

16.0 CUMULATIVE IMPACT

Introduction

- 16.1 This section is intended to assess the potential cumulative impact generated by the proposed development. Throughout the technical chapters and associated appendices contained within the Environmental Statement appropriate criteria has been used to assess the impact the proposed development could potentially have on the site and the surrounding area.
- 16.2 Existing activities at the Ardley site include the landfill, household waste recycling centre and mineral extraction all of which are temporary operations. Mineral extraction to the north of the existing Ardley site will shortly be completed but there is another consent immediately to the south of the landfill which has just commenced 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. Other changes as a result of the EfW being in place would be the landfill reaching capacity and closing earlier than 2027 which would be beneficial and sustainable on a cumulative level.
- 16.3 Each technical discipline (air quality, landscape, traffic, noise, hydrology, ecology, cultural heritage and planning) have each identified within their studies the outcome of the proposed development and the cumulative effects it potentially could have. Drawing on the results of the ES a summary of the potential cumulative impact the proposals could generate is provided below.

Air Quality

- 16.4 A robust assessment of the air quality impacts of the proposed development has been provided within Chapter 5 of the Environmental Statement. Overall the effects of the proposed development on air quality have been considered to be negligible and no cumulative impacts have been identified.
- 16.5 Baseline air quality monitoring and information has been collected in respect of the Ardley site which take account of the existing traffic and operations associated with the permitted site. The predicted long-term process contributions from the proposed EfW have then been combined with the background concentration to identify the predicted environmental concentrations (PEC). The resultant significance of impact, which is a factor of the magnitude of change and existing background concentrations is presented in Table 16-1 below.

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Table 16-1
Predicted Long-term Predicted Environmental Concentrations ($\mu\text{g}/\text{m}^3$)

Pollutant	Applied Standard	Back-ground	PEC Max	Max PEC as % of Standard	Significance of Impact
PM ₁₀	40.00	18.59	18.64	46.6%	Negligible
NO ₂	40.00	16.04	16.99	42.5%	Negligible
CO	350.00	124.24	124.48	35.6%	Negligible
SO ₂	50.00	2.59	2.83	5.7%	Negligible
HCl	20.00	1.74	1.79	8.9%	Negligible
TOC (as Benzene)	5.00	0.19	0.24	4.7%	Negligible
Cadmium	5.0E-03	7.0E-05	1.3E-04	2.6%	Negligible
Thallium	1.0	n/a	6.0E-05	<0.1%	Negligible
Mercury	2.5E-01	1.6E-03	1.8E-03	0.7%	Negligible
Antimony	5.0	n/a	2.9E-05	<0.1%	Negligible
Arsenic	2.0E-01	4.6E-04	4.9E-04	0.2%	Negligible
Chromium	1.0E-01	4.3E-03	4.3E-03	4.3%	Negligible
Cobalt	2.0E-01	n/a	2.9E-05	<0.1%	Negligible
Copper	2.0	2.5E-02	2.5E-02	1.2%	Negligible
Lead	5.0E-01	5.9E-03	5.9E-03	1.2%	Negligible
Manganese	1.0	8.0E-03	8.0E-03	0.8%	Negligible
Nickel	1.0	1.1E-03	1.1E-03	0.1%	Negligible
Vanadium	5.0	3.9E-03	3.9E-03	0.1%	Negligible
NH ₃	180.00	2.30	2.32	1.3%	Negligible
BaP	2.5E-04	1.1E-04	1.1E-04	43.5%	Negligible
PM _{2.5}	25.00	18.59	18.64	74.5%	Negligible

- 16.6 Results of vehicles accessing and leaving the facility during the construction period represent an “extremely small” change on the air quality at the existing site and surrounding area. Whilst during the operational stage there would be no significant cumulative air quality impact on the surrounding road network.
- 16.7 The potential increase in dust, litter, odours and bioaerosols was found to be minimal which subsequently equates to little or no change on the cumulative impact of an operational EfW, landfill and HWRC on site.
- 16.8 After a thorough assessment of potential emissions produced by the development it was concluded that there would be no significant adverse air quality effects for both human and ecological receptors which cumulatively would not hinder the site or the surrounding area.

Landscape

- 16.9 No long term cumulative effects are anticipated, although the permitted mineral extraction to the south of the application area will lead to cumulative

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landscape and visual impact in conjunction with the proposed development. However, as the mineral extraction is a temporary land use these effects would be restricted to the short to medium term and would in some cases assist in screening the proposed development from certain viewpoints.

