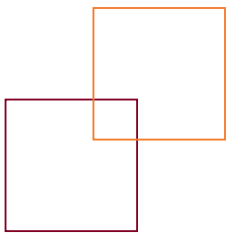
Draft National Policy Statement for Hazardous Waste:

Habitats Regulations Assessment

A document issued by the Department for Environment, Food and Rural Affairs.

Annex 5



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This document is available on the Defra website:
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Published by the Department for Environment, Food and Rural Affairs

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Acknowledgements

This report has been produced by Defra and is based on advice provided by Parsons Brinckerhoff.

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Section1: Introduction

1.1 National Policy Statements

1.1.1 The 'Planning for a Sustainable Future – White Paper' identified a number of mechanisms by which the current planning system could be improved to ensure that the national need for infrastructure can be met both through public and private investment. A central element of this white paper was the publication of a series of National Policy Statements (NPS) which set the policy framework for consideration by the Infrastructure Planning Commission (IPC). The NPSs integrate the governments' objectives for infrastructure capacity and development with its wider economic, environmental and social policy objectives, including climate change goals and targets in order to deliver sustainable development.

1.1.2 Under the requirements of the Planning Act 2008, the Department for Environment Food and Rural Affairs (Defra), on behalf of the government, are preparing an NPS for hazardous waste. The NPS will set out a statement of national policy on hazardous waste and the requirements to provide infrastructure to manage England's requirements for plant to recycle, treat or safely dispose of hazardous waste.

1.1.3 The NPS does not form a detailed plan or programme for future hazardous waste infrastructure development but sets out the likely need for infrastructure expansion based upon current capacity and demand forecasts. It is essential that in the development of the NPS due consideration is given to the effects its implementation may have on various relevant European Directives and corresponding national Regulations.

1.1.4 This report presents such an assessment, considering the potential adverse impacts that future hazardous waste infrastructure development might have upon environmental receptors, specifically on sites considered to be of International or Community importance due to the habitats and species that they support.

1.2 Habitat Regulations Assessment

1.2.1 Under the requirements of the European Council Directive 92/43/EEC 'The Habitats Directive' and the Council Directive 79/409/EEC 'The Wild Birds Directive' it is necessary to consider whether the Hazardous Waste NPS may have significant effects upon the integrity of areas of nature conservation importance designated/classified under the Directives.

1.2.2 An initial screening exercise was completed in February 2010 and concluded that, due to the lack of detail on the nature, potential impacts and location of facilities to be brought forward under the NPS that it was impossible to rule out the possibility of significant impacts. As such further consideration, by way of an 'Appropriate Assessment' is required in order to further examine the detail of the policies within the NPS, and where appropriate suggest measures to reduce or remove potential for adverse effects.

1.2.3 This process of assessment under the requirements of the Habitats Directive and Habitats Regulations is described within this document as a Habitat Regulations Assessment (HRA).

1.2.4 It should be noted that this HRA considers the impacts of the implementation of the whole Hazardous Waste NPS and does not consider site specific impacts of the development of a particular hazardous waste facility on sites of international and/or community importance. As such, projects brought forward under the Hazardous Waste NPS may require their own HRA and the findings of this report in no way absolve the need for future project-level assessment.

1.3 Report Framework

1.3.1 This assessment has been produced as part of an integrated assessment on the Hazardous Waste NPS with an Appraisal of Sustainability (AoS) and an Equality Impact Assessment (EqIA). It will sit within the AoS and will ensure that all HRA-related considerations are fully integrated into the NPS as it is developed, ultimately contributing to a more sustainable Hazardous Waste NPS.

1.3.2 Although the levels of detail required within the AoS, EqIA and the HRA are different there are distinct crossovers between the different reports, with the information gathered within one report being of value to each of the other assessments. The AoS will assess, amongst other things, the impacts of the NPS on planning and nature conservation policy and legislation. This HRA will provide an examination of the potential impacts of the policies and objectives within the NPS on the nature conservation areas protected under the Habitats Directive, the Wild Birds Directive and the Ramsar Convention. This assessment forms one sub-section of the wider AoS of the NPS.

Section2:
The Habitats Directive and Habitats Regulations

2 The Legal/Policy Framework for the Hra

2.1 Habitat Regulations Assessment

2.1.1 Under Article 6 of the Habitats Directive an assessment is required where a plan or project, not directly connected with or necessary to the management of a Natura 2000 site, either individually or in combination with other plans or projects, is likely to have a significant effect upon that site. Natura 2000 is a network of areas designated to conserve natural habitats and species that are rare, endangered, vulnerable or endemic within the European Community. This includes Special Areas of Conservation (SAC) designated under the Habitats Directive for their habitats and/or species of European importance and Special Protection Areas (SPA) classified under the Conservation of Wild Birds Directive for rare, vulnerable and regularly occurring migratory bird species. In addition, it is a matter of law that candidate SAC (cSAC) are considered in this process. As far as pSACs, (sites which are proposed in the UK but which are yet to be submitted to the European Commission) are concerned, decision-takers are expected to note this potential designation when considering applications that could affect a pSACs. Furthermore it is a matter of Government policy that sites designated under the 1971 Ramsar Convention for their internationally important wetlands and potential SPAs (pSPA) under the Birds Directive are considered. For simplicity within this report the term European sites should be taken to include all sites requiring assessment under the Habitats Regulations (i.e. it should be taken to include Ramsar sites). Maps showing UK SACs, SPAs and Ramsar sites are included in figures 2, 3 and 4 in Section 5 of this HRA.

2.1.2 The requirements of the Habitats Directive are transposed into English law out to territorial water limits (12 nautical miles) by means of the Conservation of Habitats and Species Regulations 2010. The Offshore Marine Conservation (Natural Habitats, &c.) Regulations 2007 transpose the Habitats Directive in the UK offshore marine area (beyond 12 nautical miles). The Habitats Regulations also includes SPAs, classified under the Birds Directive, within the definition of a European Site. European offshore marine sites are now included in the HRA process.

2.1.3 Paragraph 3, Article 6 of the Habitats Directive states that:

'any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives...the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public'.

2.1.4 Paragraph 4, Article 6 of the Habitats Directive states that:

'If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest… the Member State shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected...'

2.1.5 These requirements are implemented in England through Regulations 61, 62, 66 and 67 of the Habitats Regulations.

2.2 Stages of Habitats Regulations Assessment

2.2.1 The commission guidance on the Habitats Directive sets out four distinct stages for assessment under the Directive:

- Stage 1: Screening – the process which initially identifies the likely impacts upon a Natura 2000 site of a plan or project, either alone or in combination with other plans or projects, and considers whether these impacts are likely to be significant.
- Stage 2: Appropriate Assessment – the detailed consideration of the impact on the integrity of the Natura 2000 sites of the plan or project, either alone or in combination with other plans or projects, with respect to the site's conservation objectives and its structure and function. This is to determine whether there will be adverse effects on the integrity of the site. Specific guidance on this stage is provided in Habitat Regulations Guidance Note 1.
- Stage 3: Assessment of alternative solutions – the process which examines alternative ways of achieving the objectives of the plans or projects that avoid adverse impacts on the integrity of the Natura 2000 site.
- Stage 4: Assessment where no alternative solutions exist and where adverse impacts remain – an assessment of whether the development is necessary for imperative reasons of overriding public interest (IROPI) and, if so, of the compensatory measures needed to maintain the overall coherence of the Natura 2000 network.

2.2.2 This report presents the findings of all four stages of the HRA process. Stage 1 has been assessed in a separate report (Defra, February 2010) which concluded there was a requirement for further assessment. This report presents a summary of the screening assessment followed by the Appropriate Assessment of the impacts of the NPS. Various alternatives considered as part of the AoS are also considered within this report, specifically with regard to their impact upon European sites. Given the inherent uncertainty surrounding the impacts of the NPS it is likely that it will be necessary to demonstrate the IROPI case for the NPS and to identify the requirements for compensatory measures.

2.2.3 The assessment carried out in this report relates only to plan level i.e. the NPS itself. Any plan or project brought forward under the Hazardous Waste NPS may still require its own HRA assessment and the HRA of the NPS does not remove the need for project level assessment at a later stage.

2.2.4 Further details on the requirements of each stage of the HRA are provided in 2.3 – 2.6 below:

2.3 Steps in HRA Screening (Stage 1)

2.3.1 The European Commission guidance recommends that screening should fulfil the following steps:

a Determine whether the plan is directly connected with or necessary for the management of European sites;

b Describe the plan and describe and characterise any other plans or projects which, in combination, have the potential for having significant effects on European sites;

c Identify the potential effects on European sites; and

d Assess the likely significance of any effects on European sites.

2.4 Steps in Appropriate Assessment (Stage 2)

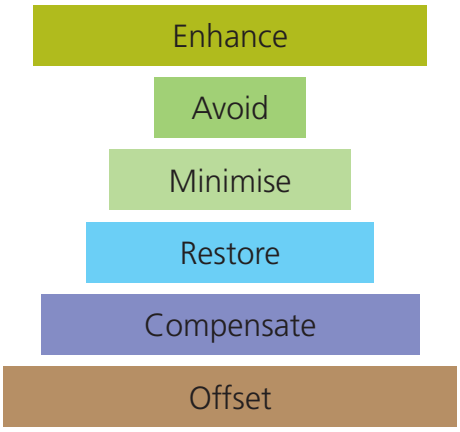
a Gather additional information on the suite of European sites present within England.

b The impacts of the plan should be predicted in a structured and systematic framework. This should be undertaken as objectively as possible. Various types of impacts should be considered including direct and indirect effects, short- and long-term effects; construction operation and decommissioning effects; and isolated interactive and cumulative effects.

c Using information gathered on the conservation objectives of the European sites and the likely impacts of the NPS an assessment will be made on whether these impacts will result in adverse effects on the integrity of European sites, as defined by their conservation objectives. If at this stage information is lacking regarding the likely impacts then adverse effects should be assumed.

d Mitigation measures should be devised in order to avoid or reduce adverse effects when they are identified. These should be assessed against the adverse effects. Mitigation should aspire to the top of the mitigation hierarchy (Figure 1).

Figure 1: Mitigation Hierarchy



2.5 Steps in the Assessment of Alternative Solutions (Stage 3)

a Identify alternative solutions to the policies proposed within the Hazardous Waste NPS. These will include the 'do nothing' alternative as well as the various alternatives considered under the AoS;

b Assess alternatives to ascertain if they would have any less severe implications for the network of European sites. During this assessment the precautionary principle should be applied where there is any uncertainty over the effectiveness of alternative solutions.

c If alternative solutions are identified that will either avoid any adverse impacts or result in less severe impacts on the site, it will be necessary to assess their potential impact by recommencing the assessment at Stage One or Stage Two as appropriate. However, if it can be reasonably and objectively concluded that there is an absence of alternatives, it will be necessary to proceed to Stage Four of this assessment methodology.

2.6 Assessment of IROPI and Compensatory Measures (Stage 4)

a Where it cannot be objectively concluded that there will be no adverse impacts upon the Natura 2000 network resulting from the implementation of the NPS, and where it has been demonstrated that there are no reasonable alternatives to the NPS it is necessary to consider whether or not there are human health or safety considerations or environmental benefits flowing from the NPS;

b If no such considerations exist, then establish whether there are other imperative reasons of overriding public interest (IROPI) for the adoption of the NPS; and

c Once IROPI has been demonstrated it will be necessary to consider requirements for compensatory measures to offset the damage to the Natura 2000 network. Given that each individual project brought forward under the NPS will undergo its own HRA, detailed development of compensatory measures is not considered necessary at this time.

Section 3: The Hazardous Waste NPS

3.1 Background to the development of NPS

3.1.1 The Government is in the process of reforming the development consent system for Nationally Significant Infrastructure Projects (NSIPs). These reforms were laid out in the Planning for a Sustainable Future White Paper and have been given a statutory basis in the Planning Act 2008.

3.1.2 The Planning Act 2008 provides for an IPC which will take decisions on planning approval for NSIPs in the light of statements of Government policy for each infrastructure type, known as NPSs.

3.1.3 Thresholds for infrastructure where planning applications will be considered by the IPC are set out in the Act, Article 30. For hazardous waste this includes:

- Construction of a facility in England whose main purpose is the final disposal or recovery of hazardous waste and where the facility is expected to have a capacity of more than 100,000 tonnes per year in the case of the disposal of hazardous waste by landfill or in a deep storage facility, and in any other case, more than 30,000 tonnes per year.
- Alteration of a hazardous waste facility in England whose main purpose is the final disposal or recovery of hazardous waste and where the capacity of the facility is expected to increase by more than 100,000 tonnes per year in the case of the disposal of hazardous waste by landfill or in a deep storage facility, and the capacity is expected to increase by more than 30,000 tonnes per year for any other type of facility.

3.1.4 The Hazardous Waste NPS will provide policy for England only, however, will be developed with due regard to policy in Scotland, Wales and Northern Ireland.

3.1.5 The Government's current policy on hazardous waste is set out in the 'Strategy for Hazardous Waste Management in England' was published on 18 March 2010. The Strategy sets out the management routes for hazardous waste (for example, increasing the proportion of hazardous waste that is re-used, recycled or recovered) and identifies some infrastructure capacity needs.

3.1.6 The strategy for the development of treatment infrastructure comprises:

- Six high level principles for the management of hazardous waste.
- A set of outline decision trees to assist waste producers and waste managers to make the right decisions about the management of their waste and investment in infrastructure to help move hazardous waste management up the waste hierarchy.
- A timeline of action on issues relating to the introduction and implementation of the strategy.
- A list of guidance relating to the treatment of hazardous waste.

Hazardous Waste Infrastructure

3.1.7 The Hazardous Waste NPS is in a draft stage. The infrastructure identified during the consultation exercise for the Strategy for Hazardous Waste Management in England has been carefully considered. Several facilities considered as part of the HRA screening exercise have been dropped from the proposals and others added. The following types of facility are those currently included within the NPS and represent the types of facility which have been identified as representing potentially NSIPs.

- Waste Electrical and Engineering Equipment (WEEE) dismantling and recovery plants;

- Oil regeneration plant;
- Treatment Plant for Air Pollution Control Residues;
- Thermal Desorption;
- Bioremediation/Soil Washing to Treat Contaminated Soil Diverted from Landfill;
- Recycling sites for end of life ships; and
- Hazardous Waste Landfill.

