

SLOUGH MULTIFUEL EXTENSION PROJECT

Planning Inspectorate Ref: EN010129

The Slough Multifuel Extension Order

Land at 342 Edinburgh Avenue, Slough Trading Estate, Slough

Document Ref: 7.1 - 2014 Slough Multifuel Environmental Statement

Non-Technical Summary

The Planning Act 2008

The Infrastructure Planning (Applications: Prescribed Forms and Procedure)

Regulations 2009 – Regulation 5(2)(q)



Applicant: SSE Slough Multifuel Limited

September 2022



Slough Multifuel Combined Heat and Power (CHP) facility



Non-Technical Summary



Prepared for:
SSE Generation Limited
September 2014

Project Title: Slough Multifuel CHP Facility
Report Title: Non-Technical Summary
Project No: 47066339
Client Company Name: SSE Generation Limited
Issued By: URS Infrastructure & Environment UK Limited

Document Production / Approval Record

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Preface

This document comprises a Non-Technical Summary of the Environmental Statement (ES) that has been prepared in support of the planning application for the Slough Multifuel CHP Facility that has been submitted to Slough Borough Council. This Non-Technical Summary has been published as a stand-alone document which is to be read in conjunction with the Environmental Statement.

The Environmental Statement comprises the following documents:

- The Non-Technical Summary (this document);
- Environmental Statement - Volume I Main Report; and
- Environmental Statement - Volume II Technical Appendices.

In addition to the above, the Environmental Statement is accompanied by planning application documents including: cover letter; forms and schedule; Consultation Report; Design and Access statement; Planning Statement and planning application drawings.

Further copies of all these reports, or further information on the Proposed Development, can be obtained from the Applicant's website at: www.sse.com/sloughmultifuel, or through contacting SSE Generation Ltd at:

c/o Jayne Williams
Keadby Power Station
Trentside
Keadby
Scunthorpe
North Lincolnshire
DN17 3EF

Copies of the full Environmental Statement and Technical Appendices can be purchased as a hard copy for £350. Electronic copies on CD are available free (or for a fee of £10 per CD if ordering more than 10 CDs).

The Environmental Statement can be viewed by the public during normal office hours at the offices of the Planning Department:

Slough Borough Council
Planning Department
St Martin's Place

51 Bath Road
Slough
SL1 3UF

A copy is also available to view at the following address:

SSE Generation Ltd
Slough Heat and Power Ltd
6 Edinburgh Avenue
Slough
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Non-Technical Summary

1. Introduction

1.1 Overview

SSE Generation Ltd ('the Applicant') is a subsidiary of SSE plc, one of the UK's leading energy companies with around 9 million energy and home services customers and around 14 gigawatts (GW) of electricity generation, including over 3GW of renewable generation amongst other assets.

The Applicant is seeking planning permission under the Town and Country Planning Act (1990) (as amended) from Slough Borough Council (SBC) for the construction and operation of a multifuel combined heat and power (CHP) generating station of up to 50 megawatt (MW) electrical capacity, together with associated infrastructure (the 'Proposed Development') on a part of the Slough Heat and Power (SHP) site at 342 Edinburgh Avenue, SL1 4TU. The Applicant currently operates the plant and services on the SHP site.

The Proposed Development will be capable of producing low carbon electricity and heat through the use of waste derived fuels (WDF) made elsewhere from various sources of processed municipal solid waste (MSW), 'Commercial and Industrial' (C&I) waste and waste wood. The fuel will be produced off-site and delivered to the Site by Heavy Goods Vehicles (HGVs). No WDF will be accepted where it is classified as hazardous waste.

The Site

The Proposed Development Site (the 'Site'), is situated approximately 4 kilometres (km) north of the River Thames and is surrounded by the conurbation of Slough; Windsor is approximately 5km south of the Site and Maidenhead is approximately 7km west of the Site (see Figure NTS-1).

The Site is approximately 1.9 hectare (ha) in area and is located within the existing SHP site boundary, which in turn is situated within the Slough Trading Estate. The majority of the SHP site is located on the south side of Edinburgh Avenue, with two associated natural draught cooling towers occupying an area immediately to the north of this road. The indicative Site Boundary is shown in Figure NTS-2.

As part of the application for planning consent, the Applicant will demolish existing structures on the Site to create sufficient space for the Proposed Development.

A separate planning consent will be sought by the Applicant which will include a new central site services building, a water treatment plant and parking (the 'Further Development') to serve both the Proposed Development and other generating facilities on the wider SHP site as shown in Figure NTS-3. This will be the subject of a separate planning application to be submitted in parallel with the application for the Proposed Development.

2. Assessment Methodology and Approach

2.1 EIA Methodology

The objective of the EIA process is to anticipate the changes that may occur to the environment as a result of the Proposed Development, such as changes to air quality or noise compared to current background (defined as 'the baseline'). The EIA process also identifies potential receptors that may be affected by these changes (e.g. people living near the development, local flora and fauna) and defines the scale to which these receptors may be affected by the predicted changes.

Where possible, the EIA uses standard methodologies to identify the significance of potential changes and the likely resulting effects on receptors, based on legislation, definitive standards and accepted industry criteria. This is set out in detail in the ES.

At the early stages of the design of the Proposed Development, the Applicant worked with a range of environmental specialists to ensure the initial design of the Proposed Development avoids as many impacts as possible, and is designed to reduce effects on receptors where possible.

Where the environmental assessment predicts a significant effect on one or more receptors, mitigation measures are identified to avoid or reduce the effect, or to reduce the likelihood of it happening. The EIA then sets out the residual effects (the predicted effects after mitigation is used).

It is important to note that effects on receptors can be adverse (negative), neutral (neither negative nor

positive) or beneficial (positive). They can also be temporary (e.g. noise during construction) or permanent (e.g. the visual effect of the finished buildings).

Within the assessment a standard scale has been adopted to describe adverse and beneficial effects:

- **Negligible** - imperceptible effects to a receptor;
- **Minor** - slight, very short or highly localised effect;
- **Moderate** - limited effect (by extent, duration or magnitude); and
- **Major** - considerable effect (by extent, duration or magnitude) of more than local scale or in breach of recognised acceptability, legislation, policy or standards.

Moderate and major effects are considered to be 'significant' for the purposes of the EIA Regulations and are highlighted as such in the ES. Neutral, negligible and minor effects are considered to be 'not significant', and therefore are not considered to be important factors in the determination of the Proposed Development.

2.2 EIA Scoping and Consultation

EIA Scoping is a process that is designed to identify relevant topics that should be included in the EIA and reported in the ES. As part of the EIA process, the Applicant submitted an EIA Scoping Report to SBC and relevant consultees on the 16th November 2012 to allow them to contribute to defining the extent and approach to the environmental assessments being undertaken. A formal EIA Scoping Opinion was received from SBC on 7th February 2013, taking into account the views of other organisations who had submitted comments to SBC.

Following changes to the design and layout of the Proposed Development in 2013, a second scoping request was submitted to SBC on 18th December 2013 presenting an overview of the proposed changes to the Proposed Development. A revised EIA Scoping Opinion was received from SBC on 21st January 2014.

Consultation with the wider public was undertaken during the pre-planning stage in the form of two rounds of 3-day public exhibitions, in November-December 2012 and December 2013, to understand

what local issues may affect the Proposed Development at the SHP site. Feedback from this consultation was taken into account in the EIA where appropriate.

3. Planning Policy Context

The EIA has been undertaken and the ES prepared with regards to relevant national and local planning policy. At the national level, the key planning policy document is the Town and Country Planning Act 1990 which is applicable to the Proposed Development since it will have a rated electrical capacity of up to 50MW. At the local level, the key planning policy is the SBC Core Strategy 2006-26 Development Plan.

The Proposed Development is considered to meet national and local planning policy and would make a positive contribution towards the following:

- The UK Government's climate change commitments, which necessitate achieving ambitious reductions in greenhouse gas emissions (principally CO₂);
- Security of national electricity supply through having a mix of energy generating technologies and a diverse range of fuel sources;
- Maximising energy recovery from WDF in the form of low carbon (non fossil fuel) electricity and heat that will supply businesses in the local area;
- Providing local authorities with an outlet for processed MSW in the form of WDF;
- Complementing recycling initiatives by accepting waste after these initiatives have been carried out, thereby forming part of an integrated waste management hierarchy;
- Positive diversion of waste materials that may otherwise be disposed of to landfill, achieving reductions in greenhouse gas emissions (including methane) that would otherwise be generated from the breakdown of the waste materials associated with landfill;
- Utilising a CHP network in line with the UK Government's commitment towards developing heating and cooling networks; and
- Forming part of the continued modernisation of the Slough Trading Estate and green energy credentials of the SHP site.

