



Mercia EnviRecover
**PROPOSED DEVELOPMENT OF A RENEWABLE ENERGY
PLANT ON LAND AT HARTLEBURY TRADING ESTATE,
HARTLEBURY, WORCESTERSHIRE**

**Environmental Statement
Volume 3 - Revised Non-Technical Summary**

August 2011

axis



Mercia EnviRecover

PROPOSED DEVELOPMENT OF AN ENERGY FROM WASTE FACILITY ON LAND AT HARTLEBURY TRADING ESTATE, HARTLEBURY, WORCESTERSHIRE

ENVIRONMENTAL STATEMENT

REVISED NON-TECHNICAL SUMMARY

AUGUST 2011

This report has been prepared in support of the planning application for the Mercia EnviRecover Development and has been prepared on behalf of Mercia Waste Management. The application has been co-ordinated by Axis with technical inputs from:

- AXIS – Planning, Transportation, Landscape & Visual, Archaeology & Cultural Heritage, Surface Waters & Flood Risk
- Hyder - Geology & Hydrogeology
- Fichtner – Facility Design, Process Description and Justification, Air Quality & Health Assessment
- Argus – Ecology and Nature Conservation
- NVC – Noise
- Studio E – Facility Design and Architecture



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FOREWORD

This Environmental Statement is submitted in support of a planning application made by Mercia Waste Management to develop the Mercia EnviRecover facility an Energy from Waste facility, on land at Hartlebury Trading Estate in Worcestershire. The Environmental Statement comprises the following documents:

- The Environmental Statement (ES) Main Report (Volume 1), which contains the detailed project description; an evaluation of the current environment in the area of the proposed development; the predicted environmental impacts of the scheme; and details of the proposed mitigation measures which would alleviate, compensate for, or remove those impacts identified in the study. Volume 1 also includes a summary of the overall environmental impacts of the proposed development and all relevant schematics, diagrams and illustrative figures;
- Technical Appendices (Volume 2), which include details of the methodology and information used in the assessment, detailed technical schedules and, where appropriate, raw data. (Volume 2 is printed in black and white. However, a CD is enclosed that includes a colour version of all the technical reports);
- A Non-Technical Summary (Volume 3), containing a brief description of the proposed development and a summary of the ES, expressed in non-technical language;
- An update to the ES by way of a Regulation 19 submission of further environmental information. This is contained in two parts comprising:
 - An assessment of the likely significant environmental effects of the facility's electrical grid connection; and
 - A Revised Non-Technical Summary (Volume 3) with addition of a description of the main alternatives considered by the applicant.

Copies of the first three documents, as a three volume set, are available at a cost of £200 from Mercia Waste Management, The Marina, Kings Road, Evesham, Worcestershire, WR11 3XZ. Alternatively, the original and Revised Non-Technical Summary documents can be purchased on their own from the same point of contact for £15 each. Electronic copies of the two Non-Technical Summaries are also available via email (enquiries@severnwaste.co.uk), free of charge. The Regulation 19 update documents are available as a two volume set for £25. In addition, all of the planning application documentation, including the ES and Regulation 19 update can be downloaded from www.envirecover.co.uk

1.0 INTRODUCTION

1.1 The Proposal

1.1.1 Mercia Waste Management (MWM) is proposing to meet the residual municipal waste management needs of Worcestershire County Council and Herefordshire Council (the Joint Authorities) through the development of the Mercia EnviRecover facility, a purpose built Energy from Waste (EfW) plant, on land at Hartlebury Trading Estate, Hartlebury, Worcestershire. The planned opening date for the facility is 2014. The facility would have an installed electricity generating capacity of approximately 15.5 Megawatts (MW). It would generate electricity by way of a steam turbine which would be driven through the combustion of approximately 200,000 tonnes per annum (tpa) of residual waste (i.e. waste which is left after recycling and composting). Municipal waste is that waste collected and managed by, or on behalf, of local authorities.

1.1.2 The proposals comprise the construction of the EfW facility (with an integrated education / visitor centre) and associated elements such as car parks, roads, drainage ponds and landscaping.

1.2 The Applicant

1.2.1 Mercia Waste Management operates from its head office in Evesham (together with its sister company Severn Waste Services) and provides the largest specialist waste management service in Herefordshire and Worcestershire. The company currently operates the Joint Authorities' long term contract for the management of municipal waste.

1.2.2 The service provided by MWM includes the operation of approximately 30 existing waste management facilities in Herefordshire and Worcestershire.

1.2.3 The service also requires the provision of new facilities, as necessary, to ensure the successful and sustainable management of Herefordshire and Worcestershire's municipal waste. A core requirement of the service is the management of residual waste and its diversion from landfill. The development which is the subject of this application aims to meet this core requirement.

1.3 The Site

- 1.3.1 The planning application site comprises approximately 3.5 hectares of land on a broadly rectangular shaped plot situated in the centre of Hartlebury Trading Estate (see Figure 1). The Trading Estate is located approximately 7km to the south-east of Kidderminster and approximately 1.5km to the east of Hartlebury. It covers an area of approximately 75ha (180 acres) and is primarily served by a purpose-built access via Crown Lane, off the A449.
- 1.3.2 The site itself is broadly level, undeveloped and covered by varying degrees of scrub vegetation with occasional trees and shrubs. It is crossed by two small watercourses (ditches).
- 1.3.3 Immediately north of the site is Waresley Landfill site and a series of clay extraction quarries. To the immediate south of the site is Oak Drive, the estate road from which the site would be accessed, to the south of Oak Drive is a range industrial / commercial units. Industrial units are also located to the west of the site and the private sewage works for the Trading Estate immediately abuts the north-west corner of the site. To the east of the site there is a block of woodland known as Middle Covert, beyond which are further industrial units. The area beyond the Trading Estate (and landfill site) is predominantly rural in nature.

1.4 This Document

- 1.4.1 This document is the Non Technical Summary (NTS) of the Environmental Statement (ES), which has been prepared to accompany the planning application. It summarises the findings of an Environmental Impact Assessment (EIA) of the proposed scheme in non technical language.

