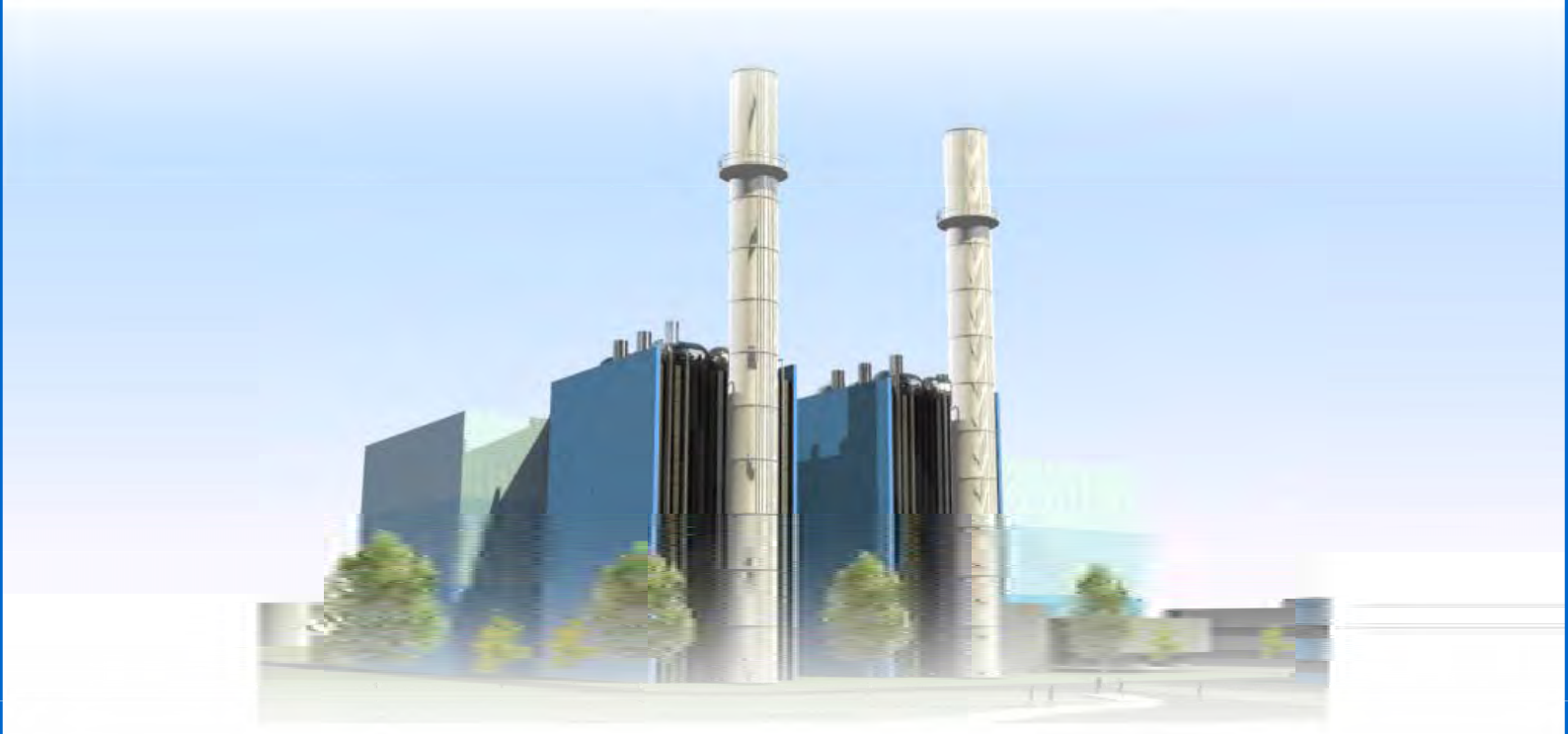
Gateway Energy Centre



ENVIRONMENTAL STATEMENT
Volume 2

Prepared by

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ENVIRONMENTAL STATEMENT VOLUME 2
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APPENDIX A

RELEVANT PLANNING POLICIES

A RELEVANT PLANNING POLICIES

Contents Summary

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RELEVANT PLANNING POLICIES

East of England Plan
The Revision to the Regional Spatial Strategy for the East of England (May 2008)

Policy Number	Policy - Written
SS1: Achieving Sustainable Development	The strategy seeks to bring about sustainable development by applying: (1) The guiding principles of the UK Sustainable Development Strategy 2005: – living within environmental limits; – ensuring a strong, healthy and just society; – achieving a sustainable economy; – promoting good governance; and – using sound science responsibly. (2) The elements contributing to the creation of sustainable communities described in Sustainable Communities: Homes for All: – active, inclusive and safe in terms of community identity and cohesion, social inclusion and leisure opportunities; – well run in terms of effective participation, representation and leadership; – environmentally sensitive; – well designed and built; – well connected in terms of good transport services; – thriving in terms of a flourishing and diverse economy; – well served in terms of public, private, community and voluntary services; and – fair for everyone. Local Development Documents and other strategies relevant to spatial planning within the region should: (a) help meet obligations on carbon emissions; and (b) adopt a precautionary approach to climate change by avoiding or minimising potential contributions to adverse change and incorporating measures which adapt as far as possible to unavoidable change In particular, the spatial strategy seeks to ensure that development: – maximises the potential for people to form more sustainable relationships between their homes, workplaces, and other concentrations of regularly used services and facilities, and their means of travel between them; and – respects environmental limits by seeking net environmental gains wherever possible, or at least avoiding harm, or (where harm is justified within an integrated approach to the guiding principles set out above) minimising, mitigating and/or compensating for that harm.

SS2: Overall Spatial Strategy	In seeking the more sustainable relationships described in Policy SS1 the spatial strategy directs most strategically significant growth to the region's major urban areas where: • strategic networks connect and public transport accessibility is at its best and has the most scope for improvement; and • there is the greatest potential to build on existing concentrations of activities and physical and social infrastructure and to use growth as a means of extending and enhancing them efficiently. Within this context Local Development Documents should develop policies which: • ensure new development contributes towards the creation of more sustainable communities in accordance with the definition above and, in particular, require that new development contributes to improving quality of life, community cohesion and social inclusion, including by making suitable and timely provision for the needs of the health and social services sectors and primary, secondary, further and higher education particularly in areas of new development and priority areas for regeneration; and • adopt an approach to the location of major development which prioritises the re-use of previously developed land in and around urban areas to the fullest extent possible while ensuring an adequate supply of land for development consistent with the achievement of a sustainable pattern of growth and the delivery of housing in accordance with Policy H1. The target is for 60% of development to be on previously developed land.
SS3: Key Centres for Development and Change	To achieve sustainable development and the aims of Policies SS1 and SS2 new development should be concentrated at the following locations: Basildon Bedford / Kempston / Northern Marston Vale Bury St Edmunds Cambridge Chelmsford Colchester Great Yarmouth Harlow Hatfield and Welwyn GC Hemel Hempstead Ipswich King's Lynn Lowestoft Luton / Dunstable / Houghton Regis & Leighton Linslade Norwich Peterborough Southend-on-Sea Stevenage Thetford Thurrock urban area Watford

SS5: Priority Areas for Regeneration	The priority areas for regeneration are: • areas with generally weak economic performance and significant areas of deprivation: Essex Thames Gateway; Lowestoft and Great Yarmouth; King's Lynn and West Norfolk; the remote rural areas of Norfolk and Suffolk, and the Fens; • areas with significant areas of deprivation: Luton/ Dunstable/ Houghton Regis; Bedford/ Kempston; Harlow and the Lee Valley; Haven Gateway (Ipswich/ Harwich/ Colchester/ Clacton); Peterborough; Norwich; and Stevenage. Local Development Documents and relevant non-statutory plans should set out policies to tackle the problems of economic, social and environmental deprivation in these areas and other places with locally significant regeneration needs.
SS7: Green Belt	The broad extent of green belts in the East of England is appropriate, and should be maintained. However, strategic reviews of green belt boundaries are needed in the following areas to meet regional development needs at the most sustainable locations: • Stevenage, involving land in Stevenage and North Hertfordshire; • Hemel Hempstead, involving land in Dacorum and probably St Albans District; • Harlow, involving land in Harlow, East Hertfordshire and Epping Forest Districts; and • Welwyn/Hatfield, involving land in Welwyn Hatfield District and potentially St Albans District. A more local review will be required in Broxbourne. These reviews will have to satisfy national criteria for green belt releases, accord with the spatial strategy, and ensure that sufficient land is identified to avoid the need for further review to meet development needs before 2031. Where reviews cover more than one local authority, they should be undertaken through a joint or co-ordinated approach. The reviews at Harlow and Stevenage should identify compensating strategic extensions to the green belt in East Hertfordshire and North Hertfordshire respectively.
SS8: The Urban Fringe	Local authorities should work with developers and other agencies to secure the enhancement, effective management and appropriate use of land in the urban fringe through formulating and implementing strategies for urban fringe areas, working across administrative boundaries where appropriate. Local Development Documents should: • ensure that new development in or near the urban fringe contributes to enhancing its character and appearance and its recreational and/or biodiversity value and avoids harm to sites of European and international importance for wildlife in particular; • seek to provide networks of accessible green infrastructure linking urban areas with the countryside; and • set targets for the provision of green infrastructure for planned urban extensions.

