

16. WASTE DISPOSAL

16.1 Introduction

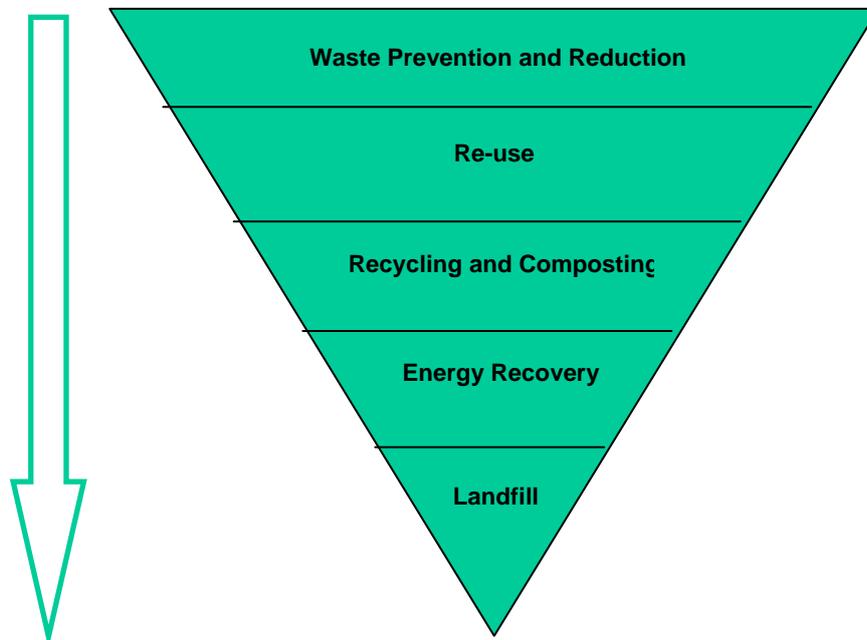
16.1.1 This Chapter assesses the potential waste management effects associated with the proposed development. The potential effects that may arise from the management of solid waste generated during the construction and operational phases are assessed with the overall aim of encouraging sustainable waste management and construction methods that demonstrate good practice and achieve legislative compliance.

16.1.2 For the purpose of this assessment, “Waste” is defined as “*any substance or object which the owner discards or intends or is required to discard*”, as specified in Section 75(2) of the Environmental Protection Act, 1990 (Ref. 16.1).

16.1.3 In the context of the proposed development, waste materials comprise:

- Construction waste arising from the site clearance and construction activities;
- Municipal Solid Waste (MSW)¹ produced by the future residents of the proposed development;
- Commercial waste produced by people using the community, medical and A1-A5 facilities to be provided;
- Commercial waste from the occupation of the employment space; and
- Green waste from maintenance of the soft landscaped areas.

16.1.4 The principles of the Waste Hierarchy as set out in National Waste Policy have been considered in identification of the sustainable waste management practices to be adopted as part of the proposed development. The Waste Hierarchy provides a theoretical framework which acts as a guide to the waste management options that should be considered when determining the Best Practicable Environmental Option (BPEO). Each tier is ranked according to its degree of sustainability, and this provides a framework for decision-making. The Waste Hierarchy is summarised below.



¹ MSW is waste collected by a Local Authority and includes household waste, street sweepings, waste from Reuse and Recycling Centres, and Local Authority collected commercial and industrial waste.

16.2 Site Description

16.2.1 The application site is approximately 93.1 hectares in size and is located 1km north of Winchester's main line railway station and 2km from the city centre.

16.2.2 The application site currently comprises agricultural land and is bordered by Andover Road to the west, Well House Lane to the north, the Southampton to London railway line to the east, and residential dwellings to the south.

16.3 Assessment Methodology

Consultation

16.3.1 Consultation was undertaken with the Waste Management Team Leader at Winchester City Council (WCC) regarding the required provision of waste and recycling facilities within new residential developments.

Scope of the Assessment

16.3.2 The approach for the Waste Chapter was agreed in the Scoping Report and Scoping Opinion from WCC (Appendix 2.1). The following aspects of the proposed development have the potential to generate waste and increase the demand on waste facilities in Winchester and Hampshire:

- Construction waste arising from the demolition works, site clearance and construction activities;
- MSW produced by the future residents of the proposed development;
- Commercial waste produced by people using the employment and community facilities to be provided; and
- Green waste from maintenance of the soft landscaped areas.

Method of Baseline Data Collation

16.3.3 In order to determine the baseline scenario with regards to current waste arisings in Winchester and the wider area, waste collection schemes, waste management facilities and disposal arrangements, a desk-top study has been undertaken using the following sources of information:

- The Waste Strategy for England (2007) (Ref. 16.2);
- The South East Plan (2009) (Ref.16.3);
- Waste Management Capacity in the South East Region (2004) (Ref. 16.4);
- Survey of Arisings and Use of Alternatives of Primary Aggregates in England, 2005: Construction, Demolition and Excavation Waste (2005) (Ref. 16.5);
- www.audit-commission.gov.uk (Ref. 16.6);
- www.defra.gov.uk (Ref. 16.7); and
- Consultation with Winchester City Council.

