

A5 CONSIDERATION OF ACTIVITIES

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A5.1 Introduction

The following appendix provides a high level assessment of the potential environmental effects of activities associated with the types of development likely to be implemented with the adoption of the draft plan/programme and its alternatives (section A5.4). Developments covered by this SEA include:

- conventional oil and gas exploration and production, including shale gas (COG)
- virgin coal bed methane exploration and production (VCBM)
- natural gas storage in hydrocarbon reservoirs (GS)

Note that the licences do *not* cover underground coal gasification or carbon capture and storage (CCS). Following application to the DECC, the award of a Petroleum Exploration and Development Licence (PEDL) confers exclusive rights to "search and bore for and get" petroleum. A PEDL does not waive the requirement for the licensee to obtain access rights from landowners, nor do they confer any exemption from other legal/regulatory requirements. Oil and gas exploration and development activities are subject to statutory planning, environmental and other permitting regimes. These include the requirement for planning consent (and associated EIA) and Pollution Prevention and Control (PPC) regime (Part A) which would apply to oil and gas production developments. In England and Wales from April 2008, PPC has been incorporated into the framework of the Environmental Permitting (England and Wales) Regulations (2007) (EPR) which has introduced a number of generic risk assessments concerning waste management that seek to streamline much of the permitting regime in former 'Part A' and 'Part B' PPC activities (see Defra and EA EPR webpages). In Scotland, the Pollution Prevention and Control (Scotland) Regulations 2000 (and amendments) still apply. The authorisation of Field Development Plans (FDP) by the DECC is contingent on demonstration that consents are in place.

Potential activities which could follow on from the proposed licensing round would be subject to strict regulatory control and mitigation (see Appendix 2). Those activities which are considered to pose possible environmental issues are shown in Tables A5.1 and 2 show each activity and its relationship to the environmental topics discussed in Appendix 4 where a possible minor negative or more detrimental effect may be considered possible assuming the adoption of the draft plan/programme.

Table A5.1 – Likely Activities and Their Association with Types of Development Relevant to the Draft Plan/Programme

Broad Activity	COG	VCBM	GS	Stage in Life of Development
Vibroseis				Seismic survey
Shot hole				
Exploration wellsite construction				Exploration and appraisal
Exploration drilling				
Disposal of mud and cuttings				
Well test and clean-up				
Hydrofracing and de-watering				
Construction of production installations/pipelines				Development and production
Development drilling				
Production operations				
Storage operations				
Decommissioning				Decommissioning

Note: COG=Conventional Oil and Gas, VCBM=Virgin Coal bed Methane, GS=Gas Storage

Table A5.2 – Activities and Their Relationship with Each Environmental Criteria in which a *Minor Negative* or More Detrimental Effect May be Anticipated

Activity	Biodiversity, habitats, flora and fauna	Geology and soil	Landscape	Water environment	Air quality and climatic factors	Population and human health	Material assets	Cultural heritage
Vibroseis								
Shot hole								
Exploration wellsite construction								
Exploration drilling								
Disposal of mud and cuttings								
Well test and clean-up								
Hydrofracing and de-watering								
Construction of production installations/pipelines								
Development drilling								
Production operations								
Storage operations								
Decommissioning								

A5.2 Summary of the Likely Impact of Activities on the Environment

The following section provides a brief assessment of the likely impact of the draft plan/programme on each of the environmental topics covered in Appendix 4.

A5.2.1 Biodiversity, Habitats, Flora and Fauna

A large proportion of the 65 priority habitat types identified by the UKBAP are represented in the areas that may be offered for licence (Appendix 4a), and these have varying degrees of sensitivity to physical disturbance. Those which occur in all or almost all of the areas to be considered for licensing include 1 marine and 33 terrestrial and freshwater habitats. The action plan for only three makes explicit mention of mineral and rock extraction as being potentially damaging (lowland dry acid grassland, lowland calcareous grassland and lowland raised bog), though it may be reasonably expected that any pollution or disturbance resulting from activities is likely to have a some negative effect on any priority habitat and associated species. The two grassland communities are widely distributed throughout the UK and occur in all SEA areas. Lowland raised bogs occur mainly in south Wales, the North West, North East and Scottish Midlands.

The most recent UKBAP survey identified 1150 priority species, some 768 more than previously recorded. Though too many to list here, these species occur throughout many of the SEA areas and their particular habitats and sensitivities require to be identified in relation to any proposed development which should take place during the preparation of any site-specific EIA.

Further habitat protection is afforded by the *Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora* (Habitats Directive) and *Council Directive 79/409/EEC of 2 April 1979 on the conservation of wild birds* (Birds Directive), associated with those SAC and SPA sites identified in Appendix 4a and Appendix 6.

A5.2.2 Geology and Soils

GCR sites are widely distributed throughout the area covered by the SEA (Appendix 4b). Direct physical damage and soil compaction may occur over the limited spatial area of an exploration wellsite or production facility (0.25-2ha). Structural degradation and compaction, contamination, loss of soil organic matter, soil biodiversity and erosion are already affecting some of the UKs soils and appropriate measures should be taken to protect soil integrity, particularly in areas of high agricultural productivity. Where required, exclusion and operational controls may be implemented under existing consenting and planning systems.

A5.2.3 Landscape

Landscapes considered to be of particular value and/or sensitivity have been identified under a range of designations listed in Appendix 4c (e.g. AONBs, NSAs, National Parks) which afford a degree of protection through the statutory consenting and planning systems. Non-statutory designations including World Heritage Sites and Parks and Gardens should also be considered as being particularly sensitive to visual intrusion. A more detailed visual impact assessment is likely to be required for any site-specific EIA.

Mitigation may be implemented through siting and operational controls. Residual visual impact may occur over limited spatial and temporal scales and is not considered to be

significant at a strategic level. COG activities which include drilling rigs which may be ~40m high are likely to produce more significant and more widely visible effects than a gas storage facility, which requires limited surface infrastructure.

A variety of technical measures are available to reduce visual impact, principally by limiting the vertical height of drilling equipment, separator stacks, the control on the use of certain building materials and colour schemes (e.g. those implemented at Wytch Farm). Appropriate design of site boundaries, perimeter fencing and screening is also important and will be controlled through the planning process.

A5.2.4 Water Environment

Lost circulation and drilling fluids and produced water pose threats to the terrestrial environment which are dependent on the characteristics of these fluids, their quantity, and the dispersion characteristics of the local environment. In order to determine the risk to surface and groundwater, a robust analysis of the unsaturated zone (i.e. soil and/or drift between surface and top of aquifer), aquifers, groundwaters (e.g. permeability of overlying drift, transmissivity of aquifer and the likely spatial extent of any potential impact) and surface waters will be required in advance of all drilling activities. Such a study will be required to comply with Groundwater Regulations and to provide sufficient evidence for EIA/planning permission and to ensure Best Available Technique (BAT) mitigation against any risk to water resources. This assessment will be based on the geology and hydrogeology of the site and will require appropriate desk studies and site investigation methods.

Other site activities which will present a risk of contamination to surface and groundwaters are associated with site drainage and accidental events during construction and liquid storage. These issues are not unique to the oil and gas industry and best practice, management and mitigation practices are well established. Water abstraction (to meet construction or process requirements) is not expected to be significant, though shale gas production may use larger quantities than other traditional methods of oil and gas production. A high level of regulatory control by the EA and SEPA is implemented through PPC, including requirements under the Groundwater and Water Framework Directives.

Placement of exploration or production facilities in locations subject to flooding (e.g. river floodplains) has a clear implication for protection of water resources and associated habitats and species, and should therefore be avoided. Location of long-term (i.e. production) facilities should also take account of potential effects of climate change, and consider climate change adaptation. Further guidance can be found in Planning Policy Statement 25 and associated practical guide. Depending on the location of the development, flood risk also includes that presented from coastal flooding and erosion, for which the supplement to PPS25 provides policy in this area, and information at the catchment scale is available through Catchment Flood Management Plans. For nationally significant projects, the draft Overarching National Policy Statement for Energy (EN-1) and Draft National Policy Statement for Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4) indicate, *inter alia*, policy relating to flood risk and climate change adaptation.

A5.2.5 Air Quality and Climatic Factors

Fuel combustion in vehicle and machinery engines, flares, gas turbines, power generators and fired heaters results in the emission of exhaust gases to the atmosphere. These emissions mainly comprise carbon dioxide (CO₂), with smaller volumes of nitrogen oxides (NO_x), sulphur dioxide (SO₂), carbon monoxide (CO) and, to a lesser extent, particulate

matter (PM₁₀/PM_{2.5}) and methane (CH₄) derived from incomplete combustion processes. The emission of these gases has already been identified as contributing to acid rain (Appendices 4e and 4f) and by association acidification of freshwater habitats, poor air quality connected with short and longer-term human health implications (Appendix 4e) and anthropogenically augmented climate change (Appendix 4f).

The fate of gases and particulate emissions in the atmosphere is dependent upon the location of pollutants within the stratified atmosphere and the prevailing conditions, including dilution, coagulation, physio-chemical reactions and deposition. Their effects on the local receiving environment will also be dependent upon cumulative effects with other emission sources (e.g. industry, domestic, transport). Local environmental impacts of poor air quality are controlled by Air Quality Regulations which set air quality objective levels for combustion emissions (excluding CO₂). Any failures to meet these objectives will be addressed by the EA/SEPA, most likely through the PPC licensing process.

Fugitive emissions, in relatively small volumes, can be expected from oil storage tanks, valves, pipe fittings and instruments. These largely comprise volatile organic compounds (VOCs, including methane) some of which contribute to depletion of stratospheric ozone. Some contribute to the formation of tropospheric ozone and the associated problems of photochemical smog by reactions with nitrogen oxides in the presence of sunlight. Others, such as benzene, are toxic and carcinogenic. There are no prescribed fugitive emission limits in the UK, though guidance is given under the LAPC regulated processes for the prevention and minimisation of VOC emissions to air (PG1/13(96) and PG1/14(96)). The EA/SEPA will also address VOC emissions through the PPC licensing process.

A5.2.6 Population and Human Health

Wider health issues will be effectively controlled by regulation of discharges, emissions and noise. Health and safety of local workforce and surrounding communities are stringently regulated under existing statutory controls and operator management systems.

Disruption, disturbance and nuisance effects on human communities are associated principally with traffic congestion, noise and dust which are consistent with a range of other construction and development projects of a similar scale. These effects may be more significant in rural and non-industrialised areas.

A5.2.7 Material Assets

Waste minimisation is the principal SEA objective in this topic. Oil and gas exploration and production is generally not a significant producer of waste, with the exceptions of cuttings and produced water, both of which will generally be reinjected into rock strata.

A5.2.8 Cultural Heritage

Oil and gas exploration and production is generally unlikely to interact significantly with architectural and archaeological heritage, although planning controls will require appropriate site investigations and protection of heritage where necessary. Screening of likely interactions with archaeological heritage will be undertaken as part of the EIA process.

A5.2.9 The Nearshore 'Watery' Areas of the Dee and Forth

This SEA also includes the nearshore 'watery' areas of the Forth and Dee regulated under the landward regime as indicated in regulation 3(1) of Schedule 1, The Petroleum

(Production) (Seaward Areas) Regulations 1988. The sensitivities in these areas include a number of SPA and SAC sites concerned with the protection of intertidal habitats used by nationally and internationally important numbers of wintering, breeding and on-passage birds, and anadromous species including the salmon and sea lamprey.

There are several conditions relating to operations in these areas which limit the potential environmental impact on the marine or nearshore environment:

1. These areas are only concerned with the extraction of VCBM
2. Drilling rigs or other exploratory, appraisal or development equipment will be restricted to landward areas (i.e. above the low water line)
3. No marine activities will be associated with any development which require directional drilling into watery areas

The impact of such developments in these nearshore areas is somewhat precluded by the lack of any marine activities. Areas close to the shore may be subject to VCBM exploration and production, and are subject to the same local planning controls and landward permitting regimes as any onshore development (see Appendix 2).

A5.3 Consideration of Likely Activities, their Impact and Mitigation

The following section indicates the likely magnitude and duration of impacts resulting from activities associated with the draft plan/programme. Summary tables indicate these relative impacts using the following qualitative key to categorise the nature of the predicted effects (ODPM 2005):

Magnitude of Effect		Duration of Effect	
++	Activity would have a major positive effect	S	Effects would be short term
+	Activity would have a minor positive effect	M	Effects would be medium term
O	Activity would have a neutral effect	L	Effects would be long term
-	Activity would have a minor negative effect	P	Effects would be permanent
--	Activity would have a major negative effect		

Only where an effect is scored as 'major positive' or 'major negative' is it considered to be significant.

A5.3.1 Conventional Oil and Gas (COG)

The activities which are likely to be associated with conventional oil and gas developments and their relationship with those environmental topics discussed in appendix 4 has already been indicated in Table A5.1 and 2.

The following section accounts for the potential impact (both in terms of magnitude and duration of effect) and proposed mitigation for each activity in relation to each environmental parameter.

A5.3.1.1 Vibroseis

Vibroseis is a seismic technique which tends to be spatially restricted due to the requirement for roads or other hard surfaces accessible by vehicle. Where an area is accessible, there are no significant environmental implications, but where new roads or road alteration is required to facilitate access, a minor negative effect may result. Minor habitat and species disturbance may occur and vibration, visual intrusion and vehicle exhaust emissions may present some minor nuisance factors. The transient nature of this technique means that any impact should be of short duration, and most MPAs have regarded such work as either 'not

development' or as permitted development (DCLG 2006a). More detail is given in the sections which follow, and a summary is provided in Table A5.3.

Table A5.3 – Magnitude and Duration of Effects Likely from Vibroseis Activity

Topic	Magnitude		Duration
Biodiversity, habitats, flora and fauna	O	-	S
Geology and soil	O		-
Landscape	O		S
Water environment	O		-
Air quality and climatic factors	O		-
Population and human health	O		-
Material assets	O		-
Cultural heritage	O		-

Biodiversity, Habitats, Flora and Fauna

Operational planning and mitigation under existing regulatory mechanisms should avoid significant disturbance to adjacent habitats and species of conservation value, where required. The activity is of limited duration, and mitigation of potential disturbance effects through spatial restrictions and timing is generally possible.

Mitigation will be facilitated by effective consultation with statutory conservation agencies and planning authorities in advance of planning application. Applicants will require to be aware of statutory designations and sensitivities and to operate an EMS, with particular regard to the seasonal timing of operations.

No additional regulatory controls or exclusion of areas from licensing through the SEA process is considered necessary.

Geology and Soils

No significant interactions are predicted to be associated with vibroseis.

Landscape

The effect will be short-term and of only limited effect. No additional regulatory controls or exclusion of areas from licensing through the SEA process is considered necessary.

Water Environment

No significant interactions are predicted.

Air Quality and Climatic Factors

Emissions will result from vehicle and machinery exhausts but are not considered to be significant in a strategic context.

Population and Human Health

No significant interactions are predicted. Vibration may be detectable at very close range, but can be considered a minor nuisance only.

Material Assets

Subject to operational planning, no significant interactions are predicted.

Cultural Heritage

Subject to operational planning, no significant interactions are predicted.

A5.3.1.2 Shot-Hole

Shot-hole techniques involve the use of explosions as a source of seismic energy. The technique generates a relatively small scale visual and audible intrusion and has some advantage over vibroseis due to reduced requirement for large vehicular access, and is potentially less environmentally damaging as less vegetation may require to be felled for access. No significant effects are envisaged at a strategic level beyond vehicle and equipment emissions and short range visual and noise intrusion, and the duration of effects are expected to be short term (Table A5.4).

Table A5.4 – The Magnitude and Duration of Effects Likely from Shot-Hole Activity

Topic	Magnitude		Duration	
Biodiversity, habitats, flora and fauna	O	-	S	M
Geology and soil	O		-	
Landscape	O		S	
Water environment	O		-	
Air quality and climatic factors	O		-	
Population and human health	O		-	
Material assets	O		-	
Cultural heritage	O		-	

Biodiversity, Habitats, Flora and Fauna

Preparation of shot holes may cause limited disturbance and some noise will be produced during detonations. Effects can be expected to be very short term (a matter of days) and spatially limited. Shot hole infill will be required and site restoration may be implemented where access requirements or any other activities have caused physical disturbance.

Like vibroseis, mitigation will be facilitated by consultation with statutory conservation agencies and planning authorities in advance of planning application. Applicants will require to be aware of statutory designations and sensitivities and to operate an EMS, with particular regard to the seasonal timing of operations.

No additional regulatory controls or exclusion of areas from licensing through the SEA process is considered necessary.

Geology and Soils

No significant interactions are predicted to be associated with shot holes, and where required, these will be infilled after use.

Landscape

The effect will be short-term and of only limited effect. No additional regulatory controls or exclusion of areas from licensing through the SEA process is considered necessary.

Water Environment

No significant interactions are predicted.

Air Quality and Climatic Factors

Emissions will result from vehicle and machinery exhausts though these are not considered to be significant in a strategic context.

Population and Human Health

No significant interactions are predicted. Shot noise and vibration may be detectable at close range, but would be a minor nuisance only.

Material Assets

Subject to operational planning, no significant interactions are predicted.

Cultural Heritage

Subject to operational planning, no significant interactions are predicted.

A5.3.1.3 Exploration Wellsite Construction

The spatial extent of the physical disturbance associated with site construction is limited (~1ha), though the duration of effects associated with site construction tends to vary from the short to the long-term. Clearance of vegetation and perhaps also soil layers would result from construction of access roads and the erection of structures including buildings and drilling rigs. The magnitude and duration of the impact and subsequent recovery time will vary greatly depending on the form of habitat, geology, hydrology and soil in question.

