Surrey County Council Minerals and Waste Planning Policy

Surrey Waste Local Plan

Types of Waste Management Facilities: An Explanation Note

October 2017

SURREY

If you have any questions about the consultation or you are having difficulty in accessing the documents please contact Surrey County Council:

☎ **Phone: 03456 009 009**

✉ **Email: wasteplan@surreycc.gov.uk**

**Letter: Planning and Development Service,
Room 385 County Hall, Penrhyn Road,
Kingston upon Thames, KT1 2DW**

Table of Contents

Executive Summary

- The National Planning Policy for Waste (NPPW) states “Waste planning authorities should identify, in their Local Plans, sites and/or areas for new or enhanced waste management facilities in appropriate locations”.
- The purpose of this report is to provide a clear, non-technical summary of waste management facilities and the need for suitable land to accommodate waste related development.
- Appendix 1 gives more technical detail on the types of waste management facilities and the likely impacts from these types of waste management facilities.

Introduction

Policy Context

EU Waste Framework Directive (2008/98/EC)

The Waste Framework Directive (WFD) requires the council to apply the waste hierarchy when planning for, and considering options for waste management. The WFD also advises that the council must have regard to principles of 'self-sufficiency' and proximity. This places responsibility on communities to manage their waste including making provisions for sufficient capacity and ensuring facilities are suitably located.

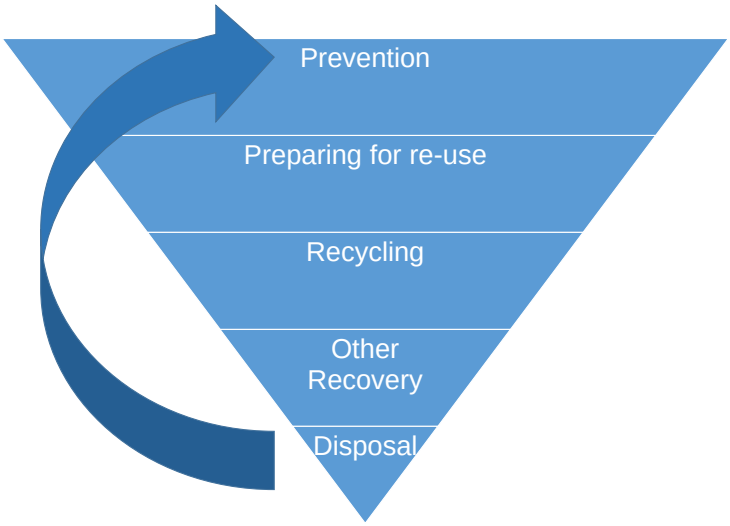

Figure 1 Image of the Waste Hierarchy

National Planning Policy Framework (NPPF) 2012

The NPPF includes a presumption in favour of sustainable development, with local planning authorities to 'positively seek opportunities to meet the development needs in their area'. The NPPF encourages local plans to be kept up to date, which is why we are updating the waste local plan.

National Planning Policy for Waste (NPPW) 2014

The NPPW sets out the Government's ambition to work towards a more sustainable approach to resource use and management. The NPPW provides specific guidance on plan making for an evidence base, identifying specific waste management needs and identifying suitable sites.

The NPPW advises Waste Planning Authorities (WPAs) to identify the broad types or types of management facilities that would be appropriately located on the allocated site. It advises WPAs to not be overly specific with types of technology when identifying these facilities as new technology may come forward in the future.

Role of the Waste Planning Authority (WPA)

As the Waste Planning Authority (WPA) for Surrey, Surrey County Council is required to produce a 'Waste Local Plan'. The new Surrey Waste Local Plan (SWLP) will update the Surrey Waste Plan and cover the period from 2018 to 2033. The SWLP will help to ensure that there are enough waste management facilities in Surrey and that waste is managed in a way which is best for the environment, for communities and for the economy, in other words in the most 'sustainable' way, over the period of the plan.

