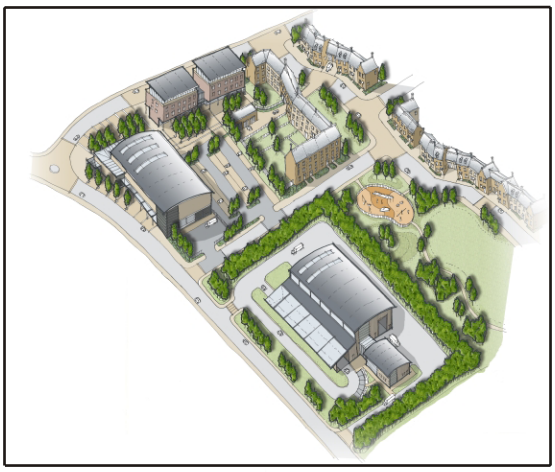

Cambridgeshire County Council and Peterborough City Council
Supplementary Planning Document

THE LOCATION AND DESIGN OF WASTE MANAGEMENT FACILITIES

For Adoption July 2011

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1 INTRODUCTION

Purpose of the guide

1.1 For too long waste management facilities have been regarded as low quality, poorly designed facilities, often detracting from the area around them. The drive for a step change in our attitude towards waste management requires a corresponding change in the standards of design and management of the associated waste management facilities. This is recognised by the Government in its guidance on Planning for Sustainable Waste Management (Planning Policy Statement 10), which states at Paras 35 and 36 :-

" 'Good design' and layout in the new development can help to secure opportunities for sustainable waste management, including for kerbside collection and community recycling as well as for larger facilities. Planning authorities should ensure that new development makes sufficient provision for waste management, and promote designs and layouts that secure the integration of waste management facilities without adverse impact on the street scene or, in less developed areas, the local landscape. Waste management facilities in themselves should be well designed, so that they contribute positively to the character and quality of the area in which they are located. Poor design is in itself undesirable, undermines community acceptance of waste facilities and should be rejected."

1.2 This Supplementary Planning Document (SPD) has been prepared to guide the design and location for the waste management facilities in Cambridgeshire and Peterborough to ensure high quality and to demonstrate how these facilities can be developed in both urban and rural settings.

1.3 The Guide sets out a series of development principles based on recognised good planning and design practice and is intended to : -

- encourage a more co-operative approach by all those involved in the design and development of waste management facilities.
- provide a Good Practice benchmark to guide sustainable developments and designs and to speed the evaluation and approval of proposals.
- achieve the highest standards of design, in relation to integration, layout, access and environment, as well as making efficient use of materials.

1.4 Development considered includes schemes in rural, urban and new development locations. Developers are expected to interpret the guidance in a site specific way and to be able to justify their proposals. The guide is not intended to be rigid or prescriptive but to provide a framework for high quality solutions. Where buffer zone distances are identified they are indicative, and proposals will be subject to individual assessment.

INTRODUCTION

1.5 In Section 6 of the SPD there is a handy **DESIGN CHECKLIST** intended to be used by potential developers and waste planning authorities to aid consideration of important location and design matters.

Scope of the guide

1.6 This SPD focuses on waste management development. These are facilities that will segregate, recover, recycle, treat or transfer the types and volumes of waste that would otherwise go to landfill. This includes a wide range of facilities from waste processing and treatment facilities to household waste recycling centres, transfer / bulking up facilities and strategic waste water treatment works. In some instances these facilities may be co-located to capitalise on any synergies in waste management.

1.7 These facilities will deal with municipal (mainly household) waste, commercial and industrial waste, inert waste including sustainable construction waste, agricultural, and some hazardous waste e.g. clinical and bio medical waste.

1.8 Landfill sites are not addressed by this SPD. Very local facilities such as bottle banks are also not considered here. Recycling facilities/bins within residential and commercial development are covered by separate SPDs produced by the City and District Councils.

Climate Change

1.9 Tackling climate change is a priority of the Government. Both Cambridgeshire and Peterborough authorities are committed to reducing the impact of development on climate change.

1.10 Waste recycling and recovery facilities contribute to addressing climate change by diverting materials from landfill. However, both mineral and waste facilities could contribute further by carefully considering and tailoring their design and operating regimes. In considering proposals for new waste development regard will be had to how proposals can contribute towards achieving a low-carbon economy, and how well adapted they are for the effects of climate change.

1.11 The development of new facilities must address the challenges of climate change. The supplement to PPS1, December 2007, sets out planning objectives and decision making principles. In terms of waste management facilities the following principles are particularly relevant (taken from the supplement to PPS1) : -

- the proposed provision for new development, its spatial distribution, location and design should be planned to limit carbon dioxide emissions;
- new development should be planned to make good use of opportunities for decentralised and renewable or low carbon energy.
- new development should be planned to minimise future vulnerability in a changing climate;
- mitigation and adaptation should not be considered independently of each other, and new development should be planned with both in mind;

1.12 In selecting sites for development the following issues identified in paragraph 24 of the supplement to PPS1 should be taken into account : -

- the extent to which existing or planned opportunities for decentralised and renewable or low carbon energy could contribute to the energy supply of development;
- whether there is, or the potential for, a realistic choice of access by means other than the private car and for opportunities to service the site through sustainable transport;
- the capacity of existing and potential infrastructure (including for water supply, sewage and sewerage, waste management and community infrastructure such as schools and hospitals) to service the site or area in ways consistent with cutting carbon dioxide emissions and successfully adapting to likely changes in the local climate;

- the ability to build and sustain socially cohesive communities with appropriate community infrastructure, having regard to the full range of local impacts that could arise as a result of likely changes to the climate;
- The effect of development on biodiversity and its capacity to adapt to likely changes in the climate;
- the contribution to be made from existing and new opportunities for open space and green infrastructure to urban cooling, sustainable drainage systems, and conserving and enhancing biodiversity; and
- known physical and environmental constraints on the development of land such as sea level rises, flood risk and stability, and take a precautionary approach to increases in risk that could arise as a result of likely changes to the climate.

1.13 The Cambridgeshire and Peterborough Minerals and Waste Core Strategy will also require that waste management facilities take into account climate change. Core Strategy Policy CS22 states : -

Minerals and waste management proposals, including operational practices and restoration proposals, must take account of climate change for the lifetime of the development. This will be through measures to minimise greenhouse gas emissions, and by measures to ensure adaptation to future climate changes.

Proposals should set out how this will be achieved, and include:

- *quantifying the reduction in carbon dioxide and other relevant greenhouse gases e.g. methane, that will be achieved as part of the proposal, and how this will be monitored and addressed in future*
- *demonstrating how the location, design, and transportation related to the development will limit greenhouse gas emissions*
- *setting out how the proposal will make use of renewable energy including opportunities for generating energy from waste for use beyond the boundaries of the site itself (waste proposals only), and use of decentralised and renewable or low carbon energy*

Proposals should adopt emissions reduction measures based on the principles of the energy hierarchy. Where onsite options have been fully considered but are not considered viable, offset measures or allowable solutions may be put in place.

Proposals should also set out how they will be resilient to the changing climate, and may therefore include:

- *incorporation of sustainable drainage schemes to minimise flood impacts*
- *measures to enhance water efficiency*
- *measures to adapt to the potential impacts of excess heat and drought*

In the case of mineral workings, restoration schemes which will contribute to addressing climate change adaptation will be encouraged e.g. through flood water storage, and biodiversity proposals which create habitats which act as wildlife corridors and living carbon sinks.

Status of the Supplementary Planning Document

1.14 This SPD supersedes the formerly adopted SPD 'The Location and Design of Major Waste Management Facilities' (Adopted, April 2006).

INTRODUCTION

1.15 The Cambridgeshire and Peterborough Minerals and Waste Core Strategy DPD and the Location and Design of Waste Management Facilities SPD (this document) adopted on 19 July 2011 supersede policies previously saved in the Waste Local Plan 2003 and the 'The Location and Design of Major Waste Management Facilities' SPD (Adopted, April 2006).

1.16 This SPD is linked to the Minerals and Waste Core Strategy Policy CS24 Design of Sustainable Mineral and Waste Management Facilities. The SPD supplements this policy by providing more detailed advice and guidance on issues of location and design of waste management facilities. Unlike the SPD adopted in April 2006, it has a broader scope, extending beyond 'major' waste management facilities to cover important matters such as the location and design of local community facilities, including Household Recycling Centres.

1.17 This SPD is a material consideration in the determination of planning applications. The Document should be read in conjunction with other relevant planning policies particularly those in the Minerals and Waste Core Strategy DPD.

THE CAMBRIDGESHIRE AND PETERBOROUGH MINERALS AND WASTE LOCAL DEVELOPMENT FRAMEWORK

1.18 'The Cambridgeshire and Peterborough Minerals and Waste Local Development Framework' (LDF) Development Plan, comprises the following documents : -

- **Core Strategy Development Plan Document (DPD):** a document setting out the strategic vision and objectives, including a suite of development control policies to guide minerals and waste development and three strategic site allocations.
- **Site Specific Proposals Development Plan Document (DPD)**: Document setting out site specific proposals for mineral and waste development and supporting site specific policies.

These documents will be supported by:

- Proposals Map.
- Statement of Community Involvement setting out how communities and stakeholders will be involved in the process of preparing plans and determining major planning applications.
- 3 Supplementary Planning Documents, of which this document is one.
- The Cambridgeshire Minerals and Waste Development Scheme / Peterborough Local Development Scheme setting out details of what documents are to be prepared, and timescales and arrangements for production. These documents have already been prepared and can be viewed on the council's web sites
- The Location and Design of Major Waste Management Facilities SPD was adopted 2006. It is linked to the 'saved' Cambridgeshire and Peterborough Waste Local Plan 2003, and will remain in place until Waste Local Plan is superseded by the adoption of the Minerals and Waste Core Strategy DPD (July 2011). The SPD provides guidance and good practice examples which can be used by developers and planners to raise the standard of design of waste management facilities in Cambridgeshire and Peterborough.
- Annual Monitoring Report setting the progress in terms of producing documents and implementing policies.

And until superseded by new policies: -

- Saved policies in the existing Structure Plan and Minerals and Waste Local Plans i.e. the Cambridgeshire and Peterborough Structure Plan 2003, Cambridgeshire Aggregates (Minerals) Local Plan 1991 and the Cambridgeshire and Peterborough Waste Local Plan 2003.
- Also Location and Design of Waste Management Facilities SPD adopted 2006

Community and Stakeholder Involvement

1.19 A key feature of the planning system is the involvement of the community and stakeholders in the planning process. This means that people and organisations can influence the content of the new plans and policies by sharing their views and their knowledge with planners at an early stage. A Statement of Consultation outlining the representations made in response to the draft version of this document and the Councils responses to them, is made available on the Councils websites.

Habitat Regulations

1.20 Under article 6 of the Habitats Directive (Directive 92/43/EECon the Conservation of Natural Habitats and Wild Fauna and Flora) a plan or project that is likely to have a significant effect on a Natura 2000 site must be subject to Appropriate Assessment to ensure that it has no potential impact on the integrity of a European Site (namely those sites classified as Special Protection Areas, Special Areas of Conservation, and Ramsar sites). The Habitats Regulations, which put the requirements of the Habitats Directive into UK law, were amended to extend this requirement to land use plans on 21 August 2007. A new part IVA was inserted into the 1994 Habitats Regulations and as a result Parliament approved the Conservation (Natural Habitats, &c) (Amendment) (England and Wales) Regulations 2007.

1.21 This Supplementary Planning Document has been appraised and has passed its Habitats Regulations Assessment. However, any site specific project which comes forward will also trigger the requirement to meet the Habitats Regulations and an Appropriate Assessment in respect of the development proposed may be required. Any site specific proposal must ensure that it does not, either through its location or its design, adversely affect a European site as classified above.

Other Relevant Documents

1.22 The SPD also needs to be considered alongside other existing and emerging national policy,guidance and standards, such as the 'Building Regulations' and 'Secured by Design'.

1.23 Consideration should also be given to the following supporting documents which provide additional advice and background information.

1.24 DESIGNING WASTE FACILITIES a guide to modern design in waste, DEFRA , 2008. This provides a range of guidance on the design process, engaging stakeholders and the development of facilities.

1.25 ENVIRONMENTAL IMPACT ASSESSMENT (EIA) Major waste management facilities are likely to fall within the scope of the EIA regulations. The procedures require a full assessment of the likely significant effects on the environment. Further guidance can be found in the DTR 'Blue Book' (Environmental Impact Assessment: A Guide to the Procedures, November 2000)

1.26 A GUIDE TO THE VISUAL SCREENING OF QUARRIES produced by David Jarvis Associates Ltd on behalf of the Minerals Industry Research Organisation. Whilst written for quarries, many of the principles described are relevant for waste projects.

1.27 LOCAL DEVELOPMENT FRAMEWORKS are being developed by District and City Councils in Cambridgeshire and Peterborough. These provide land-use planning policies in Development Plan Documents (DPDs) and Supplementary Planning Documents (SPDs). Developers are advised to contact the relevant District / City Council to obtain an up to date planning situation.

INTRODUCTION

1.28 RECAP (Recycling for Cambridgeshire and Peterborough) Waste Design Guide provides practical information on waste storage, waste collection, recycling bring sites and education schemes. This guide is currently being reviewed and will be taken forward as a SPD.

1.29 CAMBRIDGESHIRE LANDSCAPE GUIDELINES (1991), published by Cambridgeshire County Council (covering Cambridgeshire and Peterborough), sets out the long-term vision for the Cambridgeshire countryside, encouraging the integral role of the landscape as part of the development process and management of rural land. Its primary objectives are to improve the visual character of the countryside and to conserve and enrich natural habitats.

1.30 GREEN INFRASTRUCTURE STRATEGY FOR THE CAMBRIDGE SUB-REGION (2006). Produced by Cambridgeshire Horizons, the guide is currently being reviewed. The new strategy will build on the successes of the existing edition and will plan green infrastructure to 2031 throughout the County.

1.31 CAMBRIDGESHIRE RIGHTS OF WAY IMPROVEMENT PLAN developed to meet the requirements of the Countryside and Rights of Way Act 2000 and is integrated within the Cambridgeshire Local Transport Plan 2006-2011 (published 2006 by Cambridgeshire County Council). Its main objective is to manage, improve and promote a Public Right of Way network as an integral part of the wider transport system, which meets the needs of the whole community for safe and sustainable local transport, and which improves public health, enhances biodiversity, increases recreational opportunities and contributes to the rural economy. Guidance for developers and planners on rights of way in Cambridgeshire can be found at :- www.cambridgeshire.gov.uk'.

1.32 THE CAMBRIDGESHIRE AND PETERBOROUGH BIODIVERSITY ACTION PLAN (2000) sets out clear objectives and targets (detailed 3 year, and more general 5 and 10 year targets) for key habitats and species.

