that the natural environment, the world's resources and environmental stability are under threat from our demands upon them. Unless significant reduction in the depletion of natural resources and the pollution of our environment is effectively introduced, the quality of life enjoyed by many today will not be available for future generations.

Sustainable development has been defined by the Brundtland Commission (1987) as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs". The concept of living within the capacity of supporting ecosystems has also been suggested as a basis for sustainable development. In the urban context, sustainable development has also been defined as "development which is non-damaging to the environment and which contributes to the city's ability to sustain its social and economic structure".

The Government strategic framework "A Better Quality of Life – a Strategy for Sustainable Development in the United Kingdom" identifies the main aims of sustainable development at the national level which, in turn, informs the various frameworks for delivering sustainable development, including:

- Social progress which recognises the needs of everyone;
- Effective protection of the environment;
- Prudent use of natural resources; and
- Maintenance of high and stable levels of economic growth and employment.

There are a great number of possible issues which could arise in connection with the LDDF and which, in turn, gives rise to a wide range of very different issues that the principles of sustainable development cover. Therefore these targets seek only to outline critical areas and apply outline targets to these. A number of the issues identified in respect of sustainable development are considered in the Environmental Impact Assessment (EIA) which is in course of preparation. This document, in effect, seeks to set out proactive measures to promote the overall sustainability benefits of the proposal. In earlier work these sustainability targets have been grouped according to the following areas:

- Environmental
- Societal

- Natural resources
- Socio-economic

3. OBJECTIVES FOR DELIVERING SUSTAINABLE DEVELOPMENT

To achieve a robust implementation strategy for sustainable development, considerable detail of the individual applications must be known. At this stage, the different sites may have very different approaches taken in their development: our aim is to ensure that the underlying principles of Sustainable Development are carried forward into the detailed design of individual sites.

Set out below is the grouped areas noted is a series of objectives, based upon experience elsewhere in the UK. Following that we set out a commentary on the mechanisms that could be used to ensure the delivery of those targets: these are very much focused on current technology, with the clear understanding that future technology may improve this. The targets, and their means of implementation, will be kept under review by Forth Ports when developing individual sites. This review will account for best practice at that time, and would be fully discussed and agreed with the City of Edinburgh Council's Sustainable Development unit.

3.1 Environmental

3.1.1 Objective

- The development of "brownfield" land will use land more efficiently and reduce the need for the development of "greenfield" sites in the Edinburgh area
- The need to travel and subsequent transport impacts will be minimised, through the discouragement of car use and the provision of facilities to encourage walking, cycling and the use of public transport
- The design quality of the development will be high and the landscape character strengthened
- Impacts on ecological resources will be fully assessed and minimised. Opportunities for the enhancement of existing ecological resources will be included in the framework
- The industrial heritage of the port will be enhanced and, where appropriate, preserved for future generations
- An Environmental Management System (EMS) will be implemented to minimise construction impacts
- Industrial air quality, noise and water discharges will be reduced, including processes that will be on-going during the course of the development and retained
- Nuisances such as odour, litter and dust will be reduced

3.2 Natural resources

- Avoid, Reduce, Reuse and Recycle will be the governing philosophy. Resource consumption will be minimised throughout the project, from the specification of raw materials to design for deconstruction.
- A waste minimisation plan will be adopted to address key waste issues during both the construction and operation of the development
- Local and recycled materials, and materials from sustainably managed renewable sources will be used wherever possible
- Sustainable urban drainage systems (SUDS) will be incorporated to protect important local water resources
- Water consumption will be minimised, with rainwater collected for use on site and waste water recycling employed

- Energy consumption will be minimised through the use of ambient energy for light and heat, maximised daylighting, appropriate levels of insulation and the installation of energy efficient appliances
- The potential for on-site and off-site renewable energy sources and combined heat and power will be maximised, in particular, opportunities available for wind and solar power
- The option to create a new waste transfer facility in the east end of the site offers the potential for generating renewable energy, while reducing waste to landfill
- A healthy living environment will be ensured throughout the life of the building, through the use of materials that minimise the risk to health in construction and use
- The lifespan and flexibility of infrastructure and buildings will be maximised