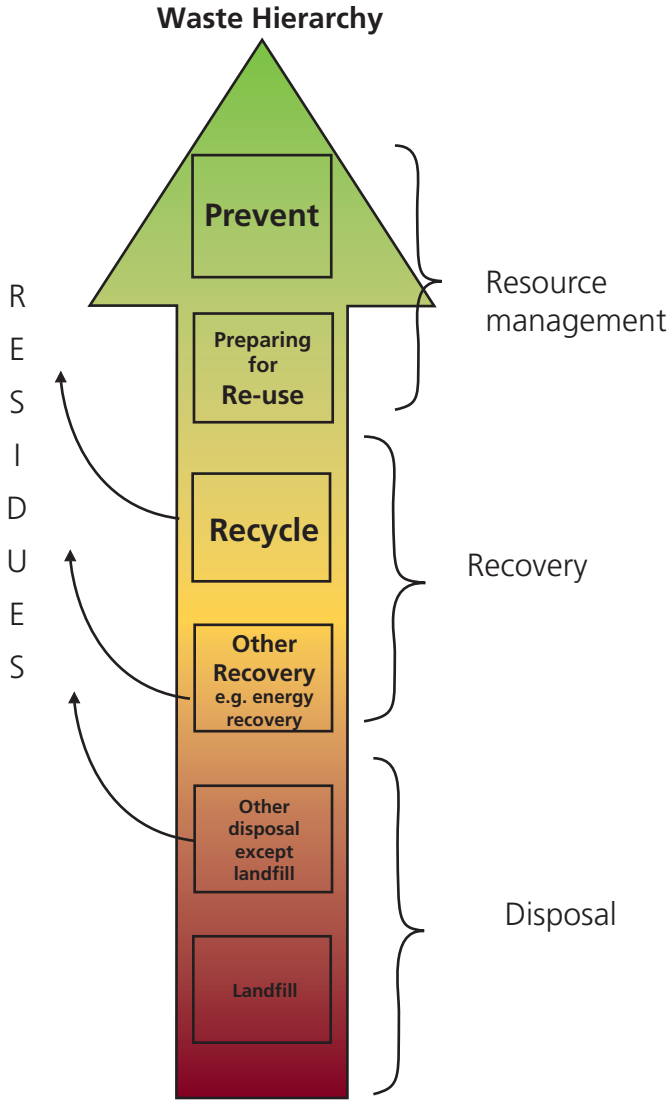
3.1.8 As yet criteria governing the siting of hazardous waste facilities have not been defined, and may not be provided within the NPS. As such guidance is not currently available to assist in refining the scope of the assessment to a list of European sites most likely to be vulnerable to impacts. Nevertheless, certain assumptions may be made on the potential location of the hazardous waste facilities and therefore the vulnerability of sites in proximity to them. Such assumptions were proposed within the screening assessment and have been restated within this report and should serve to inform the basis for any future HRA assessment, in the event further assessment is required.

3.2 The physical need for the NPS

3.2.1 The need for new and improved infrastructure for hazardous waste is driven by a number of key factors.

3.2.2 Of the key factors the Waste Hierarchy is of particular significance. The hierarchy has 5 key stages (Figure 2) and its implementation is an essential principal of the EC Waste Directive (2008/98/EC). The Directive requires that the hierarchy is applied to the development of national policy and legislation relating to the management and prevention of waste.

Figure 2: The Waste Hierarchy



3.2.3 When looking at the key drivers behind the implementation of the waste hierarchy it is clear that they are to promote sustainability, the reduction in the reliance on fossil fuels, minerals and other finite resources, the promotion of increased national self-sufficiency in the management of waste and materials, the promotion of social and environmentally responsible behaviour and a reduction in global environmental adverse impacts.

3.2.4 The ultimate aim of introducing and implementing the waste hierarchy is to ensure less waste goes to landfill by taking opportunity at every stage within industrial, manufacturing and domestic processes to reduce the amount of waste generated. The implementation of the process has required a shift in the thinking surrounding waste. The end life of a product is now considered within the manufacturing process and as such new products arriving on the market will have fewer end-of-life hazardous waste substances. It is inevitable however that for the foreseeable future that there will be some substances, such as oils and chemicals which will continue to be used.

3.2.5 Additional key factors that implement the need for new and improved infrastructure for hazardous waste include;

- The increase in hazardous waste arisings observed since 2004, in part due to the implementation of the revised European Waste Catalogue which classifies many everyday household wastes such as television sets and computer monitors. There is also anticipated to be further increases in the generation of hazardous wastes as EC member states implement the new EC Waste Directive (2008/98) and EU driven initiatives to separate hazardous and non-hazardous wastes affect disposal via the mixed municipal waste stream.
- Recent trends have observed increases in the volumes of hazardous materials being deposited in landfills, and decreases in the volume of waste sent for treatment and recycling.
- The 'proximity principle' set out within Article 16 of the Waste Directive requires member states to ensure there is adequate national provision of hazardous waste facilities.

3.2.6 Each of these key drivers behind the development of a Hazardous Waste NPS are discussed within the AA (Section 5) in greater detail.

3.2.7 It is clear that with the forecast increases in hazardous waste arisings anticipated over the next 10 years, coupled with the national and international focus on sustainability and resource efficiency and the legal requirements as set out by the Hazardous Waste Directive 2008/98, that a strategy to develop new hazardous waste treatment facilities is essential.

3.2.8 Having a national policy ensures that a co-ordinated, holistic approach to hazardous waste management is developed within England. Failure to develop a policy which guides the development of a national network of waste infrastructure may delay the speed at which such projects are brought forward. Given that the intention is that these new facilities will be built and funded by the private sector the policy will provide confidence to allow investments to be made.

3.2.9 The development of the Hazardous Waste NPS will provide the framework from which the IPC determine applications for development consent for NISPs.

3.2.10 The details within the NPS, in particular the generic guidance within Parts 4 and 5 of the NPS will also be of value to local planning authorities (LPA) in the preparation of local impact reports. Such reports will typically be submitted by the relevant local authority to the IPC for consideration in their decision on whether the NSIP should be developed.

Section 4:
Findings of HRA Screening Exercise

4.1 Background

4.1.1 The screening exercise was undertaken on draft proposals of the Hazardous Waste NPS. The assessment considered the requirements for hazardous waste infrastructure and identified the likely impacts which would arise from those facilities. Attempts were also made within the screening assessment to refine the number of European sites under consideration within the assessment to those most likely to be vulnerable to significant adverse effects.

4.2 Description of Sites

4.2.1 The purpose of the Hazardous Waste NPS will not be to identify sites for the establishment of hazardous waste facilities. As such, it is difficult to assess the specific impacts that the policies and objectives set in the Hazardous Waste NPS will have on the Natura 2000 network (the network of European and Internationally designated sites). The significance of the potential impacts described above will almost certainly depend upon the location of new facilities relative to that of the Natura 2000 network.

4.2.2 A number of assumptions were proposed within the screening exercise about the likely location of facilities. These assumptions were as follows:

- Proximity to Transportation Network (sites need good road/rail/shipping access)
- Vulnerability to Flooding (flooding presents unacceptable environmental risk)
- Vulnerability to other Natural Disasters (range of unanticipated environmental impacts)
- Proximity to other Hazardous Industrial Facilities (cumulative impacts, in particular associated with accidents in nearby facilities)
- Proximity to Urban or Residential Areas (sites likely to be some distance from residential areas but on urban fringes to ensure adequate workforce)
- Proximity to Military Activities (hazards associated with military activities)
- Proximity to Designated Sites of Ecological Importance (development within sites of importance typically prohibited)
- Proximity to Areas of Amenity, Cultural and Heritage Importance (development within such zones may often be restricted)
- Proximity to Water Courses and Ground Water Protection Zones (storage and use of hazardous substances within sensitive areas generally heavily restricted)
- Proximity to Resources required during operation (treatment facilities likely to be near to point of waste generation within reason)

4.2.3 A test of one of these assumptions, that new infrastructure will need to be within proximity of key transport infrastructure, was unable to reduce the number of European sites likely to be susceptible to impacts to any significant degree.

4.2.4 The screening also examined the range of qualifying features for European sites around England. Data presented clearly illustrates the diversity of qualifying features within the England. 120 habitats and species form primary qualifying features within the designation of SACs and 128 bird species represent key qualifying species within Ramsar and SPA sites.

4.2.5 The screening assessment demonstrated that it was not possible to refine the number of sites under consideration within the HRA process in any meaningful way. As such the appropriate assessment would need to consider all sites within England as being potentially vulnerable to adverse impacts.

4.3 Description of Impacts Considered

4.3.1 Impacts which were considered by the screening exercise of the Hazardous Waste NPS principally focussed around the facilities that would be brought forward under the NPS. At the screening stage a number of different types of facility were still under consideration all of which have potential direct and indirect adverse impacts on the natural environment. Impacts were considered during the construction, operational and decommissioning phases of hazardous waste infrastructure.

4.3.2 Impacts identified included construction impacts such as habitat loss and degradation; disturbance; and incidental pollutant release.

4.3.3 Operational impacts considered included atmospheric discharge; water abstraction and polluted water discharge; alterations in local hydrological regimes; contamination of geology and soils; incidental release of pollutants on site or during transport to and from facilities and general disturbance caused by the presence and operation of the facility.

4.3.4 Likely decommissioning impacts included damage to habitats caused by the demolition works, the disposal of contaminants, and proposals for site remediation and restoration.

4.4 Assessment of Significance of Effects on European sites

4.4.1 Given the limited level of detail available at the time of the screening exercise on the nature of the facilities to be brought forward and the locations and numbers of sites likely to be required in order to deliver the national need a conclusion of uncertainty was drawn. Given the potential adverse environmental impacts associated with hazardous waste facilities and in the absence of detailed information on the location of sites it was not possible to conclude anything other than there being a potential for adverse effects on the integrity of European sites.

4.4.2 The screening exercise recommended further assessment by way of an 'Appropriate Assessment' which should consider in greater detail the potential for adverse impacts arising from the implementation of the plan.

4.5 Consultation

4.5.1 The screening exercise was issued to Natural England (NE) for consideration. NE agreed in principal to the conclusions of the screening exercise and that the assessment covered the correct topics in sufficient depth for a screening assessment. It was noted by NE that there may be a need to update the screening assessment once more detail becomes available on the content of the Hazardous Waste NPS.

4.5.2 NE also provided advice on the approach for the sections considering alternative and IROPI and requested that a clarification is provided within the Appropriate Assessment report. As with other NPSs, satisfying the alternative and IROPI tests at a plan level does not exempt individual projects, brought forward under the plan, from carrying out their own assessment of alternatives and IROPI test.

Section 5: Appropriate Assessment

5.1 Introduction

5.1.1 This section considers the nature of potential impacts associated with the Hazardous Waste NPS to European Sites and assesses the likelihood for significant effects resulting from these impacts. The impacts of the NPS are considered to arise at two levels;

i At the strategic level giving consideration to the wider implications on the implementation of the key objectives of the Hazardous Waste NPS (i.e. the waste hierarchy, demand for new infrastructure and the list of facilities to be brought forward under the plan).

ii At the project level, associated with the considerations required for a specific hazardous waste infrastructure project being brought forward and delivered under the policy.

5.1.2 Where feasible this section also considers the principle measures that can be implemented through which potential impacts to European sites can be mitigated.

Impacts of the NPS

5.2 Implementing the Waste Hierarchy

5.2.1 The Waste Hierarchy and EC Waste Directive 2008/98/EC aims to establish a new holistic approach to the manufacturing process and the waste prevention measures (see 3.2.4). However despite this aim it is not considered likely that there would be a significant decrease in the amount of hazardous waste arisings in the short term future, and any potential reductions are likely to be more than offset by the increases in hazardous wastes. Due to the introduction of the revised European Waste Catalogue, implemented in 2005 by the Regulations for Hazardous Waste, there is now a greater diversity of substances which are classified and must be treated as 'hazardous waste'.

5.2.2 A reduction in the amount of wastes, in particular contaminated and volatile organic wastes being disposed at landfill are likely to have localised benefits for the environment immediately surrounding the landfill sites, and in the long-term may have a beneficial impact upon on water courses and ground water supplies that could be contaminated as the containment around hazardous waste landfill facilities degrades. Given the current measures at landfill sites in controlling the release of landfill gas and leachate one of the key environmental benefits of reducing the amount of hazardous waste material being deposited into landfill (i.e. a reduced risk of future contamination of water resources) may not be apparent for a considerable time, potentially for several hundred years.

5.2.3 As a direct result of the implementation of the revised European Waste Catalogue the amounts of hazardous wastes produced (primarily due to reclassification, but also due to substantial construction projects such as the Olympics) within England has over the past few years been increasing (26% increase in 2008 from the previous year – EA DATA). Therefore pressures would increase on demand for landfill facilities in the absence of measures to reduce waste going to landfill. It is likely that there would be a requirement to provide more landfill sites, which could result in environmental and social impacts (the impacts of landfill sites are discussed further in 5.3.31). It should be noted that such facilities are unlikely to be located within European sites due to the existing protection afforded to these sites by the Habitats Regulations. As such the impacts of new landfill sites on the network of European protected sites is likely to be limited to indirect effects such as hazardous leachate into designated water courses or the tributaries thereof.

5.2.4 Through the implementation of the Waste Hierarchy there will be some reduction in the reliance of raw materials and materials used in construction and manufacturing will be recovered from the waste stream. This sustainable approach is in line with the current government policy set

out within "Securing the Future" the government sustainable development strategy. This promotes a sustainable approach to resource use and development. Delivery of the waste hierarchy will therefore contribute towards the delivery of the sustainability targets.

5.2.5 However it is important to identify that the UK is a net importer, in particular an importer of raw materials for construction and manufacture and as such the environmental benefits to European sites, such as a reduction in resource extraction are likely to be of greater benefit at an international level than at a UK level.

5.2.6 The treatment of hazardous waste could result in adverse impacts upon air and water quality. This is in consideration of the proximity of European sites to emissions from new infrastructure as described in greater detail in Section 5.3. Such new facilities may lead to an increase in contamination of land and water resources within the UK. They would also reduce the reliance on, and requirement for, landfill sites.

5.2.7 The implementation of the waste hierarchy therefore has the potential to lead to increases in the levels of hazardous pollutants within European sites due to the emissions from new infrastructure as summarised above. There will be environmental, economic and social benefits associated with its implementation, however these benefits are unlikely to be of direct relevance or have a positive impact upon the network of European sites within the UK. The environmental benefits associated with the implementation of the hierarchy are more likely to result in beneficial effects to those areas where there continues to be significant mining and resource extraction. It is noted that within the UK such activities are minimal and therefore there may be international benefits associated with recycling, re-use and recovery.

5.2.8 Despite the general positive environmental/ sustainable outcomes associated with the implementation of the waste hierarchy it is considered that the specific short-term impacts on European sites are likely to be greater with the implementation of the plan than they would be without it and the current scenario continued. However in the long-term it is considered that the adverse environmental impacts associated with the continued reliance on landfill would be likely to exceed the adverse effects associated with the operation of new hazardous waste treatment facilities.

Mitigation

5.2.9 Consideration should be given to the environmental impacts associated with hazardous waste infrastructure with the environmental, social and sustainable benefits that such a policy will deliver. At a project level mitigation measures will be provided to ensure the adverse impacts associated with new infrastructure are minimised as far as possible. Consideration should however be given to a requirement for an assessment to be made for all new hazardous waste infrastructure to consider the balance between the positive and negative environmental impacts of new infrastructure.

5.3 Requirements for Hazardous Waste Infrastructure

5.3.1 The NPS has identified seven different types of hazardous waste infrastructure projects which it considers as nationally significant infrastructure. Once their inclusion within the NPS has been finalised this will act as a significant driver to develop such facilities. This section considers the need for each facility and the number and sizes of facilities and the specific impacts of the development and operation of the facility. Consideration is also given to the location of new facilities although this is also addressed in section 5.4. Consideration has not been given to additional infrastructure that might need to be provided to facilitate the hazardous waste facilities, such as the construction of new roads, drainage and connections to the national power grid. It is assumed that impacts associated with

such infrastructure would be assessed and managed at a project specific level.

5.3.2 Mitigation measures associated with the development of new facilities would be developed as part of applications to the IPC. It is not considered appropriate for the NPS to specify mitigation measures for specific infrastructure. Current environmental controls, and those set out by European directives and national legislation are considered adequate to ensure the impacts associated with particular infrastructure are appropriately controlled. The NPS wishes to encourage the development of new facilities which employ the best technologies available to minimise adverse impacts, and as such necessarily must avoid constraining how new infrastructure mitigates the adverse effects.