1.33 BIODIVERSITY CHECKLIST FOR LAND USE PLANNERS IN CAMBRIDGESHIRE AND PETERBOROUGH (2001), published by Cambridgeshire County Council, aims to aid strategic and development control planners when considering biodiversity both in policy development and when dealing with planning proposals.

1.34 PETERBOROUGH NATURAL ENVIRONMENT AUDIT (1996) is an audit of the range of species and habitats that make up Peterborough's natural environment and is an essential reference document for planners, developers and conservationists. Progress towards the targets set is regularly monitored and reviewed.

1.35 PETERBOROUGH TREES AND WOODLAND STRATEGY recognises the variety of landscape types and qualities that exist locally and the importance of trees in within them, and offers guidance on their management on public and private land.

1.36 PETERBOROUGH's GREEN GRID STRATEGY (2007) a strategy to develop an integrated network of high quality and multi-functional green infrastructure linking urban and rural environments across the city.

1.37 PETERBOROUGH LANDSCAPE CHARACTER ASSESSMENT (2007) identifies six distinct landscape character areas within Peterborough, for which specific criteria (set out in the document) will need to be satisfied in order for development to be approved.

1.38 PETERBOROUGH RIGHTS OF WAY IMPROVEMENT PLAN (ROWIP) - The ROWIP is an integral part of the Peterborough Local Transport Plan (See LTP2 2006-2011). When considering new developments the Council will seek to integrate rights of way with other transport measures to enhance the network and opportunity for people to travel by various modes.

2 WASTE MANAGEMENT FACILITIES

2.1 There are a wide range of facilities that can be provided, and each has its own characteristics and relevant locational and design criteria. Many issues are, however, also common to a range of facilities and this section outlines the key issues. Specific guidance on particular types of facilities is contained in the following sections.

2.2 The most common types of facilities covered by this guidance are summarised below. It should be noted however that waste management is an area of rapid change and it is likely that, as technology evolves, new types of facilities will develop. The types of facilities outlined in this SPD are therefore not exhaustive. Specialist facilities may be required in the future, for example for the recycling of batteries, mobile phones and electrical equipment. The generic guidance in the SPD will also apply to any new type of facility. The facilities outlined below will deal with a range of different waste streams, including municipal, commercial and industrial, inert, and hazardous/clinical waste.

Bulking up facilities within a MRF

Currently the most common waste management facilities include:

Material Recovery facilities (MRFs)

2.3 These facilities receive source separated,co-mingled, commercial and municipal waste such as paper, card, glass, plastics, steel or aluminium. Waste is mechanically sorted further, separated, bulked, baled and sold for recycling.

Windrow Composting

2.4 Composting is a biological process in which micro organisms convert biodegradable matter into a stabilised residue known as compost. The majority of waste composted in the UK is garden type waste. The biodegradable waste is shredded into finer particle sizes to speed up the composting process.

Composting

In Vessel Composting

2.5 This involves the composting process inside a vessel where conditions are optimised for breakdown of materials. After the initial enclosed process the compost is matured in a part open air process. The process is quicker than windrow composting and allows a higher degree of process control and can accommodate a mixture of both green waste some paper and food waste. Installations need to meet the stringent requirements of the animal By-Products Order (ABPO) in respect of inputs, process control and outputs when food waste is being composted.

WASTE MANAGEMENT FACILITIES

Anaerobic Digestion

2.6 This is the biological treatment of biodegradable organic waste within a vessel, in the absence of oxygen, using microbial activity to break down the waste in a controlled environment.

2.7 This generates Biogas which is rich in methane and can be used to generate heat and /or electricity.

Sheffield Energy from Waste

Inert Waste Processing Facilities

2.8 These recover through a combination of periodic crushing and mechanical screening operations materials such as soils, concrete, rubble, for re-use arising from construction and demolition waste.

Energy From Waste

2.9 Energy from waste facilities are typically characterised by large buildings, which are designed to handle high volumes of mixed waste. These facilities are designed to burn waste under controlled conditions at high temperatures; heat is received from the process to generate electricity or heat water as part of a wider utilisation scheme.

Internal View of a Household Waste Recycling Facility

Household Recycling Centre (HRC)

2.10 Household recycling centres have been developed to provide centralised collection facilities for householders predominantly for recycling and recovery purposes, e.g. garden waste, rubble/hardcore, cardboard, wood, glass, textiles, metal, batteries, car oil and bulky items.

Transfer / Bulking up Facilities

2.11 These facilities receive waste from kerbside collections or commercial sources and bulk them up for onward transfer and processing. Facilities are located within buildings and vary in size. Facilities are sometimes co located with household recycling centres or processing facilities to maximise synergies and minimise transport costs.

External View of a Household Recycling Facility

Mechanical and Biological Treatment (MBT)

2.12 This is a term that covers a range of technologies. The waste goes through a range of biological and mechanical treatments. The mechanical stage has two main roles. In many (but not all) technologies the waste is broken down into smaller parts, such as by shredding. Recyclable material is then removed through a combination of screens, separators, storage containers and balers.

2.13 In the biological stage the organic fraction of the waste is compacted or digested, usually in an enclosed system. If an anaerobic system is used methane can be produced which can be used to produce energy.

Pyrolysis & Gasification

2.14 Technological advances are being made in respect of these treatments and facilities do vary between providers. Plant design and configuration will differ considerably but typically include a waste reception hall, thermal treatment reactor, gas and residue treatment plant, energy recovery plant and emission clean up.

Internal layout of a Gasifier

Waste Water Treatment Works

2.15 Waste water treatment works or (sewage works) process sewage or commercial effluent. The waste water undergoes a variety of mechanical and biological treatments before release back into the watercourses and licenced discharge points

Mixed Waste Processing Facilities (MWPFs)

2.16 These facilities, which tend to be larger than MRFs, use operations that are mechanical or biological in nature to process household, commercial or industrial waste. This can include : -

- Unsorted 'black bag' or wheelie bin waste
- Residual household waste, following doorstep separation of recyclables or green waste,
- Mixed residual waste from commercial sources following centralised separation of recyclables / organics.

2.17 Various physical separation of waste reduction processes can be used, stand alone or in combination.

WASTE MANAGEMENT FACILITIES

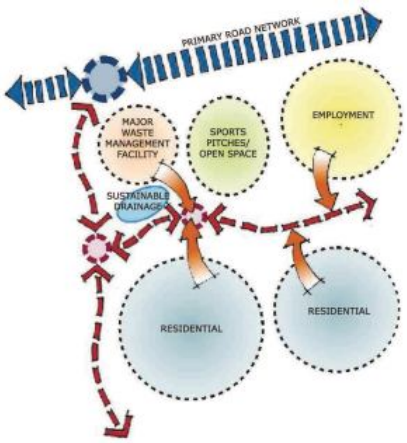
3 LOCATIONAL CRITERIA

Previously Developed Land

3.1 Where possible facilities should be developed on previously developed land, enabling positive re use and avoiding the need to develop greenfield land. However it is recognised that within the plan area, there is a limited supply of previously developed land and it is not always in the most appropriate or sustainable location. Some greenfield development is therefore likely to be necessary.

Siting

3.2 The type of facility and processes will influence the sizeof the site and the location of any building. The following principles apply to all types of facility.



Potential Land Use Zoning Diagram

3.3 The site location may need to have the capacity to accommodate significant traffic flows. Locations close to the primary road network and roads suitable for use by HCV's are preferred, but consideration should also be given to transport by rail or water when these options are practical. Opportunities for siting that maximises use of sustainable forms of transport (public transport, cycling and walking) for staff are encouraged. Access arrangements will be designed to minimise impact on the environment and nearby surrounding uses, including residential property. There are also economic and operational benefits arising from co-location with other waste processing facilities, as well as transport benefits from a location close to the waste source. These benefits arise when haulage distances can be reduced, and there are operational benefits of locating waste reception and reprocessing close together.

3.4 In terms of location, preference will be given to less environmentally sensitive locations. Locations should not lead to the sterilisation of mineral reserves. Some facilities are acceptable within residential or mixed use areas, including new development areas, providing transport and amenity impacts such as noise and litter are controlled and design issues carefully considered. Sites will be located to prevent pollution, address the risk of flooding and must avoid affecting designated habitats or protected species and must consider the effects on rights of way. Siting should not be harmful to the character, appearance, and setting of the historic environment and specific historic assets. Chapter three, provides more details of location criteria for each facility.

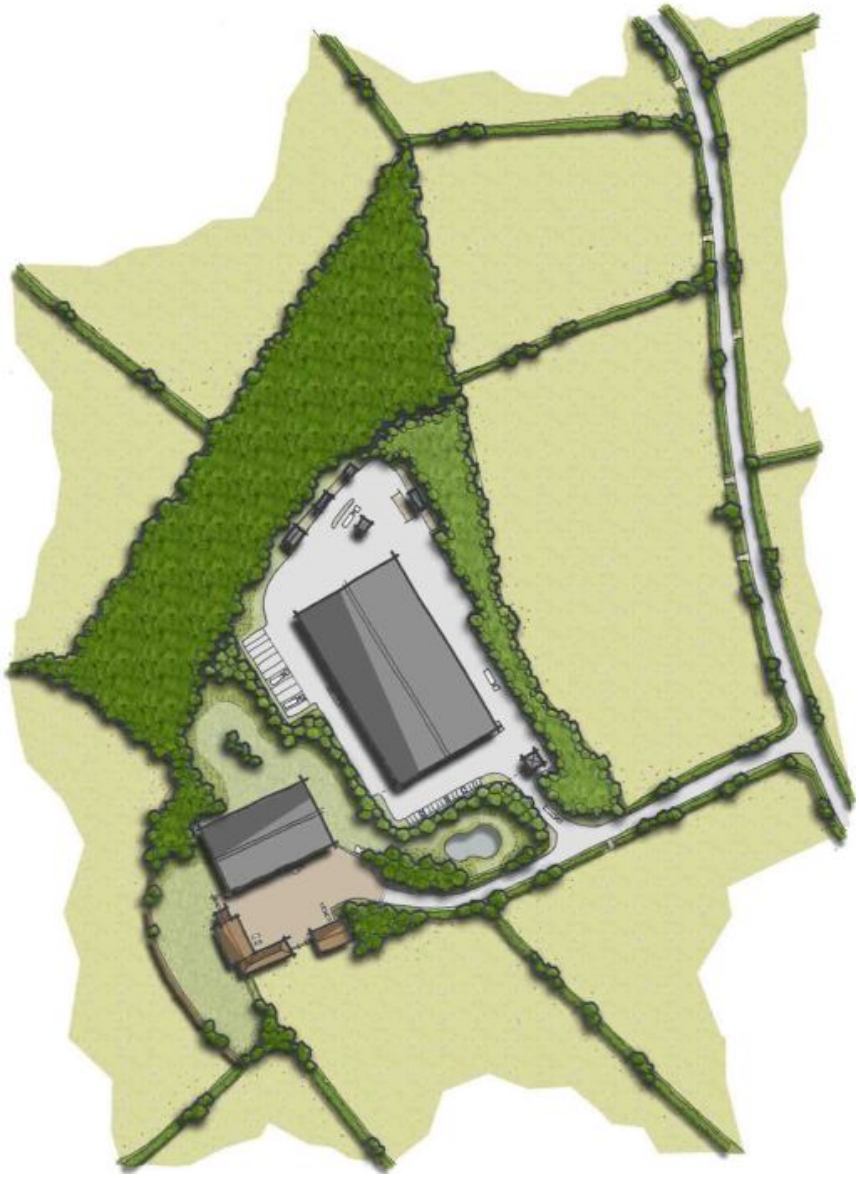
3.5 Sites for Household Recycling Centres should be located to provide safe and easy access to transport for all users, including those travelling by private car, public transport, cycling or on foot. This should include clear signage and safe access, and be readily accessible to the public and able to accommodate lorry movements.

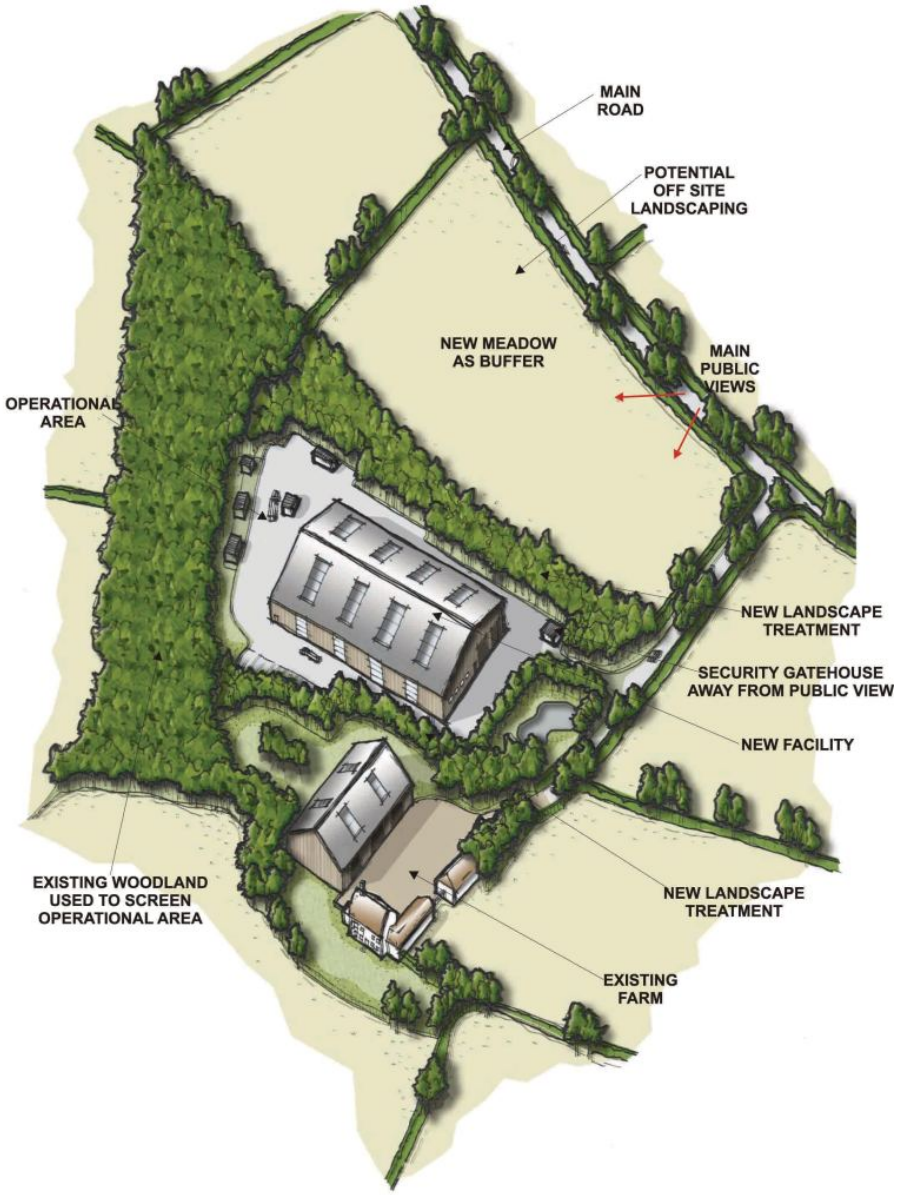
Rural Locations

3.6 Rural locations on or close to the main road or rail networks are potentially appropriate for a range of waste management facilities. In rural locations the design of the facilities should reflect the scale and design of agricultural buildings, though there may be instances where more innovative design would be appropriate, i.e. where the design is in accordance with good design principles and local distinctiveness. Local distinctiveness, in terms of landscape character, and architectural design, will be an important consideration. Opportunities may also exist to re-use existing buildings. Local Landscape Character Assessments, The Cambridgeshire Landscape

Guidelines and Town and Village Design Guides are useful sources information on local distinctiveness. Landscape and boundary treatment is particularly important to screen low level activity around the facility to reduce visibility and to enhance biodiversity value. Rural settings should provide the opportunity for significant landscape proposals. Areas for any external storage of baled materials, gatehouses and weighbridges should also be screened, to avoid an "industrial" appearance. Windrow composting is likely to require a rural location. All access roads should be hard surfaced to avoid access and local roads becoming dirty, dusty or contaminated and to facilitate the use of mechanised cleaning machines.