Assessment Methodology

Construction Waste

16.3.4 The assessment of waste arisings during the demolition and construction works is based on available data for demolition and construction wastes, and considers the following:

- Generation of material during site clearance activities which require disposal, including potentially contaminated materials;
- Creation of waste materials during construction activities which may require off-site disposal. Some of the waste streams likely to be generated during the construction phase include concrete rubble, wood, glass, metals, waste packaging (including cardboard and pallets) and residual general site waste;
- Decrease in local landfill capacity if demolition and construction materials are not segregated for reuse or recycling; and

- Increase in the use of virgin aggregate materials if no recycled or reclaimed materials are used in the construction process. Where the reuse of material on-site is not practicable, as a sustainable alternative, preference should be given to the use of secondary aggregates.

16.3.5 The approach undertaken to inform the assessment of construction phase effects has involved the identification and use of suitable benchmark data for the prediction of waste arisings during the demolition and construction activities. Opportunities for minimisation, re-use and recycling have been identified based on best practice construction site management.

16.3.6 The proposed development would require the break up of hardstanding followed by the construction of the proposed buildings. Much of the waste produced would be generated during these stages.

16.3.7 Construction waste is defined by the Office for the Deputy Prime Minister (ODPM) in the Survey of Arisings and Use of Demolition and Construction Waste as “waste materials, which arise from the construction or demolition of buildings and/or civil engineering infrastructure, including hard construction and demolition waste and excavation waste, whether segregated or mixed”. Construction waste can be broken down further into the following categories:

- Excavation waste – naturally occurring soil, stone, rock and similar materials (whether clean or contaminated) which have been excavated as a result of site preparation activities;
- Demolition waste - timber, mixed unprocessed brick, concrete, tiles, sheeting including asbestos containing materials from barns and sheds etc.; and
- Mixed hard construction (new build) waste – a combination of packaging, pipes, cables, timber and mixed unprocessed/uncrushed materials (particularly concrete, masonry, bricks, tiles, etc.).

16.3.8 There is no standard methodology for estimating construction waste arisings; however one has been developed for use in this assessment using published data. Estimates have been made of likely construction waste volumes and the likely proportions of constituent materials as identified below. Consideration should be given to the fact that different construction contractors use varying construction methods and materials which will generate differing amounts of waste.

16.3.9 For the purpose of this assessment, the current Building Research Establishment’s (BRE) SMARTWaste benchmarking data has been used to identify the likely waste arisings based on the type of buildings (by use) and areas or cost of construction. The most recently issue of the construction (new build) data from the BRE is June 2009 (Ref. 16.8), and Table 16.1 sets out the relevant data to the Proposed Development.

Table 16.1: BRE Waste Benchmarking for New Build Construction

Project Type	Average Waste Arisings (m³/100m²)	Average Waste Arisings (m³/£100k)
Residential	20.3	18.8
Commercial Offices	23.0	19.3
Commercial Retail	20.1	18.4
Community facilities	23.2	9.2
Leisure facilities	27.0	25.8
Healthcare	13.0	8.8

Source: BRE (July 2009)

Composition of Construction Waste

16.3.10 Several data sources are available regarding the likely composition of construction waste but such studies have generally been limited in scope and data reliability.

16.3.11 The BRE have undertaken a study and produced the report Developing a Strategic Approach to Construction Waste (2006) (Ref. 16.9) which sets out benchmarking data for the composition of construction waste based on the data collated from 23 housing projects. This data is presented in Table 16.2 below.

Table 16.2: Typical Composition of Construction Waste Streams

Waste Group	Average % by Mass
Concrete	54
Masonry	32
Metal	3
Timber	4
Other	7

Source: BRE, Developing a Strategic Approach to Construction Waste (2006)

16.3.12 The above data provide an indication of the composition of construction waste likely to be generated at the site.

Operational Waste

16.3.13 The following approach has been undertaken to inform the assessment of waste effects during the operational phase:

- Consultation with WCC to discuss the waste management requirements for the proposed development; and
- Predictions of waste arisings from the proposed development based on current household waste arisings (see below).

Municipal Waste

16.3.14 Predictions of the amount of household waste that may be produced when the proposed development is fully occupied have been made based on the DEFRA figure for household waste arisings in Winchester in 2007/8 (estimated at 374kg/person/year).

Commercial Waste

16.3.15 The sources of commercial waste from the proposed development comprise:

- Offices;
- Retail/Professional Services/Food and Drink/Public House;
- Community facilities (including a primary school, nursery and community hall);
- Leisure facilities (gym); and
- Doctors Surgery.

16.3.16 Calculations for the estimated arisings of commercial waste have been made using information outlined in BS5906:2005 Waste management in buildings - Code of Practice (Ref 16.10), based on employment figures. Table 16.3 shows the data used in this calculation.

Table 16.3: Annual Commercial Waste Arisings

Building Use	Mass Per Employee (Tonnes)
Retail (excluding motor vehicles)	2.54
Other Business Activities	0.96
Public Administration	0.50

Source: BS 5906:2005

16.3.17 For the purposes of calculating waste arisings from retail space (including A1, A2, A3, A4 and A5), the “Retail (excluding motor vehicles)” value of 2.54 tonnes per annum per employee is used. For Community Centres, as well as for other uses such as education, nursery, health and leisure facilities, BS5906:2005 does not provide indicative values for commercial waste arisings. These buildings are likely to generate considerably lower volumes of waste than retail buildings, so a “worst case” value for “Other Business Activities” of 0.96 tonnes per annum per employee has been assumed.