While the site is occupied there may be air quality and amenity issues. Depending on the proximity of the site to residential properties or recreational areas (e.g. designated parks and gardens), lighting and noise may be continuous issues for the duration of activities at the exploration site. Machinery and vehicles will contribute to any local air quality issues, though these are unlikely to be significant at a strategic level.

Table A5.5 – The Magnitude and Duration of Effects Likely from Exploration and Wellsite Construction

Topic	Magnitude		Duration	
Biodiversity, habitats, flora and fauna	-		S	L
Geology and soil	-		S	M
Landscape	-		S	M
Water environment	O		-	
Air quality and climatic factors	O	-	S	M
Population and human health	O	-	S	M
Material assets	O		-	
Cultural heritage	O		-	

Biodiversity, Habitats, Flora and Fauna

Significant interactions with designated or other sites of conservation value can be prohibited (as appropriate) and controlled (in terms of scale, timing) under existing consenting and planning systems. Detailed site-specific assessment and mitigation proposals would be required prior to planning approval under national EIA regulations, with specific reference to the UKBAP and LBAPs.

Physical disturbance to habitats may be exacerbated if topsoil and subsoil are removed and banked around site, though these banks help reduce the visual impact of the site on the landscape and reduce noise nuisance during site preparation and subsequent drilling. Approximately 250-350 lorry payloads may be required during site construction. If the site is remote then access roads may need to be constructed which may cause further physical disturbance. Site drainage may influence aquatic habitats outside the site boundary and so should be carefully designed and incorporate studies of the potential effect of spillages and routes to aquifers, groundwaters and surface waters which could have long-term and spatially extensive impacts.

Restoration timescale will depend on habitat type, with complete restoration possibly over decades (e.g. acid heath).

Mitigation will be facilitated by effective consultation with statutory conservation agencies and planning authorities. Applicants will be aware of statutory designations and sensitivities, and will be required to operate an EMS, with particular regard to the seasonal timing of operations. Site location may be modified by directional drilling to avoid specific sites of habitat sensitivity, however this may increase the duration and technical risks involved (and may also require the use of organic phase drilling fluids).

No additional regulatory controls or exclusion of areas from licensing through the SEA process is considered necessary.

Geology and Soils

Direct physical damage and soil compaction may occur over the limited spatial area of an exploration wellsite (and associated roadways if required). Where necessary siting and operational controls may be implemented under existing consultation, consenting and planning systems.

No additional regulatory controls or exclusion of areas from licensing through the SEA process is considered necessary.

Landscape

Where required, exclusion and technical controls may be implemented under existing consenting and planning systems.

No additional regulatory controls or exclusion of areas from licensing through the SEA process is considered necessary.

Water Environment

In view of available regulatory controls, significant abstraction or pollution of water resources is not considered to represent a significant effect or risk. In addition to the principal issue of surface drainage, windblown dust represents a possible mechanism for effects (turbidity) on surface waters.

BAT in relation to PPC, groundwater protection and control of liquid releases is described by IPC Guidance Notes S2 1.11 and S3 1.02.

Air Quality and Climatic Factors

Dust and exhaust emissions are the major source of air quality effects. These are not considered to be significant at a strategic level.

No additional regulatory controls or exclusion of areas from licensing through the SEA process is considered necessary.

Population and Human Health

Limited to possible nuisance effects, no significant interactions are predicted. A minor increment on existing levels of vehicle numbers is likely to increase ambient noise which may be significant in rural areas which are remote from major roads.

If required, construction noise may be regulated under the Control of Pollution Act 1974, Part 111. British Standard 5228, *Noise Control on Construction and Open Sites* (and associated regulations 1987 and amendments 2002), provides guidance and is applicable throughout the UK. Noise mapping initiated under the Environmental Noise Regulations has produced maps of existing ambient noise levels in relation to transport links and industry and these should help guide acceptable noise levels – Defra (2010) has recently released a noise strategy for England of relevance (see Appendix 4g). Part III of the Environmental Protection Act 1990, as amended by the Noise and Statutory Nuisance Act 1993, is also relevant to noise and other sources of ‘nuisance’.

No additional regulatory controls or exclusion of areas from licensing through the SEA process is considered necessary.

Material Assets

Subject to operational planning, no significant interactions are predicted.

Cultural Heritage

Subject to operational planning, no significant interactions are predicted.

A5.3.1.4 Exploration Drilling

The noise and vibration generated from exploration drilling are spatially limited in magnitude and duration. The visual impacts of drilling are the same for those associated with wellsite construction and operation and involve possible amenity issues which may be mitigated through site choice and good design.

Potential pollution from drilling fluid and oil require an appropriate pollution management system to be in place. DCLG (2006a) notes that no UK onshore oilfield has encountered oil at sufficient pressure during exploration to raise concerns about a major pollution event taking place.

Table A5.6 – The Magnitude and Duration of Effects Likely from Exploration Drilling

Topic	Magnitude		Duration	
Biodiversity, habitats, flora and fauna	O	-	S	M
Geology and soil	O		-	
Landscape	-		-	
Water environment	O		-	
Air quality and climatic factors	O	-	S	M
Population and human health	O	-	S	M
Material assets	O		-	
Cultural heritage	O		-	

Biodiversity, Habitats, Flora and Fauna

Noise and vibration disturbance effects associated with drilling are limited in spatial scale, magnitude and duration, and significant interactions with designated or other sites of conservation value can be mitigated.

Mitigation will be facilitated by effective consultation with statutory conservation agencies and planning authorities. Applicants will be aware of statutory designations and sensitivities, and will be required to operate an EMS, with particular regard to the seasonal timing of operations. Mitigation of visual and noise effects may increase scale and severity of local habitat effect.

No additional regulatory controls or exclusion of areas from licensing through the SEA process is considered necessary.

Geology and Soils

No significant interactions are predicted as a result of planned activities. It is not considered that boreholes represent significant damage to geological features, while providing geological data which cannot be obtained otherwise.

Landscape

No significant interactions are predicted additional to those associated with site construction.

No additional regulatory controls or exclusion of areas from licensing through the SEA process is considered necessary.

Water Environment

Discharges to controlled waters during exploration drilling will be limited to surface drainage from sealed surfaces. In addition, there is a potential for unplanned releases of drilling fluids from drilling equipment, mudpits etc. Subject to the assessment and appropriate technical mitigation of risks noted above, no significant effects are predicted as a result of drilling activities.

BAT in relation to PPC, groundwater protection and control of liquid releases is described by IPC Guidance Notes S2 1.11 and S3 1.02.

Air Quality and Climatic Factors

Exhaust emissions are the major source of air quality effects; in view of scale, these are not considered to be significant at a strategic level.

No additional regulatory controls or exclusion of areas from licensing through the SEA process is considered necessary

Population and Human Health

Limited to possible nuisance effects; no significant interactions are predicted. There may be a minor increment on existing levels of ambient noise which may be significant in rural areas remote from major roads and industry (see exploration and wellsite construction, A5.3.1.3).

No additional regulatory controls or exclusion of areas from licensing through the SEA process is considered necessary.

Material Assets

Subject to operational planning, no significant interactions are predicted.

Cultural Heritage

Subject to operational planning, no significant interactions are predicted.

A5.3.1.5 Disposal of Mud and Cuttings

Drilling wastes are covered under section 1, 'wastes resulting from exploration, mining, quarrying, and physical and chemical treatment of minerals' in schedule 1 of the List of Wastes (England) Regulations 2005, implemented following the adoption of the Waste Directive (67/548/EEC) and after the List of Wastes Decision (2000/532/EC). Those wastes in the list relevant to drill cuttings and which are considered hazardous include:

- oil-containing drilling muds and wastes (waste: 01 05 05)
- drilling muds and other drilling wastes containing dangerous substances (waste: 01 05 06)

Drilling muds and cuttings are the by-product of well drilling, and consist of a mixture of rock fragments and muds which may be oil or water-based. The latter usually contains biodegradable compounds whereas the former may contain compounds which resist degradation and would result in contamination if not appropriately managed (i.e. are

hazardous wastes). Cuttings may be moved offsite and disposed of at a licensed landfill site, disposed of onsite if appropriate, or reinjected into a geological formation. The Environmental Protection (Duty of Care) Regulations will require operators to take suitable steps to manage such waste and provide appropriate information to any third party operator who may transport and/or dispose of the material elsewhere.

The requirements of the Landfill Regulations 2002 (and subsequent amendments) will need to be met, including the waste acceptance criteria, and under the Water Framework Directive it would also need to be demonstrated that water resources could not be contaminated by disposal of mud and cuttings (DECC website).

Table A5.7 – The Magnitude and Duration of Effects Likely from the Disposal of Mud and Cuttings

Topic	Magnitude		Duration	
Biodiversity, habitats, flora and fauna	-	--	S	M
Geology and soil	O		-	
Landscape	O	-	S	M
Water environment	O		-	
Air quality and climatic factors	O	-	S	M
Population and human health	O		-	
Material assets	O	-	S	M
Cultural heritage	O		-	

Biodiversity, Habitats, Flora and Fauna

Although reinjection is usually the preferred option (BAT) under PPC, alternative potential disposal options (i.e. landfill) may result in incremental loss or alteration of habitat at disposal sites, but will be strictly regulated and will not result in significant interactions with designated or other sites of conservation value.

Landfill capacity in some regions of the UK may be limited or non-existing; particularly for Hazardous Wastes including oil-based mud and cuttings.

No additional regulatory controls or exclusion of areas from licensing through the SEA process is considered necessary.

Geology and Soils

Regulatory controls under existing legislation will effectively minimise and mitigate potential effects. Reinjection is usually the preferred option (BAT) under PPC and is now a proven technology (e.g. Wytch Farm) and geological risks (i.e. loss of containment in receiving formation) are low.

Landscape

Local reinjection would have no landscape impact (beyond a possible increase in well duration).

Use of existing landfill capacity may result in incremental increase of landscape impact; local burial will have temporary effect during conditioning phase. In both cases, potential effects

will not significantly affect UK landscapes at a strategic level and no additional exclusion of areas from licensing through the SEA process is considered necessary.

No additional regulatory controls or exclusion of areas from licensing through the SEA process is considered necessary.

Water Environment

Cuttings will most likely be reinjected or alternatively contained for appropriate treatment and disposal to landfill. Local burial is a third option.

As noted above, the PPC regulatory regime implements the Water Framework Directive and provides regulatory authorities (EA and SEPA) with effective controls to prevent contamination of aquifers, groundwater and surface waters. Waste Management Licensing Regulations and Landfill Regulations provide a high level of control over aspects of disposal which may be outside the PPC Regulations (e.g. local burial of cuttings).

No additional controls are considered necessary.

Air Quality and Climatic Factors

Exhaust emissions (injection pumps and/or transport) are the major source of air quality effects associated with cuttings disposal; in view of scale, these are not considered to be significant at a strategic level. The incremental contribution to emissions from landfill sites is not considered significant.

No additional regulatory controls or exclusion of areas from licensing through the SEA process is considered necessary.

Population and Human Health

No significant interactions are predicted.

Material Assets

Subject to operational planning, no significant interactions are predicted (Disposal will generally be through reinjection, see above; landfill take is not considered significant on a national scale).

No additional regulatory controls or exclusion of areas from licensing through the SEA process is considered necessary.

Cultural Heritage

Subject to operational planning, no significant interactions are predicted.

A5.3.1.6 Well Test and Clean-Up

Well testing generally has the following objectives (Chaudhry 2003):

- To evaluate well conditions and reservoir characterisation
- To obtain parameters with which to describe the reservoir
- To determine whether the drilled length of well is also a producing zone

- To estimate drilling and completion related damage to the well, which can assist decisions relating to well stimulation

No significant interactions are predicted beyond those involved in site construction and drilling. In the case of a long-duration test, additional storage capacity may be required which may increase overall site size. Flaring may generate some negative, short-term and localised landscape issues in addition to the exploration well structure and have some nuisance effect on local residences, particularly in areas of high tranquillity where light pollution is otherwise minimal. The burning of hydrocarbons in flares, in addition to those emissions from power generators and vehicle emissions, results in the production of primarily CO₂, but also smaller volumes of NO_x, SO₂, CO and, to a lesser extent, particulate matter (PM₁₀ and PM_{2.5}) and CH₄ derived from incomplete combustion processes. Any local air quality issues and the duration and timing of flaring should be considered.

Table A5.8 – The Magnitude and Duration of Effects Likely from Well Test and Clean-Up

Topic	Magnitude	Duration
Biodiversity, habitats, flora and fauna	O	-
Geology and soil	O	-
Landscape	O -	S
Water environment	O	-
Air quality and climatic factors	O -	S M
Population and human health	O	-
Material assets	O	-
Cultural heritage	O	-

Biodiversity, Habitats, Flora and Fauna

Flaring during well test may result in light disturbance, although this is unlikely to be of ecological significance, except possibly in very remote areas where there is no baseline of ambient light pollution.

Geology and Soils

No significant interactions are predicted as a result of planned activities.

Landscape

Flaring may result in visual impact depending on location (and height), duration and timing. Mitigation may be implemented through operational controls; residual visual impact over limited spatial and temporal scales is not considered to be significant at a strategic level.

No additional regulatory controls or exclusion of areas from licensing through the SEA process is considered necessary.

Water Environment

No significant interactions are predicted.

Air Quality and Climatic Factors

Wells that encounter commercial quantities of hydrocarbons may be subject to long-term production flow testing. In the case of gas, a relatively small amount may be vented or flared subject to planning restraints. Venting and flaring may have local effects on air quality, however local air quality impacts should be minimised through the use of a high combustion-efficiency flare. Localised effects of vented gas are dependent on composition, but are not considered to be significant at a strategic level. Contribution to national emissions of greenhouse gas is negligible.

Local air quality effects associated with onshore oil and gas exploration will be cumulative with regional variations in pollutant emissions described in Appendix 4e. These generally indicate emission levels consistent with population density, i.e. highest in south-east England, the Midlands and central Scotland. Under the Environment Act and National Air Quality Strategy, Air Quality Management Areas are designated in a number of the SEA areas. Proposed activities will be required to conform to the associated action plans being implemented by local authorities.

No additional regulatory controls or exclusion of areas from licensing through the SEA process is considered necessary.

Population and Human Health

No significant interactions are predicted.

Material Assets

Subject to operational planning, no significant interactions are predicted.

Cultural Heritage

Subject to operational planning, no significant interactions are predicted.

A5.3.1.7 Hydrofracing and de-watering

Hydrofracing is used to stimulate the production of gas by increasing the number of fractures in a rock formation, and therefore its permeability, through the injection of water under high pressure accompanied by (typically) sand which prevents the fractures closing. The process partly involves the abstraction of water or de-watering which also advances production by reducing hydrostatic pressure in the formation (Creedy 2001). The manner of disposal and treatment of this water will depend on its quality and the characteristics of local hydrological systems.

Table A5.9 – The Magnitude and Duration of Effects Likely from Hydrofracing

Topic	Magnitude		Duration	
Biodiversity, habitats, flora and fauna	O		-	
Geology and soil	O		-	
Landscape	O		-	
Water environment	-		M	L
Air quality and climatic factors	O	-	S	M
Population and human health	O		-	

Topic	Magnitude	Duration
Material assets	○	-
Cultural heritage	○	-

Biodiversity, Habitats, Flora and Fauna

No significant interactions are predicted beyond those involved in site construction and drilling. In some cases, large volume water storage capacity may be required (affecting overall site size).

Geology and Soils

No significant interactions are predicted as a result of planned activities.

Landscape

No significant interactions are predicted as a result of planned activities.

Water Environment

Significant quantities of water (and prop sand) are required to stimulate a formation (through hydrofracing) to facilitate gas release, particularly in shale gas extraction. Storage of water on site or abstraction of water has potentially negative implications for local water resources. Large volumes of water may be produced as a result of the de-watering process which may continue throughout the productive life of the well. The quality and quantity of produced water will determine the suitability of various disposal/treatment techniques. The availability of receiving waters and the sensitivity of aquatic organisms to the produced waters will determine the viability of surface discharge options and the degree of pre-treatment necessary. The impact of water removal on the local environment will depend on the characteristics of the hydrological system(s) in question, the geology of the area, depth of the gas formation, its relationship with aquifers and the positioning of wells. As noted above, a robust analysis on the risk to groundwater presented by development drilling will be required, based on the geology and hydrogeology of the site. Subject to this assessment and appropriate technical mitigation of risks (through well design and operational procedures) no significant impacts are predicted.

Regulation of the disposal of liquid wastes into a surface water or geological formation has been updated by implementation of the Water Framework Directive through the Water Environment (Water Framework Directive) (England and Wales) Regulations 2003 and Water Environment and Water Services (Scotland) Act 2003. Under these Regulations, permission to re-inject produced water is granted by the EA/SEPA through the issue of a licence; however injection of other substances (not from the reservoir) will not generally be permitted.

No additional regulatory controls or exclusion of areas from licensing through the SEA process is considered necessary.

Air Quality and Climatic Factors

Exhaust emissions (e.g. from transfer and injection pumps) are the major source of air quality effects. These are not considered to be significant at a strategic level

No additional regulatory controls or exclusion of areas from licensing through the SEA process is considered necessary

Population and Human Health

No significant interactions are predicted.

Material Assets

Subject to operational planning, no significant interactions are predicted.

Cultural Heritage

Subject to operational planning, no significant interactions are predicted.

A5.3.1.8 Construction of Production Installations and Pipelines

The production stage of operations is likely to be of a significantly larger scale than those during the exploration phase and may require infrastructure including storage tanks, water injection sites and pipelines connecting wellheads.