2.0 ALTERNATIVES CONSIDERED

2.1 Introduction

2.1.1 The issue of alternatives arises from the Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999. Schedule 4 of the Regulations identifies the information for inclusion in Environmental Statements. Parts 1 (2) and 2 (4) include:

“An outline of the main alternatives studied And an indication of the main reasons for his choice, taking into account the environmental effects”.

2.1.2 Paragraph 83 of Circular 2/99 which accompanies the Regulations notes that:
“Although the Directive and the Regulations do not expressly require the developer to study alternatives, the nature of certain developments and their location may make the consideration of alternatives a material consideration....”

2.2 Alternative Waste Management Options

2.2.1 When the Worcestershire and Herefordshire waste PFI (Private Finance Initiative) contract was signed in 1998, it was on the basis of there being a single large residual waste management facility using Energy from Waste technology at Kidderminster. This was, in MWM’s view, the best solution at that time. The Joint Authorities accepted that view. The Kidderminster Energy from Waste planning application failed though and both the Authorities and MWM were forced to review the delivery strategy. This process involved:

- The Joint Authorities undertaking a BPEO study (Best Practicable Environmental Option) which found that the most sustainable long term option for managing residual waste was some form of thermal treatment. The most common form of thermal treatment in the UK is Energy from Waste.
- The BPEO study fed in to the Waste Partnership’s (comprising Worcestershire County Council, and its six constituent Waste Collection Authorities, and Herefordshire Council) Joint Municipal Waste Management Strategy (JMWMS) which also supported thermal treatment as the preferred option.

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- In 2009 the Joint Authorities prepared the JMWMS First Review, which contained an assessment of future residual waste treatment options. A long list of waste management options was reduced to seven treatment options. Each option was assessed against environmental, financial and risk and social criteria. The criteria used were:

Environmental Criteria

- Resource Depletion
- Air Acidification
- Greenhouse Gas Emissions
- Freshwater aquatic ecotoxicity
- Eutrophication

Financial and Risk Criteria

- Financial Costs
- Reliability of Delivery
- Planning Risk
- Compliance with Policy
- Flexibility
- End Product Liability

Social Criteria

- Transport
- Health

2.2.2 The options that were assessed were as follows:

- Option A - one site EfW facility;
- Option B - one site EfW facility with Combined Heat and Power (CHP);
- Option C - two site Mechanical Biological Treatment (MBT) with on site combustion of the solid recovered fuel;
- Option D - two site MBT with off site combustion;
- Option E - one site autoclave;
- Option F - two site autoclave; and
- Option G - out of county EfW facility.

2.2.3 Following the assessment work the Options were ranked as follows (with the best ranking option first):

1. Option B
2. Option E
3. Option A
4. Option F
5. Option C
6. Option D
7. Option G

2.2.4 The Mercia EnviRecover facility is classed as Option B if there is both electricity and heat export or Option A if there is electricity export only. Whilst the planning application does not include heat export, the facility is designed to allow this to happen. In addition, the facility would be located in an area where there are good prospects for future heat use. Thus whilst currently the proposal currently represents Option A, it is reasonable to describe the proposal as being consistent with Option B, the best performing alternative, when assessed against a range of environmental, financial (and risk) and social criteria.

2.2.5 MWM has undertaken its own Options Appraisal using a similar, but slightly more refined, site specific methodology to that used by the Council.

2.2.6 The MWM options appraisal considered eight different residual waste treatment options:

- Option 1 - one site power only EfW facility;
- Option 2 - one site Combined Heat and Power (CHP) EfW facility;
- Option 3 - out of county EfW facility;
- Option 4 - one site Autoclave with the fibre recycled as fibreboard;
- Option 5 - one site Autoclave with the fibre landfilled;
- Option 6 - two site Autoclave with the fibre recycled as fibreboard;
- Option 7 - two site Mechanical Biological Treatment (MBT) with on-site combustion of the Refuse Derived Fuel (RDF); and
- Option 8 - two site MBT to with out of county combustion of the RDF.

2.2.7 These options were scored against fifteen different assessment criteria based on the thirteen criteria considered within the Authorities' assessment. The scoring methodology for these criteria is different from that considered within the Authorities' assessment. Instead of putting the options into the order of best first and the worst last, scores are provided based on the options performance against the criteria. The scores from each assessment criteria are combined into a single score based on a weighting reflecting the Authorities' priorities.

2.2.8 Option 2 (Mercia EnviRecover facility with CHP) scored the highest overall and Option 1 (Mercia EnviRecover facility with electricity export only was ranked second). MWM is satisfied that the development of a CHP ready EfW facility on Hartlebury Trading Estate is a strong performing waste management option. This supports the company's decision to proceed with the Mercia EnviRecover proposal instead of any alternative waste management option.

2.3 Alternative Technologies

2.3.1 Energy from Waste development can use different types of technologies such as Fixed Hearth, Pulsed Hearth, Rotary Kiln, Pyrolysis / Gasification, Fluidised Bed and Moving Grate. 'Moving Grate' technology is the leading technology in the UK and Europe and is installed on almost all (~98%) of UK incinerators. It is a design which has been proven to work and is readily available by a number of suppliers. For these reasons MWM has selected a 'Moving Grate' technology for the EnviRecover facility.

2.4 Alternative Sites / Locations

2.4.1 The Shareholders of Mercia Waste Management (MWM) commissioned AXIS, in mid 2007, to identify possible sites within the Counties of Worcestershire and Herefordshire for the location of a facility (or facilities) for the treatment of residual waste, known as a Residual Waste Treatment Facility (RWTF). The facility would form part of the waste management requirements for MWM's waste contract with the two Counties. The site finding process is known as the Site Search Exercise (SSE) and has been carried out in five Stages.

2.4.2 Stage 1 of the SSE established the how to undertake the assessment, which was agreed with planning officers from both Worcestershire County Council

and Herefordshire Council. It started with a desk based assessment to produce a 'long list' of potentially suitable sites, allocations and employment areas within each of the waste planning authority areas. Some 58 locations were identified, some of which contained more than one potential site. These were reviewed and a number discounted for one or more of the following reasons:

- being too small;
- being too far from for the main areas of where the waste comes from;
- the nature of the allocation (e.g. that the allocation related to a high quality business use);
- existing knowledge within the study team relating to specific sites (e.g. that no land is commercially available).

