Gloucestershire Residual Waste Project

PLANNING APPLICATION FOR THE DEVELOPMENT OF AN ENERGY FROM WASTE FACILITY, BOTTOM ASH PROCESSING FACILITY AND ASSOCIATED INFRASTRUCTURE ON LAND AT JAVELIN PARK, HARESFIELD, GLOUCESTERSHIRE

ENVIRONMENTAL STATEMENT
VOLUME 4: NON TECHNICAL SUMMARY

JANUARY 2012

This report has been prepared in support of the planning application for the Gloucestershire Residual Waste Project on behalf of Urbaser Balfour Beatty. The application has been co-ordinated by Axis with technical inputs from:

- AXIS – Planning, Transportation, Landscape & Visual and Socio Economic
- Gifford – Soils, Geology & Hydrogeology, Surface Waters & Flood Risk, Noise, Archaeology & Cultural Heritage, Facility Design
- Fichtner – Air Quality & Human Health Assessment
- Argus – Ecology and Nature Conservation
- Fletcher-Rae Architects – Facility Design and Architecture

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FOREWORD

This Environmental Statement is submitted in support of a planning application made by Urbaser Balfour Beatty for the development of an Energy from Waste facility, bottom ash processing facility and associated infrastructure, on land at Javelin Park, Haresfield, Gloucestershire. 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;

- Illustrative Figures (Volume 2) contains all relevant schematics, diagrams and illustrative figures;

- Technical Appendices (Volume 3), which include details of the methodology and information used in the assessment, detailed technical schedules and, where appropriate, raw data. (Volume 3 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 4), containing a brief description of the proposed development and a summary of the ES, expressed in non-technical language.

Copies of the documents, as a four volume set, are available at a cost of £200 from Urbaser Balfour Beatty, Unit F, 2nd Floor, Pate Court, St Margaret's Road, Cheltenham, GL50. Alternatively, the Non-Technical Summary can be purchased on its own from the same point of contact for £15. An electronic copy of the Non-Technical Summary is also available via email (info@ubbgloucestershire.co.uk), free of charge. In addition, all of the planning application documentation, including the ES can be downloaded from www.ubbgloucestershire.org.

1.0 INTRODUCTION

1.1 The Proposal

1.1.1 Urbaser Balfour Beatty (UBB) is proposing to meet the residual municipal waste management needs of Gloucestershire County Council (GCC) through the development of a purpose built Energy from Waste (EfW) facility, on land at Javelin Park, Haresfield, Gloucestershire.

1.1.2 The planned opening date for the facility is autumn 2015. The facility would have an installed electricity generating capacity of approximately 17.4 Megawatts (MW). Approximately 14.5MW would be exported to the local electricity grid with the remainder being used in the operation of the facility. The facility would generate electricity by way of a steam turbine which would be driven through the combustion of 190,000 tonnes per annum (tpa) of non-hazardous residual waste (i.e. waste that is not sent for reuse, recycling or composting) the significant majority of which would be municipal waste. Municipal waste is that waste collected and managed by, or on behalf of, local authorities. A lesser proportion of the waste treated at the facility would be commercial and industrial (C&I) wastes similar in composition to the municipal waste.

1.1.3 The proposals comprise the construction of the EfW facility (with an integrated education / visitor centre), bottom ash processing facility and associated infrastructure and landscaping designed to help integrate the development into the site and the surrounding area.

1.2 The Applicant

1.2.1 Urbaser Balfour Beatty is a consortium formed specifically to deliver the proposed Gloucestershire Residual Waste Project and is a joint venture between Urbaser Ltd and Balfour Beatty Capital Ltd.

1.2.2 Urbaser Ltd is an environmental services company, who work internationally as one of the main operators in the environmental and waste management sector. Part of the accredited ACS Group, Urbaser specialise in providing local councils and industry all types of environmental services. Urbaser owns and runs more than 60 waste management facilities worldwide, processing more than 7 million tonnes of waste every year.

1.2.3 Urbaser currently has more than 32,000 employees trained and specialised in environmental services. The company has a worldwide presence and provide services to more than 50 million people. The company operates seven major waste management facilities and twelve smaller waste sites in the counties of Herefordshire and Worcestershire, serving 500,000 inhabitants. The UK head office of Urbaser is in Cheltenham.

1.2.4 Balfour Beatty is a world class infrastructure services business operating across the infrastructure lifecycle providing: roads, power, renewables, schools and hospitals, and are involved in 41 private finance initiative contracts around the country. Within the waste management sector Balfour Beatty have been involved with the construction of 15 projects.

1.2.5 Balfour Beatty services encompass everything from multidiscipline engineering, through construction, to long term asset management and financing of major projects. Worldwide Balfour Beatty currently employ 500,000 staff with over 50,000 based in the UK.

1.3 The Site

1.3.1 The proposed development site is located within the Severn Vale, near the village of Haresfield, Gloucestershire. The location of the site is shown on Figure 1.

1.3.2 The site is approximately 5.1 ha in area (including the site access road) and forms the southern part of Javelin Park, a disused former airfield. The wider Javelin Park site covers a total area of approximately 10.75 ha. Javelin Park has been subject to a number of planning permissions but currently comprises derelict ground, hardstanding and vegetated areas. No buildings or above ground structures associated with the former land use remain at the site.

1.3.3 The site is bounded to the north by an undeveloped, derelict area (the northern part of 'Javelin Park'), beyond which lies Blooms Garden Centre. Further north is Junction 12 of the M5 motorway.

1.3.4 The eastern boundary of the site is formed by the B4008 beyond which are agricultural fields and one residential property, The Lodge, which is approximately 50 m from the boundary of the site.

1.3.5 A small unnamed watercourse flows into the south-east corner of the site and flows along the southern and western boundary. The corridor of the watercourse has been landscaped with trees and shrubs.

1.3.6 Agricultural fields lie to the south and west of the site. The M5 motorway runs in a north-east / south-west orientation, approximately 70 m from the western boundary of the site. Hiltmead House, a residential property, is located approximately 250 m to the west of the site on the opposite side of the M5 motorway.

