

# NON TECHNICAL SUMMARY

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## INTRODUCTION

Viridor Waste Management (Viridor) is applying for planning permission to develop an Energy from Waste facility at Ardley Landfill site. The full description of the application is as follows:

*“The construction and operation of an Energy from Waste (EfW) Facility together with associated office, Visitor Centre and bottom ash recycling facilities, new access road and weighbridge facilities and the continuation of non hazardous 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”.*

In essence the development is for the construction of a facility that would generate electricity from the treatment by combustion of residual waste. The 300,000 tonnes of waste processed by the EfW facility each year would be made up from residual Municipal Solid Waste (MSW) and Commercial and Industrial Waste (C&I).

The approved landfill contours will also be amended to accommodate the EfW facility. The existing landfill has imports of 300,000 tonnes per annum, reducing to 200,000 tonnes per annum when the EfW facility is fully operational.

This non technical summary accompanies the Environmental Statement which has been prepared as part of the planning application.

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## SITE DESCRIPTION

The application site is located 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. Drawing No.2/1 Site Location Plan identifies the location of the site in context of the surrounding area.

The application site area comprises 95 hectares and includes the entire existing Ardley Waste Management site. The proposed EfW will be located in the south eastern corner of the application site. The existing landfill site will be re-phased to wrap around the EfW site whilst the existing civic amenity site in the north of the site will be slightly extended to incorporate improvements. The existing gas utilisation plant will be retained unchanged.

The site is located in a semi rural setting, west of the M40. The Banbury to High Wycombe railway line and Gagle Brook form the northern and eastern boundaries of the wider landfill site respectively. The western site boundary is the B430.

The nearest settlement is Ardley village, approximately 1 km north of the current site access. The village of Middleton Stoney is located 1.7 km to the south and Bucknell, 1.2 km to the east. The settlement of Upper Heyford is located over 2km to the west, adjacent to the former airfield.

The southern boundary of the site is a public bridleway and to the south of the bridleway is arable land with permission for mineral extraction, which is due to commence in 2009. A bridleway also runs along the eastern boundary of the site.

The site is not covered by any statutory landscape or ecological designations.

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## DESCRIPTION OF DEVELOPMENT

### General

The proposed development comprises a comprehensive scheme to provide an Energy from Waste (EfW) facility capable of dealing with 300,000 tonnes of residual municipal, commercial and industrial waste per annum.

For the purposes of description and subsequent environmental assessment the proposed development can be considered under the following four main headings:

- EfW facility and incinerator bottom ash facility;
- Revisions to final landfill and restoration landform;
- Improvements to the Household Waste and Recycling Centre;
- Ancillary proposals.

### EfW facility

The floor level of the proposed EfW has been located close to the base of the mineral workings in the south eastern corner of the application site at 100m AOD to maximise the benefits of screening provided by the existing mineral void and landfill. The base level of the waste bunker is set at -12.5m below base 87.5m AOD.

The overall size of the facility is 229m long, varying from 70m to 38m wide and from 70m to 29m in height to the apex of the main roof and 36m to the apex of the fin and a base platform level set at 100m AOD. The Chimney Stack is 82m above base level at 182m AOD.

The main features of the EfW facility include:

- A Waste Reception Hall with bunker, shredder and a waste feed system;
- Boiler hall with grate, combustion chamber and a heat recovery boiler;
- Turbine hall with steam turbine for generating electricity;
- Flue gas treatment hall with equipment to clean combustion gases;
- Facility for discharging and loading Air Pollution Control (APC) residue silos and other ancillary equipment;
- Twin chimney stack to discharge the treated flue gases into the atmosphere;
- An air cooled condenser for cooling and recycling steam from the generating process.

## **Incinerator Bottom Ash Facility**

The incinerator bottom ash (IBA) facility will allow for the pre-treatment storage, treatment, long term storage and sealed loading of the anticipated 75,000 tpa of IBA produced by the EfW facility. The recycled IBA will be exported for use as secondary aggregate in the construction industry.

## **Revisions to final landfill and restoration landform**

### **Revisions to final landfill**

The existing landfill at Ardley currently accepts in the region of 300,000 tpa of municipal, commercial and industrial waste (50,000 tonnes of municipal and 250,000 tonnes of industrial and commercial).

Permitted voidspace at Ardley is estimated at 2.65 million tonnes and with existing levels of infill it is anticipated that the currently approved landform would be completed by 2016.

As part of the proposed development, the approved landfill contours will be remodelled to recover voidspace lost to the EfW facility, and to provide additional screening from the north. The revised phasing plan for the landfill identifies that there will be a loss of approximately 600,000 tonnes of void space as result of the EfW facility.