Like exploration wellsite construction, vegetation cover removal and perhaps also soil and subsoil removal may be required which could cause habitat disturbance and local changes to hydrological conditions. The potential for soil compaction and erosion should also be considered. Visual intrusion by structures, vehicles and site lighting may affect the quality of landscape, the scale of which will be determined by site proximity to other industrial structures, or in an area within, or within visual range of a statutory landscape designation. Outside of such designations, noise and light pollution may be nuisance factors. The construction phase of sites tends to be short, and is comparable to other industrial building works and may give rise to noise, dust and traffic. Careful site planning may relieve some visual impact.

Table A5.10 – The Magnitude and Duration of Effects Likely from the Construction of Production Installations and Pipelines

Topic	Magnitude		Duration	
Biodiversity, habitats, flora and fauna	-	--	M	
Geology and soil	-		S	M
Landscape	-		S	M
Water environment	O		-	
Air quality and climatic factors	O	-	S	M
Population and human health	O	-	S	M
Material assets	O		-	
Cultural heritage	O		-	

Biodiversity, Habitats, Flora and Fauna

These activities are qualitatively and quantitatively similar to a range of other development and construction activities. The spatial extent of physical disturbance effects associated with production site and pipeline construction is likely to be substantially greater than at the exploration phase, although significant interactions with designated or other sites of

conservation value (at international, national and local level) can be prohibited (as appropriate) and controlled (scale, timing) under existing consenting and planning systems. Detailed site-specific assessment and mitigation proposals would be required prior to planning approval under national EIA regulations, with specific reference to conservation status of surrounding areas (including statutory sites and UKBAP and LBAP habitats). Subject to this detailed assessment, it is therefore concluded that activities resulting from proposed licensing will not significantly affect UK habitats and species at a strategic level.

Floodlighting of construction sites should be assessed in terms of potential light disturbance of sensitive species.

Mitigation will be facilitated by effective consultation with statutory conservation agencies and planning authorities. Applicants will be aware of statutory designations and sensitivities, and should pay particular regard to the seasonal timing of construction operations.

No additional regulatory controls or exclusion of areas from licensing through the SEA process is considered necessary.

Geology and Soils

Direct physical damage and soil compaction may occur over the spatial area of the facility and associated infrastructure; which may be of substantially greater magnitude than the exploration phase. Where required, siting and operational controls may be implemented under existing consultation, consenting and planning systems.

Landscape

Visual impact may be significant depending on location and timing. Mitigation may be implemented through operational controls. Residual visual impact over limited spatial and temporal scales is not considered to be significant at a strategic level.

No additional regulatory controls or exclusion of areas from licensing through the SEA process is considered necessary.

Water Environment

Abstraction or pollution of water resources is not considered to represent a significant effect or risk.

Air Quality and Climatic Factors

Dust and exhaust emissions are the major source of air quality effects; these are not considered to be significant at a strategic level.

No additional regulatory controls or exclusion of areas from licensing through the SEA process is considered necessary.

Population and Human Health

Limited to possible nuisance effects (e.g. lighting, noise, dust). No significant interactions are predicted. Minor increment on existing levels of ambient noise, may be significant in rural areas remote from major roads, data for which is available through the Defra noise mapping website.

No additional regulatory controls or exclusion of areas from licensing through the SEA process is considered necessary.

Material Assets

Subject to operational planning, no significant interactions are predicted.

Cultural Heritage

Subject to operational planning, no significant interactions are predicted.

A5.3.1.9 Development Drilling and Production Operations

The scale of disturbance (noise, vibration, light) associated with development drilling and production will depend on the size and type of facility, location, duration of operations and effective mitigation, which should be dealt with on a site specific basis prior to planning approval under EIA regulations. The long-term and year-round duration of disturbance may increase the overall magnitude of effect in relation to habitat and species disturbance, landscape issues, air quality and any nuisance factors that might arise.

The emissions of pollutants to the atmosphere similar to those indicated in relation to well testing may be expected during the production phase, though flaring or venting is required to be kept to the minimum that is technically and economically justified. Such emissions should be considered in relation to other on-site gaseous and particulate production from power generation and vehicles, in addition to any local air quality issues.

During the production phase there is the potential for the accidental release of pollutants including oil and produced water. An analysis of the site prior to construction should have taken into account the characteristics of the unsaturated layer above bedrock and its connectivity to any local aquifer or surface waters. Well design and operational procedures should as far as possible mitigate against any unwanted discharge. Produced water may be disposed of on-site via reinjection to the hydrocarbon reservoir (see above), which can also assist in further hydrocarbon recovery.

Table A5.11 – The Magnitude and Duration of Effects Likely from Development Drilling and Production Operations

Topic	Magnitude		Duration	
Biodiversity, habitats, flora and fauna	-		M	L
Geology and soil	O		-	
Landscape	-		M	L
Water environment	-		S	L
Air quality and climatic factors	O	-	M	L
Population and human health	O	-	M	L
Material assets	O		-	
Cultural heritage	O		-	

Biodiversity, Habitats, Flora and Fauna

Existing large-scale onshore developments (e.g. Wytch Farm) have demonstrated that significant interactions with designated and other sites of conservation value can be managed and that habitats of high conservation value can be maintained in close proximity to production operations. Detailed site-specific assessment and mitigation proposals would be required prior to planning approval under national EIA regulations, with specific reference to conservation status of surrounding areas (including statutory sites and UKBAP and LBAP habitats).

No additional regulatory controls or exclusion of areas from licensing through the SEA process is considered necessary.

Geology and Soils

No significant interactions are predicted as a result of planned activities.

Landscape

No significant interactions are predicted as a result of planned activities. The duration of expected drilling and production operations should be taken account of in assessing likely site-specific impact in terms of cumulative effect and against the likely evolution of the baseline. A low level of visual impact may be derived from 'nodding-donkeys' used to pump oil to the surface – these stand 4-6 metres high.

Water Environment

As noted above, a robust analysis on the risk to groundwater presented by development drilling will be required, based on the geology and hydrogeology of the site. Subject to this assessment and appropriate technical mitigation of risks (through well design and operational procedures) no significant interactions are predicted as a result of planned activities.

Produced water results mainly from phase separation, with smaller quantities of liquid effluent produced from tank drains, blow-down sumps and pipeline pigging. Options for disposal of produced water are to remove the contaminants and discharge to a water body; store in a lagoon and allow the water to evaporate; or re-inject the water into a geological formation. This may be the actual hydrocarbon reservoir, in which case the water is used to assist hydrocarbon recovery, or it may be injected into a separate formation. For onshore fields in the UK, the former approach is usually most practical and cost-effective. Presently in the UK, a number of fields re-inject produced water and other liquid wastes, whether for disposal or recovery purposes.

Regulation of the disposal of liquid wastes into a geological formation has been updated by the implementation of the Water Framework Directive through the Water Environment (Water Framework Directive) (England and Wales) Regulations 2003 and Water Environment (Controlled Activities) (Scotland) Regulations 2005. In relation to onshore oil and gas developments, permission to re-inject produced water will generally be granted by the EA/SEPA through the issue of an PPC authorisation; however, injection of other substances (not from the reservoir) will not generally be permitted. In cases not covered by IPC or PPC, authorisation will still be required for any discharge, disposal, abstraction or impoundment.

BAT in relation to PPC, groundwater protection and control of liquid releases is described by IPC Guidance Notes S2 1.11 and S3 1.02.

No additional regulatory controls or exclusion of areas from licensing through the SEA process is considered necessary.

Air Quality and Climatic Factors

The DECC requires that flaring or venting during appraisal, commissioning and production be kept to the minimum that is technically and economically justified. Gas emissions are controlled by requiring Licensees to apply for consent to flare or vent gas emitted by their oil or gas fields. The main purpose of this requirement is to ensure that gas is conserved by avoiding unnecessary wastage.

Emissions associated with power generation and combustion plant can be controlled by a variety of operational management and technical measures, described by relevant IPC guidance.

Fugitive emissions may contribute to local effects on air quality and climatic factors as described above, though local air quality impacts should be minimal. Contribution to national greenhouse gas emissions is negligible.

Local air quality effects associated with onshore oil and gas exploration will be cumulative with regional variations in pollutant emissions described in Appendix 4e. These generally indicate emission levels consistent with population density, i.e. highest in south-east England, the Midlands and central Scotland.

The potential implications of planned activities on attainment of local and regional air quality plans should be considered in EIA to support planning and other consents. Fugitive emission control should be considered in detail during process design. Key performance indicators in operator EMSs should include atmospheric emissions and contributions to climate change, resulting in effort towards continuous improvement.

No additional regulatory controls or exclusion of areas from licensing through the SEA process is considered necessary.

Population and Human Health

Limited to possible nuisance effects which will be regulated under the PPC regime. No significant interactions are predicted. Increment on existing levels of ambient noise, may be significant in rural areas remote from major roads.

Developments are unlikely to exceed the storage quantity thresholds at which the COMAH Regulations (and amendments) apply.

No additional regulatory controls or exclusion of areas from licensing through the SEA process is considered necessary.

Material Assets

Subject to operational planning, no significant interactions are predicted.

Cultural Heritage

Subject to operational planning, no significant interactions are predicted.

A5.3.1.10 Decommissioning

The spatial extent of physical disturbance effects associated with decommissioning is unlikely to exceed that of the construction and operation phases. Decommissioning of onshore wells and associated hydrocarbon installations is addressed through conditions in planning consents and through PPC authorisation, which requires that the site of an installation be returned to a satisfactory state on closure. Permission to decommission onshore wells is also required from the Department of Energy and Climate Change under The Petroleum (Production) (Landward Areas) Regulations 1995 and will require submission and agreement in advance of a Cessation of Production (COP) report.

Table A5.12 – The Magnitude and Duration of Effects Likely from Decommissioning

Topic	Magnitude	Duration	
Biodiversity, habitats, flora and fauna	-	M	L
Geology and soil	-	S	M
Landscape	-	S	M
Water environment	O	-	
Air quality and climatic factors	O	-	
Population and human health	O	-	
Material assets	O	-	
Cultural heritage	O	-	

Biodiversity, Habitats, Flora and Fauna

In most cases it is expected that site restoration could be achieved to pre-operational status in terms of habitat characteristics and biodiversity. Restoration timescale will depend on habitat type and dominant community, with complete restoration possibly requiring decades. In addition to restoration of physical habitats and biological communities, consideration should also be given to restoration of the accessibility of the site (e.g. where access roads have been constructed).

No additional regulatory controls or exclusion of areas from licensing through the SEA process is considered necessary.

Geology and Soils

Decommissioning may result in a temporary increase in the spatial scale or severity of soil compaction, as a result of machinery and storage requirements. Re-instatement of soil condition to original status is generally expected to be feasible.

Landscape

Decommissioning may result in a temporary increase in the spatial scale or severity of visual impact over the production phase as a result of machinery and storage requirements, although this is unlikely to exceed that of the construction and operation phases. Re-

instatement of landscape amenity to original status is generally expected to be feasible and likely to be required under conditions in planning consents and PPC authorisation.

No additional regulatory controls or exclusion of areas from licensing through the SEA process is considered necessary.

Water Environment

Subject to existing regulatory controls, no significant interactions are predicted. Well abandonment requires regulatory approval from the DECC to ensure permanent isolation of subsurface formations and groundwater. Technical risk in this context is considered to be low.

Air quality and climatic factors

Subject to existing regulatory controls. No significant interactions are predicted.

Population and Human Health

No significant interactions are predicted.

Material Assets

Subject to operational planning, no significant interactions are predicted.

Cultural Heritage

Subject to operational planning, no significant interactions are predicted.

Summary

Table A5.13 and Table A5.14 below summarise the magnitude and duration of impacts related to each stage of COG exploration, production and decommissioning detailed above.

Table A5.13 – Relative Impact Magnitude Summary for COG Operations

Activity	Biodiversity, habitats, flora and fauna		Geology and soil	Landscape		Water environment	Air quality and climatic factors		Population and human health	Material assets	Cultural heritage
Vibroseis	○	-	○	○		○	○		○	○	○
Shot hole	○	-	○	○		○	○		○	○	○
Exploration wellsite construction	-	-	-	-		○	○	-	○	-	○
Exploration drilling	○	-	○	-		○	○	-	○	-	○
Disposal of mud and cuttings	-	-	○	○	-	○	○	-	○	○	○
Well test and clean-up	○		○	○	-	○	○	-	○	○	○
Hydrofracing and de-watering	○		○	○		-	○	-	○	○	○
Construction of production installations/pipelines	-	-	-	-		○	○	-	○	-	○
Development drilling and production operations	-		○	-		-	○	-	○	-	○
Decommissioning	-		-	-		○	○		○	○	○

Table A5.14 – Relative Impact Duration Summary for COG Operations

Activity	Biodiversity, habitats, flora and fauna		Geology and soil		Landscape		Water environment		Air quality and climatic factors		Population and human health		Material assets		Cultural heritage
Vibroseis	S				S		-		-		-		-		-
Shot hole	S	M			S		-		-		-		-		-
Exploration wellsite construction	S	L	S	M	S	M	-		S	M	S	M	-		-
Exploration drilling	S	M	-		S		-		S	M	S	M	-		-
Disposal of mud and cuttings	S	M	-		S	M	-		S	M	-		S	M	-
Well test and clean-up	-		-		S		-		S	M	-		-		
Hydrofracing and de-watering	-		-		-		M	L	S	M	-		-		-
Construction of production installations/pipelines	M		S	M	S	M	-		S	M	S	M	-		-
Development drilling and production operations	M	L	-		M	L	M	L	M	L	M	L	-		-
Decommissioning	M	L	S	M	S	M	-		-		-		-		-

A5.3.2 Virgin Coalbed Methane (VCBM)

The activities which are likely to be associated with virgin coalbed methane developments and their relationship with those environmental topics discussed in appendix 4 has already been indicated in Tables A5.1 and 2.

The following section accounts for the potential magnitude and duration of effects (see Table A5.15) and mitigation for each activity.

A5.3.2.1 Exploration Wellsite Construction

VCBM exploration drilling sites are expected to be smaller (0.25ha) than traditional oil and gas drilling sites (1ha) and the spatial extent of physical disturbance effects associated with individual site construction is accordingly smaller. Like in a COG situation, vegetation and soil clearance will be required to facilitate the erection of buildings and drilling rigs. The magnitude and duration of the impact and subsequent recovery time will vary greatly depending on the form of habitat, geology, hydrology and soil in question.

Table A5.15 – The Magnitude and Duration of Effects Likely from Exploration and Wellsite Construction

Topic	Magnitude		Duration	
Biodiversity, habitats, flora and fauna	-		S	L
Geology and soil	-		S	M
Landscape	-		S	M
Water environment	O		-	
Air quality and climatic factors	O	-	S	M
Population and human health	O	-	S	M
Material assets	O		-	
Cultural heritage	O		-	

Biodiversity, Habitats, Flora and Fauna

Significant interactions with designated or other sites of conservation value can be prohibited (as appropriate) and controlled (in terms of scale, timing) under existing consenting and planning systems. Detailed site-specific assessment and mitigation proposals would be required prior to planning approval under national EIA regulations, with specific reference to the UKBAP and LBAPs.

Physical disturbance to habitats may be exacerbated if topsoil and subsoil are removed and banked around site. These banks help reduce the visual impact of the site on the landscape and reduce noise nuisance during site preparation and subsequent drilling. Approximately 150-250 lorry payloads may be required during site construction. If the site is remote then access roads may need to be constructed which can cause further physical disturbance. Site drainage may influence aquatic habitats outside the site boundary.

Restoration timescale will depend on habitat type, with complete restoration possibly over decades (e.g. acid heath).

Mitigation will be facilitated by effective consultation with statutory conservation agencies and planning authorities. Applicants will be aware of statutory designations and sensitivities, and will be required to operate an EMS, with particular regard to the seasonal timing of operations.

Although dated in terms of the structure of governmental departments and regulatory agencies, the practical guidance provided by Nature Conservancy Council (1986) remains useful.

Site location may be modified by directional drilling, to avoid specific sites of habitat sensitivity. However, this may increase the duration and technical risks involved in drilling (and may also require the use of organic phase drilling fluids). Mitigation of visual and noise effects may increase scale and severity of local habitat effects

No additional regulatory controls or exclusion of areas from licensing through the SEA process is considered necessary.

Landscape

The spatial extent of physical disturbance effects associated with site construction is limited and each site is smaller than traditional oil and gas drilling sites, though commercial production of gas requires networks of boreholes (one every 500-1000m) and the total visual impact may be correspondingly high (e.g. where a linear effect occurs). Design mitigation measures and guidelines have been established, and where required exclusion and technical controls may be implemented under existing consenting and planning systems.

No additional regulatory controls or exclusion of areas from licensing through the SEA process is considered necessary.

A5.3.2.2 Exploration Drilling

Commercially viable VCBM containing formations tend to be shallower (200-1,500m depth) than traditional oil and gas targets and drilling times may therefore be relatively shorter (Table A5.16). Noise and vibration disturbance effects associated with drilling are limited in spatial scale, magnitude and duration. The visual impacts of drilling are the same for those associated with wellsite construction and operation and involve possible amenity issues which may be mitigated through site choice and good design.

Table A5.16 – The Magnitude and Duration of Effects Likely from Exploration Drilling

Topic	Magnitude		Duration	
Biodiversity, habitats, flora and fauna	O	-	S	M
Geology and soil	O		-	
Landscape	-		-	
Water environment	O		-	
Air quality and climatic factors	O	-	S	M
Population and human health	O	-	S	M
Material assets	O		-	
Cultural heritage	O		-	

Biodiversity, Habitats, Flora and Fauna

Significant interactions with designated or other sites of conservation value can be mitigated. Mitigation will be facilitated by effective consultation with statutory conservation agencies and planning authorities. Applicants will be aware of statutory designations and sensitivities, and will be required to operate under EMS, with particular regard to the seasonal timing of operations.