Role of the Waste Disposal Authority (WDA)

The WDA is in charge of collection and disposal of Surrey's municipal and kerbside waste as well as recycling from CRCs. Surrey has 15 community recycling centres (CRCs) where household waste can be taken. Recycling centres used to be known as rubbish tips or dumps. The WDA manages the CRCs which are a valuable service for Surrey residents.

Surrey's need for new waste management facilities

Overview

In preparing the draft of this new Waste Local Plan, a 'capacity gap' between the quantity of waste that will need to be managed in different ways and ability of existing facilities to do this has been identified. It is estimated that over the period of the plan the following new facilities will be needed:

- Energy Recovery: 3 to 6 sites
- Composting: 2 sites
- Other waste recovery: 1 to 3 sites

The actual number of facilities will depend on the scale of those new waste management facilities which come forward through planning applications. One larger site may provide more capacity than two smaller ones.

There is also need for construction, demolition and excavation (CD&E) recycling facilities. In order to meet the gap for CD&E waste management policy that encourages CD&E recycling on new minerals sites will be included.

No new landfill sites are proposed but depending on how much extra waste and recycling capacity is developed there may be a need for some landfill capacity at the end of the plan period.

How we might meet this need

Site Allocations: Identifying specific sites or 'allocating' sites is one way to meet future waste management needs.

Other Suitable Sites or Areas: Sites or areas which have not been specifically identified including previously developed land that have unexpectedly become available[1].

Facility Extensions: Some authorised waste management facilities may have the potential to increase capacity by extending or refurbishing current facilities.

[1] Department for Communities and Local Government (2012), National Planning Policy Framework

Types of Waste Management facilities

Overview of different waste management facilities

A number of different types of waste facilities are required to manage varying types of waste. These facilities have different scales, visual impacts, noise levels, treatment processes and location requirements. The different types of recycling facilities are described in Table 1.

Table 1 Summary of types of waste management facilities based on examples in Surrey and the wider South East of England

<table>
<tr><th colspan="3">Construction, Demolition and Excavation (C, D & E) Waste Recycling Facilities</th></tr>
<tr><td colspan="3">Hithermoor Quarry Aggregate Recycling Facility, Leylands Lane, Stanwell Moor</td></tr>
<tr><td>Site Description</td><td>Located on a small area within the mineral workings. Bordered by the M25 and Stanwell Moor.</td><td rowspan="3"> 
(Image of Hithermoor Quarry Aggregate Recycling Facility)</td></tr>
<tr><td>Site Details</td><td>• Capacity approximately 250,000 tpa
• Temporary permission until 2022</td></tr>
<tr><td>Why it’s a good example</td><td>The majority of C, D & E recycling facilities are temporary permissions on sites of minerals workings.</td></tr>
<tr><td colspan="3">Little Orchard Farm, Reigate Road, Hookwood</td></tr>
<tr><td>Site Description</td><td>Located in a rural area away from sensitive receptors.</td><td rowspan="3"> 
(Image of Little Orchard Farm)</td></tr>
<tr><td>Site Details</td><td>• Capacity approximately 125,000 tpa
• Permanent permission</td></tr>
<tr><td>Why it’s a good example</td><td>While temporary permission are important it is necessary for Surrey to have permanent sites C, D & E recycling as well.</td></tr>
</table>

<table>
<tr><td colspan="3">Other Recycling Facilities</td></tr>
<tr><td colspan="3">Witley Community Recycling Centre, Petworth Road, Witley</td></tr>
<tr><td>Site Description</td><td>Located on the edge of Witley and mostly sounded by open green space. Image of Witley CRC</td><td rowspan="3"> 