### **Restoration Scheme**

The main aim of the restoration scheme is to produce final and interim landforms/land uses which maintain and enhance the landscape character and ecological value of the site, while mitigating the proposed EfW development.

The purpose of the landscape proposals is to ensure that the EfW is successfully integrated into the surrounding landfill restoration and landscape character of the area, while providing a setting and complimentary design form to the built development.

## **Improvements to the Household Waste Recycling Centre**

The existing HWRC operates a split level site with five skip bays at the lower operational area of the site and nine parking spaces on the upper public area. As a result of the space to be created by re-locating the landfill offices and weighbridge to the proposed new southern access, it is proposed to extend the HWRC to provide a further four skip bays and six additional parking spaces.

The extended, more efficient layout of the HWRC will provide a better service to the public and enable higher rates of waste recycling and recovery to be achieved.

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## Ancillary Proposals

### Ancillary Buildings

A range of buildings and offices will be required on site to accommodate staff, visitors and host ancillary facilities such as storage, control rooms and workshops.

The Visitor Centre will enable community participation and the encouragement of recycling and waste reduction in the county;

### Weighbridge and Gatehouse

A new double weighbridge with gatehouse will be provided at the new entrance to the EfW facility. New offices and weighbridge for the landfill operations would also be provided.

### New Site access and associated vehicle movements on site

A new access road located off of the B430 is proposed to ensure the increase in traffic movements is appropriately facilitated. The access would incorporate a ghost right turn lane and would be used to service the EfW facility and landfill only.

The proposed access will be located in the south west corner of the site. The access road would follow the southern boundary of the site all the way down to the south eastern corner where the EfW facility will be located. The proposed access has been designed to comply with guidelines pertaining to visibility at the junction.

The existing site access to the north will be retained to provide access to the HWRC.

### Hours of Operation

The proposed EfW facility operation would be a 24 hour operation.

The hours of operation of the landfill will remain as permitted, as follows:

- 0700 to 1800 Monday to Friday
- 0700 to 1300 Saturdays
- Specific exceptions for receiving waste from the HWRC site

The hours of operation of the HWRC will also remain as currently permitted, which are:

- 0830 to 1730 Monday to Friday
- 0830 to 1600 Saturdays
- 1000 to 1600 Sundays

### Employment

The proposed EfW facility would create in the region of 40 new full time posts. Employment at the landfill and HWRC would remain as existing (10).

## NEED AND ALTERNATIVES

### Need

Whilst Oxfordshire County Council (OCC) does not have the benefit of an up to date Waste Local Plan, a substantial amount of data has arisen from the preparation of the South East Plan and the work that ERM has subsequently undertaken for OCC in establishing waste arisings, capacity and future requirements.

The draft South East Plan and the ERM research have both identified a capacity gap of 250,000 tpa by 2015 in Oxfordshire for municipal (MSW) and commercial and industrial (C&I) recovery facilities.

The Waste Management Section of OCC identified the likely need for 180,000 tpa of recovery capacity to deal with Oxfordshire's residual municipal waste remaining after recycling and composting by 2014/15. The most recent figures for the I & C waste stream set out in the Minerals and Waste Annual Monitoring Report 2007, prepared by OCC, show that Oxfordshire has annual I&C waste arisings of 901,000 tonnes of which 422,000 tonnes still goes to landfill.

The proposed EfW has a design capacity of 300,000 tpa, which based on dealing with 180,000 tpa of Oxfordshire's municipal waste leaves 120,000 tpa of capacity to divert I&C waste from landfill. This level of diversion would reduce I&C disposal to 302,000 tpa; a landfill diversion figure of 66.5%. This is considered to accord with the levels of diversion being sought in the draft South East Plan.

### Alternatives

#### Sites

A review of potential alternative sites was carried out to determine if other sites within Oxfordshire would be more environmentally acceptable. Of the eight sites considered in the evaluation, the two sites which performed best were Sutton Courtenay landfill and Ardley landfill.

Of these two, Ardley is considered to be the best performing site having regard to site access, highway network and proximity to international nature conservation designations.

#### Alternative Waste Management Technologies

The Environment Agency life cycle assessment software "Waste and Resource Assessment Tool for the Environment" (WRATE) was utilised to model the environmental impacts of the proposed EfW facility against alternative waste management technologies.

The environmental burdens of 5 alternative waste treatment processes have been calculated for the processing of 300,000 tonnes of municipal solid waste.