3.7 In open rural areas where additional planting may not be appropriate given local landscape characteristics, greater attention will have to be given to building form and construction materials, particularly the external appearance where quality and colour are important. It may be possible to locate the facility at lower levels through excavation, flood management permitting or utilise a mineral excavation site. With innovative design the natural physical features of the site and its setting could offer an opportunity to assimilate the proposed development without reliance on planting. There will be occasion in environmentally sensitive areas where it will not be possible to site a facility without being harmful to the character, appearance and setting of a site, in such cases development should be avoided.





Rural Location Plan

3.8 The following key principles apply to rural locations

- Buildings could reflect agricultural built form or re use redundant farm buildings, appropriate, designs may be innovative.
- Designs should be in sympathy with local landscape character and distinctiveness.
- Site locations should allow sufficient space for quality landscape treatment.
- Site design should minimise views to operational areas, particularly external storage and parking, and any other elements that present a more 'industrial' appearance.
- Security gatehouses/weighbridge should be located away from immediate public view.
- Designs should take account of existing rights of way and any views from them.
- Conserving important environmental features, such as water bodies and habitat areas.
- All new landscape or buffer areas should enhance biodiversity.
- Easy access to main road networks.
- Opportunities for new planting should be created and, where possible, buffer planting should be linked to existing woodland.
- The proximity of rail networks and waterways should be considered when choosing site locations to promote alternative sustainable forms of transport.
- Proposals, including planting, should not be harmful to the character, appearance, and setting of the historic environment and specific historic assets.
- The location should be selected to ensure that larger vehicles accessing the facility do not have to be routed through residential areas.

Urban Locations

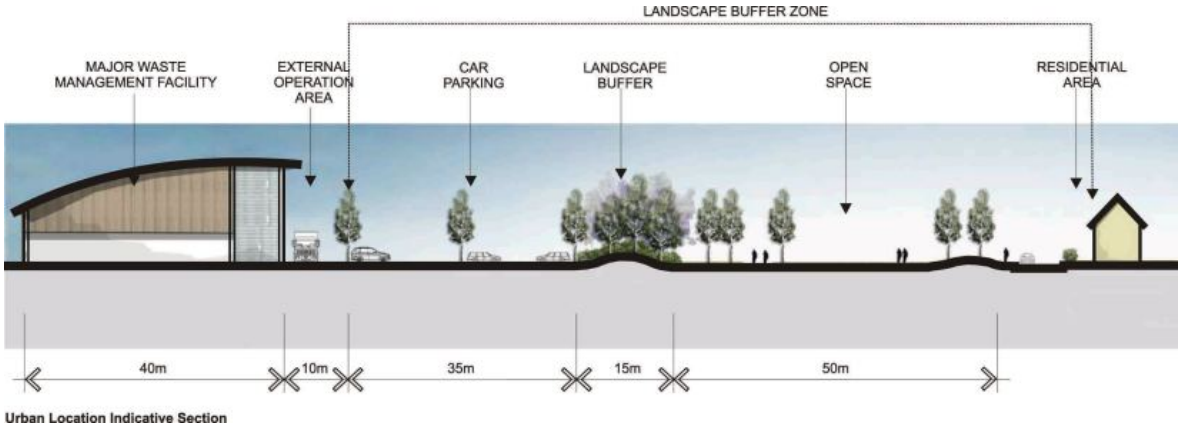
3.9 Urban locations are also appropriate for a range of waste management facilities, particularly those operations which take place inside a building. These could be located within established commercial / industrial areas, or planned into new development areas. Access to a good road network is important. Within commercial / industrial areas the design should respond to the context, with a high quality urban design. The facilities should be located on or close to the main road network, avoiding the need for HCVs to travel through any residential areas.

3.10 In urban areas opportunities also exist for the re use of buildings, such as warehouses, factories or former airfield buildings. Provision for good access and sustainable transport such as bus routes and cycle provision for employees should also be included. Waste management facilities could act as a buffer between sensitive land uses (such as residential) and other forms of development such as residential areas and main roads, railways, and sewage works.

3.11 Appropriate buffer areas should be provided between the facility and any adjacent residential areas. These areas could include other employment land uses, or a buffer zone including uses such as car and cycle parking, landscape planting or open space. The actual size and treatment of the buffer would depend on the location and facility proposed.

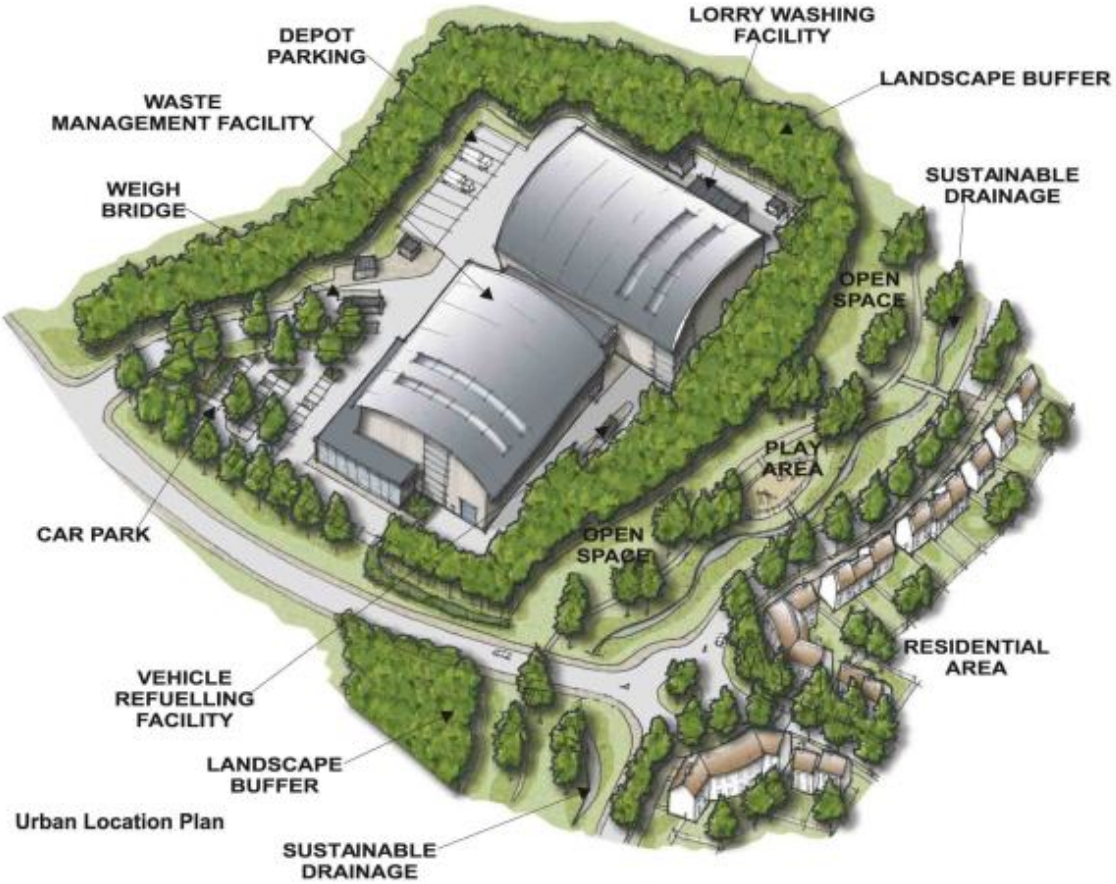
3.12 The following key principles apply to urban locations

- The location and design of buildings should complement the existing or planned scale and built form of the local area.
- The location should be selected to minimise vehicular conflict.
- Locations for new Waste Management Facilities should be selected to maximise opportunities for buffers to more sensitive land uses. Buffer areas can include a wide variety of uses from employment use to landscape areas.
- Easy access to main road network.
- Opportunities for new planting should be created and where possible buffer planting should be integrated with features including linkages to woodland.
- Proposals, including planting, should not be harmful to the character, appearance, and setting of the historic environment and specific historic assets.
- Proposals should seek to maximise the potential for renewable energy and / or in areas that could allow for the development of district energy networks.



Urban Location Indicative Section

LOCATIONAL CRITERIA



Urban Location Plan

Urban Edge / New Development Sites

3.13 Urban edge and major new development sites provide good opportunities for waste management facilities, where they can be designed as part of the development from the outset, and are also close to where the waste is generated. Sites within new development areas should incorporate temporary waste management facilities to service needs through the development phase. In appropriate cases these could then provide permanent facilities when the development becomes established.

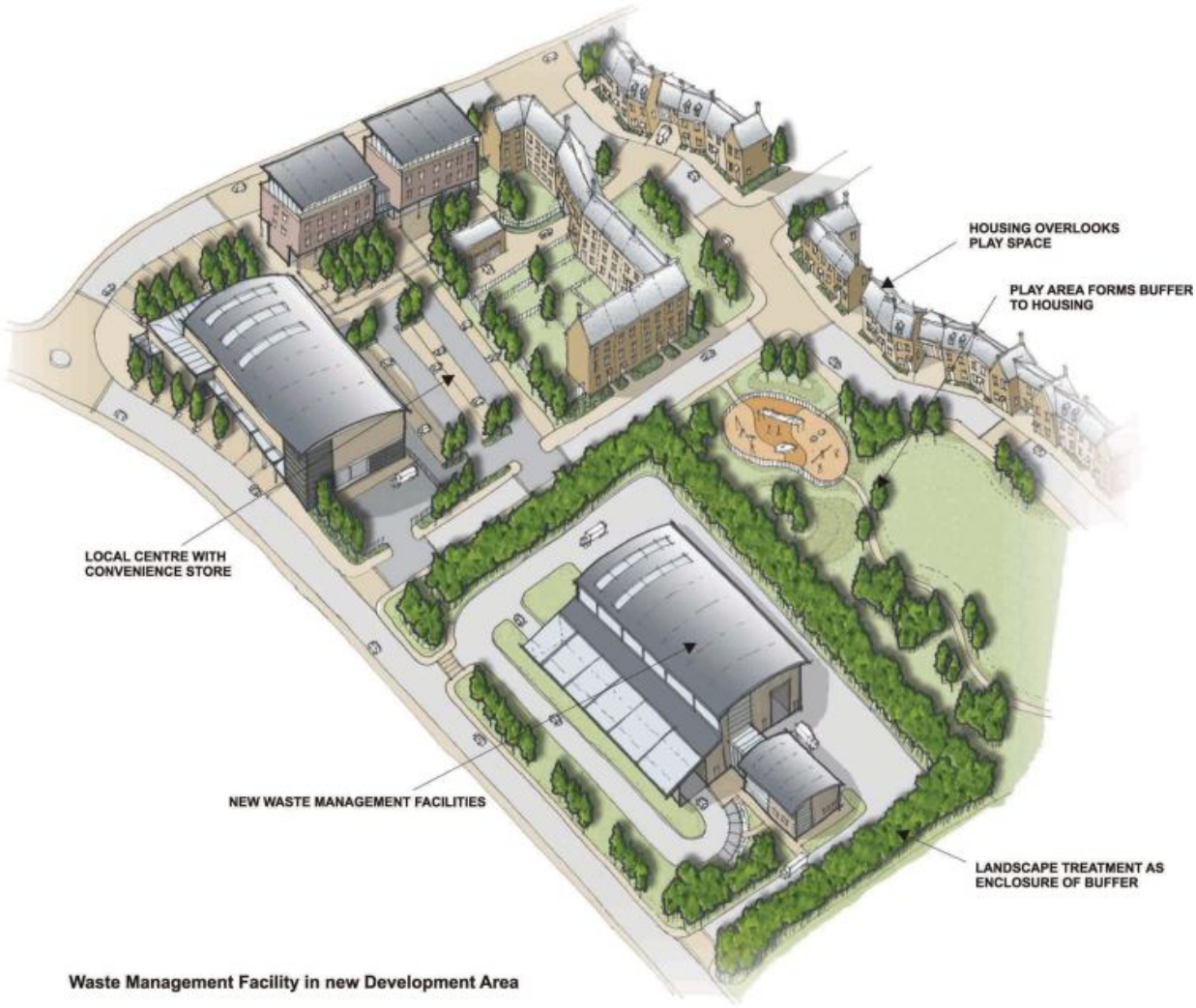
3.14 Access to a good road network is important and facilities should be located to avoid HCV's having to travel through residential areas.

3.15 Major new development areas are likely to include a range of land uses, including residential development, some employment land, open space and possibly local community facilities. Land use planning, including the of use Master Plans, can determine appropriate locations for waste management facilities. This may be within traditional areas such as employment land, or through a more imaginative approach waste management can be successfully integrated with other forms of planned land uses. The needs of the existing communities living and working adjacent to major development areas or in urban fringe areas must also be taken into account when considering where to locate a new waste facility.

3.16 Buffers between waste facilities and residential areas could comprise employment land uses, car parking and landscape areas. Locations close to local facilities such as shops and community halls could be appropriate and may minimise travel. The actual design of the facilities and buffers that may be appropriate, would depend on the context. The plan shows a possible arrangement. The detailed design within a new development area should be carefully considered and include appropriate buffers created by different land use or landscape treatment, supplemented by high quality design.

3.17 New development proposals will require the use of new sustainable technologies, particularly to address the challenges of climate change. Possible technologies include combined heat and power, and bioreactors, using waste fuel to generate heat and power. These technologies are developing fast and could be developed at a variety of scales. In the case of locating heat and power facilities consideration would need to be given to the location of the waste management facility, but also to potential users of the energy generated, and the means of transfer for the heat/power.