Figure NTS-1: Location of the Proposed Development Site

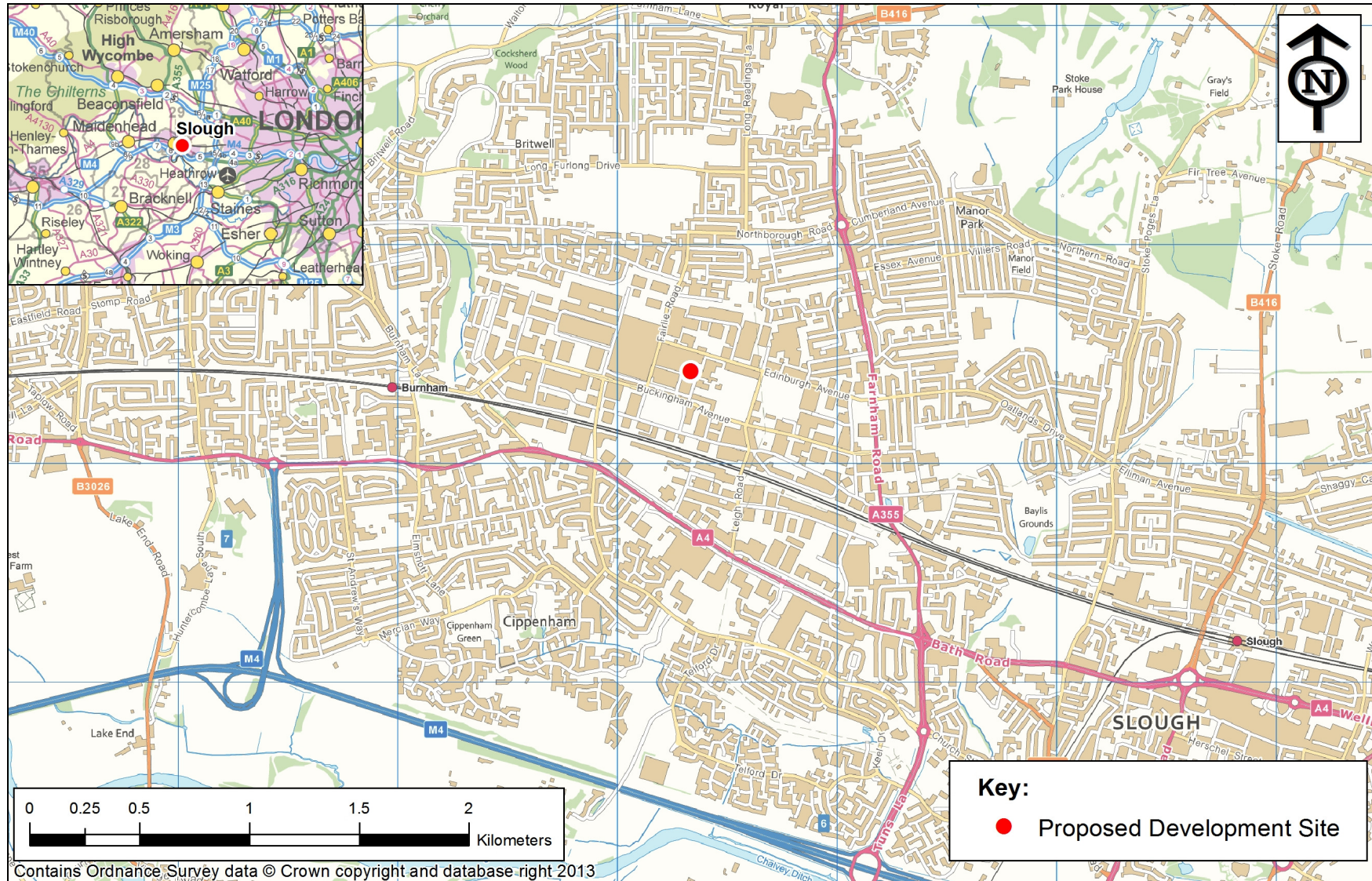
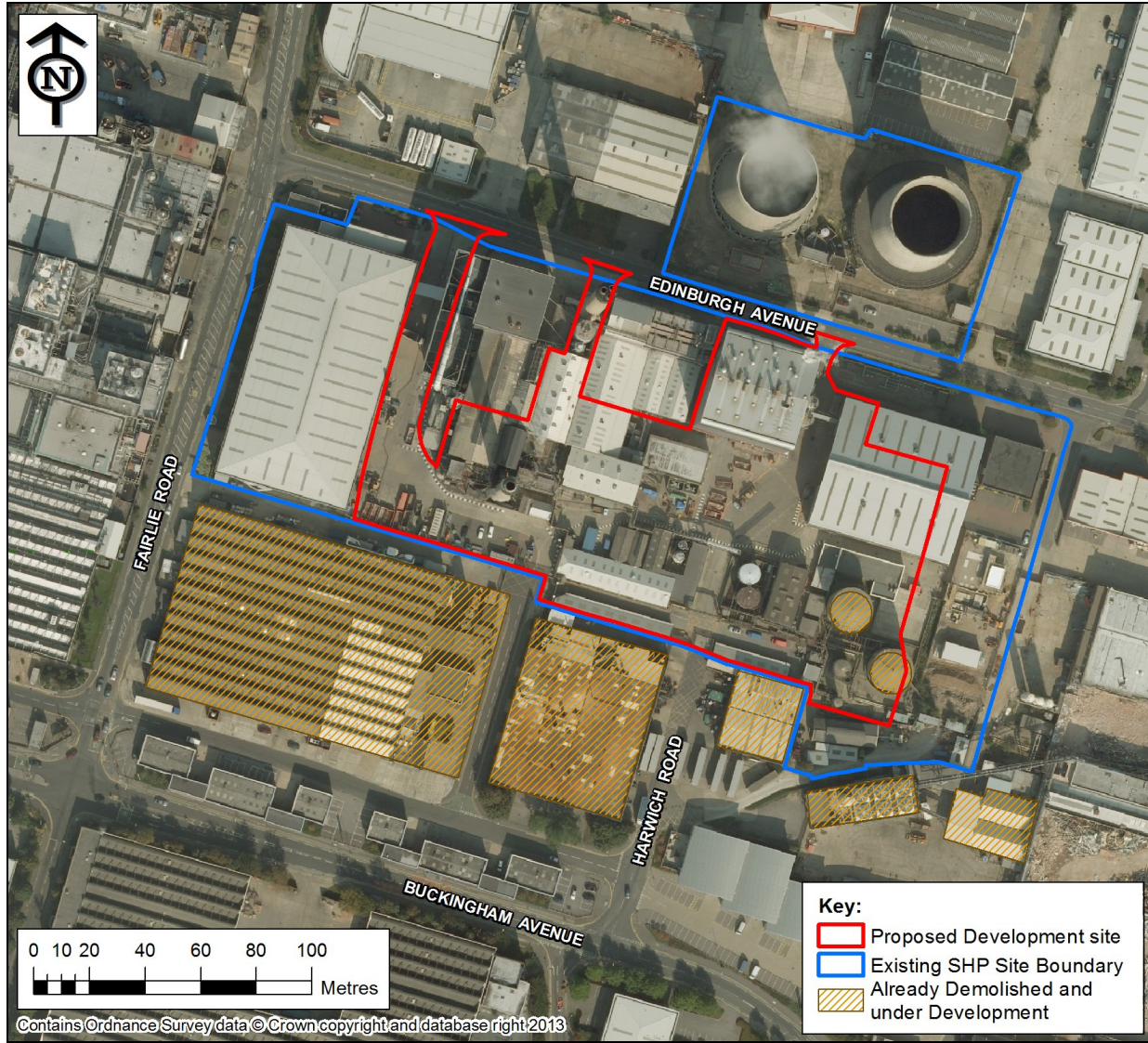


Figure NTS-2: Site Boundary for the Proposed Development



4. The Site Context

The Site is situated within the existing SHP site boundary, which in turn is located within the Slough Trading Estate, a predominantly industrial area. The Trading Estate is owned by SEGRO and was established in April 1920.

The SHP site has been used for power and heat generation purposes for about ninety years and contains numerous industrial buildings and structures of varying age. New plant has been installed about every 10 years, with fuels varying from coal, oil and gas, and more recently newly available low carbon fuels. The SHP site also contains some common services such as water treatment, cooling and operations and maintenance facilities.

The area surrounding the SHP site is occupied by various industrial, warehouse and retail businesses. The nearest commercial receptor is an industrial unit, which is located approximately 50m to the south, as well as a confectionery manufacturing site, which is located on the opposite side of Fairlie Road, approximately 8m west of the SHP site boundary and 100m west of the Proposed Development Site (with the existing SHP Fibrefuel Building in between). The nearest residential properties are located approximately 200m north of the Site along Bodmin Avenue, with the nearest park and green space area, Kennedy Park, situated approximately 400m northwest of the Site.

There are no Special Areas of Conservation (SAC), Special Protection Areas (SPA), Ramsar sites, Site of Special Scientific Interest (SSSIs) or National Nature Reserves (NNR) within a 2km radius of the Site. Two statutory designated nature sites lie within 2km of the Site; these are Haymill Valley Local Nature Reserves (LNR), located 800m west of the Site, and Cocksherd Wood, located approximately 1.4km northwest of the Site. In addition, Boundary Copse Woodland Trust Reserve, which is a non-statutory site, is located 1.3km north of the Site.

The closest European Protected Site is Burnham Beeches SAC, which is located approximately 2.9km north of the Site. The River Thames is the closest principal watercourse and is located approximately 4km south of the Site.

The nearest designated heritage asset is a railway

bridge, approximately 500m to the southeast of the Site. There are also three scheduled monuments within 2km, along with 33 listed buildings and two registered parks.