(Image of Witley CRC)</td></tr>
<tr><td>Site Details</td><td>Allocated in 2008 Surrey Waste Plan
Redeveloped in 2008
Capacity of around 15,000 Tonnes Per Annum</td></tr>
<tr><td>Why it’s a good example</td><td>Community Recycling Centres (CRCs) provide residents with the opportunity to recycle household material. Witley shows how modern design can mitigate negative impacts.</td></tr>
<tr><td colspan="3">Oakleaf Farm Material Recovery Facility, Horton Road, Stanwell Moor</td></tr>
<tr><td>Site Description</td><td>Located on a former minerals working and adjacent to Heathrow Airport.</td><td rowspan="3"> 
(Image of Oakleaf Farm Material Recovery Facility)</td></tr>
<tr><td>Site Details</td><td>Allocated in 2008 Surrey Waste Plan
Capacity of 150,000 tpa
Advanced technology used</td></tr>
<tr><td>Why it’s a good example</td><td>This facility adds important recycling capacity for commercial waste. The technology used means that the process if very efficient.</td></tr>
</table>

<table>
<tr><td colspan="3">Ash Vale Waste Transfer Station (WTS), Station Road, Ash Vale</td></tr>
<tr><td>Site Description</td><td>Located on industrial land and surrounded by industrial uses.</td><td rowspan="3"> 
(Image of Ash Vale Waste Transfer Station)</td></tr>
<tr><td>Site Details</td><td>• Capacity of 75,000 tpa</td></tr>
<tr><td>Why it’s a good example</td><td>WTS are part of the network which enable materials to be sorted and organised before being sent on for final processing.</td></tr>
<tr><td colspan="3">Energy from Waste</td></tr>
<tr><td colspan="3">Charlton Lane Ecopark, Shepperton</td></tr>
<tr><td>Site Description</td><td>A new site located on undeveloped land.</td><td rowspan="3"> 
(Image of Charlton Lane Ecopark, Picture courtesy of SUEZ)</td></tr>
<tr><td>Site Details</td><td>• Allocated in 2008 Surrey Waste Plan
• Capacity of 55,000 tpa
• Potential to generate 3.5 MW the equivalent of 8,000 homes</td></tr>
<tr><td>Why it’s a good example</td><td>We have a gap for managing residual waste. One way we can manage this type of waste is through energy recovery.</td></tr>
</table>

<table>
<tr><td colspan="3">Lakeside Energy from Waste Facility, Slough</td></tr>
<tr><td>Site Description</td><td>Located on industrial land and is surrounded by industrial uses.</td><td rowspan="3"> 
(Image of Lakeside Energy from Waste Facility, Picture courtesy of LakesideEfW)</td></tr>
<tr><td>Site Details</td><td>• Capacity of 450,000 tpa
• Can generate 37MW the equivalent of 56,000 homes
• Received 23,957 of waste from Surrey in 2016</td></tr>
<tr><td>Why it’s a good example</td><td>We have a gap for managing residual waste. One way we can manage this type of waste is through energy recovery.</td></tr>
<tr><td colspan="3">Metal Recycling</td></tr>
<tr><td colspan="3">14 Westfield Road, Slyfield Industrial Estate</td></tr>
<tr><td>Site Description</td><td>Located on industrial land surrounded by industrial uses.</td><td rowspan="3"> 

(Image of 14 Westfield Road)</td></tr>
<tr><td>Site Details</td><td>• Capacity of 12,000 tpa</td></tr>
<tr><td>Why it’s a good example</td><td>High capacity for a metal recycling facility with limited environmental impacts due to its industrial location.</td></tr>
</table>

<table>
<tr><td colspan="3">Chobham Car Spares, Clearmount, Chobham</td></tr>
<tr><td>Site Description</td><td>Located on land used as a scrap yard.</td><td rowspan="3"> 
(Image of Chobham Car Spares)</td></tr>
<tr><td>Site Details</td><td>• Capacity of around 350 tpa</td></tr>
<tr><td>Why it’s a good example</td><td>Sites like this are important to deal with ELVs and are slowly on the decline.</td></tr>
<tr><td colspan="3">Composting</td></tr>
<tr><td colspan="3">Mid Surrey Farm, 133 Reigate Road, Ewell</td></tr>
<tr><td>Site Description</td><td>Located on agricultural land.</td><td rowspan="3"> 
(Image of Mid Surrey Farm)</td></tr>
<tr><td>Site Details</td><td>• Capacity of 12,000 tpa</td></tr>
<tr><td>Why it’s a good example</td><td>A capacity gap for composting facilities has been identified. Sites similar to this will be important to meet future demand.</td></tr>
<tr><td colspan="3">Ardley IVC Composting</td></tr>
<tr><td>Site Description</td><td>Located within an industrial unit on agricultural land.</td><td rowspan="3"> 
(Image of Ardley IVC Facility, Picture courtesy of Agrivert)</td></tr>
<tr><td>Site Details</td><td>• Capacity of 35,000 tpa</td></tr>
<tr><td>Why it’s a good example</td><td>A capacity gap for composting facilities has been identified. Sites similar to this will be important to meet future demand.</td></tr>
</table>