LOCATIONAL CRITERIA



Waste Management Facility in new development area

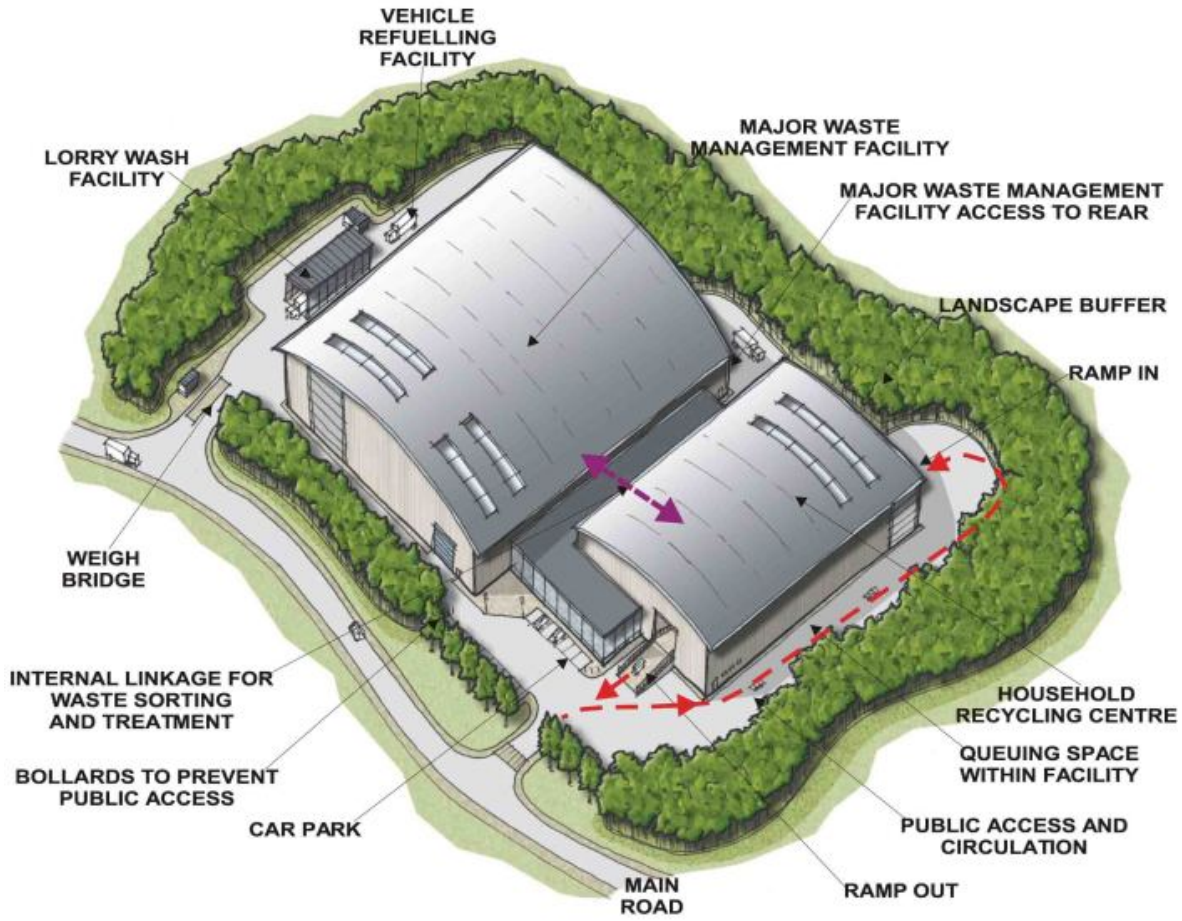
3.18 The following key principles apply to locations Urban Edge/New development sites

- Facilities should form part of the initial masterplan.
- The location and design of buildings should complement the planned scale and built form of the local area and new development areas.
- The location should be selected to minimise vehicular conflict avoiding access through residential areas.
- The masterplans for development areas should maximise opportunities for buffers to more sensitive land uses. Buffer areas can include a wide variety of landscape : tree belts, open spaces, parking, ponds, nature conservation areas etc.
- Facilities could form buffers themselves between sensitive land uses such as residential areas with major roads, railways or sewage works.
- Easy access to main road network should be provided.
- Opportunities for new planting should be created and where possible buffer planting should be integrated with existing landscape/woodland features.
- Proposals, including planting, should not be harmful to the character, appearance, and setting of the historic environment and specific historic assets.
- The needs of the existing communities must be taken into account.

Co Location of Facilities

3.19 The co-location of waste management facilities may offer significant benefits in reducing the need for transport of waste and the treated product and in operational terms. There are synergies of different collection and treatment methods. Bringing more than one facility together can maximise the amount of resource recovery that can take place and provides a more sustainable solution.

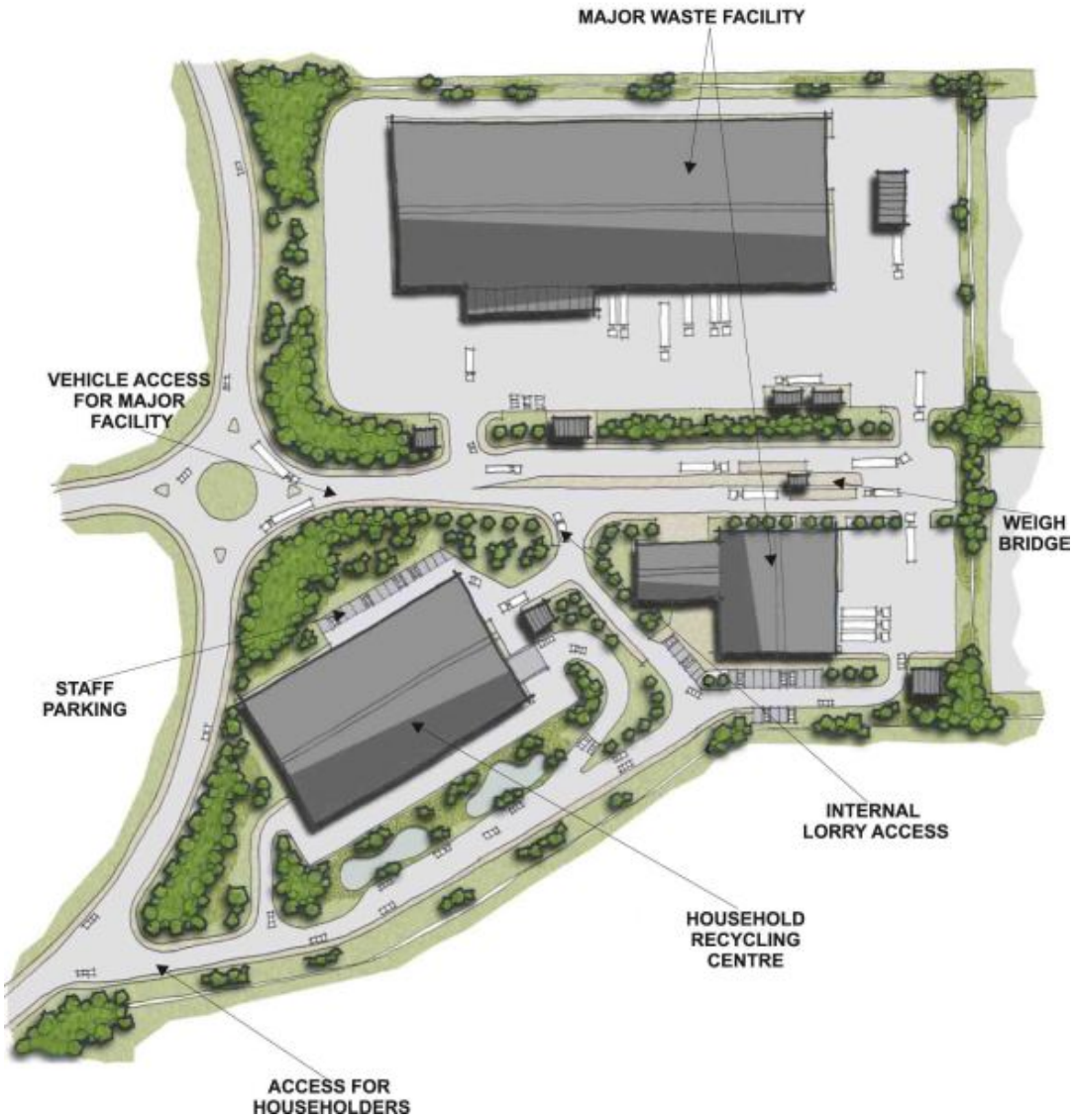
3.20 The co-location of facilities is also useful in making efficient use of land, as buffer areas can then provide for more than one facility. There may also be benefits for sustainable transport. Some facilities may be co-located at landfill sites where the ancillary use would be tied to the life of existing time limited operations. Any proposal for a range of facilities must however address the cumulative effects of the proposal, to ensure that overall environmental effects are acceptable.



Co-location of Household Recycling Centre (HRC) and Major Waste Management Facility

Co Location with Household Waste Recycling Centres

3.21 Co-location of waste management facilities with household recycling centres can also provide transport benefits, and higher efficiency of separation and recycling. There is also the potential to link existing facilities that can make sustainable use of bi-products from the waste treatment process.



Example of a Household Recycling Centre located with a major facility

3.22 Any buffer area or landscape treatment could combine to mitigate both facilities, again making efficient use of land and resources. Modern household recycling facilities can be located within buildings, minimising potential noise and litter problems. This would be appropriate in an urban or village location, or within an urban edge/ major new development location. As members of the public will be visiting the site, facilities should also be safely and easily accessible, with good transport links. The plan illustrates a possible arrangement.

Temporary Facilities

3.23 Major construction sites or development areas should provide temporary waste management facilities to separate and recycle construction and demolition waste. The on-site facilities would encourage re-use of recycled material and also minimise the transport of waste materials from site and reduce the need for importation of new materials, thereby reducing the overall impact on the surrounding road network.

3.24 Temporary facilities should have the ability to recycle or re-use building materials including brick, concrete plasterboard, metals, glass, wood, and soils. Although temporary, some of these facilities would be in place throughout the construction period (this may become years in the case of new development areas) and should be in place from the commencement of development. The nature of major development may mean that the facility may need to be

moved within the site to reflect the approved development phasing plans. Temporary screening banks should be considered around the facility to minimise impacts on completed parts of the major development.

Site Waste Management Plans

3.25 The Site Waste Management Plan Regulations 2008 (S1 2008 No. 314) requires that any developer intending to carry out a construction project in one site with an estimated cost greater than £300,000 to prepare Site Waste Management Plan (SWMP) before work commences. Guidance on what is required is contained in the Non-Statutory Guidance for Site Waste Management Plans, published by Defra in April 2008. Other useful information is outlined in Site Waste Management Plans, Guidance for Construction Contacts and Clients, issued by the DTI in July 2004. These documents encourage the re-use of materials, and address resource efficiency at the earliest stage of design.

3.26 The Minerals and Waste Core Strategy Policy CS28, Waste Minimisation, Re-use and Resource Recovery also requires waste audits to be prepared. This is to ensure early consideration of the scope of recycling, land take, and mitigation measures. A waste audit, as a minimum should provide information on:

- anticipated nature and volumes of waste arising.
- the steps that will be taken to minimise the amount of waste arising.
- the steps that will betaken to ensure segregation of waste at source: and its sporting, storage, recovery and recycling.
- steps taken to ensure the re-use of waste arising in the development e.g. soils and recycled aggregate.
- any other steps taken to manage the waste that cannot be incorporated within the development or that arises once the development is complete.

4 DESIGN CRITERIA

Design Brief

4.1 A design brief, that sets out the opportunities and constraints for the development of waste management facilities on a particular site, should be prepared prior to the commencement of any detailed design work. In preparing a design brief, the developer should contact the relevant Local Planning Authority and take into account any adopted design guidance which the Authority has prepared.

Character

4.2 The design of waste management facilities should be specific to the design brief and the context, based on an understanding of the way the local area looks and works, forming part of a strong design process. A design with character needs to be supported by strong ideas. These ideas may be about reflecting contemporary society and culture or about responding to local patterns of development and landscape.

Energy from Waste Facility Lakeside (Grundon)

Built Form

4.3 Different approaches to built form would be appropriate depending on whether it is an urban or rural location.In rural locations it could be appropriate to follow a form reflecting agricultural buildings. Simple portal frame buildings, with metal or timber cladding would be appropriate, although more imaginative schemes should also be considered. Consideration should be given to the scale of the setting, and the massing of the built form. It may be possible to vary the size and height of different parts of the building to provide visual interest. The overall size of the building footprint, and associated built works, should be minimised to avoid potential adverse impacts on landscape.As part of an overall approach to sustainability the use of green and brown roofs should be considered together with provision for the enhancement of biodiversity. Office facilities could be designed to be integral with the building, maintaining a simple 'low key' external appearance. Colour treatment should be simple. Green, brown and grey coloured cladding is likely to be most appropriate.


A good example of a large scale building in a rural setting


A good example of built form


Offices on the side of the building can add interest to the built form


An example of a 'green' Sedum roof

4.4 The built form in an urban setting and urban edge setting provides more opportunity for an imaginative bold design approach. The buildings by their nature are likely to be fairly large in scale, and can comprise of metal frame struts with cladding. However, there is still scope for innovative design and use of alternative materials where this is appropriate. The roofs need not be simple portal frames but could be curved, monopitch or a combination of approaches.

Built form of Alconbury Waste Transfer Station

4.5 Details need to be considered as an important part of the building and not as an add-on. Particular care should be given to corners, roof lines and how the building meets the ground. These have a significant effect on the overall impression of a building.

Curved roofs can provide interest

4.6 Any security buildings at the entrance should be considered as part of the overall design, and in a complementary architectural treatment to the main facilities.

4.7 The cladding could be profiled metal or metal panels. Office facilities could be incorporated into the main building facility or could be stand-alone. If separate, the scale height and massing of the different built forms should be carefully considered. Any ventilation or extractor grills and any service pipes should be incorporated into the design of the facades, and not added insensitively as an afterthought.

A simple gatehouse, but let down by the utilitarian security gates

4.8 A broader range of colour treatments would be appropriate, depending on the individual settings.

4.9 Space should be provided for the internal storage of materials including unprocessed waste and processed waste.

Imaginative colour treatment may be appropriate

DESIGN CRITERIA

4.10 The following key principles apply to the built form:

- In both rural and urban locations built form should reflect local distinctiveness and be sympathetic in design, although where appropriate, design may also be imaginative.
- Roof design should be carefully considered. Utilitarian portal frame buildings are unlikely to be of high enough design quality for urban locations.
- Cladding materials could include profiled metal or proprietary metal panelled systems, used in an imaginative way. Various colour treatments may be appropriate. Colour treatment and the design of the elevations should be in scale with the surrounding townscape.
- Any vents, chimneys or service infrastructure should be designed positively as part of the scheme, and not added as an afterthought.
- Any security kiosks and weighbridges should be considered as part of the overall built form.
- Make efficient use of energy and resources.
- Space for the internal storage of waste should be provided.
- Consideration should be given to the massing of the buildings, in order to reduce the bulk of the proposals overall.
- Use of sustainable urban drainage systems to control the flows and discharge rates.