3.3 Societal

- The development will promote comprehensive regeneration of the area. Overall, the quality of the local environment in Leith will be improved, resulting in social and health benefits for the local community
- The development will be designed to provide a high quality of life for residents and increase the equity and social inclusion of the Leith community
- The development will include the provision of affordable housing that will be accessible to all
- The development will be designed to reduce the opportunity for crime, creating an environment that is safe for its occupants
- Services, facilities and environments will be affordable and accessible to all sectors of the community, including the wider Leith and City inhabitants
- Recreation and community facilities will be incorporated into the Framework, alongside the provision of high quality green and open space

3.4 Economic

- The development will contribute to the ability of the wider community to generate and retain wealth
- Forth Ports is committed to maintaining and growing sustainable local sources of employment. Where possible, the site's current employers will be relocated within the local area, retaining employment for members of the local community
- The creation of high quality buildings and local environment will attract new employers to the area
- Facilities will be made available to encourage small businesses to start up or relocate to the area
- Increased opportunities for skills development will be created through the provision of education and training
- Priority will be given to local businesses to provide goods and services during the design, construction and operation of the development

4. MECHANISM FOR DELIVERY AND TARGETS

4.1 ACCESS FOR ALL

All people need to be able to get around a Framework area. People with restricted mobility can be socially excluded from facilities such as jobs and services and even the enjoyment of visiting friends and family. Under the Disability Discrimination Act (1995) all service providers are now required to ensure that buildings are designed to provide access to everyone.

Target 1:

An **Access Statement** will be prepared that encompasses these issues and will include:

- A clear commitment to take issue of inclusive design seriously at the earliest stages, including setting out the philosophy and approach to inclusive design as well as the key issues of the particular scheme
- **Housing**; including the number of dwellings, by tenure and size, built to Lifetime Homes standards and wheelchair user standards
- **Public Open Space**; including children's play areas, parks and plazas
- **Street furniture**; including seats, bollards, vegetation, lighting and display boards
- **Roads**; including parking for blue badge holders and accessible road crossings
- Internal building design
- **Public transport infrastructure**; including stations and bus stops
- **Public facilities**; including toilets, information systems and public art

4.2 SUSTAINABLE DRAINAGE

The whole development will be designed to incorporate Sustainable Urban Drainage Systems, drawing from SEPA guidance on the most appropriate mechanism for individual sites. Sustainable drainage is making use of measures to avoid wastage of water and avoid overloading the drainage systems. They are alternatives to conventional storage for the control of surface water run-off. These techniques not only cater for flood peak attenuation, but may also improve water quality and the environment.

In particular, all external surfaces should normally be permeable (allowing water to percolate into the ground rather than runoff) and include, where ground conditions permit, the use of infiltration systems such as soakaways, grassed swales, infiltration trenches, ponds, reedbeds and wetlands to mimic natural drainage.

Target 2:

A statement describing how Sustainable Drainage Systems (SDS) have been integrated into the development will accompany any major application.

There are possible multi-functional potential roles of SDS areas, for instance, the creation of new nature conservation areas, particularly reedbeds, amenity open space or as part of a landscape framework for the proposal: these should be addressed as part of this process.

In the disposal of surface water, Scottish Water requires the separation of foul and surface water sewerage on new developments. It is the responsibility of the developer to make proper

provision for surface water drainage to ground, water courses or surface water sewer. It must not be allowed to drain to the foul sewer, as this is the major contribution to sewer flooding.

4.3 WATER SUPPLY AND CONSERVATION

The transport, treatment and delivery of potable water involves the consumption of energy and resources. A water hierarchy will be implemented to:

- reduce demand for all water
- match non-potable supply to non-potable demand
- supply water from on-site sources.