No additional regulatory controls or exclusion of areas from licensing through the SEA process is considered necessary.

Mitigation of visual and noise effects, as noted over, may increase scale and severity of local habitat effects.

Geology and Soils, Landscape, Water Environment, Population and Human Health, Material Assets and Cultural Heritage

Considerations in relation to these topics are as for conventional oil and gas.

A5.3.2.3 Hydrofracing and De-Watering

Hydrofracing is used to stimulate the production of gas by increasing the number of fractures in a rock formation, and therefore its permeability, through the injection of water under high pressure accompanied by (typically) sand which prevents the fractures closing. The process partly involves the abstraction of water or de-watering which also advances production by reducing hydrostatic pressure in the formation (Creedy 2001). The manner of disposal and treatment of this water will depend on its quality and the characteristics of local hydrological systems.

Table A5.17 – The Magnitude and Duration of Effects Likely from Hydrofracing

Topic	Magnitude	Duration	
Biodiversity, habitats, flora and fauna	O	-	
Geology and soil	O	-	
Landscape	O	-	
Water environment	-	M	L
Air quality and climatic factors	O	-	S
Population and human health	O	-	
Material assets	O	-	
Cultural heritage	O	-	

Biodiversity, Habitats, Flora and Fauna

No significant interactions are predicted beyond those involved in site construction and drilling. In some cases, large volume water storage capacity may be required (affecting overall site size).

Geology and Soils

No significant interactions are predicted as a result of planned activities.

Landscape

No significant interactions are predicted as a result of planned activities.

Water Environment

Significant quantities of water (and prop sand) are required to stimulate the coal (through hydrofracing) to facilitate gas release. Storage of water on site or abstraction of water has potentially negative implications for local water resources. Large volumes of water may be produced as a result of the de-watering process which may continue throughout the productive life of the well. The quality and quantity of produced water will determine the suitability of various disposal/treatment techniques. The availability of receiving waters and the sensitivity of aquatic organisms to the produced waters will determine the viability of surface discharge options and the degree of pre-treatment necessary. The impact of water removal on the local hydrological system will depend on the geology of the area, depth of the coal seams, their relationship with aquifers and the positioning of wells. As noted above, a robust analysis on the risk to groundwater presented by development drilling will be required, based on the geology and hydrogeology of the site. Subject to this assessment and appropriate technical mitigation of risks (through well design and operational procedures) no significant impacts are predicted.

Regulation of the disposal of liquid wastes into a surface water or geological formation has been updated by implementation of the Water Framework Directive through the Water Environment (Water Framework Directive) (England and Wales) Regulations 2003 and Water Environment and Water Services (Scotland) Act 2003. Under these Regulations, permission to re-inject produced water is granted by the EA/SEPA through the issue of a licence; however injection of other substances (not from the reservoir) will not generally be permitted.

No additional regulatory controls or exclusion of areas from licensing through the SEA process is considered necessary.

Air Quality and Climatic Factors

Exhaust emissions (e.g. from transfer and injection pumps) are the major source of air quality effects. These are not considered to be significant at a strategic level

No additional regulatory controls or exclusion of areas from licensing through the SEA process is considered necessary

Population and Human Health

No significant interactions are predicted.

Material Assets

Subject to operational planning, no significant interactions are predicted.

Cultural Heritage

Subject to operational planning, no significant interactions are predicted.

A5.3.2.4 Construction of Production Installations and Pipelines

The VCBM development phase may involve intense construction activity, potentially occurring at several sites within an area simultaneously. In addition to drilling production wells it will be necessary to construct infrastructure including gas and water collection lines, well head facilities, water treatment facilities, access roads and gas processing and pumping equipment. Pipeline linkage to the nearest commercial gas transmission pipeline would be needed.

Table A5.18 – The Magnitude and Duration of Effects Likely from the Construction Of Production Installations and Pipelines

Topic	Magnitude		Duration	
Biodiversity, habitats, flora and fauna	-	--	M	
Geology and soil	-		S	M
Landscape	-		S	M
Water environment	O		-	
Air quality and climatic factors	O	-	M	L
Population and human health	O	-	S	M
Material assets	O		-	
Cultural heritage	O		-	

Biodiversity, Habitats, Flora and Fauna

Road construction may disturb habitats and species along the route of any proposed access although vehicular routing will aim to minimise this. The environmental effects of constructing these pipelines should be short lived as they can be buried to minimise long-term disturbance.

These activities are qualitatively and quantitatively similar to other development and construction operations. The spatial extent of physical disturbance effects associated with production site and pipeline construction is likely to be substantially greater than at the exploration phase, although significant interactions with designated or other sites of conservation value (at international, national and local level) can be prohibited (as appropriate) and controlled (scale, timing) under existing consenting and planning systems. Detailed site-specific assessment and mitigation proposals would be required prior to planning approval under national EIA regulations, with specific reference to conservation status of surrounding areas (including statutory sites and UKBAP and LBAP habitats).

Floodlighting of construction sites should be assessed in terms of potential light disturbance of sensitive species during the EIA and planning permission processes.

Mitigation will be facilitated by effective consultation with statutory conservation agencies and planning authorities. Applicants will be aware of statutory designations and sensitivities, and should pay particular regard to the seasonal timing of construction operations.

No additional regulatory controls or exclusion of areas from licensing through the SEA process is considered necessary

Landscape

Commercial production of VCBM gas requires networks of boreholes and may involve intense construction activity, potentially at several sites. Visual impact may therefore be significant depending on location and timing. Mitigation may be implemented through operational controls. Residual visual impact over limited spatial and temporal scales is not considered to be significant at a strategic level.

No additional regulatory controls or exclusion of areas from licensing through the SEA process is considered necessary.

Geology and Soils, Water Environment, Population and Human Health, Material Assets and Cultural Heritage

Considerations in relation to these topics are as for conventional oil and gas.

A5.3.2.5 Production Operations

The scale of noise and vibration disturbance effects associated with production will depend on the size and type of facility, location, and effective mitigation. The duration of site occupation will depend on recovery rates and quantities connected to individual formation characteristics, ultimately controlled by coal type/rank, coal seam thickness, desorption rate, absolute, relative, and directional permeability, porosity, pore compressibility, diffusion coefficients and water saturation (Creedy 2001). Gas compressor stations may be sources of noise and vibration although site design and location will seek to minimise this.

The same landscape and water resource issues may be expected as during site construction and de-watering operations. Air quality issues associated with flaring will require to be controlled as for COG.

Table A5.19 – The Magnitude and Duration of effects Likely from Production Operations

Topic	Magnitude		Duration	
Biodiversity, habitats, flora and fauna	-		M	L
Geology and soil	O		-	
Landscape	-		S	M
Water environment	-		S	L
Air quality and climatic factors	O	-	M	L
Population and human health	O	-	M	L
Material assets	O		-	
Cultural heritage	O		-	

Biodiversity, Habitats, Flora and Fauna

Detailed site-specific assessment and mitigation proposals would be required prior to planning approval under national EIA regulations, with specific reference to conservation status of surrounding areas (including statutory sites and UKBAP and LBAP habitats).

No additional regulatory controls or exclusion of areas from licensing through the SEA process is considered necessary.

Air Quality and Climatic Factors

As with conventional oil and gas production, the DECC will require that flaring or venting be kept to the minimum technically and economically justified. The main purpose of this requirement is to ensure that gas is conserved where possible by avoiding unnecessary wastage during the production of hydrocarbons. Emissions associated with power generation and combustion plant can be controlled by a variety of operational management and technical measures, described by relevant IPC guidance. Fugitive emissions are likely to be the largest source category and may contribute to local effects on air quality and climatic factors as described above; however, local air quality impacts should be minimal. Any contribution to national emissions of greenhouse gas should be negligible.

The potential implications of planned activities on attainment of local and regional air quality plans should be considered in EIA to support planning and other consents. Fugitive emission control should be considered in detail during process design.

Key performance indicators in operator EMSs should include atmospheric emissions and contributions to climate change; resulting in effort towards continuous improvement.

No additional regulatory controls or exclusion of areas from licensing through the SEA process is considered necessary.

Geology and Soils, Water Environment, Population and Human Health, Material Assets and Cultural Heritage

Considerations in relation to these topics are as for conventional oil and gas as described in section A5.3.1.

A5.3.2.6 Decommissioning

Wells will need to be taken out of operation as they are exhausted, and water storage facilities decommissioned. Removal of infrastructure associated with individual wells can be carried out relatively quickly (2-6 weeks). Removal of infrastructure associated with a multi-well development will likely be a gradual process over the lifetime of the development (up to 30 years). The spatial extent of physical disturbance effects associated with decommissioning is unlikely to exceed that of the construction and operation phases. Decommissioning of wells and associated facilities will be addressed through conditions in planning consents and through PPC authorisation, which requires that the site of an installation be returned to a satisfactory state on closure of the installation. Permission to decommission onshore wells is also required from the DECC and will require submission and agreement in advance of a Cessation of Production (COP) report.

Table A5.20 – The Magnitude and Duration of Effects Likely from Decommissioning

Topic	Magnitude	Duration	
Biodiversity, habitats, flora and fauna	-	M	L
Geology and soil	-	S	M
Landscape	-	S	M
Water environment	O	-	
Air quality and climatic factors	O	-	
Population and human health	O	-	
Material assets	O	-	
Cultural heritage	O	-	

Biodiversity, Habitats, Flora and Fauna

In most cases it is expected that site restoration could be achieved to pre-operational status in terms of habitat characteristics and biodiversity. Restoration timescale will depend on habitat type and dominant community, with complete restoration possibly requiring decades (e.g. where mature woodland has been removed). In addition to restoration of physical habitats and biological communities, consideration should also be given to restoration of the accessibility of the site (e.g. where access roads have been constructed).

No additional regulatory controls or exclusion of areas from licensing through the SEA process is considered necessary.

Geology and Soils, Landscape, Water Environment, Air quality and climatic factors, Population and Human Health, Material Assets and Cultural Heritage

Considerations in relation to these topics are as for conventional oil and gas as described in section A5.3.1.

Summary

Table A5.21 and below summarises the magnitude and duration of impacts related to each stage of VCBM exploration, production and decommissioning detailed above.

Table A5.21 – Relative Impact Magnitude and Duration Summary for VCBM Operations

Activity	Biodiversity, habitats, flora and fauna		Geology and soil		Landscape		Water environment		Air quality and climatic factors		Population and human health		Material assets		Cultural heritage	
Impact Magnitude																
Exploration wellsite construction	-		-		-		O		O	-	O	-	O		O	
Exploration drilling	O	-	O		-		O		O	-	O	-	O		O	
Hydrofracing and de-watering	O		O		O		-		O	-	O		O		O	
Construction of production installations/pipelines	-	--	-		-		O		O	-	O	-	O		O	
Production operations	-		O		-		-		O	-	O	-	O		O	
Decommissioning	-		-		-		O		O		O		O		O	
Impact Duration																
Exploration wellsite construction	S	L	S	M	S	M	-		S	M	S	M	-		-	
Exploration drilling	S	M	-		-		-		S	M	S	M	-		-	
Hydrofracing and de-watering	-		-		-		M	L	S	M	-					
Construction of production installations/pipelines	M		S	M	S	M	-		M	L	S	M	-		-	
Production operations	M	L	-		S	M	S	L	M	L	M	L	-		-	
Decommissioning	M	L	S	M	S	M	-		-		-		-		-	

A5.3.3 Gas Storage (GS)

By definition, gas storage in depleted reservoirs will not involve an exploration and appraisal phase. Limited seismic may be carried out for reservoir definition, with effects comparable to those considered above.

A5.3.3.1 Construction of Production Installations and Pipelines

Gas storage projects under consideration in this SEA involve the use of depleted reservoirs, implying that some existing infrastructure is in place. Re-development as a storage facility will typically utilise an existing oil or gas infrastructure site (approximately 1ha) with additional gas processing plant increasing site size to about 2ha.

Storage development activities are qualitatively and quantitatively similar to a range of other development and construction. The spatial extent of physical disturbance effects associated with production site and pipeline construction is likely to be substantially greater than a COG or VCBM exploration phase.

Table A5.22 – The Magnitude and Duration of Effects Likely from the Construction of Production Installations and Pipelines

Topic	Magnitude		Duration	
Biodiversity, habitats, flora and fauna	-	--	M	
Geology and soil	-		S	M
Landscape	-		S	M
Water environment	O		-	
Air quality and climatic factors	O	-	M	L
Population and human health	O	-	S	M
Material assets	O		-	
Cultural heritage	O		-	

Biodiversity, Habitats, Flora and Fauna

Significant interactions with designated or other sites of conservation value (at international, national and local level) can be prohibited (as appropriate) and controlled (scale, timing) under existing consenting and planning systems. Detailed site-specific assessment and mitigation proposals would be required prior to planning approval under national EIA regulations, with specific reference to conservation status of surrounding areas (including statutory sites and UKBAP and LBAP habitats). Subject to this detailed assessment, it is therefore concluded that activities resulting from proposed licensing will not significantly affect UK habitats and species at a strategic level.

Floodlighting of construction sites should be assessed in terms of potential light disturbance of sensitive species.

Mitigation will be facilitated by effective consultation with statutory conservation agencies and planning authorities. Applicants will be aware of statutory designations and sensitivities, and should pay particular regard to the seasonal timing of construction operations.

No additional regulatory controls or exclusion of areas from licensing through the SEA process is considered necessary.

Geology and Soils, Landscape, Water Environment, Air quality and climatic factors, Population and Human Health, Material Assets and Cultural Heritage

Considerations in relation to these topics are as for conventional oil and gas as described in section A5.3.1.

A5.3.3.2 Storage Operations

The scale of noise and vibration disturbance effects associated with production and gas compression will depend on the size and type of facility, location, and effective mitigation.

Table A5.23 – The Magnitude and Duration of Effects Likely from Storage Operations

Topic	Magnitude	Duration	
Biodiversity, habitats, flora and fauna	-	M	L
Geology and soil	O		
Landscape	-	M	L
Water environment	O		
Air quality and climatic factors	O -	M	L
Population and human health	-	M	L
Material assets	O		-
Cultural heritage	O		-

Biodiversity, Habitats, Flora and Fauna

Detailed site-specific assessment and mitigation proposals would be required prior to planning approval under national EIA regulations, with specific reference to conservation status of surrounding areas (including statutory sites and UKBAP and LBAP habitats).

No additional regulatory controls or exclusion of areas from licensing through the SEA process is considered necessary.

Air Quality and Climatic Factors

As with conventional gas production, the DECC will require that flaring or venting be kept to the minimum that is technically and economically justified. The main purpose of this requirement is to ensure that gas is conserved where possible by avoiding unnecessary wastage during the production of hydrocarbons.

Emissions associated with power generation and combustion plant can be controlled by a variety of operational management and technical measures, described by relevant IPC guidance.

Fugitive emissions are likely to be the largest source category and may contribute to local effects on air quality and climatic factors as described above, though local air quality impacts should be minimal. Contribution to national emissions of greenhouse gas is likely to be negligible.

The potential implications of planned activities on attainment of local and regional air quality plans should be considered in EIA to support planning and other consents. Fugitive emission control should be considered in detail during process design.

Key performance indicators in operator EMSs should include atmospheric emissions and contributions to climate change; resulting in effort towards continuous improvement.

No additional regulatory controls or exclusion of areas from licensing through the SEA process is considered necessary.

Geology and Soil

No significant interactions are predicted as a result of activities, particularly where an existing oil and gas facility is reused for storage.

Landscape

The addition of a gas processing plant (2ha) will increase the size of a development. The duration of such effects should be considered in terms of cumulative effects against the likely evolution of the baseline in this area.

Water Environment

When using depleted reservoirs for storage, during the off-take phase native hydrocarbons may be produced and incremental oil recovery may also occur, and storage/transport of these will be required. Either new development plans, or addendum plans for those fields with existing plans, are required for gas storage in depleted reservoirs. No significant interactions are predicted.

Population and Human Health

Noise may be produced during operation of storage facilities (e.g. noise from compressors). This may be incremental to other sources of noise in the area, and be significant in rural areas which are remote from major roads or other noise sources. The impact of such noise should be considered at the EIA stage – noise mapping initiated under the Environmental Noise Regulations has produced maps of existing ambient noise levels in relation to transport links and industry and these should help guide acceptable noise levels. No other significant interactions are predicted.

Material Assets

Subject to operational planning, no significant interactions are predicted.

Cultural Heritage

Subject to operational planning, no significant interactions are predicted.

A5.3.3.3 Decommissioning

The operational lifetime of a gas storage facility is likely to depend on economic and technical factors relating to the wider demand for gas (since reservoir depletion is not a consideration).

Removal of infrastructure associated with individual wells can be carried out relatively quickly (2-6 weeks). Removal of transport infrastructure linking the facility with the NTS will have a duration and impact comparable to installation.

The spatial extent of physical disturbance effects associated with decommissioning is unlikely to exceed that of the construction and operation phases. Decommissioning of wells and associated facilities will be addressed through conditions in planning consents; and through PPC authorisation, which requires that the site of an installation be returned to a satisfactory state on closure of the installation. Permission to decommission onshore wells is also required from the DECC and will require submission and agreement in advance of a Cessation of Production (COP) report.