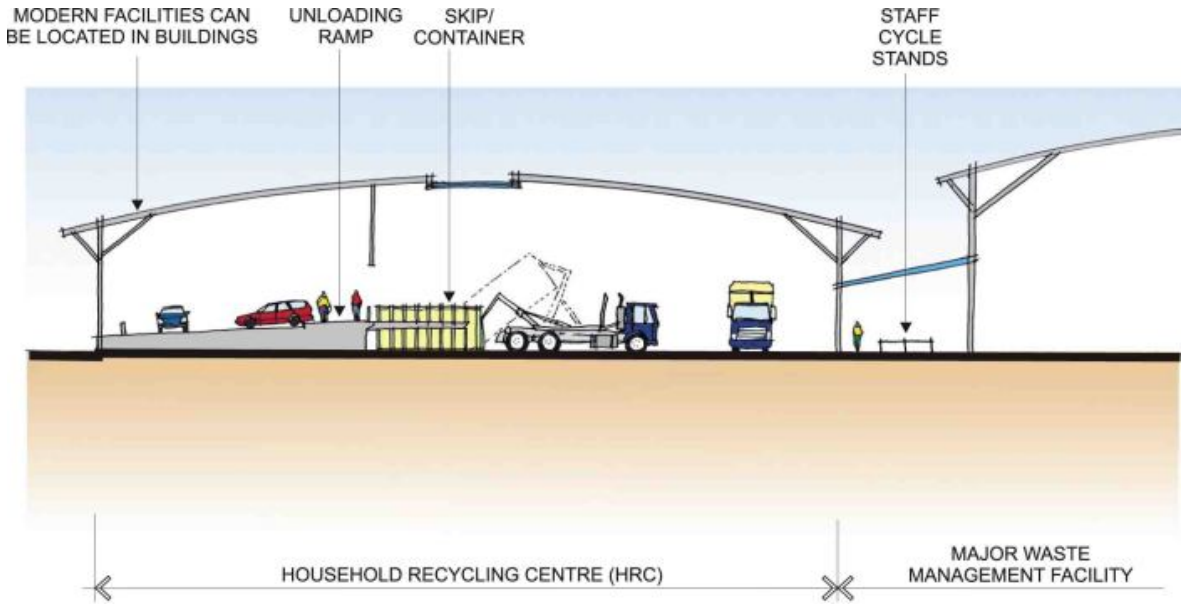
Local Distinctiveness

SITA Isle of Man

4.11 All proposals should address local distinctiveness rather than creating anonymous proposals and, where appropriate, can be imaginative in their design. This does not mean creating a pastiche of the local vernacular style which would be inappropriate to larger scale facilities. Local distinctiveness should be addressed through building form, colour treatment or materials and in appropriate cases urban art forms. Within new major development areas, local distinctiveness should be addressed by embracing the development vision for the area. The energy from waste facility on the Isle of Man, developed by SITA, is a good example of how local distinctiveness can be incorporated into a major proposal (pictured). The exhaust stack, in keeping with the island's heritage, resembles a 70m high Viking sail. The curve of the main structure takes its line from the surrounding hills. The building, whilst not hidden in the landscape, is in concert with it.

Transport, Access, Parking and Circulation

4.12 The site should be accessible by sustainable forms of transport. Access, circulation and parking should be integral to the design of the site, and access for all users must be considered. The use of Green Travel Plans should be considered. Access should be clear and safe, and the site layout should allow the early separation of cars and pedestrians/cyclists from HCVs. The HCVs should be able to circulate efficiently, without unnecessary reversing, minimising the potential noise disturbance this can sometimes cause. Access for the disabled employees and visitors should be taken into account. Good public access to a household recycling centre is required, and good accessibility to public transport is important, particularly for employees. The use of vehicles that run on energy efficient, low-emission fuels should be considered. Operational areas should be located to minimise their noise and visual impact, for example, at the rear of the buildings or behind appropriate landscape areas.



Typical Section

Internal view of a Household Recycling Facility

The 'operational' side of a Household Recycling Facility

4.13 Car and cycle parking should be located away from the external working areas. In general the provision of car parking should be minimised, and cycle parking should be maximised. Showers and lockers should be provided for employees to encourage cycling. Landscaped parking areas could be used to form a buffer to more sensitive neighbouring uses. Covered cycle storage should be provided. Cycle parking for users and staff should be provided, including provision for cycle trailers where they are increasingly being used, especially in the Cambridge area. In appropriate cases access and circulation could take place within the building and this could have benefits in minimising potential noise and litter spread.

4.14 At Household Recycling Facilities, where the public will visit as well as the operational staff, circulation and signage is particularly important. A national scheme for signage of recyclables is currently being developed and facilities should incorporate this latest branding to ensure clear understanding, and aid efficient operation. This system will help provide consistent graphic information regarding the different types of recyclables. When facilities include household recycling centres, clear, safe and easy access

for the public should be provided. Potential conflict between the public and operational activities should be avoided. This could, for example, include undercover split level sites and separate access for public and operational activities.

Access for householders to the split level Household Recycling Facility

Covered and secure cycle storage for staff

4.15 The key principles comprise:

- Clear, safe circulation for HCVs, cars, cyclists and pedestrians.
- Operational areas well screened by buildings, landscape or less sensitive neighbouring uses.
- Safe access for the public on sites where public access is possible.
- Covered cycle storage, showers and lockers for staff.
- Potential use of energy-efficient low-emission fuels.
- Separate access for cyclists/pedestrians from cars.

Lighting

4.16 The nature of the facility may mean that some working during the hours of darkness is inevitable. In some cases 24 hour working may be necessary to maximise the efficient use of the facility, and would reduce the need to develop other facilities elsewhere. In appropriate locations the 24 hour use of facilities should therefore be considered.

4.17 Lighting must be considered as an integral part of the design. Exterior service areas would need to be lit to meet the health and safety requirements. The building orientation should be designed so that highly lit areas around the building are located on the less sensitive aspects. The building itself may be able to screen the highly lit areas. Lighting equipment that minimises the upward spread of light above the horizontal should be used. Luminaires should reduce light spill and glare to a minimum. Glare should be kept to a minimum by ensuring the main beam angle of all lights directed towards any potential observer is kept below 70 degree. Higher mounting heights allow lower main beam angles, which reduces glare. A balance may have to be struck between the daytime impact of tall mountings, against the reduced night time impacts of reduced glare.

4.18 The Institute of Lighting Engineers has produced Guidance Notes for the reduction of Light Pollution in 2000. They recommend that planning authorities adopt the following environmental rules for exterior lighting;

Category	Example
E1: Intrinsically dark areas	National Parks, Areas of Outstanding Natural Beauty, etc
E2: Low District brightness areas	Rural or small village locations
E3: Medium District brightness areas	Small town centres or urban locations
E4: High District brightness areas	Town/city centres with high levels of night time activity

Environmental Zone	Sky Glow URL	Light into Windows		Source Intensity		Building Luminance	
	[Max %l	E_v [LuxlM)		1[kcd] (2)		Before curfew (3)	
		Before	After	Before	After	Average	Maxi mum
		curfew	curfew	curfew	curfew	L[cd/m2]	L[cd/m2]
E1	0	2	1	0	0	0	0
E2	2.5	5	1	20	0.5	5	10
E3	5.0	10	2	30	1.0	10	60
E4	15.0	25	5	30	2.5	25	150

Table 1 Obtrusive Light Limitations for Exterior Lighting Installations

Where:

URL = Upward Ratio of the Installation, and is the maximum permitted percentage of luminaire flux for the total installation that goes directly into the sky (formerly UWLR).

E = Vertical luminance in Lux normal to glazing

I = Light Intensity in Candelas

L = Luminance in Candelas per Square Metre

DESIGN CRITERIA

4.19 Where an area to be lit lies on the boundary of two zones, or can be observed from another zone, the obtrusive light limitation values used should be those applicable to the most rigorous zone.

4.20 Waste management facilities could occur in a range of light zones, lighting schemes for major facilities should therefore lie within the limitations recommended on Table 1.

4.21 In some instances it could be possible to include lighting imaginatively as part of the architectural treatment for the facility. For example, the Tyseley Energy From Waste Facility in Birmingham includes a changing lighting scheme designed in collaboration between an artist and the architect. The scheme won an Art in Architecture award. In areas of ecological importance sensitive lighting will be required so long as this does not conflict with health and safety regulations.

4.22 Developers should also take into account the sensitivities of biodiversity, in particular protected species which are sensitive to lighting, such as bats.

4.23 The key principles include

- Provision of a lighting scheme and supporting calculations to demonstrate the scheme lies within acceptable limits (Institution of Lighting Engineers or Local Authority Guidelines)
- Imaginative use of lighting as part of the architectural treatment in urban areas.
- Minimisation of light pollution and efficient use of energy.
- Potential use of solar panels on rooftops and / or other forms of micro generation of power to reduce energy cost and environmental impact.

Landscape and Boundary Treatments

4.24 Too often good building designs are let down by poor quality utilitarian boundary treatments, and poor landscape proposals. With effective boundaries and screening, the external site activities become less visually sensitive.

4.25 The starting point for any landscape or boundary treatment should be the local landscape character, and ecological and landscape surveys. The landscape proposals should make use of existing features, protect existing habitats and features of value, and help assimilate the project into its surroundings, reinforcing the essential characteristics of the local landscape or townscapes. Information on landscape character is available in the Character map of England, published by Natural England and available on line at :- www.countryside.gov.uk/LAR/Landscape/cc/index.asp

An example of unsuitable boundary treatment

Landscape treatment can soften a simple building facade

4.26 Further information is available in the Cambridgeshire Landscape Guidelines, published by 'Cambridgeshire County Council and the Countryside Agency'. This is available at :- www.cambridgeshire.gov.uk/environment/countryside/spaces/landscape/guidelines.htm. All landscape proposals must be in accordance with local landscape character. The guidelines provide information on the essential landscape characteristics, and information on native species appropriate to each character area. Landscape proposals should be in accordance with the Cambridgeshire Landscape Guidelines.

4.27 Cambridgeshire and Peterborough Minerals and Waste Core Strategy (Policy CS35 – Biodiversity and Geodiversity) and supporting Appendix C provide detailed advice on species and habitats which could potentially be enhanced through waste management development.

4.28 The key principles include:

- Sufficient space should be allowed for a quality landscape treatment, and planting between roads and buildings.
- Native species should be used, appropriate to the locality.
- Proposals should enhance biodiversity and mitigate for any unavoidable losses.

4.29 Most facilities will require secure boundary treatments. The design of the boundaries should be considered as part of the overall design. Secure boundaries typically 2.4m high may be required. They should be visually sympathetic as well as practical. Galvanised palisade fencing would rarely be acceptable, either in an urban or rural setting. The only exception to this would be when the fencing is screened by high quality mature planting.

4.30 Acceptable boundary treatment would include colour-coated palisade fencing (typically dark green or black).or coloured mesh panel fencing. Chainlink fencing is unlikely to be acceptable, as it is not of sufficiently high design quality.

4.31 All gates should match the adjacent fencing, and be appropriately colour coated.

DESIGN CRITERIA

4.32 Mounding is another potential boundary treatment. However Cambridgeshire is a largely flat county, and large man made mounds are rarely in keeping with the surrounding landscape character. Cambridgeshire is also a dry county and steeply sloping mounds tend to dry out rapidly, making it difficult to successfully establish landscape planting on them.

4.33 Nevertheless, in some instances, carefully considered land modelling could help to reduce low level visual and noise impacts of new facilities. When land modelling is included, the slopes should not normally exceed 1 in 5, and should allow for plants to establish. Adequate space should be allowed to establish ground modelling. If space is restricted the combined use of retaining structures and earth modelling could be considered. Gabion baskets with aggregate provision a suitable solution and can create useful habitat, by providing potential refuge for reptiles and amphibians.

Low level planting and higher tree canopies can filter views, whilst ensuring a safe adjacent pedestrian environment.

Landscape treatment can screen low level activities

4.34 'Offsite' landscape planting can be useful in some places, providing visual screening close to potential viewpoints. Any planting should follow principles in the Cambridgeshire Landscape Guidelines and include proposals for long term management.

4.35 High quality landscaped areas should be incorporated into the design at an early stage. They should not appear to be areas left after buildings have been planned. This can lead to undefined areas with no specific use. Suitable management arrangements should be in place to ensure that the landscaping scheme is well maintained.

4.36 Key principles include:

- Use of high quality materials (not galvanised palisade fencing or chainlink).
- Sensitive combination of planting with secure boundary treatment.
- Appropriate use of earth modelling, using gentle slopes, with sufficient space and with no effects on local land drainage and flood defences.
- Use of thorn hedging for both screening and re-enforcing boundary treatment.

Noise

4.37 Facilities have the potential to cause noise nuisance. Mitigation will comprise sensitive location and sympathetic design as well as best practical means to control noise (noise abatement measures). Locating facilities inside buildings allows much greater control over noise effects along with careful selection of processing plant. Detailed landscape treatment, including careful consideration of levels and any landscape buffers, can also help with noise mitigation. Developers should consider the use of 'Smart' or 'white noise' reversing bleepers or equivalent on all on-site vehicles, and for road going delivery vehicles. These bleepers reduce the potential nuisance

caused by vehicles reversing whilst still assisting safe site operations, other technology may achieve similar effects. For a major facility, any developer would be expected to carry out a background noise level survey, and to evaluate the impact of the development against it, in line with PPG24 Planning and Noise. The noise report should indicate the types of activity and predicted noise levels, details of traffic movement and hours of operation, along with appropriate mitigation and noise level monitoring and reporting.

4.38 The purpose of a noise survey is to assess noise impact locally, characterise the existing noise climate at noise sensitive premises, and to help ensure that the best practical means is sued to mitigate any adverse noise. The latter may include noise monitoring at agreed points / sensitive receptors which could be off site. In such circumstances the Councils may require that noise monitoring and reporting arrangements be secured through a legal agreement. Noise limits should be set at site boundaries or at sensitive receptors. Limits could be set against guidance such as the World Health Organisation, and best practice such as British Standards. Noise limits and working hours restrictions should also apply during the construction phase of any project in appropriate circumstances.