5. Key Features of the Proposed Development

The Proposed Development will comprise the demolition and removal of redundant generating plant and buildings to enable the development of a multifuel CHP facility on the Site.

The Proposed Development will generate up to 50MW of electricity and it will also be designed to export up to 20MW of heat to supply the existing Slough Trading Estate heat network. The existing natural draught cooling towers at the SHP site will be used for cooling of steam for re-use in the boilers.

The Proposed Development will consist of an enclosed tipping hall and fuel bunker, up to two furnaces where the WDF will be combusted and boiler unit(s) to raise steam, a turbine hall with a steam turbine to generate electricity and up to two flue gas treatment (FGT) plants to clean the flue gas. The cleaned gas will either be discharged to air through a new 90m high stack to replace the existing south stack on the SHP site, or for a single boiler through the existing south stack extended by 3m up to a height of 85m. The indicative layout of the Proposed Development is presented in Figure NTS-3.

The maximum height of the Proposed Development will be 90m above ground level if a replacement stack is required, and up to 48m for the tallest building (the boiler house). Depending on the final plant design, the tallest building may be lower in height than this.

The Proposed Development will include a below ground electrical connection to Slough South substation which is located within the SHP site.

There is a requirement for Further Development on the SHP site, which will include a new central site services building, a water treatment plant and parking to serve both the Proposed Development and other generating facilities on the wider SHP site. This will be the subject of a separate planning application to be submitted in parallel with the application for the Proposed Development.

The Proposed Development will be designed to use a range of WDFs, with a maximum capacity of 480,000 tonnes of fuel per year. The WDF for the Proposed Development will be delivered by road using HGVs. Approximately 4 days onsite fuel storage capacity will be provided in a dedicated concrete bunker. No waste processing will take place onsite.

Vehicular access and egress to the operational Proposed Development will be via two existing entrances to the site from Edinburgh Avenue. These are the entrance to the northwest of the Site, where fuel delivery lorries will enter, and the entrance to the northeast of the Site where they will exit (see Figure NTS-3), lending itself to a one-way anti-clockwise internal road system. A third access/exit point between the aforementioned is being maintained for the collection of FGT residue by-products.

When operational, the Proposed Development together with other site activities is expected to generate an average 100 HGV deliveries per day, with up to a maximum 126 deliveries and departures on certain days. This will not exceed the existing limits on traffic movements enforced by SBC on the SHP site.

It is envisaged that plant operation will be a continual process, operating twenty-four hours per day, seven days per week with periodic offline maintenance. The Proposed Development is anticipated to be operational for at least 8,000 hours per year as an average (90% of the year).

Figure NTS-4a and NTS-4b provide an illustrative drawing of the elevations of the Proposed Development, based on the maximum parameters and a new 90m high South Stack. By way of comparison a dotted line is shown as an outline of the existing building and structures onsite.

6. Demolition and Construction

The current expectation is that demolition works, construction and commissioning of the Proposed Development would take approximately 48 months. The earliest that demolition and enabling works would start onsite is in mid-2015, with an expected operational start date of mid-2019.

It is anticipated that demolition and construction works would be 24 hours a day, 7 days a week.

Noisier activities such as demolition and piling will be limited to daytime and evening hours and avoiding Sundays and Bank Holidays. It is likely that construction activities will be reduced during evenings and night-time. To allow for 24 hour working, additional noise mitigation measures have been proposed to ensure that noise disturbances during the night-time period at nearby receptors will be minimised.

During demolition and construction, vehicular access and egress to the Site will be via Greenock Road and/or Harwich Road (the existing HGV access points to the SHP site from Buckingham Avenue to the south of the Site). A secure construction compound will be developed and pedestrian, site and traffic management plans will be drafted.

The Applicant is committed to good environmental management throughout the demolition and construction phase of the Proposed Development. The Applicant will appoint a Principal Contractor for the works who will develop and implement a Demolition and Construction Method Statement (DCMS) and a Construction Environmental Management Plan (CEMP), through which nuisance mitigation and compliance with The Construction (Design and Management) Regulations (2007) will be achieved. This will ensure that contractors carry out their operations in a safe and considerate manner, with due regard to passing pedestrians and road users.

The CEMP will include roles and responsibilities, details on control measures and activities to be undertaken to minimise environmental effects, and monitoring and record-keeping requirements. A commitment will be made to periodically review the CEMP and undertake regular environmental audits of its implementation during the demolition and construction phase of the Proposed Development.

Prior to any demolition and construction works, a full asbestos survey will be commissioned and any remaining asbestos identified will be removed and disposed of by a specialist contractor to a suitably licensed facility and notification will be issued to the Health and Safety Executive (HSE).

Figure NTS-3: Indicative Site Layout

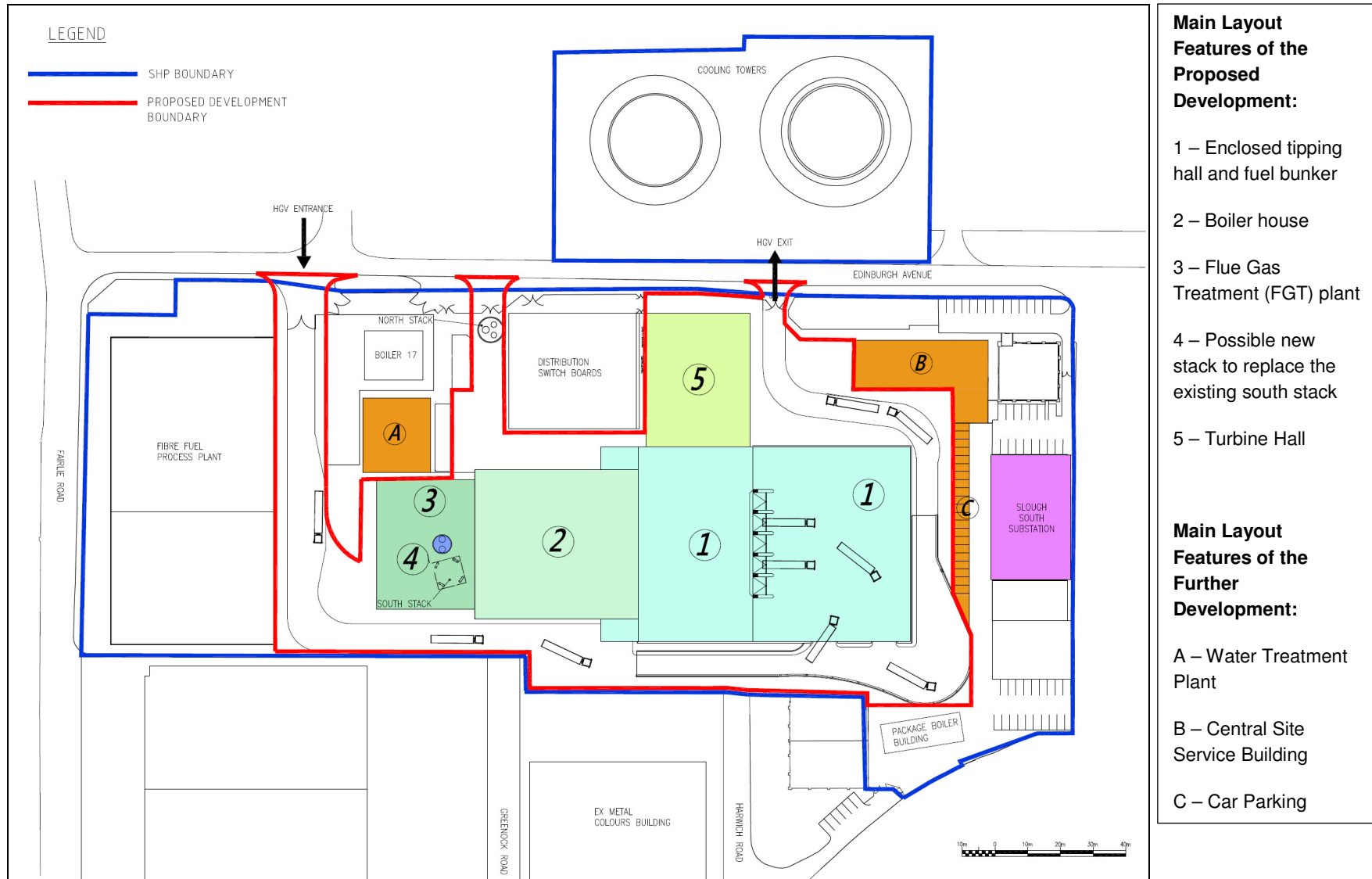
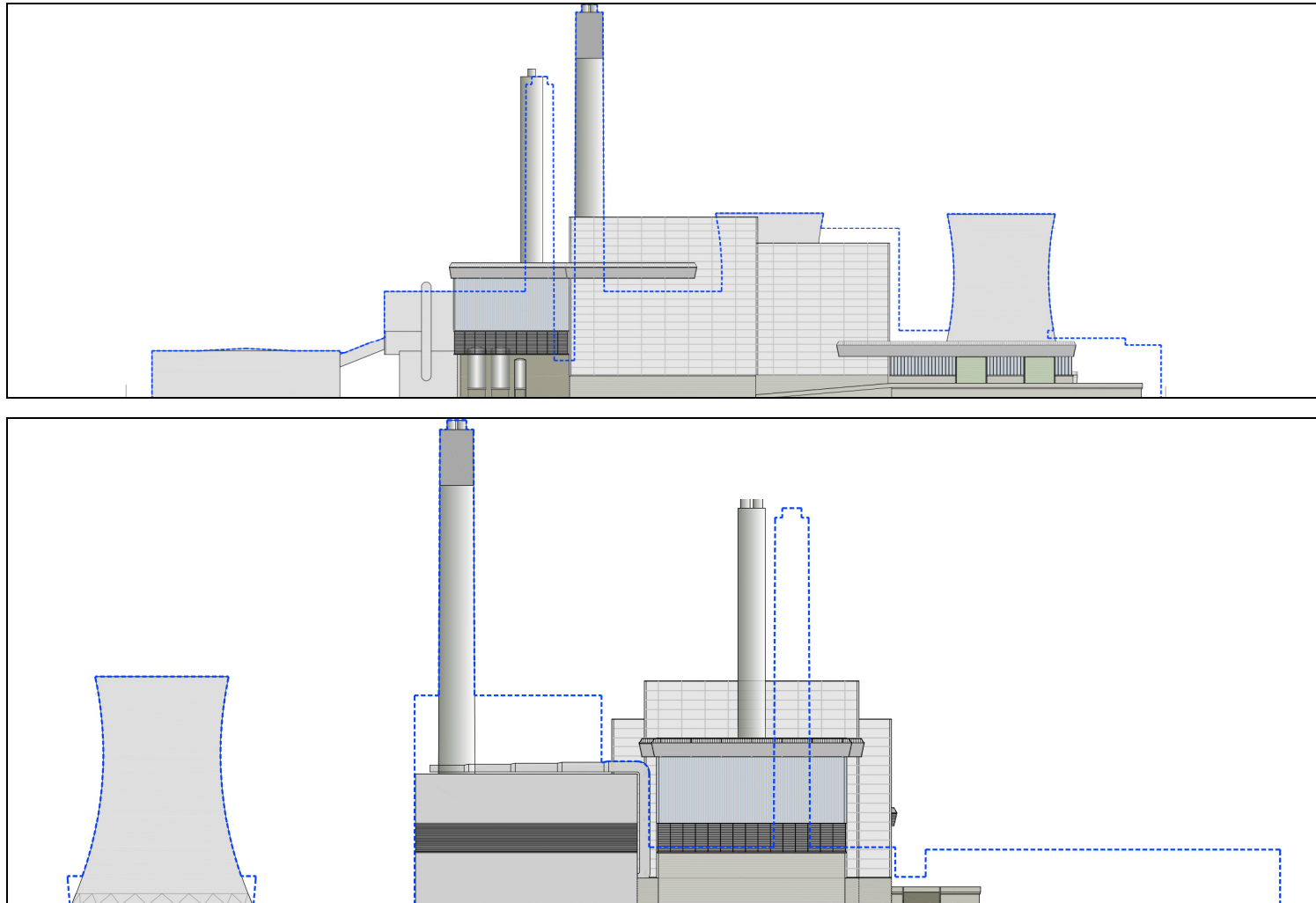