Energy from Waste scored was found to have the lowest environmental burden of the 5 technologies considered.

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## SUMMARY OF ENVIRONMENTAL EFFECTS

### Air Quality

An assessment was undertaken to assess the potential air quality impacts of the EfW facility. The assessment focused on the principal emissions to air, including;

Pollutants from Vehicles;  
Waste Incineration Directive (WID) Pollutants from point of source (EfW Stack);  
Dust and litter emissions during the construction and operational phases, odours and bioaerosols arising from the waste treatment process.

The findings of the screening assessment of traffic emissions relating to both the construction and operational traffic have found that impacts on air quality may be classified as negligible.

Dust was found to be insignificant providing mitigation measures were put in place prior to construction.

The assessments of dust, litter, odour and bioaerosols have been undertaken qualitatively and have found that risk of significant generation of emissions during the operational phase is insignificant.

The impact of emissions from the Ardley EfW stack on the environment and sensitive ecosystems is predicted to be “insignificant” for all receptors when typical emission rates and operating hours are considered.

### Landscape

A Landscape and Visual Impact assessment was undertaken to assess the potential landscape and visual impacts of the (EfW) facility on the surrounding landscape.

Views of the EfW facility main building, car parking and some ancillary buildings would be restricted by the existing and proposed landfill contours. Additional tree planting on the landfill would reduce long term visibility by screening the building further, and from some view points, only the stack would remain visible.

The proposed development would have an impact on the existing landscape of the area. This effect would increase in the future when the proposed development is considered against the future baseline of the restored landfill site. This effect would be permanent in nature. The nature of the effect of the buildings would be directly linked to the high standard of design and the materials proposed, and how it is perceived by individual viewers within the application site.

The effect of the development on the wider landscape would be related to the size of the building within the open countryside. To the southeast this effect would be concentrated, resulting in a localised significant impact.

The nature of the visual impact would be related to the perception of the viewer. The high standard of design and materials used for the building aims to make the building a landmark building and aesthetically pleasing.

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The visual impact of the proposed development varies through time due to the effects of the permitted mineral extraction to the south and the proposed landfill development.

Significant effects would occur to viewpoints from the east and south east during the short to medium term, with the permitted mineral development partially screening visual effects to the south. Additional significant effects are likely to occur after restoration of the mineral site.

The most effected view is likely to be from the footpath on the eastern edge of Bucknell due to the open view across farmland and low lying nature of the intervening landform. This would be reduced slightly as vegetation matures around the EfW.

The proposed development would have a moderate to substantial landscape and visual impact.

### Traffic and Transport

The potential traffic and transport impacts of the proposed development have been assessed and are summarised below:

In accordance with national guidelines, the parameters of this assessment have been fully scoped with Oxfordshire County Council, acting as both the Planning and Highway authorities.

A new access is proposed from a new priority T Junction off of the B430 to accommodate all movements to the EfW facility and the landfill. The junction has been designed in accordance with all relevant guidelines and has been independently assessed from a safety perspective.

The impact of generated traffic on the operation of the highway network has been calculated using computer modelling techniques. As traffic generated by the development will be spread throughout the day, rather than concentrated at peak times, the modelling exercise demonstrated that the proposed development would not have a significant bearing on the capacity of the road network, particularly at peak times.

The site is well located in respect of the strategic and high capacity road network and has good access from the main centres of population, from which the waste will be imported. The site is not readily accessible by means other than the car due to a lack of pavements and bus stops on the B430.

Overall, it is considered that the development proposals are acceptable in terms of highway safety and capacity.

### Noise

An assessment of noise has been carried out in accordance with EIA good practice guide, the EIA Regulations and British standard guidance. The specific noise issues below have been considered:

- the existing noise climate at noise-sensitive receptors around the site;



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- the process of site clearance, preparation and construction, and their impact on the surrounding noise- sensitive receptors; and
- the impact of the operational use of the facility

The noise assessment found that:

- the predicted construction noise levels achieve the criterion adopted for the assessment;
- the operational noise levels from the fixed plant will result in a situation of 'complaints unlikely' at all receptors during the daytime and night-time;
- the increase in on-site heavy goods vehicle movements will have no impact on the ambient noise levels in the area;

No impact is predicted as a result of the cumulative impact of the proposals.

### Geology, Hydrology and Hydrogeology

An assessment was undertaken based on a baseline description on the local hydro geological and hydrological regimes. A flood risk assessment and surface water management scheme have also been completed.