<table>
<tr><td colspan="3">Other Recovery</td></tr>
<tr><td colspan="3">Trumps Farm Anaerobic Digestion Facility, Kitsmead Lane, Chertsey</td></tr>
<tr><td>Site Description</td><td>Located on a former landfill site surrounded by agricultural and other waste uses.</td><td rowspan="3"> 
(Image of Trumps Farm Anaerobic Digestion Facility)</td></tr>
<tr><td>Site Details</td><td>• Capacity of around 50,000 tpa
• Generates around 2.4 MW the equivalent of 4,500 homes
• Produces significant amount of bio-fertiliser</td></tr>
<tr><td>Why it’s a good example</td><td>Deals with a large amount of food waste.</td></tr>
<tr><td colspan="3">Camberley Treatment Works, 30 Doman Road, Camberley</td></tr>
<tr><td>Site Description</td><td>Located on industrial land surrounded by industrial uses and a sewage treatment works.</td><td rowspan="3"> 
(Image of Camberley Treatment Works, Picture courtesy of waterprojectsonline)</td></tr>
<tr><td>Site Details</td><td>• Capacity of around 70,000 tpa
• Generates 0.9 MW equivalent of 1,000 homes</td></tr>
<tr><td>Why it’s a good example</td><td>The only anaerobic digestion facility treating sewage sludge in Surrey.</td></tr>
</table>

More technical information on specific technologies for waste management facilities is available in Appendix 1.

Appendix 1

Description of Waste Management Facilities

CD&E Recycling

Process Description	
Materials Processed	Construction and Demolition waste (CD&E). CD&E waste mostly comes in the form of bricks, concrete and soils.
Description of process	A number of processes can be used in the aggregates recycling process. Processes vary depending on the nature of material, desired recycled product and quality of recycled product. **Screening** – materials are separated into different sizes/grades and unwanted/contaminated materials (metals, plastics, paper) can be removed. **Crushing** – associated with hard inert materials. Once crushed material is then screened to produce secondary aggregates. **Washing** – used to remove fine cohesive materials. Material produced can be used for asphalt and concrete production.
Siting Criteria & Characteristics	
Site Size	The working area of a CD&E recycling site is generally around 1.0-1.5 hectares. This would include all site machinery, ancillary buildings and stock piles of aggregates. At former mineral workings CD&E recycling sites may be part of a much larger site area.

Land Use	In Surrey a large amount of CD&E recycling facilities are located on former minerals sites. Other acceptable land uses include industrial areas, degraded lane and rail depots.
Proximity to sensitive receptors	Facilities should be located at least 250m away from sensitive receptors. Facilities are not generally located this close due to noise issues.
Site Activity	• Sites generally have a throughput of between 50,000-150,000 tpa • HGV movements are relatively high • Permitted hours for site operations are usually 0800-1730 Monday to Friday
Benefits	
	• Reducing demand for primary aggregates and the environmental benefits this brings (less need for new quarries) • Reducing the amount of waste that is unnecessarily sent to landfill • Aid mineral site restoration • Provide a local source of aggregates
Environmental Issues & Mitigation	
Noise	Sites have the potential to cause disturbance. Issues can be mitigated by locating facilities away from communities, using smart site layouts and new quieter machinery.
Traffic Impact	Impacts can be mitigated by placing limits on vehicle movements and locating facilities close main roads. One alternative is rail aggregate depots that recycle C, D & E waste.
Other Issues	Dust has the potential to be an issue but can be easily mitigated.