SS9: **The Coast**	The strategy for the coast is to adopt an integrated approach that recognises: • its needs for environmental protection and enhancement; • the economic and social role of the region's ports, seaside towns and coastal areas important to tourism; and • predicted sea level rise and the adaptation challenge this presents to coastal communities and decision makers. Reflecting this approach, local planning authorities and other agencies should seek, through their plans and management strategies: • the regeneration of coastal towns and communities, reinforcing their local economic and social roles and importance to the wider region; and • the conservation of the coastal environment and coastal waters, including the natural character, historic environment and tranquillity of undeveloped areas, particularly in the areas of coastline and estuary designated as sites of European or international importance for wildlife. Local Development Documents should: • adopt policies which support the restructuring of coastal economies and the provision of jobs to satisfy local needs; • ensure, in the case of coastal resorts, that: – the town centre continues to provide for local and visitor needs; – improved linkages are created between the town centre and the main leisure area(s) to secure mutual strengthening of their vitality and viability; and – retailing in main leisure area(s) is limited to that necessary to support the vitality and viability of the leisure function without having adverse impacts on the retail function of the town centre. • ensure that new development is compatible with shoreline management and other longer term flood management plans, so as to avoid constraining effective future flood management or increasing the need for new sea defences; • protect important coastal environmental assets, if practicable and sustainable without causing adverse impacts elsewhere. If it is not practicable to protect sites and habitats in situ, including sites of European or international importance for wildlife, shoreline management plans and development plans should include proposals for their long-term replacement and the recording of any lost historic assets; • investigate and pursue opportunities for the creation of new coastal habitats, such as salt marsh and mudflat, in areas identified for managed realignment. New development should not be permitted in such areas.

E1: Job Growth

The following indicative targets for net growth in jobs for the period 2001-2021 are adopted as reference values for monitoring purposes and guidance for regional and local authorities, EEDA and other delivery agencies in their policy and decision making on employment. Local Development Documents should provide an enabling context to achieve these targets. They may be revised through the review of RSS taking account of the Regional Economic Strategy or testing through development plan document preparation.

Bedford / Mid Beds	27,000
Luton / South Beds	23,000
Bedfordshire & Luton	**50,000**
Cambridgeshire	**75,000**
Peterborough	**20,000**
Essex Thames Gateway (Thurrock / Basildon / Castle Point /Southend-on-Sea / Rochford)	55,000
Essex Haven Gateway (Colchester / Tendring)	20,000
Rest of Essex (Braintree / Brentwood / Chelmsford / Epping Forest / Harlow / Maldon / Uttlesford)	56,000
Essex & Unitaries	**131,000**
Hertfordshire	**68,000**
King's Lynn & West Norfolk	5,000
Great Yarmouth	5,000
Breckland	6,000
North Norfolk	4,000
Greater Norwich (Norwich / Broadland / S Norfolk)	35,000
Norfolk	**55,000**
Suffolk Haven Gateway (Ipswich / Suffolk Coastal / Babergh)	30,000
Waveney	5,000
Rest of Suffolk (Mid Suffolk / ST Edmundsbury / Forest Heath)	18,000
Suffolk	**53,000**
EAST OF ENGLAND	**452,000**

E2: Provision of Land for Employment	Local Development Documents should ensure that an adequate range of sites/premises (including sites within mixed-use areas and town/district centres) is allocated to accommodate the full range of sectoral requirements to achieve the indicative job growth targets of Policy E1, or revisions to those targets as allowed in that policy, and the needs of the local economy revealed by up-to-date employment land reviews. Where development proposals and issues cross local authority boundaries this approach should be applied across the whole urban or development area. Sites of sufficient range, quantity and quality to cater for relevant employment sectors should be provided at appropriate scales in urban areas, market towns and key rural centres at locations which: • minimise commuting and promote more sustainable communities by achieving a closer relationship between jobs and homes; • meet the needs of the region's sectors and clusters identified in Policy E3, the Regional Economic Strategy or through Local Development Documents; • provide appropriately for identified needs for skills-training and education; • maximise use of public transport; • minimise loss of, or damage to, environmental and social capital and, where necessary, substitute for any losses and secure positive enhancements. This will often mean giving preference to the re-use of previously developed land and the intensification of development within existing sites over the release of greenfield land; and • avoid any adverse impact on sites of European or international importance for wildlife.

E3: Strategic Employment Sites	Local Development Documents should identify readily-serviceable strategic employment sites of the quality and quantity required to meet the needs of business identified through the employment land reviews referred to in Policy E2. Sites should be provided particularly, but not exclusively, at the following regionally strategic locations: • Bedford, Harlow, Stevenage, Hemel Hempstead and the Luton conurbation – to assist regeneration and ensure growth in key sectors and clusters; • Thames Gateway, linked to the strategies for the key centres at Basildon, Southend on-Sea and Thurrock Urban Area; • Cambridge Sub-Region, to secure its full potential as a centre for world-class research and development; • Peterborough, to achieve regeneration, attract business activities and key sectors and clusters including environmental services; • Norwich, to support regeneration and its role in bio-technology; • Haven Gateway, to support growth and regeneration at Colchester and Ipswich, including the latter's role in ICT, and development associated with port expansion at Harwich and Felixstowe; • Great Yarmouth and Lowestoft, to support development associated with port expansion, regeneration and economic diversification; • Hertfordshire, at locations (other than those noted above) where this would support strong, continued growth of mature and emerging clusters and sectors, or support regeneration of the Lee Valley; and • other key centres of development and change, including Chelmsford, to meet needs identified in Local Development Documents.

E4: Clusters	Local Development Documents should support the sustainable and dynamic growth of inter-regional and intraregional sectors and business clusters including: • the life-science regional super-cluster with concentrations in the Cambridge sub-region, Hertfordshire, Cranfield and Norwich; • the energy cluster on the Norfolk/Suffolk coast; • the environmental technologies cluster stretching from Essex to Cambridgeshire with a particular focus on Peterborough; • the motor sports cluster with a focal point at Hethel in Norfolk linking to Cranfield; • the multimedia cluster from London to Hertfordshire and in Norfolk; • the ICT cluster in the Cambridge area; and • the ICT/telecommunications cluster around Ipswich Local Development Documents should also support and provide guidance for locally important clusters defined by local economic partnerships in collaboration with local authorities and EEDA by: • ensuring the availability of a sufficient quantity, quality and choice of sites including provision for incubator units, grow-on space and larger facilities for established business clusters; • addressing accommodation needs close to key institutions, such as universities; and • addressing the need for user restrictions to secure the use of premises for specific activities.
C1: Cultural Development	Local Development Documents and the wider strategies of local authorities should include policies that support and grow the region's cultural assets. In doing this local authorities should: • take account of the Regional Cultural Strategy and any local cultural and community strategies and liaise with Living East, including in regard to site allocations for cultural facilities; and • recognise the contribution that cultural sectors can make to regeneration and urban and rural renaissance, particularly in the priority areas for regeneration.

T1: Regional Transport Strategy Objectives and Outcomes	To implement the vision and objectives of the Regional Spatial Strategy, the following objectives of this RTS give a clear priority to increase passenger and freight movement by more sustainable modes, while reflecting the functionality required of the region's transport networks: • to manage travel behaviour and the demand for transport to reduce the rate of road traffic growth and ensure the transport sector makes an appropriate contribution to reducing greenhouse gas emissions; • to encourage efficient use of existing transport infrastructure; • to enable the provision of the infrastructure and transport services necessary to support existing communities and development proposed in the spatial strategy; • to improve access to jobs, services and leisure facilities. The successful achievement of the objectives will lead to the following outcomes: • improved journey reliability as a result of tackling congestion; • increased proportion of the region's movements by public transport, walking and cycling; • sustainable access to areas of new development and regeneration; • safe, efficient and sustainable movement between homes and workplaces, education, town centres, health provision and other key destinations; • increased proportion of freight movement by rail; • safe, efficient and sustainable movement of passengers and freight to and from the region's international gateways; • economic growth without a concomitant growth in travel; • improved air quality; and • reduced greenhouse gas emissions.

T2: Changing Travel Behaviour	To bring about a significant change in travel behaviour, a reduction in distances travelled and a shift towards greater use of sustainable modes, regional and local authorities, transport providers and other delivery agencies should implement policies to: • raise awareness of the real costs of unsustainable travel and the benefits and availability of sustainable alternatives; • encourage the wider implementation of workplace, school and personal travel plans; • introduce educational programmes for sustainable travel; • invest in business initiatives, including but not limited to tele-working, and other means of decoupling economic activity from the need for travel; • investigate ways of providing incentives for more sustainable transport use; and • raise awareness of the health benefits of travel by non-motorised modes.
T6: Strategic and Regional Road Networks	The strategic and regional road networks identified on the key diagram should be improved, managed and maintained in accordance with priorities for the strategic and regional functions of the region's motorway, trunk road and primary route network with the aim of achieving the following outcomes: • improved journey reliability as a result of tackling congestion • improved access to key centres for development and change, strategic employment locations and priority areas for regeneration; • efficient movement of freight which cannot be carried by rail or waterway so as to minimise its impact on the environment and local transport networks; • improved safety and efficiency of the network; • mitigation of environmental impacts; • maintenance of the benefits from managing traffic demand; and • the effective operation of ports and airports which act as international gateways.
T9: Walking, Cycling and other Non-Motorised Transport	Provision for walking, cycling and other non-motorised transport should be improved and developed as part of an integrated strategy for achieving the RTS objectives. Pedestrian, cycle and other non-motorised transport networks should be managed and improved to enhance access to work, schools and town centres, and provide access to the countryside, urban greenspace, and recreational opportunities. Support should be given to completing the National Cycle Network in the region by 2010, and to linking it to local cycle networks.