Table A5.24 – The Magnitude and Duration of Effects Likely from Decommissioning

Topic	Magnitude	Duration	
Biodiversity, habitats, flora and fauna	-	M	L
Geology and soil	-	S	M
Landscape	-	S	M
Water environment	O	-	
Air quality and climatic factors	O	-	
Population and human health	O	-	
Material assets	O	-	
Cultural heritage	O	-	

Biodiversity, Habitats, Flora and Fauna

In most cases it is expected that site restoration could be achieved to pre-operational status in terms of habitat characteristics and biodiversity. However, restoration timescale will depend on habitat type and dominant community, with complete restoration possibly over decades (e.g. where mature woodland has been removed). In addition to restoration of physical habitats and biological communities, consideration should also be given to restoration of the accessibility of the site (e.g. where access roads have been constructed).

No additional regulatory controls or exclusion of areas from licensing through the SEA process is considered necessary.

Geology and Soils, Landscape, Water Environment, Air quality and climatic factors, Population and Human Health, Material Assets and Cultural Heritage

Considerations in relation to these topics are as for conventional oil and gas as described in section A5.3.1.

Summary

Table A5.25 below summarise the magnitude and duration of impacts related to each stage of COG exploration, production and decommissioning detailed above.

Table A5.25 – Relative Impact Magnitude and Duration Summary for GS Operations

Impact Magnitude																
Activity	Biodiversity, habitats, flora and fauna		Geology and soil		Landscape		Water environment		Air quality and climatic factors		Population and human health		Material assets		Cultural heritage	
	-	-	-	-	-	-	O	O	-	O	-	O	O	O	O	O
	-		O	-	-	-	O	O	-	-	-	O	O	O	O	O
	-		-	-	-	-	O	O	O	O	O	O	O	O	O	O
	-		-	-	-	-	O	O	O	O	O	O	O	O	O	O
Impact Duration																
Construction of production installations/pipelines	M		S	M	S	M	-	M	L	S	M	-	-	-	-	-
Storage operations	M	L	-		M	L	-	M	L	M	L	-	-	-	-	-
Decommissioning	M	L	S	M	S	M	-	-	-	-	-	-	-	-	-	-

A5.4 Consideration of Plan Alternatives and Indicators

The following section considers the potential impact of the plan alternatives on the indicator set described in Section 4.4 of the environmental report, *Likely evolution of the baseline*, and which were covered in each section of appendix 4. The Plan alternatives include:

1. Not to offer any blocks for licensing
2. To proceed with the licensing programme as proposed
3. To restrict the area licensed temporally or spatially

The results of the assessment utilise the following qualitative key to categorise the nature of the predicted impact:

	Activity would have a major positive effect on indicator
	Activity would have a minor positive effect on indicator
	Activity would have a neutral effect on indicator
	Activity would have a minor negative effect on indicator
	Activity would have a major negative effect on indicator

Table A5.26 below shows the relationship between each indicator used to and the potential resultant magnitude of any possible impacts given the adoption of each alternative.

Table A5.26 – The Relationship of SEA Indicators to Plan Alternatives

#	Indicator	Current Status/Trends	Plan alternatives			Commentary
			1	2	3	
Biodiversity, Habitats, Flora and Fauna (Appendix 4a)						
1	Bird Populations					
	Farmland	Farmland bird populations fell by 53% between 1970 and 2008. Most of this decline took place between the mid-1970s and mid-1990s. In the last three years, the farmland bird index has fallen to its lowest recorded level.				Alternatives 2 and 3 may cause disturbance to birds or bats, although the scale of disturbance (noise, vibration and light etc.) will depend on the size and type of facility, location, duration of activities, and effective mitigation. At a strategic level, minor negative impacts are likely with the potential of positive impacts through good site restoration and remediation.

#	Indicator	Current Status/Trends	Plan alternatives			Commentary
			1	2	3	
	<i>Woodland</i>	Between 1970 and 2008, there was a 25% decrease in UK abundances of woodland birds. The most severe decline occurred in the late 1980s and early 1990s, but the index has been broadly stable in recent years.				
	<i>Coastal</i>	Seabird populations have increased by 27% between 1970 and 2008. Populations peaked in the late 1980s, with a small decline occurring since then. Despite a sustained rise in the measure, kittiwake, shag and fulmar have all suffered significant declines in recent years, contributing to a dip in the indicator between 2003 and 2004.				
	<i>Wintering and waders</i>	Across the UK, the wintering wetland bird index was 88% higher in 2008 than in 1975-6, with populations peaking in 1996-7.				
2	Butterfly populations	Long term butterfly population trends are difficult to interpret due to large interannual fluctuations in the data. Since 1976 the measure for specialist species (see Appendix 4a) has fallen significantly, but that for generalist species has shown little to no overall change. There seems to be no statistically significant change in the underlying data for any of the recorded species in recent years.				

#	Indicator	Current Status/Trends	Plan alternatives			Commentary
			1	2	3	
3	Bat populations	Since 2000, bat populations have increased by a collective total of 20%, mainly due to a significant increase in the lesser horseshoe bat. Prior to this bats had experienced a major population decline which has recently stabilised (and is now increasing) due to protection and direct conservation action, though they remain under threat from landscape change and development pressure				
4	Biodiversity					
	<i>BAP priority species</i>	UK: 1999-2008. The number of species assessed as stable or increasing has risen from 202 to 214 (an increase of 3.5%), while the number recorded as declining or lost fell from 137 to 125. Despite this modest improvement, the number of species assessed as 'increasing' has fallen from 48 to 45. 89 are still declining and 6 have been lost from the UK since 1994. Scotland: 2005, 50% of species identified as stable or increasing. 14% considered to be in decline. Wales: 2002-2005. BAP species stable or increasing rose from 22% to 34%. Declining species remained at 18%.				Potential disturbance to priority species may result from alternatives 2 and 3. Detailed site-specific assessment and mitigation proposals would be required prior to planning approval under national EIA regulations, with specific reference to conservation status of surrounding areas (including statutory sites and UKBAP and LBAP habitats and species). Subject to this assessment, activities resulting from proposed licensing will not significantly impact BAP species and habitats at a strategic level.

#	Indicator	Current Status/Trends	Plan alternatives			Commentary
			1	2	3	
	<i>BAP priority habitats</i>	UK: 1999-2008. Based on a comparison of the earliest available and most recent assessment for each habitat, the number either 'stable' or 'increasing' in area has fallen from 21 to 20 (2.5% of the known habitats). 15 priority habitats (44%) are still declining in extent. Scotland: 2005, 33% of those considered were stable or increasing, while 30% were in decline. Wales: 2002-2005: 36% of priority habitats in Wales were stable or increasing compared to 30% in 2002. The proportion of habitats in decline has increased from 46% (2002) to 59% (2005).				A large proportion of the 65 priority habitat types identified by the UKBAP are represented in the areas that may be offered for licence and these have varying degrees of sensitivity to physical disturbance.
5	Condition of species and habitats†	74.6% of species features are in a favourable or recovering condition. 65.6% of habitat features are in a favourable or recovering condition. Not a SD indicator and no targets published.				Existing large-scale onshore developments (e.g. Wytch Farm) have demonstrated that significant interactions with designated and other sites of conservation value can be mitigated and that features of high conservation value can be maintained in close proximity to production operations.
Geology and Soils (Appendix 4b)						
6	Condition of earth science features†	88.1% of earth science features are in a favourable or recovering condition. Not a SD indicator and no targets published.				The robust nature of many earth science sites means that they are unlikely to be significantly disturbed by activities resulting from licensing. Potential positive effect of uncovering obscured features. See also <i>Condition of species & habitat features</i> (SSSI, SAC, SPA & Ramsar) above.

#	Indicator	Current Status/Trends	Plan alternatives			Commentary
			1	2	3	
7	Soil condition and threats†					
	Loss of soil organic matter†	There is limited data for Scotland, but recent surveys in England and Wales indicate that there has been an average loss of organic matter of 15% in arable soils and rotational grass soils, 16% in soils under permanently managed grassland and 23% in agriculturally managed soils and semi-natural land.				Careful site design and management, and consideration of local hydrology and soil characteristics should prevent the loss of soil during any vegetation clearance and road construction. Site reinstatement should also consider best practices to stabilise land.
	Loss of soil to development (England and Wales)†	The amount of soil lost to development has gradually decreased from nearly 8,000ha in 1995 to 4,200ha in 2006. In 2008, 79% of new homes were developed on brown-field sites, an increase of 23 percentage points since 1997.				The loss of land to development would be very small, the typical area of any development being 1-4ha, though more extensive tracts of land may be expected to be disturbed as a result of exploration, appraisal and pipelay. Site reinstatement and the underground burying of any pipes should minimise loss of land.
Landscape (Appendix 4c)						
8	Changes to landscape character†	A comparison of results from the previous (1990-1998) and most recent (1999-2003) CQC study reveal that NCAs which have a pattern of change which can be described as maintained or enhanced have increased from 36% to 61%. Some of these changes may be to do with a refinement in assessment methodology.				Impacts should only be for the duration of the life of the development. Landscapes considered to be of particular value and/or sensitivity identified under a range of designations are afforded a degree of protection through the statutory consenting and planning systems. Mitigation may be implemented through siting and operational controls; residual visual impact may occur over limited spatial and temporal scales – not considered to be significant at a strategic level.

#	Indicator	Current Status/Trends	Plan alternatives			Commentary
			1	2	3	
9	Tranquil areas†	A total loss of tranquillity amounting to 21% has taken place in England (1960-1990). In Wales, between 1997 and 2009 there was an overall loss of 1,500km ² of undisturbed area (~6% of the land area of Wales). A pilot study suggests that disturbance in the Scottish Midlands may also have increased.				Disruption, disturbance and nuisance effects on human communities are associated principally with traffic congestion, noise and dust; consistent with a range of other construction and development projects of a similar scale. These effects may be more significant in rural and non-industrialised areas.
10	Light pollution†	About 24% of the UK land area had shifted up a brightness band between 1993 and 2000. There was a similar increase in brightness for England (26%) with smaller increases for Scotland (17%) and Wales (19%).				Potential activities resulting from alternatives 2 and 3 will have a minor impact on light pollution (e.g. site safety lighting, vehicle lights, flaring operations). The extent of the impact will depend on location, duration and timing. Mitigation may be implemented through operational controls; residual visual impact over limited spatial and temporal scales is not considered to be significant at a strategic level.
Water Environment (Appendix 4d)						
11	Biological and Chemical Quality of Rivers	This indicator will in due course be changed to reflect assessments of ecological status as required by the Water Framework Directive. See Appendix A4d for details. At present, the chemical/biological quality of rivers is measured differently in Scotland than in England and Wales and so results between these areas are not directly comparable, though in Scotland the percentage of rivers of good quality has remained stable at around 87% between 2000 and 2006, based on a combined chemical, biological and aesthetic assessment.				Alternatives 2 and 3 could result in activities that may pose a risk to surface and ground waters (e.g. lost circulation of drilling fluids, site drainage, accidental spillages, liquid storage). These issues are not unique to the oil and gas industry and best practice management and mitigation practices are well established. A high level of regulatory control by the EA and SEPA is implemented through PPC, including requirements under the Groundwater and Water Framework Directives.

#	Indicator	Current Status/Trends	Plan alternatives			Commentary
			1	2	3	
	Biological River Quality*	Between 1990 and 2007 the percentage of rivers of good biological quality in England rose from 60 to 72% (excluding London office region). In 2007, 87% of rivers in Wales were of good biological quality.				
	Chemical River Quality*	In 2007, 76% of English rivers (excluding London office region) were of good chemical quality, compared with 43% in 1990. In all years since 1993, over 90% of rivers in Wales have been of good chemical quality.				
12	Water Resource Use					
	Total abstractions from surface and groundwater	In 2006, 35 billion litres of water were abstracted per day from non-tidal surface and ground water sources in England and Wales.				Water abstraction is not expected to be significant for most operations, though larger quantities of water may be expected to be used for hydrofracing operations in relation to shale gas extraction.
	Leakage losses	In 2007/08, 3,291 Ml/d of water put into the supply in England and Wales was lost through leakage, which as a percentage of total input, is 7% less loss (22 vs. 29%) than in the peak year of 1994/5.				Plan alternatives will have no significant impact.
13	Public water yield and demand (Scotland)	There was a net increase of ~3.5% in water demand between 1981 and 2006.				Plan alternatives will have no significant impact.
14	Water stress (England and Wales)	Abstractions from surface waters are already at their limit in the summer for much of England and also in the winter for parts of the South and East.				Operators should ensure that aquifer and local surface water bodies are not affected by activities, as in relation to indicator 12 above.

#	Indicator	Current Status/Trends	Plan alternatives			Commentary
			1	2	3	
15	Bathing Waters†	Overall, the number of mandatory (95.8%) and stricter guideline (63.9%) passes in the UK was less in 2008 than in 2007, though there has been a general trend of increasing standards, offset in 2008 by exceptionally high rainfall. In Scotland, 7 bathing waters failed to meet basic standards, as did 1 in Wales.				Provided that surface and groundwater bodies are suitably protected the plan alternatives should have no significant impact on bathing waters.
Air Quality (Appendix 4e)						
16	Emissions of air pollutants	The national emission of air pollutants (NH ₃ , SO ₂ , NO _x , and PM ₁₀) reduced between 1990 and 2007. Ammonia (NH ₃) reduced by ~20%, nitrogen oxides (NO _x) by ~45%, particulates (PM ₁₀) by ~50% and sulphur dioxide (SO ₂) by ~80%.				The scale of pollutant gas emissions from plan related activities is minor in the context of overall UK emissions and relative to those from UK oil & gas production, though they will contribute to the overall emission of pollutants which are regarded as having negative environmental and human health implications.
17	Ecological impact of air pollutants					
	Area affected by acidity*	Between 2000 and 2005 the area where acid deposited exceeded critical loads declined from 60 to 58%.				Given the scale and nature of likely activities, mandatory mitigation and the location of sensitive habitat, there are likely to be at most very minor negative impacts to the land area affected on adoption of alternatives 2 and 3.
	Area affected by nitrogen*	Between 2000 and 2004 the area where nutrient nitrogen exceeded critical loads remained at 59%, down from 65% in 1996. The value increased to 61% in 2005.				
18	Air Quality and Health (see indicator 27)					
Climatic Factors (Appendix 4f)						

#	Indicator	Current Status/Trends	Plan alternatives			Commentary
			1	2	3	
19	<i>Greenhouse gas emissions</i>	Emissions of the six primary greenhouse gases that the UK is committed to reduce under the Kyoto Protocol were provisionally estimated to be 623.8 million tonnes in 2008, 20% below 1990 levels. Emissions of the principle greenhouse gas, CO ₂ , were estimated to be ~10% lower than 1990 levels for 2008. Net greenhouse gas emissions in Scotland have reduced by 15.4% between 1990 and 2005, equalling 54.6 million tonnes in 2005. For Wales, emissions of the basket of greenhouse gases declined by 7.9% between 1990 and 2006.				The scale of greenhouse gas emissions from plan related activities is minor in the context of overall UK emissions and relative to those from UK oil and gas production. Regardless, such emissions will be included in future UK wide climate change response control initiatives.
20	Carbon dioxide emissions by end user*					Plan alternatives will have no significant impact on CO ₂ emissions by end user.
	<i>Industry</i>	2007: CO ₂ reduced by 16% on 1990 levels.				
	<i>Domestic</i>	2007: CO ₂ reduced by 9% on 1990 levels.				
	<i>Transport</i>	2007: CO ₂ increased by 9% on 1990 levels.				
21	Electricity generation					Plan alternatives will have no significant impact on fossil fuel usage by electricity generation.
	<i>Electricity consumption, fossil fuels used</i>	Electricity consumption increased by 24% between 1990 and 2007, with an accompanying increase in fossil fuel use of 12%.				
	<i>CO₂ and NO_x emissions</i>	Since 1999, both NO _x and CO ₂ have shown an increase of ~4% and ~24% respectively to 2007, though are ~50% and ~10% lower than 1990 figures respectively.				

#	Indicator	Current Status/Trends	Plan alternatives			Commentary
			1	2	3	
	<i>SO₂ emissions</i>	SO ₂ emissions declined by ~90% between 1990 and 2007.				
22	Renewable energy	In 2008, renewable sources of electricity represented 5.5% of the total energy mix, increasing from 1.8% in 1990. The increase in renewable energy has principally been from biomass and wind sources.				Plan alternatives will have no significant impact.
Population and Human Health (Appendix 4g)						
23	Demography	Population was estimated to be 61.3 million in mid-2008, up from 58.8 million in 2001, 57.2 million in 1990 and 55.6 million in 1970. The UK population is expected to expand by ~7% in the period between 2006 and 2016.				Wider population and health issues will be effectively controlled by regulation of discharges, emissions and noise. Health and safety of local workforce and surrounding communities are stringently regulated under existing statutory controls and operator management systems.
24	Life expectancy at birth*					
	<i>Men</i>	In 2004, UK average male life expectancy was 76.6 years for men, with a healthy life expectancy of 67.9. From the 2001 Census, overall average life expectancies in England, Wales and Scotland were 76, 75.4 and 73.3 years respectively.				
	<i>Women</i>	In 2004, UK average female life expectancy was 81 years, with a healthy life expectancy of 70.3. From the 2001 Census, overall average life expectancies in England, Wales and Scotland were 80.6, 80.6 and 78.8 years respectively.				