5.3.3 One of the key roles of the NPS in mitigating adverse effects will be to guide the number and location of such facilities. As identified within the screening assessment the intention is for the location of new facilities to be driven via the market to ensure that new infrastructure is located relative to demand and in the most environmentally and economically sustainable locations. Nevertheless, the NPS should set out guidelines which help to steer the selection of potential sites which in turn help to minimise adverse impacts upon European sites. An assessment of the NPSs approach to guiding the location of hazardous waste facilities is set out in Section 5.4.

Waste Electrical and Electronic Equipment Treatment Plants

5.3.4 Current capacity for waste electrical and electronic equipment (WEEE) is considered to be adequate, however a significant rise in the need for facilities which can handle WEEE is anticipated due to the rise in flat panel displays. The Waste Resources Action Programme (WRAP) predicts a rise of over 80,000 tonnes by 2016/17. The NPS suggests that only a small number of large facilities will be required.

5.3.5 Much of the material handled within WEEE facilities will be non-hazardous and once separated would be disposed of as non-hazardous products. The hazardous materials within WEEE facilities are typically recycled or reused.

5.3.6 The WEEE Directive (2002/96/EC) specifies a series of infrastructure requirements for such facilities which include weather proofing, impermeable surfaces and appropriate containers for hazardous materials. There is also a requirement for the management of ozone depleting gases and management of liquids on site. Environmental impacts associated with WEEE facilities are also anticipated resulting from noise, dust and traffic movements.

5.3.7 The significance of such impacts upon European sites will be dependent upon their location relative to the new WEEE facility and on the environmental control measures associated with new facilities. The specifications for WEEE facilities included within the Directive will ensure that the most damaging environmental impacts are controlled within acceptable levels. However potential emissions plumes should be carefully assessed in selecting an appropriate site to ensure that the deposition of volatile hazardous materials, nitrates and sulphates does not occur within European sites. When assessing the impacts of any such deposition, consideration must be given to existing baseline background levels at the protected site. For acid and nitrogen deposition the level of deposition relative to the critical load must be considered. Projects which would lead to the exceedance of critical thresholds of deposition within European sites are unlikely to be approved.

5.3.8 Other environmental impacts such as the noise, dust and traffic impacts associated with new facilities would be assessed through the current environmental impact assessment and environmental permitting processes.

Oil Regeneration Plants

5.3.9 The UK generates approximately 350,000 tonnes of waste oil per year, much of which is sent for burning and energy recovery and at present there is no overall shortfall in the capacity for treating waste oil. However this treatment of oil misses key opportunities within the waste hierarchy to regenerate or treat waste oils for reuse and as such the development of new facilities to treat waste oils is in line with government policy.

5.3.10 The NPS identifies capacity for facilities to regenerate oil suitable for reuse. Environmental emissions from these facilities would be rigorously controlled under the Environmental Permitting Regime (EPR), however there remains potential for the loss of volatile organic compounds and odorous compounds to air where control systems fail. These have the potential to result in adverse impacts upon European sites should the new facilities be located in proximity to such sites. In particular sites which are sensitive to nutrient enrichment through the deposition of nitrous oxides and organic compounds will be particularly vulnerable to adverse effects associated with such facilities.

5.3.11 Consideration should also be given to the risks associated with the distribution of these facilities around the country, and therefore the requirement to transport hazardous compounds around the country. The consideration of location should take into account the need to minimise transportation requirements of contaminated oils.

5.3.12 The reuse of oil has environmental benefits by reducing emissions associated with the burning of such fuels, in particular associated with the CO2 and other greenhouse gasses, although it should be noted that there will be a need to replace the 160,000 tonnes of oil fuel with other sources to ensure energy currently generated from waste oil is replaced.

5.3.13 The provision of oil regeneration facilities and the effect that these facilities might have upon European sites will be principally related to the proximity of these sites. Without details within the NPS on the spatial distribution of these sites it is not possible to conclude that there would not be the potential for adverse impacts associated with these facilities. It should also however be noted that a failure to develop such facilities would result in a continued reliance upon the combustion of waste oils which have their own adverse environmental effects.

Treatment Plant for Air Pollution Control Residues

5.3.14 Due to the rise in the numbers of municipal waste incinerators within England the Environment Agency has forecast a significant increase in the tonnage of Air Pollution Control (APC) residues requiring treatment. These residues, if treated appropriately can be reused rather than simply disposed of to landfill. Given the importance of implementing the waste hierarchy such facilities are therefore considered to be of importance in future infrastructure development.

5.3.15 Details are not provided within the NPS of the types of APC treatment facilities that will be required. This allows for new innovative treatment techniques to be brought forward under the NPS and will also ensure that the various different treatment techniques available to permit the treatment of APC residues are developed as appropriate by the market.

5.3.16 Options for disposal of APC residues typically depend upon their solubility in water. Fly Ashes may be up to 65% soluble and hence presents a significant leachate hazard. Ultimately treatment is aimed at stabilising the waste products prior to disposal, coupled with the recovery of some minor metal recovery.

5.3.17 Vitrification, typically involving heats of in excess of 1200˚C, and therefore energetically expensive, is rarely economically viable. Furthermore, due to the highly volatile nature of many of the contaminants within the APC residue, the thermal treatment may re-vaporise these contaminants resulting in release of contaminants. This may lead to adverse impacts upon European sites should plants be located within proximity of such areas.

5.3.18 The recovery of acid, salts and gypsum is proven from APC residues, although generally this is restricted to wet residues from wet lime injection APC systems. However, due to the complex chemical makeup of APC residues few metals are typically recovered, with the notable exception of Mercury, and only from wet residues.

5.3.19 The treatment and disposal of APC residues may form a key constraint of the development of EFW plants and as such there is a need for treatment facilities. Given the limitations on current treatment the non-specific nature of the NPS allows new technologies to be developed where the performance of these exceeds that of currently available techniques.

5.3.20 Given the potential solubility of certain APC residues and due to the highly concentrated nature of contaminants within APC residues their transport and handling must be extremely carefully managed. These sites present considerable risk to surface and ground water and such risks must be carefully managed through careful site selection. The location of such facilities upstream of European sites or within aquifer/source protection zones is unlikely to be appropriate. It is anticipated that such impacts would be managed through the existing planning and environmental permitting controls within the UK.

Thermal Desorption

5.3.21 The treatment of contaminated soils, sludges and filter cakes using heat to increase the volatility of contaminants to allow separation from a solid matrix is a more sustainable solution to high temperature incineration. The development of such facilities needs to be carefully coordinated with bioremediation facilities (as described below) as both are used in the treatment of contaminated soils and sludges.

5.3.22 There are inevitably risks of environmental impacts at thermal desorption facilities. The handling of soil, sludge and filter cakes may result in contaminants being spread into the surrounding environment through wind blown dust, leachate and accidental release. Environmental controls at these facilities would be expected to control this contamination to low levels, however it is almost inevitable that some localised increase in contaminants will occur in the immediate surroundings of the facility. This emphasises the importance of siting such facilities outside of European sites and ideally some distance from the boundaries of such sites.

5.3.23 Emissions from thermal desorption treatment plants also have the potential to contain volatile contaminants (although most would be captured by APC filters). As such the potential emissions plume should be carefully assessed in selecting an appropriate site to ensure that the deposition of volatile hazardous materials, nitrates and sulphates does not occur within European sites. When assessing the impacts of any such deposition consideration must be given to existing baseline background levels at the protected site. For acid and nitrogen deposition the level of deposition relative to the critical load must be considered. Projects which would lead to the exceedance of critical thresholds of deposition within European sites are unlikely to be approved.

5.3.24 Projects which cause critical thresholds of deposition within European sites are unlikely to be approved.

5.3.25 The number of thermal desorption plants created around the UK will be market driven. The NPS does not specify the number or location of such facilities. As with other facilities the

transportation of hazardous soils, sludges and filter cakes around the country presents risks of contamination.

Bioremediation/Soil Washing to Treat Contaminated Soil Diverted from Landfill

5.3.26 Bioremediation is suitable for volatile, semi volatile and non-volatile organic compounds. This technique is relatively environmentally benign as there are no significant vapour emissions from such processes. For bioremediation the handling of contaminated soils presents risks of contamination through wind spread dust and through surface water runoff. Facilities would be designed to minimise such risks, and for surface water runoff in particular, the environmental risks can be easily controlled through the use of impermeable surfaces and drainage control measures. Dust is typically more difficult to control, although impacts arising from dust deposition tend to be isolated to the immediate surroundings of the facility. The Design Manual for Roads and Bridges (DMRB) Volume 11, Section 3, Part 1 indicates that significant effects arising from dust deposition are typically limited to a 100 m radius from the source. Specifically this is with regard to the smothering of vegetation, rather than dust deposition and therefore consideration will need to be given to the leaching of contaminants into water and ground water sources following dust blown deposition.

5.3.27 As with other facilities the NPS does not specify the number or location of bioremediation sites. As described for thermal desorption plants, the transportation of contaminated soils may present the most significant risk of contamination associated with this treatment method and as such a network of sites around the country would help to ensure the requirements for the transportation of contaminated soils and sludges is kept to a minimum.

Ship Recycling Facilities

5.3.28 The Defra Ship recycling Strategy published in 2007 identified the expansion of the UKs capacity in the recycling of end of life ships. Currently at global level most vessels are exported abroad, either to Asia or Europe principally due to lower labour costs and a stronger market for the recycled materials. There is concern however over the environmental and social safeguards in place in many overseas countries, in particular Asia. The Basel Convention, to which the UK is a Party, requires that any hazardous wastes which are exported are managed in an environmentally sound manner. Furthermore, the EC Waste Shipments Regulation (1013/2006) prohibits the export of hazardous wastes to non OECD countries.

5.3.29 In addition, the aim of the government to promote self sufficiency in the handling of hazardous wastes necessarily requires an increase in the number of facilities within England.

5.3.30 Unlike other hazardous waste facilities considered by the NPS, the location of ship recycling facilities will be necessarily located in coastal locations, and most likely, in association with major shipping ports due to the infrastructure that these ports already have. Typically ship recycling facilities have been located at former ship building ports.

5.3.31 Hazardous wastes handled by ship recycling facilities include asbestos containing materials (ACMs), heavy metals, oils, PCBs etc. Given the likely location of these facilities being within ship yards, typically associated with large shipping ports, the key impacts, with regard to the European site network, are impacts on the marine, estuarine and fresh water environments. As is shown in Table 1, there are 118 European sites which have a marine, coastal or island based element. Twelve SAC are designated almost exclusively for their marine interest. Incidental spillage of contaminated materials and contaminated surface water runoff has the potential to result in adverse impacts upon these sites. In particular given the often frequent association in England between major water courses and the formation of estuaries careful consideration will be required when selecting a site

for ship recycling to ensure that the potential for adverse impacts on European sites is minimised. Rigorous environmental controls will be necessary within ship recycling facilities to minimise the risks of contaminants leaching into the adjacent water course/sea. Given the nature of the work and the large structures often requiring dismantling there is a significant risk that the facility will have some impact upon local water quality. The proximity of these facilities to European sites is therefore fundamental to the potential for adverse impacts.

Hazardous Waste Landfill

5.3.32 As the waste hierarchy is implemented the volume of hazardous wastes going to landfill will reduce. However, in the short term wastes are increasing, principally associated with major construction projects such as the Olympics. The capacity of the existing network is considered to be adequate at present and there is an anticipated 19million cubic metres of capacity remaining, however as landfill sites reach the end of their permitted life and others reach their capacity there will be a need for additional sites.

5.3.33 The short-term environmental impacts of disposing of hazardous waste within appropriately designed hazardous waste landfill sites are relatively minimal. There will be localised adverse environmental impacts at the site itself associated with rubbish, incidental spillage, gaseous release and wind blown materials although the environmental control measures implemented at the facility will ensure that these impacts are within acceptable limits. The significant adverse impacts which result from hazardous waste landfill occur when the containment which has been provided around the landfilled waste degrades. Once the containment around landfill degrades the hazardous materials will be able to leach out into the soils or rock that the facility is sited on. This may in turn impact upon ground water and surface water resources, which ultimately may have adverse impacts upon the European sites and the species therein.

5.3.34 The containment around a hazardous waste landfill is designed to be particularly robust because of the implications of any failure. As such, hazardous materials may be contained for several centuries, if not longer. Containment around hazardous waste cells should be more robust than around non-hazardous wastes. Furthermore, if not already, there should be a requirement to undertake an assessment of the environmental impacts of containment failure to ensure that the impacts of such an event are understood. Such an assessment may need to consider the implications on European sites.

5.3.35 Given the impacts that landfill sites can have on their immediate surroundings it is unlikely that such sites would be located within European sites. Similarly, given the risk of leachate contaminating ground water and surface water resources these facilities should also avoid key aquifer source protection zones and areas in proximity to water courses. These are understood to be criteria already considered when selecting the location of new landfill sites.

5.4 Locations of Hazardous Waste Infrastructure

5.4.1 As has been described in 5.2, the Hazardous Waste NPS will not specify the locations of new hazardous waste facilities. The Hazardous Waste NPS intends to rely upon the market to select the most economically viable, environmentally sustainable, efficient location. Clearly there are number of types of infrastructure whose location is governed by the materials that they will be handling. Ship recycling facilities as described above will necessarily be located in coastal locations, and likely to be associated with major shipping ports. For many other types of facility the location is not geographically constrained in the same way.

5.4.2 Whilst the NPS does not specify specific sites where particular facilities are promoted it may be possible to provide guidelines within the

Hazardous Waste NPS which help to ensure that development proposals are brought forward which minimise the risks to the integrity of European sites. Crucially the Hazardous Waste NPS should reflect the need to maintain the integrity of European sites and that the IPC would not permit development where adverse impacts on integrity are identified and unavoidable, unless it can be demonstrated that there are other requirements which would permit the development, such as conditions of Imperative Reasons of Overriding Public Interest (IROPI). If guidelines are to be provided within the Hazardous Waste NPS the avoidance of European sites will be the prime focus with the emphasis on providing reliable mitigation measures if avoidance is not possible. The key issues in site selection are considered to be: avoidance of impacts; sensitivity of receptors; locations of sensitive species and habitats within European sites; the distribution of facilities; the cumulative impacts of multiple facilities; and the consideration of changing environmental baselines and emerging technologies.

Figure 2: SACs within the UK (excluding offshore sites)

Figure 3: SPAs within the UK

Avoidance of Impacts

5.4.3 European sites are distributed throughout the country. Assessment undertaken for the screening assessment found that of the 380+ sites within England only 60 lay further than 10 km from a major road (motorway or A-road). This illustrates the widespread nature of protected sites around the country, and therefore the difficulty in identifying potential locations for new infrastructure that will avoid adverse impacts. Figures 3, 4 & 5 show the location of the SAC, SPA and Ramsar sites throughout England.

5.4.4 Given the intention for the NPS to allow the market to guide the development of hazardous waste infrastructure, and the problems in identifying areas of the country where there are no European sites it is unlikely to be appropriate for the NPS to attempt to constrain the location of hazardous waste facilities within particular parts of the country.

Figure 4: Ramsar Sites within the UK

5.4.5 Figures 3: 5 show all the terrestrial based European sites within England. These are considered to be the key sites at risk of adverse impacts associated with the NPS. There are however a number of marine sites within the England. These are shown (for the wider UK area on Figures 6 and 7).