2.4.3 The desktop study was followed by site visits to each of the remaining locations with a view to identifying potential sites that met with the site search criteria. This element of the work formed Stage 2 of the SSE. For each site an assessment pro-forma was completed. Those sites which were obviously unsuitable for the development of a RWTF were subsequently discounted. The shortlist of remaining sites identified by this process was called the Primary Areas of Search.

2.4.4 The sites were put in order of preference based on the number and nature of the constraints to the development of a particular site and the potential for CHP related use.

2.4.5 Stage 3 of the SSE included defining the optimum technical solution. This established that MWM's preferred option would be a single facility, located in Worcestershire using mass burn incineration technology. Stage 3 of the assessment also resulted in the identification of just two potentially suitable and available sites for an EfW facility. These were a site at Ravensbank Business Park in Bromsgrove and land at Hartlebury Trading Estate, which is located between Worcester and Kidderminster.

2.4.6 The two Councils were informed of MWM's findings and negotiations commenced on purchasing the Ravensbank site. However, during this process restrictive covenants were found on the Ravensbank site which prevented the

site being used for waste incineration. This left the land at Hartlebury as the only suitable and available option.

2.4.7 For completeness, a fourth stage of the SSE was undertaken which assessed: three new sites which had not previously been considered; three sites that had not previously been available that were now available; a site from a previous stage that warranted being looked at again; and the Hartlebury Trading Estate site. Only the land at Hartlebury was found to be suitable for an EfW development. An independent planning review of the SSE work commissioned by MWM agreed with the methodology and findings of the exercise.

2.4.8 Shortly prior to the submission of the planning application, a Stage 5 update study was carried out. This did not find any new sites that had become commercially available since the previous stages of the exercise. The Site Search Exercise found that the land at Hartlebury Trading Estate represented the only suitable and available site for the development of the EfW proposal.

2.5 Alternative Design Solutions

2.5.1 A number of alternative design solutions were considered for the Mercia EnviRecover facility at the application site before the current proposal was chosen. This work is set out in detail in the Design and Access Statement.

2.5.2 The site layout was influenced by the facility's largest and tallest structure, the Main Building. A north/south direction of the building would allow benefits such as the existing poplar trees to be kept, safe vehicular and pedestrian access to the site and a landscaped forecourt. In order to reduce the visual impact further, the building is to sit 8m lower than the existing ground level.

2.5.3 At the same time that the layout of the site was being decided the design of the buildings and the visual impact was explored from key views around the site. Due to the site's sensitive setting, a design was developed that would minimise the overall height and massing of the facility. The materials and colours for the facility help to add interest to the buildings and have been tested using photographs of the area with which show what the finished development would look like in the wider context.

3.0 SCHEME DESCRIPTION

3.1 Layout and Design of the Proposed Development

3.1.1 The proposed Mercia EnviRecover facility would be based around a 'Main Building' which would contain the waste reception area, waste storage bunker, boiler, plant and equipment to deal with cleaning emissions and handling ash, education/visitor centre and staff facilities. This building would cover an area of approximately 6,177m² and would be 45m high. The proposed site layout is shown on Figure 2.

3.1.2 The turbine (which generates the electricity), sub-station and some other equipment would be located in a separate building referred to in the ES as the 'Turbine Complex Building'. The Turbine Complex Building would cover an area of approximately 1,500m², would be 16m high and be located to the west of the Main Building. A pipe bridge would connect the Turbine Complex Building to the Main Building.

3.1.3 In order to minimise the visual impacts of the main building, it would be set 8m below the original site level reducing the building height to 35m in relation to the surrounding ground. This would be achieved through excavation of material from the site and the creation of a sunken area.

3.1.4 In addition there would be a stack (chimney) of 83m in length of which 8m would be below the surrounding ground level resulting in a stack height of 75m above the ground. 3D representations of the proposal are shown on Figure 3.

3.2 Employment

3.2.1 The plant would provide employment for approximately 42 people. 30 of the employees would be skilled operatives (electricians/fitters/crane operatives) or technical engineers, working on an 8 hour shift pattern with 06:00, 14:00 and 22:00 start times. There would be approximately 12 office based staff, typically working a 09:00-17:00 day.

3.2.2 The construction of the Mercia EnviRecover facility would also provide temporary employment. The number of site operatives employed would vary throughout the construction period with peak construction staff numbers of up to 250 occurring during the equipment installation and fit out.

3.3 Access

3.3.1 The Mercia EnviRecover facility would be located in Hartlebury Trading Estate and would be accessed from Oak Drive. There would be separate entry and exit points. These have been designed to appropriate highway standards. Access into Hartlebury Trading Estate would be from Crown Lane which leads directly from the A449, approximately 1.5km to the west of the Trading Estate.

3.4 Drainage

3.4.1 A preliminary drainage design for the proposed development has been developed for surface and foul water.

3.4.2 It would be necessary to divert the drainage ditches that currently flow across the site. To facilitate this a new open channel would be provided around the northern, eastern and southern boundary of the site. This channel would flow into the existing culvert (underground pipe) that flows beneath Oak Drive.

3.4.3 The proposed development would give rise to surface water which would run-off hard surfaces such as roofs and roads. This water would flow into two surface water ponds that would control the flow of water into the diverted watercourse.

3.4.4 The only foul water that would arise from the facility would be that from toilets, kitchens and showers. This water would be discharged to the adjacent private sewage treatment works that serves the trading estate. No waste water would result from the industrial processes at the plant.

3.5 Proposed Site Operations

Operating Hours and Vehicle Numbers

3.5.1 It is proposed that the plant would process waste and generate electricity on a 24-hour basis, seven days a week. Waste would be brought onto the site between the hours of 06.00 and 19.00 seven days a week. However, approximately 90% of this waste would be brought in Monday to Friday.

3.5.2 On the basis of the annual capacity for this facility and the predicted amount of waste within the vehicles, it is anticipated that deliveries to Mercia EnviRecover would likely be in the region of 66 – 98 HGVs per day.