#	Indicator	Current Status/Trends	Plan alternatives			Commentary
			1	2	3	
25	General health	In the UK, 9.3% of people described their health for the 12 months prior to Census day (29 April 2001) as “not good”. This compared with 9.0% (England), 10.2% (Scotland) and 12.5% (Wales).				
26	Environmental Equality*	Less than 0.5% of the population in the least deprived areas experience 3 or more environmental conditions that are ‘least favourable’, rising to ~22% in the most deprived areas.				Site location and design should consider possible cumulative impacts, particularly in areas already experiencing a high level of deprivation or environmental inequality.
27	Air quality and health	The number of days when air pollution was assessed as being moderate or higher at urban sites has reduced significantly since 1993 (with the exception of a peak in 2003) while the number of days affected in rural areas, caused largely by ozone, shows no overall trend.				Wider population and health issues will be effectively controlled by regulation of discharges, emissions and noise. Health and safety of local workforce and surrounding communities are stringently regulated under existing statutory controls and operator management systems.
	Noise pollution†	There is no specific indicator data or targets relating to this topic. See section A4g.3.6 for details.				It may be expected that the adoption of alternatives 2 or 3 may increase ambient noise levels. Wider population and health issues will be effectively controlled by regulation noise. Health and safety of local workforce and surrounding communities are stringently regulated under existing statutory controls and operator management systems.
Material Assets (Appendix 4h)						
28	Onshore crude oil production	UK onshore crude oil production decreased steadily from 5.2 million tonnes in 1998 to 1.25 million tonnes in 2008.				Potential crude oil production arising from licensing would have a positive impact on onshore production on adoption of alternatives 2 or 3.

#	Indicator	Current Status/Trends	Plan alternatives			Commentary
			1	2	3	
29	Onshore gas production	UK onshore gas production has fallen steadily from 289 million cubic metres in 1999 to 97 million cubic metres in 2008.				Potential gas production arising from licensing would have a positive impact on onshore production on adoption of alternatives 2 or 3.
30	Coal production	UK total coal production has fallen from 147.2 million tonnes in 1970 to 17.9 million tonnes in 2009.				Given the small scale and nature of likely activities and mandatory mitigation (including planning controls), potential activities resulting from licensing are unlikely to sterilise coal reserves or affect coal production.
31	Fossil fuel dependency	The mix of primary fuels consumed for energy purposes in the UK has become increasingly diverse since 1970, when it was heavily dominated by coal and petroleum. Fossil fuel dependency has been falling gradually since 1970, though has risen slightly since 1997 due to a decrease in nuclear electricity generation				Plan alternatives will have no significant impact on fossil fuel dependency.
32	Energy supply	The UK's indigenous energy production broadly met or exceeded gross inland energy consumption during the 1990s. Since 1999 indigenous energy production has fallen from being 22% above consumption to 19% less than consumption in 2006, with the UK a net importer of energy.				Potential oil and gas production arising from licensing may have a positive impact on UK indigenous energy production on adoption of alternatives 2 or 3.

#	Indicator	Current Status/Trends	Plan alternatives			Commentary
			1	2	3	
33	Land use	In 2006, 52% of land in the UK was either grass or rough grazing land, and 18% of land was covered by crops or left bare fallow. Other forms of agriculture accounted for 3% of UK land. 12% of UK land area was forest and woodland whilst 14% of land area was urban land or 'land not otherwise specified'. Inland water covered 1% of UK land area.				Given the small scale and nature of likely activities and mandatory mitigation (including planning controls), potential activities are unlikely to impact negatively on other land users. Land remediation as part of the decommissioning process may also have a positive impact for subsequent land use.
	Agricultural land use (Scotland)	Between 1982 and 2000, the total land used for agriculture in Scotland decreased by 5% to 6.08mha, followed by a slight rise to 6.2mha in 2007. The area of rough grazing decreased by 0.63mha (14%) between 1982 and 2003, rising slightly by 2007. In 2007, the area of woodland and other land was more than three times greater than in 1982.				
	Land recycling	The percentage of new dwellings arising from building on previously developed land or through the conversion of existing buildings increased from 54% in 1990 to 75% in 2007 (provisional estimate).				Land remediation as part of the decommissioning process may have a positive impact for subsequent land recycling.
Cultural Heritage (Appendix 4i)						
34	Number of designated heritage assets					
	<i>Number of scheduled ancient monuments</i>	The number of scheduled monuments in England has increased by ~1.4% between 2003 and 2009.				Plan alternatives will have no significant impact.

#	Indicator	Current Status/Trends	Plan alternatives			Commentary
			1	2	3	
	<i>Number of listed buildings</i>	The number of listed buildings in England has not changed significantly between 2003 and 2009 (<0.5%).				Plan alternatives will have no significant impact.
35	Historic Environment at Risk					
	<i>Percentage of grade I and II buildings at risk</i>	The number of listed building at risk in England has reduced by ~0.5% between 1999 and 2009.				Plan alternatives will have no significant impact.
	<i>Monuments at high risk</i>	In England, the Heritage at Risk Register recorded a ~15% fall in monuments at risk between 1999 and 2008. Those areas with the greatest proportion of assets at risk are the South West, West Midlands and Yorkshire and Humberside.				Plan alternatives will have no significant impact.

Note: *signifies a framework indicator – those shared by the UK Government and the devolved administrations; †indicates an additional indicator out with those of the UK government sustainable development strategy.

A5.5 Potential Cumulative and Transboundary Impacts

There are relatively few foreseeable interactions between effects of the proposed activities which can be considered significant. Interactions can arise from a number of mechanisms:

- Cases where a number of activities, whether simultaneous or consecutive, give rise to the same effect (e.g. physical disturbance; visual intrusion)
- Cases where different effects arising from the same (or different) activities act together on the same receptor (e.g. in some cases, noise and light disturbance)
- Cases where two or more physiological or ecological effects, acting together, have a more significant effect than would be predicted as a simple “addition” of effect (i.e. synergistic effects)

From the assessment of individual effects above, it is clear that many activities associated with the proposed plan may cause physical disturbance of habitats with resultant effects on individual species and biodiversity. The significance of this interaction is unlikely to be high in a strategic context (i.e. insofar as it may adversely affect a UKBAP or LBAP habitat or species) but will be considered in specific EIA and planning processes. It must be noted that although EIA and planning considerations for exploration, and appraisal stages of conventional oil and gas exploitation cannot validly consider the effects of subsequent development, the assessment of any subsequent stage would be required to recognise the effects resulting from preceding stages. Similar considerations would apply in respect of visual intrusion, which may result from simultaneous and/or consecutive activities.

It might be expected that the ecological effects of multiple sources or types of disturbance (for example noise and light disturbance to breeding birds) would be greater than individual sources. The validity of this assumption is difficult to test, however, and other factors such as habituation also need to be taken into account. Overall, it is not considered that this issue is significant at a strategic level.

“Classic” synergistic effects, e.g. toxicological effects resulting from environmental contamination, are not foreseen given existing control mechanisms for activities and any associated wastes and by-products.

A5.5.1 Cumulative Effects

The SEA directive and the *Environmental Assessment of Plans and Programmes Regulations 2004* require *inter alia* that secondary, cumulative and synergistic effects should be considered, and the assessment of these below should be considered in addition to those individual effects identified above.

Secondary, cumulative and synergistic effects are not defined by the SEA Directive, though ODPM (2005) notes that the terms are to some extent not mutually exclusive, and that often the term cumulative effects is taken to include secondary and synergistic effects. ODPM (2005) defines these as:

Secondary or indirect effects are effects that are not a direct result of the plan, but occur away from the original effect or as a result of a complex pathway. Examples of secondary effects are a development that changes a water table and thus affects the ecology of a nearby wetland; and construction of one project that facilitates or attracts other developments.

Cumulative effects arise, for instance, where several developments each have insignificant effects but together have a significant effect; or where several individual effects of the plan (e.g. noise, dust and visual) have a combined effect.

Synergistic effects interact to produce a total effect greater than the sum of the individual effects. Synergistic effects often happen as habitats, resources or human communities get close to capacity. For instance a wildlife habitat can become progressively fragmented with limited effects on a particular species until the last fragmentation makes the areas too small to support the species at all.

As many of the predicted sources of effect for the proposed plan are similar in nature to those arising from other industrial developments, cumulative effects are likely to be incremental in magnitude.

Cumulative effects can arise from:

- Accumulation of the individual footprints of a local effect, e.g. habitat loss or disturbance associated with multiple developments in local area, particularly where the footprints overlap
- Collective demand for resources, both material (e.g. building materials) and services (e.g. landfill)
- Collective effects of emissions or discharges, where these influence a common receptor (e.g. atmospheric greenhouse gas concentrations)

Other cumulative effects may be qualitative, e.g. loss of amenity value for recreational purposes, or loss of tranquillity may be associated with any industrial development in a rural environment. Government initiatives to progress renewable energy and Carbon Capture and Storage (CCS) are unlikely to have significant cumulative effects. Cumulative visual effects may be possible between onshore wind and any oil and gas infrastructure, though since the location (and to a certain extent the scale) of activities that could follow the adoption of the draft plan/programme are uncertain, these cannot be assessed with any certainty.

The UK Government CCS programme, the Framework for the Development of Clean Coal (FDCC), seeks to have four demonstrator projects operational by 2020 associated with coal fired electricity generating plants. It is unlikely that significant cumulative effects could take place in the time horizon for this SEA with regards to the FDCC programme, as the largest effects of the FDCC are likely to be following the requirement to retrofit CCS technology following the establishment of a technologically and commercially feasible method being identified (post-2020). In any case, it is highly likely the programme will make use of offshore reservoirs and therefore onshore pressures are likely to be derived from pipelay and any additional plant used in capture. Areas that could potentially be centres for CCS development, amongst others, include the Humber (see Yorkshire Forward 2008), Teesside, Thames Gateway, the Firth of Forth and Merseyside, which are areas that coincide with a number of blocks currently licensed onshore oil and gas and in the long-term there may be some scope for incremental effects.

As discussed above, the scale of activities resulting from the proposed plan/programme, and therefore the scale of associated effect, is relatively small in comparison to other mineral extraction and energy developments on a national scale. The proposed plan will not make a substantial contribution to the overall cumulative effect in any of the categories under consideration; and is therefore not considered to present a significant risk of cumulative effect in a strategic context.

A5.5.2 Transboundary Effects

Transboundary effects are not foreseen, with the exception of regional and global consequences of atmospheric emissions. As discussed above, the contribution of the proposed activities to national total emissions is minor.

A5.6 Summary and Conclusion of the Assessment

A number of SEA objectives (Table A5.27) were decided upon for each environmental topic in consultation with those statutory bodies indicated in appendix 2. The following section summarises the above assessment in relation to these objectives.

Table A5.27 –SEA Objectives and Summary Conclusions

SEA Objective	Summary Consideration	Mitigation
Biodiversity, Habitats, Flora and Fauna		
Contributes to conservation of the wildlife and wildlife habitats of the United Kingdom.	Exploration activities are typically of short duration whilst production and export facilities are in place for longer. EIA under the operator's EMS and regulatory requirements will provide effective mitigation through consultation and site and timing selection to obviate or minimise effects.	Through the SEA process awareness of the existence of designated sites and protected species will be raised at the application stage, which will be carried through to the operational phase though DECC and other requirements.
Avoids significant impact to, or disturbance of, protected habitats and species of national and international importance.		
Geology and Soils		
Maintains the function and integrity of soil processes and services.	Facility siting under the existing planning regime would normally be required to avoid localised geological features of interest, flood plains, highly graded agricultural land etc. Entry onto land requires landowner approval. Controls on the segregation and storage of soils during construction are normal.	No additional mitigation necessary.
Avoids damage to geological conservation sites and protects important geological features.		
Water Environment (aquifers, groundwater, surface waters)		
Avoids adverse impacts on surface water (including lake and channel physical form and function) and aquifer water quality and helps achieve the objectives of the Water Framework Directive.	The location of surface waters and aquifers (especially those of potable water) are well known and their protection is effectively addressed through the approvals processes for exploration, production and export facilities.	Placement of exploration or production facilities in flood plains or areas prone to flooding should be avoided.
Avoids, and where possible reduces, flood risk.		
Landscape		
To accord with, and deliver, the Aims and Articles of The European Landscape	Valued landscapes include designated and non-designated areas. In general, similar considerations	No additional mitigation viewed as necessary.

SEA Objective	Summary Consideration	Mitigation
Convention.	apply to the siting of temporary and longer-term hydrocarbon related facilities, which aim to reduce visibility and promote effective restoration of disturbed ground. The planning consent process is effective in controlling adverse impact on the landscape and allowing for public input through the statutory consultation process.	
Minimises significant adverse impact on seascape/landscape including designated and non-designated areas.		
Air Quality		
Avoids degradation of regional air quality from oil and gas activities and helps achieve the objectives of the Ambient Air Quality and Cleaner Air for Europe Directives.	The existing regulatory controls on transport, power generation and gas flaring are regarded as adequate. EIA to support planning and other consents would be expected to give due consideration to the potential implications of the planned activity on attainment of local and regional air quality plans. Atmospheric emissions and contributions to climate change typically form key performance indicators for operators leading to internally driven pressure to control and reduce such emissions.	No additional mitigation necessary.
Climatic Factors		
Minimises greenhouse gas emissions.	The existing regulatory controls on transport, power generation and gas flaring are regarded as adequate. Atmospheric emissions and contributions to climate change typically form key performance indicators for operators leading to internally driven pressure to control and reduce such emissions. During the period of plan application, further measures to promote energy efficiency and the reduction of greenhouses gas emissions can be expected as part of UK and other initiatives in response to climate change concerns.	No additional mitigation necessary.
Population and Human Health		
Has no adverse impact on human health.	Existing regulatory controls on the location and design of facilities, the timing of operations, resultant wastes	No additional mitigation identified as being necessary.
Avoids disruption (including the loss of access		

SEA Objective	Summary Consideration	Mitigation
and recreational opportunities), disturbance and nuisance to communities.	and emissions, accidental events, export routes and facilities etc are regarded as effective in minimising potential effects on human health and communities.	
Material Assets (infrastructure, other natural resources)		
Protects other United Kingdom resources of economic and amenity value.	Existing planning and other controls e.g. through the Mineral Planning Authorities and equivalent bodies, are viewed as effective in reducing the potential effects of hydrocarbon exploration and production activities to non-significant levels. Waste minimisation is being promoted through fiscal mechanisms as well as by the implementation of operator EMS processes.	No additional mitigation seen as necessary, as consultation is required early in the planning stages of an activity.
Promotes waste reduction, reuse and recycling.		
Cultural Heritage		
Promote awareness and identification of archaeological resources in the area.	Planning control mechanisms require archaeological desk studies, field investigations, and watching briefs for exploration and production facility site works. In addition planning controls require that due regard is taken of buildings and other features of architectural value.	No additional mitigation is considered necessary.
Avoids significant impacts to sites of cultural, historic or archaeological importance and where possible contributes to their preservation.		

A5.6.1 Conclusion

The SEA has considered the potential implications of relevant activities associated with the draft plan/programme for each environmental topic outlined in appendix 4, and within any appropriate regulatory context. The conclusion of the SEA is that a modified alternative 2 should be adopted, that is to proceed with the licensing programme but with some with licensing conditions. It is recommended that the DECC place an explicit expectation on licence applicants to demonstrate an excellent understanding of the environmental sensitivities and potential constraints on blocks both at the application stage and during any subsequent operations.

APPENDIX 6 – CONSERVATION SITES

A6.1. INTRODUCTION

The UK has a wide variety of conservation designations. This Appendix provides information on the proportion of each block covered by designated SAC and SPA sites and the number of designation types per block (an indicative measure of relative sensitivity – includes a wider range of statutory and non-statutory conservation sites). Block nomenclature is shown in Figure A6.1 – each block is equivalent to UK Ordnance Survey 10x10km grid squares. Where blocks overlap with marine areas these have been included as whole blocks although it is emphasised that the marine parts do not form part of the planned licensing round.

A6.1.1 Relative Sensitivity of Blocks

The number of conservation designations falling within each block contained in the SEA areas has been calculated. The conservation designations included in this calculation are AONBs, NSAs, National Parks, Heritage Coasts, ESAs, SSSIs, GCRs, LNRs, NNRs, IBAs, SPAs, Ramsars, SACs, Scheduled Monuments and WHSs (see Figure A6.2).

Though the above additive method produces an unbiased representation of the relative sensitivity of blocks, the resolution of each block (10x10km) is not sufficient to resolve that one or more designations contributing to the sensitivity score may only feature in a relatively small proportion of a given block. To partly account for this, the percentage coverage of SPAs and SACs has also been calculated for all of the blocks contained in each SEA area. contains a tabulation of which SAC and SPA designations fall within each block, and their coverage. A full list and mapped output of nature conservation, heritage and landscape designations are provided in the relevant sections of Appendix 4.