Applicants for major development will be required to demonstrate within their design proposals that specific measures and water economy features have been included to enable potable water consumption to be reduced.

Targets 3:

Overall water consumption reduction should be 30% and 20% below typical usage for residential and commercial/retail premises respectively.

A wide variety of measures can be included in a development to reduce water consumption. These include installation of a shower, reduced capacity for WC flush, use of 'grey water' for toilet flushing, use of flow restricters to taps, use of low-water use appliances, the selection of drought tolerant plant species in planting schemes, the incorporation of rainwater collectors for roofs and impermeable surfaces and the installation of water metering.

4.4 SUSTAINABLE CONSTRUCTION MATERIALS

A site-wide Materials Use and Purchasing Strategy that covers all construction and management activities will be prepared. This will include specification clauses and targets for all designers, contractors and suppliers. When demolition is planned, a reclamation audit and a plan for the reuse and recycling of materials, fixtures and fittings will be provided.

Target 4:

As part of a site-wide Environmental Management System, the environmental design management and review process will ensure that materials are a fundamental consideration in design and long-term use, using recognised environmental impact assessment methodologies, to aim to achieve:

- reduction in volume of materials used;
- use of recycled materials – target 15% by volume in buildings and exterior landscape;
- minimisation of waste;
- effective segregation of construction waste;
- designing for durability and low maintenance;
- use of materials that grow;
- use of local materials;
- avoidance of materials harmful to environment and health;

A target of using materials with no worse than a B-rating in the Building Research Establishment's 'Green Guide to Specification: An Environmental Profiling System for

Building Materials and Components (1998)' unless it can be demonstrated that there is no viable alternative will be adopted within this system.

Target 5:

Prepare a Materials Use and Purchasing Strategy that will involve engaging contractors for design, construction, and management to aim to achieve:

- sourcing between 40% and 60% recycled aggregates for hardcore and in appropriate circumstances, aiming to increase this to over 60%;
- maximising use of secondary aggregates, alternative counts and alternative constituents of concrete according to application;
- ensuring aggregates come from sources that adopt the highest environmental standards;
- recycling of waste concrete and brick present on the site into aggregates for hardcore via an onsite facility, if sufficient quantities exist;
- minimising the movement of aggregates and other construction material, by road by using alternatives such as rail and waterways;
- best practice for waste minimisation during construction to be adopted (including appropriate contractual agreements, storage, waste segregation, take-back of packaging, etc.);
- use of independently accredited timber;
- reuse and recycling of materials;
- on-site concrete production and batching plant;
- integration of waste production and disposal activities with a site 'Sustainable Waste Strategy' (see below)

4.5 SUSTAINABLE WASTE MANAGEMENT

A Waste Management Strategy, will be developed together with the Council and its waste contractors. The strategy should accord with targets and principles contained within the Government's Waste Strategy 2000, developing a waste hierarchy, with priority being placed in waste reduction, then reuse, recycling and composting, disposal with energy recovery, and disposal to landfill.

Target 6:

To develop in conjunction with the Council a Waste Management Strategy including systems for:

- the provision of suitable waste and recycling storage facilities in all new development;
- kerbside collection of separated household and trade wastes from all residences and businesses: metals, plastics, paper and non-recyclable materials; and hazardous waste, furniture, textiles, electrical waste and other non-household wastes where appropriate, in collaboration with the Council's waste collection service;
- delivery of organic wastes from households and gardens to designated Council collection points;
- development of local composting schemes where appropriate in consultation with the Council;
- diverting bulk waste transport off roads to utilise rail networks and the river;

- the disposal of hazardous waste

In addition to this target, and to support it, the following actions are understood to be consequential upon the Waste Management Strategy:

- the developers would commit to developing opportunities to minimise waste production by maintaining a role in the management of the supply chain during construction and formal estate management duties;
- the developers would commit to working with the City of Edinburgh Council to identify adequate space for the storage and segregation of wastes and recyclable materials generated during both construction and operational phases for incorporation into buildings or street blocks (for residential properties) on the site;
- access to collection and storage facilities must be provided for Edinburgh Council waste collection services;
- utilisation of best practice techniques, with a view to facilitating the levels of recycling. This should be explored in liaison with the Council's waste collection service;
- the provision of appropriate infrastructure and mechanisms for monitoring waste production should be considered;
- through the above design and management measures, the developer should facilitate the achievement of City of Edinburgh Council targets for recycling and recovery of municipal waste.

