Appendix E

APPRAISAL OF ENVIRONMENTAL STATEMENT

Planning Applications ESS/37/16/BTE & ESS/37/16/BTE:

Environmental Impact Assessment (EIA)

An Environmental Statement (ES) was submitted with the original application (ESS/37/08/BTE) in 2008. This ES was updated by additional Information required by the WPA under Regulation 19 of the EIA Regulations 1999 and further amended by an Addendum submitted as part of the Call-In Inquiry to determine the application. Update/addendums to this original ES have subsequently been submitted with respect to planning applications ESS/41/14/BTE, ESS/55/14/BTE and ESS/34/15/BTE.

The matters addressed by the ES and addendums to date are set out below:

- Land use and Contaminated Land
- Water Resources
- Ecological risk assessment
- Landscape and Visual Impact
- Cultural Heritage
- Travel and Transport
- Air Quality
- Noise and Vibration
- Social and Community Issues
- Nuisances
- Human Health Risk Assessment

An EIA Scoping Opinion request was made under the Environmental Impact Assessment Regulations 2011 in relation to the increase in stack of 105m in was issued in March 2017. It identified the subject areas that should be addressed by an update/addendum to the ES. As the Scoping Opinion was submitted under the EIA 2011 Regulations, the applications are required to be determined in accordance with 2011 EIA Regulations as required by the transition arrangements for the 2017 EIA Regulations, despite the EIA Regulations 2017 coming into effect on the 16 May 2017.

The Addendum ES submitted with current applications ESS/36/17/BTE & ESS/37/16/BTE covering the following matters:

Landscape & Visual Impact
Cultural Heritage
Air Quality
Human Health Risk Assessment
Noise
Cumulative Impact

EIA SUMMARY AND RECOMMENDATIONS
The following provides a summary of the significant effects that could potentially arise as a result of the proposed changes to the integrated waste management facility and the mitigation proposed.

Landscape & Visual Impact
The EIA initially included an LVIA that considered the increase in stack height. This was done by updating information with respect to the baseline conditions, considering any changes in legislation and guidance, including landscape character assessments. The LVIA looked at baseline changes to the site and its surrounds and with respect to visual receptors whether there had been any changes. The original 8 viewpoints plus the view from Woodhouse Farm for which photomontages had originally been produced were presented with the addition of further montage for each site showing the increased stack height. (Photographs were taken prior to 2015)

A Zone of the Theoretical Visibility was produced to a distance of 10km. The ZTV was based on whether a view would be possible, only taking account of obstructions of 8m or higher and from this ZTV additional points Viewpoints 9 to 31 were selected and clarification provided as to whether the stack would be visible or not.
The table of visual impacts for the various visual point receptors used in 2008 was reproduced (i.e. assessment of stack at 35m high) along with a written description of the likely changes in impact upon those receptors.

The LVIA concluded that “The degree of change is assessed as not constituting a significant harm to the landscape and visual receptors in that landscape.”

The LVIA was independently reviewed by a landscape consultancy (Liz Lake Associates) on behalf of ECC. The main points required by the WPA following this review were that:

- A physical method should be used to allow verification of the montages and identification of any another visual receptor/viewpoints and enable fuller assessment of the visual and landscape impact.
- Clarification of the assessment methodology.
- One drawing showing all points referred to in the LVIAs
- Reassessment of baseline conditons, taking account of GLVIA3 guidance
- A written assessment of the landscape and visual impact of the increased height on all assessment points.
- Reconsideration of the stack finish
- Clarification was sought as to how often a visible plume would be seen.

An addendum LVIA was submitted. The Addendum considered changes in the baseline situation, since the 2008 application assessment, which was considered mainly to be the progression of mineral extraction.

The Addendum LVIA asserts that the local landscape character as industrial and that the airfield and its remaining buildings “continues to exert an industrialising influence on the surrounding rural character.” The IWMF was considered to add a further industrial activity in the landscape.

In November 2017 a crane was located on site and the crane arm extended to the height of the proposed stack. Photographs were then taken from the photomontage locations and comparison provided to demonstrate that in most cases the montages had been largely accurate. Comparisons where provided of the 2015 photomontages and the photos with the crane were created for the 8 original viewpoints plus from Woodhouse based on photographs taken in January 2017 & May 2017 (sunnier day). The montages were based on likely views at year 1 rather than year 15, as it was difficult to predict likely changes to the landscape in that period.

It had been requested by the WPA that a visual/landscape assessment was undertaken from each location. The addendum provided comment as to whether the crane representing the stack was visible or not from the various locations and discussion provided of the visual/landscape impact. The WPA had requested and envisaged that a tabulated visual and landscape impact assessment would be provided for each point from which conclusions would be drawn as to the proposals impact, but this was no included.