T10: Freight Movement	Priority should be given to the efficient and sustainable movement of freight, maximising the proportion of freight carried by rail and water where those are the most efficient modes: • high priority should be given to measures to provide adequate rail freight capability and capacity on routes to the region's major ports of Bathside Bay (Harwich), Felixstowe, London (including Tilbury), and London Gateway; • provision should be made for at least one strategic rail freight interchange at locations with good access to strategic rail routes and the strategic highway network, unless more suitable locations are identified within London or the South East for all three to four interchanges required to serve the Greater South East; • existing well-located freight wharves and facilities for rail and water freight interchange should be safeguarded for future use where there is a reasonable prospect of developing them for port operational uses. Improved provision should be made in locations with good road and rail access; and • previously used rail accessible sites, including those owned by non-railway bodies, should be protected from development for non rail-based uses where there is a reasonable prospect of developing them for rail freight use.
T11: Access to Ports	Access to the region's ports should be managed and enhanced to support their development and enable them to contribute to national and regional objectives for economic growth and regeneration. In accordance with Policy T10, a key priority will be to maximise the proportion of freight, particularly longer distance freight, by modes other than road, consistent with commercial viability.
T14: Parking	Parking controls, such as the level of supply or the charges, should be used as part of packages for managing transport demand and influencing travel change, alongside measures to improve public transport accessibility, walking and cycling, and with regard to the need for coordinated approaches in centres which are in competition with each other. Demand-constraining maximum parking standards should be applied to new commercial development. The standards in PPG13 should be treated as maximums, but local authorities may adopt more rigorous standards to reinforce the effects of other measures particularly in regional transport nodes and key centres for development and change.

ENV1: Green Infrastructure	Areas and networks of green infrastructure should be identified, created, protected, enhanced and managed to ensure an improved and healthy environment is available for present and future communities. Green infrastructure should be developed so as to maximise its biodiversity value and, as part of a package of measures, contribute to achieving carbon neutral development and flood attenuation. In developing green infrastructure opportunities should be taken to develop and enhance networks for walking, cycling and other non-motorised transport. Local Development Documents should: • define a multiple hierarchy of green infrastructure, in terms of location, function, size and levels of use, based on analysis of natural, historic, cultural and landscape assets, and the identification of areas where additional green infrastructure is required; • require the retention of substantial connected networks of green space in urban, urban fringe and adjacent countryside areas to serve the growing communities in key centres for development and change; and • ensure that policies have regard to the economic and social as well as environmental benefits of green infrastructure assets and protect sites of European or international importance for wildlife. Assets of regional significance for the retention, provision and enhancement of green infrastructure include: • the Norfolk and Suffolk Broads; the Norfolk Coast, Suffolk Coast & Heaths, Dedham Vale and Chilterns Areas of Outstanding Natural Beauty; and the Heritage Coasts (shown on the Key Diagram); • other areas of landscape, ecological and recreational importance, notably the Community Forests (Thames Chase, Marston Vale and Watling Chase), the Brecks, Epping Forest, Hatfield Forest, the Lee Valley Regional Park and areas around the Stour Estuary, and • strategically significant green infrastructure projects and proposals, such as the Great Fen Project, Wicken Fen Vision, the Milton Keynes to Bedford Waterway Park, and green infrastructure projects around the fringes of Greater London and associated corridors.

ENV2: Landscape Conservation	In their plans, policies, programmes and proposals planning authorities and other agencies should, in accordance with statutory requirements, afford the highest level of protection to the East of England's nationally designated landscapes (Figure 5) – the Norfolk and Suffolk Broads, the Chilterns, Norfolk Coast, Dedham Vale, and Suffolk Coast and Heaths Areas of Outstanding Natural Beauty (AONBs), and the North Norfolk and Suffolk Heritage Coasts. Within the Broads priority should be given to conserving and enhancing the natural beauty, wildlife and cultural heritage of the area, promoting public enjoyment and the interests of navigation. Within the AONBs priority over other considerations should be given to conserving the natural beauty, wildlife and cultural heritage of each area. Planning authorities and other agencies should recognise and aim to protect and enhance the diversity and local distinctiveness of the countryside character areas identified on Figure 6 by: • developing area-wide strategies, based on landscape character assessments, setting long-term goals for landscape change, targeting planning and land management tools and resources to influence that change, and giving priority to those areas subject to most growth and change; • developing criteria-based policies, informed by the area-wide strategies and landscape character assessments, to ensure all development respects and enhances local landscape character; and • securing mitigation measures where, in exceptional circumstances, damage to local landscape character is unavoidable.

ENV3: Biodiversity and Earth Heritage	In their plans, policies, programmes and proposals planning authorities and other agencies should ensure that internationally and nationally designated sites are given the strongest level of protection and that development does not have adverse effects on the integrity of sites of European or international importance for nature conservation. Proper consideration should be given to the potential effects of development on the conservation of habitats and species outside designated sites, and on species protected by law. Planning authorities and other agencies should ensure that the region's wider biodiversity, earth heritage and natural resources are protected and enriched through the conservation, restoration and re-establishment of key resources by: • ensuring new development minimises damage to biodiversity and earth heritage resources by avoiding harm to local wildlife sites and, wherever possible, achieving net environmental gains in development sites through the retention of existing assets, enhancement measures, and new habitat creation; • promoting the conservation, enhancement, restoration, re-establishment and good management of habitats and species populations in accordance with East of England regional biodiversity targets (Appendix B) and the priorities in the East of England Regional Biodiversity Map (Figure 7); • identifying and safeguarding areas for habitat restoration and re-establishment, in particular large-scale (greater than 200 ha) habitat restoration areas which will deliver human and wildlife benefit; • identifying, safeguarding, conserving, and restoring regionally important geological and/or geomorphological sites and promoting their good management; • ensuring the appropriate management and further expansion of wildlife corridors important for the migration and dispersal of wildlife; • having regard to the need for habitats and species to adapt to climate change; and • establishing networks of green infrastructure, maximising their biodiversity value, as provided for under Policy ENV1. The East of England Regional Assembly and its partners should work with authorities in neighbouring regions on strategic natural resource and biodiversity issues in areas such as the Chilterns, the Wash and Thames Estuary.

ENV6: The Historic Environment	In their plans, policies, programmes and proposals local planning authorities and other agencies should identify, protect, conserve and, where appropriate, enhance the historic environment of the region, its archaeology, historic buildings, places and landscapes, including historic parks and gardens and those features and sites (and their settings) especially significant in the East of England: • the historic cities of Cambridge and Norwich; • an exceptional network of historic market towns; • a cohesive hierarchy of smaller settlements ranging from nucleated villages, often marked by architecturally significant medieval parish churches, through to a pattern of dispersed hamlets and isolated farms; • the highly distinctive historic environment of the coastal zone including extensive submerged prehistoric landscapes, ancient salt manufacturing and fishing facilities, relict sea walls, grazing marshes, coastal fortifications, ancient ports and traditional seaside resorts; • formal planned settlements of the early twentieth century, including the early garden cities, and factory villages; • conservation areas and listed buildings, including domestic, industrial and religious buildings, and their settings, and significant designed landscapes; • the rural landscapes of the region, which are highly distinctive and of ancient origin; and • the wide variety of archaeological monuments, sites and buried deposits which include many scheduled ancient monuments and other nationally important archaeological assets.

ENV7: Quality in the Built Environment	Local Development Documents should require new development to be of high quality which complements the distinctive character and best qualities of the local area and promotes urban renaissance and regeneration. New development should: • provide buildings of an appropriate scale, founded on clear site analysis and urban design principles; • make efficient use of land; • in the case of housing development, achieve the highest possible net density appropriate to the character of the locality and public transport accessibility; • provide a mix of uses and building types where appropriate; • have regard to the needs and well being of all sectors of the community; • address crime prevention, community safety and public health; • promote resource efficiency and more sustainable construction, including maximum use of re-used or recycled materials and of local and traditional materials; • reduce pollution, including emissions, noise and light pollution; and • maximise opportunities for the built heritage to contribute to physical, economic and community regeneration. Conservation-led regeneration should respect the quality and distinctiveness of traditional buildings and the value they lend to an area through their townscape quality, design and use of materials. In their plans, policies, programmes and proposals planning authorities should give consideration to the opportunities presented by the region's industrial, maritime and rural heritage.