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- 3.5.3 A schematic diagram is shown on Figure 4 that illustrates the processes involved within an Energy from Waste plant, the processes undertaken at the Mercia EnviRecover facility are described below.

Waste Reception and Handling

- 3.5.4 Incoming waste vehicles would enter the site via Oak Drive and proceed to the enclosed waste reception / tipping area where they would empty the waste into a large bunker. On completion of the tipping operation, the vehicles would leave the site via the one-way site circulation road.
- 3.5.5 Within the tipping area cranes are used to mix and stack the refuse into the feed chutes of the furnaces.
- 3.5.6 Odour and dust in the tipping hall would be controlled by fans located above the waste bunkers. These would suck air from waste reception / tipping hall into the furnace to feed the combustion process and prevent odours, dust or litter escaping from the building.

Combustion Process

- 3.5.7 The waste is burned on a grate. This facility would use a “moving grate” which turns and mixes the waste along the surface of the grate to ensure that all waste is exposed to the combustion process.
- 3.5.8 Whilst the furnace is fitted with auxiliary burners, fuelled by gas or oil, these would only be used to start the plant up (typically twice per year) or if temperatures fall below 850°C, which rarely happens.

Boiler Water Treatment

- 3.5.9 Water used within the boiler is treated to ensure reliable operation using a number of chemicals. These are stored within a controlled area within the main building.

Flue Gas Treatment

- 3.5.10 Gases generated during the combustion process would be cleaned before being released into the atmosphere in the flue gas treatment plant. The treatment plant works by using a number of filters and chemicals to remove

pollutants from the gasses, this process ensures that the plant operates within the emission limits set out in the Waste Incineration Directive.

Stack

- 3.5.11 Following cleaning, the combustion gases would be released into the atmosphere via the stack. Emission from the stack would be monitored continuously by an automatic computerised system and reported in accordance with the Environment Agency's requirements for the operation of the facility. The proposed stack is 75m high from ground level.

By-Product Handling and Disposal

- 3.5.12 Two types of solid by-products would be produced from the operation of the Mercia EnviRecover facility, bottom ash, which is the material remaining from the combustion of the waste, and Air Pollution Control (APC) residues, which are produced from the treatment of the gasses generated from the combustion of the waste. Each of which would have separate handling and disposal arrangements as described below.

Bottom Ash

- 3.5.13 Bottom ash would be stored in an appropriately designed storage bunker prior to export from the site. Regular collections of the bottom ash would be undertaken to transport the material to a bottom ash reprocessing contractor for ferrous metal recovery and recycling, probably into a building aggregate.

Air Pollution Control (APC) Residues

- 3.5.14 APC residues would be stored in a silo adjacent to the flue gas treatment facility. The APC residues would be transported offsite to a suitably Permitted disposal facility.

3.6 Energy Recovery

- 3.6.1 One of the major benefits of the Mercia EnviRecover facility would be the ability to recover energy from the combustion of the waste by way of electricity and heat production. A proportion (55-65%) of this energy is classified as being renewable energy.

3.6.2 The energy generation process is based upon hot gasses from the combustion chamber passing to a boiler which converts the energy from the gases into steam.

3.6.3 The proposed facility includes a steam turbine that would have a generation capacity of 15.5MW of electricity to connect to the local supply grid. It would also have the capability to export heat in the form of hot water or steam to local heat users.

3.7 Waste Types and the Source of Waste

3.7.1 The proposed facility has been designed for the treatment of 200,000 tonnes per year of residual municipal waste. The assessment has shown that treating this amount of waste at the facility will not prevent or inhibit Herefordshire or Worcestershire achieving higher levels of recycling than their current stated targets.

3.8 Construction Methods

Programme

3.8.1 The construction period is anticipated to take approximately 35 months. The main construction works including clearing the site, ground excavations and erection of the buildings, this is likely to occur within the first 20 months. The remainder of the construction period will involve installation of equipment into the buildings and laying of roads and car parking areas.

Construction Hours

3.8.2 Construction operations would generally be limited to 07.00 to 19.00hrs Monday to Friday and 07.00 to 12.00hrs Saturday. It is possible that some construction activities would be undertaken outside these hours e.g. installation of equipment into buildings. HGV movements would not be permitted outside these hours without prior agreement from the Council.

Main Construction Activities

3.8.3 One of the main construction activities will be the excavation for the Main Building. Approximately 60,000m³ of clay would be would be excavated; a

number of potential uses for the excavated clay has been identified, including brick making and engineering material for landfill sites.

Site Compound and Operative Facilities

3.8.4 A site compound for the storage of building materials and equipment will be located within the site boundary, an adjacent industrial unit will provide additional storage and will be accessed directly from the western perimeter of the site.

Construction Environmental Management Plan (CEMP)

3.8.5 A CEMP would be developed for the project, the purpose of which would be to manage and report environmental effects of the project during construction.

3.8.6 A CEMP for a project of this nature would typically cover the following key elements:

- drainage, water quality and hydrology;
- dust, emissions and odours;
- health and safety/site management;
- waste management;
- traffic management;
- wildlife and natural features;
- cultural heritage; and
- contaminated material.

4.0 SUMMARY OF EFFECTS

4.1 Traffic and Transportation

4.1.1 The assessment relies on the findings of the formal Transport Assessment (TA), submitted in support of the planning application. The TA sets out the detailed appraisal of highway and transport impacts associated with the development.

4.1.2 The potential highways and transport related environmental impacts have been assessed with reference to the methodology set out in the Institute of Environmental Assessment (IEA) document "Guidelines for the Environmental Assessment of Road Traffic".

Construction Impacts

4.1.3 Traffic impacts associated with the construction of the site would be temporary in nature and are likely to vary over the course of the construction period dependent upon the nature of activities taking place. It is proposed that a Construction Traffic Management Plan should be prepared, this would form part of the Construction Environmental Management Plan. Vehicle deliveries to / from the site during the construction phase would be managed to avoid impact on traditional AM / PM rush hour periods and, in addition, further on-site measures would limit typical construction traffic impacts such as dirt, dust, noise and vehicle related vibration.