Figure 6: Offshore SACs in UK Waters

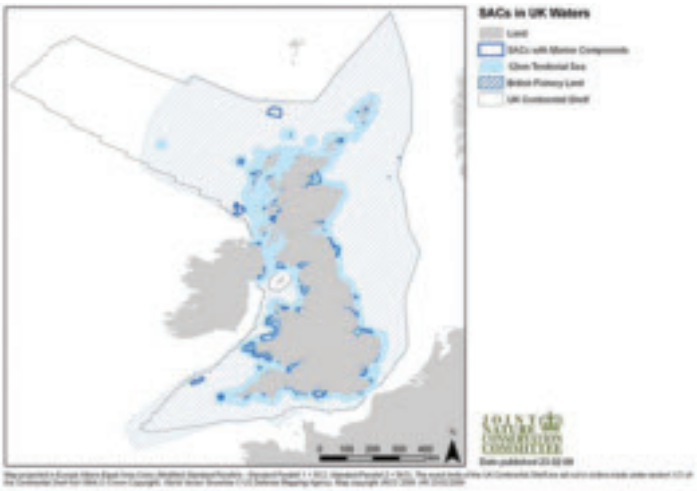
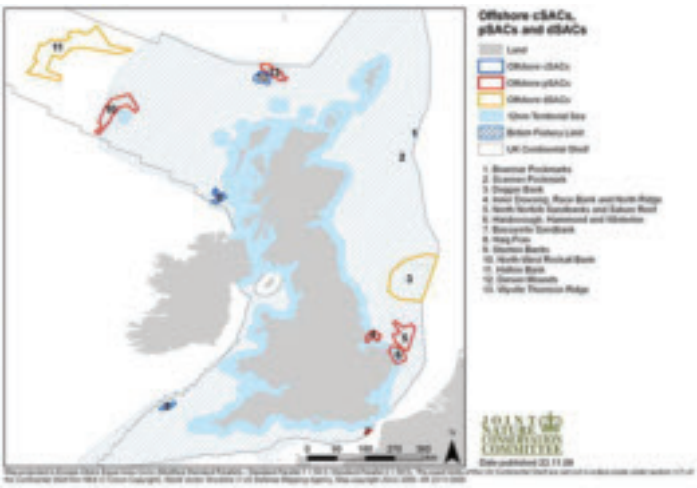


Figure 7: SACs within UK Offshore Waters



5.4.6 Marine sites have been partially considered already in this assessment with all SAC, SPA and Ramsar sites with a partial marine component included in Table 1 and shown in Figures 3 – 5 above. In addition to those listed in the table there are a further 15 SACs (either candidate, possible or draft SACs) which have been identified within UK offshore waters. These areas are designated for submarine features such as reefs, interesting fish, invertebrate and coral communities. Significant effects on these sites are unlikely given the nature of the impacts arising from hazardous waste facilities.

5.4.7 It order to mitigate as far as possible the risks to European sites presented by new infrastructure the following guidelines on the avoidance of impacts might be included within the NPS.

- New sites should wherever possible be located outside of European site boundaries;
- Buffer zones should be provided between new facilities and European sites (the size and extent of which should be dependent upon the nature of impact and the sensitivity of receptors); and
- Facilities which handle contaminants which present a high risk to the water environment should be located away from water courses and outside of aquifer and source protection zones.

Sensitivity of Receptors

5.4.8 The qualifying features of the European site and the sensitivity of such features to impacts resulting from Hazardous Waste facilities should be used to influence the proximity of new infrastructure to European sites.

Table 1 below presents a summary of analysis conducted for this HRA which examined the key habitats and qualifying features of the various different European sites within England and has grouped them, where possible to similar habitat types, and for each broad habitat type the associated hazardous waste infrastructure having a potential impact. It is assumed that the habitats which a site supports, and/or the species for which a site supports has some bearing over the sensitivity of such sites to adverse impacts associated with Hazardous Waste infrastructure. Full details of this analysis along with details of each designated site and key qualifying feature is provided in Appendix A.

Broad habitat types present on European sites	Potential impacts from typical hazardous waste infrastructure	Likely ecological effects
Terrestrial habitats		
Bogs, fens, marshes and floodplains (includes agricultural land within floodplains) Heathland, (including wet and dry heath, peatland and areas dominated by *Juniperus communis*) Grassland Woodland	**From all types of infrastructure** • Land take for the plant and for associated infrastructure	• Habitat loss & fragmentation
	• Increased dust deposition	• Can harm vegetation; bog communities dominated by bog mosses are particularly sensitive
	• Increased noise & lighting	• Increased disturbance to species such as birds and bats (where these are the European site designated feature)
	• Increased traffic movements with the potential for spillage of hazardous waste and impacts on air quality	• Increased deposition of nutrient nitrogen and acidification with effects on plant community composition. Bogs, heathlands, fens and marshes are particularly sensitive. Risk of habitat loss, either permanent or temporary as a result of spillage.
	• Increases in water abstraction or alteration to drainage regimes, including increased surface run-off	• Can affect site hydrology which in turn affects the species composition of the habitat. Bogs, fens, marshes, grasslands and wet woodland are particularly sensitive to the quantity and base status of groundwater.
	• Risk of water pollution from spillages or surface water run-off	• Deterioration of habitat either through toxicity or through eutrophication, potentially leading to loss of designated features
	From thermal desorption plants & hazardous waste landfill • Risk of leachate contaminating ground or surface water	• Deterioration of habitat either through toxicity or through eutrophication, potentially leading to loss of designated features.

Broad habitat types present on European sites	Potential impacts from typical hazardous waste infrastructure	Likely ecological effects
	From waste electrical and electronic equipment plant, oil regeneration plants, thermal desorption plants and hazardous waste landfill	
	• Air pollution from point sources, including volatile organic compounds	• Increased deposition of nutrient nitrogen and acidification with effects on plant community composition. Potential impacts on plant metabolism from volatile organic compounds.
Caves, tunnels and quarries	**From all types of infrastructure**	
	• Land take for the plant and for associated infrastructure	• Habitat loss and fragmentation for species where these are the designated European site feature.
	• Infilling or obstruction of entrances	• Habitat loss and fragmentation for species where these are the designated European site feature.
	• Increased noise and lighting	• Increased disturbance to species where these are the European site designated feature
	• Significant vibration	• Increased disturbance to species where these are the European site designated feature
Built up areas and buildings	**From all types of infrastructure**	
	• Land take for the plant and for associated infrastructure	• Loss of bat roosts (where bats are a designated European site feature)
	• Increased noise and lighting	• Increased disturbance to species where these are the European site designated feature
	• Significant vibration	• Increased disturbance to species where these are European site designated features

Aquatic and coastal habitats		
Marine habitats	**From all types of infrastructure**	
	• Pollution from accidental release of materials into waterbody e.g. oil spills or entanglement in litter	• Potential impacts on marine communities, including birds and marine mammals where these are European site designated features
	• Change of water quality and salinity	• Potential impacts on marine communities
	• Risk of water pollution from spillages or surface water run-off	• Deterioration of habitat either thro' toxicity or through eutrophication, potentially leading to loss of designated features
	• Significant vibration	• Disturbance to marine mammals
	• Increased shipping activity – vessel traffic, operational and accidental discharge	• Disturbance to marine mammals and pollution impacts on marine communities
Islands	**From all types of infrastructure**	
	• Land take for the plant and for associated infrastructure	• Habitat loss & fragmentation
	• Air pollution from point sources, including volatile organic compounds	• Nutrient enrichment of soil due to outside sources
	• Increased noise & lighting	• Disturbance where species are a designating feature
	• Changes to water quality and salinity	• Potential impact on specialised plants. Impacts on invertebrate communities that birds feed on where these are the designated features
	• Risk of water pollution from spillages or surface water run-off	• Deterioration of habitat either through toxicity or through eutrophication, potentially leading to loss of designated features

Broad habitat types present on European sites	Potential impacts from typical hazardous waste infrastructure	Likely ecological effects
Coastal habitats (Includes estuaries, bays, dunes, sea cliffs)	**From all types of infrastructure**	
	• Land take for the plant and for associated infrastructure	• Habitat loss & fragmentation
	• Increased dust deposition	• Can harm vegetation; bog communities dominated by bog mosses are particularly sensitive
	• Increased noise & lighting	• Increased disturbance to species such as birds and bats (where these are the European site designated feature)
	• Increased traffic movements with the potential for spillage of hazardous waste and impacts on air quality	• Increased deposition of nutrient nitrogen and acidification with effects on plant community composition. Risk of habitat loss, either permanent or temporary as a result of spillage.
	• Increases in water abstraction or alteration to drainage regimes, including increased surface run-off	• Can affect site hydrology which in turn affects the species composition of the habitat.
	• Risk of water pollution from spillages or surface water run-off	• Deterioration of habitat either through toxicity or through eutrophication, potentially leading to loss of designated features
	From thermal desorption plants & hazardous waste landfill	
	• Risk of leachate contaminating ground or surface water	• Deterioration of habitat either through toxicity or through eutrophication, potentially leading to loss of designated features.

Coastal habitats (Includes estuaries, bays, dunes, sea cliffs) (cont…)	**From waste electrical and electronic equipment plant, oil regeneration plants, thermal desorption plants and hazardous waste landfill**	
	• Air pollution from point sources, including volatile organic compounds	• Increased deposition of nutrient nitrogen and acidification with effects on plant community composition. Potential impacts on plant metabolism from volatile organic compounds.
Rivers	**From all types of infrastructure**	
	• Risk of water pollution from spillages, discharges or surface water run-off	• Deterioration of habitat either thro' toxicity or through eutrophication, potentially leading to loss of designated features
	• Increased abstraction	• Impacts on designated features.
	• Increased traffic movements with the potential for spillage of hazardous waste and impacts on air quality	• Increased deposition of nutrient nitrogen and acidification of river water. Risk of habitat loss, either permanent or temporary as a result of spillage.
	• Increased noise and lighting	• Increased disturbance to species where these are the European site designated feature
	From waste electrical and electronic equipment plant, oil regeneration plants, thermal desorption plants and hazardous waste landfill	
	• Air pollution from point sources, including volatile organic compounds	• Deposition of oxides of nitrogen and sulphur and ammonia leading to eutrophication and acidification of river water. Potential impacts on plant metabolism from volatile organic compounds.

Broad habitat types present on European sites	Potential impacts from typical hazardous waste infrastructure	Likely ecological effects
Lakes & ponds	**From all types of infrastructure**	
	• Land take for the plant and for associated infrastructure	• Habitat loss & fragmentation
	• Increased noise & lighting	• Increased disturbance to species such as birds and bats (where these are the European site designated feature)
	• Increased traffic movements with the potential for spillage of hazardous waste and impacts on air quality	• Increased deposition of nutrient nitrogen and acidification with effects on plant community composition. Risk of habitat loss, either permanent or temporary as a result of spillage.
	• Increases in water abstraction or alteration to drainage regimes, including increased surface run-off	• A high and stable water table is essential to the maintenance of site features.
	• Risk of water pollution from spillages or surface water run-off	• Deterioration of habitat either through toxicity or through eutrophication, potentially leading to loss of designated features
	From thermal desorption plants & hazardous waste landfill	
	• Risk of leachate contaminating ground or surface water	• Deterioration of habitat either thro' toxicity or through eutrophication, potentially leading to loss of designated features.
	From waste electrical and electronic equipment plant, oil regeneration plants, thermal desorption plants and hazardous waste landfill	
	• Air pollution from point sources, including volatile organic compounds	• Increased deposition of nutrient nitrogen and acidification with effects on plant community composition. Potential impacts on plant metabolism from volatile organic compounds.

5.4.9 As can be seen from the table, although all habitats are vulnerable to impact such as habitat loss, there are certain habitats which are more sensitive to particular adverse impacts. For example, those designated sites associated with water bodies, water courses and coastal and marine environments are likely to be particularly sensitive to water borne pollutants. Where hazardous waste infrastructure facilities have a significant risk of adverse hydrological impacts care should be taken to ensure that these are located away from European sites.

5.4.10 Almost all habitats are sensitive to nutrient, acidification and toxic pollutant deposition, although some habitats are likely to be more sensitive to these impacts than others. In heathlands and certain types of grassland an inappropriate balance in conditions can fundamentally change the species composition within the sward which may significant implications for the ecosystem.

5.4.11 There is no generic threshold at present for determining 'no adverse effect' under the Habitats Regulations – this is determined on a case-by-case basis (subject to guidance being developed). The Air Pollution Index System (APIS) provides a database of information on the impacts of different types of air pollution.

5.4.12 The consultants suggested that the NPS include details on the following measures to minimise the risks of adverse impacts on sensitive receptors within European sites.

- Details of the pollutants that will be emitted.
- List of designated sites within 10 km of the proposed development site
- Sensitivity of these sites, the appropriate environmental benchmarks (critical levels and site relevant critical loads), and current (background) nitrogen deposition levels.
- Prediction of the process contribution at the site(s), i.e. the nutrient nitrogen deposition predicted as a result of the new development, and total deposition (process contribution plus background).
- Pollution footprint map showing pollution contours relative to sensitive designated features.
- Details of the dispersion model used and assumptions made.
- Comparison of the pollution predictions against the environmental benchmarks.
- In combination assessment with other plans and projects currently proposed, or that are too new to be included in the background pollution data.
- Conclusion as to whether 'no adverse effect on site integrity' can or cannot be determined, with the supporting justification.
- However, the generic impacts text in Part 5 of the NPS is thought to be sufficient to address potential impacts on sensitive receptors within European Sites.

Locations of sensitive species and habitats within European Sites

5.4.13 It was also suggested that the NPS should identify that in the assessment of the suitability of a site consideration should be given not only to the location relative to European sites but also the location relative to the sensitive receptors within that site. European sites often cover a wide area and may be designated for a number of habitats and species. The sensitive receptors will not be uniformly distributed throughout the European site.

5.4.14 On that basis, the NPS would advise that the distribution of sensitive receptors within the European site should be considered when evaluating the sites for development. However, the generic impacts text in Part 5 of the NPS is thought to be sufficient to address potential impacts on sensitive receptors within European Sites.

Distribution of Hazardous Waste Facilities

5.4.15 The intention within the NPS is that the location of facilities will be driven by the market and therefore most likely to be associated with the source of such hazardous materials.

5.4.16 There is currently only demand for a small number of each of the types of facility described within 5.3 and as such there will be a need to transport hazardous materials to these facilities from around the country. The transportation of hazardous wastes present significant environmental pollution risks which may be as significant as the pollution risks associated with the treatment facilities themselves.

5.4.17 The NPS must balance these risks in setting requirements for the number of different types of hazardous waste facility. This is likely to be of particular relevance for those hazardous wastes which present environmental risk during transport, in particular oils and other hazardous liquids which in the case of an incident can quickly contaminate soils and water resources. There will be a direct correlation between the number of facilities and the number of vehicle movements to and from that facility. The risk of an incident would also be proportional to the number of vehicle movements. As such for certain facilities consideration should be given to a number of smaller facilities in geographically strategic locations rather than a single large treatment facility. The NPS should ensure that in defining requirements for new facilities that this environmental risk is considered and appropriately balanced.

Cumulative Impacts of Multiple Facilities

5.4.18 Although as described above, there may be an environmental benefit to providing a number of smaller facilities in order to reduce the transportation of hazardous materials around the country, this must also be balanced against the cumulative impacts of providing more than one facility and/or the cumulative impacts of various different types of hazardous waste infrastructure brought forward under the NPS.

5.4.19 Cumulative impacts of individual infrastructure projects brought forward under this NPS may avoid significant adverse effects on the integrity of a particular site, however consideration must be given to the cumulative impact that the development of the network of new hazardous waste infrastructure may have on the network of designated sites.