Significance Criteria

16.3.18 No standard criteria exist for assessing the significance of the potential effects that may arise from waste generated from the proposed development. Therefore, criteria have been derived for this assessment based on the guidelines in PPS10 and Local Planning Policy relating to waste management.

16.3.19 The assessment criteria are based on several factors, including:

- The “treatability” of the waste generated by the proposed development, which is determined by its physical and chemical characteristics, (ie whether the waste can be easily treated with minimal residual waste, such as recycled waste, or whether the waste requires a specialised treatment with potentially toxic residual waste);
- Compatibility of the waste arisings within the context of the waste hierarchy, ie whether generation of the waste can be minimised, the waste can be recycled, landfilled etc; and
- Potential impact on existing waste arisings in the area and the capacity of waste recycling, treatment and disposal facilities, etc.

16.3.20 The significance of effects associated with solid waste management from the proposed development has been assessed according to the following scale:

- Major (Negative) – large increase in the quantity of waste generated compared to existing levels, the quantity of waste generated does not assist in the achievement of local and regional recycling and composting targets and significantly increases annual waste generation figures for Winchester, waste is hazardous and requires incineration or landfilling resulting in permanent environmental effects, waste cannot be disposed of within Hampshire;
- Moderate (Negative) – moderate increase in the quantity of waste generated compared to existing levels, quantity of waste generated does not prevent achievement of local and regional recycling and composting targets, waste is hazardous but can be recovered with pre-treatment resulting in temporary environmental effects, waste can be disposed of within Hampshire;
- Minor (Negative) – small increase in the quantity of waste generated, waste is non-hazardous or inert and can be recycled or composted either within Hampshire or Winchester;
- Negligible – no significant change in the quantity of waste generated;
- Minor (Positive) - small decrease in the quantity of waste generated, waste is non-hazardous or inert and can be recycled or composted either within Hampshire or Winchester;
- Moderate (Positive) – moderate decrease in the quantity of waste generated compared to existing levels, the decrease in the quantity of waste contributes to the achievement of local and regional recycling and composting targets and waste can be disposed of within Hampshire; and
- Major (Positive) – large decrease in the quantity of waste generated compared to existing levels, significant decrease in annual waste generation figures for Winchester and reduction in the need for incineration or landfilling which reduces permanent environmental effects, and the waste can be disposed of within Hampshire.

16.4 Planning Policy

Legislative Framework

16.4.1 Waste policy at the national level has been devised to enable fulfilment of the requirements of existing and forthcoming European and national legislation, including:

- Landfill Directive, 99/31/EEC (Ref. 16.11);
- Packaging Waste Directive, 94/62/EC (Ref. 16.12);
- Hazardous Waste Directive, 91/689/EEC (Ref. 16.13);
- Waste and Emissions Trading (WET) Act 2003 (Ref. 16.14);
- Waste Electrical and Electronic Equipment Directive, 2002/96/EC (Ref. 16.15); and
- Clean Neighbourhoods and Environment Act 2005 (Ref. 16.16).

Planning Policy

National Planning Policy

The Waste Strategy 2007

16.4.2 The Waste Strategy (Ref. 16.2) sets targets to increase national household waste recycling and composting rates to 40% in 2010; 45% in 2015 and 50% in 2020.

16.4.3 Based on the 1995 rates, the following targets have been set for reducing the amount of biodegradable municipal waste going to landfill: 75% by 2010; 50% by 2013; and 35% by 2020.

Waste Not, Want Not, 2002

16.4.4 Waste Not, Want Not (2002) (Ref. 16.17) details the overall national waste policy aim which is to: “ensure that by 2020 England has a waste management system that allows continued economic growth whilst reducing harm to the environment and preserving resources for future generations”.

16.4.5 The key components of Government waste policy comprise the following, in order of priority:

- Reduction in waste generation;
- Implementation of the waste hierarchy – waste prevention being the principal objective;
- Maximising the recovery of energy from waste through recycling and composting; and
- Discouraging the landfilling of waste through recycling or waste treatment technology, appropriate legislation and fiscal instruments (such as landfill tax).

Planning Policy Statement (PPS) 10: Planning for Sustainable Waste Management, 2005

16.4.6 A key objective of PPS10 (Ref. 16.18) is to progress waste management “up the waste hierarchy” in order to reduce the effects of waste arisings. Under PPS10, Regional Planning Bodies and Local Authorities are required to plan for the management of waste generated by their communities and to comply with the proximity principle, which requires waste to be managed and disposed of as near as possible to its place of production.

16.4.7 In relation to new development, one of the key objectives of PPS10 is to “ensure the design and layout of new development supports sustainable waste management”. Furthermore, PPS10 states that proposed new development should include preparation of a Site Waste Management Plan, with reference to guidance produced by the Department of Trade and Industry (DTI).