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 THE NEED FOR THE SCHEME AND ALTERNATIVES CONSIDERD

2.1 The Need for the Scheme

2.1.1 The need for the Javelin Park EfW facility (and the benefits arising from the scheme) has been considered in the context of a number of strategic waste policy documents and the current waste management position within the South West region and Gloucestershire. In addition, it has also been evaluated in terms of national, regional and sub-regional renewable energy policy and need.

2.1.2 From a national perspective government policy has identified the need to divert waste from landfill by increasing recycling, composting and recovery. Gloucestershire has no operational residual waste treatment capacity and is presently sending nearly 500,000 tpa of waste to landfill. The County Council has identified (in its emerging Waste Core Strategy) that for municipal solid waste (MSW) it will require circa 150,000 tpa of residual waste treatment capacity up to 2027. In addition Gloucestershire also requires up to 200,000 tpa of new residual waste treatment capacity for C&I waste.

2.1.3 GCC already has plans in place to increase recycling and composting within the County but recognises that there will be a continued need to manage residual waste left after recycling and composting has been undertaken. The proposed project meets this need by recovering energy from the remaining residual waste, thereby moving the management of Gloucestershire's waste up the waste hierarchy.

2.1.4 With regard to renewable energy The Energy White Paper published by the government includes targets which aim to see renewables in the UK grow as a proportion of electricity supply to 10% in 2010, with an aspiration for this to rise to 20% in 2020. Approximately half of the energy produced by the proposed facility would be considered to be renewable energy and as such the proposed development would assist in meeting national renewable energy targets. The generation of renewable energy would also help meet Gloucestershire's renewable energy targets which at present are not being achieved.

2.1.5 In conclusion, there is a demonstrable and overriding need for the Javelin Park EfW development which would contribute both towards delivering sustainable waste management and combating climate change through renewable energy production.

2.2 Alternatives Considered

2.2.1 A number of alternative options have been considered when developing the proposed facility as follows:

- Alternative Waste Management Options and Technology Choice
- Alternative EfW Technologies
- Alternative Locations / Sites
- Alternative Design Solutions

Alternative Waste Management Options and Technology Choice

2.2.2 As part of the development of a residual waste strategy for the County a technology appraisal was conducted to examine the various options that could be implemented to manage the County's residual waste. The process began with evaluating a 'long-list' of 34 potential waste technology solutions that included permutations of the following:

- landfill;
- autoclave;
- advanced thermal treatment (e.g. pyrolysis, gasification);
- mechanical biological treatment;
- in-vessel composting;
- windrow composting;
- modern thermal treatment (also referred to as EfW);
- anaerobic digestion; and
- plasma arc.

2.2.3 Based on technical and financial modelling undertaken by GCC a standalone EfW facility with CHP was selected as a technology that represented a credible and proven solution, capable of being delivered both financially and technically by the private sector. It was made clear to private companies bidding to construct and operate the Gloucestershire Residual Waste Project

that none of the five shortlisted technologies were deemed to be superior to the others.

2.2.4 As such further analysis of alternative waste management options was undertaken by UBB. The technology selected was direct waste combustion in a modern thermal treatment EfW facility. This is a proven technology capable of delivering a flexible and sustainable waste management solution and was considered by UBB to be the most appropriate waste management option for the Gloucestershire Residual Waste Project.

Alternative EfW Technologies

2.2.5 Direct waste combustion EfW facilities can be delivered through a variety of sub-technologies as follows:

- Fixed Hearth
- Pulsed Hearth
- Rotary Kiln
- Fluidised Bed
- Moving Grate

2.2.6 Moving grate is the leading technology in the UK and Europe for the combustion of municipal and other similar wastes, being installed on circa 90% of UK incinerators and some 98% of European incinerators. It is a proven and developed design, with a number of suppliers available. For these reasons UBB selected this particular EfW technology.

Alternative Sites / Locations

2.2.7 Gloucestershire County Council (GCC) has undertaken a number of assessments to identify the most suitable sites for a strategic waste management facility to serve the County. Four sites have been identified in the emerging Waste Core Strategy namely, Javelin Park, land at Moreton Valence, Wingmoor Farm East and Wingmoor Farm West. UBB has undertaken an assessment of these sites to determine if Javelin Park is a suitable site for the development of a strategic waste management facility such as an EfW facility.

2.2.8 The assessment found Javelin Park to be the least constrained of the four sites due to:

- It lying outside of the Green Belt;
- It having a suitable shape, size and topography;
- It comprising a brownfield site with permission for warehousing use;
- Its excellent standard of access to the strategic highway network;
- It being relatively free from obvious environmental constraints and where the site does have any identified constraints these are all minor with the exception of one moderate constraint (largely associated with a single residential property);
- It offering the best potential for heat off-take;
- It being available and deliverable.

Alternative Design Solutions

2.2.9 Prior to selecting the current proposals a number of design options were developed. The alternative design options considered can be categorised under alternative site layout and alternative building design.

Site Layout

2.2.10 The shape of the site and the nature of the process undertaken at the facility dictated the basic site layout. In addition other factors taken into account when designing the site layout included: presence of the stream at the site; transport access onto the site; and, noise and visual impacts.

Building Design

2.2.11 In parallel to the development of the site layout a review of alternative architectural design solutions were explored. From the outset the design team were conscious of the site's sensitive setting and the challenge of having to develop an architectural approach which would most appropriately mitigate the visual impact of the facility.

2.2.12 The final preferred design option was selected for the following reasons:

- reduced volume and height of the buildings;
- breaking the building into zones of process function;

- low level buildings presented to views from the east and the B4008; and
- reducing visual impact of the building from elevated viewpoints e.g. Haresfield Beacon and the Cotswolds AONB.

3.0 SCHEME DESCRIPTION

3.1 Site Layout

3.1.1 The proposed development is based around a main building which would contain the following areas:

- waste reception hall;
- waste bunker;
- boiler hall and demineralisation plant;
- turbine hall;
- flue gas treatment (FGT) facility;
- Air Pollution Control (APC) reagent silos and APC residue silos;
- bottom ash processing facility; and
- education/visitor centre and staff facilities.