Operational Impacts

4.1.4 Local distributor roads are predicted to continue to operate with free flowing traffic and little evidence of congestion, queuing or driver delay, even during peak periods. Detailed junction assessments demonstrate that both the Crown Lane / A449 roundabout and Crown Lane / Trading Estate Spine Road access would continue to operate effectively. The additional traffic demand associated with the proposed development would not result in any substantive additional driver delays or congestion. There is no evidence of any local road safety hazards created as a result of the proposal.

4.1.5 Overall changes in traffic flow over the immediate local network would not give rise to a material change in traffic related environmental conditions. This

conclusion is supported by the results of detailed noise, vibration and air quality assessments.

4.2 Landscape and Visual

4.2.1 The methodology used to carry out the assessment is based upon the Guidelines for Landscape and Visual Impact Assessment.

4.2.2 The proposal has been designed in such a way as to reduce landscape and visual effects that could potentially occur due to the size, scale and location of the buildings. The main building would be sunk some 8m below ground level, reducing the extent of its visibility. The proposal includes a comprehensive landscape scheme which includes provision of new habitat creation (woodland and grassland areas).

Construction Impacts

4.2.3 There would be short term visual effects during the construction phase. However, the temporary nature of these set within a large established industrial estate (and adjacent to a landfill), would not result in any significant impacts.

Operational Impacts

4.2.4 Whilst the proposed development would be clearly visible due to its size and scale from some of the residential properties at Waresley Park, from isolated properties to the north, east and south of the site and from sections of local footpaths, views would be experienced in the context of the existing industrial development of Hartlebury Trading Estate and the adjacent landfill sites. As such the proposal would not cause the nature of existing views to undergo significant change and would not affect the key characteristics of the local landscape setting.

4.3 Ecology and Nature Conservation

4.3.1 The ecological assessment is based on evaluation of local nature conservation records and the results of field survey work undertaken specifically for the proposal.

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- 4.3.2 The impact assessment follows the methodology set out by the Institute of Ecology and Environmental Management.

Construction Impacts

- 4.3.3 Development of the site would impact on some features of local interest, including two oak trees, and a habitat mosaic of grassland, scrub, tall herb vegetation and a partly culverted ditch. Compensation measures in the form of the diverted watercourse, two ponds, and landscape planting would form part of the site design.

Operational Impacts

- 4.3.4 Based on the survey data, the development would not result in significant effects on protected species. A bat roost in the woodland to the east of the site has been identified as the key protected species interest of the locality. Retention of the poplar plantation on the eastern part of the site, and noise mitigation methods, would be implemented to avoid any potential impacts.
- 4.3.5 The Air Quality assessment has demonstrated that there would be no significant indirect effects on important wildlife sites as a consequence of emissions associated with the combustion process.

4.4 Geology, Soils and Groundwater

- 4.4.1 The assessment has been based on information gathered from the desk study and ground investigation surveys undertaken at the site. The results of the investigations indicate that the soils and groundwater beneath the site contain relatively low levels of contaminants and those which are present are assessed as of being of a low level of risk. The assessment considered the potential effects of the proposed development on groundwater, construction materials and human health.

Construction Impacts

- 4.4.2 It has been predicted that any adverse environmental effects would occur predominantly during the construction phase. Measures to mitigate these effects would include use of Personal Protective Equipment, procedures for dealing with accidental oil and fuel spillage and dust suppression. These

measures will be fully detailed within the Construction Environmental Management Plan.

- 4.4.3 The site investigations have indicated that the construction of the facility is unlikely to impact on groundwater in the local area and as such no significant effects are predicted on the woodland to the east of the site.

Operational Impacts

- 4.4.4 Once built the facility will operate on sealed concrete areas ensuring any pollutants are not able to penetrate into the underlying ground. Additionally systems will be in place to ensure all potential contamination issues associated with the operation of the facility will be controlled. As such no significant ongoing effects are predicted.

4.5 Surface Water and Flooding

- 4.5.1 The assessment has been based on the information gathered from the ground investigation desk study, mapping of ground levels of the site, Environment Agency data and Ordnance Survey mapping.
- 4.5.2 An outline drainage design solution has been developed that includes two large ponds to control the release of surface water into the diverted watercourse that runs around the boundary of the site. The proposed development does not lie within an identified area of flood plain and the risks posed to the development from flooding are negligible.
- 4.5.3 Standard best practice construction methods will be implemented at the site to ensure that there no water qualities impacts from the construction works. These methods will be documented in the Construction Environmental Management Plan and will include measures such as storage of fuel, oils and chemicals in bunded areas and use of settlement lagoons.
- 4.5.4 Appropriately designed storage areas for fuels, chemicals and oils and provision of pollution control measures within the surface water drainage system would ensure that the proposed development does not affect the water quality of the surrounding area.

4.6 Noise and Vibration

4.6.1 A survey of background noise in the local area site was undertaken to establish the levels of noise currently experienced by local residents and other sensitive receptors. The assessment referenced noise guidance and national standards to determine the potential noise impact from the proposal. Noise impacts from both the plant operations and vehicle movements have been assessed.

Construction Impacts

4.6.2 During the construction phase of the development the highest noise levels are likely to occur at the start of the construction period, in particular during excavation operations and building construction. Measures would be employed to control the noise being generated to ensure that they do not exceed statutory limits.

Operational Impacts

4.6.3 During the operation of the site there may be a slight increase in noise but this would be within statutory guideline levels and as such would not be considered significant. The results of the assessment also show no significant effect from low frequency noise.

4.6.4 There would be no significant vibration effects from the construction or operation of the facility.

4.7 Air Quality

4.7.1 The assessment has identified that the operation of the facility would give rise to a number of substances that would be emitted to the air. As a result, the potential environmental effects of these emissions have been assessed using a detailed air quality model. The results have been assessed against relevant air quality objectives and guidelines identified from national legislation and Environment Agency guidance documents.