4.39 Key principles include:

- Use of good insulation of buildings to reduce noise level.
- Provision of a noise report, demonstrating compliance with agreed noise limits.
- Mitigation measures should be built into the evolving design to achieve the required level of attenuation.
- Use of 'Smart' reversing bleepers, or smart alarms.
- Monitoring arrangements to ensure compliance with agreed noise limits.
- Use of sensitive location and sympathetic design.
- Consideration of landscape areas within and bordering the site.
- Use of battery powered vehicles to reduce noise levels.

Air Quality

4.40 There should be consideration given to the air quality issues arising from on and off site dust, this may come from different sources for example, traffic, and from the on site operations of the facility. Emissions from most Energy from waste facilities will be monitored and regulated by the Environment Agency through their environmental permitting regime. Particulate concentrations are particularly high in Cambridgeshire and Peterborough, and the contribution of any waste management could be relevant to attainment of local air quality objectives. Mitigation could include enclosing processes in buildings with controls on emissions, and the use of energy efficient low emission fuels. Dust can arise from the movement of waste materials during processing, such as tipping and external stocking. A number of systems are available to minimise problems. These include maintaining negative air pressure in waste reception halls, to draw any dust or emissions into the building, rather than letting them escape through the doors. Filters can be used to control emissions to air.

Poor elevational design, with vents staining the facade

Ventilation should be incorporated into facade design

4.41 Fixed and mobile spray systems can also be utilised to minimise dust by damping down. Careful building design can allow natural cleansing by rainwater to maintain and clean building elevations.

4.42 The processes most likely to have an impact on air quality include windrow composting and energy from waste. The technology employed in modern facilities allows for a high level of mitigation. Locating facilities inside buildings with biofilters could reduce the distance a composting operation should be from sensitive receptors e.g. residential properties. The Environment Agency monitors emissions from waste management developments and developers should seek their latest advice on bio-aerosols. A bio-aerosol / odour risk assessment may be necessary.

4.43 Any proposals should include measures to conserve air quality with dust and odour being managed to an acceptable level.

4.44 Key principles include:

- Measures to control air quality, dust and odour to acceptable levels.
- Potential use of energy efficient low emission fuels.
- Locating waste management facilities downwind from sensitive receptors.
- Submission of a waste management licence at the same time as a planning application would encourage a holistic consideration of the design and site management issues and operational issues

Water

4.45 All schemes should include measures to ensure water quality and the efficient use of water. Pollution control measures should be incorporated to ensure that any water that leaves the site is to an acceptable quality standard. For facilities such as composting sites, any water collected could be captured, recirculated and reused to aid the composting process. Facilities should also include measure to minimise water usage, such as low water volume WCs, and possibly rain water harvesting. Any landscape treatment should be designed to minimise any requirements for irrigation.

4.46 Sustainable water management will be encouraged using sustainable drainage systems (SUDS). Surface run-off from new developments can affect the flow regime and quality of watercourses. SUDS can reduce the quantity of surface water run-off (following more closely the natural drainage for the area), as well as offering an opportunity to remove pollutants prior to entering a watercourse.

4.47 SUDS may include such methods as swales, lagoons, reedbeds, retention ponds (including wet and dry pond areas which allow water to soak back into the ground to even out discharge to the drainage system), filter strips, infiltration and permeable paving to minimise the run-off and the amount of water entering watercourses. Any SUDS measures should be fully integrated with the landscaping proposals, with an appropriate overarching management regime.

4.48 In designing SUDS, agreement must be reached between the Environment Agency, Local Planning Authorities, Anglian Water, relevant drainage boards, and developer. Careful consideration should be given to the adoption and long-term management of such systems. Further advice on SUDS is available from CIRIA (www.ciria.org.uk)

Pest Control

4.49 All developers are advised to include measures in their schemes to deal with pests. Locating the proposals inside buildings allows a high degree of control against vermin, including rodents and birds. Such matters are regulated by the Environment Agency who should be approached for advice in design.

Security

4.50 Facilities should be designed to be secure, but not to appear like fortresses. Security should be considered for each of the design elements, whether building construction, boundary treatments or landscape design. The principles in 'Secure by Design' published by the Association of Chief Police Officers (ACPO) should be followed. This can be found on www.securebydesign.com . CCTV could form part of the design and could assist in daily management of the sites, as well as out of hours security.

4.51 Design has a crucial role to play in creating waste management facilities that are safe. The waste management facilities should be planned in a way that makes sure the blocks overlook their surrounding spaces, such as cycle routes and footpaths to increase surveillance.

4.52 Where possible, windows and doors opening onto public roads and footpaths can provide greater security for users of the waste management facilities. The incorporation of protruding and corner windows into the overall design, will evoke a sense of overlooking onto the surrounding spaces from different directions, as well as bringing more light into the building.

4.53 Blank walls should be avoided if possible. If the incorporation of fenestration is not possible for technical reasons, these walls should be enhanced by the introduction of additional building materials and/or patterned brickwork to add architectural interests. Street lighting needs to be carefully considered to coverall vulnerable areas.

Energy Efficiency and Sustainable Construction

4.54 Sustainable construction techniques take account of ways to reduce waste, flood risk and pollution, minimise energy requirements, and use local and renewable materials and sources, during the construction, occupation and demolition of development. In areas of significant growth such Cambridgeshire and Peterborough there are many opportunities to embrace and implement the concept and a make a difference. One of the most important issues is to establish adaptable long term facilities, that can function over a long period of time.

4.55 Materials used in construction should, wherever possible, comprise re-used or recycled materials. Local supply options should be used to minimise travel distances. Opportunities to use standard sizes and accurate estimates of materials to minimise off-cuts and waste should be followed. The use of PVC should be minimised. Construction materials should be low maintenance and durable. Consideration should also be given to eventual decommissions of facilities, and re-use of materials. For example, steel could be bolted together rather than welded.

4.56 The ozone depletion potential and global warming potential of all materials should be considered and the use of unsustainable materials minimised.

4.57 A key aim should be to minimise carbon emissions from energy use through the life of any building. The design should maximise the use of controlled daylight, and the opportunity to control solar gain. The use of heat recovery systems should be investigated and high levels of insulation should be provided. Other aspects to consider include the feasibility of the generation of renewable energy and / or use of green electricity and heating. Roofs may also be appropriate for solar panels which help reduce energy costs. Ground source heat pumps should be considered.

DESIGN CRITERIA

4.58 The proposals should be designed to reduce energy consumption and to minimise heat loss, both through the masterplan layout and the detailed design. The proposals should also include the use of renewable energy sources where possible such as solar, wind etc. The site management could utilise sustainable techniques, for example, site vehicles could run on LPG or electricity. This could also have air quality and noise benefits.

4.59 Developers are advised to consider high levels of insulation in their new buildings. For information the following elements help ensure very well insulated buildings:

- 200 -300mm insulation in walls and roof
- Triple glazed windows
- Controlled ventilation
- Designed out cold bridging
- Airtight construction (avoiding drafts)

4.60 Wind reduction can also help reduce heat loss. The planting of shelter belts can help filter wind speeds and reduce heat loss.

4.61 The following measures would also be encouraged for any proposal :-

- Low water consumption WCs, urinals, taps and showers, and water economic white goods;
- Potential grey water recycling systems for flushing and other uses, such as wheel cleaning facilities.
- Green/brown roofs.

4.62 Construction materials should generally be those achieving an 'A' summary rating in the BRE publication, the 'Green guide to Specification'. Development proposals should seek to achieve a sustainability rating that results in high levels of performance against BREEAM that standards that are prescribed nationally at the time or alternatively in accordance with local planning authority standards where these are more stringent. The site management could utilise sustainable techniques, for example, site vehicles could run on LPG or electricity. This could also have air quality and noise benefits.

4.63 Principles of sustainable construction

- Understand what sustainable development means.
- Consider the site's context and function within its wider setting; the opportunity to improve connectivity by foot, cycle, public and private transport to and from neighbouring uses and features.
- Use whole- life thinking, best value considerations and high quality information to inform your decision making.
- Where, possible, extend the life of buildings by renovation and refurbishment.
- Design for flexibility, to extend building lifetimes, to encourage future re-use and recycling of products and materials, during construction, occupancy and demolition phases of the development.
- Incorporate resource efficiency measures, which aim to minimise demand for water, energy or other natural resources.
- Design to minimise operational environmental impacts.
- Select responsible contractors who have embraced sustainable development principle

4.64 Further advice on sustainable construction is available from the Building Research Establishment (BRE) www.bre.co.uk, who provide advice and consultancy. In addition : UK CEED, the UK Centre for Economic and Environmental Development, www.ukceed.org (based in Peterborough); The National Green Specifications, www.greenspec.co.uk, and the County Council's Sustainable Construction Guide (Cambridgeshire County Council), published January 2006, can also provide some advice. Developers should make specific reference to policy and guidance documents produce by the local planning authorities, with reference to sustainable design and construction.

DESIGN CRITERIA

5 FACILITY GUIDELINES

5.1 The previous sections outline general location and design guidance for waste management facilities. This section provides further detail on how the guidance can be related to individual facilities. This section is clearly not exhaustive; as new technologies evolve, they too would be subject to the relevant guidance. Planning conditions ensure that mitigation measures are applied. These measures can protect compatibility with the environment and surrounding land uses, and can be required, monitored and enforced. The key issues and recommendations for mitigation and management are outlined in the following section.

Material Recovery facilities

Facilities and Locational Criteria

5.2 These facilities receive source separated, co-mingled, commercial and municipal waste such as paper, card, glass, plastics, steel or aluminium. Waste is mechanically sorted further, separated, bulked and sold for recycling. MRFs and their associated fixed machinery are located within buildings, with measures to minimise noise, dust and odour issues. Large doors are required to allow access to vehicles tipping waste materials and for it's subsequent collection. Sufficient space is required, ideally within the building itself, for the storage of bulked up waste materials, prior to collection. These operate at different scales though the annual throughput is generally between 50,000 and 100,000 tonnes. MRFs typically require a site between 0.5Ha and 3Ha in size.

5.3 Facilities are likely to generate high volumes of traffic, particularly HCVs, and should be located close to the main road or rail network. Many nuisance issues associated with putrescible wastes do not apply to MRFs as these mainly deal with paper, cardboard, plastics, cans etc; but there are potential amenity issues such as noise and litter. An urban or rural location could be appropriate, and facilities could be located within major development areas. A buffer is likely to be required between facilities and residential areas. Facilities will be located within buildings, and with good quality design and mitigation, facilities could be located up to a threshold of 100m from sensitive receptors. Each proposal will be subject to detailed assessment, including consideration of mitigation measures, which may mean this distance can be varied.

Issue	Potential Impact and Mitigation Measures
Traffic/Access	• Design internal roads for ease of access and vehicle routing and manoeuvring. • Encourage use of sustainable transport and provision of cycle parking for visitors and staff, and adequate parking for staff. • Locate near good road or rail access. Route traffic away from inappropriate roads, residential areas and schools. Use traffic routing agreement.
Air and Dust	• Unlikely to be a significant issue. • Dust suppression system integral to the building design and machinery should be considered. • Wheel cleaning facilities should be considered. • Negative air pressure.
Odour	• Limited potential nuisance with this facility. • Odour suppression can be incorporated into dust suppression system. • Negative air pressure. Use of Biofilters.

Issue	Potential Impact and Mitigation Measures
Noise	• Design of building with acoustic features, e.g. sound proofing. Appropriate orientation of building. Waste reception within a hall. Acoustic fencing. • Fit silencers to plant and machinery. • Use of "smart" or 'white noise' reversing bleepers.
Litter	• Internal design with storage bays. • Can be issues of' tracking' waste outside the building. • External litter fences. • Site management/litter picking. • Provision for Internal storage of bulked up waste.
Flies, vermin and birds	• Vermin proof design. • Drainage system to be fitted with grates. • All ventilation ducts should be fitted with bird cages. • Rapid shutting doors. • Site management practices.
Water Resources	• Provision of sealed drainage system. Engineered containment. Re-circulate water. • Separate collection of roof water for re-use.
Landscape & Visual Impact	• Design of building will depend on local context, but should take an appropriate form, massing and size as well as use appropriate materials, colours and detailing. • Appropriate orientation and ground profiling. • Appropriate design, positioning and colour of boundary treatment.

Windrow Composting

Facilities and Location Criteria

5.4 Composting is a biological process in which micro organisms convert biodegradable matter into a stabilised residue known as compost. The majority of waste composted in the UK is garden type waste. The biodegradable waste is shredded into finer particle sizes to speed up the composting process. The shredded waste is then commonly formed into windrows of 1.5 3m in height for composting. The process typically takes 8 to 14 weeks. The windrows are usually turned mechanically or aerated byfans. The process can take place outdoors, or in covered simple buildings. Facilities can vary in size, but are typically between 1 Ha and 4 Ha in size.

5.5 Traditional windrow composting would be appropriate in rural locations, where the facilities would be consistent with agricultural land uses. Windrow composting would not normally be appropriate in an urban situation. The facilities should have good access to the primary road or rail network. In more sensitive locations some activity, such as waste reception screening and shredding, could take place within a building.

Issue	Potential Impact and Mitigation Measures
Traffic/Access	• Design internal roads for ease of access and vehicle routing and manoeuvring. • Encourage use of sustainable transport and provision of cycle parking for visitors and staff, and adequate parking for staff. • Locate near good road or rail access. Route traffic away from inappropriate roads, residential areas and schools. Use traffic routing agreement.
Air and Dust	• Operational management practices. Mounding and planting. Wheel cleaning facilities. • Locate site 250m from sensitive receptors. Damp down materials. Shred and turn when wind speed not high. • Locate facilities in buildings or under cover.
Odour	• Odour suppression integral to operational procedures. • External suppression system e.g. deodorising sprays. Use of aeration pumps.
Noise	• Acoustic fencing. • Fit silencers to plant and machinery. • Use of "smart" or 'white noise' reversing bleepers.
Litter	• Unlikely to be a major problem with this waste stream but some issues arise when • plastic bags find their way into the feedstock. Manual separation prior to shredding can minimise this problem. • Operational management including catch fences.
Flies, Vermin and birds	• Site management practices.
Water Resources	• Provision of sealed drainage system. • Engineered containment. • Recirculate any leachate, use as wetting agent
Landscape & Visual Impact	• Design of building will depend on local context, but should take an appropriate form, • massing and size as well as use appropriate materials, colours and detailing. • Tree and hedge planting and appropriate fencing. • Hard landscaping soil bunds. • Appropriate orientation and profiling of ground.

In Vessel Composting

Facilities and Locational Criteria

5.6 This involves the composting process inside a vessel where conditions are optimised for breakdown of materials. After the initial enclosed process the compost is matured in a part open area process. The process is quicker than windrow composting and allows a higher degree of

process control. Facilities usually include a waste reception hall and the vessels themselves, which could comprise: silos, containers, agitated bags, tunnels and enclosed halls. Facilities can again vary in size, but are typically between 1 Ha and 4Ha in size.