3.1.2 The main building would be 236 m in length, the width of the building would vary from 55 m to 25.6 m. The building is divided into the various process areas with the height of the structure varying depending on the process that it houses. The highest section of the building, towards the western end, would house the FGT facility and the APC reagent and residue silos. In this area the building roof would slope from 40.65 m in height to a peak of 48 m. The lowest part of the building, at a height of 14.65 m, would house the bottom ash processing facility, which would be located at the eastern end of the building. The stack (chimney) would be located adjacent to the western elevation of the building and would be 70m in height and 2.5m in diameter.

3.1.3 In order to help reduce the visual mass of the building from views from the east, which includes views from the Cotswolds Area of Outstanding Natural Beauty (AONB), the building would be orientated along an east-west axis. In order to further reduce visual impacts the tallest elements of the facility, including the stack, have been located in the western half of the site. Further visual mitigation is provided by the design and colour of the roof materials that would be finished in shades of matt grey and green.

3.1.4 The visitor centre and office space would form an integrated element of the main building and would be located on the northern facade of the building. This area would include offices, staff welfare facilities, control room and a

number of visitor facilities including interactive exhibition space and a visual presentation suite. The visitor experience area will allow the ability to view the primary activities of the tipping hall, crane grab, boiler hall and control room from a secure space via protected corridors and glazed screens.

3.1.5 The visitor centre will provide a facility for use by local schools, further and higher education institutes, local community groups, local businesses related to waste and renewable energy industries and the local council.

3.1.6 The layout of facility is shown on Figure 2 and a series of 3D representations are shown on Figure 3.

Landscaping

3.1.7 The landscape proposals for the facility have been developed in order to provide a high quality external environment to the facility as well as mitigating potential visual effects of the proposal.

3.1.8 The landscaping scheme would include a series of earth bunds planted with trees that would provide screening both in terms of visual impact and noise. The watercourse that runs along the southern and western boundary of the site would be retained along with much of the associated planting. Additional planting would be carried out to help further screen low level views from the south and south-east of the facility and to enhance the quality of this wildlife corridor.

3.1.9 The landscaping scheme on the northern side of the facility at the entrance to the visitor centre and offices would be more formal in design. This area would include a garden space that showcases sustainability through demonstrating the use of recycled products and low water usage. A footpath would lead from the building entrance into a landscaped visitor experience area where educational material would be included in the landscaping scheme.

Employment

3.1.10 The plant would provide employment for 40 people with a peak day-time staffing level of 25, supplemented by shift workers to maintain 24 hour plant operation. The majority of the employees would be skilled operatives (electricians/fitters/crane operatives) or technical engineers (control and plant).

It is anticipated that shifts would operate on a typical 6am, 4pm, midnight shift pattern, with 4 staff members per shift (with two shifts effectively 'off' each day).

3.1.11 The construction of the EfW 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 300 occurring during the plant installation and fit out.

Access

3.1.12 A road has been constructed within Javelin Park to provide access from the B4008 to the proposed development site.

3.1.13 The B4008 to the south of Javelin Park lies within the Lorry Management Area as defined on the Advisory Freight Route Network produced by GCC. The Lorry Management Area has been implemented to reduce the environmental impacts of freight on roads within the Cotswolds AONB. As such the B4008 is subject to a weight restriction of 7.5 tonnes to the immediate south of the Javelin Park roundabout junction. As a consequence, the roads leading to Haresfield and Standish will not be used by HGVs accessing the facility, other than for local waste collection rounds serving local properties.

3.1.14 To the north of Javelin Park the B4008 forms a junction (Junction 12) with the M5. The junction was upgraded in 2010 by the Highways Agency to improve queue length and delay times on the north and south bound off slips. To the north of the M5 the B4008 continues towards Gloucester and joins the A38 at the Cross Keys roundabout.

Drainage

3.1.15 The proposed development would give rise to surface water run-off from roads, vehicle parking areas, roofs of buildings, other hard standings and landscaped areas. Most surface water would flow into four surface water ponds created to help manage surface water runoff before flowing into the watercourse that runs through the site. Measures to stop water pollution have been integrated into the surface water management system. Some roof water would be diverted to a rainwater harvesting tank located within the main building.

3.1.16 Foul water from the site e.g. toilets, kitchens and showers would be discharged to the adjacent private sewage treatment works that serves Javelin Park. No waste waters would arise from the industrial processes at the site.

3.2 Proposed Site Operations

Operating Hours and Vehicle Numbers

3.2.1 It is proposed that the plant would process waste and generate electricity on a 24-hour basis. Waste would be brought onto the site between the hours of 07.00 and 19.00 seven days a week. However, approximately 95% of this waste would be brought in Monday to Friday.

3.2.2 On the basis of the predicted annual capacity for the facility and the predicted amount of waste that would be accepted at the site, it is anticipated that approximately 105 HGVs would access the site per day.

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

Waste Reception and Handling

3.2.4 Incoming waste delivery vehicles would enter the site from the internal Javelin Park access road that provides access from the B4008. Having entered the site the vehicles would proceed to the enclosed waste reception / tipping hall via the site weighbridge and empty their waste into a large bunker.

3.2.5 Cranes would be used to mix and stack the waste into the feed chutes of the furnaces. 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

3.2.6 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.

3.2.7 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^{o}C, which rarely happens.

Boiler Water Treatment

3.2.8 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

3.2.9 Gases generated during the combustion process would be cleaned in the flue gas treatment plant before being released into the atmosphere. The treatment plant works by using a number of filters and chemicals to remove pollutants from the gases, this process ensures that the plant operates within the emission limits set out in the Waste Incineration Directive.

Stack

3.2.10 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 70m high from ground level.

By-Product Handling and Disposal

3.2.11 Two types of solid by-products would be produced from the operation of the 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 gases generated from the combustion of the waste. Each of which would have separate handling and disposal arrangements as described below.

Bottom Ash

3.2.12 Bottom ash would be transferred from the bottom of the furnace to the onsite bottom ash processing facility via an enclosed conveyor.

3.2.13 The bottom ash would then be processed into a recycled aggregate within an enclosed building. The recycled aggregate would be stored within the processing building prior to export from the site for use in construction projects.

Air Pollution Control (APC) Residues

3.2.14 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 treatment or disposal facility.

3.3 Energy Recovery

3.3.1 One of the major benefits of the facility would be the ability to recover energy from the combustion of the waste by way of electricity and heat production. A proportion (56%) of this energy is classified as being renewable energy.