Regional Planning Policy

The South East Plan, 2009

16.4.8 The South East Plan sets out the spatial strategy for the region. Policy CC4 “Sustainable Design and Construction” states that all new development will need to incorporate sustainable construction standards which reduce waste arisings and increases recycling rates from the construction and demolition wastes.

16.4.9 The following relevant policies are included within the South East Plan with the aim to reduce waste arisings and promote sustainable development:

- W1 “Waste Reduction” - reduce growth of all waste to 1% per annum by 2010, and 0.5% per annum by 2020;
- W2 “Sustainable Design, Construction and Demolition” - aims to reduce waste production during construction and through sustainable design;
- W5 “Targets for Diversion from Landfill” – sets targets for diversion of waste from landfill; and
- W6 “Recycling and Composting Targets” – sets targets for composting and recycling.

Hampshire, Portsmouth, Southampton and New Forest National Park Minerals and Waste Core Strategy, 2007

16.4.10 This document (Ref. 16.19) identifies the waste infrastructure required in the areas covered by the Strategy, up to 2025, based on predicted municipal and commercial waste arisings.

16.4.11 The Strategy sets a number of targets to maximise reuse, recycling and recovery, including the following:

- Reduction in year on year waste growth to 1% by 2010 and 0.5% by 2020; and
- Overall recycling rate of 60% by 2020.

Local Planning Policy

Winchester District Adopted Local Plan, 2006

16.4.12 Policy DP3 of the Winchester District Adopted Local Plan (Ref. 16.20) on general design criteria states that planning will be granted where appropriate provision is made for the storage of refuse and recyclables.

16.4.13 Policy DP6 on the efficient use of resources in new development states that permission will be granted for development where the Local Planning Authority is satisfied that it is appropriate in terms of reduction in the use of energy and natural waste, and refers to the need for “*waste minimisation during construction including the use of renewable and recycled materials, locally sourced where possible*”.

Winchester Core Strategy Preferred Options, May 2009

16.4.14 The Core Strategy Preferred Options document (Ref. 16.22) includes Policy CP13 ‘Sustainable Low and Zero Carbon Built Development’ which sets out the requirements for new developments to achieve specific targets for Code for Sustainable Homes and BREEAM, including measures to reduce operational waste and enable segregation and recycling.

16.5 Baseline Conditions

Current Waste Arisings On-Site

16.5.1 As the existing use of the site comprises agricultural activities, it is anticipated that the current compostable waste arisings are stockpiled and spread onto the farmed land.

16.5.2 It is assumed that there are currently no commercial or municipal waste arisings from activities undertaken at the site.

Current Waste Arisings in Winchester and Hampshire

16.5.3 The Hampshire, Portsmouth, Southampton and New Forest National Park Minerals and Waste Core Strategy (2007) identifies the composition of wastes which were managed at regulated sites in Hampshire in 2002/3 as the following:

- Municipal/household – 19%;
- Commercial/industrial – 31%;
- Construction, demolition and excavation – 46%; and
- Hazardous - 4%.

Municipal Waste

16.5.4 Table 16.4 below outlines the average weight of household waste collected per head per year in Winchester, compared to the UK between 2002 and 2006.

Table 16.4: Amount of Household Waste Collected Per Head (2003/04-2005/06)

Period	Kg of Household Waste per Year	
	Winchester	UK
2005/06	386.9	439
2004/05	400.0	445
2003/04	401.8	439

Source: <http://areaprofiles.audit-commission.gov.uk>

16.5.5 The amount of waste collected per head per year between 2003 and 2006 in Winchester is lower to the levels for the UK as a whole, for all years. The amount of waste per head in Winchester decreased between 2003/04 and 2005/06 by approximately 4% in comparison to overall levels in the UK, which did not decrease in this period, due to the rise that occurred in 2004/05. The above data indicate that household waste arisings in Winchester have continued to fall since 2003.

16.5.6 DEFRA provides statistics on waste arisings for each Local Authority, and provides the following figures for annual household waste arisings per head in 2007/8:

- Winchester – 374kg
- Hampshire – 510kg; and
- UK Average – 433kg.

Commercial and Industrial

16.5.7 The Hampshire, Portsmouth, Southampton and New Forest National Park Minerals and Waste Core Strategy (2007) states that a total of 1.4 million tonnes of commercial and industrial waste was handled in Hampshire in 2002/3.

16.5.8 From the available 2004 data, the Strategy suggests that 36% of commercial and industrial waste was recycled or composted in 2002/3. There is no available data for commercial and industrial waste arisings specifically in Winchester.

16.5.9 The Strategy sets out targets for commercial and industrial waste in line with the South East Plan (2006), which aims to achieve the following annual targets:

- 2010 – 1.83 million tonnes;
- 2015 – 1.9 million tonnes; and

- 2020 – 1.96 million tonnes.

Construction/Demolition Waste

16.5.10 The Hampshire, Portsmouth, Southampton and New Forest National Park Minerals and Waste Core Strategy (2007) states that a total of 2.15 million tonnes of construction, demolition and excavation waste was handled in Hampshire in 2002/3.

Current Waste Disposal Arrangements

Municipal Household Waste

Kerbside Collections

16.5.11 WCC operate a two bin collection service from households in the city, comprising black and green bins. The black bins are for non-recyclable household waste and are collected once a fortnight. All household waste collected from the black bin service is transported to one of the City's Waste Transfer Stations, where it is then packed and bulked, before being transported to landfill.