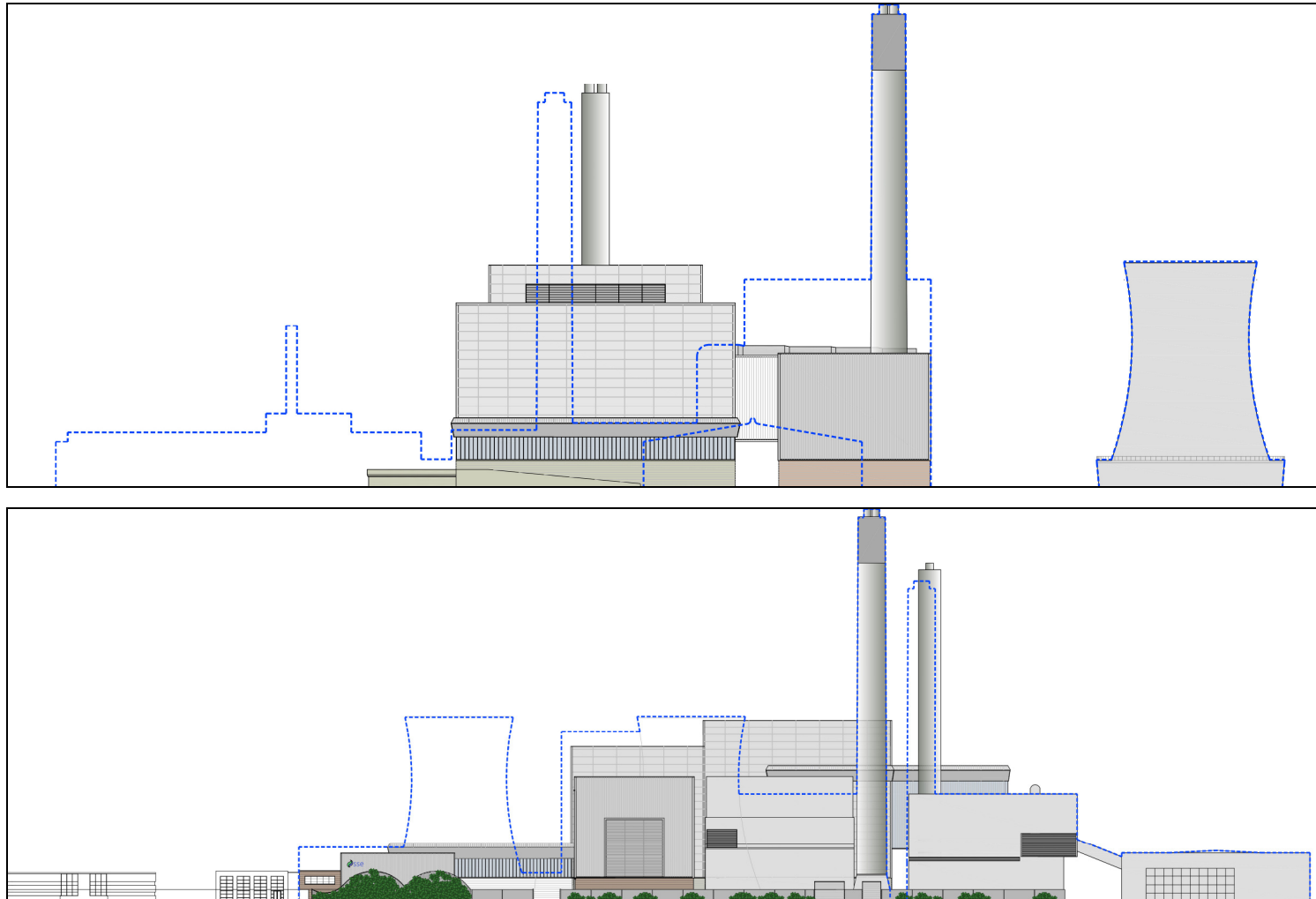
Figure NTS-4a: Illustrative drawing of the Proposed Development



Note: Top drawing looking from the south. Bottom drawing looking from the west in an east direction.

Note: a dotted line is shown outlining the existing structures including the existing cooling towers and two main chimney stacks.

Figure NTS-4b: Illustrative Drawing of the Proposed Development



Note: Top drawing looking from the east in a west direction. Bottom drawing looking from the north.

Note: a dotted line is shown outlining the existing structures including the existing cooling towers and two main chimney stacks.

7. Assessment of Alternatives

A number of project alternatives were considered during the EIA process which are discussed below.

Do Nothing Alternative

For the 'Do Nothing Alternative' the Site would remain in its current state. The Site currently contains redundant equipment and ancillary plant associated with the existing and decommissioned SHP Plant. If no development were to take place, a large proportion of the Site might therefore be vacant or underutilised in the middle of the Trading Estate, whilst reducing the amount of electricity generation undertaken. Considering the ground conditions of the Site, and its industrial heritage and surroundings, there is little likelihood of it regenerating or improving in condition without civil and/or remediation works. Hence, the 'Do Nothing Alternative' will not improve the nature and condition of the Site.

Key disadvantages of the 'Do Nothing Alternative' relate to opportunity costs including the lost opportunity for investment in the local economy. Other missed opportunities relate to environmental issues, such as the missed potential for generating low carbon electricity and heat through the use of waste derived fuels and the opportunity for waste products to be used as fuel (WDFs) rather than being transferred to landfill.

Alternative Sites

The Applicant continuously considers potential sites for new power generation development. Various factors are considered in this process including the commercial viability, land availability, physical site constraints, environmental sensitivity, distance to electricity grid connection and fuel supply and location on the grid.

Use of the existing SHP site for the Proposed Development has many advantages including the existing onsite infrastructure for gas, potable water and electricity export and the potential for providing CHP output into the Slough Trading Estate. The existing road infrastructure and presence of existing skilled labour onsite are other advantages.

Alternative Technologies

The Applicant did not consider large scale power generation from gas or coal at the Site as the scale

of such development is disproportionate to the Site and would have a major visual impact. The Proposed Development Site has insufficient space or local infrastructure to gain the economies of scale required for these types of technology, including no rail access, grid connection limitations, cooling and high pressure gas connection. These forms of power generation were therefore not considered further.