Community Recycling Centre (CRCs)

Process Description	
Material Processed	Household waste including garden waste, oversized items, timber and electrical appliances.
Description of Process	Community Recycling Centres (CRCs) can be single or double levelled with either ramps up to skips or skips below a raised level. Waste is removed by HGVs to be processed elsewhere, with separate access and areas for the public and waste collection vehicles being preferable. CRCs are usually outdoors but some modern facilities are indoors.
Siting Criteria and Characteristics	
Site Size	0.5-1.0 hectare (can be larger with ancillary facilities like waste transfer stations and material recovery facilities).
Land Use	Suited to industrial land use but areas that are convenient for residents to travel to.
Proximity to Sensitive Receptors	Facilities should be located at least 250m away from sensitive receptors.
Site Activity	• Throughput of 5,000-20,000 tpa (not including transfer or recovery) • At smaller facilities around 150 car movements with 4-6 HGV movements (busier at weekends) • Operational 0800-1730 – All year round (except certain bank holidays)
Benefits	
	• Allows a range of materials to be recovered • Reduces the amount of waste going to landfill • Minimal sorting required due to segregation at site • Provides facility for residents to recycle rather than dispose

Environmental Issues and Mitigation	
Traffic Impact	Sites attract a large number of cars especially on weekends and bank holidays which have the potential to cause congestion. Sites must be able to accommodate these cars via queuing lanes or maximising parking spaces to avoid queues on public roads. HGV movements do not have a significant impact.
Noise	Vehicle movements and the depositing of waste into skips can have a noise impact. These can be mitigated by the careful location of sites, noise screening and locating noisy activities away from sensitive receptors where possible.
Other Issues	Litter is a potential impact but can be mitigated through the covering of skips and not letting them overfill.

Waste Transfer Station (WTS)

Process Description	
Materials Processed	All types of material.
Description of process	A Waste Transfer Station (WTS) receives waste from producers including industry, commerce and the general public and is then taken for treatment or disposal. The aim of a WTS is to reduce the cost and environmental impact of transport. This is normally achieved by transferring waste from a large number of smaller vehicles to a small number of larger vehicles. A WTS for Local Authority Collected Waste (LACW) would normally consist of waste being delivered onto the floor of a building or into bays, inert waste may be dealt with outside. Waste will usually only stay at a WTS for a couple of hours. WTS are often co-located with CRCs and Material Recovery Facilities (MRFs). Many skip hire facilities come under this category as they receive waste before sorting and sending it for processing in larger quantities.
Siting Criteria and Characteristics	
Site Size	0.5-1.0 hectares.

Land Use	Suited to industrial land uses and land adjacent to existing waste facilities.
Proximity to Sensitive Receptors	Should be at least 250m away from sensitive receptors, however there are examples of sites being located closer than this.
Site Activity	• Throughput can vary significantly from 2,000-100,000 tpa (Currently there are WTS at both ends of the scale in Surrey) • Vehicle movements are dependent on scale but generally large amount of HGV and other vehicle movements. • Operating hours vary
Benefits	
	• Reduces transport impacts of waste management, for example by reducing emissions • Improves viability of strategic waste imports and exports
Environmental Issues and Mitigation	
Traffic Impacts	Larger facilities have significant impacts from HGVs and other vehicle movements. To mitigate these impacts limits on vehicles can be imposed, facilities can be located close to main roads and routing options can be used. Ultimately WTS result in fewer vehicle movements.
Noise	Noise issues mostly come from delivery vehicles and machinery inside WTS. Impacts can be mitigated by using noise bunds and reduced working capacity/hours on weekends.
Visual Intrusion	WTS buildings are tall due to the nature of activates. Visual impacts shouldn't be an issue in industrial locations but in other areas building design and tree planting can help mitigate impacts.
Other Issues	Litter, dust and odour aren't significant issues due to facilities being indoors.
Process Description	
Material Processed	Materials such as paper, card, glass, plastics, aluminium and cans/foil are generally processed.
Description of Process	Material Recovery Facilities (MRFs) are designed to separate co-mingled recyclate into separate waste streams to be sent for