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

3.3.3 The proposed facility includes a steam turbine that would have a generation capacity of 17.4MW of electricity. Some of this electricity would be used in the operation of the facility with the remainder (14.5MW) being exported to the local electricity distribution network. The facility would also have the capability to export heat in the form of hot water or steam to local heat users.

3.4 Waste Types and the Source of Waste

3.4.1 The proposed facility has been designed for the treatment of 190,000 tonnes per year of residual non-hazardous waste arising within Gloucestershire.

3.4.2 The proposed EfW facility would cater primarily for residual MSW delivered under contract by GCC, but capacity has also been allowed for the treatment of lesser quantities of residual non-hazardous C&I waste arising within Gloucestershire.

3.4.3 The assessment has shown that treating this amount of waste at the facility will not prevent or inhibit GCC in achieving their recycling or composting targets.

3.5 Operational Environmental Management

3.5.1 The potential effects of waste management developments can be the subject of public concern with regard to environmental nuisance e.g. generation of litter and odour or through attraction of vermin or other pests to the site. However, a modern, well run facility should not give rise to such issues. An Environmental Management System (EMS) would be operated at the site which would include measures to manage and monitor the following potential public amenity issues at the site:

- vermin and other pests;
- dust and odour;
- fire; and
- litter.

3.6 Construction Methods

Programme

3.6.1 The construction period is anticipated to take approximately 33 months. The main construction works including clearing the site, ground excavations and erection of the buildings, this is likely to occur within the first 25 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

3.6.2 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.

Site Compound and Operative Facilities

3.6.3 A site compound for the storage of building materials and equipment will be located within the site boundary, the vacant development plot to the north of the site may also be used for temporary construction purposes.

Construction Environmental Management Plan (CEMP)

3.6.4 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.

3.6.5 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

4.1.1 The following sections provide a summary of the environmental assessments undertaken for the proposed development.

4.2 Traffic and Transportation

4.2.1 The assessment relies on the findings of the formal Transport Assessment (TA) that has been submitted in support of the Planning Application.

4.2.2 The potential highways and transport related environmental impact of the construction and operation of the proposed facility has been assessed via reference to the methodology set out in the Institute of Environmental Assessment (IEA) document “Guidelines for the Environmental Assessment of Road Traffic”.

Construction Impacts

4.2.3 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 would 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 where at all practical. In addition, further on-site vehicle management practices would seek to limit typical construction traffic impacts such as dirt, dust, noise and vehicle related vibration.

4.2.4 Appropriate levels of staff parking would be provided on site to avoid any potential issues of overspill off-site parking on local routes, with the levels of staff vehicle demand to be controlled by travel management initiatives such as car sharing and off-site bus transfer where practical.

Operational Impacts

4.2.5 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.

4.2.6 There is no evidence of any material local road safety hazards that would call the development into question. No local network safety or capacity improvements are considered necessary to accommodate the development related traffic.

4.2.7 Overall changes in traffic flow over the immediate local road 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.

4.3 It is concluded that the development of the facility would not result in a material impact on operational or environmental conditions over the local highway network.

4.4 Landscape and Visual

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

4.4.2 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 proposal includes a comprehensive landscape scheme which includes new habitat creation.

Construction Impacts

4.4.3 There would be short term visual effects during the construction phase. However, their temporary nature would not result in any significant effect given the context of existing vehicle movements along the B4008 immediately east of the site and along the M5 to the west. It is concluded that construction activity is not unusual in the wider area and that in this context, the temporary and localised effects of the proposed development would not be significant.

Operational Impacts

4.4.4 The proposed development would be prominent from locations closer to the site by virtue of its scale. From further afield, views would be better screened by both vegetation cover and buildings and other structures within the Severn valley. From the higher ground east and west of the valley, the proposed

development would be visible set in the context of the existing diverse land uses including, agricultural land, the M5 motorway and other local roads, industrial and commercial development and a number of urban settlements including Gloucester.

4.4.5 Significant visual effects (in EIA terms) would be experienced from a number of the viewpoints included in the assessment including views from three individual residential properties. All viewpoints experiencing significant visual effects are located within 2.5km of the site.

4.4.6 The assessment has concluded that the special qualities and setting of the Cotswolds AONB would not be materially affected by the proposed development. The impacts on the views from and into the AONB have been mitigated through the design of the facility.

4.5 Ecology and Nature Conservation

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

4.5.2 The impact assessment follows the methodology set out by the Institute of Ecology and Environmental Management (IEEM).

Construction Impacts

4.5.3 The design of the site has enabled the watercourse corridor that runs along the southern and western boundary of the site to be maintained. However, the development will result in the loss of some open habitat on the site. The assessments have shown that no protected species would be harmed as a result of the development.

Operational Impacts

4.5.4 No significant ecological impacts were identified as a result of the operation of the facility.

4.5.5 Ecological improvements to the site have been proposed as part of the landscaping scheme including planting of species that would encourage wildlife to the site and creation of wetland habitats.

4.5.6 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.

4.6 Geology, Soils and Groundwater

4.6.1 The assessment has been based on the information gathered from a number of desk study and ground investigation reports undertaken at the site and on the adjacent areas of Javelin Park. This includes the results of a ground investigation undertaken in 2010 specifically for this project.

4.6.2 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 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

4.6.3 No significant impacts were identified by the assessment. However, despite the past remediation works at the site there remains the potential for some contamination to be present. As such it is recommended that standard best practice construction methods are employed to ensure that construction workers are not exposed to contaminants that may remain at the site.

4.6.4 Measures to prevent the contamination of soils or groundwater during the construction phase are recommended e.g. procedures for dealing with accidental oil and fuel spillage and dust suppression. These measures would be fully detailed within the Construction Environmental Management Plan.

Operational Impacts

4.6.5 No significant operational impacts have been identified by the assessment. 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.

4.7 Surface Water and Flooding

4.7.1 An assessment of the surface water and flooding impacts of the proposed facility has been undertaken, including a formal Flood Risk Assessment. The assessments were based on the information gathered from the ground investigation desk study, topographic survey, Environment Agency data and previous flood risk assessments undertaken at the site.