Several alternative waste to energy technologies were considered, including gasification, pyrolysis and anaerobic digestion.

It is considered that gasification and pyrolysis are not proven to meet the required capacity and efficiency requirements and cannot process a wide range of fuel types at the scale required. Anaerobic digestion was discounted as it can only process non-woody, organic material.

The Proposed Development was selected on the basis that it utilises the most proven technology and is able to process a wide range of fuels.

Project Evolution

The project evolution considers how the initial project concept has been developed and refined. A site feasibility assessment was initially undertaken which resulted in a design brief for the Proposed Development that included, amongst others, incorporation and reuse of the existing stacks if possible, plus a masterplan to remove and improve the sprawl of the existing buildings and to improve the visual appearance of the SHP site.

In March 2013 the Applicant announced the results of a review of thermal generating operations which affected several of the company's power stations including Slough. It was stated that the operations at Slough would be loss-making in 2012/13 and similarly in 2013/14 and that the CFB boilers were becoming increasingly uneconomic. It was therefore decided that the CFB boilers and fuel store would be decommissioned on a phased basis ceasing generation completely in 2013. It was noted that decommissioning of the CFB boilers would have the effect of making that land within the SHP site available for alternative use and consequently that this would almost double the area of land available for development.

With the loss of this generation output and the available space for the Proposed Development

effectively doubled, the decision was taken to increase the design capacity from 40MW to up to 50MW. A range of options were considered at this stage, including a Proposed Development of up to 80MW capacity. Uncertainty over fuel supply for a larger capacity generating station, the challenges associated with fitting it into the Site, and increased HGV traffic led to this option being discounted. A multifuel plant smaller than 40MW was not considered as this would not give the economies of scale or efficiency benefits achieved with a larger plant. Thus the 40MW and 50MW options were both viewed favourably and it was decided to maintain sufficient flexibility in the application to allow either of these options to be developed.

In response to dialogue with SEGRO and SBC regarding minimising the building heights, the maximum height of any proposed new structures onsite was limited to 48m. The exception to this is the new stack, which if required would be up to 90m.

The Applicant invited a number of industry leading contractors to provide their initial concepts for the Proposed Development. An amended layout drawing was subsequently created in August 2013 which incorporated the maximum footprints and heights from the responses. The general layout is similar to the preliminary designs, albeit with more detail on the internal roads and utilising the additional space that became available following the closure of the CFB boilers. The amended layout also includes an enclosed tipping hall and lorry manoeuvring area, which was not included on the preliminary layouts.

8. Potential Environmental Impacts

8.1 Socio Economics

Chapter 6: Socio-Economics of the ES (Volume I) presents an analysis of the socio-economic effects associated with the Proposed Development.

The baseline socio-economic conditions have been established based on a review of available data sources such as 2001 Census data and considering the existing population, qualifications and skills, labour force, unemployment, employment, economic activity and occupational profile for the region.

The socio-economic effect of the Proposed Development is considered primarily in relation to

Slough, as this represents the principal labour market catchment area, which is commonly known as the Travel to Work Area (TTWA). This incorporates the population that may reasonably be expected to travel to and benefit from the Proposed Development.

Demolition and Construction Phase

The demolition and construction phase of the Proposed Development will create up to 500 construction jobs (at peak – 300 on average) throughout the 48 month demolition and construction phase, some of which will provide opportunities for local employment, as well as indirect economic benefits during the demolition/ construction phase.

The direct, indirect and induced employment and expenditure created is likely to have a **minor beneficial** short-term effect on the local economy. The Applicant will encourage the sourcing of local labour through active supply chain engagement, and provide visibility of business opportunities to the local community.

Operational Phase

The facility currently employs 41 people, plus there are an additional 11 full time equivalent employees at the SHP site covering support services such as security, catering and cleaning, as well as SSE employees currently based onsite fulfilling national roles. This makes a total of 52 full-time equivalent posts currently on the SHP site.

It is anticipated that the Proposed Development will create approximately 20 new jobs, including shift operators, maintenance technicians, day operatives, engineers and management. When fully operational the Applicant estimates there will be 72 full-time equivalent posts.

This is a **beneficial** effect on the local jobs market, although it is considered to be only **negligible** in significance when taking into account the number of existing jobs on the Trading Estate and wider area.

8.2 Traffic and Transport

Chapter 7: Transportation and Traffic of the ES (Volume I) provides an assessment of the transport and access related effects of the Proposed Development. The assessment considers the predicted number of vehicle movements generated during the demolition/ construction and operation of

the Proposed Development including changes to road traffic volumes and capacity; public transport accessibility and capacity; and the local pedestrian and cyclist amenity.

Existing planning conditions for the SHP site allow three delivery routes to be used for HGV vehicles (as illustrated in Figure NTS-5).

An assessment of current traffic flows compared to 2007 levels shows that the closure of SHP plant has resulted in a substantial decrease in HGV traffic to and from the SHP site. This suggests that there is significant scope for additional road deliveries to the SHP site beyond current levels taking into account what levels were like before the plant closure.

Demolition and Construction Phase

The assessment has been based on a number of conservative assumptions which are likely to overestimate the effect of the Proposed Development, such as assuming peak trip generation from the Site will occur during peak hours on the Trading Estate road network. In reality it has been agreed that the demolition and construction shift changeover will be scheduled to avoid the weekday peak hours (07:30 to 09:30 and 16:30 to 18:30) to avoid the worst affected hours, and similarly, demolition and construction HGVs will be scheduled to avoid arriving at site between 07:30 to 09:30 and 16:30 to 18:30. The effects presented are therefore likely to be an overestimate of the actual effects on local road traffic.

The demolition and construction traffic entering and leaving the site will be monitored and will travel via the designated local routes.

The chapter concludes that construction traffic movements would have a **negligible** effect on the local road network. Even for the reasonable worst case predictions on Buckingham Avenue, the predicted traffic flows are lower than on other similar roads in the area and are not expected to result in any capacity issues.

In addition, it is considered that the effect of the construction and demolition phase on public transport, pedestrian and cycle amenity will be **negligible**.

Operational Phase

Staff levels will increase by approximately 20 personnel compared to existing levels but still below those onsite in early 2013 when the CFB boilerhouse was operational. This will result in little change to the expected light vehicle movements.

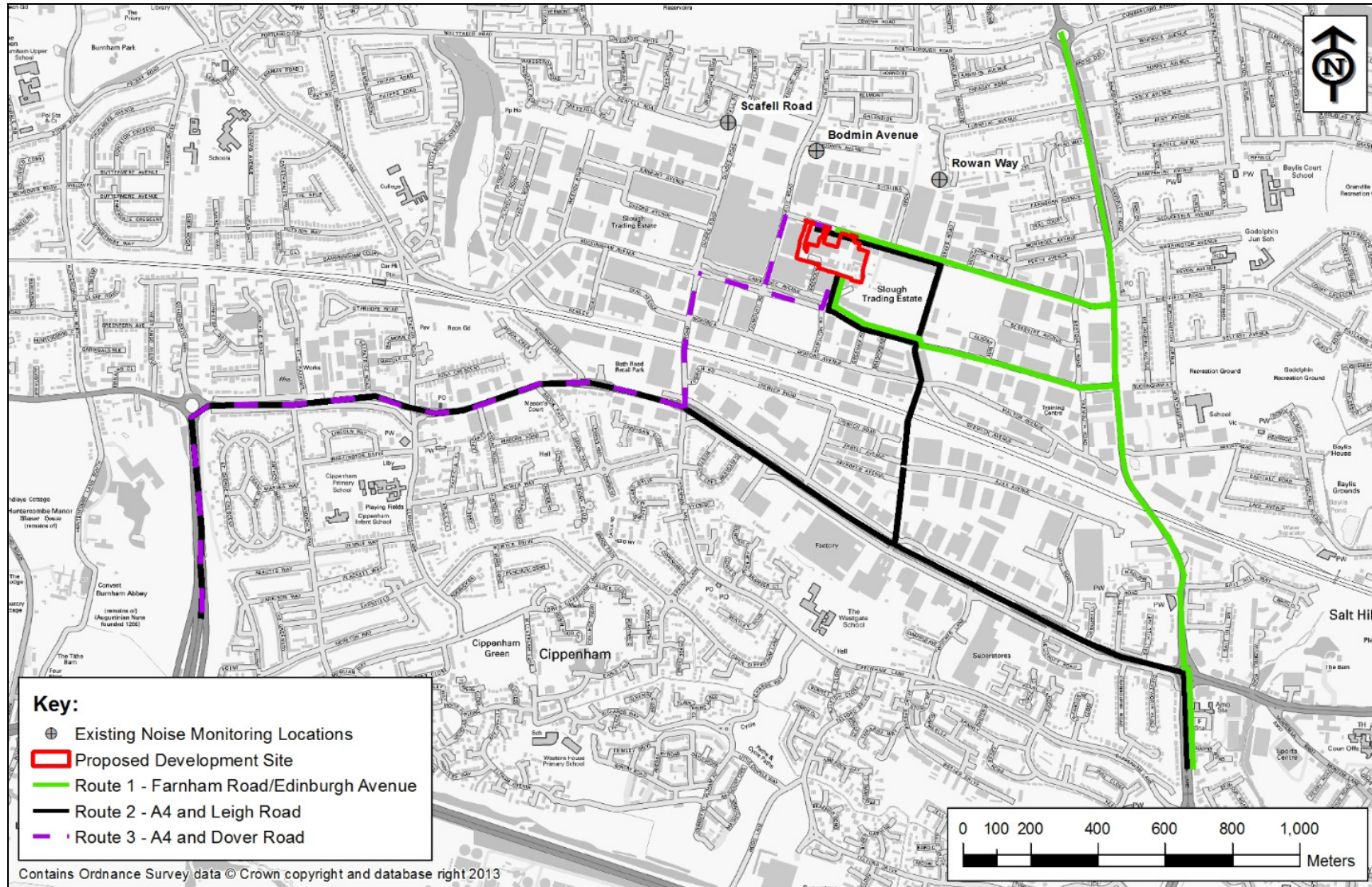
There will be some variation in daily HGV flows during operation, with an estimated average total of 100 deliveries per day to the SHP site when taking into account the maximum fuel throughput as well as the existing flows of some 20 HGVs per day. The current maximum 126 deliveries per day will also be maintained.