Figure A6.1 – Block Nomenclature

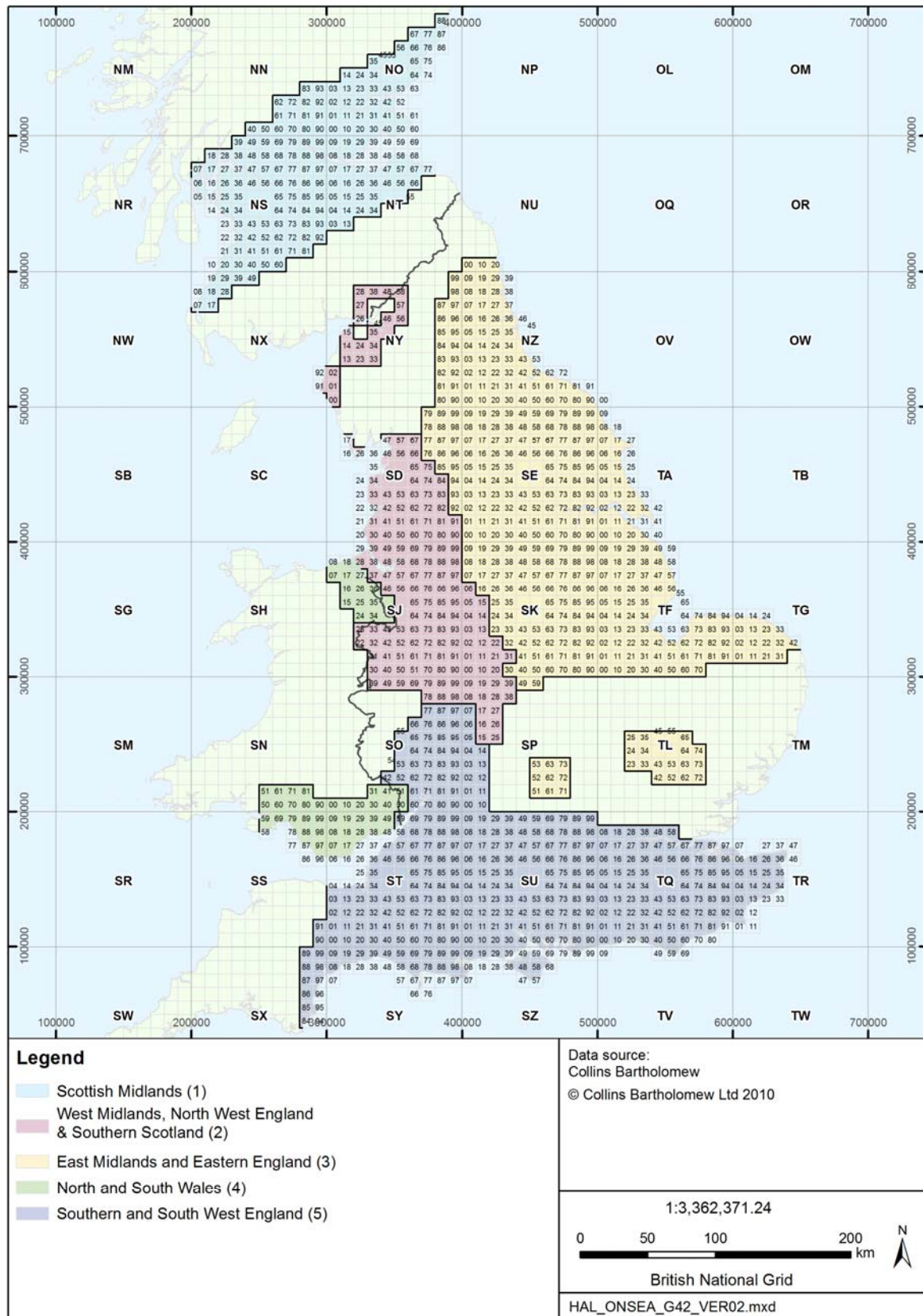


Figure A6.2 – Relative Sensitivity – Number of Designation Types per Block

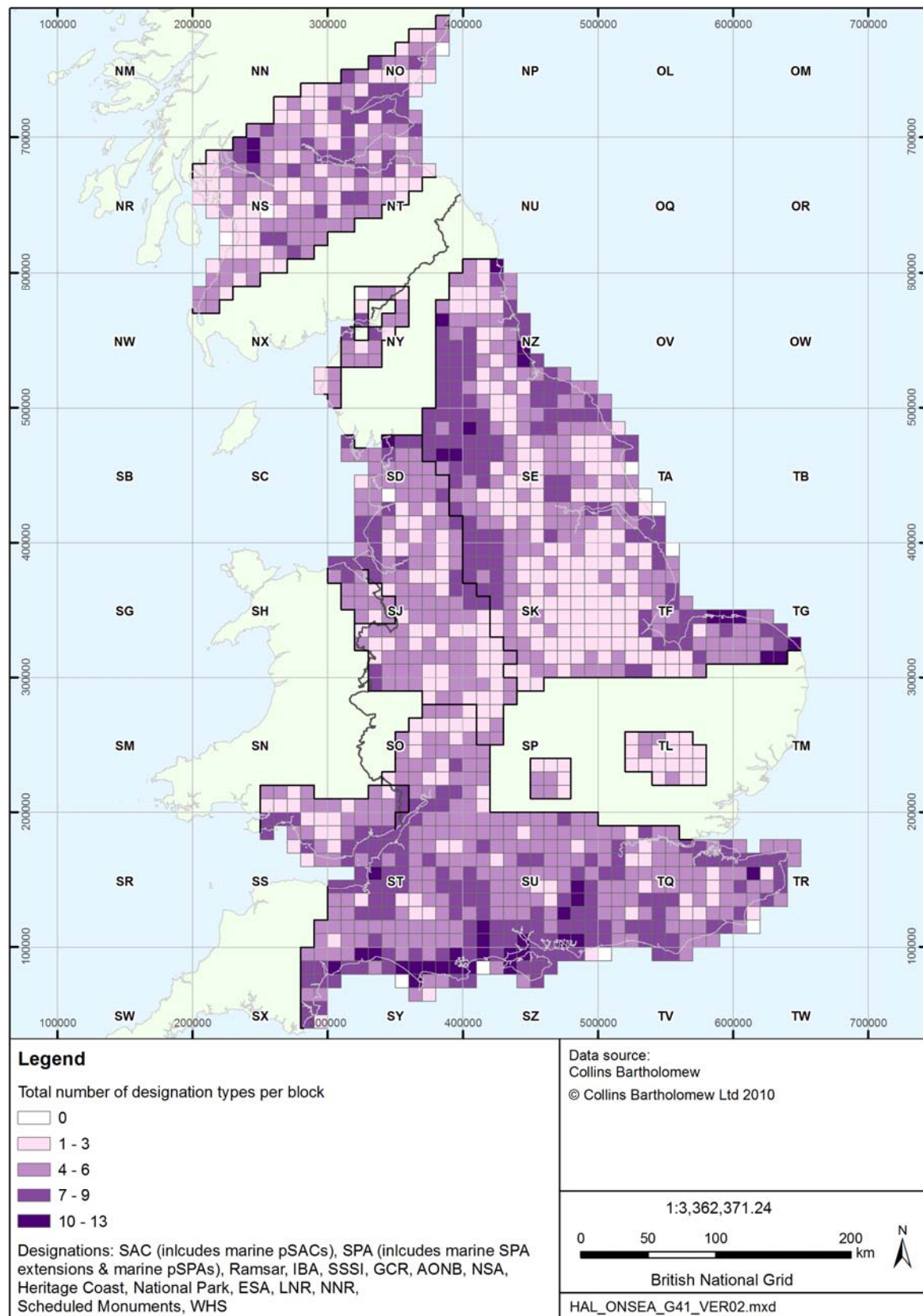


Table A6.1 – List of Blocks and Relevant SACs and SPAs

Block/ OS Grid Ref	% block covered			Designation(s)	Site Code
	SPA	SAC	Total*		
ST55	3.38	0.63	4.01	North Somerset & Mendip Bats SAC	UK0030052
				Chew Valley Lake SPA	UK9010041
ST56	2.38	-	2.38	Chew Valley Lake SPA	UK9010041
ST57	0.80	3.42	3.44	Avon Gorge Woodlands SAC	UK0012734
				Severn Estuary/Môr Hafren SAC	UK0013030
				Severn Estuary/Môr Hafren SPA	UK9015022
ST58	27.00	37.92	37.94	Severn Estuary/Môr Hafren SAC	UK0013030
				Severn Estuary (Wales) SPA	UK9015022
				Severn Estuary/Môr Hafren SPA	UK9015022
ST59	28.63	33.83	33.84	River Wye/Afon Gwy(Wales) SAC	UK0012642
				River Wye/Afon Gwy SAC	UK0012642
				Severn Estuary/Môr Hafren SAC	UK0013030
				Wye Valley Woodlands/Coetiroedd Dyffryn Gwy(Wales) SAC	UK0012727
				Wye Valley Woodlands/Coetiroedd Dyffryn Gwy SAC	UK0012727
				Wye Valley and Forest of Dean Bat Sites/Safleoedd Ystlumod Dyffryn Gwy SAC	UK0014794
				Severn Estuary (Wales) SPA	UK9015022
				Severn Estuary/Môr Hafren SPA	UK9015022
SO50	-	3.91	3.89	Wye Valley Woodlands/Coetiroedd Dyffryn Gwy(Wales) SAC	UK0012727
				Wye Valley Woodlands/Coetiroedd Dyffryn Gwy SAC	UK0012727
				Wye Valley and Forest of Dean Bat Sites/Safleoedd Ystlumod Dyffryn Gwy a Fforest y Ddena(Wales) SAC	UK0014794
				Wye Valley and Forest of Dean Bat Sites/Safleoedd Ystlumod Dyffryn Gwy SAC	UK0014794
				River Wye/Afon Gwy(Wales) SAC	UK0012642
				River Wye/Afon Gwy SAC	UK0012642
SO51	-	5.14	5.14	River Wye/Afon Gwy(Wales) SAC	UK0012642
				River Wye/Afon Gwy SAC	UK0012642
				Wye Valley and Forest of Dean Bat Sites/Safleoedd Ystlumod Dyffryn Gwy a Fforest y Ddena(Wales) SAC	UK0014794
				Wye Valley Woodlands/Coetiroedd Dyffryn Gwy SAC	UK0012727
				Wye Valley Woodlands/Coetiroedd Dyffryn Gwy(Wales) SAC	UK0012727
SO52	-	1.44	1.44	River Wye/Afon Gwy SAC	UK0012642
SO53	-	1.79	1.79	River Wye/Afon Gwy SAC	UK0012642
SO54	-	0.34	0.34	River Wye/Afon Gwy SAC	UK0012642
SO55	-	0.16	0.16	River Wye/Afon Gwy SAC	UK0012642

Block/ OS Grid Ref	% block covered			Designation(s)	Site Code
	SPA	SAC	Total*		
SJ53	-	1.77	1.77	Brown Moss SAC	UK0030100
				Fenn's, Whixall, Bettisfield, Wem & Cadney Mosses SAC	UK0012912
				Fenn's, Whixall, Bettisfield, Wem and Cadney Mosses (Wales) SAC	UK0012912
SJ56	-	1.00	1.00	Oak Mere SAC	UK0012970
				West Midlands Mosses SAC	UK0013595
SJ58	0.51	-	0.51	Mersey Estuary SPA	UK9005131
SD54	18.18	-	18.18	Bowland Fells SPA	UK9005151
SD55	37.71	-	37.71	Bowland Fells SPA	UK9005151
SD56	7.55	0.34	7.90	Calf Hill & Cragg Woods SAC	UK0030106
				Bowland Fells SPA	UK9005151
SD57	-	5.77	5.77	Morecambe Bay Pavements SAC	UK0014777
NT55	-	0.33	0.33	River Tweed SAC	UK0012691
NT58	2.28	-	35.07	Firth of Forth SPA	UK9004411
				Forth Islands SPA	UK9004171
				Forth Islands SPA extension	UK9004171
NO51	1.06	1.97	1.97	Firth of Tay and Eden Estuary SAC	UK0030311
				Firth of Tay and Eden Estuary SPA	UK9004121
NO52	10.17	36.39	36.39	Firth of Tay and Eden Estuary SAC	UK0030311
				Firth of Tay and Eden Estuary SPA	UK9004121
NO53	2.49	21.17	21.17	Barry Links SAC	UK0013044
				Firth of Tay and Eden Estuary SAC	UK0030311
				Firth of Tay and Eden Estuary SPA	UK9004121
NO55	-	0.87	0.87	River South Esk SAC	UK0030262
SY66	-	0.35	22.41	Isle of Portland to Studland Cliffs SAC	UK0019861
				Poole Bay to Lyme Bay Reefs pSAC	-
SY67	4.12	10.51	11.15	Crookhill Brick Pit SAC	UK0030349
				Isle of Portland to Studland Cliffs SAC	UK0019861
				Chesil & The Fleet SAC	UK0017076
				Chesil Beach & the Fleet SPA	UK9010091
				Poole Bay to Lyme Bay Reefs pSAC	-
SY68	1.46	2.41	2.41	Chesil & The Fleet SAC	UK0017076
				Isle of Portland to Studland Cliffs SAC	UK0019861
				Chesil Beach & the Fleet SPA	UK9010091
SY69	-	1.83	1.83	Cerne & Sydling Downs SAC	UK0030115
ST60	-	2.05	2.05	Cerne & Sydling Downs SAC	UK0030115
				Holnest SAC	UK0030350
ST61	-	0.39	0.39	Holnest SAC	UK0030350
ST64	-	0.27	0.27	Mells Valley SAC	UK0012658
				Mendip Woodlands SAC	UK0030048
ST69	15.10	15.08	15.11	Severn Estuary/Môr Hafren SAC	UK0013030
				Severn Estuary/Môr Hafren SPA	UK9015022

Block/ OS Grid Ref	% block covered			Designation(s)	Site Code
	SPA	SAC	Total*		
SO60	12.39	12.95	12.97	Severn Estuary/Môr Hafren SAC	UK0013030
				Wye Valley and Forest of Dean Bat Sites/Safleodd Ystlumod Dyffryn Gwy SAC	UK0014794
				Severn Estuary/Môr Hafren SPA	UK9015022
SO61	-	0.55	0.55	River Wye/Afon Gwy SAC	UK0012642
				Wye Valley and Forest of Dean Bat Sites/Safleodd Ystlumod Dyffryn Gwy SAC	UK0014794
SO62	-	0.31	0.31	River Wye/Afon Gwy SAC	UK0012642
				Wye Valley and Forest of Dean Bat Sites/Safleodd Ystlumod Dyffryn Gwy SAC	UK0014794
SO63	-	0.05	0.05	River Wye/Afon Gwy SAC	UK0012642
SJ64	-	0.01	0.01	West Midlands Mosses SAC	UK0013595
SJ65	-	0.21	0.21	West Midlands Mosses SAC	UK0013595
SJ66	-	0.07	0.07	West Midlands Mosses SAC	UK0013595
SJ68	-	0.01	0.01	Rixton Clay Pits SAC	UK0030265
SJ69	-	1.81	1.81	Manchester Mosses SAC	UK0030200
				Rixton Clay Pits SAC	UK0030265
SD64	13.50	-	13.50	Bowland Fells SPA	UK9005151
SD65	71.69	0.00	71.69	North Pennine Dales Meadows SAC	UK0014775
				Bowland Fells SPA	UK9005151
SD66	10.62	-	10.62	Bowland Fells SPA	UK9005151
SD67	-	2.63	2.63	Ingleborough Complex SAC	UK0012782
NT66	-	0.30	0.30	River Tweed SAC	UK0012691
NX17	39.49	-	39.49	Glen App and Galloway Moors SPA	UK9003351
NX18	2.25	6.46	8.71	Lendalfoot Hills Complex SAC	UK0013592
				Glen App and Galloway Moors SPA	UK9003351
NX19		6.64	6.64	Lendalfoot Hills Complex SAC	UK0013592
NS26	63.80	-	63.80	Renfrewshire Heights SPA	UK9020295
NS27	5.99	-	5.99	Renfrewshire Heights SPA	UK9020295
NS34	-	1.10	1.10	Cockinhead Moss SAC	UK0019761
				Dykeneuk Moss SAC	UK0019763
NS35	0.02	0.33	0.35	Bankhead Moss, Beith SAC	UK0019756
				Renfrewshire Heights SPA	UK9020295
NS36	19.61	-	19.61	Renfrewshire Heights SPA	UK9020295
NS37	12.92	-	12.92	Inner Clyde SPA	UK9003061
NS38	0.68	0.06	0.73	Loch Lomond Woods SAC	UK0013573
				Inner Clyde SPA	UK9003061
NS39	1.75	4.87	5.65	Loch Lomond Woods SAC	UK0013573
				Loch Lomond SPA	UK9003021
NX49	-	5.13	5.13	Merrick Kells SAC	UK0019841
NS46	0.68	-	0.68	Black Cart SPA	UK9003221
				Inner Clyde SPA	UK9003061
NS47	4.54	-	4.54	Inner Clyde SPA	UK9003061
NS48	3.18	1.62	4.62	Endrick Water SAC	UK0019840

