

17.0 CONCLUSIONS

Introduction

17.1 The proposed development comprises a comprehensive scheme for the continuation of the landfill and HWRC together with the development of an Energy from Waste Facility at Ardley Landfill site which is located between the villages of Ardley and Middleton Stoney in north Oxfordshire.

Main Issues

17.2 The main issues related to the proposed development are considered to be as follows:

- Air quality - ensuring that there are no negative effects from the stack of the EfW facility;
- potential adverse landscape and visual impacts;
- potential increase in traffic on the surrounding road network especially between the villages of Ardley and Middleton Stoney;
- potential adverse impacts on the local environment in terms of noise, geology, hydrology, ecology, palaeontology and cultural heritage.;
- the climate change impacts of the proposed EfW facility; and
- the potential cumulative impacts associated with the proposed EfW, landfill and HWRC development.

Air Quality

17.3 An assessment of the air quality impacts associated with the proposed development has been undertaken. The assessment has focused on the principal emissions to air, including:

- Air Quality Strategy Pollutants from vehicles;
- Air Quality Strategy and Waste Incineration Directive (WID) Pollutants from point sources (EfW Stack);
- Dust and litter emissions during the construction and operational phases; and
- Odours and bioaerosols arising from the waste treatment process.

17.4 The assessments of dust, litter, odour and bioaerosols have been undertaken qualitatively and have found that no significant adverse effects are likely as a result of the proposed development.

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- 17.5 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.
- 17.6 The findings of the assessment of emissions from the proposed Ardley EfW stack has found that for a majority of substances the predicted long-term and short term impacts would be negligible even if the plant operated at the WID emission limits for the entire year.
- 17.7 The impact of emissions from the Ardley EfW stack on sensitive ecosystems is predicted to be 'insignificant' for all receptors when typical emission rates and operating hours are considered.

The impact of emissions from the proposed development would not therefore give rise to significant adverse air quality effects for either human or ecological receptors in either the short-term or the long-term.

Landscape and Visual Impact

- 17.8 A landscape and visual assessment of the proposed development has been completed in accordance with accepted guidance. A study of the landscape and visual components of the site and the local area was undertaken through desktop study and fieldwork. This study identified the main landscape and visual receptors and resulted in a baseline appraisal, against which landscape and visual impacts could be assessed. The main landscape and visual implications of the development and their potential impacts were identified, and mitigation was developed to minimise these impacts. Comparing the sensitivity of the receptors to the magnitude of predicted change, then allowed the significance of these resultant impacts to be assessed.

Landscape Impact

- 17.9 The proposed development would have a 'Moderate' effect on the existing landscape of the application area. This effect would rise to 'Moderate /Substantial' 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, and positive in terms of habitat creation. 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.
- 17.10 The effect of the development on the wider landscape would be 'Moderate' and 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.
- 17.11 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.

Visual Impact

- 17.12 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.
- 17.13 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.
- 17.14 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

- 17.15 The development proposals comprise a new EfW facility located on part of the Ardley landfill site served from a new priority T-junction and the continuation of landfill and HWRC operations.
- 17.16 The new access will accommodate all movements to the EfW facility as well as existing movements associated with the landfill operations. The junction has been designed in accordance with all relevant guidelines and has been independently assessed from a safety perspective. The HWRC will continue to use the existing site access.
- 17.17 The proposed development is unlikely to attract a significant number of non-car trips due to the type of use and its geographical location in the context of local employment catchment areas and the proximity to non-car infrastructure. Therefore this assessment robustly assumes that all staff trips will result in a new car trip although, in reality, this is unlikely given the propensity to car share. The attractiveness of car sharing will be reinforced through implementation of a travel plan.
- 17.18 The existing safety record of the highway has been reviewed and it has been concluded that there is no pattern of accidents that is suggestive of highway layout deficiency that leads to unacceptable safety risks. Furthermore, the impact of development traffic would be immeasurably small. Consequently, the proposed development is acceptable from a highway safety perspective.
- 17.19 The trip attraction potential of the development proposals has been considered on a first principles basis and the traffic flow increases do not justify full environmental impact assessment.
- 17.20 The impact of development traffic on the operation of the highway network has also been assessed using computer modelling techniques. The results of the modelling exercise demonstrate that the proposed development would

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not have any bearing on the capacity of the road network, particularly at peak times. Therefore, the development proposals are acceptable from a highway capacity perspective.

