Ardley Waste Management Facility, Ardley, Bicester, Oxfordshire

Environmental Statement

VOLUME 3

March 2010

SLR Ref: 409-0036-00349

solutions for today's environment

TABLE OF CONTENTS – ES CHAPTERS (VOLUME 3 OF 4)

Schedule of Changes to the Previous Environmental Statement to accompany planning application ref. 08/02472/CM

LIST OF PLANS AND DRAWINGS (VOLUME 2) - PLANNING DRAWINGS

Drawing Number	Drawing Title
DWG 2/1	Site Location Plan
DWG 2/2	Planning Application Boundary (Red Line)
DWG 2/3	Site Survey
DWG 3/1	Existing Phasing Plan
DWG 3/2	Existing Restoration Plan
DWG 3/3	Existing HWRC Plan
DWG 3/4	Proposed Phasing Plan
DWG 3/5	Existing Situation Stage 1
DWG 3/6	Proposed Phasing Stage 2
DWG 3/7	Proposed Phasing Stage 3
DWG 3/8	Proposed Phasing Stage 4
DWG 3/9	No Drawing
DWG 3/10	Interim Restoration Proposals
DWG 3/11	Detailed Landscape Proposals
DWG 3/12	Planting Plan
DWG 3/13	Landscape Sections
DWG 3/14	Proposed HWRC Plan
DWG 3/15	Proposed New Access Plan
DWG 3/16	Gas Utilisation Plan
DWG 3/17	Typical Section Through Split Level CA Site
DWG 3/18	HWRC Office Elevations
DWG 3/19	Pre Settlement Plan
DWG 4-1	HWRC Access
DWG 4-5	Typical Asbestos Cell Detail
TS/1	Tree Survey Base (all site)
TS/2	Tree Survey Base (proposed access)
DWG EFW-PO-09	Site Plan – General Arrangement Plan
DWG EFW-PO-10	Site Plan – Roof Plan
DWG EFW-PO-11	Ground Floor Plan
DWG EFW-PO-12	Upper Floor Plan
DWG EFW-PO-13	Roof Plan
DWG EFW-PO-14	Offices & Visitor’s Centre Floor Plans
DWG EFW-PO-15	Longitudinal Section
DWG EFW-PO-16	Cross Section
DWG EFW-PO-17	West Elevation
DWG EFW-PO-18	East Elevation
DWG EFW-PO-19	South Elevation
DWG EFW-PO-20	North Elevation
DWG EFW-PO-21	Gatehouse Detail

LIST OF APPENDICES

Appendix	Title
Appendix 1	Asbestos
Appendix 2	Alternative Site Assessment
Appendix 3	Alternative Technologies
Appendix 4	Energy Plan
Appendix 5	Air Quality
Appendix 6	Landscape and Visual
Appendix 7	Traffic and Transport
Appendix 8	Noise and Vibration
Appendix 9	Water Environment
Appendix 10	Ecology
Appendix 11	Human Health Assessment

LIST OF APPENDICES

SCHEDULE OF CHANGES FROM ENVIRONMENTAL STATEMENT THAT ACCOMPANIED PLANNING APPLICATION 08/02472/CM

Chapter 1 Introduction – Updating only

Chapter 2 Site Description – Updating only

Chapter 3 Description of the Development – Changes to hours of operation, landfill phasing and confirmation that landfill will continue to accept asbestos (as existing).

Chapter 4 Policy Review – Updated to reflect adoption of the South East Plan and the inclusion of Government policy on energy generation.

Chapter 5 Air Quality – No change.

Chapter 6 Landscape and Visual – Assessment reviewed and updated.

Chapter 7 Traffic – No change.

Chapter 8 Noise – Assessment reviewed and updated to include landfill impacts.

Chapter 9 Geology, Hydrology and Hydrogeology – No change. Additional information submitted to the Environment Agency included as Appendices 9-5 and 9-6, see Volume 4.

Chapter 10 Ecology – No change. Additional reptile survey and mitigation strategy included as Appendices 10-3 and 10-4, see Volume 4.