Construction Impacts

4.7.2 The existing flood risk to the site is low. Standard best practice construction methods would be implemented to ensure that no water quality impacts result from the construction works. These would be documented in the Construction Environmental Management Plan and would include measures such as storage of fuel, oils and chemicals in bunded areas and use of settlement lagoons.

Operational Impacts

4.7.3 The proposed development does not lie within an identified area of flood plain and the assessment has shown that there is low risk of flooding from the watercourse that flows around the southern and western boundary of the site.

4.7.4 Surface water drainage ponds have been included in the design to manage surface water flows from the site. This will ensure that the development does not increase the risk of flooding in the local area.

4.7.5 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.

4.8 Noise and Vibration

4.8.1 To establish any likely impact from noise a baseline noise survey was undertaken to determine existing noise levels in the local area. Appropriate noise guidance and standards have been used to determine the potential noise impact from the proposal. Impacts from both the plant operations and vehicle movements have been assessed.

Construction Impacts

4.8.2 The assessment has shown that through the use of suitable construction mitigation measures and good site practice there would be no significant residual noise or vibration impacts at any of the nearby sensitive receptors.

Operational Impacts

4.8.3 The assessment has shown that the facility would adhere with the Local Authority requirements at the surrounding noise sensitive receptors and that the predicted noise levels are not expected to cause a significant impact on surrounding residential and commercial receptors.

4.8.4 The assessment of noise change due to variation in traffic flows on the local road network has shown that the noise levels would not result in a significant impact.

4.9 Air Quality

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

Construction Impacts

4.9.2 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.

4.9.3 Standard best practice construction methods would be implemented at site to reduce emissions to the air. These would be documented in the Construction Environmental Management Plan and would include measures such as use of water mists during dry periods, closed sheeting of vehicles and washing of road surfaces leading to the construction site. With the implementation of these measures no significant construction impacts are anticipated.

Operational Impacts

4.9.4 The results of the modelling have indicated that the proposed stack would provide more than adequate dispersion to the atmosphere and that the operation of the facility is predicted to have a negligible impact on local air quality. No operational impacts relating to dust or odour have been identified. As a result, no significant effects on air quality are predicted.

Greenhouse Gases

4.9.5 An assessment has been undertaken to estimate CO_2 emissions generated as a result of construction and operation of the facility. The result of this assessment has shown that the facility would result in a net annual reduction of 40,480 tonnes of CO_2 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 and the reduction in greenhouse gas emissions from landfill.

4.10 Human Health

4.10.1 A detailed health risk assessment has been carried out using recognised health assessment methods.

4.10.2 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.

4.10.3 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.

4.10.4 It is recognised that there is the potential for the proposal to lead to anxiety and concern in the local population due to the perception of health effects. However, on the basis of the health assessment there is no evidence to suggest that the local population would be at risk from the facility and consultation activities have been undertaken in order to keep local residents informed of the project and its potential effects.

4.11 Archaeology and Cultural Heritage

4.11.1 An assessment on cultural heritage features at the site and in the surrounding area was undertaken.

Construction Impacts

4.11.2 Due to past development of the site from the mid 20th century onwards it is unlikely that any archaeological remains are present at the site. As such it is considered that the construction of the proposed EfW would have no direct or indirect impact on archaeology at the site.

Operational Impacts

4.11.3 A number of cultural heritage receptors were identified in the surrounding landscape, these included Grade I, II and II* listed buildings and Scheduled Monuments. The operation of the facility would not result in any direct impacts on the identified cultural heritage receptors but the facility does give rise to potential indirect impacts on setting.

4.11.4 The setting from many of the receptors has already been influenced by built structures e.g. the M5 and from many of the receptors the facility would be screened, wholly or partially, by vegetation and intervening structures. The assessment has concluded that the facility would result in minor residual impacts on the setting of five cultural heritage receptors in the area surrounding the site, these impacts are not considered to be significant.

4.12 Socio Economic

4.12.1 Chapter 16.0 of the ES considered the socio-economic and community effects of the proposed development. It identified background information for the County of Gloucestershire, its districts and wards, in particular the District of Stroud, within which the Javelin Park site is located. It then identified the main socio-economic and community effects of the proposed development.

Construction Impacts

4.12.2 The construction of the facility would take circa 33 months to complete and would provide up to 300 temporary jobs. It is expected that a large proportion of these temporary jobs would be locally sourced.

4.12.3 It is anticipated that a minimum of 8% of the workforce during construction would be apprentices. The apprenticeships would be targeted at local young people and would therefore have a positive impact on raising the skills-base within the local community.

Operational Impacts

4.12.4 The County Council has undertaken financial appraisals of the costs of the residual waste project. The results showed that continuing to landfill compared to the development of a residual waste recovery facility would cost the Council in the region of up to an estimated £150 million over 25 years. This therefore demonstrates that the option of developing an EfW facility is more affordable, as well as being more sustainable and environmentally acceptable, than disposal of waste to landfill.

4.12.5 In addition the plant would provide a local sustainable renewable source of energy that would meet the domestic needs of circa 26,000 homes and produce saleable by-products, in the form of secondary aggregates, for local businesses to benefit from.

4.12.6 During the operational phase the facility would create 40 new permanent jobs. The majority of the employees would be skilled operatives (electricians/fitters/crane operatives) or technical engineers (control and plant), with a small number of low skilled jobs also created. It is anticipated that a new apprenticeship would be provided every two years throughout the operation of the facility.

4.12.7 Community benefit would also be provided as a result of the integrated visitor and education centre within the facility. The centre would be a valuable education resource and would provide local residents with information on the operation of the facility and educate school children on sustainable waste management and taking responsibility for their own waste. The visitor centre would also available for use by other local groups as a meeting space.

4.12.8 The proposal would not have any significant adverse impact further to the existing situation. The proposal would in fact create a number of social and economic benefits for Gloucestershire and its residents as identified above.

4.13 Cumulative Effects

4.13.1 Five projects were identified that could have the potential to result in material cumulative effects with the proposed development. The key effects from these developments are considered to be landscape, traffic and air quality related effects. The assessments undertaken conclude that significant cumulative environmental effects are unlikely to result from the proposed development.