16.5.12 The green bins are provided to households for dry recyclable waste, including plastic, cardboard, paper, newspaper and magazines, directories, clean foil and food/drink cans. The green bins are emptied once a fortnight. All waste from the green bins is checked and bulked before being transported to a Material Recycling Facility.

16.5.13 In addition, green bags are provided to local residents to dispose of garden waste. The garden waste is collected once a fortnight with the green bins, and is recycled into soil conditioner.

16.5.14 WCC have produced a Supplementary Planning Document (SPD) on the Storage and Collection of Domestic Waste and Recyclables Materials (Ref 16.21) which sets out the following requirements for refuse storage in domestic properties:

- **Detached/semi-detached houses:** each provided with 2 x 240 litre wheeled bins, usually stored to the side or rear of property;
- **Terraced houses:** each provided with 2 x 240 litre wheeled bins. Unless access can conveniently be gained to the rear, where a mixture of collection receptacles, including black and clear sacks and in some cases wheeled bins are stored at the rear of the property; and
- **Flats, maisonettes, houses in multiple occupation and bedsits:** Normally provided with a variety of communal facilities depending on the dwelling size and type but to allow for a minimum of 2 x 240 litres per unit and may have individual wheeled bins for each dwelling.

Recycling and Composting Rates

16.5.15 Table 16.5 below compares recycling rates in Winchester with recycling rates in the UK between 2003 and 2006.

Table 16.5: Percentage of Household Waste being Recycled (2002/03-2005/06)

Period	% of Household Waste	
	Winchester	UK
2005/06	18.8	17.61
2004/05	17.6	15.19
2003/04	17.9	13.17
2002/03	14.0	10.64

Source: <http://areaprofiles.audit-commission.gov.uk>

16.5.16 For all years, the recycling rates in Winchester have been higher than those for the UK as a whole. Since 2002/3, the percentage of household waste being recycled has increased by 34% up to 2005/06.

16.5.17 Table 16.6 below compares composting rates in Winchester with those in the UK between 2002/03 and 2005/06.

Table 16.6: Percentage of Household Waste being Composted (2003/04-2005/06)

Period	% of Household Waste	
	Winchester	UK
2005/06	1.31	9.01
2004/05	0.4	6.45
2003/04	0	3.94

Source: <http://areaprofiles.audit-commission.gov.uk>

16.5.18 The rate of composting of household waste in Winchester has been lower than the national average, between 2003/04 and 2005/06.

16.5.19 The data provided by DEFRA on waste management has identified the following proportions of waste were composted and recycled in Hampshire (no data is available for Winchester):

- Landfill – 12%;
- Incineration with Energy Recovery Facilities (ERF) – 46%;
- Incineration without ERF – 0.0005%;
- Recycled/composted – 41%; and
- Other – 0.003%.

Recycling Banks

16.5.20 In addition to the kerbside recycling scheme via green bins, WCC has several recycling sites (known as “bring sites”) where the public can take recyclable materials, including glass, paper, card, cans and textiles.

16.5.21 The closest “bring site” to the site is located at the March Hare Pub on Priors Dean Road in Harestock, approximately 0.5km from the site boundary, where it is possible to recycle glass.

Household Waste Recycling Centre

16.5.22 In addition to the kerbside recycling collection and “bring sites” there are also recycling facilities at the Household Waste Recycling Centre on Bar End Road, approximately 3km south of the site. This Centre accepts green waste, wood, glass, paper, cardboard, plastics, textiles, metals, cans, car oil, household and car batteries, fridges/freezers and electrical goods.

Energy Recovery Facilities

16.5.23 Due to the shortage of space in landfill in Hampshire, Energy Recovery Facilities (ERFs) are seen as the solution for disposing of residual waste, whilst producing energy for local homes.

16.5.24 ERF facilities are provided at the following three locations in Hampshire, and together they process over 420,000 tonnes of Hampshire’s municipal waste each year, whilst simultaneously generating enough electricity to power 37,000 homes:

- Chineham;
- Marchwood; and
- Portsmouth.

Landfill

16.5.25 Table 16.7 below compares landfill rates in Hampshire (no data is available for Winchester) with those in the UK between 2004 and 2006.

Table 16.7: Percentage of Household Waste being Landfilled (2004-2006)

Period	% of Household Waste	
	Hampshire	UK
2005/06	18.58	62.26
2004/05	16.03	67.19

Source: <http://areaprofiles.audit-commission.gov.uk>

16.5.26 Waste arisings in Winchester that cannot be re-used, recycled or composted are sent to landfill, of which the nearest to the site is Fair Oak Landfill in Eastleigh.