Chapter 11 Palaeontology – No change.

Chapter 12 Cultural Heritage – No change.

Chapter 13 Alternatives – Alternative Site Assessment reviewed and updated, see Appendix 2 in Volume 4.

Chapter 14 Socio Economic – No change.

Chapter 15 Climate Change – No change.

Chapter 16 Cumulative – No change.

Chapter 17 Conclusions – No change.

1.0 INTRODUCTION

General

1.1 Viridor Waste Management Ltd (Viridor) is proposing to develop an Energy from Waste facility with consequent amendments to the approved landfill at their existing waste management facility at Ardley, which is located between the villages of Ardley and Middleton Stoney within relative close proximity to Oxford.

1.2 This Environmental Statement (ES) reports the results of an Environmental Impact Assessment (E.I.A) which has been undertaken by SLR Consulting Ltd.

1.3 The full description of the application is as follows:

> "*The construction and operation of an Energy from Waste (EfW) and combined heat and power facility together with associated office, Visitor Centre and bottom ash recycling facilities, new access road and weighbridge facilities and the continuation of landfill operations and landfill gas utilisation with consequent amendments to the phasing and final restoration landform of the landfill, surface water attenuation features and improvements to the existing household waste recycling facility"*.

1.4 The application area is sited at Ordinance Survey Grid Reference 454 200 225 900, with access being gained from the B430, which leads north to J10 of the M40 and south to the A34 towards Oxford. The site location plan[1] identifies the location of the site in context of the surrounding area.

1.5 The application site area comprises 95 hectares and includes the entire existing Ardley Waste Management site which includes the existing Household Waste and Recycling Centre (HWRC).

The EfW and Bottom Ash Facility

1.6 The proposed EfW facility will be located in the south eastern corner of the landfill site. In essence the development is for the construction of a facility that will generate energy and heat from the treatment by combustion of 300,000 tonnes of waste per annum. The waste stream will be made up from residual Municipal Solid Waste (MSW) and Commercial and Industrial Waste (C & I) waste.

1.7 It is understood that the EfW facility will generate in excess of 24 MW of electricity annually for supply to the National Grid which will improve resource efficiency and offset reliance on fossil fuels. In addition, the plant will have the ability to supply combined heat and power[2].

[1] Drawing Number 1 – Site Location Plan (see Volume 2)

[2] Appendix 4 Energy Plan (see Volume 4)

Landfill Amendments

1.8 The existing landfill phasing and restoration contours will be amended to accommodate the EfW and Bottom Ash Facility. The existing landfill has imports of approximately 300,000 tonnes per annum which are predicted to reduce to 200,000 tonnes per annum when the EfW facility becomes operational. The landfill will continue to accept the same range of wastes that it does at present. Existing landfill gas utilisation and leachate treatment facilities will be retained as existing.

The Household Waste Recycling Centre (HWRC)

1.9 The current Household Waste and Recycling Centre (HWRC) will be improved and upgraded as a result of the relocation of the offices and weighbridge for the landfill.

Viridor Waste Management Ltd

1.10 The proposed facility would be owned and operated by Viridor Waste Management Limited. Viridor, owned by the Pennon Group, is part of a major PLC that is focused on the water and waste management industries. Viridor is one of the UK's leading waste management companies and operates 25 regional landfill sites, numerous regional recycling facilities and over 200 waste processing sites throughout the UK. The Company is at the forefront of high quality environmental performance and over 100 of its operational centres are accredited to the ISO14001 Environmental Management System, the highest recognised international industry standard.