ENG1: Carbon Dioxide Emissions and Energy Performance	Working with regional partners, EERA should consider the performance of the spatial strategy on mitigating and adapting to climate change through its monitoring framework and develop clear yardsticks against which future trends can be measured, which should inform the review of the RSS and the preparation of Local Development Documents. To meet regional and national targets for reducing climate change emissions, new development should be located and designed to optimise its carbon performance. Local authorities should: • encourage the supply of energy from decentralised, renewable and low carbon energy sources and through Development Plan Documents set ambitious but viable proportions of the energy supply of new development to be secured from such sources and the development thresholds to which such targets would apply. In the interim, before targets are set in Development Plan Documents, new development of more than 10 dwellings or 1000m2 of non-residential floorspace should secure at least 10% of their energy from decentralised and renewable or low-carbon sources, unless this is not feasible or viable; and • promote innovation through incentivisation, master planning and development briefs which, particularly in key centres for development and change, seek to maximize opportunities for developments to achieve, and where possible exceed national targets for the consumption of energy. To help realise higher levels of ambition local authorities should encourage energy service companies (ESCOs) and similar energy saving initiatives.
ENG2: Renewable Energy Targets	The development of new facilities for renewable power generation should be supported, with the aim that by 2010 10% of the region's energy and by 2020 17% of the region's energy should to come from renewable sources. These targets exclude energy from offshore wind, and are subject to meeting European and international obligations to protect wildlife, including migratory birds, and to revision and development through the review of this RSS.
WAT1: Water Efficiency	The Government will work with the Environment Agency, water companies, OFWAT, and regional stakeholders to ensure that development in the spatial strategy is matched with improvements in water efficiency delivered through a progressive, year on year, reduction in per capita consumption rates. Savings will be monitored against the per capita per day consumption target set out in the Regional Assembly's monitoring framework.

WAT2: Water Infrastructure	The Environment Agency and water companies should work with OFWAT, EERA and the neighbouring regional assemblies, local authorities, delivery agencies and others to ensure timely provision of the appropriate additional infrastructure for water supply and waste water treatment to cater for the levels of development provided through this plan, whilst meeting surface and groundwater quality standards, and avoiding adverse impact on sites of European or international importance forwildlife. A co-ordinated approach to plan making should be developed through a programme of water cycle and river cycle studies to address the issues of water supply, water quality, wastewater treatment and flood risk in receiving water courses relating to development proposed in this RSS. Complementing this approach, Local Development Documents should plan to site new development so as to maximise the potential of existing water/waste water treatment infrastructure and minimise the need for new/improved infrastructure.
WAT4: Flood Risk Management	Coastal and river flooding is a significant risk in parts of the East of the England. The priorities are to defend existing properties from flooding and locate new development where there is little or no risk of flooding. Local Development Documents should: • use Strategic Flood Risk Assessments to guide development away from floodplains, other areas at medium or high risk or likely to be at future risk from flooding, and areas where development would increase the risk of flooding elsewhere; • include policies which identify and protect flood plains and land liable to tidal or coastal flooding from development, based on the Environment Agency's flood maps and Strategic Flood Risk Assessments supplemented by historical and modelled flood risk data, Catchment Flood Management Plans and policies in Shoreline Management Plans and Flood Management Strategies, including 'managed re-alignment' where appropriate; • only propose departures from the above principles in exceptional cases where suitable land at lower risk of flooding is not available, the benefits of development outweigh the risks from flooding, and appropriate mitigation measures are incorporated; and • require that sustainable drainage systems are incorporated in all appropriate developments. Areas of functional floodplain needed for strategic flood storage in the Thames Estuary should be identified and safeguarded by local authorities in their Local Development Documents.

WM7: Provision for Hazardous Waste and other Regionally Significant Facilities	Through the review of the RSS EERA should consider the need for additional waste management capacity of regional or sub-regional significance and identify the provision required for the management of hazardous waste. Proposals should take account of: • the likely arisings and hazardous waste types in the East of England; • the implications of intra and inter regional movement of hazardous waste; • the volumes of hazardous waste predicted to arise from previously developed land and opportunities and technologies to increase the treatment of contaminated construction and demolition waste, including soils, on site; • the possible need for interim measures to manage hazardous waste; and; • provision for the management of hazardous waste, including treatment and landfill. Proposals for new facilities should reflect the need for hazardous waste management capacity and considerations of need should carry significant weight when determining planning applications.
ETG1: Strategy for the Sub-Region	The strategy aims to achieve transformational development and change throughout Essex Thames Gateway which will: • substantially increase the numbers of jobs and homes in line with Policies E1 and H1 to bring about a better alignment of homes and workplaces while continuing to recognise and make the most of the area's complementary role in relation to London, especially the emerging development/transport nodes in East London at Stratford and elsewhere; • give the area a more positive and attractive image building on its strengths and assets, promoting excellence in the design of buildings and public realm and creating townscapes and landscapes of high quality and distinctiveness; • significantly increase the overall value of the sub-regional economy and the economic conditions, living standards, aspirations, and quality of life of its residents; • enhance the education and skills base and improve access to higher education; and • protect and enhance the quality of the natural and historic environments, including retaining and making more positive appropriate use of the green belt.

ETG2: Thurrock Key Centre for Development and Change	(1) The Thurrock Urban Area (from Purfleet in the west to Tilbury/Chadwell St. Mary in the east) is a Key Centre for Development and Change, with the northern part of Lakeside Basin defined as a Regional Centre in terms of Policy E5. Local Development Documents should: • promote an urban renaissance, re-using previously developed land and making the best use of the Thames riverside to bring about substantial improvement in the quality of the urban environment; • upgrade the image of the area as a leading centre for logistics, and enhance the scale and sustainability of its role in that respect, while also seeking to diversify the employment base; • safeguard wharves and quays necessary for the strategic functioning of the Port of London; • secure the transformation of the northern part of Lakeside Basin as a town centre conditional upon the measures set out in (2), (3) and (4) below; and • develop complementary policies for the regeneration of Grays town centre and other urban centres in the Borough. (2) Local Development Documents should guide the regeneration and remodelling of the wider Lakeside Basin and West Thurrock area on sustainable mixed use lines by: i) defining the boundary of the area; ii) providing for a broader employment base through the identification of key strategic employment sites; iii) promoting a high quality built environment and public realm that is more coherent, legible and integrated; iv) protecting and enhancing green infrastructure including the provision of further accessible natural green space to meet local standards; v) promoting a greater mix of uses, including additional residential, office, hotel, and assembly and leisure activities; vi) improving the range of services and facilities; vii) securing more sustainable movement patterns, reduced private motor vehicle dependence and complementary travel demand management measures including an area-wide travel plan; viii) improving local accessibility and connectivity by public transport and pedestrian and cyclist permeability throughout the area including consideration of ways to reconnect the north and the south of the area, a new high frequency service rail station in the south, and a personal rapid transport system; and ix) providing the necessary improvements to the local and strategic road network. (3) The attainment of Regional Centre status for the northern part of Lakeside Basin is conditional upon the adoption of Local Development Documents providing for: i) a town centre boundary, with a designated primary shopping area; ii) a greater mix of uses and services including a significant increase in housing and office accommodation and the provision of convenience retail floorspace; iii) an indicative scale of floorspace for each major town centre use; iv) indicative thresholds for new retail floorspace, phased with required infrastructure; v) design and public realm enhancements; vi) improved accessibility for pedestrians and by non-car modes, including the introduction of a car parking charging and management regime; and vii) an implementation plan. (4) Retail expansion at the new Regional Centre should be limited to 50,000 m2 of net comparison floorspace by 2019 together with an appropriate amount of convenience floorspace to reflect the Borough's population growth. No retail expansion should be approved until the adoption of the appropriate Local Development Documents and the imposition of appropriate conditions and obligations to secure the objectives of paragraphs (2) and (3). Any further strategic retail development beyond the initial 50,000 m2 net of comparison retail floorspace at the new Lakeside Regional Centre should be considered through future RSS reviews .

<table>
<tr>
<td>ETG5: Employment-Generating Development</td>
<td>Local Development Documents should provide an enabling context for not less than 55,000 net additional jobs in Essex Thames Gateway during the period 2001-2021, distributed as follows:

<table>
<tr><td>Basildon</td><td>11,000</td></tr>
<tr><td>Castle Point</td><td>2,000</td></tr>
<tr><td>Southend</td><td>13,000</td></tr>
<tr><td>Thurrock</td><td>26,000</td></tr>
<tr><td>Rochford</td><td>3,000</td></tr>
<tr><td>TOTAL</td><td>55,000</td></tr>
</table>

The local authorities and Thurrock Thames Gateway Development Corporation, supported by regional and local partners, should facilitate these increases in jobs by promoting a competitive sub-regional business environment secured through:

• providing for a range of sites and premises suitable for the needs of existing and future businesses, including the development at London Gateway (a new container port facility with associated business park and rail freight handling facilities) and other sites that will support Thurrock's role as a leading logistics centre;

• providing innovation centres at the key centres for development and change;

• improving opportunities for small and medium enterprises in all economic sectors, especially transport and logistics, environmental technologies, healthcare, tourism and leisure;

• raising skill levels at NVQ Level 2, 3 and 4 to national averages through enhanced provision of further and higher education;

• focusing major retail, leisure and office developments at Basildon, Southend, Lakeside and other centres in need of regeneration and renewal; and

• enhancing use of the River Thames as an asset for business and leisure.</td>
</tr>
<tr>
<td>ETG6: Transport Infrastructure</td>
<td>Proposals for future transport infrastructure improvements should reflect the prioritised schemes in the Thames Gateway South Essex Business Plan for Transport, 2005. Proposals serving the sub-region as a whole should contribute to ensuring high quality links between the key centres.</td>
</tr>
</table>

Thurrock Borough Local Plan September 1997 (TLP)