Construction Impacts

4.7.2 During the construction there would be the potential for short-term effects to occur, mainly in the form of dust emissions generated by earthmoving

activities. It is considered unlikely that significant effects will result at distances more than 250m from the construction site and therefore no residential properties should experience significant effects during construction.

- 4.7.3 Standard best practice construction methods will be implemented at site to reduce emissions to the air. These will be documented in the Construction Environmental Management Plan and will include measures such as use of water mists during dry periods, covering of vehicle loads and washing of road surfaces leading to the construction site.

Operational Impacts

- 4.7.4 The results of the modelling have indicated that the process used to clean the emissions and the height of the stack would ensure that emissions released from the facility do not exceed statutory guideline levels. As such the operation of the facility is predicted to have a negligible impact on local air quality.

Greenhouse Gases

- 4.7.5 An assessment has been undertaken to estimate CO₂ emissions generated as a result of construction and operation of the facility. The result of this assessment has shown that the Mercia EnviRecover facility would result in a net annual reduction of 7,361 tonnes of CO₂ equivalent per annum i.e. the greenhouse gas emissions associated with constructing and operating the facility would be more than offset by generating electricity that does not use traditional fossil fuels.

4.8 Human Health

- 4.8.1 A detailed health risk assessment has been carried out using recognised health assessment methods.
- 4.8.2 Advice from human health specialists such as the Health Protection Agency states that the damage to health is likely to be very small, and probably not detectable from the operation of Permitted Energy from Waste facilities.
- 4.8.3 The results of the modelling have indicated that the emissions would have a negligible effect on human health and on concentrations of pollutants in local crops.

4.9 Archaeology and Cultural Heritage

4.9.1 Effects on buried archaeology at the site are considered unlikely based on the findings of previous assessments undertaken at the site.

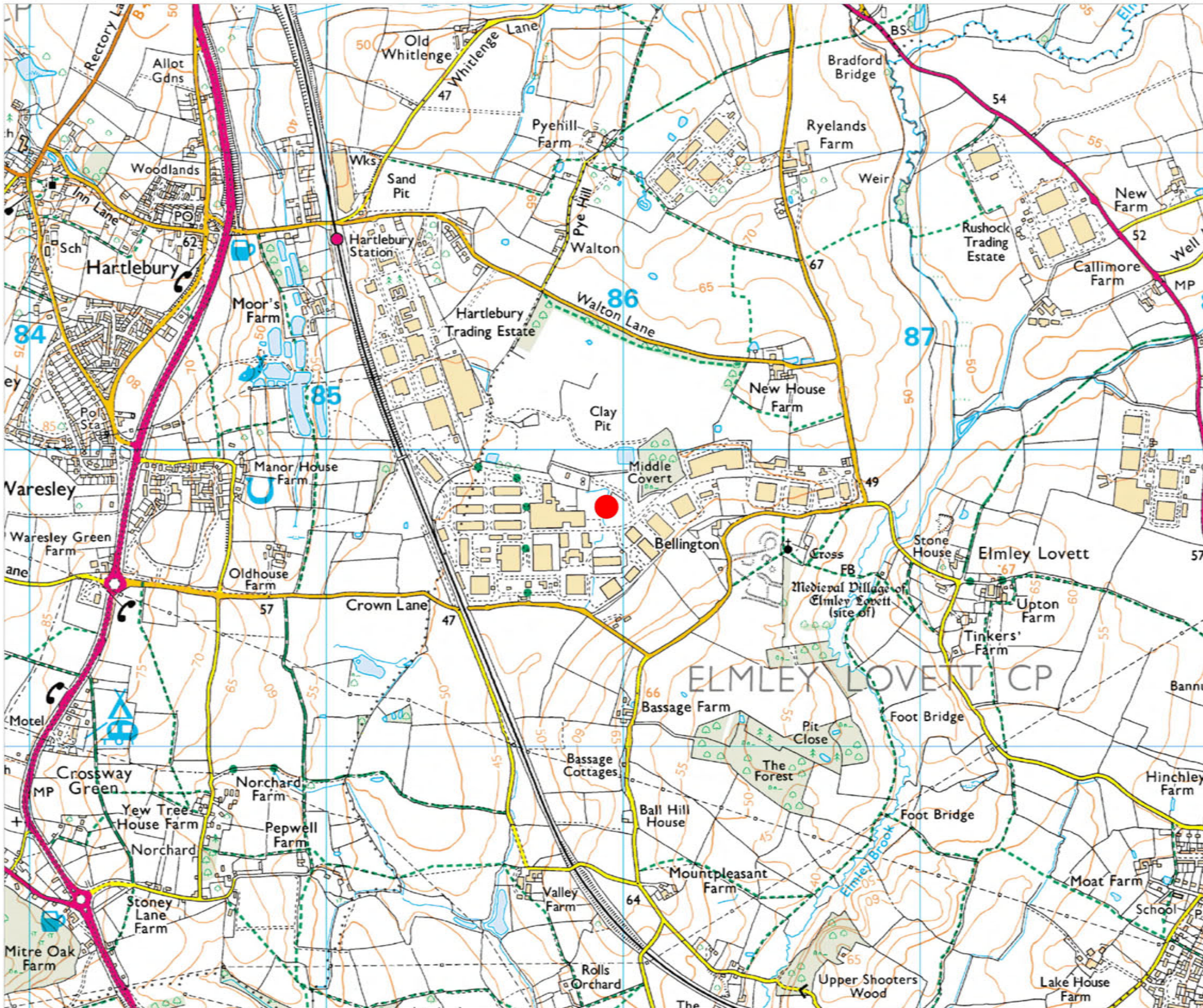
4.9.2 The effects of the proposal on the setting of cultural heritage features in the landscape e.g. listed buildings, is not considered to be significant when considered in the context of the current environment / landscape, which is much modified by recent human activity.

4.10 Cumulative Effects

4.10.1 Three projects were identified that could have the potential to result in material cumulative effects with the proposed development. The assessments undertaken conclude that significant cumulative environmental effects are unlikely to result from these developments.

4.11 Summary

4.11.1 In considering the results of this ES, it can be concluded that the proposed development would not give rise to any significant adverse environmental impact.