There are no private water supplies or groundwater abstractions are within 2km of the site boundary. The site lies within Flood Zone 1 (low risk flood), however, as the development area is greater than 1ha, a flood risk assessment has been undertaken which together with the proposed surface water management scheme shows there would be no increased or residual flood risk from the proposed development.

The potential impacts of the proposed development upon the baseline hydrogeological and hydrological environments have been identified and where appropriate, mitigation measures have been accommodated into the design of the development.

Overall it is concluded that with respect to geology, groundwater and surface water, there would be no significant residual impacts of the development with the proposed mitigation measures in place.

### Ecology

An ecological impact assessment has been undertaken to assess the potential impact of the proposed development on the ecology of the site and surrounding areas.

The following ecological features and species have been assessed;

- statutory and non-statutory conservation sites;
- colonising ephemeral, grassland and scrub habitats;
- ponds;
- badgers;
- bats;
- birds;
- great crested newt;
- other amphibians; and
- reptiles.

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In summary, it has been concluded that there would be no impact upon any statutory and/or non-statutory designated species or habitats within the study area. A variety of mitigation measures, including extensive native planting and ponds have been proposed which will help to ensure a biodiversity gain from the proposed development.

In respect of the dinosaur footprints that have been found at the site, examples have already been removed from the site for preservation and display at local museums and there is considered to be only a low potential for uncovering additional examples as a result of the proposed development.

### **Cultural Heritage**

An assessment of the potential indirect impact of the proposed development on the settings of heritage assets was undertaken. A study area comprising all land within 2km of the development site was considered appropriate for the collection and assessment of baseline data.

Due to the former extraction within the development site, there can be no surviving archaeological remains, ore heritage assets within it, and there could be no possible direct impact from the proposed building and landfill restoration.

The heritage assets present within the site study area comprise grouped village buildings including houses and churches, and isolated farm buildings, and industrial and other functional buildings. The villages also contain conservation areas, and there is a registered park and a scheduled castle.

The proposed development would create a negligible to moderate indirect visual impact on the settings of the heritage assets.

### **Socio-economic**

The proposed development offers benefits to employment, the economy and tourism. The facility will help Oxfordshire meet its landfill directive targets and therefore avoid costly penalties. The EfW will help supply the national grid with 180,000 MW hours of electricity per year, and offers a potentially low cost form of heat to consumers, which offsets the need for fossil fuels.

The overall socio economic impact of the proposed development will be positive; this is attributed to the significance of increased employment, the positive inputs to Cherwell District Core Strategy and improvement to the immediate economy of the area surrounding the site.

### **Climate Change**

The alternative technology review concluded that the EfW facility will result in a negative environmental footprint that is, an overall reduction in environmental impacts such as global CO<sub>2</sub> emissions. This can be attributed to the generation of electricity from waste and the subsequent displacement of fossil fuel electricity generation. Whilst the EfW facility will produce carbon emissions but these are less harmful greenhouse gases than methane, which would be produced if the waste was not diverted from landfill.

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In accordance with the supplement to PPS1, the EfW facility has been designed to minimise energy use and carbon emissions during construction and operation.

The site has been designed to attenuate surface water runoff and ensure that the EfW facility would not give rise to additional surface water runoff or down stream flooding.

The EfW facility will also have the potential to provide heat and energy to existing and future development in a 5km area.

### **Cumulative Effects**

Existing activities at the Ardley site include the landfill, household waste recycling centre and mineral extraction all of which are temporary operations. Mineral extraction at the existing Ardley site will shortly be completed but there is consent immediately to the south of the landfill which will be implemented in 2008/9 and will run until 2021. The landfill and HWRC operations are currently permitted until 2027. The main change that would be experienced by the existing and surrounding developments, as a result of the proposed development, would be the permanent addition of an EfW facility and new access at the landfill site.

The principal cumulative effect identified is considered to be traffic but the traffic flow increases at the site as a result of the development and proposed and potential future development would not have a significant cumulative impact on the capacity of the surrounding road network.

No significant adverse cumulative effects have been identified as a result of the proposed development and positive impacts in relation to employment and climate change have been identified.

## CONCLUSIONS

A need to divert Oxfordshire's waste from landfill has been identified and the Ardley site and Energy from Waste have been identified as the best site and technology to meet this need.

The main environmental impact of the proposed development has been identified as landscape/visual, but given the scale and size of the proposed buildings the design is successful in minimising the extent and degree of adverse landscape and visual impacts. However some significant effects would occur, and the acceptability of these is related directly to the standard of building design. The aim of the building design is to produce a high quality 'landmark' building that is capable of having a positive effect on views and the landscape of the local area.