Policy Number	Policy - Written
BE1: Design of New Development	A high standard of design will be expected in all proposals for new development, including alterations or extensions to existing properties. The Council will give particular attention to the mass, form and scale of developments, the constituent elements of design, the quality and appropriateness of materials used, landscaping, and the treatment of the spaces between and around buildings. All designs should ensure that vehicular and pedestrian movements are made safe and convenient. It should also be demonstrated, in proposals for development, that full and appropriate consideration has been given to the integration of the development with its immediate surroundings and, where relevant, with the wider setting. When considering proposals for residential development the Council will have regard to the guidance, criteria and standards contained in the Annexe**.**
BE2: Development Control Policies	Further to policies set out in this written statement, the Council will seek to regulate development, in the public interest, through the application of policy criteria, planning standards and guidelines set out in the Annexe hereto (Part Two of the Plan), and also through the imposition on planning permissions of such conditions as may be deemed appropriate.
BE4: Landscaping	In new developments, the Council will expect the concurrent submission of details of the landscaping proposed and will seek to ensure that such landscaping is implemented. Developments which would result in the destruction of protected trees and woodlands or other important landscape features such as waterbodies, hedgerows, and character landscapes will not be permitted. Prior to the commencement of any work on development sites, the Council will expect that measures are taken to safeguard and physically protect all trees, hedgerows and shrubs which are to be retained. Temporary fencing should be erected around the canopy spread of trees/shrubs, or around the root spread where this is clearly larger (Chestnut paling alone will not be acceptable).
BE10: Infrastructure	Development of land will only be permitted where there is adequate infrastructure, either in existence or programmed, to serve the development or when planning permission is to be subject to a planning agreement securing advance or suitably phased infrastructure provision, or appropriate contributions thereto, by the developers.
BE11: Energy Efficiency	In considering development proposals, the Council will take into account the need for energy efficiency in the built form of new developments. This will include matters such as hard and soft landscaping, orientation of buildings, and the layout and design of developments.
BE26: Development of Contaminated Land	When considering applications for the development of residential or other environmentally sensitive land uses, on land suspected of being contaminated by hazardous substances arising out of previous land uses, the Council must be satisfied that all appropriate measures to deal with the contamination of the site are undertaken prior to development beginning. Environmental surveys will be required to ensure that remedial measures are possible to reclaim the land for the proposed use, to the satisfaction of the Council.
GB1: The Green Belt	Within the Green Belt, as shown on the Proposals Map, permission will not be given, except in very special circumstances, for the construction of new buildings or for the

Policy Number	Policy - Written
in Thurrock	change of use of land or the re-use of existing buildings unless it is for any of the following purposes: (i) Agriculture and forestry (unless permitted development rights have been withdrawn); (ii) Essential facilities for outdoor sport and outdoor recreation, for cemeteries, and for other uses of land which preserve the openness of the Green Belt and which do not conflict with the purposes of including land in it; (iii) Limited extension, alteration or replacement of existing dwellings (subject to other policies in the Plan); (iv) Limited infilling or redevelopment of major developed sites (subject to other policies in the Plan); (v) Mineral extraction.
GB2: Design Considerations in the Green Belt	(i) PHYSICAL FORM Where proposals are acceptable in principle under policies GB1 and GB3 to GB13 and buildings are proposed, the Council will expect such structures to be properly designed and constructed of sound materials appropriate to the countryside. Careful regard will be paid to the siting, scale, layout and location of buildings and, where appropriate, the provision of landscaping will be required, particularly in areas designated as in need of landscape improvement, under Policy LN2; (ii) ENVIRONMENTAL IMPACT The development should not have a detrimental effect on the amenities of local residents, rural activities and countryside users nor on highway safety; (iii) LANDSCAPE IMPACT Any development should take full account of its impact on the existing landscape and should safeguard, maintain and enhance existing landscape features, watercourses, trees, hedges and plants through approved landscaping schemes.
LN2: Landscape Improvement Areas	In Landscape Improvement Areas, the Council will expect sympathetic landscaping schemes in association with new developments. The Council will also undertake environmental improvement schemes and encourage private owners to take up grants for environmental improvements available from public sources.

Policy Number	Policy - Written
LN3: Landscapes of Local Importance	In areas designated as Landscapes of Local Importance, development will only be permitted if it would not cause permanent loss of, or damage to the character of the landscape. The designated areas are listed below and shown on the Proposals Map. (i) For their contribution to the landscape generally – - Belhus Wood and Aveley Lakes/Pits - Aveley Marshes - Lower Mardyke Valley - Palmers Shaw - Bulphan Fen and Horndon on the Hill - Orsett Pit - Chadwell and West Tilbury Escarpment/Tilbury Marshes - Linford Escarpment - East Tilbury Marshes - East Tilbury Village/Coalhouse Fort - Stanford Marshes - Corringham and Fobbing Marshes/Escarpment (ii) For their historical interest - - Belhus Park - Ford Place
LN12: Development Proposals and Nature Conservation	New developments will only be permitted if proper consideration is given to the nature conservation value of the development site. Development prejudicial to the retention and management of important wildlife habitats and their inter-relationships will not be permitted. In appropriate cases the Council will expect landscaping schemes submitted under Policy BE4 to provide for new wildlife habitat creation and management.
LN15: Sites of Importance for Nature Conservation	In areas identified on the Proposals Map as Sites of Importance for Nature Conservation, development will only be permitted which would not materially harm their nature conservation value.
LN16: Areas of Local Nature Conservation Significance and Ecological Corridors	Areas of Local Nature Conservation Significance, and Ecological Corridors, for the enjoyment and protection of nature within the Borough are indicated on the Proposals Map. Developments in these areas will only be permitted where the nature conservation interest of the area is retained.

Policy Number	Policy - Written
E8: Oil Refineries	New oil refining activities will only be permitted within the existing refinery complexes at Shellhaven and Coryton, or on adjacent land specified for their expansion. These developments will only be permitted if it can be demonstrated that they will not add materially to environmental, safety or health hazards. In determining applications for development within the existing refinery sites, the Council will also have regard to the need to accommodate changes in technology and economic circumstances. The existing sites and specified expansion areas are listed below and shown on the Proposals Map. A. Existing Sites a) Shellhaven Oil Refinery b) Coryton Oil Refinery B. Existing Areas a) Shellhaven – North and West of Existing Refinery 48.2 hectares b) Coryton – North of Existing Refinery 45.4 hectares
T1: Balanced Transport Strategy	While endeavouring to secure an adequate system of transportation for the satisfactory economic development of Thurrock and its expected population growth, including essential improvements to the road network and parking provision, the Council will seek to counter the potential effects of increased traffic by pursuing policies aimed at reducing the reliance on and unnecessary use of the motor vehicle and promoting the greater use of alternative modes of transport and communication, in particular by: (i) improving the accessibility and convenience of public transport and promoting new and improved passenger services and systems; (ii) promoting the provision of new and improved facilities and services for the movement of freight; (iii) improving and extending the network of footpaths, cycleways and bridleways and promoting their wider and more intensive use; (iv) limiting the availability or attractiveness of car parking for non-essential journeys in areas susceptible to traffic congestion.
T6: Traffic Management	The Council will seek to impose appropriate measures, as and when considered necessary, to regulate or deter the passage of all or specific categories of traffic on roads and other highways where problems are identified. Such measures will include the prohibition of commercial vehicles along environmentally sensitive sections of road, as indicated on the Proposals Map.
T8: Existing and New Public Footpaths	The Council will promote greater use of public footpaths as a means of communication and, to this end, will; (i) Seek to secure the retention and maintenance of public pedestrian rights of way over all existing footpaths, except those identified in Policy T9; (ii) Provide route signposting where necessary; (iii) Require the provision by developers of new segregated public footpaths wherever appropriate within new development; (iv) Seek to secure the provision of the following new footpath routes in particular, as indicated on the Proposals Map:-

Policy Number	Policy - Written
	(a) Mardyke Way extension to River Thames (b) Purfleet Garrison to Harrison's Wharf (c) Through Lion Gorge and Railway Cutting (d) To school site west of Pilgrims Lane, West Thurrock (e) Pilgrims Lane to Clockhouse Lane (f) Clockhouse Lane to Southern Link Road (g) Southern Link Road to Chafford Hundred North East Zone
T11: Cycleways	The Council will promote greater use of the bicycle as a means of transport and, to this end, will: (i) Take account of the needs of the cyclist in the design of all new highway and traffic management schemes; (ii) Seek the provision of segregated cycleways within all forms of major new development, where appropriate, to link areas of residence, workplace, education, recreation, shopping and other amenity; (iii) Seek the provision of secure facilities for the parking of bicycles at all locations where such need is identified; (iv) Introduce advisory signposted cycle routes Cycleway spine routes will be established as indicated on the Proposals Map.
T18: Railways – Freight Facilities	Within primary industrial and commercial areas and oil industry related areas, defined on the Proposals Map, the Council will promote the use or re-use of existing railway freight facilities. In these areas, the construction of new facilities in connection with existing, or proposed, industrial and commercial undertakings will be permitted, provided the development meets other policies protecting the environment.
T20: Waterways – Freight Facilities	Within primary industrial and commercial areas and oil industry related areas, defined on the Proposals Map, proposals involving the use of the River Thames and its existing or, where appropriate, new wharfage and jetty facilities for the transport of goods and materials will be permitted, provided:- (i) There is adequate access to these facilities on the landward side; and (ii) The development meets other policies protecting the environment.

APPENDIX B

LG DEVELOPMENT / DP WORLD REPORTS REFERENCED

B LG DEVELOPMENT / DP WORLD REPORTS REFERENCED

Contents Summary

To date, a significant proportion of work has been carried out on the wider LG Development by DP World and their Consultants.