5.4.20 For example, several sites may be brought forward for development as a ship recycling facilities, all of which may result in some adverse effects on qualifying features of SPAs around the country albeit of unlikely significance. However the cumulative impacts of this disturbance on a particular transitory species may result in significant effects on that species despite each project in isolation not being significant.

5.4.21 Given the uncertainty surrounding the location of facilities to be brought forward under the NPS it is not possible to identify any such nationwide cumulative impacts. In order to ensure that the NPS addresses the cumulative impacts of the new infrastructure facilities being developed, applicants should be required to consider cumulative impacts of the project alongside other projects brought forward under the NPS (as well as the standard requirement to consider cumulative impacts with other local projects).

Changing Environmental Baselines and Emerging Technologies

5.4.22 It is recommended that the NPS provides guidance on how new technology should be considered in the selection of suitable sites for the development of new hazardous waste facilities. New technologies have been developing quickly in, for example, the treatment of effluents and gases and new technologies may have fewer adverse impacts. Given the timeframe over which new facilities will be developed, a shortlist of sites should not exclude those which currently result in adverse impacts on the understanding that new technologies may emerge that may allow emissions to be reduced to acceptable levels

at those sites. However, before development consent could be granted, it would need to be demonstrated in the project level HRA that requisite tests would be met.

5.4.23 Similarly, as reductions in emissions from vehicles and industrial processes are made these will reduce the baseline levels of deposition, in particular nitrogen and acid deposition. In some circumstances the gradual reduction in pollutant deposition may lead to certain locations for hazardous waste infrastructure becoming viable, where previously their operation would have led to exceedance of the critical thresholds of pollution. The NPS should ensure that trends in baseline levels of environmental pollution are considered in the selection of suitable sites for new infrastructure.

5.4.24 Improved understanding is required of the effects of deposition of acid and nitrogen and what constitutes a significant effect on European (i.e. should deposition of 5% of the critical threshold be considered significant if the baseline levels of deposition are at only 50% of the critical threshold?). As previously stated, in order to ensure ambiguity in the assessment of new facilities is avoided the consultants suggested that the NPS should clearly define the role of critical loads in determining significant impacts. However, there are already established standards for determining when significant effects on European sites are likely, so this was not considered necessary.

5.5 In Combination Effects

5.5.1 A number of plans, programmes and environmental protection objectives have been identified which are of relevance to the Hazardous Waste NPS. These are presented in within the AoS report (PB, October 2010; Section 4.3).

5.5.2 It is likely that many of these plans and programmes have, in combination with the Hazardous Waste NPS, the potential to cumulatively add to the impacts on Natura 2000 sites, whilst others may reduce impacts.

5.5.3 Given the strategic nature of this assessment and the uncertainties surrounding the timing and effects of other national level plans and projects, it is not practicable to identify all the possible plans and projects that may act 'in-combination' or to consider the specific nature of likely effects arising. However, it is possible to outline at a strategic level the broad types of effects that may arise from the implementation of other plans and projects.

5.5.4 Some of the effects (identified in Table 1) may occur as a result of the Hazardous Waste NPS alone, but may also occur or be magnified as a result of a wider range of development actions and activities arising from the implementation of other plans and projects and as such specific consideration would be required as infrastructure projects are brought forward through the NPS.

Effects	Development actions and activities
Water resources and quality	• sewage and industrial effluent discharges from new developments • abstraction to secure water supplies for planned growth (housing, industry) • flood and coastal risk management development (for example, implementation of new flood defences)
Soil and Geology	• changes in land use, in particular agricultural production
Air quality	• increase in atmospheric pollutants (for example, road, rail, airports expansion) • changes in atmospheric pollutants from power generation, in particular change in fossil fuel use • 'cleaner' technologies in industrial and domestic use
Disturbance	• construction and operation of new developments (transportation, residential, commercial, industrial) • recreational pressures including trampling from settlements expansion, improved access (for example, national coastal footpaths • infrastructure at height (chimney stacks, wind turbines)
Habitat (and species) loss and fragmentation	• direct land take (for example, road, rail, settlements, industrial) • barriers to migration (for example, tidal power, bridge construction)

5.6 Measures to Avoid Impacts and Mitigation

5.6.1 It should be noted that there are many existing policy and legislative measures which seek to ensure that adverse effects associated with new infrastructure are reduced as far as possible (and ideally to acceptable levels). The generic impacts section of the NPS (Part 5) describes impacts that may be relevant to hazardous waste infrastructure and gives details of things that should be included in the applicant's assessment and things that the IPC should take account in decision making. It also suggests the types of mitigation that may be relevant. It is not the role of the NPS to restate these existing measures and it has not been possible to identify appropriate additional detailed mitigation measures at a high level for inclusion in the NPS.

5.7 Summary

5.7.1 Due to the uncertainty surrounding the location of sites, the numbers of facilities and exact technologies to be employed at new facilities it is not possible for this assessment to conclude that there will be no significant effects upon the integrity of European sites.

5.7.2 Although each individual project brought forward under the NPS will require its own environmental assessment, and where the potential for significant effects on European sites are identified, its own HRA, it is necessary for the HRA of the NPS to consider whether there are any viable alternatives to the policy.

Section 6: Assessment of Alternatives

6.1 Introduction

6.1.1 This section summarises the assessment of alternatives to the NPS and the contents thereof in line with the requirements of Article 6(4) of the Habitats Directive. The AoS of the Hazardous Waste NPS has proposed 5 strategic alternatives to the adoption of the NPS. These five alternatives will be considered by this HRA, specifically with regard to the impacts of how the implementation of alternatives may influence the potential for impacts upon the integrity of European sites. The strategic alternatives considered were as follows:

- Hazardous Waste NPS in line with policy vs business as usual;
- Relying on a larger number of smaller facilities;
- Central planning of infrastructure;
- Government prescription on appropriate technology; and
- Identification of suitable or unsuitable locations.

6.2 Habitats Directive Requirements

6.2.1 The Habitats Directive requires that where the assessment undertaken in accordance with Article 6 (3) produces findings that are negative or uncertain, then the plan maker must consider whether there are alternative solutions for delivering the aims of the plan that better respect the integrity of the European Sites in question.

6.2.2 EC Guidance on the assessment of alternatives (EC, 2007) notes that the identification and assessment of alternatives is set out at Stage 3 of the HRA process (Article 6(4)). However, the Guidance also recognises that, in practice, the consideration of alternatives is an iterative process that is integral to the initial assessment undertaken at Article 6(3) and subsequent assessments under Article 6(4), including the determination of IROPI if required.

6.2.3 The HRA of the draft Hazardous Waste NPS has considered some of the alternatives outlined above iteratively in line with the EC Guidance. The assessment in Section 5 of this Report covered the alternatives associated with identification policies and also looked at the business as usual case and the impacts of large vs. small facilities.

6.2.4 This section summarises the assessment completed to date within Section 5 and also presents the assessment of other strategic alternatives not yet considered within the HRA.

6.2.5 The AoS has also considered in detail the alternatives to the current plan. This HRA will focus specifically on the impacts that the various alternatives may have upon European sites, and identify where particular options should be considered to reduce the risk of adverse impacts on integrity.

6.3 Need vs. Business as Usual

Need for NPS

6.3.1 This assumes that an NPS is prepared and that a need has been established for hazardous waste infrastructure that meets the requirements of the Planning Act 2008. Hazardous waste arisings have increased by 26% since 2004 and increasing use of producer responsibility schemes, changes to the list of hazardous properties in Waste Directive 2008/98/EC and forthcoming changes to the European Waste List are expected to lead to further increases. Thresholds for infrastructure where planning applications will be considered by the IPC are set out in the Act, Article 30; for hazardous waste infrastructure, this means:

- Construction of a facility in England whose main purpose is the final disposal or recovery of hazardous waste and where the facility is expected to have a capacity of more than 100,000 tonnes per year in the case of the disposal of hazardous waste by landfill or in a deep storage facility, and in any other case, more than 30,000 tonnes per year.

- Or alteration of a hazardous waste facility in England whose main purpose is the final disposal or recovery of hazardous waste and where the capacity of the facility is expected to increase by more than 100,000 tonnes per year in the case of the disposal of hazardous waste by landfill or in a deep storage facility, and the capacity is expected to increase by more than 30,000 tonnes per year for any other type of facility.

Business as Usual

6.3.2 This assumes that Government does not draft or designate an NPS for hazardous waste infrastructure. This is the business as usual scenario; hazardous waste companies would still send applications for development consent for new nationally significant infrastructure to the IPC for consideration. However, the application would be considered in the absence of a comprehensive statement of national need and specific guidance on the application of hazardous waste policy to development consents that are provided by the NPS, the IPC would have few benchmarks against which to consider the application.

6.3.3 Business as usual would include existing policy on the management of hazardous waste, which is addressed in the Strategy for Hazardous Waste Management in England issued in March 2010. Fundamental to this Strategy is a set of six high level principles for the management of hazardous waste, intended to drive the management of hazardous waste up the waste hierarchy and to more sustainable management. Four of these principles are of particular relevance to the provision of new infrastructure:

- Principle 1 – requires hazardous waste to be managed with a view to delivering the best overall environmental outcome and which would be expected to be in line with the waste hierarchy, except where life cycle analysis indicates that (exceptionally) the best overall environmental option would require a departure from that hierarchy.
- Principle 2 – looks to the market for the development of hazardous waste infrastructure which implements the hierarchy for the management of hazardous waste and meets the needs of the United Kingdom (UK) to ensure that the country as a whole is self sufficient in hazardous waste disposal, facilities are put in place for hazardous waste recovery in England, and the proximity principle is met.
- Principle 3 – requires a reduction in reliance on landfill, with landfill only being used where, overall, there is no better recovery or disposal option.
- Principle 4 – requires that hazardous waste is not mixed with different categories of hazardous waste or with other waste substances or materials.
- Principle 5 – requires that organic hazardous wastes that cannot be reused, recycled or recovered shall be subject to destruction using best available techniques, with energy recovery for all appropriate treatments. No hazardous organic waste is to be landfilled unless the requirements of the Landfill Directive are met.

6.3.4 Given that the majority of hazardous waste infrastructure is brought forward by the private sector, business as usual would not preclude the development of future infrastructure.

Impacts

6.3.5 Adopting an NPS assumes that new development will be brought forward and therefore does not contribute to minimising impacts upon European sites associated with a new hazardous waste facility. However, the NPS provides the opportunity to set out specific requirements for any new developments; although the extent to which this objective is achieved will depend on the level of detail provided in the policy. Measures are recommended within section 5 which, if included may steer new infrastructure towards an avoidance of adverse effects upon European sites.

6.3.6 The business as usual scenario as set out in the Strategy for Hazardous Waste Management in England aims as a whole to push waste up the waste hierarchy, and therefore may contribute to delivering the goals of the waste directive through encouraging recycling and re-using prior to the construction of new infrastructure. As such, this would avoid additional impacts on European sites.

6.3.7 However, assuming that infrastructure is still brought forward by private developers, the business as usual option would not set out requirements for protection or avoidance of European sites for any new development. However, given the need for any new development to comply with the relevant legislation protecting European sites the business as usual option would not necessarily result in more significant impacts upon the European site network than the policy option. As with the central planning vs. market-led approach, in terms of HRA there is no discernable difference between the two approaches and the assessment of alternatives has not demonstrated that the alternatives available will be any less damaging to European sites than the implementation of the NPS. The drivers for development of policy will be associated with the government's sustainability and environmental policies.

6.4 Relying on a larger number of smaller facilities

Small facilities

6.4.1 A small facility assumes that, for the same volume of hazardous waste requiring treatment, several smaller facilities would be constructed. Each individual facility would focus on treating a smaller volume of waste, related to more local/ regional waste arisings.

Large facilities

6.4.2 A large facility assumes that one large facility would be constructed for the same volume of hazardous waste requiring treatment. As such, this facility is likely to supply the national need in one location.

Impacts

6.4.3 All hazardous waste facilities, regardless of their size, may result in adverse effects upon European sites. These effects will vary depending upon the types of hazardous waste being treated, the particular technologies employed, where it is located and the scale of the facility.

6.4.4 During construction, impacts may occur due to disturbance and as a direct result of the landtake required for the facility. Issues of landtake could result in impacts upon European sites where such facilities are located within the boundary of, or within proximity to, European sites where the habitat feature supports the integrity of the interest features (e.g. foraging bats or birds). While the landtake for a single small facility will be less than for a large facility, the cumulative landtake associated with several small facilities may be greater than for a single large facility (to treat the same volume of waste).

6.4.5 During operation, impacts may arise due to the transportation of the waste from source to the facility, and due to emissions arising from the operational processes. Several smaller facilities are likely to result in reduced transportation distances between source and facility, which could reduce the risk of impacts during the transportation of wastes on European sites.

6.4.6 Emissions from the treatment process will depend on the type of process and the abatement techniques employed. While larger facilities are likely to have higher levels of emissions which will increase the probability of more significant impacts upon European sites, there may be less opportunity, technically and financially, to employ more stringent abatement technologies in a smaller facility. The resultant impacts on European sites will depend on the location of the facility in relation to the European sites and the sensitive qualifying features therein.

6.4.7 The NPS does not provide significant guidance on the size of new facilities. It does, however, identify those facilities that it is thought may need to be nationally significant (and so relatively large). The reliance upon a market-led approach is intended to ensure an appropriate balance between the capacity of a new facility and its location. The transportation costs associated may encourage the development of a number of smaller facilities over a single larger facility. Much will depend on the exact circumstances of the case and there is no evidence to suggest that, overall, the impacts with a larger number of smaller facilities would be any less than the impacts from fewer larger facilities. However, it is recommended that the NPS evaluates the size of facilities and includes statements to encourage the proliferation of a larger number of smaller facilities, in particular for the treatment of hazardous wastes which present significant risks during transportation.

6.5 Central Planning of Infrastructure

Central Planning Approach

6.5.1 A central planning policy is one in which the Government makes decisions regarding when and where to invest in hazardous waste infrastructure and dictates these decisions to the sector. Appropriate mitigation and compensation provisions are implemented through the planning system to counter adverse effects.

Market-led

6.5.2 The Government's policy is that a market-led approach to identifying and responding to future demand and exploiting available commercial opportunities is the most effective way of meeting the key objectives for the hazardous waste sector. However, the Government also believes that the adverse impacts of hazardous waste infrastructure development should be countered through appropriate mitigation and compensation provisions, and that these should be guaranteed through the planning system where that is the best mechanism.

Impacts

6.5.3 The central planning approach may provide an opportunity for issues relating to impacts upon European sites to be considered in a more balanced way, removing potential bias of the proposal promoter towards the economic advantages, and recognising/addressing potential impacts on European sites. However, this approach would require extensive investigation to ensure that an appropriate strategy is developed. Any such central planning strategy would need to ensure that new infrastructure not only avoids impacts to European sites, but also considers other environmental, social and economic impacts.

6.5.4 Additionally, given the requirement for a project to fulfil relevant legislative requirements, regardless of a central led or market led approach, a facility would need to be developed in accordance with the legislation relating to the protection of European sites (i.e. the Conservation of Natural Habitats and Species Regulations 2010).

6.5.5 A purely market-led approach may result in impacts upon European sites associated with new infrastructure not being sufficiently considered at the strategic policy stage. A central planning approach would provide the opportunity to minimise the impacts/optimise the benefits associated with new infrastructure – although it should be noted that this is not a requirement for HRA but instead may address other government environmental and sustainability policies. Furthermore, the incorporation of relevant environmental assessment criteria in the NPS should ensure that impacts on European sites can be given consideration at the strategic policy stage even with a market-led approach.