4.6 ENERGY USE

Developments would include a BREEAM (Building Research Establishment Environmental Assessment Method) assessment, which would be submitted along with the planning application. All buildings should achieve an energy use target expressed in terms of maximum (energy related) carbon dioxide emissions that are equivalent to, or exceed, contemporary best practice, using benchmark figures published through the Energy Efficiency Best Practice Programme or equivalent.

Target 7:

All residential buildings should be designed to achieve a BREEAM rating (or equivalent assessment method and ratings) of 'excellent'. A rating of 'very good' will be acceptable where justified by site specific constraints which prevent achievement of 'excellent'. All commercial buildings should be designed to achieve a BREEAM (or equivalent) rating of 'very good' whilst aiming for an 'excellent' rating

4.6.1 Energy Strategy

The above requirements should form part of a wider energy strategy which should seek to:

- include measures to increase energy-efficiency of the development including possibilities for low carbon residential development
- identify areas of development that may be naturally ventilated due to the plot context in terms of air quality and noise. This is likely to lead to much lower energy demand in a building compared to an air conditioned counterpart.
- include a commitment to install energy efficient appliances within buildings, including 'Class A' rated white goods in domestic properties.

4.6.2 CCHP Plants – Promoting Efficiency of Supply

Target 8:

Consider the feasibility of incorporating a Combined Heat and Power (CCHP) plant on site. These should be of ‘good quality’ as defined by the DETR’s CHPQA – a Quality Assured Programme for Combined Heat and Power (2000).

4.6.3 Renewable Energy

Target 9:

To fully investigate the feasibility of incorporating provision of on-site renewable energy generation of at least 10% of predicted energy generation from renewable sources.

Renewable sources to be considered include:

- smaller wind turbines within the proposed development (at around 100 kh/each)
- photovoltaics (Pv)
- solar thermal/panels
- biomass for district heating or CHP

In order to maximise flexibility for the future installation of renewable energy generation within the scheme, the design strategy for the development will include a framework to protect solar access to buildings. This will include the identification of plots, during detailed masterplanning stage, which are appropriate and which have the potential for application of passive or active solar energy collection. The electrical infrastructure will be designed to be flexible and ducted in order that it may be replaced in future with low voltage cables to enable widespread distributed energy generation.

4.7 NOISE

Development provides the opportunity to use best modern technology, design and operation, not just to minimise the generation and spreading of noise and protect users, but also to consider how a development can help improve noise environments around it. Developers will be required to consider the mutual benefits of noise control through the following possible measures:

- avoiding, containing or minimising noise generation at source
- protecting noise-sensitive uses from noise
- minimising noise transfer between activities within the development, particularly vital with more mixed use development
- ensuring appropriate operational practices for noisy activities
- contributing where possible to wider improvement by for instance appropriate land-use zoning, direct screening of noise sources, screening by non-noise sensitive structures and optimal orientation of noise sensitive buildings, e.g. designing roadside business units to improve road noise screening to housing beyond the development.

Target 10:

In respect of noise, the impact of construction noise and vibration on noise sensitive developments has been assessed using British Standard 5228 Part 1: 1997 and Part 4: 1992. Control measures to minimise noise and vibration impacts using 'Best Practicable Means' should be adopted as described in those standards. The assessment should incorporate, if required, arrangements for the application for the consents procedure for construction noise under Control of Pollution Act 1974.

Daytime and night time noise levels at residential properties will be agreed with the Council. Potential noise impact of proposals in nearby noise sensitive properties will be assessed using British Standard 4142: 1997.