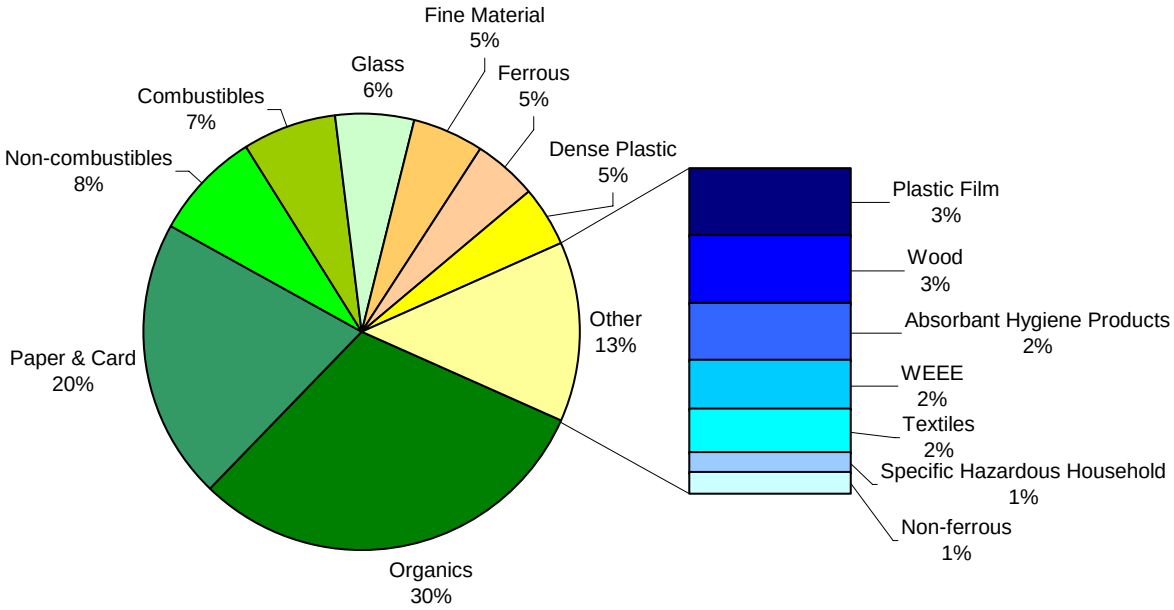
1.11 Waste management services offered by Viridor include:

Materials Recycling Facilities (MRF);
Bulking and transfer stations;
Materials collection;
Glass collection and reprocessing;
Composting (Windrow and In-vessel);
Waste treatment;
Transportation;
Household Waste Recycling Centres;
Product destruction/recovery;
Residual waste disposal;
Landfill gas utilisation and
Energy from Waste (EfW)

The Impact of Energy from Waste on Recycling

1.12 The proposed facility will accept municipal waste (i.e. that waste which is collected by the Waste Collection Authorities in Oxfordshire following the removal of recyclables by the householder, and any suitable residual wastes from Household Waste Recycling Centres in the County) and commercial and industrial waste (which is similar in nature to municipal waste and therefore suitable for treatment).

1.13 A life cycle assessment of technology options was submitted as part of the planning application. The methodology section of the life cycle assessment (LCA) report contains a waste composition utilised for the technology assessment (the composition is duplicated below for ease of reference). The waste composition is a standard municipal waste composition available within the LCA software created by the Environment Agency. The original source of the composition is a study from Wales (published in December 2003 and funded by the Welsh Assembly Government) which assessed the composition of waste in the bin following recycling.



1.14 The composition of the waste entering the Energy from Waste facility will vary from the above, and vary across the facility lifetime, due to a number of factors including, but not limited to:

- the materials collected for recycling,
- the participation performance of the householders,
- manufacturers choices for packaging materials,
- the types of businesses in the County,
- the season of the year.

1.15 The above composition is however a recognised composition for use in LCA studies, as the default composition provided within the Environment Agency software.

How can we ensure that recycling and OCC recycling targets are achieved?

1.16 The County and Districts of Oxfordshire (as Waste Disposal Authority and Waste Collection Authorities respectively) have a number of comprehensive recycling schemes in place to divert waste for recycling or composting in preference to recovery or disposal which are at the lower end of the waste hierarchy.