Construction and Demolition Waste

16.5.27 Table 16.8 summarises the methods used for the disposal of construction and demolition waste.

Table 16.8: Disposal of Construction and Demolition Waste 2005

Method of Disposal	South East of England (Million Tonnes)	England (Million Tonnes)
Used as recycled aggregate and soil	6.6 (46.5%)	46.4 (51.9%)
Landfill capping	0.8 (5.6%)	4.2 (4.7%)
Landfill engineering	0.5 (3.5%)	5.4 (6.0%)
Spread on registered exempt sites	2.5 (17.6%)	15.4 (17.2%)
Disposed of to landfill	3.8 (26.8%)	18.1 (20.2%)
Total	14.2	89.5

Source: <http://www.defra.gov.uk/environment/statistics/waste/kf/wrkf09.htm>

16.5.28 In general the methods used to dispose of construction and demolition waste in the South East of England reflect that of the remainder of England. The proportion of construction and demolition waste going to landfill in the South East of England is, however, slightly lower than for England overall. In addition, a smaller proportion of construction and demolition waste is being used for landfill capping and engineering in the South East of England than in England as a whole.

Commercial Waste

16.5.29 Commercial waste arisings in Winchester and Hampshire are collected and managed by a number of private companies.

16.5.30 Based on data for the UK as a whole, it is assumed that the majority of commercial waste arising in Winchester and Hampshire is currently recycled and/or landfilled.

16.6 Identification and Evaluation of Key Impacts (Construction and Operational)

16.6.1 It is anticipated that the following aspects of the proposed development have the potential to generate waste and increase the demand on waste facilities in Winchester and Hampshire:

- Construction waste arising from the demolition works, site clearance and construction activities;

- MSW produced by the future residents of the proposed development;
- Commercial waste produced by people using the employment and community facilities to be provided; and
- Green waste from maintenance of the soft landscaped areas.

Construction

Site Preparation - Excavation Waste Arisings

16.6.2 It is anticipated that significant excavation work will not be required for the residential and non residential units and the proposed development will largely retain the existing site levels. However it is expected that some excavation wastes will be generated as a result of localised cut and fill operations for building foundations and other land uses.

16.6.3 Details of the extent of the excavations required and the volume of waste that this will generate will be determined by the nature of the soils and local ground conditions beneath the location of the infrastructure works. However wherever possible, the material arising from these excavations will be re-used in landscaping works to minimise the volume of waste sent for off site disposal.

16.6.4 It is considered that if not reused on-site or elsewhere, the disposal of excavated waste could result in a **moderate** to **minor negative** effect on the operational capacity of landfill and other waste facilities.

Construction Waste Arisings

16.6.5 An indication of the likely construction waste arisings (by volume) for the residential development, commercial, retail, community and leisure facilities which are proposed on the Site is shown in Table 16.9.

Table 16.9: Estimated Construction Waste Arisings by Volume

Project Type	Floor Space (GEA) (m ²)	BRE Average Waste Arisings (m ³ /100m ²)	Average Waste Arisings (m ³)
Residential (C3) ¹	200,000 ¹	20.3	40,600
Commercial Offices (B1a)	2,000	23.0	460
Commercial Retail (A1, A2, A3, A4, A5) ²	3,500	20.1	704
Community facilities (D1) ²	3,260	23.2	756
Leisure facilities (D2)	550	27.0	149
Healthcare (D1)	660	13.0	86
TOTAL			42,755

¹ Approximate area based on 2,000 units

² Includes food store, food and drink uses, and public house

³ Includes primary school, community hall and nursery.

16.6.6 As outlined in Table 16.9, construction waste arisings from the proposed development are estimated to be 42,755m³. The need to dispose of construction waste arisings off-site is considered to result in a temporary **minor** to **moderate negative** effect, and measures to reduce such arisings are outlined below.

16.6.7 An indication of the likely composition of construction waste arisings for the buildings which are proposed on the application site is shown in Table 16.2.

General Site Waste Arisings

16.6.8 General site waste should be segregated and stored in skips on the application site and emptied periodically when required. This will not only include some mixed construction waste not suitable for re-use on site, but also general waste from the workers using the site compound. This waste may cause potential litter and/or odour concerns if not stored correctly. It is not possible or practical to quantify the expected general site waste arisings; the volumes generated will be dependent on the contractor's operating practices and the size of the workforce on the application site at any one time.

16.6.9 It is anticipated that the waste will be taken off-site for recycling or for disposal. With the implementation of suitable waste management practices at the application site, adverse environmental effects are not expected to arise from the storage, handling and transportation of general site waste.

16.6.10 The need to dispose of this construction waste and general site waste off-site is considered to be a **minor negative** effect.

Operational

Municipal Solid Waste (MSW) Arisings

16.6.11 The volume of residential waste anticipated upon full occupation of the Proposed Development, (expected to be 2023) is based on current waste arisings in the area. Estimates of waste arisings based on two scenarios are presented in Table 16.10 below. The first is based on the 2005/2006 recorded household waste arisings and the second estimate is based on the average municipal waste trends across the UK over the last five years (2001/02 to 2005/06) as compiled by Defra, suggesting a household waste growth rate of approximately 0.5% per annum (Defra Municipal Waste Statistics (2006) (Ref 16.7).

Table 16.10: Projected Annual Household Waste Arisings

	Waste Arisings per Person (kg/yr)	Total Waste Arisings from the Proposed Development (tonnes/yr)
2007/2008 levels of MSW arisings	374	1,690
+ 0.5% Growth per annum (2023)	421	1,822

Note to Table: Projected waste arisings assume an average household size of 2.35 persons, based on 2001 Census Data.