4.14 Grid Connection

4.14.1 As described above the proposed EfW would generate electricity for export to the local electricity distribution network. The grid connection works do not form part of the Planning Application. However, on the basis that export of electricity is an integral part of the scheme it is considered appropriate that the potential environmental impacts associated with the connection to the local electricity grid are assessed.

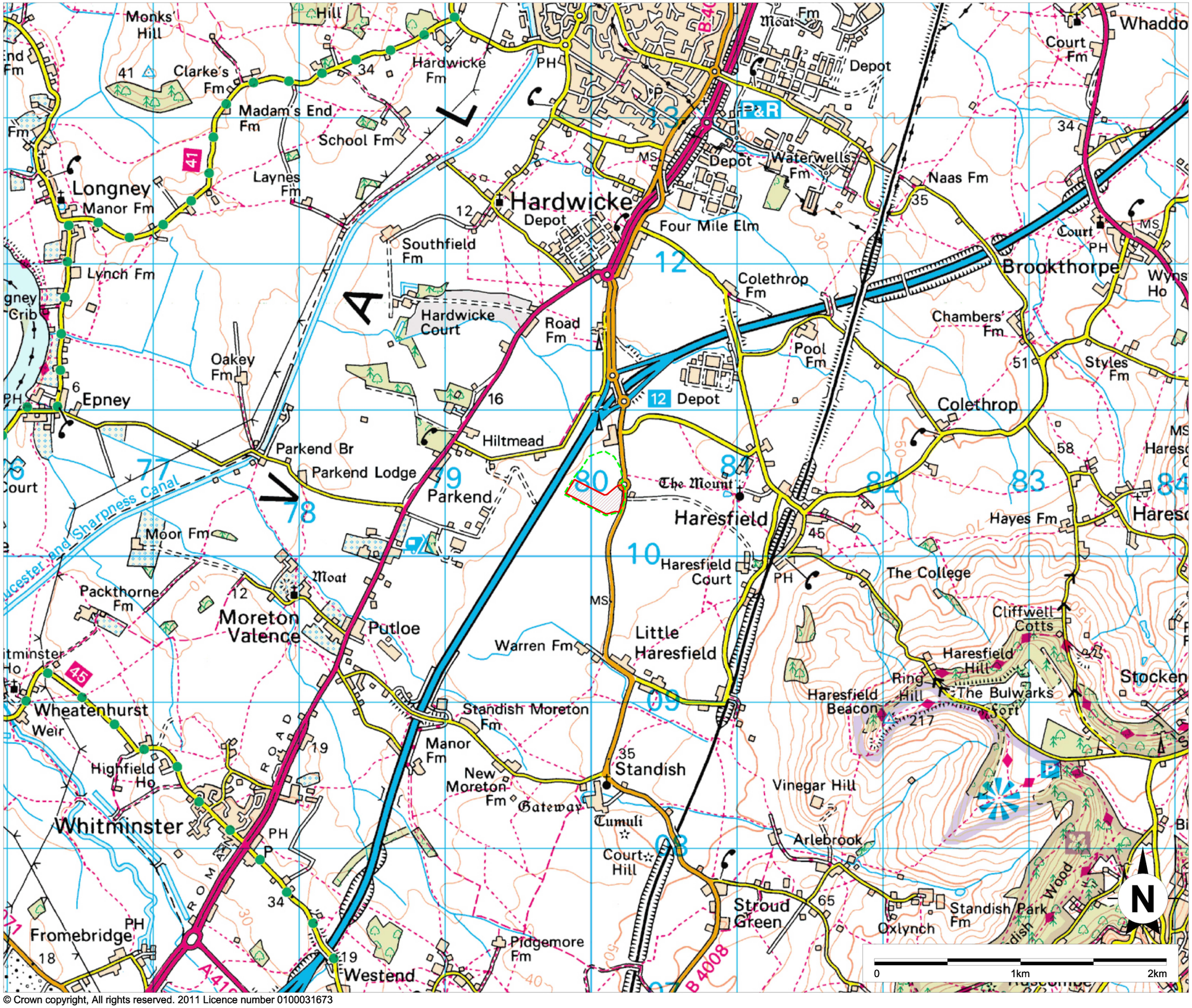
4.14.2 Two grid connection options are presently under consideration by UBB. The assessment concludes that no significant residual adverse impacts are likely to arise from the construction or operation of either option. Some minor adverse impacts have been identified and mitigation measures have been proposed to avoid or reduce these impacts. Both connection options are considered acceptable in terms of environmental impacts and advantages and disadvantages to both grid routes have been identified. Neither option is considered favourable to the other in terms of environmental impact.

4.15 Summary

4.15.1 In considering the results of this ES, it can be concluded that the proposed development would provide a sustainable waste management solution for Gloucestershire's residual non-hazardous waste. The project would assist in diverting the County's waste from landfill, provide a source of renewable energy, create local job opportunities and provide a local community resource in terms of a visitor centre. The assessments contained in this ES have demonstrated that the only potentially significant effects relate to visual impacts on a limited number of receptors located within 2.5 km of the site, this includes views from three residential properties. The assessments have shown that the proposal would not result in a significant impact on local

landscape character or unacceptable impacts on the Cotswolds AONB. No other significant residual adverse environmental impacts have been identified.

FIGURES



axis

Site Location

Javelin Park

Balfour Beatty urbaser

Gloucestershire Residual Waste Project

Figure 1

Site Location Plan

Scale	Date
1:25,000@A3	January 2012

axis

EXISTING LEVEL
21070 +

EXISTING LEVEL
20.930 +

NEW 2.4M HIGH PALADIN MESH FENCING

SLIDING ACCESS GATES

SITE BOUNDARY

NEW 2.4M HIGH WELDMESH FENCING

WIGWAM BOX

GATEHOUSE

B-B C-C D-D E-E F-F

ATTENUATION LAGOON

POND

20600+ 20900+ 21600+ 23250+ 21500+ 21080+ 21250+ 27500+ 22000+ 29000+

Staff Office Entrance

Visitor Centre Entrance

VISITOR PARKING

M/CYCLES

FLUE GAS TREATMENT FACILITY

Trafos

Emergency Diesel

Comp.