1.17 The Energy from Waste facility at Ardley Quarry is designed to accept approximately 180,000 tonnes of municipal waste. The Oxfordshire Municipal Waste Strategy (Options for Residual Waste Document[3]) forecast waste quantities to rise from circa 300,000 tonnes in 2004 to circa 450,000 tonnes in 2035. Therefore the sizing of the energy from waste plant is designed to accept between 40 and 50% of the municipal waste in the medium to long term, therefore 50 to 60% of the municipal waste is available for recycling.

1.18 The energy from waste plant itself will contribute towards recycling through the recovery of ferrous metals (not recovered by householders or businesses) from the incinerator bottom ash. Incinerator bottom ashes can also be utilised in place of inert materials if a suitable market is located in the area.

1.19 The most recent Department for Environment Food and Rural Affairs (defra) waste data available (for the year 2006/07) indicates of the 340,638 tonnes of municipal waste generated, 119,330 tonnes or 35% was recycled. The remaining municipal waste[4] was disposed of to landfill. There are clearly materials currently disposed to landfill which could be diverted for recycling or composting, and these materials, through a combination new recyclables materials collected at the kerbside, food waste collections, improved householder participation and targeted promotions and awareness will ensure that only those materials not suitable for recycling or composting are sent to the Energy from Waste facility where further beneficial recovery (in the form of electricity) can be achieved.

Examples of high recycling being compatible with EfW

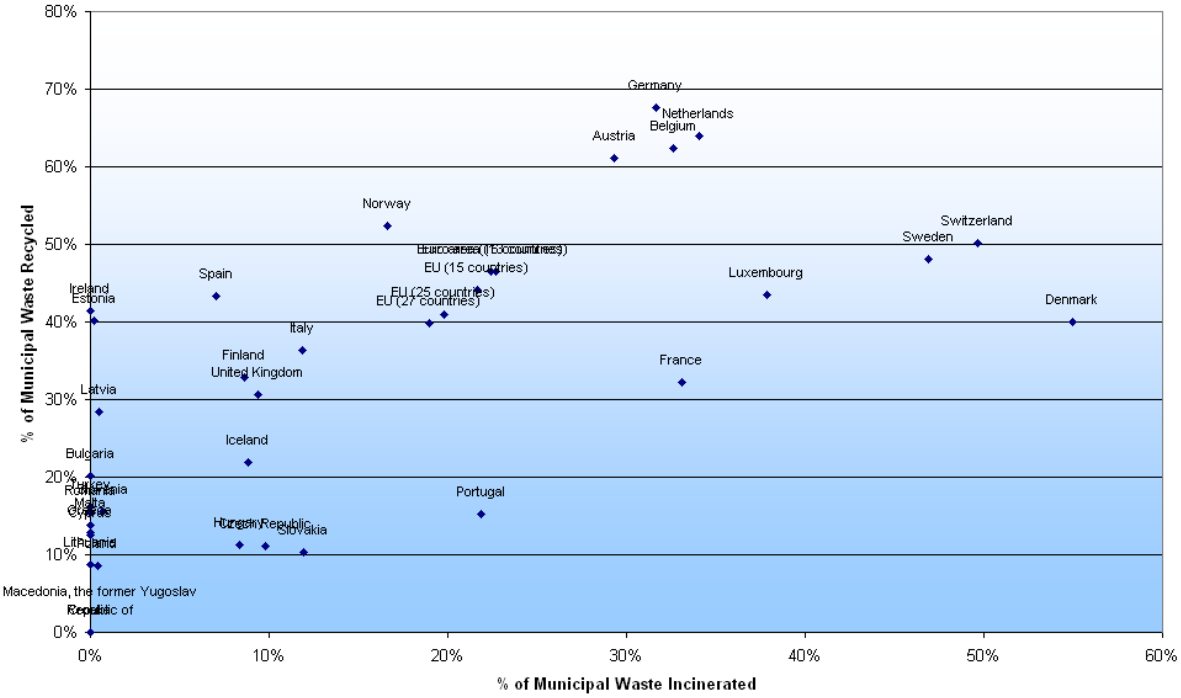
1.20 There are a number of examples of European Union countries employing a high recycling strategy with the use of energy from waste. The chart below is based on EuroStat data for the year 2006, the x-axis plots the proportion of municipal waste incinerated, and the y-axis plots the proportion of municipal waste recycled.