- 17.21 It is not envisaged that construction traffic levels will exceed those calculated for the operational phase of development subject to the identified mitigation measures including a travel plan.

It is considered that the development proposals are acceptable in traffic and transport terms and there will be no adverse impact on the surrounding road network

Noise and Vibration

- 17.22 The noise assessment has found that:

- the predicted construction noise levels achieve the criterion adopted for this 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 significant impact is predicted as a result of the cumulative impact of the proposals.

Overall it is concluded that with respect to noise and vibration, there would be no adverse impact on the surrounding receptors.

Geology Hydrology and Hydrogeology

- 17.23 There are no private water supplies or groundwater abstractions within 2km of the site boundary.

- 17.24 The site lies within Flood Zone 1 (low flood risk). However, as the development area is greater than 1ha a flood risk assessment has been undertaken demonstrating no increased or residual flood risk from the proposed development.

- 17.25 An outline design option for surface water drainage is presented within the Surface Water Management Plan. The drainage design presents a conservative sizing of ponds.

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

surface water attenuation ponds will add to the biodiversity potential of the site.

- 17.27 All aspects of the construction and operation of the site would be in accordance with best practice guidance.

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.

Palaeontology

- 17.28 The dinosaur footprints and trackways found to date at Ardley Quarry have provided an important insight into how two species of dinosaur that lived 168 million years ago moved.

- 17.29 There is a low possibility that further trackways remain in a horizon of the Upper Flaggy Limestone under the proposed EfW facility site that could be exposed during construction works. However, it is concluded that provided the mitigation measures are implemented, the proposed development is not likely to have a significant impact on the potential paleontological resource at Ardley Quarry.

With the mitigation proposed there would be no significant adverse effects on any surviving trackways

Cultural Heritage

- 17.30 It has been concluded that the historic landscape within the study area contains elements from several different periods of time, and has no particular focus in one period. There would be no direct impact on any cultural heritage elements from these proposals due to the former quarrying of the site.

- 17.31 The heritage assets present within the 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.

With the mitigation proposed, the building would create a negligible to moderate indirect visual impact on the settings of the heritage assets.

Socio-Economic Impacts

- 17.32 The SEIA has considered the potential positive and negative social and economic impacts of the proposed development on the community within 5km from the site.
- 17.33 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 EfW 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.

Nature Conservation

- 17.34 The proposed development will not impact upon any statutory and non-statutory designated nature conservation sites within the zone of influence
- 17.35 The proposed development will result in the loss of some ephemeral/short perennial, tall ruderal, colonising grassland and scrub habitats of less than local value as well as a number of ponds of local value. Whilst these habitats support a number of protected species, i.e. birds, great crested newt and reptiles, and their loss and the potential impact upon such species and any effects can be reduced and offset by the implementation of appropriate mitigation measures and through habitat creation and enhancement in the development site and in the wider area on restored landfill.

Through careful consideration of the potential impacts of the proposed development and adhering to the mitigation measure recommended the potential negative ecological effects of the development will be reduced to negligible.

Climate Change

The WRATE assessment concluded that the EfW facility will result in a negative environmental footprint that is, an overall reduction in environmental impacts such as global CO₂ emissions. This can be attributed to the generation of electricity from waste and the subsequent displacement of fossil fuel electricity generation; The EfW facility will produce carbon emissions but these are less harmful greenhouse gases than methane, which would be produced if the waste was landfilled:

- The EfW facility and offices will be powered by energy produced on site and the surplus energy will be exported to the National Grid. Recovered energy avoids the need to produce electricity from non

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renewable (fossil) sources, which in turn reduces emissions associated with the extraction and combustion of fossil fuels;

- In accordance with the supplement to PPS1, the EfW facility has been designed to minimise energy use and carbon emissions during construction and operation;
- New development in the vicinity of the EfW facility could be future proofed by ensuring the infrastructure is in place to allow CHP system to be retro fitted.

The proposed development will have a positive effect on climate change by proposing a technology which will result in an overall reduction in CO2 emissions.

Cumulative Impacts

17.36 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.

No significant adverse cumulative effects identified.

Summary

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.