Following consultation and completion of the EIA process it is proposed that the current SHP night-time delivery restrictions are modified to allow a greater number of vehicles to travel during the night-time (23:00 to 07:00), provided that these do not cause significant noise effects, to enable deliveries to avoid the busier daytime and peak hour periods. The Applicant proposes that the HGV deliveries to the SHP site will be restricted to a maximum of 8 deliveries per hour over the night-time period (23:00 to 07:00). This provides a night-time delivery limit to the SHP site of 64 HGVs, with no more than 3 HGV deliveries per hour arriving from the M40, maintaining the current limit along this route.

Increases in driver delay and journey times are not assessed to be significant. Operational phase traffic is therefore expected to have a **negligible** effect on the local highway network

A Workplace Travel Plan will be maintained for the SHP site and will be updated to reflect the demolition/construction and operational phases. Consultation with SBC will remain ongoing and will promote measures at the Site that increase the use of sustainable modes by staff. The effect of the Proposed Development on public transport and pedestrians and cyclists offsite is therefore considered to be **negligible**.

Figure NTS-5 Map of Permitted Routes to and from the Site



8.3 Air Quality

Chapter 8: Air Quality of the ES (Volume I) provides an assessment of the potential effects to local air quality from the demolition, construction and operation of the Proposed Development.

The assessment focuses on the effects associated with dust, combustion emissions from plant and traffic and the potential for nuisance from plant operations (e.g. visible plumes, odour).

The potential emissions for each project phase have been determined or estimated, and key local receptors (both human and ecological) have been identified within a 10km study area. Where possible, the potential ground level concentrations resulting from the projected emissions have been predicted using atmospheric dispersion modelling techniques. The predicted levels have then been compared against relevant air quality limits to determine the significance of the effect.

SBC has declared four Air Quality Management Areas (AQMAs) within their region. The closest is approximately 1.4km southeast of the Site at Tuns Lane, which is designated due to elevated ambient levels of nitrogen dioxide, which may exceed air quality standards, largely from traffic sources

Demolition and Construction Phase

The demolition and construction activities will inevitably lead to dust and emissions from site. The boundary of the Site is 50m from the nearest sensitive offsite building, which is a commercial/ industrial unit, whilst a confectionery manufacturing site is located 100m from the Site. The nearest residential receptor is located approximately 200m from the Site, and the nearest designated ecological receptor is approximately 2km. Any increases in emissions are assessed as having **negligible** effects, with dust impacts avoided through the employment of good practice dust control measures during demolition/ construction works.

Offsite road traffic emissions have been modelled and shown to have a **negligible** effect on air quality along Farnham Road and Buckingham Avenue, the roads where the largest traffic increases are predicted.

Operational Phase

The operational phase has been modelled using an

atmospheric dispersion model. The height of the South Stack has been increased to achieve acceptable levels of impact if it were to be retained for use, and with an imperceptible difference in effect between the single line and twin line configurations discussed in Section 5.

Emissions from the Proposed Development during operation would be carefully controlled through the use of BAT following the strict requirements of the EA Environmental Permit. The Permit will set out specific requirements to ensure continuous compliance with European and national legislation for this type of power station.

The assessment has concluded that the off-site predicted concentrations is **negligible** for the majority of pollutants assessed including sulphur dioxide, particulate matter, carbon monoxide, ammonia, volatile organic compounds, acid gases and heavy metals. This is despite having assumed a series of conservative assumptions, not least that the facility would emit the maximum allowed emissions concentrations under EU and UK legislation.

The exception to this assessment of negligible effect is the potential emission of cadmium and thallium, which, based on conservative assumptions that have to be made for plant that is not yet operational, are considered to be **minor adverse**. However, these pollutants are still predicted to easily comply with EU and UK health-based air quality standards, as discussed in the Human Health Risk Assessment undertaken as part of the EIA process.

The predicted effect on nearby habitat sites from pollutants is shown to be **negligible**.

Plume visibility and potential for odour have also been considered. It is considered that the effect of the visible plume and odour are acceptable according to EA guidance. To minimise the potential for off-site odour, the fuel storage building will be kept under negative pressure and the air from this contained area will be extracted to provide combustion air to the boiler process. Odour filters can also be fitted if required.

The air quality effects of additional road traffic during operation is predicted to be **negligible**. Nevertheless, a series of mitigation measures have been included to further reduce this, including the proposal that more vehicles should be allowed to

arrive/leave the Site during the less busy night-time hours, thereby reducing congestion and effects during peak periods on the roads.

8.4 Noise and Vibration

Chapter 9: Noise and Vibration of the ES (Volume I) presents an assessment of the likely significant environmental effects of the Proposed Development with respect to noise and vibration in terms of:

- Predicted noise and vibration levels from the demolition and construction works;
- Noise resulting from operation of the Proposed Development; and
- Change in noise level associated with changes to road traffic attributed to the Proposed Development.

The potential for increased noise during both demolition/ construction and operation has been modelled and the results compared with current recorded baseline noise levels during the day and night. The degree of change is compared with national standards for noise to conclude whether the increased noise will be perceptible at receptors or not and whether there is therefore the potential for a significant effect.

Demolition and Construction Phase

Demolition and construction activities are anticipated to lead to a **minor adverse** noise effect on nearby commercial and residential receptors. Consequently, demolition/ construction noise levels are not considered to be significant, even when activities are taking place continuously.

Noise mitigation measures will be put in place to minimise any potential adverse noise effects and to allow for 24 hour working should it be required during the construction programme. These measures will include, for example: the use of modern, quiet and well maintained equipment; use of low impact drilling or piling techniques; switching off plant when it is not in use, and careful planning of the sequence of works in order to minimise the transfer of noise to neighbours. However, to minimise the risk of nuisance, the following plant/activities will be restricted to daytime period only: demolition works; impact wrenches; sheet piling (auger piling would be acceptable); concrete scabbling and concrete jack hammering.

Based on the separation distance between the

source and the nearest residential receptors, potential vibration levels from piling are considered to be of **negligible** significance.

The highest predicted change in noise levels due to construction road traffic at the worst affected residential dwellings is considered to be of **negligible** significance, hence no mitigation measures are considered necessary.

Operational Phase

Noise predictions indicate that there may be **minor adverse** effects at the nearest residential dwellings to the Site during operation. However, as the predicted noise levels of the operational facilities do not exceed the lowest measured background noise levels, the effect is not considered to be significant. Care will be taken to ensure weak points on the building envelope (e.g. ventilation openings) are designed to be capable of reducing internal noise by a minimum of 25 dB.

The assessment also considers the potential for noise to arise from increased traffic movements during operation of the Proposed Development. It is concluded there will be no perceptible increase in noise during the daytime.

At night-time it is proposed that the existing traffic restrictions at the SHP site are changed to accommodate greater levels of deliveries, hence providing greater opportunity to avoid peak hours. The Applicant proposes that the HGV deliveries to the SHP site will be restricted to a maximum of 8 deliveries per hour to the SHP site over the night-time period 2300 to 0700, as discussed above in Section 8.2. This is substantially less than the maximum 17 per hour deliveries that are suggested by the road traffic noise predictions as being acceptable and not causing a significant effect on noise conditions at residential properties along Tuns Lane and Bath Road.

It is therefore considered that night-time noise effects from delivery traffic would be **negligible**, potentially increasing to **minor adverse** at some residential properties during the busier night-time periods.

8.5 Ground Conditions

Chapter 10: Ground Conditions of the ES (Volume I) addresses the effect of the Proposed Development on the existing ground conditions and hydrogeology

of the Site and surrounding area.

Baseline information has been obtained in order to assess the likelihood of finding contamination and its potential nature and extent; and identify sensitive receptors and likely pathways for potential contamination. A desk-based assessment indicates that the Site sits on mainly Made Ground where infrastructure is currently present, with alluvium at lower depths and both a Secondary-A aquifer of River Terrace Deposits and a Chalk Principal aquifer below.

Demolition and Construction Phase

The majority of effects related to ground conditions can be mitigated through the application of industry recognised standards and best practice measures which will be managed through the CEMP, Demolition and Construction Method Statement and Site Waste Management Plan. Following the mitigation measures outlined in the ES, the effect associated with any piling into the bedrock beneath the Site is considered **negligible**.