1.21 The chart shows a general positive correlation indicating that high levels of recycling can go hand in hand in energy from waste treatment. In particular attention should be focused on the group of Countries circled which includes Germany, Netherlands, Belgium and Austria where levels of recycling are exceeding 60% with the remaining wastes being treated through energy from waste.

[3] http://www.oxford.gov.uk/files/seealsodocs/61913/OJMWS%20Part%207%20-%20Options%20for%20Residual%20Waste.pdf Figure 1.

[4] Apart from 59 tonnes of waste incinerated, most likely clinical or hazardous wastes

1.22 High recycling performances will be achieved if a suitable and simple collection system is provided to householders, with the size of the container and the frequency of collection being optimal to ensure maximum capture of materials. Following the collection of recyclables, the life cycle assessment of technology options demonstrates that Energy from Waste helps to minimise the environmental impacts associated with landfill disposal.



Benefits of Energy from Waste

1.12 The proposal for the Energy from Waste facility at Ardley will make a fundamental contribution to waste management in the County. The introduction of an EfW facility into the region will mark a significant move away from reliance on landfill as the means of disposing of waste and towards a solution by which residual waste (i.e. pre-sorted wastes) is effectively and efficiently dealt with by means of a modern and proven industrial combustion process. This process will generate significant amounts of electricity to be harnessed for use within the EfW facility and for surplus export to the National Grid. There is also the potential to utilise excess heat generated by the facility in local homes and businesses.

1.13 The proposed facility brings with it a number of advantages:

- the EfW facility has excellent long term capabilities. In particular it is sized to be able to accommodate future municipal waste growth whilst providing non-landfill disposal for a significant element of the County's industrial and commercial waste;

- the site has no 'site availability and acquisition' risk as the Ardley site is owned by Viridor and would be ready immediately subject to planning and licensing;

- will satisfy the principles of proximity and equivalent sub-regional self sufficiency helping Oxfordshire be at the forefront of sustainable waste management;

- has a lower carbon footprint than many other disposal technologies; and

- the need for a facility of this nature reflects the significant changes to the way in which the United Kingdom, and Oxfordshire in particular is planning to treat its waste. Waste Strategy 2007 underscores the immediate and long term strategies of how waste is to be treated across the UK.

1.14 It is considered that the EfW facility proposed at Ardley will provide:

- a safe and sustainable alternative to landfill for wastes generated within Oxfordshire after the materials that can be recycled have been removed;

- a potential source of heat and power for local homes and businesses, which will improve resource efficiency and reduce the dependence on fossil fuels;

- up to 40 permanent jobs plus further contract/temporary employment; and

- a Visitor Centre to encourage a "greener" approach to waste management.

Requirements for an Environmental Impact Assessment

1.15 The Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999, as amended by the Town and Country Planning (Environmental Impact Assessment) (England and Wales) (Amendment) Regulations 2000, (hereafter jointly referred to as the EIA Regulations) implement Council Directive No 85/337/EEC (as amended) on the assessment of the potential effects of specified development proposals on the environment. The Regulations came into force on 14th March 1999. Prior to the grant of a planning permission in respect of any proposal to which the EIA Regulations apply, an Environmental Impact Assessment (EIA) is required. Responsibility for compiling information regarding environmental effects lies with the developer, and the information is presented as an 'Environmental Statement'.

1.16 The EIA Regulations specify the types of development for which an EIA is mandatory (Schedule 1 Projects) and categories of development where an EIA may be required (Schedule 2 Projects). In connection with the proposal

at Ardley Landfill site, it is considered to be a Schedule 1 development as specified in Category 10 of the Regulations:

> "….waste disposal installations for the incineration or chemical treatment (as defined in Annex IIA to Directive 75/442/EEC (a) under heading D9) of non-hazardous waste with a capacity exceeding 100 tonnes per day."