	reprocessing. Materials can be sorted in a number of ways involving hand picking, screening, sieving, magnetic separation and mechanical sorting. MRFs recover valuable materials to be recycled like metals, glass and plastics to be reprocessed with other material sent to Energy for Waste (EfW), Anaerobic Digestion (AD) or landfill facilities.
Siting Criteria and Characteristics	
Site Size	1.0-2.0 hectares.
Land Use	Facilities are suited to industrial land.
Proximity to Sensitive Receptors	Facilities can be located up to 100 meters away from sensitive receptors.
Site Activity	• Through put can range from 20,000-150,000 tpa • Around 50-80 HGV movements per day at larger facilities • Waste reception & processing 0800-1730 Monday to Friday (can include night working)
Benefits	
	• Reduces amount of waste sent to landfill • Materials are easily recycled once in separate streams • Ensures as much as possible is being recycled
Environmental Issues and Mitigation	
Traffic Impacts	Due to amount of waste handled HGV movements are high. To mitigate impacts facilities should be located close to main roads and be provided with specific routing.
Noise	The sorting of waste can generate noise issues, this can be mitigated through the enclosure of facilities along with noise insulation and screening.
Other Issues	MRFs are generally fairly clean sites and do not have dust, odour or other issues.

Materials Recovery Facility (MRFs)

Process Description	
Material Processed	Generally process materials such as paper, card, glass, plastics, aluminium and cans/foil.
Description of Process	Material Recovery Facilities (MRFs) are designed to separate co-mingled recyclate into separate waste streams to be sent for reprocessing. Materials can be sorted in a number of ways involving hand picking, screening, sieving, magnetic separation and mechanical sorting. MRFs recover valuable materials to be recycled like metals, glass and plastics to be reprocessed with other material sent to EfW, AD or landfill.
Siting Criteria and Characteristics	
Site Size	1-2 hectares.
Land Use	Facilities are suited to industrial land.
Proximity to Sensitive Receptors	Facilities can be located up to 100 meters away from sensitive receptors.
Site Activity	• Through put can range from 20,000-150,000 tpa • Around 50-80 HGV movements per day at larger facilities • Waste reception & processing 8000-1730 Monday to Friday (can include night working)
Benefits	
	• Reduces amount of waste sent to landfill • Materials are easily recycled once in separate streams • Ensures as much as possible is being recycled
Environmental Issues and Mitigation	
Traffic Impacts	Due to amount of waste handled HGV movements are high. To mitigate impacts facilities should be located close to main roads and be provided with specific routing.
Noise	The sorting of waste can generate noise issues this can be

	mitigated through the enclosure of facilities along with noise insulation and screening.
Other Issues	MRFs are generally fairly clean sites and do not have dust, odour or other issues.

Energy from Waste (EfW)

Process Description	
Materials Processed	Mixed municipal, commercial, industrial and refuse derived fuel (RDF).
Description of Process	Energy from Waste (EfW) involves the burning of waste to produce energy in the form of electricity. Waste is burnt in the most efficient way possible and modern technology at facilities means that harmful emissions are reduced. Some EfW facilities capture heat as well as generate electricity, these are called combined heat and power facilities (CHP) the heat captured can be used for domestic or industrial heating in areas close to the facility.
	Energy can also be generated from waste by the process of gasification. This process is known as advanced thermal treatment (ATT). Gasification involves heating waste without it combusting to produces gas (syngas) which is used to generate electricity as well as solid and liquid residues. Gasification facilities have similar criteria to EfW facilities just with a different process.
Siting Criteria and Characteristics	
Site Size	Smaller EfW facilities can be 1.0-3.0 hectares in size, larger facilities can be 3.0-5.0 hectares. The site size includes all landscaping, parking and ancillary uses.
Land Use	Facilities are suited to land allocated for business and general industrial land. Industrial land in proximity to waste sources is preferable.
Proximity to Sensitive Receptors	Facilities should be located at least 250m away from sensitive receptors.
Site Activity	• Typically have a throughput of 60,000-250,000 tpa for most EfW facilities. Some new larger facilities have a throughput of