16.6.12 The proposed development will provide a total of 2,000 residential units once the proposed development is complete, which has been estimated at a population of approximately 4,520 (see Chapter 6 'Socio-Economic Assessment'). It has therefore been estimated that the total municipal waste arisings for the opening year (2023) are anticipated to be between approximately 1,690 and 1,822 tonnes per annum.

16.6.13 Based on the current rates of recycling, composting and landfill of municipal solid waste in Hampshire (see Section 16.5), it is estimated that the following proportion of the household waste from the Proposed Development will be recycled, composted and landfilled (see Table 16.11).

Table 16.11: Projected Disposal Methods for Waste Generated from the Proposed Development

Percentage Growth	Mass Landfilled (tonnes/yr)	Mass Incinerated with ERF (tonnes/yr)	Mass Incinerated without ERF (tonnes/yr)	Mass Recycled/ Composted (tonnes/yr)	Other (tonnes/yr)
2007/2008 levels of MSW arisings	202.8	777.4	0.845	692.9	5.07
+ 0.5% Growth per annum (2023)	218.64	838.12	0.911	747.02	5.466

16.6.14 Currently only a minimal amount of household waste is generated at the site, and based on overall demands on the waste collection authority (WCC) and the waste disposal authority (Hampshire County Council), the predicted household waste arisings from the proposed development are considered to represent a **minor to moderate negative** effect due to an increase in the quantity of waste generated, prior to the implementation of mitigation measures.

Commercial Waste Arisings

16.6.15 The estimated volume of operational commercial waste is outlined in Table 16.12 below. The waste calculation factors used in this table have been derived from BS5906:2005, as described earlier in this Chapter.

Table 16.12: Projected Annual Commercial Waste Arisings

Use	Floor Space (GEA) (m ²)	Annual Waste Arisings per Employee (Tonnes)	Estimated Employee Numbers	Annual Waste Arising (tonnes/yr)
Retail (excluding motor vehicles) ¹	3,500	2.54	220	558.8
Other Business Activities ²	5,810	0.96	180	172.8
Total				731.6

1 – Includes all A1, A2, A3, A4 and A5 uses

2 – Includes Offices, primary school, gym, GP's surgery and nursery. Excludes community hall as no employee figures have been predicted for this use.

16.6.16 In comparison to the baseline conditions (0 tonnes/year), the predicted commercial waste arisings are considered to represent a **minor to moderate negative** effect prior to the implementation of mitigation measures.

Green Waste Arisings

16.6.17 Maintenance of the communal landscaped areas of the site, including the public open space, will generate green waste eg grass cuttings and hedge trimmings. The impact of increase in the volume of green waste generated, compared to the current baseline and prior to mitigation, is considered to be **minor negative to negligible**.

16.7 Enhancement and Mitigation Proposals

Construction

16.7.1 The Applicant will seek to re-use any excavated materials, following materials testing, and if appropriate in consultation with the Environment Agency, as part of the overall earthworks (for road

construction) and landscaping of the site, minimising the amount which will require transportation off-site.

16.7.2 In addition, to minimise the volume of waste that is generated, the site contractor will adhere to the Voluntary Code of Practice on Site Waste Management Plans (SWMP). In addition, the SWMP which will be prepared for the proposed development will include measures to minimise waste generation and reduce the amounts of waste being sent to landfill where possible and adopting best practice measures to minimise environmental impacts. These will be implemented through a Construction Environmental Management Plan (CEMP).

16.7.3 The CEMP provides a mechanism for the implementation of recommended mitigation measures at the application site from the start of site clearance and through to the completion of construction. The final CEMP will be agreed with WCC, and other authorities as appropriate, prior to commencement of works at the application site. The site contractor(s) will be required to comply with the requirements of the final CEMP.

16.7.4 The following elements should be included within the SWMP.

General Practices

- An approved person should be nominated to be responsible for good site practice, arrangements for the collection and effective disposal to an appropriate facility (including efficient recording of transfer and consignment notes) of all waste generated at the application site;
- A system for recording and monitoring the amount of waste generated, recycled and disposed of (including the disposal site location) should be established; and
- Training should be implemented for relevant site personnel in proper waste management handling procedures.

Waste Reduction

- Site practices should be adopted to minimise the potential for damage or contamination of construction materials (e.g. designated areas for storage);
- Work activities should be planned effectively in order to minimise over-ordering of construction materials;
- Prefabricated panels should be used in construction, where feasible, in order to reduce waste generation on site and associated transportation effects; and
- Purchasing power should be used to minimise materials packaging and ensure that packaging is recyclable where feasible.

Re-use/Recycling

- Targets should be set for the re-use of excavated materials, either in the new build or for external markets. Where excavation waste cannot be re-used on-site, potential off-site users should be identified and an appropriate plan developed for delivery of materials;
- Waste should be monitored, sorted and stored in as many categories as appropriate to enhance re-use off-site or recycling of materials (avoiding cross contamination) and ensure their proper disposal; and
- Where structural and durability issues are not compromised, materials should be specified from recycled sources.