Details of the Reports used for the purposes of this ES are provided in this Appendix.

B.1 LG Development / DP World Reports Referenced

B.1 LG Development / DP World Reports Referenced

LG DEVELOPMENT / DP WORLD REPORTS REFERENCED

The ES for the GEC has made reference to the following reports which have been prepared for the LG Development where appropriate.

- Thomson Ecology (2008) Reptile Ecological Action Plan. Thomson Ecology for DP World;
- Thomson Ecology (2008) Ecological Action Plan (Part 2) Reptiles. Thomson Ecology for DP World;
- Thomson Ecology (2008) Bat Activity Survey Interim Report – 2nd Visit. Thomson Ecology for DP World;
- Thomson Ecology (2008) Phase 1 Habitat Survey Figures. Thomson Ecology for DP World;
- Thomson Ecology (2008) Ecological Action Plan Breeding Birds. Thomson Ecology for DP World;
- Thomson Ecology (2008) Ecological Action Plan Wintering Birds. Thomson Ecology for DP World;
- Thomson Ecology (2008) Ecological Action Plan Brown Hare. Thomson Ecology for DP World;
- Thomson Ecology (2008) Ecological Action Plan Scarce Plants. Thomson Ecology for DP World;
- Thomson Ecology (2008) Natural England Water Vole Trapping and Translocation Licence Method Statement (Site A). Thomson Ecology for DP World;
- Thomson Ecology (2008) Ecological Action Plan Water Vole. Thomson Ecology for DP World;
- P&O and Shell (2004) The (London Gateway Logistic and Commercial Centre) Outline Planning Application 2002, Environmental Statement Chapter 18. London Gateway;
- P&O (2004) The (London Gateway Port) Harbour Empowerment Order 2002. Environmental Statement illustrations Volume III (Bird data). London Gateway.
- Thomson Ecology (2008) Ecological Action Plan Bats. Thomson Ecology for DP World;
- Thomson Ecology (2008) Freshwater Invertebrate Survey 2008. Thomson Ecology for DP World;
- Thomson Ecology (2008) Extended Phase 1 Habitat Survey. Thomson Ecology for DP World;
- Thomson Ecology (2008) Great Crested Newt Ecological Habitat Management and Maintenance Plan. Thomson Ecology for DP World;
- Thomson Ecology (2008) Great Crested Newt Survey. Thomson Ecology for DP World;
- Environmental Resources Management. Shell UK Oil Products Limited, Phase II: Shell Haven Refinery, Stanford-le-hope, October 2000 (logs only);
- Environmental Resources Management: Shell UK Oil Products Limited, Delineation Investigation: Quality Assurance Project Plan, October 2000;
- Environmental Resources Management: Shell UK Oil Products Limited, Phase I Remediation Works: Shell Haven Refinery, Delineation Investigation, DRAFT, August 2001; and
- Fugro Engineering Services Limited. DP World, London Gateway, Ground investigation Wells, Report on Ground Investigation, November 2008.

APPENDIX C

ADDITIONAL NOISE INFORMATION

C ADDITIONAL NOISE INFORMATION

Contents Summary

A Baseline Noise Survey was undertaken for Centrum Power Station. The resulting Baseline Noise Report is presented in this Appendix.

In addition, this Appendix presents a table of the Noise Source Data / Sound Power Levels used in the noise modelling for GEC.

C.1 Baseline Noise Report

C.2 Noise Source Data / Sound Power Levels

C.1 Baseline Noise Report

GATEWAY ENERGY CENTRE LIMITED

GATEWAY ENERGY CENTRE: AMBIENT NOISE SURVEY REPORT

January 2010

Prepared by
Parsons Brinckerhoff Ltd
Queen Victoria House
Redland Hill
Bristol
BS6 6US

CONTENTS

1 INTRODUCTION

1.1 Background

1.1.1 Parsons Brinkerhoff has been commissioned to conduct an Environmental Impact Assessment for the proposed Gateway Energy Centre.

1.1.2 As part of the assessment PB has undertaken a baseline noise survey to quantify the existing noise levels at the nearest noise sensitive receptors and quantify noise sources that impact on the site. This report details the approach and the findings.

1.2 Site Description

1.2.1 The site is in the middle of an existing heavy industrial area which is likely to be expanded. The closest conglomeration of residential receptors is Stanford-le-Hope 2 km to the west. Across Vange Creek to the east lies Canvey Island. There is a single farm house a little over 1km north of the site.

1.2.2 Existing noise sources in the area are varied with Stanford-le-Hope dominated by noise from the A13 and other local roads. Canvey Island's noise climate is also made up of mostly road noise (A130 and local roads). The Thames Haven Industrial area surrounding the site is dominated by industrial noise. The noise climate at the Farmhouse is also dominated by industrial noise.

1.2.3 At many of the Weston most residential receptors within Stanford-Le-Hope (those closest to the site) buzz from overhead power lines could be heard. There is a plethora of overhead power lines in the area.

1.3 Scope of Work

1.3.1 Work undertaken in the completion of this ambient noise assessment included the following:

a Site visit to undertake measurements

b Reporting of findings

2 METHODOLOGY

2.1 General

2.1.1 A noise survey has been conducted to quantify the existing ambient noise levels in the vicinity of the proposed site. Short term sampling measurements were used to assess the ambient noise climate.

2.1.2 A glossary of acoustics terminology is provided in Annex A.

2.2 Published Guidance

2.2.1 The guidance on the assessment of noise within PPG 24[1] has been adhered too. PPG 24 outlines the key considerations to be taken into account when assessing the impact of a new development on the local noise climate.

2.2.2 The method detailed in BS 7445-1:2003 [2] and BS 7445-3:1991[3], were followed during the surveys undertaken. BS 7445 defines and prescribes best practice during the recording and reporting of environmental noise. It is inherently applied in all instances when making environmental noise measurements.

2.3 Noise Sensitive Receptors

2.3.1 The following measurement locations were selected.

TABLE 1: NOISE SENSITIVE RECEPTORS

Measurement	Type	Location	Guidance Followed
1	Short term attended	Corner of Billet Lane and Rainbow Lane	BS 7445:2003
2	Short term attended	Oak Farm, High road	BS 7445:2003
3	Short term attended	Corringham Primary School, Herd Lane	BS 7445:2003
4	Short term attended	End of Wharf Road, Corringham	BS 7445:2003
5	Short term attended	Oozedam Farm, Manorway	BS 7445:2003
6	Short term attended	New residential development, Haven Road, Canvey island	BS 7445:2003

**There is a very long private driveway leading to Oozedam Farm. It was not possible to gain access the property so a measurement was recorded at the end of the drive.*

2.3.2 A map of the measurement locations is presented in Annex B.

2.4 Background Monitoring

2.4.1 All noise monitoring was conducted in accordance with the guidance set out in BS 7445:2003. Measurements were made using Class 1 Integrating-Averaging Sound Level Meters as defined in IEC 61672:2003[4]. Meters were calibrated and checked before and after each measurement period, with no change in level noted. The

calibration certificates for the meters used are provided in Annex C, which also shows the serial numbers of all the equipment used. Microphones were placed 1.4m above the ground, and at least 1.5m from any acoustically reflective surface. Meters were set to a fast response time for all measurements.

2.4.2 Measurements took place on typical weekdays: the 27th and 28th of January 2010. Weather conditions were conducive to successful monitoring; with wind speeds less than $5ms^{-1}$. Roads were dry, and there was no precipitation at the time of measurement. The ambient temperature was between 5°C and 8°C during the monitoring period.

2.4.3 The site engineer was Chris Borak (AMIOA) of PB.

3 BASELINE RESULTS

3.1 Measurements

3.1.1 The full set of results for the spot measurements are shown in the Noise Monitoring Forms in Annex D. A summary of the lowest background measurements taken at each of the locations is presented in Table 2.

TABLE 2: SUMMARY OF SPOT MEASUREMENTS

Measurement Location	L_{A90}
1	41.2
2	37.3
3	36.9
4	30.9
5	53.3
6	37.9

REFERENCES:

1. PPG 24: September 1994 “Planning Policy Guidance: Planning and Noise”, Department of the Environment
2. BS 7445-1: 2003 “Description and Measurement of Environmental Noise: Guide to quantities and procedures", BSI
3. BS 7445-3: 1991 “Description and Measurement of Environmental Noise: Guide to application to noise limits ", BSI
4. IEC 61672:2003 "Electroacoustics - sound level meters", BSI

ANNEX A

GLOSSARY OF ACOUSTICS TERMINOLOGY

GLOSSARY OF ACOUSTIC TERMINOLOGY

Decibel (dB)

The decibel scale is used in relation to sound because it is a logarithmic rather than a linear scale. The decibel scale compares the level of a sound relative to another. The human ear can detect a wide range of sound pressures, typically between $2x10^{-5}$ and 200 Pa, so the logarithmic scale is used to quantify these levels using a more manageable range of values.

Sound Pressure Level (SPL)

The Sound Pressure Level has units of decibels, and compares the level of a sound to the smallest sound pressure generally perceptible by the human ear, or the reference pressure. It is defined as follows:

$SPL\ (dB) = 20\ Log_{10}(P/P_{ref})$ where P = Sound Pressure (in Pa)
P_{ref} = Reference Pressure $2x10^{-5}$ Pa

An SPL of 0dB suggests the Sound Pressure is equal to the reference pressure. This is known as the *threshold of hearing*.