4.8 TRANSPORT

It is a fundamental of sustainable communities that they are accessible by a range of transport modes, and that:

- there is good access by public transport;
- on-street parking controls are in place or there are plans to introduce them, and, in the case of residential development;
- there is a broad range of local shops and services to encourage walking.

The sustainability of the development must be promoted by proposals to maximise accessibility to the public transport network, and minimise car trips. This can be achieved by providing:

- viable bus routes in through the development area
- suitable locations for bus stops
- safe direct pedestrian routes to bus stops or tram halts
- displays of local transport information
- secure, sheltered storage for bicycles and motorbikes

4.8.1 Green Travel Plans

Use of land which involves vehicles coming to and from a property will cumulatively have an effect on air-quality. If many cars and / or service vehicle generated trips are potentially involved, a Green Travel Plan may need to be submitted prior to the granting of planning permission. This usually involves a phased reduction in private car-use through a modal shift to more sustainable means of transport and a corresponding reduction in private parking provision.

Target 11:

To develop a Green Travel Plan that addresses issues such as:

- minimising car use through reduced on-site car parking provision,
- restrictive parking permits,
- providing shared hire resources in car pools
- provision of facilities for recharging electric cars / bikes
parking/storage for cyclists and motorbikes- car sharing / clubs /
customer service delivery in commercial / office development

This list is not exhaustive since Green Travel Plans can only contribute towards mitigation if they form part of a range of other mitigation measures, such as improving public transport. The means of transporting freight and business goods will be taken into account in promoting warehouse, retail commercial development, with their associated white goods vans and lorries.

4.9 AIR QUALITY

The improvement and management of local air quality to reduce the risks of harm to human health, the natural environment and quality of life is a key focus of Government and EU environmental legislation and a key sustainable development objective. One of the UK government's 15 headline indicators of sustainable development is a measure of the number of days when air pollution exceeds air quality targets.

Target 12:

The design of the individual developments will consider measures to reduce emissions of air pollutants from the development and also measures to reduce the exposure of site occupants to external air pollution.

Key issues in considering the mechanism proposed for reducing emissions are set out below and will be used to inform Target 12.

4.9.1 Dust From Construction Activities

The emission of dust from demolition and construction activities can impact significantly upon local air quality and have an adverse effect on the health of residents living near the development. Dust emissions can also cause a nuisance, by soiling premises and property. The Environmental Management Strategy referred to previously will contain the measures to be adopted to ensure Best Practicable Means for the control of dust during demolition and construction.

4.9.2 Design and Location of Facilities

Careful consideration should be given to the site and area characteristics. There are areas that are more sensitive to air pollution than others. The following measures will be considered:

- location of sensitive uses such as housing and children's play areas away from primary roads to reduce exposure to air pollution;
- the design of buildings to mitigate the adverse effects of air pollution;
- restraints on car parking.

4.9.3 Promoting Alternative Modes of Transport

To maximise public transport use, reduce the need to travel and to reduce other potential emissions e.g. from energy use, the following transport-related measures should be considered:

- provision of segregated cycling routes where possible, and within any design strategy, cycling facilities;
- use of traffic management e.g. traffic resisted zones
- a review of public transport systems
- parking management to reduce the number of cars entering the site e.g. through reducing the number of spaces available, employing increased charges and limiting the maximum

standing, subject to the parking requirements of disabled people (a new SPG on car-free development will be produced shortly).

- the adoption of areas such as 'home zones' or 'clear zones' where through traffic is minimised and traffic speeds controlled can help to improve local air quality in such areas as well as produce other environmental and safety

4.9.4 Elimination of Pollutants at Source

A number of measures can be adopted to reduce local emissions and these help improve local air quality, such as:

- using energy efficient measures in buildings such as natural ventilation and passive solar heating (see above)
- using renewable energy and efficient supply of energy
- using low-emission building materials and paints and encouraging low emission furnishings and furniture to improve indoor air quality.