	around 500,000 tpa • Around 150 lorry movements per day delivering and collecting material • Permitted hours for receiving material 0800-1730 Monday to Friday. Waste processing within the facility can take place 24 hours per day.
Benefits	
	• Reduces the amount waste going to landfill • Deals with materials that might not easily be recycled • Emissions and performance can be easily monitored • Resultant bottom ash can be recycled for beneficial use
Environmental Issues and Mitigation	
Air Emissions	The burning of waste does result in the release of emissions these are mostly; acid gases, CO2, heavy metals and particulates. Modern technology in facilities has helped reduce harmful emissions and facilities actively control their air pollution. There is also EU regulation to limit emissions.
Traffic Impact	Due to the large throughput of EfW facilities HGV movements are high. To help mitigate these impacts, limits on HGV movements can be put in place, vehicle routes can be specified and facilities can be located close to major roads.
Noise	Cooling systems within facilities can generate noise. Mitigation in the form of cladding and site layout can help reduce the impacts of noise.
Visual Impact	Due to the scale of EfW sites there can be a visual impact on the landscape. Correct site location and design can reduce this impact, for example screening and partial bunkering of sites.
Other Issues	Dust and odour can be an issue when dealing with municipal waste. The impacts can be mitigated through correct storage and careful running of the site.

Metal Recycling & ELV

Process Description	
Material Processed	End of Life Vehicles (ELVs) and Metals.
Description of Process	Metal waste is sorted and stored ready for reprocessing. ELVs can be stored and then crushed ready for reprocessing.
Siting Criteria and Characteristics	
Site Size	Smaller sites for metals may be under a hectare (scrap yards) larger sites can be 2+ hectares depending on storage space required.
Land Use	Facilities are suited to industrial land use. Traditional scrap yards can accommodate facilities.
Proximity to Sensitive Receptors	Facilities can be located up to 100m away from sensitive receptors.
Site Activity	• Throughput in the region of 2,000-20,000 tpa depending on size and nature of facility • HGV movements are relatively low due to the small scale of sites • Reception and processes of waste generally from 0800-1730 Monday to Friday
Benefits	
	• Reduces the need for metals to be sent to landfill • Provides source of recycled metals reducing demand on new metal extraction • Important for dealing with larger materials like ELVs
Environmental Issues and Mitigation	
Noise	Due to activities generally being outdoors noise can be an issue especially the operation of crushers. Careful location of facilities and conditions on operating hours can help mitigate these issues.
Visual Intrusion	Outdoor nature of sites can lead to a visual impact. Correct locating of facilities, screening and storage of materials indoors can help mitigate these impacts.

Other Issues	Dust and odour aren't a significant issue with metal recycling. Due to relatively low throughputs there aren't significant travel impacts associated with facilities.

Composting

Process Description	
Materials Processed	Organic waste, green waste (grass cuttings, leaves and pruning), cardboard, certain food waste and biodegradable industrial waste. In-vessel composting can process kitchen and catering waste but must comply with regulation.
Description of Process	There are two composting processes Windrow and In-vessel composting. Windrow – Waste is shredded and mixed before being placed in long elongated mounds known as windrows. The windrows are usually 1.5-3.0 metres tall, their oxygen supply and temperature is controlled by frequent turning with moisture controlled by frequent watering. After 10-12 weeks the process is finished and the resultant compost is graded and sold as soil improver. The windrow process can take place indoors and outside. In-vessel – The process is similar to windrow but takes place inside a vessel. Shredded waste is fed into the vessel along a series of trays. Temperature, oxygen and moisture are carefully controlled and after around a week the material is removed and put into windrows for 2-3 more weeks. The resultant compost is again graded and sold as soil improver.
Siting Criteria and Characteristics	
Site Size	Windrow – Around 1.0 hectare. In-vessel – 1.0-1.5 hectares.
Land Use	Windrow – Open windrows can blend in with rural development with their low profile and require an open setting. In door windrows are suited to rural industrial settings. In-vessel – Facilities are suited to industrial areas, these are usually close to the source of waste.
Proximity to Sensitive	Facilities should be located at least 250m away from sensitive