Vacumn

Residue

Workshop Crane

TURBINE HALL

BOILER HALL

Boiler Hall

Staircase

20005

WASTE BUNKER

Bunker

WASTE RECEPTION HALL

Inspection Area

45000

6000

BOTTOM ASH PROCESSING FACILITY

5753

38715

SUB STATION

AMMONIA TANK

DIESEL TANK

CONDENSER

SPRINKLER PUMP HOUSE

Ash slag conveyor

20500+ 21250+ 20900+ 21600+ 21550+

ATTENUATION LAGOON

A-A

B-B C-C D-D E-E F-F

SITE BOUNDARY

MESH FENCING

N

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Gloucestershire Residual Waste Project

Figure 2

Site Layout

Scale	Date
1:1000@A3	January 2012

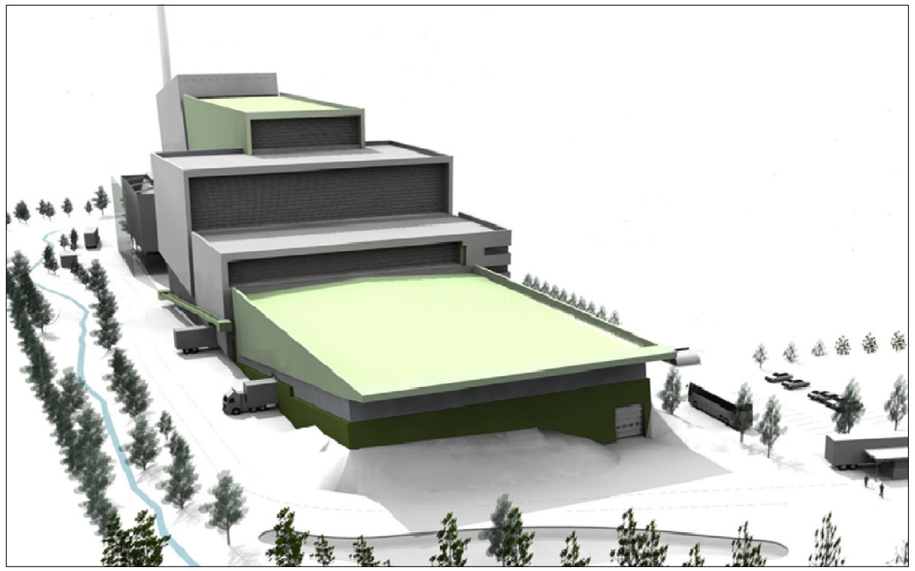