An SPL of 140dB represents the *threshold of pain*.

A-Weighting

The human ear can detect a wide range of frequencies, from 20Hz to 20kHz, but it is more sensitive to some frequencies than others. Generally, the ear is most sensitive to frequencies in the range 1 to 4 kHz. The A-weighting is a filter that can be applied to measured results at varying frequencies, to mimic the frequency response of the human ear, and therefore better represent the likely perceived loudness of the sound. SPL readings with the A-weighting applied are represented in dB(A).

Equivalent Continuous Level ($L_{eq,T}$)

The Equivalent Continuous Level represents a theoretical continuous sound, over a stated time period, T, which contains the same amount of energy as a number of sound events occurring within that time, or a source that fluctuates in level.

For example, a noise source with an SPL of 80 dB(A) operating for two hours during an eight-hour working day, has an equivalent A-weighted continuous level over eight hours of 74 dB, or $L_{Aeq,8hrs}$ = 74 dB.

The time period over which the L_{eq} is calculated should always be stated.

Maximum Sound Level (L_{max})

The maximum sound level, L_{max} (or L_{Amax} if A-weighted) is the highest SPL that occurs during a given event or time period.

Minimum Sound Level (L_{min})

Similarly, the minimum sound level, L_{min} (or L_{Amin} if A-weighted) is the lowest SPL that occurs during a given event or time period.

L_{90} or L_{A90} and other percentile measures

This represents the SPL which is exceeded 90% of the time, expressed in dB or dB(A). L_{A90} is used to quantify background noise levels (see below). Other percentiles exist and are used for various types of noise assessment. These include L_{01}, L_{10}, L_{50}, L_{99}.

Noise	A noise can be described as an unwanted sound. Noise can cause nuisance.
Ambient Noise	The totally encompassing sound in a given situation, at a given time, including noises from any source in any direction.
Background Noise	This is defined as the L_{A90} of the residual noise.
Noise Sensitive Receptors (NSR's)	Any identified receptor likely to be affected by noise. These are generally human receptors, which may include residential dwellings, work places, schools, hospitals, and recreational spaces.
Octave	In reference to the frequency of a sound, an octave describes the difference between a given frequency and that which is double that frequency, e.g. 125Hz to 500Hz, or 4kHz to 8kHz.
Octave/Third Octave Bands	A sound made up of more than one frequency can be described using a frequency spectrum, which shows the relative magnitude of the different frequencies within it. The possible range of frequencies is continuous, but can be split up into discrete bands, often an octave or third-octave in width. Each octave band is referred to by its centre frequency, generally 63Hz, 125Hz, 250Hz, 500Hz, 1kHz etc.

ANNEX B

MEASUREMENT LOCATION MAP AND PHOTOGRAPHS

Microphone height: 1.4 m above ground

Scale 1 : 32005

Gateway Energy Centre

		Date	Name
	Drafted	04/02/10	PCJ
	Checked	04/02/10	CB

1 - Corner of Billet Lane and Rainbow Lane
2 - Oak Farm, High Road
3 - Corringham Primary School, Herd Lane
4 - End of Wharf Road, Corringham
5 - Track Leading up to Oozedam Farm
6 - New Residential Development, Haven Road, Canvey Island

Noise Survey
Measurement Location Map

PB

MEASUREMENT LOCATION PHOTOGRAPHS

LOCATION 1

LOCATION 2

LOCATION 3

LOCATION 4

LOCATION 5

LOCATION 6

ANNEX C

CALIBRATION CERTIFICATES

Measurement Systems

CERTIFICATE OF CALIBRATION

Certificate Number	**CAL050813**
Date of Issue	**09/06/2008**
Customer	**Parsons Brinkerhoff Ltd.**
	Description of Instrument Including Manufacturer / Supplier
Sound Level Meter	Rion NA-28 Sound Level Analyser [Serial No. 00380778] with Rion UC-59 Microphone [Serial No. 00940] and Rion NH-23 preamplier [Serial No. 70703] fitted with a WS-10 foam windshield.
	The instrument conforms to Class 1 of BS EN 61672-1:2003
	The instrument was running Version 1.6 Firmware
Associated Calibrator	B & K 4226 S/N 259 0976.
Date of Calibration	09/05/2008.
Test Procedure	ANV/CAL/SLM/001 Calibration Results currently at Issue 2 Test procedures in accordance with BS EN 61672-3:2006 NOTE: Test 10.1 (Self Generated Noise with Microphone Installed) omitted.
Test Engineer	Amrat Patel

APPROVED SIGNATORY .....
Les Jephson ☐ / Mike Breslin ☑

BEAUFORT COURT, 17 ROEBUCK WAY, MILTON KEYNES, MK5 8HL
☎ 01908 642846 🖹 01908 642814
✉ info@noise-and-vibration.co.uk 💻 www.noise-and-vibration.co.uk

Measurement Systems

CERTIFICATE OF CALIBRATION

Certificate Number	**CAL030902**
Date of Issue	**04/03/2009**
Customer	**Parsons Brinckerhoff Ltd**
	Description of Instrument
Calibrator	Rion NC-74 [Serial No. 35173440] With ½" adaptor type NC-74-002 fitted.
Date of Calibration	04/03/2009.
Test Procedure	..\..\Calibration Procedures\Current Approved Procedures\NC_74_Cal Procedure Approved Isue 1.xls ..\..\Calibration Results Sheets\Current Approved Results Sheets\NC-74 Master 60942 Approved Issue 2 (BK 2590976).xls Test procedures in accordance with BS EN 60942: 2003 (Annex B)
Test Engineer	Amrat Patel

APPROVED SIGNATORY .....
Les Jephson ☐ / Mike Breslin ☑

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✉ info@noise-and-vibration.co.uk 🖳 www.noise-and-vibration.co.uk

ANNEX D

NOISE MONITORING FORMS

Noise Monitoring Form

Project:	Gateway Energy Centre	**Job No.:**	63628A
Location:	1	**Date:**	27/01/2010 - 28/01/2010

Equipment:	Rion NA-28	**Engineer:**	Chris Borak
Pre-Calibration Level:	93.9 dB	**General Weather Description:**	Dry, Some cloud cover
Post-Calibration Level:	93.9 dB		

Measurement Period				Weather			Statistical Noise Levels / dB(A)					
				Wind								
Date	**Start**	**Elapsed**	**End**	**Speed (m/s)**	**Direction from**	**Temp (°C)**	**Lmax**	**Lmin**	**Leq**	**L10**	**L90**	**Description of Audible Noise**
28/01/2010	11:32:00	00:15:00	11:47:00	2	E	8	73.2	41.9	48.8	48.2	43.7	Bird Noise, Aircraft Noise, Distant traffic, Piling at a distance. Occational Local Trattic
28/01/2010	14:15:00	00:15:00	14:30:00	3	E	8	69.6	40.9	53.8	55.6	43.8	Bird Noise, Aircraft Noise, Distant traffic, Piling at a distance. Occational Local Trattic
27/01/2010	20:55:00	00:10:00	21:05:00	5	E	7	76.2	42.4	55.6	59.3	44.3	Bird Noise, Aircraft Noise, Distant traffic, Occational Local Trattic
27/01/2010	23:02:00	00:05:00	23:07:00	3	E	5	60.4	39.1	43.6	45.5	41.4	Aircraft Noise, Distant traffic, Occational Local Trattic
28/01/2010	01:03:00	00:05:00	01:08:00	1	E	5	59.3	39.3	43.2	44.5	41.2	Aircraft Noise, Distant traffic, Occational Local Trattic

Noise Monitoring Form

Project:	Gateway Energy Centre	**Job No.:**	63628A
Location:	2	**Date:**	27/01/2010 - 28/01/2010

Equipment:	Rion NA-28	**Engineer:**	Chris Borak
Pre-Calibration Level:	93.9 dB	**General Weather Description:**	Dry, Some cloud cover
Post-Calibration Level:	93.9 dB		

Measurement Period				Weather			Statistical Noise Levels / dB(A)					
				Wind								
Date	**Start**	**Elapsed**	**End**	**Speed (m/s)**	**Direction from**	**Temp (°C)**	**Lmax**	**Lmin**	**Leq**	**L10**	**L90**	**Description of Audible Noise**
28/01/2010	11:52:00	00:15:00	12:07:00	2	E	8	53.5	42.5	47.0	48.8	44.7	Arcing of overhead power lines, Traffic on A1014, light aircraft, jet aircraft.
28/01/2010	14:35:00	00:15:00	14:50:00	3	E	8	60.9	41.5	45.3	46.6	43.6	Arcing of overhead power lines, Traffic on A1014, distant helicopter, light aircraft., jet aircraft.
27/01/2010	21:10:00	00:10:00	21:20:00	5	E	7	67.1	43.3	47.2	48.1	44.7	Arcing of overhead power lines, Traffic on A1014, jet aircraft.
27/01/2010	23:12:00	00:05:00	23:17:00	3	E	5	57.5	37.4	47.4	51.2	40.1	Arcing of overhead power lines, Traffic on A1014, jet aircraft.
28/01/2010	01:13:00	00:05:00	01:18:00	1	E	5	66.6	35.2	42.4	43.3	37.3	Arcing of overhead power lines, distant low freq. possibly industrial noise source.