There is potential for workers to be exposed to asbestos containing material and other hazardous substances during demolition. Mitigation measures such as screening for presence of hazardous materials, provision of personal protective equipment, and the implementation of dust control measures will be undertaken to keep the level of risk within acceptable limits (i.e. **negligible**).

The risk from the use of liquid fuels such as oils/petrol and/or diesel will be mitigated by checking equipment associated with fuel use and, where necessary, providing drip trays. An emergency spillage action plan will be produced (prior to commencement of site works), which will reduce the resultant effect to **negligible**.

Demolition and construction activities will result in the generation of waste materials. These will predominantly be of a domestic nature with some industrial and construction wastes. In order to minimise this effect, waste will be segregated on site and where possible, reused or recycled. Appropriately licensed landfill sites will be identified for receipt of any residual waste and accordingly the indirect effects will be **negligible**.

Operational Phase

During operation of the Proposed Development, the

likely effects would be of similar nature to the demolition/ construction effects discussed above, which will be managed through the implementation of best practice site procedures.

The fuel storage bunker containing waste derived fuels onsite will be constructed down to a maximum of 4m below ground level. This has been designed to be above the groundwater table, which should minimise any risk of contamination through loss of containment in the bunker, were that to occur. In addition to this, in order to ensure the minimum effect on groundwater, the fuel storage bunker will be constructed with a coarse gravel layer around and beneath the bunker, in accordance with EA guidance. This is expected to reduce the potential effect to **negligible**.

The Proposed Development has the potential to result in sources of contamination associated primarily with solid and liquid fuel storage area or the transformers, if appropriate mitigation measures are not implemented. Liquid fuel storage areas and transformer areas will be appropriately bunded to ensure that, in the event of any spillage, the materials are safely contained. Potential emissions of oil based materials from road vehicles, such as oil leaks, will be managed by the oil/ water separators that shall be incorporated as appropriate within the existing SHP site drainage system. Implementation of good housekeeping and management practices as well as the Environmental Permit required for the operation of the power station, are expected to reduce the effect to **negligible**.

8.6 Water Resources and Flood Risk

Chapter 11: Water Resources and Flood Risk of the ES (Volume I) presents an assessment of the potential effects of the Proposed Development on water resources and flood risk.

The assessment identifies the key water bodies that may receive run-off from the Site, and considers the potential contamination risk to these water bodies as a result.

There are two streams and a river that run in relatively close vicinity to the Proposed Development: Chalvey Brook is 1.2km to the west; the Salt Hill Stream is 1.1km to the east; and the River Thames is 4.1km to the south of the Site. The Site is located in the catchment of the Salt Hill Stream.

These streams and river are considered by the Environment Agency to be resources of high importance with respect to water quality. The Secondary A Aquifer beneath the Site is also classified as high importance, while the Principal Aquifer is classified as very high importance. The Site is also located within a groundwater Source Protection Zone as it is part of the total catchment area for groundwater for the public water supply borehole.

The Site lies within Flood Zone 1, meaning it has a very low chance of fluvial or tidal flooding (less than 1 in 1000 year probability of flooding). In addition groundwater flooding is not considered to be an issue at the Slough Trading Estate.

SHP is the water utility provider for the SHP site and the Slough Trading Estate and the water supply is sourced from a groundwater abstraction from an offsite aquifer located 750m north of the Site which is owned by the Applicant.

Demolition and Construction Phase

A number of potential effects could arise from activities associated with the demolition or construction phases if undertaken without appropriate mitigation, including disturbance to the existing drainage and water supply systems, an increase in suspended sediments, accidental spills and leaks of oils and hydrocarbons, as well as an increase in water demand and wastewater generation.

The majority of effects related to water quality can be mitigated through the application of industry recognised standards and best practice measures which will be managed through the Construction Environmental Management Plan, Demolition and Construction Method Statement and Site Waste Management Plan (which will be prepared following consent and prior to commencement of site works). Following the mitigation measures outlined in the ES, the effect associated with demolition and construction is considered to be **negligible**.

Operational Phase

A number of potential effects could arise from activities associated with the operational Proposed Development without appropriate mitigation, including contamination of the water environment from on-site materials, increased water demand and

generation of wastewater, and changes to the drainage system that could affect flood risk both onsite and offsite.

Following the application of mitigation measures no significant effects to water resources are expected. The Flood Risk Assessment (FRA) has identified a number of options available to the Applicant to achieve a Sustainable Urban Drainage system on the Site to maintain or improve current discharge rates offsite, including underground storage pipes and soakaways; the detailed design will be agreed with SBC and the EA post-consent and prior to commencement of any site works.

Water use will be comparable to that of the now decommissioned CFB plant on the SHP site. Water consumption will be monitored and water saving measures will be adopted where possible.

Following mitigation, the Proposed Development is expected to have a **negligible** effect on water quality, water resources and flood risk; although this may increase to minor beneficial if the current surface water run off discharge rate is reduced following detailed design.

8.7 Cultural Heritage and Archaeology

Chapter 12: Cultural Heritage and Archaeology of the ES (Volume I) identifies the location, type and significance of cultural heritage assets and their setting and reports on the predicted effects of the Proposed Development.

Designated heritage assets and conservation areas within an initial study area of 1km and a 10km outer study area from the boundary of the Proposed Development have been identified.

Demolition and Construction Phase

The Site has been heavily developed since the 1920s, with multiple rebuilds and extensions of the power station complex over almost 90 years of electricity production. It is therefore considered likely that modern disturbance caused by previous 20th century development will have removed any archaeological remains from within the Site's boundary and there is not expected to be any direct effect on archaeological features onsite.

The effect of demolition and construction activities on offsite archaeological and heritage features is anticipated to be **negligible**. Traffic management

will ensure that construction traffic avoids utilising the Grade II Leigh Road Bridge in order to prevent the possibility of effects to the bridge's setting or material form, whilst the nearest Scheduled Monument, Montem Motte, will also be avoided by routing construction traffic down the A355.

All other designated heritage assets within the 10km study area are well screened or situated at a considerable distance from the Site and the effect is therefore considered to be **negligible**.

Operational Phase

The Proposed Development is larger in terms of its massing and height than the current SHP site; however, in general there will be little change to the view resulting from the Site.

The assessment concludes that overall effects from the Proposed Development to surrounding assets are considered to be **negligible**, except on four heritage assets (Windsor Castle, Eton College, Lower Chapel and Stoke Park House) which are assessed as being **minor adverse**, but not significant. This is a reflection of the increase in stack height from 82m potentially to up to 90m which will be visible from these features (although the South Stack will still be lower than the existing 104m North Stack which is on the SHP site).

The effect on Conservation Areas within the study area is also considered **negligible**, except for Stoke Park Conservation Area, which is considered **minor adverse**.

8.8 Ecology

Chapter 13: Ecology of the ES (Volume I) assesses the effects of the Proposed Development on relevant ecological receptors.

Ecological receptors have been identified within 2km (5km for bats) of the Proposed Development. This included the undertaking of an extended phase 1 habitat survey, bat roost potential survey and breeding bird and peregrine survey for the Site.

There are no SACs, SPAs, Ramsar sites, SSSIs or National Nature Reserves (NNR) within a 2km radius of the Site. The closest European Protected Site is Burnham Beeches SAC, approximately 2.9km north of the Site. The nearest statutory or non-statutory designated nature site is Haymill Valley Local Nature Reserves (LNR), 800m west of

the Site.

Surveys carried out to date have shown that the site represents habitats of very limited conservation value with the exception of the presence / potential presence of breeding birds within buildings on Site.

Unconfirmed anecdotal evidence suggests that peregrine falcon nest occasionally on the Site and it is reportedly seen onsite perching on the boiler house. No bat roosts have been recorded within the Site or SHP site during surveys. Buildings and habitats on the Site and the surrounding area are considered to have low potential for bats, both in terms of habitat and foraging.

Demolition and Construction Phase

The Site and surroundings has an urban/industrial nature and there is a reasonable buffer between the identified habitat sites and the Proposed Development. Any potential ecological effects resulting from noise, light, dust or human activity will be buffered or screened by the surrounding urban land, resulting in a **negligible** effect on any designated site.

The potential temporary loss of nesting features for birds through building demolition is considered to be a short-term effect and unlikely to adversely affect the conservation status of bird populations. To meet national legislation requirements, the demolition of the large structures on site should take place outside of the breeding bird season or following confirmation that no nesting birds are onsite by a qualified ecologist.

Surveys will be conducted to locate any peregrine nests prior to any works that may be disturbed by demolition or construction work. Where possible, the demolition of structures near to the eastern end of the boiler house will be undertaken outside the peregrine bird breeding season. Should any work be required in this period an ecologist will survey the structures and work will only proceed if no birds are nesting. In addition, to enhance the Site for peregrine falcons, artificial nesting habitat will be provided onsite if they are still deemed to be in residence onsite or in the local area at the start of the demolition and construction phase. Considering the above mitigation measures, the potential effect on birds is considered **negligible**.

Given the general absence of any other protected

species onsite, the predicted effect on ecology is considered **negligible**.