Waste Disposal

- General site waste should be segregated and stored in enclosed bins or compaction units separate from demolition and construction waste. A reputable waste company should be employed by the contractor to regularly remove general refuse from the application site, separately from the construction wastes to ensure potential odour and litter concerns are avoided; and
- Any demolition materials that are considered hazardous should be removed and managed by appropriately licensed contractors for disposal at suitably licensed waste facilities.

Operation

Municipal Solid Waste (MSW) Arisings

16.7.5 In order to achieve the future national and regional recycling targets (set out previously in this chapter) measures to encourage segregation and recycling of wastes generated during the operation of the proposed development will be provided through the design of properties (e.g. in terms of kitchen storage space) and through the implementation on-site of the kerbside waste collection scheme which is operated by WCC. This will allow material to be diverted from landfill thus helping to meet national, regional and local targets.

16.7.6 To facilitate this, residents will be provided with facilities to assist them to segregate and store recyclables prior to collection. In designing such areas, appropriate guidelines on waste storage will be adhered to. Best practice internal and external design for waste segregation and storage will be considered as part of the Code for Sustainable Homes assessment.

16.7.7 Based on the requirements of WCC's SPD on the Storage and Collection of Domestic Waste and Recyclables Materials, the provision of bin storage within the residential dwellings will be as detailed in Section 16.5. In addition, bins will be conveniently located for use by the occupiers of the new residential properties and will be easily manoeuvrable to the edge of the highway for emptying. Bins storage areas will be located on hard, even surfaced areas with manoeuvring space to allow safe access by the refuse collection vehicles.

Commercial Waste Arisings

16.7.8 The occupiers of the retail, commercial, leisure and community facilities should employ waste segregation techniques so that packaging waste can be recycled as far as possible and remaining waste collected frequently to avoid litter and odour concerns.

16.7.9 The design of the internal and external waste storage areas for the above uses will allow space for segregation of waste streams and take into account best practice guidance. Waste management arrangements will be considered during the detailed design as part of a BREEAM assessment.

Green Waste Arisings

16.7.10 It is anticipated that green waste generated from the Proposed Development will either be composted on-site or taken for composting off-site.

16.8 Summary

16.8.1 Excavation works for the proposed development will result in waste arisings and the need to dispose to landfill. In order to minimise the volume of waste generated, the site contractor will adhere to the waste hierarchy system and best practice, set out in a Site Waste Management Plan (SWMP) which will be implemented during the construction works. The SWMP will form part of the Construction Environmental Management Plan (CEMP).

16.8.2 The residual effect of waste arisings during the excavation and construction works will be of up to minor negative significance.

16.8.3 The waste arisings from the proposed development will comprise a mix of municipal solid waste and commercial waste. Residential properties will be designed to allow the segregation and storage of waste. New residents will have access to convenient and simple to use waste management and recycling facilities, and the bin storage facilities provided within the proposed development will adhere to the requirements of WCC.

16.8.4 The occupiers of the community and leisure facilities, commercial and retail units will be provided with sufficient space to allow segregation of waste streams which will enable occupiers to employ waste segregation techniques in consultation with the appointed waste contractor.

16.8.5 Following mitigation, the likely residual impact of the operation of the proposed development in terms of an increase in waste arisings is considered to be of minor negative significance.

16.9 References

- 16.1 HMSO (1990), *Environmental Protection Act*
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- 16.4 South East England Regional Assembly (SEERA) (2004), *Waste Management Capacity in the South East Region*
- 16.5 DCLG (2005), *Survey of Arisings and use of Alternatives of Primary Aggregates in England, 2005: Construction, Demolition and Excavation Waste*
- 16.6 Audit Commission Area Profiles (2008) available at www.audit-commission.gov.uk
- 16.7 Defra (2008) Waste Statistics: available at www.defra.gov.uk
- 16.8 Building Research Establishment (BRE) (June 2009), *SMARTWaste: Measuring and Benchmarking Construction, Refurbishment and Demolition Waste*. Available at www.smartwaste.co.uk
- 16.9 BRE (2006), *Developing a Strategic Approach to Construction Waste*
- 16.10 British Standards Institute (BSI) (2005), *BS 5906:2005 Waste management in buildings. Code of practice*
- 16.11 European Council (1999), *Landfill Directive 99/31/EEC*
- 16.12 European Council (1994), *Packaging Waste Directive 94/62/EC*
- 16.13 European Council (1991), *Hazardous Waste Directive 91/689/EEC*
- 16.14 HMSO (2003), *Waste and Emissions Trading Act*
- 16.15 European Council (2002), *Waste Electrical and Electronic Equipment Directive, 2002/96/EC*
- 16.16 HMSO (2005), *Clean Neighbourhoods and Environment Act*
- 16.17 Prime Minister's Strategy Unit (2002), *Waste Not, Want Not*
- 16.18 ODPM (2005), *PPS 10: Planning for Sustainable Waste Management*
- 16.19 Hampshire County Council, Portsmouth City Council, Southampton City Council & New Forest District Council (2007), *Minerals and Waste Core Strategy*
- 16.20 Winchester City Council (WCC) (2006), *Winchester District Adopted Local Plan*
- 16.21 WCC (undated), *Supplementary Planning Document (SPD) on the Storage and Collection of Domestic Waste and Recyclables Materials*
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