Receptors	receptors.
Site Activity	Windrow – Average throughput of 5,000- 15,000 tpa and require a relatively low number of HGV movements. Waste received 0800-1730 Monday to Friday, composting process is constant. In-vessel – Higher throughput of 20,000 to 50,000 tpa. This requires more HGV movements. Operating hours are similar to windrow.
Benefits	
	• Reduces the amount of waste going to landfill • Produces products that can be used as compost/soil conditioner to be used in numerous sectors • Reduces the need for fertiliser production and reduces water use in agriculture
Environmental Issues and Mitigation	
Air Emissions	Bioaerosols can be carried in the air as spores or as microbes on fine dust particles. This is mitigated by indoor windrow and in-vessel facilities through monitoring and air treatment. The Environment Agency found that bioaerosol levels were no higher 250m away from open windrow facilities than in other areas.
Odour	Odour cannot be completely avoided when composting, odour from waste delivered, in the treating process and by products can all be an issue. Indoor facilities can mitigate impacts easily due to the containment of waste indoors, outdoor facilities can mitigate impacts with a large buffer zone, soil bunds and planting vegetation.
Traffic Impact	Traffic impacts depend on the throughput of a facility. Issues can be mitigated by locating facilities close to main roads and routing waste deliveries away from sensitive areas.
Other Issues	Dust from waste can be an issue. Visual impacts may be associated with facilities, this can be mitigated by locating facilities in industrial areas.

Other Recovery (including Anaerobic Digestion)

Process Description	
Materials Processed	Organic waste (industrial food waste, household food waste). Sewage sludge treated at sludge treatment facilities.
Description of Process	Anaerobic Digestion (AD) is the biological treatment of organic waste in the absence of oxygen. The process takes place in a digester which is a large, warm, sealed, airless container. AD most commonly produces Biogas, it also produces Fibre and Liquor that can be used as fertilisers. AD is one of a number of processes that takes place when treating sewage sludge.
Siting Criteria and Characteristics	
Site Size	1.0-1.5 hectares.
Land Use	Small scale AD facilities can blend in with rural development due to their low profile. Larger facilities are suited to more intensive industrial areas, facilities can also be extensions to existing waste facilities.
Proximity to Sensitive Receptors	Facilities should be located at least 250m away from sensitive receptors.
Site Activity	• Average throughput of 20,000-50,000 tpa but can be much lower at smaller facilities • Sludge treatment facilities can vary. The sludge treatment facility currently operating in Surrey can handle up to 60,000 tpa • Relatively high number of HGV movements, depends on throughput of site • Waste reception 0800-1730 Monday to Friday

Benefits	
	• Production of Biogas can be used in the form of heat or electricity and fed to the national grid or used as vehicle fuel • Avoidance of biodegradable waste going to landfill • Outputs can be used as fertiliser • Significantly better than other ways of managing food waste
Environmental Issues and Mitigation	
Traffic Impact	Impacts depend on the scale of a facility. Small scale AD plants are unlikely to have a significant transport impact. Larger facilities can mitigate impacts through limiting HGV movements and routing deliveries away from sensitive areas.
Noise	AD facilities aren't inherently noisy. Noise from deliveries and vibrations must however be mitigated by fitting silencers to machinery and the use of noise bunds.
Visual Impact	Larger facilities have the potential to create visual intrusion. This can be mitigated by locating facilities within industrial areas and using screening.
Other Issues	Dust, odour and air emissions can be mitigated by the enclosed nature of operations.