Facilities are likely to generate high volumes of traffic, particularly HCVs, and should be located close to the main road network. In Vessel enclosed facilities could be located in urban or rural locations, and could be located within new major development areas. Potential emissions to the air suggests a buffer of 250m to sensitive receptors may be required. This would however be dependant on the precise type of operation and levels of control that can be achieved. With good levels of control such as carrying out operations in buildings with biofilters, a smaller buffer may be appropriate.

Issue	**Potential Impact and Mitigation Measures**
Traffic/Access	• Design internal roads for ease of access and vehicle routing and manoeuvring. • Encourage use of sustainable transport and provision of cycle parking for visitors and staff, and adequate parking for staff. • Locate near good road or rail access. Route traffic away from inappropriate roads, residential areas and schools. Use traffic routing agreement.
Air and Dust	• Dust suppression integral to operational procedures. • Dust suppression within reception building and external areas. • Wheel cleaning facilities.
Odour	• Odour suppression can be incorporated into dust suppression system. • External odour suppression system e.g. deodorising sprays. • Use of biofilters to treat exhaust air. • Operational managements practices.
Noise	• Design of building with acoustic features, e.g sound proofing. • Appropriate orientation of building. Acoustic fencing. • Hard landscaping including soil bunds. • Fit silencers to plant and machinery. • Use of "smart" or 'white noise' reversing bleepers.
Litter	• Unlikely to be a major problem with this waste stream doe to strict input controls. • Some issues arise when plastic bags find their way into the feedstock. • Manual separation prior to shredding can minimise this problem. • Operational management including catch fences.
Flies, Vermin and birds	• Vermin proof design. • All ventilation and ducts should be fitted with bird cages. • Rapid shutting doors. • Site management practices.
Water Resources	• Provision of sealed drainage system. • Engineered containment.

Issue	Potential Impact and Mitigation Measures
	• Re-circulate any leachate. • Separate collection of roof water.
Landscape & Visual Impact	• Design of building will depend on local context, but should take an appropriate form, massing and size as well as use appropriate materials, colours and detailing. • Appropriate orientation ground profiling should be considered where appropriate. • Tree and hedgerow planting. • Appropriate design, positioning and colour of boundary treatment.

Anaerobic Digestion

Facilities and Locational Criteria

5.7 This is the biological treatment of biodegradable organic waste within a vessel, in the absence of oxygen, using microbial activity to break down the waste in a controlled environment. Anaerobic Digestion results in the generation of :-

- Biogas rich in methane and can be used to generate heat and/or electricity,
- Fibre potentially used as a soil conditioner,
- Liquor potentially used as a liquid fertiliser.

5.8 For the treatment of household waste, specialist facilities are required. Facilities are typically up to 1 Ha in size.

5.9 Facilities are likely to generate high volumes of traffic, particularly HGVs, and should be located close to the main road network. An urban or rural location could be appropriate for facilities located within buildings. With good quality design and mitigation, facilities could be located up to 250m from sensitive receptors. Each proposal will be individually assessed, taking into account mitigation measured, and an appropriate distance will be determined. Co-location with composting facilities can aid disposal of the solid and liquid residues, and a rural location maybe most appropriate for this.

Issue	Potential Impact and Mitigation Measures
Traffic/Access	• Design internal roads for ease of access and vehicle routing and manoeuvring. • Encourage use of sustainable transport and provision of cycle parking for visitors and staff, and adequate parking for staff. • Locate near good road or rail access. Route traffic away from inappropriate roads, residential areas and schools. Use traffic routing agreement.
Air and Dust	• Dust suppression integral to operational procedures. • Dust suppression within reception building and external areas. • Hard landscaping, including soil bunds. • Wheel cleaning facilities.

Issue	Potential Impact and Mitigation Measures
Odour (waste reception building)	• Negative air pressure. • Use of biofilters.
Noise	• Design of building with acoustic features, e.g. sound proofing. • Appropriate orientation of building. Acoustic fencing. • Fit silencers to plant and machinery. • Use of "smart" reversing bleepers.
Litter	• Internal design with storage bays. • Site management practices.
Flies, Vermin and birds	• Vermin proof design. • All ventilation and ducts should be fitted with bird cages. • Rapid shutting doors. • Site management practices.
Water Resources	• All tanks and digesters within engineered containment. • May require on site waste water treatment.
Landscape & Visual Impact	• Design of building will depend on local context, but should take an appropriate form, massing and size as well as use appropriate materials, colours and detailing. • Appropriate orientation ground profiling should be considered where appropriate. • Tree and hedgerow planting. • Appropriate design, positioning and colour of boundary treatment. • Partial burial of digester.

Inert Waste Processing Facilities

Facilities and Locational Criteria

5.10 These recover through a combination of periodic crushing and mechanical screening operations materials such as soils, concrete, rubble, construction and demolition waste. Facilities are often open air, but screening equipment can be installed in buildings to minimise environmental impact particularly in relation to dust generation. Facilities can vary significantly, but are typically between 1 Ha and 3 Ha in size.

5.11 Facilities are likely to generate high volumes of traffic, particularly HCVs, and should be located close to the main road or rail network. Many nuisance issues associated with putrescible wastes do not apply to inert wastes but there are potential amenity issues such as noise and dust. An urban or rural location could be appropriate, and temporary facilities could be located within major development areas, and on quarries and landfill sites. A buffer is likely to be required between facilities and residential areas. With good quality design and mitigation, facilities could be located up to 250m from sensitive receptors. Each proposal will be individually assessed, taking into account mitigation measures, and an appropriate buffer distance will be determined.

Issue	Potential Impact and Mitigation Measures
Traffic/Access	• Design internal roads for ease of access and vehicle routing and manoeuvring. • Encourage use of sustainable transport and provision of cycle parking for visitors and staff, and adequate parking for staff. • Locate near good road or rail access. Route traffic away from inappropriate roads, residential areas and schools. Use traffic routing agreement.
Air and Dust	• Dust suppression integral to operational procedures. Wheel cleaning facilities. Water spray to external areas. • Low risk with this waste stream, no special measured likely to be required.
Odour	• Low risk with this waste stream, no special measured likely to be required.
Noise	• Design of building with acoustic features, e.g sound proofing. • Appropriate orientation of building. Acoustic fencing. Soil mounding. • Fit silencers to plant and machinery. • Use of "smart" or white noise reversing bleepers. • Careful positioning of specific components such as concrete crushers.
Litter	• Unlikely to be nuisance with this waste stream. • Appropriate storage as necessary. Site management practices.
Flies, Vermin and birds	• Unlikely to be nuisance with this waste stream. Site management practices
Water Resources	• Provision of sealed drainage system. • Engineered containment. • Re-circulate water for dust suppression. • Separate collection of roof water.
Landscape & Visual Impact	• Design of building will depend on local context, but should take an appropriate form, massing and size as well as use appropriate materials, colours and detailing. • Appropriate orientation and ground profiling. • Tree and hedgerow planting. • Appropriate design, positioning and colour of boundary treatment.

Energy From Waste

Facilities and Locational Criteria

5.12 Energy from waste facilities are typically characterised by large buildings, which are designed to handle high volumes of mixed waste, and / or secondary fuels such as refuse derived fuels, shredded tyres and waste solvent fuels. These facilities are designed to burn waste under controlled conditions at high temperatures; heat is received from the process to generate electricity or heat water as part of a wider utilisation scheme. Input waste volumes are typically reduced by 90%. Facilities include receptor halls, cement kilns, furnaces, heat recovery facilities and control rooms. The buildings are typically large in scale with tall chimneys. Typical facilities require sites in the range 2 Ha 5 Ha in size.

5.13 Facilities are likely to general high volumes of traffic, particularly HCVs, and should be located close to the main road or rail network. Facilities are likely to be large in scale and need sizeable sites to accommodate the plant and associated site works. An urban or rural location could be appropriate. With good quality design and mitigation, facilities could be located up to 250m from sensitive receptors. Each proposal will be individually assessed, taking into account mitigation measures, and an appropriate buffer distance will be determined. Facilities are likely to include tall structures with chimneys, and consultation with the Civil Aviation Authority or Ministry of Defence maybe necessary when located with airfields in the vicinity.

Issue	Potential Impact and Mitigation Measures
Traffic/Access	• Design internal roads for ease of access and vehicle routing and manoeuvring. • Encourage use of sustainable transport and provision of cycle parking for visitors and staff, and adequate parking for staff. • Locate near good road or rail access. Route traffic away from inappropriate roads, residential areas and schools. Use traffic routing agreement.
Air and Dust	• Dust suppression integral building and machinery. • Operational management practices. • Wheel cleaning facilities.
Odour	• Odour suppression can be incorporated into dust suppression system. • External odour suppression system e.g. deodorising sprays. • Operational managements practices. • Keeping receptor hall at negative pressure can help contain dust and odour.
Noise	• Design of building with acoustic features, e.g sound proofing. • Appropriate orientation of building. • Acoustic fencing. • Fit silencers to plant and machinery. • Use of "smart" or white noise reversing bleepers.
Flies, Vermin and Birds	• Vermin proof design. • Drainage system to be fitted with grates. • All ventilation and ducts should be fitted with bird cages. • Rapid shutting doors. • Operational management practices.

Water Resources	• Provision of sealed drainage system. • Engineered containment. • Separate collection of roof water.
Landscape & Visual Impact	• Design of building and stack will depend on local context, but should take an appropriate form, massing and size as well as use appropriate materials, colours and detailing. • Careful consideration of chimneys / exhaust stacks. • Appropriate orientation ground profiling • Tree and hedgerow planting. • Appropriate design, positioning and colour of boundary treatment.

Household Recycling Facilities

Facilities and Locational Criteria

5.14 Household Recycling Centres (HRC) to provide a centralised collection facility for householders. The purpose of these facilities is to provide a point to which householders can bring their waste, predominantly for recycling and reuse, including garden waste, rubble / hardcore, cardboard, glass, textiles, metal, batteries waste engine oil, and bulky items. There is also an element of general waste, which can include mixed waste and "black bag" material. These facilities vary from other waste management facilities in that they are provided for the use by the public. Household Recycling Centres can also include an educational function informing people about recycling generally and the role of Household Recycling Centres. If this function is to be considered as an integral part of the design and operation of such facilities.

5.15 An HRC must be accessible to members of the public. The public are responsible for transferring waste from their vehicles to the correct collection bay. When the containers within the bays are full, they will be sheeted prior to usually being removed from the site and replaced with an empty container. The demands on small scale sites can be significant, although the busy periods tend not to coincide with peak work rush hours, but are at weekends, evenings and public holidays. New facilities in appropriate locations are required in order to manage traffic effectively and maximise the space to increase recycling opportunities. Co- location with other waste management facilities maybe appropriate for new facilities minimising transport of the waste.

5.16 There is a need to separate the general public areas from the service vehicles collecting the full containers. Arrangements need to provide separate access to waste collection vehicles to enable the continuous movement of waste off the site. Modern facilities may be split level and are often contained within buildings, which minimises potential litter, noise and other amenity issues. Facilities need to be close to where the waste is generated to maximise usage in order to combat fly tipping.

5.17 The handling capacity of a HRC will depend on the design and size of the site. Sites tend to be minimally 1.2 hectares and can handle between 10,000 tpa and 25,000 tpa.

5.18 A key planning constraint with respect to HRC's will be traffic and access. There tends to be peak periods of use at weekends and public holidays. Careful transport planning is required to minimise queueing. The design needs to emphasise that public traffic must be separated from the operational traffic. There also needs to be easy accessibility to the different waste stream deposit areas by the public, but minimal conflict with those driving through once they have deposited their waste.

FACILITY GUIDELINES

5.19 Facilities are likely to generate high volumes of traffic at off peak times and should be located close to the main road or rail network. Access to good public transport and footpath network would also be beneficial for users and employees. Facilities have the potential to cause nuisance from litter and odour. Facilities should normally be enclosed within a building. An urban location would be appropriate, close to the waste source. Facilities could be located within major development areas providing an adequate buffer is provided.

Issue	Potential Impact and Mitigation Measures
Traffic/Access	• Design internal roads for ease of access and vehicle routing and manoeuvring. • Separation of public and operational traffic. • Encourage use of sustainable transport and provision of cycle parking for visitors and staff, and adequate parking for staff. • Locate near good road or rail access. Route traffic away from inappropriate roads, residential areas and schools. Use traffic routing agreemen.t For HCV's Access by footpath and public transport provides choice of transport for users.
Air and Dust	• Low risk with this facility. • Operational management practices,including the regular removal of material off site for treatment to avoid breakdown of waste. • Dust suppression system integral to building.
Odour	• Odour suppression can be incorporated into dust suppression system. • Operational managements practices.
Noise	• Fit silencers to plant and machinery. • Use of "smart" or white noise reversing bleepers. • Design of building with acoustic features and sound proofing. • Earth modelling and landscape treatment to the perimeter.
Litter	• Use of litter fencing. • Appropriate storage as necessary. • Site management practices.
Flies, Vermin and Birds	• Vermin proof design. • Drainage system to be fitted with grates. • All ventilation and ducts should be fitted with bird cages. • Rapid shutting doors. • Site management practices.
Water Resources	• Provision of sealed drainage system. • Engineered containment. • Minimal water use.
Landscape & Visual Impact	• Design of building and stack will depend on local context, but should take an appropriate form, massing and size as well as use appropriate materials, colours and detailing.

	• Appropriate orientation ground profiling. • Appropriate design, positioning and colour of boundary treatment.

Transfer / Bulking up Facilities

Facilities and Locational Criteria

5.20 These facilities receive waste from kerbside collections or commercial sources and bulk them up for onward transfer and processing. Facilities are located within buildings and vary in size. Facilities are sometimes co located with household recycling centres or processing facilities to maximise synergies and minimise travel.

5.21 Facilities are likely to generate high volumes of traffic, particularly HCVs, and should be located close to the main road or rail networks. As the facilities operate by collecting waste from a more local area, before bulking up to move on to more strategic sites for processing, facilities are more likely to be located in smaller towns or settlements.

5.22 Facilities will be located within a building; if the facility accepts a variety of waste then there is the potential for litter odour and leachate. An urban or rural location could be appropriate, or they could be located with a major development area providing an adequate buffer is provided. Each proposal will be individually assessed, taking into account mitigation measures, and an appropriate buffer distance will be determined.

Issue	Potential Impact and Mitigation Measures
Traffic/Access	• Design internal roads for ease of access and vehicle routing and manoeuvring. • Encourage use of sustainable transport and provision of cycle parking for visitors and staff, and adequate parking for staff. • Locate near good road or rail access. Route traffic away from inappropriate roads, residential areas and schools. Use traffic routing agreement.
Air and Dust	• Dust suppression system integral to Operational procedures. • Site management practices. • Wheel cleaning facilities should be considered. • Dust suppression integral to building design.
Odour	• Odour suppression can be incorporated into dust suppression system. • External odour suppression system e.g. deodorising sprays. • Site management practices • Use of Biofilters.
Noise	• Design of building with acoustic features and sound proofing. • Appropriate orientation of building. Acoustic fencing. • Fit silencers to plant and machinery. • Use of "smart" or white noise reversing bleepers.
Litter	• Internal design with storage bays • Appropriate storage as necessary • External litter fences. Site management/litter picking.