Image 1 - Aerial view from the South East

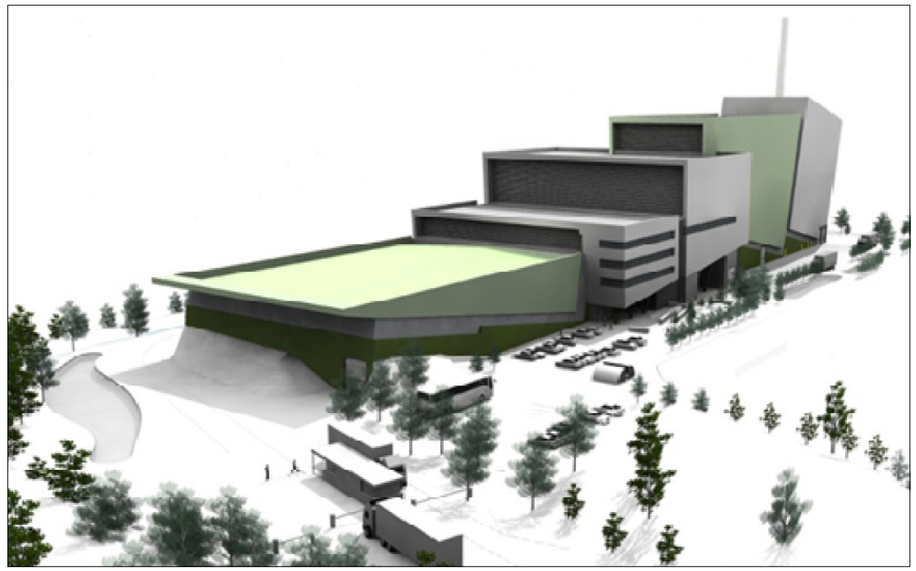

Image 2 - Aerial view from the North East

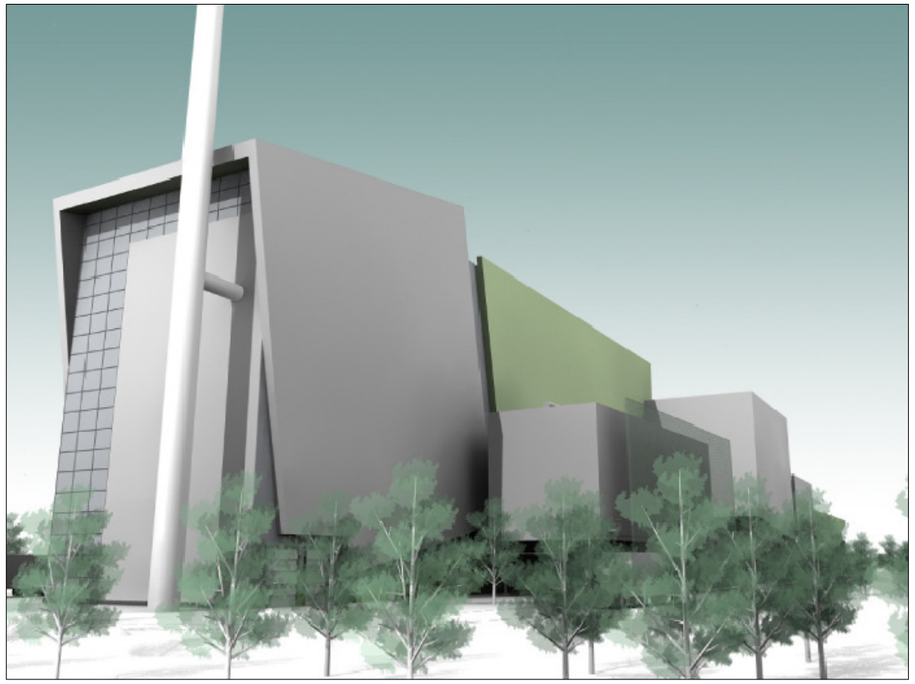

Image 3 - Ground view from the West

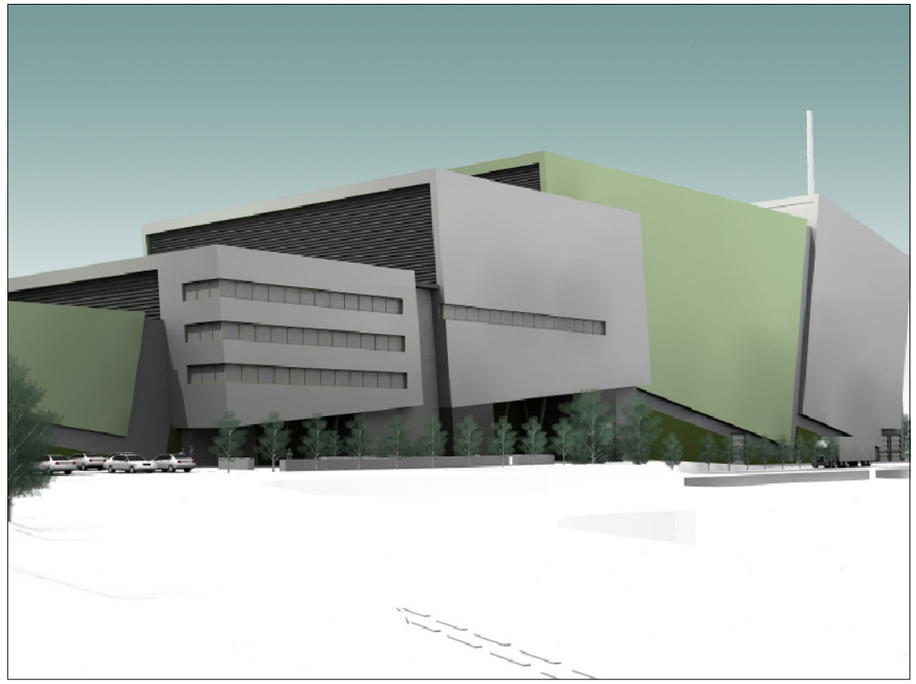

Image 4 - Ground view from the North East

axis

Balfour Beatty

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Gloucestershire Residual Waste Project

Figure 3

3D Representations

Scale	Date
NA	January 2012

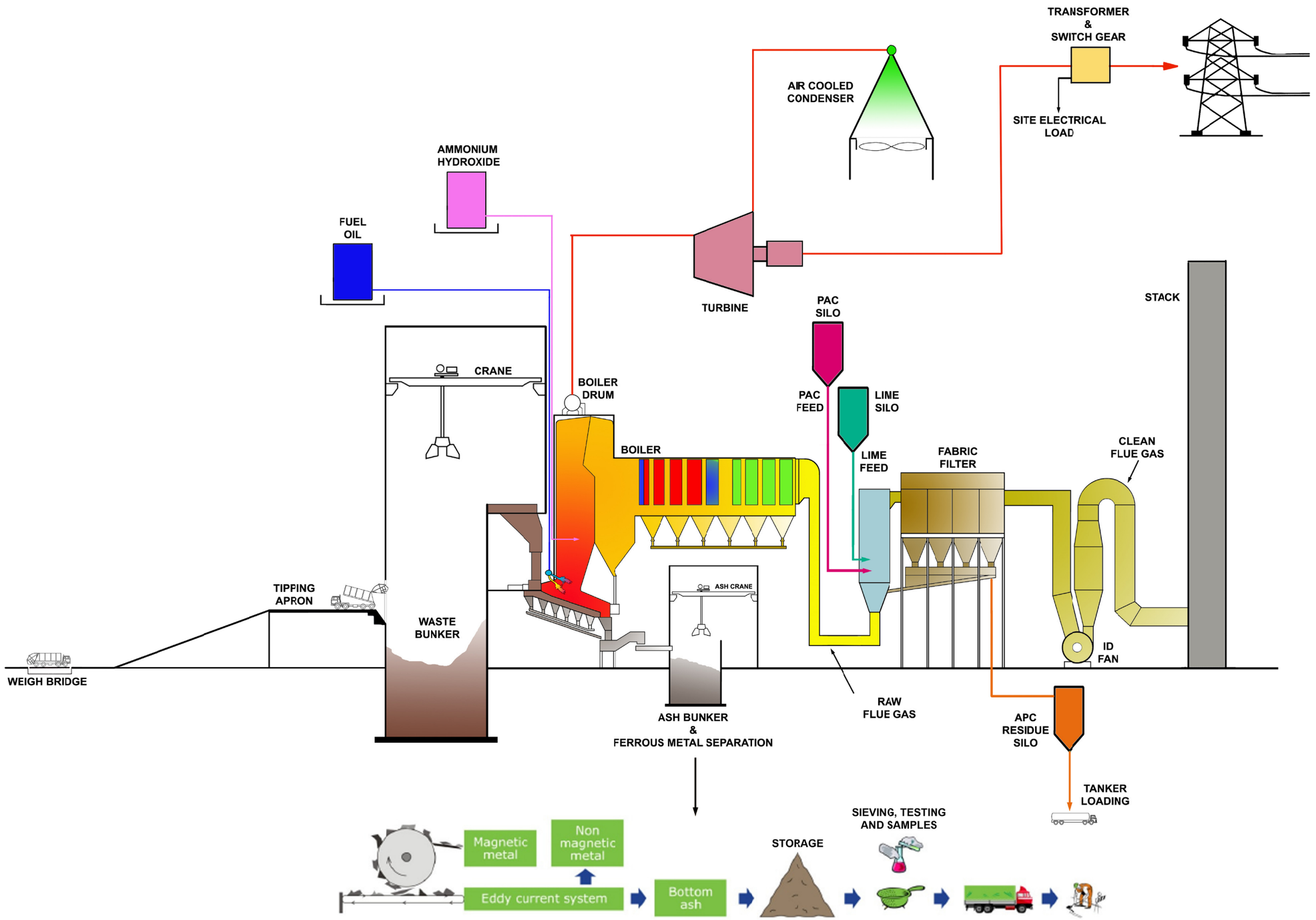

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Figure 4

Energy from Waste Process Diagram

Scale	Date
NA	January 2012