1.17 Accordingly Viridor has commissioned SLR Consulting Limited to prepare an Environmental Statement to accompany the planning application. SLR is a multi-disciplinary environmental consultant to, amongst others, the minerals and waste management industries, and also provides advice to local authorities and the Environment Agency on strategic issues. SLR is a registered Environmental Impact Assessor Member of the Institute of Environmental Management and Assessment (IEMA).

1.18 The ES is intended to provide the local planning authority (i.e. Oxfordshire County Council) with sufficient information to determine the planning application having due regard to the protection of the local amenity and the environment as a whole.

Approach to assessment

1.19 The process has considered both the construction and operational impacts of the proposed development.

1.20 For this project, the prediction of potential impacts has been undertaken in parallel with the architectural design process. This iterative process has allowed for the incorporation of design measures with a view to minimising/avoiding any unacceptable environmental impacts, particularly during the construction and operation of the proposed development. Such design measures relate to the layout of the facility, the height of the stack, and the revised landform of the landfill.

1.21 As required by the EIA Regulations, the assessment of impacts has been carried out according to its type (beneficial or adverse) and duration (temporary or permanent). Residual and cumulative impacts have also been considered. These are described in the relevant ES Chapters and summarised in Chapter 16: Cumulative Impact.

1.22 For each environmental aspect, the detailed assessment methodology is discussed in the relevant ES Chapter. The criteria used for assessing the degree of significance are based on the relevant technical guidance from the appropriate professional institute and/or industry good practice. Where well-documented significance criteria are not available, generic significance criteria (Table 1/1) have been used based on the requirements of the EIA Regulations. They have been developed following research and based on SLR's expertise and experience in carrying out EIA's.

Table 1/1 Generic Significance Criteria

Significance	Criteria
Severe – for adverse effects only **Major*** - for beneficial effects only	**Severe** or **major*** effects represent key factors in the decision-making process. They will principally occur where very important resources are subject to extreme effects. Such effects are generally, but not exclusively, associated with any recognised or designated sites/features of international or national importance. Mitigation measures are unlikely to remove or modify the adverse effects. **Major*** beneficial effects may occur if there is a substantial increase in the value of the environmental resource qualitatively or quantitatively on an international or national level.
Major	Major effects are important considerations on a regional or county level, principally affecting very important resources or creating extreme effects on important resources. Mitigation measures and detailed design work are unlikely to remove all the adverse effects by virtue of the magnitude of the predicted effects. Major beneficial effects may occur if there is a substantial increase in the value of the environmental resource qualitatively or quantitatively on a regional or county level.
Moderate	Moderate effects are important considerations at a district level, but are unlikely to be key decision making issues. They will principally occur where important resources are moderately or slightly affected, or where lesser resources are affected in the extreme. Mitigation measures and detailed design work may ameliorate some of the consequences on the affected communities or interests; however, some residual effects will still arise. Moderate beneficial effects may occur if there is a considerable increase in the value of the resource on a district level.
Minor	Minor effects are experienced at the local level and do not represent important

Significance	Criteria
	issues in the decision making process. Assignment of this level of significance will principally occur if less important environmental resources experience more limited effects. Appropriate mitigation measures may reduce, remove or even reverse such effects. Minor beneficial effects may occur if there is only a limited increase in the value of the resource at a local level.
Negligible	Effects are assigned to this level if they are nil, imperceptible, negligible, within normal bounds of variation, or within margins of forecasting error when compared to the existing situation.

1.23 In order to determine the degree of any effect, a series of baseline surveys have also been undertaken for the purpose of the EIA. These are referred to in greater detail within the relevant ES Chapters and also summarised in Table 1/2:

Table 1/2 Summary of Baseline Surveys Undertaken

Survey Type	Undertaken by	ES Chapter
Air Quality Assessment	SLR	Chapter 5
Landscape Visual Impact Assessment	SLR	Chapter 6
Traffic Assessment	SLR	Chapter 7
Noise Assessment	SLR	Chapter 8
Flood Risk Assessment	SLR	Chapter 9
Nature Conservation	SLR	Chapter 10
Human Health Impact Assessment	SLR	Appendix 11
Ornithological Survey	Bio Census	Appendix 10

1.24 Details of the results of the baseline surveys undertaken are provided in the relevant ES Chapters and Appendices as appropriate.