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 Site Location



MERCIA ENVIRECOVER

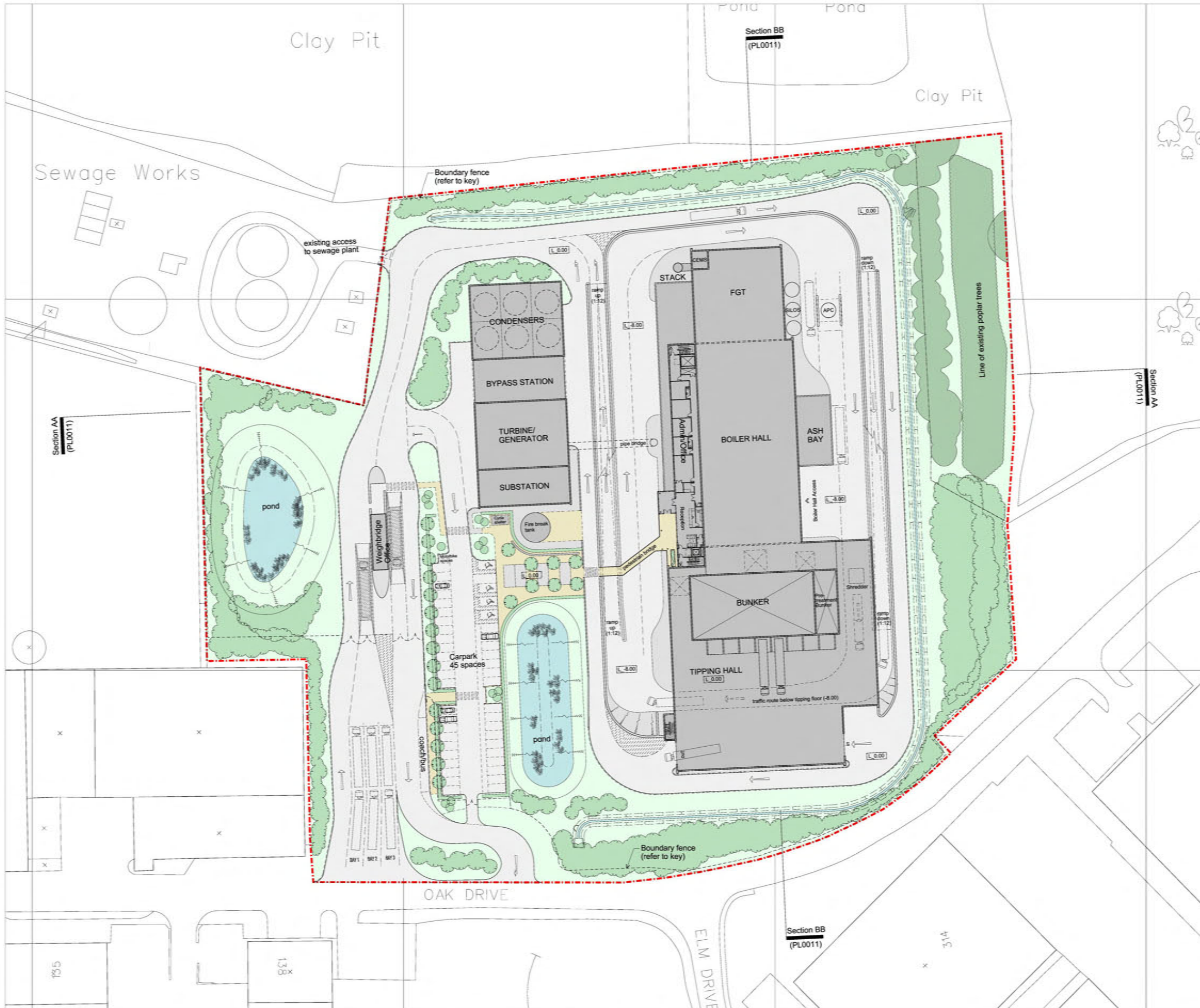
PROPOSED DEVELOPMENT OF A RENEWABLE ENERGY FACILITY ON LAND AT HARTLEBURY TRADING ESTATE, HARTLEBURY, WORCESTERSHIRE