6.5.6 Given that there is no particular evidence that a central planning approach would be less likely to lead to impacts on European sites, there is no obvious driver (in terms of HRA) to a central planning approach.

6.6 Government Prescription on Appropriate Technologies

Prescribed Technologies

6.6.1 To reflect current policies the NPS broadly specifies the type(s) of technologies that should, for each hazardous waste stream, be employed in the development of new infrastructure.

Non Prescribed Technologies

6.6.2 Under such a policy the NPS would not make any reference to the type of technologies that could be employed in the development of new hazardous waste infrastructure. Instead it would rely upon the market to promote new facilities to meet the requirements of hazardous waste disposal.

Impacts

6.6.3 The prescriptions of technologies to be used in new facilities will ensure that the overall objectives of hazardous waste management are delivered. It may help to encourage investment in those treatment facilities which are not as lucrative as other facilities. It may also provide the opportunity to specify technology that avoids impacts upon European sites. However, the greater the level of prescription within the NPS, the less the scope there is for innovation and the use of new technologies which may reduce the adverse impacts upon European sites.

6.6.4 It is recognised however that one of the main potential impacts to European sites is actually through the transportation of waste which is not directly linked to whether the technology is prescribed or not.

6.6.5 A non-prescribed policy would mean that the technologies would be identified by the developer. Given the requirement for a project to fulfil relevant legislative requirements, it is considered that the HRA stage would ensure impacts upon European sites are minimised; however this would not necessarily mean that the most sustainable option is implemented.

6.6.6 Given the time period over which the NPS would apply, it is valid to consider that new options may come forth; the non-prescribed technologies option therefore may allow innovative and new techniques to be put forward which may make a greater contribution to reducing impacts on air quality and consequently impacts upon European sites.

6.6.7 Given that a policy of not prescribing technologies allows the use of new technologies and which might reduce impacts on European sites, there is no evidence to suggest that adopting an approach of prescribing technologies would have any less impact on European sites over the period in which the NPS will apply. However, in order to achieve a balance between innovation and ensuring that this objective is met, the NPS could consider proposing technologies where known and appropriate, in particular where they have particularly high environmental performance rating, whilst also allowing a more market-led approach where such an approach would result in an equal or more sustainable solution than technologies identified by Government.

6.7 Identification of Suitable or Unsuitable Locations

Not Identifying Suitable Sites

6.7.1 The intended policy is one of not identifying suitable locations as the Government believes that industry is best placed to make decisions about where to invest in hazardous waste infrastructure.

Identifying Suitable Sites

6.7.2 The policy alternative would be a policy that the Government should play a direct role in determining the location of hazardous waste infrastructure. This could take a variety of different forms: the state determining exactly where

development should take place; the state ruling out certain areas; or the state singling out certain areas for development but allowing the private sector to determine whether or not they are viable.

Impacts

6.7.3 The policy of Government not identifying sites relies upon the market to propose appropriate sites for development. This will be primarily economically led and given the costs associated with development upon environmentally constrained sites is likely to lead to the avoidance of sites where particular adverse impacts are identified. New sites will also need to fulfil legislative requirements associated with EIA and HRA and therefore would necessarily avoid significant adverse impacts. The impacts on European sites would however only be considered in detail at a relatively advanced stage in project development by EIA and HRA. Therefore should unavoidable significant adverse effects on a European site be identified at this stage it may not be commercially viable to consider alternative sites or alternative construction methods and technologies.

6.7.4 Overall, such an approach is unlikely to result in differing impacts on European sites as compared to such constraints being considered at the specific proposal assessment level. Indeed, regardless of whether a location is determined at this stage or not, this would not negate the need for environmental assessment (and HRA) at the project stage. However, an approach of not identifying locations does not allow for early consideration if impacts that could result in a more strategic approach to the protection of European sites. Should the NPS adopt an approach of not identifying locations it would not include many of the measures identified in Section 5 which seek to reduce the risks that European sites will be subject to significant adverse effects. Although such mitigation measures are not considered to be absolutely necessary as it may be assumed that at a project level current legislative controls are adequate to ensure adverse effects are avoided, the government should aim to ensure that opportunities to reduce the potential adverse impacts associated with the NPS are adopted where possible.

6.7.5 A policy of identifying exact locations of new infrastructure, will result in the assessment of the potential environmental constraints associated with future hazardous waste infrastructure at a strategic level, and thus result in a policy that sets out locational options which avoid adverse effects on European sites. Any forthcoming proposals would then, from the outset, be planned to avoid locations that could result in significant adverse effects on European sites. The conclusions of the HRA of the NPS would then be that significant effects are avoided, and hence it would not be necessary to demonstrate IROPI or design mitigation measures. This approach would also ensure only minimal investment in HRA at a project level would be required and would also help to ensure that new applications are not rejected on ecological grounds.

6.7.6 Considerable assessment would be required to identify suitable sites. Should the assessment focus exclusively upon avoidance of impacts upon European sites, this would be likely to rule out locations for infrastructure which meet other requirements (such as proximity to hazardous waste arisings). Accordingly defining an appropriate shortlist of sites is to deliver a policy of identifying sites is unlikely to be any more effective at avoiding effects to European sites than a policy of not identifying sites. It should be noted that this approach would not negate the need for project-level environmental assessment.

6.7.7 The mitigation measures identified effectively promote a policy of partially identifying sites, whereby criteria which should be used within the selection of appropriate sites for development are included within the NPS. These would help both to reduce the risk to European sites and help to streamline the site selection process.

6.7.8 Based upon the assumption that to identify specific sites would require considerable time and investment and thus not be appropriate, and that a policy of not identifying sites would in no way attempt to limit the impacts upon European sites a policy of partially identifying sites may be viewed as the most appropriate environmental option to limit the risk European sites.

6.7.9 Defra concludes that there are no reasonable alternatives to the policies set out in the draft National Policy Statement for Hazardous Waste at plan level which are less damaging to the network of European sites.

Section 7:
IROPI and Compensatory Measures

7.1 Overview

7.1.1 This section outlines the Government's IROPI, including the consideration of alternatives such as the zero alternative of not having a plan, for why the plan should proceed given the findings of the HRA presented above. This section also sets out a strategic framework for compensation measures in accordance with the provisions of Article 6(4) of the Habitats Directive.

7.2 Habitats Directive Requirements

7.2.1 In the absence of alternative solutions and where adverse effects on European Sites remain, or cannot be ruled out, it is necessary to establish IROPI for why the plan should proceed (Habitats Directive, Article 6(4)). Where European Sites host priority habitats and species it is necessary to consider whether or not there are human health or public safety considerations or benefits which are of primary importance to the environment flowing from the plan. If IROPI cannot be demonstrated for these criteria then wider socio-economic criteria must be demonstrated and an opinion sought from the European Commission. Compensatory measures that maintain the coherence of the Natura 2000 network must also be identified and established.

7.2.2 This strategic level appropriate assessment has concluded that in the absence of specific details of the location of new hazardous waste infrastructure and details of the emissions and impacts of the new infrastructure the potential for adverse effects cannot be ruled out, although recommendations have been made to mitigate the likely adverse effects of the proposals. An assessment has been made of the alternative solutions that exist to the implementation of the policy at plan level. This assessment has concluded that there is no reasonable alternative to providing the policy at plan level. Alternatives assessed do not have any less effect on Natura 2000 sites than the chosen option. In the absence of suitable alternative solutions, or in the presence of solutions potentially having more negative consequences on the European site(s) concerned, Defra has examined the existence of IROPI to justify adopting the policy.

7.3 Imperative Reasons of Overriding Public Interest (IROPI)

7.3.1 Defra considered the need for new hazardous waste infrastructure within the NPS. Clear environmental, human health, economic and legal reasoning underpin the NPS.

7.3.2 The NPS has been prepared due to requirements set out in the Planning Act 2008 to address hazardous waste infrastructure. This in part is in response to the need to apply the waste hierarchy as set out within the Waste Directive. The requirements to apply a Directive would not constitute an IROPI case, however the environmental objectives behind the waste hierarchy, i.e. a more sustainable approach to resource management, have social and environmental benefits.

7.3.3 Hazardous wastes pose an inherent threat to human health and the environment. It is essential that these materials are handled in a manner that minimises this risk to human health and to the environment. Given this and the trends which are identified within the NPS of rising amounts of hazardous waste being generated, along with current drivers (economic, social and environmental) to move the management of hazardous waste up the waste hierarchy and minimise wastes being disposed of within landfill, the need for treatment facilities is clear.

7.3.4 It is not possible to rule out adverse effects on the integrity of the network of European sites as a result of the Hazardous Waste NPS. However, the alternative approaches considered would not have any less potential for adverse impacts.

7.3.5 The Government is therefore satisfied that there are IROPI that relate to human health and public safety in the preparation of the NPS and further believes that, on the basis of the preceding

evidence and arguments which demonstrated the need for the NPS, that the infrastructure and directions provided within the policy are appropriate. The environmental controls in place within current planning and permitting legislation will ensure that wherever possible sites will minimise adverse effects on Natura 2000 sites.

7.3.6 This case of Imperative Reasons of Overriding Public Interest applies only at the plan level i.e. to the National Policy Statement. Separate assessments will need to be carried out at the level of the individual projects. If, at the project level, adverse impacts are confirmed in respect of development on a European site listed sites, then the developer and decision taker will be required to follow the requirements set out by the Habitats Directive, including, if necessary, the development and implementation of compensatory measures in line with the strategic measures set out below.

7.4 Compensatory Measures

7.4.1 Article 6(4) of the Habitats Directive requires that where, in spite of a negative assessment on European site(s) integrity, the competent authority proceeds with the plan on the basis of IROPI, any necessary compensatory measures are taken to ensure that the overall coherence of the Natura 2000 network is protected.

7.4.2 The aim of compensation in HRA is to offset the damage caused by the plan in implementation and to ensure that the overall coherence of the Natura 2000 network is maintained. Compensation measures, which are distinct and separate from any mitigation measures proposed, may take the form of habitat restoration, the creation of new habitat or the enhancement of remaining habitat proportional to that which is lost due to the plan. These compensation measures must provide the same ecological function as close as possible to those lost or damaged by the implementation of the plan.

7.4.3 Compensation measures must address the specific habitats and species affected within the biogeographical region concerned. The measures must be operational at the time when the damage is effective and be supported by financial, legal and monitoring measures that ensure their delivery.

7.4.4 In line with European Commission guidance the HRA of this NPS and the IROPI case presented, should take account of the potential need for compensation measures in the event that strategic level conclusions of adverse effects are confirmed at subsequent project level assessments.

7.4.5 Given the strategic nature of this HRA and the inherent uncertainties of its conclusions it is possible, and indeed likely that as the plan is implemented the project level assessments will draw different conclusions. As such, at this stage it is not possible to state with any precision the requirements for compensatory measures that might be required for particular projects.

7.4.6 This section of the HRA provides a broad framework for compensation measures that might be required at the project level. The measures described below may be guide the IPC in their assessment of the relevance of the proposals.

7.4.7 All project level HRAs must take account of the effects identified by this strategic level HRA. Where project level assessments identify that compensation is required it must meet the following criteria:

- Appropriate for the area and the loss caused by the project;
- Capable of protecting the overall coherence of the network of European sites;
- Capable of implementation;
- Ensure that, as a general principle, the European site is not irreversibly affected by the project before the compensation is indeed in place;
- Directed in measurable proportions to the habitats and species negatively affected;

- Related to the same biogeographical region (within the UK) and should be as close as possible to the habitat that has been negatively affected;
- Serving functions that are comparable to those that motivated the original area's submission for designation; and
- Clearly defined, with implementation goals and managed so that the compensatory measures can achieve the goal of maintaining the overall coherence of European site(s).

7.4.8 Actual compensation measures can only be effectively determined at a project level stage through the findings of detailed, site specific Appropriate Assessments focused on the requirements of the Habitats Directive to ensure the ecological functionality of individual designated sites. Given the diversity of Natura 2000 and Ramsar sites within England it is not considered appropriate to provide any examples of possible compensatory measures.

Section 8: Appropriate Assessment of Projects Brought Forward Under the NPS

8.1.1 Under the Habitats Directive and Habitats Regulation any application where an adverse effect on protected sites or species cannot be excluded, will be subject to assessment under the directive, i.e. they will require Appropriate Assessment.

8.1.2 The assessment of the Hazardous Waste NPS does not in any way reduce the scope of project level Appropriate Assessments required in the case of an individual development application. Where initial screening undertaken indicates significant adverse effects on integrity or cannot exclude the possibility of significant adverse effects a full Appropriate Assessment would be required which meets the requirements of the Habitats Regulations. In accordance with the NPS, it will be for the competent authority (for NSIPs, the IPC) to apply in full the key tests as stipulated by the Habitats Directive.

8.1.3 The IPC may consider relevant information presented within this HRA when considering each individual project, in particular when considering evidence for alternatives and potentially IROPI. However, importantly the information within this assessment cannot and should not be used in lieu of a full assessment.

8.1.4 It should be noted that at a project level the assumption that the possibility of adverse effects cannot be excluded, due to a lack of information (and thus consideration of alternatives and IROPI is required) will rarely, if ever be appropriate. With the location and impacts of the proposed infrastructure well understood the project level HRA will be required to present information necessary to reach a definitive conclusion. Where projects conclude that adverse impacts cannot be avoided the individual project will need to present an assessment of alternatives and set out an IROPI case. This may draw upon information presented within this HRA but must present additional information as appropriate.

Appendices
Appendix A

9.1.1 A review of the 650+ Natura 2000 and Ramsar sites was undertaken for the assessment. The key habitats which form either the qualifying features of the site or the principal habitat within the area, along with the species for which the site has been designated are described in the table below. This assessment groups the sites into one of 11 key habitat types.

9.1.2 Although this assessment is simplistic and groups sites designated for a variety of rare habitats and species

9.1.3 It is recognised that designations for some of the sites are based predominantly on species rather than habitats, and this approach does not always allow the best representation of their main habitats. This is particularly true for bats where the main habitat present on the site is woodland yet the interest for bats in some sites is predominantly in caves. This assessment has given due consideration to specific species interests.

9.1.4 The key site sensitivities for each habitat type were then established by reviewing information provided within the Conservation Objectives for each site and identifying the main sensitivities / vulnerabilities for each habitat or species. The key sensitivities of the habitat types associated with each group of Natura 2000 and Ramsar sites are detailed in the table below. Where sites are primarily designated for their faunal interest, they have been included in the category which best represents the habitat type used by the species in question, but it is recognised that these species will also utilise other habitat types.