- 16.10 Furthermore the site benefits from being a substantial distance away from significant surrounding buildings and landscape features the cumulative impact is considered to be minimal.

Traffic

- 16.11 The existing site access currently serves the landfill, HWRC and mineral extraction operations taking place at the site. Mineral extraction operations at the Ardley site will shortly be replaced by a new quarry immediately to the south of the landfill which will have its own dedicated access on to the B430. As part of the proposed development a new site access to serve the EfW and landfill would be created at the southern end of the site. The existing site access would be retained to serve the HWRC. It is anticipated the proposed EfW would be operational by late 2013 and that the revised access arrangements would be also be in place by then.
- 16.12 The cumulative effect of additional accesses on to the B430 has been considered and an adequate degree of separation, in accordance with highway standards, has been maintained and no additional safety concerns have been identified by either an independent road safety audit of the access proposals or by the Highways Authority who have considered this specific issue.
- 16.13 The existing landfill operation generates in the region of 140 HGV trips (280 movements) a day. The peak period in which HGV movements would be at their highest would be when the landfill and EfW would be operating at the same time. It is envisioned that at this time an extra 200,000 tonnes of waste would be coming into the site. This period is expected to last for around six to seven years, between 2013-2020. It is anticipated that the proposed development would generate 202 HGV trips (404 movements) a day during this period, which equates to an additional 62 HGVs a day over and above the existing landfill operation. Upon completion of the landfill this would reduce to 111 HGV trips (222 movements) a day. The assessment has been based on the worst case of 404 movements a day and no significant adverse impacts have been identified.
- 16.14 Traffic from the mineral operations and the HWRC are anticipated to remain at current levels and have therefore already been taken into account as part of the capacity assessments undertaken which did not identify any significant effects.
- 16.15 In respect of other potential developments in the area, in agreement with the Highways Authority, the assessment has had regard to the Upper Heyford proposals and has taken account of predicted traffic growth up to 2023 which is considered to cover potential developments in the area. Regarding potential future developments on the new quarry to the south of the landfill,

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existing lorry movements associated with the mineral extraction have already been taken into account as part of the capacity assessment work undertaken and it is considered that potential future users would be unlikely to exceed this level.

- 16.16 It is considered that the traffic flow increases at the site as a result of the proposed development and proposed and potential future development would not have a significant cumulative impact on the capacity of the surrounding road network.

Noise

- 16.17 The noise levels from the on-site noise sources have been assessed against standards appropriate for each noise source; BS4142 for the fixed plant and an assessment against existing ambient noise levels for the heavy goods vehicle movements.
- 16.18 To provide an indication of the cumulative impact, the predicted operational noise levels have been assessed against the existing ambient noise levels at each receptor.
- 16.19 The on-site operations would not have any significant effect on the receptors and as such it is concluded that there would be no cumulative impact with regard to noise on site.

Geology Hydrology and Hydrogeology

- 16.20 The proposed development has considered additional impacts on ground and surface water but it is acknowledged that the whole site has already been considered and found to be acceptable as a non inert landfill site. It is therefore considered that there would be no additional ground water impacts as a result of the additional proposed development. In respect of surface water the proposed design of the surface water attenuation features provides adequate capacity for both the landfill and the proposed EfW.
- 16.21 It is therefore considered that there are no significant cumulative impacts associated with the proposed development

Ecology

- 16.22 The site already has planning permission to be landfilled and there would be no additional loss of habitat as a result of the proposed development. In addition the potential impact of emissions on ecological receptors has been considered and found to be not significant.
- 16.23 No cumulative impacts have therefore been identified.

Paleaontology

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- 16.24 No cumulative impacts on palaeontology have been identified. The site already has permission to be landfilled and Natural England have decided not to designate the landfill as a SSSI.

Cultural Heritage

- 16.25 As the site is a former quarry and active landfill there will be no direct impacts on cultural heritage. The indirect impacts on the settings of nearby buildings of historic interest have been considered and no cumulative impacts have been identified.

Socio-economic

- 16.26 The proposed development would increase direct employment at the site and provide permanent employment and investment into the local economy which would be beneficial. The degree of separation from sensitive receptors and the lack of impact from the existing waste management operations support the view that additional waste management development at this location would not have a significant effect on the local economy and population.

Climate Change

- 16.27 The review of alternative technologies demonstrates that energy from waste technology is the one of the most beneficial waste management methods in terms of reducing the production of green house gases. The proposed EfW would therefore be beneficial in providing a permanent source of energy recovery which would reduce dependence on fossil fuels.

Summary

- 16.28 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.