The discussion of the landscape impact within the Addendum LVIA, notes that the Regional landscape Charter assessment for the area of Central Essex Farmlands was assessed as good to ordinary and has a moderate to sensitivity to change for all types of development, this has not changed since 2008. The magnitude of change on the local landscape resulting from the proposal is assessed as being Medium to Low. This is justified on the basis that the change in stack height is minimal when seen in relation to the overall size of the IWMF (which has been permitted), the extent of the quarry operations and the size of the disused airfield. While it is acknowledged that the quarry options are temporary and that the area will be restored, such that in the future a higher quality landscape will be created, it is argued that the landscape will be lacking in good quality features for a number of years. The impact is assessed as Minor adverse justified on the basis that there will be no visible plume, the stacks “optical clock and that the local landscape character is said to be “industrial” in nature” and the area is not designated as a Valued Landscape in accordance with the NPPF.

The discussion of the visual impact with the Addendum LVIA, refers to the following factors in terms of the context of the assessment, namely, the proposal to have no visual plume, the presence of existing high structures in the area, the “optical clock” proposed, the ongoing mineral extraction adjacent to the IWMF site and that views beyond 2km have not been considered on the basis that any impact was likely to be insignificant in terms of the harm caused. The magnitude of change was assessed as no higher than Medium and would not affect any receptors with high sensitivity to change and thus it was assessed that the change would have at worst Moderate Adverse from receptor P2 and P6 a PRoW from Cut hedge Lane to the NE to Sheepcotes Lane in the WS passing north of the IWMF.

No additional mitigation is proposed, but the applicant has indicated a willingness to create a fund to finance off-site additional plating.

Comments:

It is commented that the LVIA does assert that the surrounding baseline landscape has industrial elements, such that the impact of the stack has been considered in this context. It is considered that any contribution that mineral extraction contribute to this baseline is inappropriate as the landscape upon restoration and establishment of restoration plating would in time enhance the landscape value of the surrounding area. The used baseline landscape is considred to be unreprssentative and hence landscape character impacts have been underestimated

It is not considered that a systematice visual impact assessment has been undertaken for all receptors points.

The impact of solar reflection has not been considered as part of the LVIA.

Cultural Heritage
A Heritage Statement was included within the Environmental Statement, considering the impact of the proposed increase in stack height on Heritage Assets.

It was noted that there are 105 designated Heritage Assets within 3km of the study area, the majority within 1km. The heritage assets were identified as being largely ru*ral in character, being farms and country estates, although the landscape in which they are situated has a mixture of rural and industrial land-uses.*

It was also noted "*The immediate topography around the site forms a flat plateau at about 50 m Above Ordnance Datum, so even vegetation of small stature has the ability to restrict views. Whilst the Stack will, theoretically, be visible from some distance the heritage assets (Listed Buildings) benefit from intervening screening offered by buildings, agricultural barns, hedgerows and woodland area and the orientation and outlook of the Listed Buildings reduce direct views of the stack."*

The Heritage Statements sets out the findings of previous archaeological investigations undertake as part of mineral extraction. A watching brief was undertaken during the clearance of the last remaining area required to be disturbed as part the IWMF development, nothing of interest was found.

The Heritage Statement considers the heritage assets within 3 zones those within 1km, those within 1 to 2km and those in 2 to 3 km.

Those assets with 1km and 2 km full consideration of the contribution the setting makes to their significance. Those within 2 to 3km are not considered in detail.

Woodhouse Farm and associated buildings and pump are the closest heritage asset to the stack. It is stated that the wider setting of this group in which the stack would be visible does not contribute to the significance of this asset. It is concluded "*The stack will (as before) be visible from Woodhouse Farm and the proposed variation in stack height will lead to less than substantial harm on the designated asset."*

It is noted that the current derelict condition of the building is considered to detract from the setting of this group of assets. However, Woodhouse Farm and buildings will be redeveloped, refurbished and brought back into beneficial use as offices and a visitor/heritage centre as part of the IWMF works. Therefore it is stated that there

would eventually support in mitigating the overall change in setting. It is concluded that the change in stack height would lead to less than substantial harm, as was the case with the original stack height and the change would be give rise to a neutral impact.

In considering the impact overall on heritage assets it is noted that the significance for the majority of heritage assets derives from the following factors: age (survival), associations as groups of assets and architectural value. Many of the assets are working farmsteads so the relationship with the landscape is less specific/more generic than it would be if they were part of a designed landscape. It is concluded the character of the landscape is incidental to the significance of the heritage assets rather than integral to it. Accordingly it is concluded the impacts on this wider setting arising from the increase in stack height would not represent a major effect on these factors from which they derive their significance. As a result the impacts upon heritage assets identified are Neutral/Negligible, with one asset Rook Hall identified as Slight Adverse impact.