Noise Monitoring Form

Project:	Gateway Energy Centre	**Job No.:**	63628A
Location:	3	**Date:**	27/01/2010 - 28/01/2010

Equipment:	Rion NA-28	**Engineer:**	Chris Borak
Pre-Calibration Level:	93.9 dB	**General Weather Description:**	Dry, Some cloud cover
Post-Calibration Level:	93.9 dB		

Measurement Period				Weather			Statistical Noise Levels / dB(A)					
				Wind								
Date	**Start**	**Elapsed**	**End**	**Speed (m/s)**	**Direction from**	**Temp (°C)**	**Lmax**	**Lmin**	**Leq**	**L10**	**L90**	**Description of Audible Noise**
28/01/2010	12:12:00	00:15:00	12:27:00	2	E	8	55.5	43.6	48.1	52.5	43.9	Distant traffic noise, Aircraft, noise from school, some local traffic.
28/01/2010	14:55:00	00:15:00	15:10:00	3	E	8	60.0	42.0	49.6	53.2	44.8	Distant traffic noise, Aircraft, noise from school, some local traffic, pilling from gateway contruction.
27/01/2010	21:25:00	00:10:00	21:35:00	5	E	7	72.9	43.8	52.2	50.8	45.4	Distant traffic noise, Aircraft, noise from school, some local traffic.
27/01/2010	23:22:00	00:05:00	23:27:00	3	E	5	50.2	35.5	39.7	41.9	36.9	Distant traffic noise, Aircraft.
28/01/2010	01:23:00	00:05:00	01:28:00	1	E	5	66.4	34.9	42.8	43.9	36.9	Distant traffic noise.

Noise Monitoring Form

Project:	Gateway Energy Centre	**Job No.:**	63628A
Location:	4	**Date:**	27/01/2010 - 28/01/2010

Equipment:	Rion NA-28	**Engineer:**	Chris Borak
Pre-Calibration Level:	93.9 dB	**General Weather Description:**	Dry, Some cloud cover
Post-Calibration Level:	93.9 dB		

Measurement Period				Weather			Statistical Noise Levels / dB(A)					
				Wind								
Date	**Start**	**Elapsed**	**End**	**Speed (m/s)**	**Direction from**	**Temp (°C)**	**Lmax**	**Lmin**	**Leq**	**L10**	**L90**	**Description of Audible Noise**
28/01/2010	12:32:00	00:15:00	12:47:00	2	E	8	55.2	42.4	48.2	50.9	44.3	Jet aircraft noise, bird noise, light aircraft, faint distant traffic noise.
28/01/2010	15:15:00	00:15:00	15:30:00	3	E	8	72.3	34.4	54.4	56.3	37.6	Jet aircraft noise, dogs barking, bird noise, faint distant traffic noise, car door slams.
27/01/2010	21:40:00	00:10:00	21:50:00	5	E	7	72.9	43.8	52.2	50.8	45.4	Jet aircraft noise, faint distant traffic noise, car door slams
27/01/2010	23:32:00	00:05:00	23:37:00	3	E	5	50.9	29.7	34.8	36.3	31.6	Light aircraft, faint distant traffic noise
28/01/2010	01:33:00	00:05:00	01:38:00	1	E	5	51.2	28.8	34.2	35.9	30.9	Wind noise, occational traffic (distant)

Noise Monitoring Form

Project:	Gateway Energy Centre	**Job No.:**	63628A
Location:	5	**Date:**	27/01/2010 - 28/01/2010

Equipment:	Rion NA-28	**Engineer:**	Chris Borak
Pre-Calibration Level:	93.9 dB	**General Weather Description:**	Dry, Some cloud cover
Post-Calibration Level:	93.9 dB		

Measurement Period				Weather			Statistical Noise Levels / dB(A)					
				Wind								
Date	**Start**	**Elapsed**	**End**	**Speed (m/s)**	**Direction from**	**Temp (°C)**	**Lmax**	**Lmin**	**Leq**	**L10**	**L90**	**Description of Audible Noise**
28/01/2010	12:52:00	00:15:00	13:07:00	2	E	8	72.3	52.1	63.5	67.2	53.6	Piling noise from Gateway construction, Local HGV movements, Loud Industrial hum (from transformer unit opposite?), Aircraft noise.
28/01/2010	15:35:00	00:15:00	15:50:00	3	E	8	77.2	48.7	61.4	63.8	56.8	Piling noise from Gateway construction, Local HGV movements, Loud Industrial hum (from transformer unit opposite?), Aircraft noise.
28/01/2010	18:05:00	00:10:00	18:15:00	5	E	7	73.8	49.4	61.5	64.5	54.2	Local HGV movements, Loud Industrial hum (from transformer unit opposite?), Aircraft noise.
27/01/2010	23:42:00	00:05:00	23:47:00	3	E	5	64.0	51.0	54.0	55.6	53.4	Occasional local HGV movements, Loud Industrial hum (from transformer unit opposite?).
28/01/2010	01:43:00	00:05:00	01:48:00	1	E	5	73.0	51.1	58.7	57.5	53.3	Occasional local HGV movements, Loud Industrial hum (from transformer unit opposite?).

Noise Monitoring Form

Project:	Gateway Energy Centre	**Job No.:**	63628A
Location:	6	**Date:**	27/01/2010 - 28/01/2010

Equipment:	Rion NA-28	**Engineer:**	Chris Borak
Pre-Calibration Level:	93.9 dB	**General Weather Description:**	Dry, Some cloud cover
Post-Calibration Level:	93.9 dB		

Measurement Period				Weather			Statistical Noise Levels / dB(A)					
				Wind								
Date	**Start**	**Elapsed**	**End**	**Speed (m/s)**	**Direction from**	**Temp (°C)**	**Lmax**	**Lmin**	**Leq**	**L10**	**L90**	**Description of Audible Noise**
28/01/2010	13:27:00	00:15:00	13:42:00	2	E	8	74.5	41.8	52.1	54.9	44.6	Some Local traffic, Car door slams, Piling noise from Gateway construction, nieghbourhood conversations, Seaguls, Aircraft noise.
28/01/2010	16:10:00	00:15:00	16:25:00	3	E	8	63.8	40.0	48.6	51.6	42.4	Piling noise from Gateway construction, Seaguls, Aircraft noise.
28/01/2010	18:35:00	00:10:00	18:45:00	5	E	7	67.0	38.7	48.2	51.1	41.3	Some local traffic, Piling noise from Gateway construction, Aircraft noise.
27/01/2010	00:07:00	00:05:00	00:12:00	3	E	5	58.6	37.4	40.4	41.8	38.7	Piling noise from Gateway construction.
28/01/2010	02:08:00	00:05:00	02:13:00	1	E	5	60.6	36.9	41.2	42.7	38.5	Piling noise from Gateway construction, Aircraft noise.

C.2 Noise Source Data / Sound Power Levels

GATEWAY ENERGY CENTRE – NOISE SOURCE DATA / SOUND POWER LEVELS

Source Number	*Plant Name*	*Building Height, m*	*Frequency, Hz*									*Total dB(A)*
			31	*63*	*125*	*250*	*500*	*1000*	*2000*	*4000*	*8000*	
1	GT Inlet Filter Aperture	36	104	96	90	89	88	90	90	88	84	95.7
2	HRSG Transition	40	117	109	100	96	88	84	82	82	85	93.5
3	HRSG Walls	40	115	109	101	93	84	79	73	64	61	90.2
4	HRSG Stack Outlet	75	115	109	98	89	85	74	77	84	74	90.3
5	Unit Transformer	8	98	101	103	91	88	85	84	81	78	92.7
6	General Transformer	8	87	92	97	97	90	82	82	82	82	92.9
7	Air Cooled Condenser	36.5	111	110	103	99	95	91	89	88	90	98.6
8	GT Building Walls	36.5	116	108	101	92	87	82	76	67	62	90.8
	GT Building Roof	36.5	114	106	99	90	85	80	74	65	60	88.8

APPENDIX D

FLOOD RISK ASSESSMENT

D FLOOD RISK ASSESSMENT

Contents Summary

A Flood Risk Assessment (FRA) was prepared for GEC. This is presented in this Appendix in:

D.1 Flood Risk Assessment

D.1 Flood Risk Assessment

GATEWAY ENERGY CENTRE LIMITED

GATEWAY ENERGY CENTRE
FLOOD RISK ASSESSMENT

February 2010

Report Title	**:**	**Gateway Energy Centre** **Flood Risk Assessment**
Job No	**:**	**63628**
Date	**:**	**February 2010**
Prepared by	**:**	**.....** **Christopher Leach**
Checked by	**:**	**.....** **Emily L Agus**
Approved by	**:**	**.....** **Richard W Wearmouth**

CONTENTS

LIST OF ABBREVIATIONS

AOD	Above Ordnance Datum
BGS	British Geological Survey
CCGT	Combined Cycle Gas Turbine
CCS	Carbon Capture and Storage
CIRIA	Construction Industry Research and Information Association
EA	Environment Agency
FRA	Flood Risk Assessment
GEC	Gateway Energy Centre
ha	Hectares
LG	London Gateway
MWe	Megawatts electrical
NTSLF	National Tidal Sea Level Facility
OD	Ordnance Datum
PB	Parsons Brinckerhoff
PPS25	Planning Policy Statement 25
TE2100	Thames Estuary 2100 Study