Figure 1

Site Location Plan

Scale
1:12,500@A3

Date
April 2010



Studio **E** Architects



mercia
waste management

MERCIA ENVIRECOVER

PROPOSED DEVELOPMENT OF A
RENEWABLE ENERGY FACILITY ON LAND
AT HARTLEBURY TRADING ESTATE,
HARTLEBURY, WORCESTERSHIRE

Figure 2

Proposed Site Layout

Scale
1:1000@A3

Date
April 2010

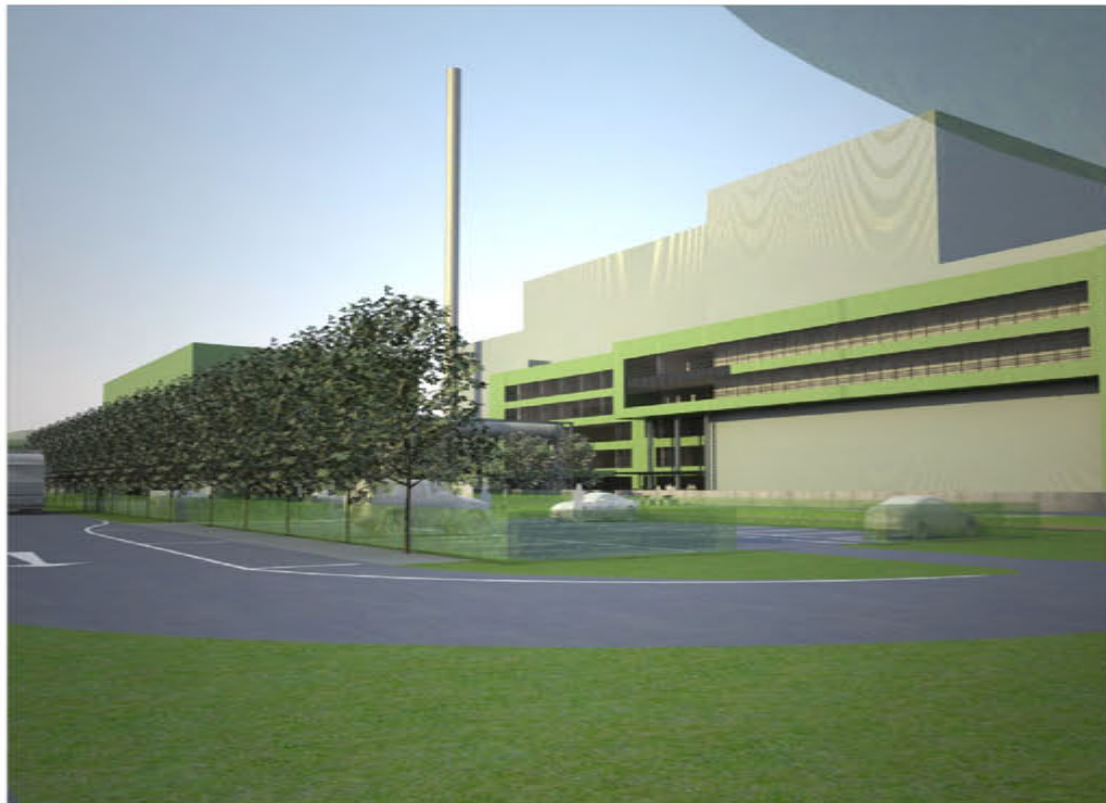


Image 1 - Ground View from the South West



Image 2 - Overhead View



Image 3 - Aerial View from the South West



Image 4 - Aerial View from the North West



MERCIA ENVIRECOVER

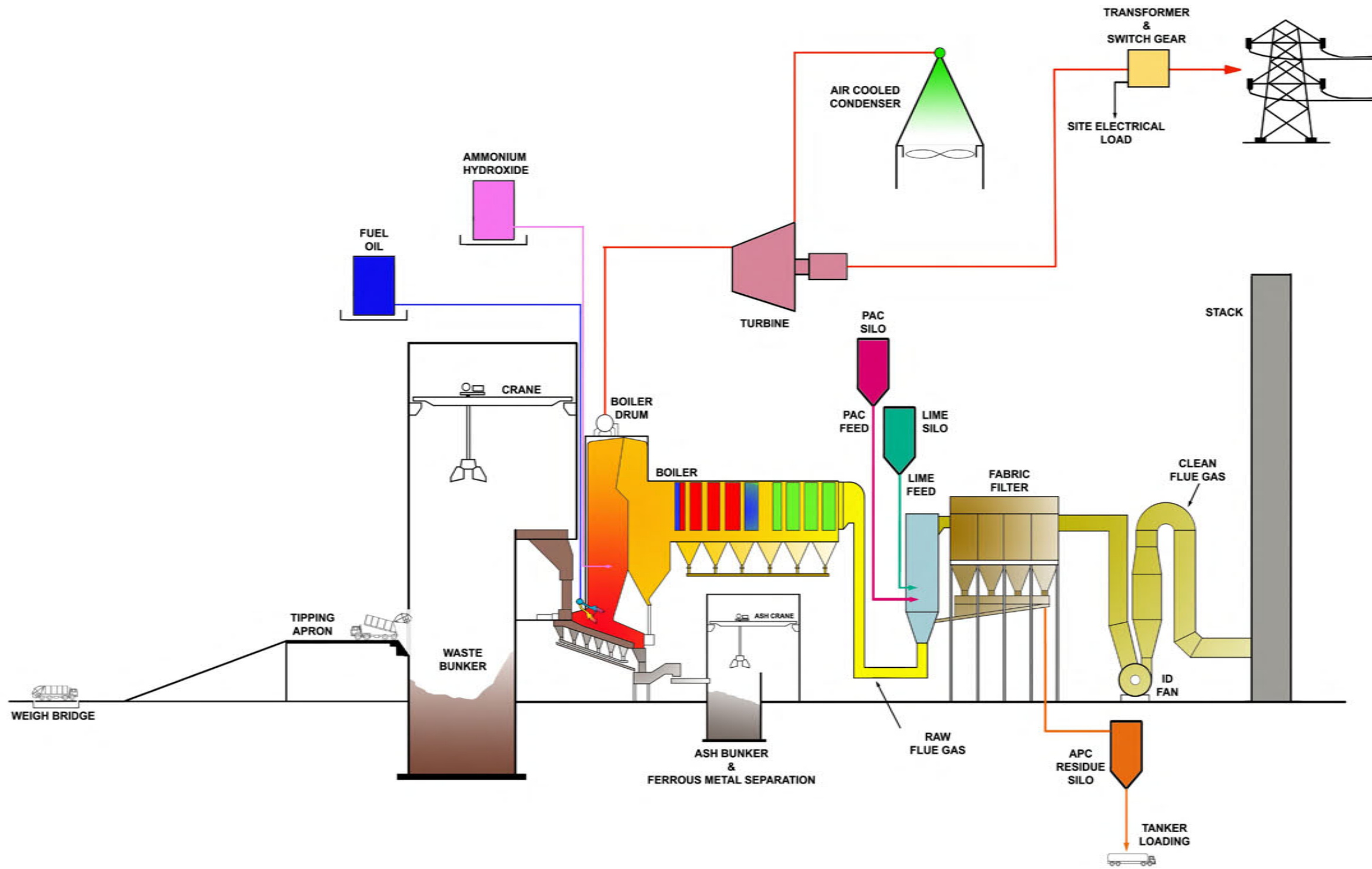
PROPOSED DEVELOPMENT OF A
RENEWABLE ENERGY FACILITY ON LAND
AT HARTLEBURY TRADING ESTATE,
HARTLEBURY, WORCESTERSHIRE

Figure 3

3D Representations

Scale
NA

Date
April 2010



MERCIA ENVIRECOVER

PROPOSED DEVELOPMENT OF A RENEWABLE ENERGY FACILITY ON LAND AT HARTLEBURY TRADING ESTATE, HARTLEBURY, WORCESTERSHIRE

Figure 4

Energy from Waste Process Diagram

Scale
NA

Date
April 2010