No additional mitigation is proposed as part of this application

Comment: ECC Place Service (historic buildings) is satisfied that the Heritage Statement is adequate. The WPA would comment that that it is considered that the industrial elements in the overall landscape have been over emphasised and the effects of ongoing mineral extraction are only temporary and restoration will see parts of the airfield restored back to agriculture.

Air Quality

An addendum air quality assessment has been submitted, supported by a detailed air dispersion modelling assessment, considering the impact upon air quality arising from the increase in stack height to 108mAOD.

Since the air quality assessment undertaken for the 2015 planning application applications for an Environmental Permit have been made such that assessments submitted with the EP and undertaken by the Environment Agency as part of their consideration of the EA have been relied upon in assessing the impact of the development upon air quality.

In assessing the first Environmental Permit the EA's Air Quality Modelling & Assessment Unit considered the impacts associated with the IWMF stack at 85m AOD and concluded that the IWMF was:

- unlikely to contribute to exceedances of air quality Environmental Quality standard (EQS) for human health
- with respect to the Human Health Risk Assessment would not result in any exceedance of the COT-TDI (Committee on Toxicity of Chemicals in Food, Consumer Products and the Environment – Tolerable Daily Intake).

As part of a second EP application to the EA a fully updated Addendum Air Quality Assessment was untaken taking on board all the requirements of the EP.

A part of this air quality assessment the impact of air quality on ecosystems with a stack of 108m was undertaken. The assessment was undertaken in accordance with EA guidance, taking account of broad habitat types as there are no designated sites requiring consideration. The impact of nitrogen and acid ashes on sensitive habitats was undertaken. It was concluded that impact of emissions on non-statutory sites was not significant against EA guidance levels.

A report on the significance of air quality effects has also been undertaken by the applicant and incorporated data from Andrewsfield Meteorological Station as well as Stansted. Previously the dispersion modelling had relied upon Stansted data has insufficient data was available at Andrewsfield station. The sensitivity analysis demonstrates that the data and weather station location have negligible change to the conclusions of the Dispersion Modelling Assessment. Overall the increase in stack height improves dispersion, such that the impact of emissions from the IWMF on local air quality would be less than that than with a 85m stack and demonstrates that local air quality, human health and habitats would not be adversely affected.

Comment: The assessment would indicate that there are no majors concerns with respect to air quality that would give cause for concern with respect to the determination of the planning application. However, the assessment and control of emissions is a matter for consideration and control through the Environmental Permit administered by the Environment Agency.

Health Risk Assessment
An Addendum HIA has been submitted, a full HIA having been submitted with application ESS/34/15/BTE. The addendum assessment considers the impacts of the increased stack height. The Health Risk Assessment has relied upon a Dispersion Modelling Assessment.

Dispersion Modelling Assessment
The dispersion modelling assessment was undertaken with reference to relevant legislation.

In the UK, the levels of pollution in the atmosphere are controlled by a number of European Directives, which have been fully implemented, and by the National Air Quality Strategy. These have led to the setting of a number of Air Quality Objectives (AQOs) for the most significant pollutants, such as oxides of nitrogen and particulate matter. The AQOs are set at a level well below those at which significant adverse health effects have been observed in the general population and in particularly sensitive groups. For other pollutants, the Environment Agency sets control levels, called Environmental Assessment Levels (EALs), based on work by the World Health Organisation and other national and international bodies. AQOs and EALs are collectively referred to as Air Quality Assessment Levels (AQALs).

The assessment utilised ambient air quality data collect by the UK Government and by local authorities, as the current levels of pollutants in the atmosphere close to the IWMF. The assessment identified a number of receptors, including closest houses and footpaths and designated ecological sites. The model used is one acceptable to the Environment Agency and local authorities. The model uses local weather data and takes into account local buildings and terrain.

In running the model emissions from the CHP plant have been assumed to comply with the limits prescribed within Industrial Emissions Directive, with the exception of NOx where a lower Emission Limit Value (ELV) of 150mg/Nm^3 and emissions from the gas fired boilers are assumed to comply with the limits prescribed within Environment Agency guidance.

It has been assumed the each plant forming part of the IWMF would operate all year at the emission limit, which was considered a conservative approach.

The model was used to predict the ground level concentration of pollutants on a long term and short term basis across a grid of points. In addition concentrations were predicted at identified sensitive receptors, both residential and ecological.
The dispersion model considered a range of pollutants including the following, Nitrogen dioxide, Sulphur dioxide, Particulate matter, carbon monoxide, Hydrogen chloride, Hydrogen fluoride, Ammonia, Metals, Volatile Organic Compounds (VOCs), Dioxins and furans, Polychlorinated biphenyl (PCBs) and Polycyclic Aromatic Hydrocarbons (PAHs).