Operational Phase

Atmospheric emissions from the Proposed Development have the potential to affect local habitat sites. The stack height has been specifically designed to avoid a significant impact on the local habitat sites. A **negligible** effect is therefore predicted for Burnham Beeches SSSI, Stoke Common and Black Park.

The HGV traffic route for the operational phase will be the same as the route used for demolition and construction traffic and will have a **negligible** effect on nearby habitat sites.

It is considered that there would be no potential effects on protected species on or offsite and this effect is considered to be **negligible**.

8.9 Landscape and Visual Impact Assessment

Chapter 14: Landscape and Visual of the ES (Volume I) assesses the likely effects of the Proposed Development upon landscape character and visual amenity within a 5km and 10km study area, which has been defined to include areas where it is considered that there is potential for significant direct or indirect effects on landscape character and sensitive views arising from the demolition/construction and operation of the Proposed Development.

To determine the likely visual effect of the Proposed Development, sixteen representative views have been identified within the 10km Zone of Theoretical Visibility, along with field-based site surveys, as agreed with SBC. From these, eight representative photomontages have been used to illustrate the likely effect of the Proposed Development from a selection of viewpoints within the study area. Two of the photomontages are presented in Figure NTS-6 and Figure NTS-7.

Demolition and Construction Phase

Changes to views from the identified viewpoints during the demolition/ construction period relate largely to the demolition of existing structures onsite, the visibility of the tower cranes and the gradual erection of new buildings onsite. The assessment concluded that the majority of viewpoints would experience a **minor adverse**

effect, however three viewpoints are anticipated to be **moderate adverse**, namely residents to the north living in close proximity to Slough Trading Estate and recreational users of public open space on the north boundary of the Trading Estate (Viewpoint 2), recreational users of Kennedy Park (Viewpoint 3), and residents in the northern Slough urban area (Viewpoint 6). These effects will however be temporary in duration. The effect from viewpoint 15 is considered **negligible**.

The effect of the Proposed Development on the local Slough Business Area Landscape Character Area (LCA) is considered to be **minor adverse** and temporary, whilst all other landscape character areas within the 5km study area are considered **negligible**.

Operational Phase

In terms of the predicted visual effects, operation of the Proposed Development on the site of the existing SHP station will reduce the potential effect experienced by the visual receptors. This is considered to result in a **minor adverse** effect on visual amenity (i.e. the Proposed Development would cause small deterioration to the existing view) at five viewpoints (Viewpoint 1, 2, 3, 6 and 16), whilst the effect from the other 11 viewpoints is considered **negligible**.

The completed and operational development would be larger in height and massing than the existing buildings within the Site (although smaller than the cooling towers and north stack), as shown in Figures NTS-4a and NTS-4b above. This is considered to result in a **minor adverse** effect on landscape character within the Slough Business LCA, as the Proposed Development would not be wholly different to the existing situation and the tallest structure on the SHP site would remain the existing 104m North Stack. The effect on the Slough Urban Landscape Character Area and the Thames Floodplain Landscape Character Area is considered to be **negligible**.

Figure NTS-6: Viewpoint 2, Looking south from Bodmin Avenue



Representative Viewpoint 2, Bodmin Avenue - Proposed View & Cumulative Development

Representative Viewpoint 2
Bodmin Avenue

X,Y,Z Location: 495393.614,
181773.483, 32.598
Date: 04/03/2014, 11:01
Camera model: Canon EOS 5D
Focal length: 20mm
Tripod height: 1.6m
Viewing distance: 168mm
Viewing distance @ A1: 336mm



Location Plan
(Site in red, not to scale)

Figure NTS-7: Viewpoint 7, Looking northeast from Lake End Road Bridge



8.10 TV and Radio Interference

Chapter 15: TV and Radio Interference of the ES (Volume I) assesses the effects of the Proposed Development on digital terrestrial and satellite TV reception. Consideration has also been given to the potential effects on radio reception, mobile telephone signals, wireless networks and emergency service communications.

Demolition and Construction Phase

Temporary structures, such as cranes and scaffolding are thin and TV signals are able to diffract around such obstacles. Any interference is also temporary and hence anticipated to be **negligible**. There is considered to be no significant risk to radio reception (both analogue and digital) as they use signals at lower frequencies that can bend to a greater extent around obstructions, nor mobile telephone signals, wireless networks and emergency service communications.

Operational Phase

Digital terrestrial TV signals in the vicinity of the Proposed Development are provided by the Crystal Palace and Hannington transmitters. General reception of digital terrestrial signals is considered to be poor due to existing tall buildings in the industrial estate, as well as tall trees. The transmission shadow is predicted to lie west-north-west of the Proposed Development and extend for approximately 1.2km.

The survey identified 22 dwellings, including one block of flats, within the predicted shadow area. Cable television is available to all of them, and 19 have satellite dishes. A worst-case treatment, assuming that they all use terrestrial signals from the Crystal Palace transmitter, means that up to 22 dwellings will have their TV signals adversely affected. This is therefore considered to be a **minor adverse** effect, prior to mitigation. For those dwellings with adversely affected terrestrial TV reception, mitigation would include upgrading the existing aerials, using signals from the Hannington transmitter, or providing a non-subscription satellite service.

8.11 Sustainability and Climate Change

Chapter 16: Sustainability and Climate Change of the ES (Volume I) assesses the potential wider sustainability effects predicted to arise as a consequence of the Proposed Development and

identifies measures considered to improve the sustainability of design and management.

In the last twenty years, energy generation on the SHP site has gradually moved from fossil fuels to newly available low carbon fuels. The Proposed Development continues this evolution.

The Proposed Development will have the potential to supply up to 20MW of heat for off-site users via the existing Trading Estate heat network. Further investigation into the heat demand from off-site users will be undertaken to identify potential supply opportunities.

The carbon footprint of the operational Proposed Development has been calculated, including emissions from fuel deliveries to/from Site. It was found that the Proposed Development will outperform both the average existing power stations within the UK and CCGT gas power stations (in terms of emitting less carbon dioxide per Megawatt of electricity produced).

The Proposed Development represents a net reduction in carbon dioxide emissions since the processing of a waste into fuel to produce heat and power displaces conventional energy or electricity use and also avoids the generation of landfill gas emissions.

9. Cumulative Effects

Other projects have been identified that have the potential to generate cumulative impacts together with the Proposed Development. This is due to the nature of these developments (e.g. the potential to release emissions to air) or their location (e.g. close enough to the site to affect the same receptors).

The following schemes were considered along with the Proposed Development, following agreement from SBC. These are Leigh Road/Bath Road Central Core 1 & 2 development, the *Further Development* on the SHP site and Britwell Regeneration project at Kennedy Park, although a wider list of projects has also been considered.

The potential for cumulative effects was considered for all of the environmental topics. As a result of the detailed consideration undertaken in respect of the identified cumulative schemes, no significant cumulative effects during demolition/ construction or operation were identified. The exceptions are:

- *Chapter 6: Socio-economics* notes that the cumulative schemes will create new job

opportunities and these schemes, when considered along with the Proposed Development, are expected to increase the effect on the local economy to major beneficial;

- *Chapter 14: Landscape and Visual* states that, in the event that the Britwell Regeneration scheme and Proposed Development are constructed at similar times, it would increase the visual effect from Kennedy Park and parts of the residential area to the north of Slough from minor to moderate adverse. This effect, although significant, would be temporary, lasting only for the duration of the demolition/construction phase. Once operational, the developments are considered to be in keeping with the appearance of the existing area.

It is not expected that any other effects attributed to the Proposed Development would change when taking into account the cumulative schemes.

10. Residual Effects and Conclusions

Demolition and Construction Phase

The ES has concluded that the majority of residual effects associated with the demolition/ construction phase of the Proposed Development have been assessed as being predominantly negligible, with a significant beneficial socio-economic effect through the creation of jobs during the demolition and construction phase.

A short-term minor adverse effect has been identified at local receptors due to demolition and construction noise, whilst a moderate adverse visual effect was identified at some nearby residential receptors to the north of the Site, however this is temporary and would only last for the duration of the demolition and construction works onsite.

During the demolition and construction phase a number of mitigation measures (or actions) will be put in place to ensure that these effects are minimised. These will be incorporated into the CEMP and DCMS, which will be agreed with SBC prior to commencement of site works.

Operational Phase

The Proposed Development is set within an existing power station site, and has been designed in keeping with the surrounding infrastructure. This has worked to minimise the potential for significant

adverse effects. The operational effects of the Proposed Development are therefore considered predominantly negligible, including a long term negligible but beneficial effect on employment.

A significant beneficial effect is attributed to the operational Proposed Development associated with diverting waste from landfill to energy production, which presents significant carbon savings and a reduction in greenhouse gas emissions to the atmosphere.

The ES has concluded that there are predicted to be some minor adverse effects associated with air and noise emissions, as well as on the setting of a number of heritage assets within the 10km study area, however these are not considered significant. The effect on the setting of heritage assets is the result of a possible 8m increase in stack height, which is visible at several nearby assets, albeit the change is expected to be small to imperceptible.

During the operation of the Proposed Development, a number of mitigation measures will be put in place to ensure that these effects are minimised. These will primarily be managed through the Environmental Permit required for the operation of the Proposed Development, and regulated by the EA.