Flies, Vermin and Birds	• Vermin proof design. • Drainage system to be fitted with grates. • All ventilation and ducts should be fitted with bird cages. • Rapid shutting doors. • Operational management practices.
Water Resources	• Provision of sealed drainage system. • Engineered containment. • Re-circulate water for dust suppression. • Separate collection of roof water.
Landscape & Visual Impact	• Design of building and stack will depend on local context, but should take an appropriate form, massing and size as well as use appropriate materials, colours and detailing. • Appropriate orientation ground profiling. • Appropriate design, positioning and colour of boundary treatment.

Mechanical and Biological Treatment

Facilities and Locational Criteria

5.23 This is a term that covers a range of technologies. The waste goes through some sort of biological and mechanical processes. The mechanical stage has two main roles. In many (but not all) technologies the waste is broken down into smaller parts, such as by shredding. Some recyclable material is then removed.

5.24 In the biological stage the waste is compacted or digested, usually in an enclosed system. If an anaerobic system is used methane can be produced which can be used to produce energy. The site of plants can vary but would typically be between 1 Ha and 3 Ha in size.

5.25 Facilities are likely to generate high volumes of traffic, particularly HCVs, and should be located close to the main road or rail network. Mixed household waste processing has the potential to cause additional nuisance from litter odours and leachate compared to MRFs. Facilities will be located within a building. An urban or rural location could however be appropriate, and facilities could be located within major development areas providing an adequate buffer is provided.

Issue	Potential Impact and Mitigation Measures
Traffic/Access	• Design internal roads for ease of access and vehicle routing and manoeuvring. • Encourage use of sustainable transport and provision of cycle parking for visitors and staff, and adequate parking for staff. • Locate near good road or rail access. Route traffic away from inappropriate roads, residential areas and schools. Use traffic routing agreement.
Air and Dust	• Dust suppression integral building and machinery. • Operational management practices. • Wheel cleaning facilities. • Negative pressure ventilation systems with biofilters.

Odour	• Odour suppression can be incorporated into dust suppression system. • Use of biofilters to treat exhaust air. • External odour suppression system e.g. deodorising sprays. • Negative pressure ventilation systems with biofilters
Noise	• Design of building with acoustic features, e.g sound proofing. • Appropriate orientation of building. • Acoustic fencing. • Fit silencers to plant and machinery. • Use of "smart" or white noise reversing bleepers. • Careful positioning of components within enclosed building.
Flies, Vermin and Birds	• Vermin proof design. • Drainage system to be fitted with grates. • All ventilation and ducts should be fitted with bird cages. • Rapid shutting doors. • Site management practices.
Water Resources	• Provision of sealed drainage system. • Engineered containment. • Separate collection of roof water. • Re-circulate water.
Landscape & Visual Impact	• Design of building and stack will depend on local context, but should take an appropriate form, massing and size as well as use appropriate materials, colours and detailing. • Careful consideration of chimneys / exhaust stacks. • Appropriate orientation ground profiling. • Tree and hedgerow planting. • Appropriate design, positioning and colour of boundary treatment. • Stack height and treatment needs to be considered in context of local setting.

Pyrolisis and Gasification Facilities

Facilities and Locational Criteria

5.26 This is the treatment with heat of mixed waste within a vessel, in the absence or limited use of oxygen. Using this technique to breakdown the waste in a controlled environment results in the generation of :-

- Biogas than can be used as a fuel or to general electricity.
- Stable granules that can be further processed or recycled.

5.27 Specialist facilities are required. Facilities can vary in size.

5.28 Facilities can generate high volumes of traffic, particularly HCVs, and should be located close to the main road network. An urban or rural location could be appropriate. Each proposal will be individually assessed, taking into account mitigation measured, and an appropriate distance will be determined.

Issue	Potential Impact and Mitigation Measures
Traffic/Access	• Design internal roads for ease of access and vehicle routing and manoeuvring. • Encourage use of sustainable transport and provision of cycle parking for visitors and staff, and adequate parking for staff. • Locate near good road or rail access. Route traffic away from inappropriate roads, residential areas and schools. Use traffic routing agreement.
Air and Dust	• Dust suppression integral to operational procedures. • Dust suppression within reception building and external areas. • Hard landscaping, including soil bunds. Wheel cleaning facilities.
Odour	
Noise	• Design of building with acoustic features, e.g. sound proofing. • Appropriate orientation of building. Acoustic fencing. • Fit silencers to plant and machinery. • Use of "smart" or "white noise" reversing bleepers.
Litter	• Internal design with storage bays. • Site management practices.
Flies, Vermin and Birds	• Vermin proof design. • Drainage system to be fitted with grates. • All ventilation and ducts should be fitted with bird cages. • Rapid shutting doors. • Site management practices.
Water Resources	• All tanks and vessels within engineered containment. • May require on site waste water treatment
Landscape & Visual Impact	• Design of building and stack will depend on local context, but should take an appropriate form, massing and size as well as use appropriate materials, colours and detailing careful consideration of any tanks or vessels • Appropriate orientation ground profiling. • Tree and hedgerow planting. • Appropriate design, positioning and colour of boundary treatment.

Waste Water Treatment Facilities

Facilities and Locational Criteria

5.29 Facilities for the treatment of waste water, including sewage and commercial effluents. Facilities include a range of mechanical and biological treatments, which increasingly include apparatus and techniques for generating fuels / recovering energy from sewage treatment.

5.30 Facilities can generate traffic, particularly HCVs, and should be located close to the main road or rail network. There are potential amenity issues such as odour and air quality. A buffer is likely to be required between facilities and residential areas. For major faciltities each proposal will be individually assessed, taking into account mitigation measures, and an appropriate buffer distance will be determined.

Issue	Potential Impact and Mitigation Measures
Traffic/Access	• Design internal roads for ease of access and vehicle routing and manoeuvring. • Encourage use of sustainable transport and provision of cycle parking for visitors and staff, and adequate parking for staff.
Air and Dust	• Not a significant issue.
Odour	• Potential issue, consider location carefully.
Noise	• Not normally a major issue.
Litter	• Unlikely to be major nuisance with this waste stream. • Appropriate storage as necessary. • Site management practices.
Flies, Vermin and Birds	• Site management practices.
Water Resources	• The facility itself will be designed to protect water resources.
Landscape & Visual Impact	• Design of building and stack will depend on local context, but should take an appropriate form, massing and size as well as use appropriate materials, colours and detailing. • Appropriate orientation ground profiling. • Tree and hedgerow planting. • Appropriate design, positioning and colour of boundary treatment.

FACILITY GUIDELINES

6 DESIGN CHECKLIST

The checklist can be used by potential developers or waste planning authorities. Developers can use this checklist as a useful guide when submitting an application to the Planning Authority.

	Yes	No	Notes
1. Siting Has a site appraisal and the necessary surveys been carried out to guide the evolving design of the proposal? Does the location provide opportunities for good integration? Is the site proximate to the primary road network or a rail link? Is the site proximate to sustainable transport i.e. rail, water, cycle routes and footpaths? Can an appropriate buffer be provided; does the proposal make good use of buffers? Is the site an adequate size to accommodate the scheme including high quality mitigation? Does the site use previously developed land? Are any rights of way affected? Are any sites designated for their wildlife interest affected? Are important habitats or protected species affected? Does the proposal make good use of existing features?			

DESIGN CHECKLIST

	Yes	No	Notes
Are operational areas screened from view? Is the site within close proximity of facilities that can make sustainable use of bi-products of the waste treatment process? Does the location ensure that there is minimal vehicular conflict with residential areas and other sensitive locations? Have section drawings been provided to show the relationship with adjacent land uses and the effects of any plants/boundary treatments? Are important historic features and / or their setting affected?			
2. Built Form Are the built structures of an appropriate scale and form for the location? Does the built form have a common design approach across the site? Does the built form demonstrate positive design, rather than just presenting a utilitarian structure? Do the elevations sensitively incorporate functional requirements? Has a high quality approach been followed when selecting and detailing materials? Are features such as air vents, chimneys or service infrastructure appropriately incorporated into the design?			

	Yes	No	Notes
Are any gatehouses, security kiosks or offices positively designed as part of the overall scheme? Do rural buildings reflect the style of farm buildings, or reuse existing buildings? Has the roof design been carefully considered? Is the colour treatment appropriate to the location?			
3. Local Distinctiveness Does the design take into account Local Character and Distinctiveness? Do the proposals enhance the landscape/ townscape diversity and distinctiveness?			
4. Transport, Access, Parking and Circulation Do the proposals maximise the use and accessibility of sustainable modes of transport? Does the site access and circulation allow for the segregation of pedestrians and cyclist, parking and service vehicles? Are service areas located to minimise visual and noise impact? Are car park areas used to provide buffers to operational areas? Are covered cycle storage areas provided?			

DESIGN CHECKLIST

	Yes	No	Notes
Are showers and lockers provided to encourage cycling use?			
5. Lighting Does the lighting conform to recommendations in the Institute of Lighting Engineers "Guidance Notes for the Reduction of Light Pollution"? Do the proposals maximise the use of energy efficient lighting and maximise the use of natural lighting? Would the proposed lighting impact on the sensitive uses in the surrounding areas? Would the proposed lighting impact on biodiversity, particularly protected species?			
6. Landscape or Boundary Treatments Has the boundary design adequately considered the need for coloured fencing? Does the boundary treatment include a well designed soft landscape treatment? Do planting proposals conform to the Cambridgeshire Landscape Guidelines? Are gates considered as part of the overall site design? Have measures to enhance biodiversity been incorporated?			
7. Noise Has an acceptable noise assessment and mitigation strategy been provided?			

	Yes	No	Notes
Are 'Smart' or 'white noise' reversing bleepers or other low emission alarms included in the proposal?			
8. Air Quality Are any air quality management areas likely to be affected? Does the proposal include measures to control and minimise emissions of dust, odour and bioaerosols? Have suitable abatement technologies been utilised to minimise air quality impacts?			
9. Water Does the proposal include measures to ensure water quality and minimise water usage? Does the site drainage follow SUDS techniques? Do the proposals maximise grey water recycling techniques? Do the proposals include rainwater harvesting?			
10. Pest Control Does the proposal include measures to deal with pest, vermin, birds and flies			
11. Energy Efficiency Does the design demonstrate measures to ensure energy efficiency and to reduce carbon usage? Does the location allow for the potential connection to existing or planned district energy networks? Does the siting allow for the utilisation of passive solar design? Does the location maximise the use of renewable energy?			

DESIGN CHECKLIST

	Yes	No	Notes
12. Sustainable Construction Does the proposal identify measures for sustainable construction, and to reduce carbon usage? Do the proposals maximise the use of sustainable construction materials and techniques? Do the construction methods proposed maximise the energy efficiency of the facility as a whole?			

Glossary

Term	Definition
Air Pollution Control	A term used to describe the combination of techniques which together clean air emissions from processes prior to discharge to the atmosphere.
Anaerobic	In the absence of oxygen.
Anaerobic Digestion	Anaerobic Digestion is a process in which biodegradable material is encouraged to break down in the absence of oxygen. Waste is broken down in an enclosed vessel under controlled conditions, resulting in the production of digestate biogas.
Biodegradable	Capable of being broken down by plants and animals. Biodegradable municipal waste includes food and garden waste, paper and card.
Biodiversity	The relative abundance and variety of plant and animal species and Ecosystems within particular habitats.
Biogas	Gas resulting from the fermentation of waste in the absence of air.
Household Recycling Centre	A facility where the public can dispose of bulky household and garden waste.
Combined Heat and Power (CHP)	A highly fuel efficient technology which produces electricity and heat from a single facility.
Commercial Waste	Waste arising from premises which are used wholly or mainly for trade, business, sport, recreation or entertainment, excluding municipal and industrial waste.
Compost	A bulk reduced, stabilised residue resulting from the aerobic degradation of organic waste.
Energy from Waste	Facilities that burn waste. Heat is received that can generate electricity or heat water.
Feedstock	Raw material required for a process.
Gasification	A process where hydrocarbons are broken down by carefully controlling the oxygen present in a vessel.
Green and Brown Roof	Green roofs and brown roofs are constructed ecosystems located on top of building or structures, contributing to local biodiversity. The roof of a building is partially or completely covered in plants, which is generally believed to assist in reducing surface water run off from buildings, provide biodiversity habitat, reduce the visual impact of a building and effect the heat retention of a building.
Green Waste	Vegetation and plant matter from household gardens, parks, and commercial landscapes.
HCV	Heavy Commercial Vehicle.
Incineration	The controlled thermal treatment of waste by burning, either to reduce its volume or its toxicity.

DESIGN CHECKLIST

Term	Definition
Industrial Waste	Waste from any factory or any premises occupied by an industry.
Inert Waste	Waste which will not or is slow to biodegrade or decompose e.g. soils, concrete rubbles, and construction and demolition waste.
In-vessel Composting	The aerobic decomposition of organic waste within an enclosed container, where the control systems for material degradation are fully automated. Moisture, temperature and odour can be regulated, and a stable compost can be produced much more quickly than outdoor windrow composting.
Landfill	Landfill is the controlled deposit of waste to land.
Leachate	Leachate is the term given to water which has come into contact with waste materials and which has drawn pollutants out of those materials into solution, thereby contaminating the water.
Leachate Treatment	Leachate treatment is a process to reduce the polluting potential of leachate.
Material Recycling Facility (MRF)	A facility to receive source separated waste, to sort it further and bulk it up for recycling.
Mechanical & Biological Treatment (MBT)	A range of technologies, for dealing with mixed waste, that can include shredding and separation and treatment of the organic element by digestion.
Mixed Waste Processing	Mixed waste processing is designed to recover valuable components from unsorted municipal solid waste for recycling and deliver a stabilised residue for final landfilling.
Municipal Solid Waste (MSW)	This involves household waste and any other wastes collected by the Waste Collection Authority or its agents, such as municipal parks and garden waste, and commercial or industrial waste.
Pyrolisis	Thermal breaking down of waste in a vessel in the absence of air producing bases that can be used a fuel and solid by products
Sensitive Receptor	Physical or natural resource, special interest or viewer group that will experience an impact.
Transfer/Building up Facilities	Facilities for receiving waste from kerbside collection, to bulk them up for transfer for recycling or processing.
Waste Water Treatment Works (Sewage works)	Facilities to treat sewerage or commercial effluent. Waste water undergoing a variety of treatment, before release back into the water course or licenced discharge points.

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