Health Risk Assessment
The health risk assessment considered the various pathways through which an impact could arise, including through inhalation, ingestion of soil, water, home grown vegetables, animals and milk and breast milk.

In considering the impacts the assessment has utilised the background levels as they are now, not with the already permitted IWMF with a stack of 85m AOD.

The impact of air quality on human health has been assessed using a standard industry recognised approach.

a. The Environment Agency has stated that the contribution to air quality can be screened out as 'insignificant' if the short term contribution is less than 10% of the AQAL and the long term contribution is less than 1% of the AQAL. These screening criteria have been applied initially.

b. For those pollutants which are not screened out, the background concentration has been reviewed to see if there is any potential for any exceedances of an assessment level.

The assessment confirms that the proposals to increase the height of the CHP stack by 23 m would result in the impact of many pollutants on human health being screened out as 'insignificant'. For those which cannot be screened out, the background concentrations are low and there is little chance of significant pollution. Those pollutants that couldn't be screened out included nickel, cadmium and chromium.

Of all the pollutants considered with a Tolerable Daily Intake (TDI), nickel is the pollutant that results in the highest level of existing exposure (MDI). The combined impact of nickel from existing background sources and contributions from the IWMF at the point of maximum impact is 177.14% of the ingestion TDI for children. However, the process contribution from the IWMF for nickel is exceptionally small,

being only 0.24% of the TDI at the point of maximum impact, and 0.20% or less at receptors. This is based on the worst-case assumption that emissions of nickel are 44% of the group Emission Limit Value (ELV). The analysis by the Environment Agency states that this is an outliner, the monitoring data shows that this was for a single facility, the third highest concentration was 11% of the ELV. If it is assumed that emissions of nickel are 11% of the group ELV the impact is less than 1% of the TDI for ingestion at the point of maximum impact for an agricultural child receptor. On this basis, the IWMF would not increase the health risks from nickel for children significantly. Similarly, the ingestion of cadmium and chromium from existing background sources and contributions from the IWMF also exceeds the ingestion TDI for children. However, the process contribution from the proposed IWMF for cadmium is again exceptionally small, being only 0.19% of the TDI at the point of maximum impact for an agricultural receptor, and 0.16% or less at actual receptors. The process contribution for chromium is again exceptionally small, being only 0.34% of the TDI at the point of maximum impact, and 0.27% or less at receptors.

The TDI is set at a level “that can be ingested daily over a lifetime without appreciable health risk”. The ingestion of cadmium and chromium by children as a result of background sources is already above the TDI. On the basis that the process contribution of these substances is exceptionally small, the IWMF would not increase the health risks from this pollutant significantly. For all other pollutants, the combined impact from the IWMF plus the existing MDI is below the TDI, so there would not be an appreciable health risk based on the emission of these pollutants.

The conclusions of the Health Risk Assessment & Dispersion Modelling Assessment are that there would be no significant impact on local air quality, the general population or the local community.

Comment: The Health Risk Assessment and Dispersion Modelling Assessment that form part of the EIA were submitted as part of the Environmental Permit and considered by the Environment Agency when making their decision to issue an Environmental Permit.

Noise

The noise levels arising from the proposed IWMF have been re-assed taking account of the increased stack height. This re-assessment was required as part of the Environmental Permit applications submitted to the EA.

The assessment has taken account of criteria from both the NPPF, BS standards and the WHO. The assessment has used available information with respect to likely noise generation of the various plant and equipment to be used at the IWMF and where information is not available it has been based on experience of similar operations to understand the sound levels associated with IWMF.

Original baseline surveys have been compared with more recent noise monitoring undertaken in 2014 to 2017 which has shown the acoustic environment has not changed.

By increasing the height of the stack the emission point would be further away from the receptors and so the contribution to overall sound levels will be very slightly

lower; however, the stack is not significant source and the overall sound levels remain unchanged. Noise levels resulting from the operation of the IWMF still comply and satisfy the existing planning condition(s) relating to noise limits.

The assessment has demonstrated that the IWMF will produce sound levels at the closest sensitive receptors that comply with the planning condition noise limits. The assessment has also considered a range of authoritative guidance NPPF, BS Standards and WHO and has demonstrated that the predicted sound levels will comply with recommendations set out in these documents.

Comment: As detail of the plant is required to be approved at a later stage further reassessment would be required to further demonstrate compliance.

Cumulative Impact
Updates to the original 2008 Environmental Statement have been provided as part of subsequent applications, which have taken into account of changes to the IWMF and other nearby developments namely extension of Bradwell Quarry into sites A3 and A4. The update provided with the current application has also considered the proposed improvement/realignment of the A120 and planning permission granted on appeal to extend Silver End on its north east boundary with a housing development for 350 houses.

Comment: Appropriate consideration was given to cumulative impacts.