The Planning Application & Environmental Statement

1.25 In accordance with the Regulations, this ES accompanies the formal Planning Application. In total the submission consists of the following:

1.26 **Volume 1 Planning Application** (Folder **1** of 4)

- planning supporting statement;
- planning application forms;
- ownership certificates;
- Appendix 1 design and access statement;
- Appendix 2 sustainability assessment;
- Appendix 3 statement of community involvement;
- Appendix 4 rights of way improvements;
- Appendix 5 foul water assessment;
- Appendix 6 grid connection;
- Appendix 7 gas management plan;
- Appendix 8 tree survey; and
- Appendix 9 MOD safeguarding.

1.27 **Volume 2 Drawings and Plans** (Folder **2** of 4)

- planning drawings;
- landfill phasing and restoration drawings;
- household waste recycling centre drawings;
- EfW site plans;
- office and visitor centre plans;
- EfW and Bottom Ash facility cross sections;
- EfW Elevations;
- architectural visualisation montage;

1.28 Volume 3 Environmental Statement (folder **3** of 4)

- a Non-Technical Summary (NTS) of the ES has been produced which provides a non technical summary of the ES;
- chapter 1: Introduction;
- chapter 2: Site Description;
- chapter 3: Description of Development;
- chapter 4: Planning Policy Context;
- chapter 5: Air Quality;
- chapter 6: Landscape and Visual Impact;
- chapter 7: Traffic and Transportation;
- chapter 8: Noise and Vibration;
- chapter 9: Geology, Hydrology and Hydrogeology;
- chapter 10: Nature Conservation;
- chapter 11: Palaeontology;
- chapter 12: Cultural Heritage;
- chapter 13: Alternatives;
- chapter 14 Socio-Economic Impacts
- chapter 15: Climate Change;
- chapter 16: Cumulative Impact;
- chapter 17: Conclusions

1.29 **Volume 4 Environmental Statement Technical Appendices** (folder **4** of 4)

- Appendix 1: Asbestos;
- Appendix 2: Alternative Site Assessment;
- Appendix 3: Alternative Technologies;
- Appendix 4: Energy Plan;
- Appendix 5: Air Quality;
- Appendix 6: Landscape and Visual;

- Appendix 7: Traffic and Transport;
- Appendix 8: Noise and Vibration;
- Appendix 9: Geology, Hydrology and Hydrogeology;
- Appendix 10: Ecology;
- Appendix 11: Human Health Assessment;

Planning and Pollution Control Regime

1.30 In tandem with the planning process, the Integrated Pollution Prevention Control Directive (96/61/EC) instructs the manner and procedures for the licensing of Energy from Waste plants and other facilities. The EC Directive has been translated into national legislation by the Pollution Prevention and Control Act 1999 and the Pollution Prevention and Control (England and Wales) Regulations 2000 (as amended).

1.31 In the event that planning permission is forthcoming, the EfW at Ardley landfill would operate under an Environmental Permit (EP).

Public Consultation

1.32 In advance of the previous planning application (08/02472/CM), the Applicant had undertaken an exercise to engage with and inform the public of the proposed development of the Energy from Waste facility (EfW). The objective of the consultation exercise was four-fold:

- to raise awareness of general waste issues in Oxfordshire;
- to explain the need for the development at Ardley;
- to explain the type EfW facility being proposed at the site; and
- to discuss the environmental issues and concerns associated with a development of this nature.

1.33 The consultation exercise involved a number of initiatives that are explained in full in the Statement of Community Involvement that accompanies the planning application.

1.34 Given the extensive consultation that has already taken place both prior to and during the consideration of the previous planning submission no additional consultation was carried out as it was considered that interested parties are already familiar with the development that is proposed.

1.35 If planning permission is achieved at Ardley for the proposed development Viridor would seek to set up and run a local liaison group.