Broad Habitat Type	SAC/SPA/Ramsar designated sites	Associated fauna of interest (as primary or secondary reason for designation)	List of key sensitivities
Marine habitats	Flamborough Head SAC	Grey seal	• Pollution from accidental release of materials into waterbody; • Change of water quality and salinity; • Disturbance where species are a designating feature; • Water quality • Pollution (e.g. pollutant burdens, oil spills, entanglement in litter) • Fisheries activities e.g. dredging & trawling • Shipping – vessel traffic, operational and accidental discharge • Water abstraction • Recreational activities causing disturbance (e.g. boating, surfing, wildfowling, eco-tourism, bait collection) • Development pressure – oil & gas exploration, dock/ harbour • development, renewable energy projects • Military activities
	Haisborough Hammond and Winterton cSAC	Not applicable	
	Inner Dowsing, Race Bank and North Ridge cSAC	Not applicable	
	Land's End and Cape Bank	Not applicable	
	Liverpool Bay	Red-throated divers Common scoter Internationally important assemblage of birds	
	Lizard Point	Not applicable	
	Lundy SAC	Marine mammals	
	Lune Deep pSAC	Not applicable	
	Lyme Bay and Torbay cSAC	Not applicable	
	Margate and Long Sands cSAC	Not applicable	
	Outer Thames Estuary	Red-throated diver	

Broad Habitat Type	SAC/SPA/Ramsar designated sites	Associated fauna of interest (as primary or secondary reason for designation)	List of key sensitivities
	Prawle Point to Plymouth Sound and Eddystone cSAC	Not applicable	
	Prawle Point to Start Point pSAC	Not applicable	
	Shell Flat cSAC	Not applicable	
	South Wight Maritime SAC	Plant species	
	Thanet Coast SAC	None reported	
Islands	Coquet Island SPA	Birds	• Habitat loss ; • Nutrient enrichment of soil due to outside sources; • Change of water quality and salinity; • Disturbance where species are a designating feature; • Maintenance of appropriate management regime.
	Farne Islands SPA	Birds	
	Isles of Scilly Complex SAC	Marine mammals, plant species	
	Isles of Scilly SPA	Birds	
	Isles of Scilly Ramsar site	Birds	
	Isle of Wight Downs SAC	None reported	

Coastal habitats (Includes estuaries, bays, dunes, sea cliffs)	Alde, Ore and Butley Estuaries SAC	Marine species	• Habitat loss and fragmentation; • Nutrient enrichment through atmospheric deposition; • Dust deposition; • Pollution from accidental release of materials into waterbody; • Change of water quality and salinity; • Water quality – pollution • Recreational/tourism disturbance • Development eg dock/harbour creation, coastal defence • works • Erosion • Siltation • Dredging • Over-fishing • Maintenance of appropriate grazing regime • Spread of non-native species • Disturbance to bird feeding and roosting habitat (noise / visual)
	Alde–Ore Estuary SPA	Invertebrates, birds	
	Alde–Ore Estuary Ramsar site	Invertebrates, birds	
	Beast Cliff – Whitby (Robin Hood`s Bay) SAC	Plant species	
	Benacre to Easton Bavents Lagoons SAC	None reported	
	Benfleet and Southend Marshes SPA	Invertebrates, birds, GCN	
	Benfleet and Southend Marshes Ramsar site	Invertebrates, birds, GCN	
	Blackwater Estuary (Mid-Essex Coast Phase 4) SPA	Invertebrates birds	
	Blackwater Estuary (Mid-Essex Coast Phase 4) Ramsar site	Invertebrates birds	
	Blackstone Point SAC	Plant species	
	Braunton Burrows SAC	Plant species	

Broad Habitat Type	SAC/SPA/Ramsar designated sites	Associated fauna of interest (as primary or secondary reason for designation)	List of key sensitivities
Coastal habitats (Includes estuaries, bays, dunes, sea cliffs) (cont…)	Breydon Water SPA	Birds	
	Breydon Water Ramsar site	Birds	
	Chesil and the Fleet SAC	None reported	
	Chesil Beach and The Fleet SPA	Invertebrates, fish, birds	
	Chesil Beach and The Fleet Ramsar site	Invertebrates, fish, birds	
	Chichester and Langstone Harbours SPA	Invertebrates, birds	
	Chichester and Langstone Harbours Ramsar site	Invertebrates, birds	
	Colne Estuary (Mid-Essex Coast Phase 2) SPA	Invertebrates, birds	
	Colne Estuary (Mid-Essex Coast Phase 2) Ramsar site	Invertebrates, birds	
	Crouch and Roach Estuaries (Mid-Essex Coast Phase 3) SPA	Invertebrates, birds	

Coastal habitats (Includes estuaries, bays, dunes, sea cliffs) (cont…)	Crouch and Roach Estuaries (Mid-Essex Coast Phase 3) Ramsar site	Invertebrates, birds	
	Dawlish Warren SAC	Plant species	
	Deben Estuary SPA	Invertebrates, birds	
	Deben Estuary Ramsar site	Invertebrates, birds	
	Dengie (Mid-Essex Coast Phase 1) SPA	Invertebrates, birds	
	Dengie (Mid-Essex Coast Phase 1) Ramsar site	Invertebrates, birds	
	Dover to Kingsdown Cliffs SAC	None reported	
	Drigg Coast SAC	GCN	
	Duddon Estuary SPA	Birds, invertebrates, otters, natterjack toads	
	Duddon Estuary Ramsar site	Invertebrates, birds, otters, natterjack toads	
	Dungeness SAC	GCN	
	Dungeness to Pett Level SPA	Invertebrates, birds	
	Durham Coast SAC	None reported	
	Essex Estuaries SAC	Common seal, fish	
	Exe Estuary SPA	Invertebrates, birds	

Broad Habitat Type	SAC/SPA/Ramsar designated sites	Associated fauna of interest (as primary or secondary reason for designation)	List of key sensitivities
Coastal habitats (Includes estuaries, bays, dunes, sea cliffs) (cont…)	Exe Estuary Ramsar site	Invertebrates, birds	
	Fal and Helford SAC	Otter, fish, marine mammals	
	Flamborough Head and Bempton Cliffs SPA	Birds	
	Foulness (Mid-Essex Coast Phase 5) SPA	Invertebrates, birds	
	Foulness (Mid-Essex Coast Phase 5) Ramsar site	Invertebrates, birds	
	Gibraltar Point SPA	Invertebrates, birds, natterjack toads	
	Gibraltar Point Ramsar site	Invertebrates, birds, natterjack toads	
	Great Yarmouth North Denes SPA	Birds	
	Hamford Water SPA	Birds	
	Hamford Water Ramsar site	Birds	
	Hastings Cliffs SAC	None reported	
	Humber Estuary SAC	Fish, marine mammals	
	Humber Estuary SPA	Birds	

Coastal habitats (Includes estuaries, bays, dunes, sea cliffs) (cont…)	Humber Estuary Ramsar site	Birds	
	Isle of Portland to Studland Cliffs SAC	GCN, plant species	
	Lindisfarne SPA	Birds	
	Lindisfarne Ramsar site	Birds	
	Medway Estuary and Marshes SPA	Invertebrates, birds	
	Medway Estuary and Marshes Ramsar site	Invertebrates, birds	
	Mersey Estuary SPA	Birds	
	Mersey Estuary Ramsar site	Birds	
	Minsmere–Walberswick SPA	Invertebrates, birds	
	Minsmere–Walberswick Ramsar site	Invertebrates, birds	
	Morecambe Bay SAC	Fish, marine mammals, GCN	
	Morecambe Bay SPA	Birds	
	Morecambe Bay Ramsar site	Birds	
	North Norfolk Coast SAC	Otter, GCN, plant species	
	North Norfolk Coast SPA	Invertebrates, birds, harbour seal, natterjack toads	

Broad Habitat Type	SAC/SPA/Ramsar designated sites	Associated fauna of interest (as primary or secondary reason for designation)	List of key sensitivities
Coastal habitats (Includes estuaries, bays, dunes, sea cliffs) (cont…)	North Norfolk Coast Ramsar site	Invertebrates, birds, harbour seal, natterjack toads	
	North Northumberland Dunes SAC	Plant species	
	Northumbria Coast SPA	Birds	
	Northumbria Coast Ramsar site	Birds	
	Orfordness – Shingle Street SAC	None reported	
	Overstrand Cliffs SAC	None reported	
	Pagham Harbour SPA	Invertebrates, birds	
	Pagham Harbour Ramsar site	Invertebrates, birds	
	Pasturefields Salt Marsh SAC	None reported	
	Penhale Dunes SAC	Plant species	
	Plymouth Sound and Estuaries SAC	Marine mammals, otter, plant species	
	Poole Harbour SPA	Invertebrates, birds	

Coastal habitats (Includes estuaries, bays, dunes, sea cliffs) (cont…)	Poole Harbour Ramsar site	Invertebrates, birds	
	Polruan to Polperro SAC	Plant species	
	Portsmouth Harbour SPA	Invertebrates, birds	
	Portsmouth Harbour Ramsar site	Invertebrates, birds	
	Ribble and Alt Estuaries SPA	Invertebrates, birds, natterjack toads	
	Ribble and Alt Estuaries Ramsar site	Invertebrates, birds, natterjack toads	
	Saltfleetby–Theddlethorpe Dunes and Gibraltar Point SAC	GCN	
	Sandwich Bay SAC	GCN	
	Sefton Coast SAC	GCN, plant species	
	Sidmouth to West Bay SAC	Bats, plant species	
	Solent and Isle of Wight Lagoons SAC	None reported	
	Solent Maritime SAC	Marine mammals, otter, invertebrates	
	Solent and Southampton Water SPA	Invertebrates, birds	

Broad Habitat Type	SAC/SPA/Ramsar designated sites	Associated fauna of interest (as primary or secondary reason for designation)	List of key sensitivities
Coastal habitats (Includes estuaries, bays, dunes, sea cliffs) (cont…)	Solent and Southampton Water Ramsar site	Invertebrates, birds	
	Stour and Orwell Estuaries SPA	Invertebrates, birds	
	Stour and Orwell Estuaries Ramsar site	Invertebrates, birds	
	South Devon Shore Dock SAC	Plant species	
	Tamar Estuaries Complex SPA	Birds	
	Teesmouth and Cleveland Coast SPA	Invertebrates, birds	
	Teesmouth and Cleveland Coast Ramsar site	Invertebrates, birds	
	Thames Estuary and Marshes SPA	Invertebrates, birds	
	Thames Estuary and Marshes Ramsar site	Invertebrates, birds	
	Thanet Coast and Sandwich Bay SPA	Invertebrates, birds, sand lizard	
	Thanet Coast and Sandwich Bay Ramsar site	Invertebrates, birds, sand lizard	

Coastal habitats (Includes estuaries, bays, dunes, sea cliffs) (cont…)	The Swale SPA	Invertebrates, birds	
	The Swale Ramsar site	Invertebrates, birds	
	The Wash SPA	Invertebrates, birds, harbour seal, fish, shelfish	
	The Wash Ramsar site	Invertebrates, birds, harbour seal, fish, shelfish	
	The Wash and North Norfolk Coast SAC	Marine mammals, otter	
	Tintagel–Marsland–Clovelly Coast SAC	Marine mammals, otter, bats, plant species	
	Tweed Estuary SAC	Otter, fish	
	Winterton – Horsey Dunes SAC	GCN	
Rivers	Avon Valley SPA	Invertebrates, otters, water voles	• Water quality – pollution through agricultural run-off and sewage outputs is a problem. In rural areas, contamination by synthetic pyrethroid sheep dip and silage effluent are a particular threat. • Flow (flow regime should be characteristic of the river). • Abstraction should be regulated. • Suspended sediments/siltation – through intensification of agricultural practices and other disturbance eg soil degradation around stock feeding points;
	Avon Valley Ramsar site	Invertebrates, otters, water voles	
	Broadland SPA	Invertebrates, otters	
	Broadland Ramsar site	Invertebrates, otters	
	Ensor`s Pool SAC	White clawed crayfish (WCC)	

Broad Habitat Type	SAC/SPA/Ramsar designated sites	Associated fauna of interest (as primary or secondary reason for designation)	List of key sensitivities
Rivers (cont…)	River Avon SAC	Fish, invertebrate, otter	• Inappropriate dredging; • Recreational pressure and disturbance – can lead to disturbance, damage and increases in suspended sediment eg footpath erosion, water-based activities; • Atmospheric pollution – deposition of oxides of nitrogen & sulphur, acidification of river water (deposition of nitrogen & ammonia); • Climate change – change in rainfall patterns and transpiration rates, inc temp – more algal blooms, reduced summer flow, inc high rainfall – more erosive runoff and sedimentation; • Illegal fish poaching; • Spread of introduced non-native species; • Artificial barriers to fish migration
	River Axe SAC	Fish	
	River Camel SAC	Fish, invertebrate, otter, bats	
	River Clun SAC	Fish, invertebrate, otter	
	River Derwent SAC	Fish, invertebrate, otter	
	River Derwent and Bassenthwaite Lake SAC	Fish, invertebrate, otter	
	River Eden SAC	Fish, invertebrate, otter	
	River Ehen SAC	Fish, invertebrate	
	River Itchen SAC	Fish, invertebrate, otter	
	River Kent SAC	Fish, invertebrate	
	River Lambourn SAC	Fish	
	River Mease SAC	Fish, invertebrate, otter	
	River Wensum SAC	Fish, invertebrate	

Lakes and ponds	Abberton Reservoir SPA	Birds	• Pollution from sedimentation release; • Disturbance where species are a designating feature; • Water quality – eutrophication is a threat, particularly from point source pollution (e.g. sewage outfalls) but also from surface run-off or groundwater pollution and atmospheric deposition; • Water levels – a high and stable water table is fundamental; • Siltation (eg excessive poaching of lake margins by stock, suspended sediments leading to transport of nutrients); • Scrub or tree encroachment (leading to shading, nutrient and hydrological effects); • Maintenance of appropriate grazing regime; • Spread of introduced non-native species; • Recreational pressure / disturbance (particularly on-water activities with potential to disturb sediment and increase turbidity in lakes); • Development pressure; • Diffuse air pollution.
	Abberton Reservoir Ramsar site	Birds	
	Cannock Extension Canal SAC	Plant species	
	Chew Valley Lake SPA	Birds	
	Denby Grange Colliery Ponds SAC	Great crested newts (GCN)	
	Dew`s Ponds SAC	GCN	
	Esthwaite Water Ramsar site	Invertebrates	
	Fens Pools SAC	GCN	
	Holburn Lake and Moss SPA	Birds	
	Holburn Lake and Moss Ramsar site	Birds	
	Hornsea Mere SPA	Invertebrates, birds	
	Lee Valley SPA	Invertebrates, birds	
	Lee Valley Ramsar site	Invertebrates, birds	
	Lyppard Grange Ponds SAC	GCN	
	Midland Meres and Mosses Phase 1 Ramsar site	Invertebrates	

Broad Habitat Type	SAC/SPA/Ramsar designated sites	Associated fauna of interest (as primary or secondary reason for designation)	List of key sensitivities
Lakes and ponds (cont…)	Oak Mere SAC	None reported	
	Orton Pit SAC	GCN	
	Rixton Clay Pits SAC	GCN	
	Rochdale Canal SAC	Plant species	
	Roman Wall Loughs SAC	None reported	
	Rostherne Mere Ramsar site	None reported	
	Rutland Water SPA	Birds	
	Rutland Water Ramsar site	Birds	
	South West London Waterbodies SPA	Birds	
	South West London Waterbodies Ramsar site	Birds	
	Wast Water SAC	None reported	

Bogs, fens, marshes and floodplains (includes agricultural land within floodplains)	Arun Valley SPA	Invertebrates, birds	• Habitat loss and fragmentation; • Disturbance where species are a designating feature; • Water level – vulnerable to inappropriate drainage (eg ditches) and abstraction; • Water quality – affected by point source pollution, diffuse runoff from surrounding land and by atmospheric inputs; • Atmospheric deposition (nutrient deposition and acidification); • Maintenance of appropriate grazing regime; • Spread of non-native species; • Scrub encroachment (e.g. due to lack of grazing); • Successional change; • Peat extraction; • Recreational pressure and disturbance (trampling, off-road vehicle use);
	Arun Valley Ramsar site	Invertebrates, birds	
	Baston Fen SAC	Fish	
	Benacre to Easton Bavents SPA	Invertebrates, birds	
	Bolton Fell Moss cSAC	None reported	
	Border Mires, Kielder – Butterburn SAC	None reported	
	Brown Moss SAC	Plant species	
	Chippenham Fen Ramsar site	Invertebrates, birds	
	Cothill Fen SAC	Invertebrates	
	Crowdy Marsh SAC	None reported	
	Dartmoor SAC	Invertebrates, fish, otters	
	Dersingham Bog Ramsar site	Invertebrates, birds	
	Duddon Mosses SAC	None reported	
	Emer Bog SAC	None reported	
	Fen Bog SAC	None reported	
	Fenland SAC	GCN, fish	