5. SUMMARY

The following targets are proposed for the LDDF, and are explained in detail. The mechanisms for their delivery will be set out in a series of documents to be developed as the LDDF progresses, and will be kept under review by Forth Ports.

Target 1:

An Access Statement will be prepared that encompasses these issues and will include:

- A clear commitment to take issue of inclusive design seriously at the earliest stages, including setting out the philosophy and approach to inclusive design as well as the key issues of the particular scheme
- *Housing*; including the number of dwellings, by tenure and size, built to Lifetime Homes standards and wheelchair user standards
- *Public Open Space*; including children's play areas, parks and plazas
- *Street furniture*; including seats, bollards, vegetation, lighting and display boards
- *Roads*; including parking for blue badge holders and accessible road crossings
- Internal building design
- *Public transport infrastructure*; including stations and bus stops
- *Public facilities*; including toilets, information systems and public art

Target 2:

A statement describing how Sustainable Drainage Systems (SDS) have been integrated into the development will accompany any major application

Targets 3:

Overall water consumption reduction should be 30% and 20% below typical usage for residential and commercial/retail premises respectively.

Target 4:

As part of a site-wide Environmental Management System, the environmental design management and review process will ensure that materials are a fundamental consideration in design and long-term use, using recognised environmental impact assessment methodologies, to aim to achieve:

- reduction in volume of materials used;
- use of recycled materials – target 15% by volume in buildings and exterior landscape;
- minimisation of waste;
- effective segregation of construction waste;
- designing for durability and low maintenance;
- use of materials that grow;
- use of local materials;

avoidance of materials harmful to environment and health

Target 5:

Prepare a Materials Use and Purchasing Strategy that will involve engaging contractors for design, construction, and management to aim to achieve:

- sourcing between 40% and 60% recycled aggregates for hardcore and in appropriate circumstances, aiming to increase this to over 60%;
- maximising use of secondary aggregates, alternative counts and alternative constituents of concrete according to application;
- ensuring aggregates come from sources that adopt the highest environmental standards;

- recycling of waste concrete and brick present on the site into aggregates for hardcore via an onsite facility, if sufficient quantities exist;
 - minimising the movement of aggregates and other construction material, by road by using alternatives such as rail and waterways;
 - best practice for waste minimisation during construction to be adopted (including appropriate contractual agreements, storage, waste segregation, take-back of packaging, etc.);
 - use of independently accredited timber;
 - reuse and recycling of materials;
 - on-site concrete production and batching plant;
- integration of waste production and disposal activities with a site 'Sustainable Waste Strategy'

Target 6:

To develop in conjunction with the Council a Waste Management Strategy including systems for:

- the provision of suitable waste and recycling storage facilities in all new development;
 - kerbside collection of separated household and trade wastes from all residences and businesses: metals, plastics, paper and non-recyclable materials; and hazardous waste, furniture, textiles, electrical waste and other non-household wastes where appropriate, in collaboration with the Council's waste collection service;
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- the disposal of hazardous waste

Target 7:

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Target 8:

Consider the feasibility of incorporating a Combined Heat and Power (CCHP) plant on site. These should be of 'good quality' as defined by the DETR's CHPQA – a Quality Assured Programme for Combined Heat and Power (2000).

Target 9:

To fully investigate the feasibility of incorporating provision of on-site renewable energy generation of at least 10% of predicted energy generation from renewable sources

Target 10:

In respect of noise, the impact of construction noise and vibration on noise sensitive developments has been assessed using British Standard 5228 Part 1: 1997 and Part 4: 1992. Control measures to minimise noise and vibration impacts using 'Best Practicable Means' should be adopted as described in those standards. The assessment should incorporate, if required, arrangements for the application for the consents procedure for construction noise under Control of Pollution Act 1974

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To develop a Green Travel Plan that addresses issues such as:

- minimising car use through reduced on-site car parking provision,
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Target 12:

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