Broad Habitat Type	SAC/SPA/Ramsar designated sites	Associated fauna of interest (as primary or secondary reason for designation)	List of key sensitivities
Bogs, fens, marshes and floodplains (includes agricultural land within floodplains) (cont…)	Ford Moss SAC	None reported	
	Holme Moor and Clean Moor SAC	None reported	
	Irthinghead Mires Ramsar site	Invertebrates	
	Kennet and Lambourn Floodplain SAC	Invertebrates	
	Leighton Moss SPA	Invertebrates, birds, otters	
	Leighton Moss Ramsar site	Invertebrates, birds, otters	
	Malham Tarn Ramsar site	Invertebrates (incl WCC), fish	
	Manchester Mosses	None reported	
	Marazion Marsh SPA	Invertebrates, birds	
	Martin Mere SPA	Birds	
	Martin Mere Ramsar site	Birds	
	Moor House – Upper Teesdale SAC	Invertebrates, fish, otters	
	Nene Washes SAC	Fish	

Bogs, fens, marshes and floodplains (includes agricultural land within floodplains) (cont…)	Nene Washes SPA	Invertebrates, birds	
	Nene Washes Ramsar site	Invertebrates, birds	
	Newham Fen SAC	None reported	
	Ouse Washes SAC	Fish, otters	
	Ouse Washes SPA	Invertebrates, birds, fish	
	Ouse Washes Ramsar site	Invertebrates, birds, fish	
	Redgrave and South Lopham Fens Ramsar site	Invertebrates (incl. raft spider)	
	Roudsea Wood and Mosses SAC	None reported	
	Somerset Levels and Moors SPA	Invertebrates, birds	
	Somerset Levels and Moors Ramsar site	Invertebrates, birds	
	South Pennine Moors SAC	None reported	
	South Pennine Moors Phase 2 SPA	Birds	
	South Solway Mosses SAC	Otter	
	Stodmarsh SAC	Invertebrates	
	Stodmarsh SPA	Invertebrates, birds	

Broad Habitat Type	SAC/SPA/Ramsar designated sites	Associated fauna of interest (as primary or secondary reason for designation)	List of key sensitivities
Bogs, fens, marshes and floodplains (includes agricultural land within floodplains) (cont…)	Stodmarsh Ramsar site	Invertebrates, birds	
	Subberthwaite, Blawith and Torver Low Commons SAC	None reported	
	Tarn Moss SAC	None reported	
	The New Forest Ramsar site	Invertebrates, fish, GCN	
	Thorne Moor SAC	None reported	
	Thursley and Ockley Bog Ramsar site	All 6 reptile species	
	Walmore Common Ramsar site	Birds	
	Walton Moss SAC	None reported	
	Waveney and Little Ouse Valley Fens SAC	Invertebrates	
	West Midlands Mosses SAC	None reported	
	Wicken Fen Ramsar site	Birds	
	Witherslack Mosses SAC	None reported	
	Woodwalton Fen Ramsar site	Invertebrates, birds	

Grassland	Barnack Hills and Holes SAC	None reported	• Habitat loss and fragmentation; • Maintenance of appropriate grazing regime; • Water level – maintenance of hydrological regime (grassland communities are strongly influenced by the quantity and base status of the groundwater); • Water quality – nutrient enrichment from fertiliser run-off etc; • Scrub encroachment (often due to undergrazing); • Maintenance of shelter belts for marsh fritillary; • Development pressure; • Appropriate burning regime; • Spread of introduced non-native species; • Human disturbance (off-road vehicles, burning (vandalism)); • Disturbance where species are a designating feature • Atmospheric pollution eg nitrous oxides, dust deposition; • Military activities.
	Bath and Bradford-on-Avon Bats SAC	Bats	
	Bee`s Nest and Green Clay Pits SAC	GCN	
	Breckland SAC	GCN, bats	
	Bredon Hill SAC	Invertebrates	
	Butser Hill SAC	None reported	
	Castle Hill SAC	Plant species	
	Cerne and Sydling Downs SAC	Invertebrates (incl. marsh fritillary butterfly)	
	Craven Limestone Complex SAC	Plant species, fish and WCC	
	Culm Grasslands SAC	Invertebrates (incl. marsh fritillary butterfly), otter	
	Cumbrian Marsh Fritillary Site SAC	Invertebrates (incl. marsh fritillary butterfly)	
	Devil`s Dyke SAC	None reported	
	Eller`s Wood and Sand Dale SAC	Invertebrates	
	Folkestone to Etchinghill Escarpment SAC	GCN	
	Fontmell and Melbury Downs SAC	Invertebrates (incl. marsh fritillary butterfly), plant species	

Broad Habitat Type	SAC/SPA/Ramsar designated sites	Associated fauna of interest (as primary or secondary reason for designation)	List of key sensitivities
Grassland (cont…)	Gang Mine SAC	None reported	
	Grimsthorpe SAC	Plant species	
	Hackpen Hill SAC	Plant species	
	Holnest SAC	GCN	
	Ingleborough Complex SAC	None reported	
	Kirk Deighton SAC	GCN	
	Lewes Downs SAC	None reported	
	Lower Derwent Valley SAC	Otter	
	Lower Derwent Valley SPA	Invertebrates	
	Lower Derwent Valley Ramsar site	Invertebrates	
	Lydden and Temple Ewell Downs SAC	Plant species	
	Mendip Limestone Grasslands SAC	Bats	
	Morecambe Bay Pavements SAC	Invertebrates	
	Mottey Meadows SAC	None reported	

Grassland (cont…)	North Meadow and Clattinger Farm SAC	None reported	
	North Pennine Dales Meadows SAC	None reported	
	North Somerset and Mendip Bats SAC	Bats, invertebrates	
	Ox Close SAC	None reported	
	Oxford Meadows SAC	Plant species	
	Parkgate Down SAC	Plant species	
	Peak District Dales SAC	Invertebrates, otter, fish	
	Peter`s Pit SAC	GCN	
	Pevensey Levels Ramsar site	Invertebrates, birds	
	Pewsey Downs SAC	Invertebrates (incl. marsh fritillary butterfly), GCN, plant species	
	Phoenix United Mine and Crow`s Nest SAC	None reported	
	Portholme SAC	None reported	
	Porton Down SPA	Birds	
	Prescombe Down SAC	Invertebrates (incl. marsh fritillary butterfly),plant species	
	Quants SAC	Invertebrates (incl. marsh fritillary butterfly)	
	Queendown Warren SAC	None reported	

Broad Habitat Type	SAC/SPA/Ramsar designated sites	Associated fauna of interest (as primary or secondary reason for designation)	List of key sensitivities
Grassland (cont…)	Rex Graham Reserve SAC	Plant species	
	Rodborough Common SAC	None reported	
	Rooksmoor SAC	Invertebrates (incl. marsh fritillary butterfly)	
	Salisbury Plain SAC	Invertebrates (incl. marsh fritillary butterfly), GCN	
	Salisbury Plain SPA	Invertebrates, birds	
	St Albans Head to Durlston Head SAC	Bats	
	The Broads SAC	Invertebrates, GCN, otter, plant species	
	Thrislington SAC	None reported	
	Tyne and Allen River Gravels SAC	None reported	
	Tyne and Nent SAC	None reported	
	Walmore Common SPA	Invertebrates, birds	
	Wye and Crundale Downs SAC	None reported	

Heathland, (including wet and dry heath, peatland and areas dominated by *Juniperus communis)*	Asby Complex SAC	Invertebrates	• Habitat loss and fragmentation; • Pollution in the form of dust deposition; • Disturbance where species are a designating feature • Water level – maintenance of hydrological regime (vulnerable to inappropriate drainage, abstraction and quarrying) • Water quality – nutrient run-off causing pollution eg fertiliser or pesticide application (following sheep dipping or spraying of bracken) • Atmospheric pollution – heath could be affected by aerial deposition originating from sources distant to the site. eg acidification; • Maintenance of appropriate grazing regime under/overgrazing); • Inappropriate rotational management (burning regimes); • Climate change; • Scrub encroachment; • Spread of non-native species (e.g. Japanese knotweed, rhododendron); • Recreational pressure and disturbance (trampling, off-road vehicle use, disturbance to designated bird species); • Raptor persecution; • Military activities.
	Ashdown Forest SAC	Birds, GCN	
	Ashdown Forest SPA	Birds, GCN	
	Aston Rowant SAC	None reported	
	Breney Common and Goss and Tregoss Moors SAC	Invertebrates (incl. marsh fritillary butterfly)	
	Bowland Fells SPA	Birds	
	Carrine Common SAC	None reported	
	Dorset Heaths SAC	Invertebrates, GCN	
	Dorset Heaths (Purbeck and Wareham) and Studland Dunes SAC	Invertebrates, GCN	
	Dorset Heathlands SPA	Birds, invertebrates	
	Dorset Heathlands Ramsar site	Invertebrates	
	East Devon Pebblebed Heaths SAC	Invertebrates	
	East Devon Heaths SPA	Birds	
	Exmoor Heaths SAC	None reported	
	Godrevy Head to St Agnes SAC	Plant species	

Broad Habitat Type	SAC/SPA/Ramsar designated sites	Associated fauna of interest (as primary or secondary reason for designation)	List of key sensitivities
Heathland, (including wet and dry heath, peatland and areas dominated by *Juniperus communis)* (cont…)	Harbottle Moors SAC	None reported	
	Hatfield Moor SAC	None reported	
	Lake District High Fells SAC	Plant species	
	Minsmere to Walberswick Heaths and Marshes SAC	GCN	
	New Forest SPA	Birds	
	Newlyn Downs SAC	None reported	
	Norfolk Valley Fens SAC	Invertebrates, otter, GCN	
	North Pennine Moors SAC	Plant species	
	North Pennine Moors SPA	Birds	
	North York Moors SAC	None reported	
	North York Moors SPA	Birds	
	Peak District Moors (South Pennine Moors Phase 1) SPA	Birds	
	Roydon Common and Dersingham Bog SAC	None reported	

Heathland, (including wet and dry heath, peatland and areas dominated by *Juniperus communis)* (cont…)	Roydon Common Ramsar site	Invertebrates	
	Shortheath Common SAC	None reported	
	Simonside Hills SAC	None reported	
	Skipwith Common SAC	None reported	
	St Austell Clay Pits SAC	Plant species	
	Strensall Common SAC	None reported	
	Thames Basin Heaths SPA	Birds	
	Thorne and Hatfield Moors SPA	Birds	
	Thursley, Hankley and Frensham Commons (Wealden Heaths Phase 1) SPA	Birds	
	The Lizard SAC	None reported	
	The New Forest SAC	Inverterbates, GCN, otter, bats, fish	
	The Stiperstones and The Hollies SAC	None reported	
	Thursley, Ash, Pirbright and Chobham SAC	GCN	

Broad Habitat Type	SAC/SPA/Ramsar designated sites	Associated fauna of interest (as primary or secondary reason for designation)	List of key sensitivities
Heathland, (including wet and dry heath, peatland and areas dominated by *Juniperus communis)* (cont…)	Tregonning Hill SAC	Plant species	
	Wealden Heaths Phase 2 SPA	Birds	
	Wimbledon Common SAC	Invertebrates	
	Woolmer Forest SAC	GCN, fish	
Woodland	Arnecliff and Park Hole Woods SAC	Plant species	• Habitat loss and fragmentation; • Dust deposition; • Disturbance where species are a designating feature; • Water quality – e.g. pollution through groundwater and surface run-off sources; • Water level – maintenance of water table essential e.g. restrict new drainage ditches around wet woodlands; • Maintenance of appropriate grazing regime; • Heavy recreational pressure; • Spread of non-native / invasive species; • Scrub encroachment; • Atmospheric pollution (nutrient deposition and acidification) .
	Avon Gorge Woodlands SAC	Bats	
	Birklands and Bilhaugh SAC	None reported	
	Blean Complex SAC	GCN	
	Borrowdale Woodland Complex SAC	None reported	
	Bracket`s Coppice SAC	Bats	
	Breckland SPA	Birds	
	Briddlesford Copses SAC	Bats	
	Burnham Beeches SAC	None reported	

Woodland (cont…)	Calf Hill and Cragg Woods SAC	None reported	
	Castle Eden Dene SAC	GCN	
	Chilterns Beechwoods SAC	Invertebrates, GCN	
	Cotswold Beechwoods SAC	Bats	
	Dixton Wood SAC	Invertebrates	
	Downton Gorge SAC	WCC, fish, otter	
	Duncton to Bignor Escarpment SAC	None reported	
	East Hampshire Hangers SAC	GCN	
	Ebernoe Common SAC	Bats	
	Epping Forest SAC	Invertebrates, GCN	
	Eversden and Wimpole Woods SAC	Bats	
	Exmoor and Quantock Oakwoods SAC	Bats, fish, invertebrates, otter	
	Great Yews SAC	None reported	
	Hartslock Wood SAC	None reported	
	Helbeck and Swindale Woods SAC	None reported	
	Kennet Valley Alderwoods SAC	None reported	

Broad Habitat Type	SAC/SPA/Ramsar designated sites	Associated fauna of interest (as primary or secondary reason for designation)	List of key sensitivities
Woodland (cont…)	Kingley Vale SAC	None reported	
	Little Wittenham SAC	GCN	
	Mendip Woodlands SAC	Bats	
	Mole Gap to Reigate Escarpment SAC	Bats, GCN	
	Mottisfont Bats SAC	Bats	
	Naddle Forest SAC	None reported	
	North Downs Woodlands SAC	None reported	
	Richmond Park SAC	Invertebrates	
	Rook Clift SAC	None reported	
	Sandlings SPA	Invertebrates, birds	
	South Dartmoor Woods SAC	Otter, bats, fish	
	South Hams SAC	Bats, plant species	
	Staverton Park and The Thicks, Wantisden SAC	None reported	
	The Mens SAC	Bats	

Woodland (cont…)	Ullswater Oakwoods SAC	None reported	
	West Dorset Alder Woods SAC	Invertebrates (incl. marsh fritillary butterfly), GCN	
	Windsor Forest and Great Park SAC	Invertebrates	
	Wormley Hoddesdonpark Woods SAC	None reported	
	Yewbarrow Woods SAC	None reported	
Caves, tunnels and quarries	Beer Quarry and Caves SAC	Bats	• Habitat loss; • Habitat Fragmentation & obstruction to cave entrances; • Air borne pollutants, including dust, Nitrous and Sulphur oxides; • Significant vibration • Disturbance where species are a designating feature;
	Chilmark Quarries SAC	Bats	
	Clints Quarry SAC	GCN	
	Crookhill Brick Pit SAC	GCN	
	Lower Bostraze and Leswidden SAC	Plant species	
	Mells Valley SAC	Bats	
	Singleton and Cocking Tunnels SAC	Bats	
Built up areas and buildings	Hestercombe House SAC	Bats	
	Paston Great Barn SAC	Bats	• Habitat loss; • Habitat Fragmentation; • Significant vibration; • Disturbance where species are a designating feature.

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PB13594