Block/ OS Grid Ref	% block covered			Designation(s)	Site Code
	SPA	SAC	Total*		
				Loch Lomond Woods SAC	UK0013573
				Loch Lomond SPA	UK9003021
NS49	0.18	0.79	0.96	Loch Lomond Woods SAC	UK0013573
				Loch Lomond SPA	UK9003021
NN40	-	2.17	2.17	River Teith SAC	UK0030263
				Trossachs Woods SAC	UK0030290
NS52	7.64	3.82	8.14	Airds Moss SAC	UK0030218
				Muirkirk and North Lowther Uplands SPA	UK9003261
NS53	23.84	-	23.84	Muirkirk and North Lowther Uplands SPA	UK9003261
NS58	-	0.64	0.64	Endrick Water SAC	UK0019840
NS59	-	1.40	1.40	Flanders Mosses SAC	UK0012902
NN50	-	6.48	6.48	River Teith SAC	UK0030263
				Trossachs Woods SAC	UK0030290
SS58	-	5.46	5.46	Gower Commons/ Tiroedd Comin Gwyr SAC	UK0012685
				Limestone Coast of South West Wales/ Arfordir Calchfaen de Orllewin Cymru SAC	UK0014787
				Gower Ash Woods/ Coedydd Ynn Gwyr SAC	UK0030157
SS59	18.90	29.40	29.40	Gower Commons/ Tiroedd Comin Gwyr SAC	UK0012685
				Carmarthen Bay and Estuaries/ Bae Caerfyrddin ac Aberoedd SAC	UK0020020
				Gower Ash Woods/ Coedydd Ynn Gwyr SAC	UK0030157
				Burry Inlet SPA	UK9015011
SS69	-	2.16	2.16	Crymlyn Bog/Cors Crymlyn SAC	UK0012885
NS61	18.15	-	18.15	Muirkirk and North Lowther Uplands SPA	UK9003261
NS62	53.41	9.78	55.14	Airds Moss SAC	UK0030218
				Muirkirk and North Lowther Uplands SPA	UK9003261
NS63	27.85	-	27.85	Muirkirk and North Lowther Uplands SPA	UK9003261
NS64	-	0.08	0.08	Waukenwae Moss SAC	UK0019765
NS65	-	1.48	1.48	Waukenwae Moss SAC	UK0019765
NS68	-	0.32	0.32	Endrick Water SAC	UK0019840
NS69	-	9.20	9.20	Flanders Mosses SAC	UK0012902
NN60	-	1.11	1.11	Flanders Mosses SAC	UK0012902
				River Teith SAC	UK0030263
SS77	-	0.40	0.40	Kenfig/Cynffig SAC	UK0012566
SS78	-	6.24	6.24	Kenfig/Cynffig SAC	UK0012566
SS79	-	0.83	0.83	Crymlyn Bog/Cors Crymlyn SAC	UK0012885
NS71	47.70	0.15	47.85	Upper Nithsdale Woods SAC	UK0030297
				Muirkirk and North Lowther Uplands SPA	UK9003261
NS72	46.59	-	46.59	Muirkirk and North Lowther Uplands SPA	UK9003261
NS73	18.16	-	18.16	Muirkirk and North Lowther Uplands SPA	UK9003261
NS74	-	0.96	0.96	Clyde Valley Woods SAC	UK0013089
NS75	-	0.21	0.21	Clyde Valley Woods SAC	UK0013089
NS77	0.83	0.14	0.83	West Fannyside Moss SAC	UK0030316
				Slamannan Plateau SPA	UK9004441

Block/ OS Grid Ref	% block covered			Designation(s)	Site Code
	SPA	SAC	Total*		
NS79	-	1.39	1.39	Kippenrait Glen SAC	UK0030177
				River Teith SAC	UK0030263
NN70	-	0.45	0.45	River Teith SAC	UK0030263
NN71	-	1.02	1.02	Glenartney Juniper Wood SAC	UK0030156
NN72	-	0.89	0.89	Upper Strathearn Oakwoods SAC	UK0030125
SX84	-	-	5.94	Poole Bay to Lyme Bay Reefs pSAC	-
SX85	-	-	1.07	Poole Bay to Lyme Bay Reefs pSAC	-
SX86	-	-	0.74	Poole Bay to Lyme Bay Reefs pSAC	-
SX87	-	0.27	0.27	South Hams SAC	UK0012650
SX88	-	0.59	0.59	South Dartmoor Woods SAC	UK0012749
SS87	-	4.81	4.81	Dunraven Bay SAC	UK0030139
				Kenfig/Cynffig SAC	UK0012566
SS88	-	1.11	1.11	Glaswelltiroedd Cefn Cribwr/Cefn Cribwr Grasslands SAC	UK0030113
				Kenfig/Cynffig SAC	UK0012566
SN50	-	2.98	2.98	Carmarthen Bay and Estuaries/ Bae Caerfyrddin ac Aberoedd SAC	UK0020020
SN51	-	3.34	3.34	Afon Tywi/ River Tywi SAC	UK0013010
				Cernydd Carmel SAC	UK0030070
				Caeau Mynydd Mawr SAC	UK0030105
SN61	-	0.59	0.59	Cernydd Carmel SAC	UK0030070
SN80	-	0.63	0.63	Coedydd Nedd a Mellte SAC	UK0030141
NS81	7.13	-	7.13	Muirkirk and North Lowther Uplands SPA	UK9003261
NS82	12.83	0.76	13.59	Red Moss SAC	UK0019764
				Muirkirk and North Lowther Uplands SPA	UK9003261
NS83	-	2.24	2.24	Coalburn Moss SAC	UK0019760
NS84	-	2.48	2.48	Clyde Valley Woods SAC	UK0013089
NS85	-	0.64	0.64	Clyde Valley Woods SAC	UK0013089
NS86	-	2.71	2.71	Black Loch Moss SAC	UK0019757
				Blawhorn Moss SAC	UK0019758
				North Shotts Moss SAC	UK0019768
NS87	5.08	0.20	5.08	West Fannyside Moss SAC	UK0030316
				Slamannan Plateau SPA	UK9004441
NS88	0.09	-	0.09	Firth of Forth SPA	UK9004411
NS89	2.96	0.06	3.02	Kippenrait Glen SAC	UK0030177
				Firth of Forth SPA	UK9004411
NN80	2.02	1.19	2.10	Kippenrait Glen SAC	UK0030177
				Shelforkie Moss SAC	UK0030272
				South Tayside Goose Roosts SPA	UK9004401
NN81	0.73	0.63	1.26	Upper Strathearn Oakwoods SAC	UK0030125
				South Tayside Goose Roosts SPA	UK9004401
NN82	-	0.00	0.00	River Tay SAC	UK0030312
NN83	-	0.34	0.34	River Tay SAC	UK0030312
NN93	-	0.05	0.05	River Tay SAC	UK0030312

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	SPA	SAC	Total*		
SX94	-	4.84	4.84	Poole Bay to Lyme Bay Reefs pSAC	-
SX95	-	0.66	24.90	South Hams SAC	UK0012650
				Poole Bay to Lyme Bay Reefs pSAC	-
SX96	-	-	16.25	Poole Bay to Lyme Bay Reefs pSAC	-
SX97	3.63	0.52	3.63	Dawlish Warren SAC	UK0030130
				Exe Estuary SPA	UK9010081
SX98	17.85	0.07	17.85	Dawlish Warren SAC	UK0030130
				Exe Estuary SPA	UK9010081
SS98	-	0.71	0.71	Blackmill Woodlands SAC	UK0030090
SN90	-	3.13	3.13	Blaen Cynon SAC	UK0030092
				Coedydd Nedd a Mellte SAC	UK0030141
				Cwm Cadlan SAC	UK0013585
NS94	-	1.06	1.06	Clyde Valley Woods SAC	UK0013089
				Cranley Moss SAC	UK0019762
NS95	-	1.23	1.23	Braehead Moss SAC	UK0019759
NS98	14.69	-	14.69	Firth of Forth SPA	UK9004411
NN92	-	0.47	0.47	River Tay SAC	UK0030312
SY07	2.02	-	2.02	Exe Estuary SPA	UK9010081
SY08	9.12	8.96	9.12	East Devon Pebblebed Heaths SAC	UK0012602
				East Devon Heaths SPA	UK9010121
				Exe Estuary SPA	UK9010081
SY09	2.29	2.29	2.29	East Devon Pebblebed Heaths SAC	UK0012602
				East Devon Heaths SPA	UK9010121
ST02	-	0.08	0.08	Holme Moor & Clean Moor SAC	UK0012883
SJ07	-	0.45	0.45	Coedwigoedd Dyffryn Elwy/Elwy Valley Woods SAC	UK0030146
SJ08	-	2.89	63.98	Dee Estuary/Aber Dyfrdwy SAC	UK0030131
				Liverpool Bay/Bae Lerpwl pSPA	UK9020294
NT03	-	0.06	0.06	River Tweed SAC	UK0012691
NT05	-	0.37	0.37	Craigengar SAC	UK0012577
NT07	1.38	-	1.38	Firth of Forth SPA	UK9004411
NT08	7.10	-	7.10	Firth of Forth SPA	UK9004411
NO01	0.26	-	0.26	South Tayside Goose Roosts SPA	UK9004401
NO02	0.30	1.85	2.15	Methven Moss SAC	UK0030204
				River Tay SAC	UK0030312
				South Tayside Goose Roosts SPA	UK9004401
NO03	-	0.79	0.79	River Tay SAC	UK0030312
SY18	-	1.82	4.14	Sidmouth to West Bay SAC	UK0019864
				Poole Bay to Lyme Bay Reefs pSAC	-
ST11	-	0.20	0.20	Quants SAC	UK0030242
ST13	-	2.35	2.35	Exmoor & Quantock Oakwoods SAC	UK0030148
ST14	0.88	9.53	9.53	Exmoor & Quantock Oakwoods SAC	UK0030148
				Severn Estuary/Môr Hafren SAC	UK0013030

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	SPA	SAC	Total*		
				Severn Estuary/Môr Hafren SPA	UK9015022
ST16	0.29	12.69	12.69	Severn Estuary/Môr Hafren SAC	UK0013030
				Severn Estuary (Wales) SPA	UK9015022
ST17	0.75	2.93	2.93	Severn Estuary/Môr Hafren SAC	UK0013030
				Severn Estuary (Wales) SPA	UK9015022
ST18	-	1.16	1.16	Cardiff Beech Woods SAC	UK0030109
ST19	-	0.40	0.40	Aberbargoed Grasslands SAC	UK0030071
SJ15	-	0.01	0.01	Berwyn a Mynyddoedd De Clwyd/Berwyn and South Clwyd Mountains SAC	UK0012926
SJ16	-	1.50	1.50	Alyn Valley Woods/Coedwigoedd Dyffryn Alun SAC	UK0030078
				Halkyn Mountain/Mynydd Helygain SAC	UK0030163
SJ17	2.80	6.89	6.89	Dee Estuary/Aber Dyfrdwy SAC	UK0030131
				Halkyn Mountain/Mynydd Helygain SAC	UK0030163
				The Dee Estuary (Wales) SPA	UK9013011
SJ18	37.68	51.79	80.53	Dee Estuary/Aber Dyfrdwy SAC	UK0030131
				The Dee Estuary (Wales) SPA	UK9013011
				The Dee Estuary/Aber Afon Dyfrdwy SPA	UK9013011
				The Dee Estuary/Aber Afon Dyfrdwy SPA	UK9013011
				Liverpool Bay/Bae Lerpwl pSPA	UK9020294
NT13	-	1.03	1.03	River Tweed SAC	UK0012691
NT14	-	0.35	0.35	River Tweed SAC	UK0012691
NT15	0.50	0.10	0.60	River Tweed SAC	UK0012691
				Westwater SPA	UK9004251
NT17	6.78	-	8.32	Firth of Forth SPA	UK9004411
				Forth Islands SPA extension	UK9004171
NT18	1.80	-	5.47	Firth of Forth SPA	UK9004411
				Forth Islands SPA	UK9004171
NT19	2.26	-	2.26	Loch Leven SPA	UK9004111
NO10	13.86	-	13.86	Loch Leven SPA	UK9004111
NO11	0.08	2.46	2.46	Firth of Tay and Eden Estuary SAC	UK0030311
				Pitkeathly Mires SAC	UK0030239
				River Tay SAC	UK0030312
				Turflundie Wood SAC	UK0030240
				Firth of Tay and Eden Estuary SPA	UK9004121
NO12	-	3.34	3.34	River Tay SAC	UK0030312
NO13	-	3.23	3.23	River Tay SAC	UK0030312
NO14	9.26	4.01	11.91	Craighall Gorge SAC	UK0030123
				Dunkeld - Blairgowrie Lochs SAC	UK0012638
				River Tay SAC	UK0030312
				Forest of Clunie SPA	UK9004381
SY28	-	2.35	69.30	Beer Quarry & Caves SAC	UK0012585
				Sidmouth to West Bay SAC	UK0019864
				Poole Bay to Lyme Bay Reefs pSAC	-

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	SPA	SAC	Total*		
SY29	-	0.31	0.31	River Axe SAC	UK0030248
				Sidmouth to West Bay SAC	UK0019864
ST22	0.02	0.00	0.02	Hestercombe House SAC	UK0030168
				Somerset Levels & Moors SPA	UK9010031
ST24	36.15	45.58	52.21	Severn Estuary/Môr Hafren SAC	UK0013030
				Severn Estuary/Môr Hafren SPA	UK9015022
ST25	21.26	94.05	94.05	Mendip Limestone Grasslands SAC	UK0030203
				Severn Estuary/Môr Hafren SAC	UK0013030
				Severn Estuary/Môr Hafren SPA	UK9015022
ST26	1.39	99.39	99.98	Severn Estuary/Môr Hafren SAC	UK0013030
				Severn Estuary (Wales) SPA	UK9015022
				Severn Estuary/Môr Hafren SPA	UK9015022
ST27	9.68	82.46	82.47	Severn Estuary/Môr Hafren SAC	UK0013030
				Severn Estuary (Wales) SPA	UK9015022
ST28	1.96	2.09	2.09	Severn Estuary/Môr Hafren SAC	UK0013030
				Severn Estuary (Wales) SPA	UK9015022
SJ22	-	-	0.03	Montgomery Canal SAC	UK0030213
SJ23	-	-	0.24	River Dee and Bala Lake/ Afon Dyfrdwy a Llyn Tegid SAC	UK0030252
SJ24	-	29.82	29.82	Berwyn a Mynyddoedd De Clwyd/Berwyn and South Clwyd Mountains SAC	UK0012926
				Johnstown Newt Sites SAC	UK0030173
				River Dee and Bala Lake/Afon Dyfrdwy a Llyn Tegid (Wales) SAC	UK0030252
SJ25	-	10.93	10.93	Berwyn a Mynyddoedd De Clwyd/Berwyn and South Clwyd Mountains SAC	UK0012926
SJ26	-	3.75	3.75	Alyn Valley Woods/Coedwigoedd Dyffryn Alun SAC	UK0030078
				Deeside and Buckley Newt sites SAC	UK0030132
				Halkyn Mountain/Mynydd Helygain SAC	UK0030163
				Dee Estuary/Aber Dyfrdwy SAC	UK0030131
				River Dee and Bala Lake/Afon Dyfrdwy a Llyn Tegid (Wales) SAC	UK0030252
SJ27	54.12	55.97	56.04	Dee Estuary/Aber Dyfrdwy SAC	UK0030131
				Halkyn Mountain/Mynydd Helygain SAC	UK0030163
				River Dee and Bala Lake/Afon Dyfrdwy a Llyn Tegid (Wales) SAC	UK0030252
				The Dee Estuary (Wales) SPA	UK9013011
				The Dee Estuary/Aber Afon Dyfrdwy SPA	UK9013011
SJ28	25.61	27.56	27.56	Dee Estuary/Aber Dyfrdwy SAC	UK0030131
				The Dee Estuary (Wales) SPA	UK9013011
				The Dee Estuary/Aber Afon Dyfrdwy SPA	UK9013011
SJ29	0.96	16.81	84.02	Dee Estuary/Aber Dyfrdwy SAC	UK0030131
				Sefton Coast SAC	UK0013076

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	SPA	SAC	Total*		
SD16	4.25	4.81	4.81	Ribble & Alt Estuaries SPA	UK9005103
				Liverpool Bay/Bae Lerpwl pSPA	UK9020294
				Duddon Estuary SPA	UK9005031
				Morecambe Bay SPA	UK9005081
				Morecambe Bay SAC	UK0013027
SD17	43.28	43.15	43.28	Morecambe Bay SAC	UK0013027
				Duddon Estuary SPA	UK9005031
SD20	14.48	21.49	89.81	Sefton Coast SAC	UK0013076
				Ribble & Alt Estuaries SPA	UK9005103
				Liverpool Bay/Bae Lerpwl pSPA	UK9020294
SD21	7.14	9.80	99.82	Sefton Coast SAC	UK0013076
				Ribble & Alt Estuaries SPA	UK9005103
				Liverpool Bay/Bae Lerpwl pSPA	UK9020294
SD22	6.78	-	99.99	Ribble & Alt Estuaries SPA	UK9005103
				Liverpool Bay/Bae Lerpwl pSPA	UK9020294
SD23	0.47	-	99.55	Ribble & Alt Estuaries SPA	UK9005103
				Shell Flat and Lune Deep pSAC	
				Liverpool Bay/Bae Lerpwl pSPA	UK9020294
SD24	-	0.37	68.41	Morecambe Bay SAC	UK0013027
				Shell Flat and Lune Deep pSAC	-
				Liverpool Bay/Bae Lerpwl pSPA	UK9020294
SD26	45.00	78.75	79.36	Morecambe Bay SPA	UK9005081
				Morecambe Bay SAC	UK0013027
NT24	-	0.34	0.34	River Tweed SAC	UK0012691
NT25	1.04	0.55	1.58	Peeswit Moss SAC	UK0030313
				River Tweed SAC	UK0012691
				Gladhouse Reservoir SPA	UK9004231
NT27	1.80	-	6.57	Firth of Forth SPA	UK9004411
				Imperial Dock Lock, Leith SPA	UK9004451
				Forth Islands SPA extension	UK9004171
NT28	2.47	-	11.27	Firth of Forth SPA	UK9004411
				Forth Islands SPA	UK9004171
				Forth Islands SPA extension	UK9004171
NT29	0.48		0.48	Firth of Forth SPA	UK9004411
NO21	4.17	6.86	7.10	Firth of Tay and Eden Estuary SAC	UK0030311
				Turflundie Wood SAC	UK0030240
				Firth of Tay and Eden Estuary SPA	UK9004121
NO22	11.98	15.83	15.83	Firth of Tay and Eden Estuary SAC	UK0030311
				Firth of Tay and Eden Estuary SPA	UK9004121
NO23	-	0.01	0.01	River Tay SAC	UK0030312
NO24	-	1.33	1.33	River Tay SAC	UK0030312
SY38	-	0.07	91.39	Sidmouth to West Bay SAC	UK0019864
				Poole Bay to Lyme Bay Reefs pSAC	-

Block/ OS Grid Ref	% block covered			Designation(s)	Site Code
	SPA	SAC	Total*		
SY39	-	3.71	21.94	River Axe SAC	UK0030248
				Sidmouth to West Bay SAC	UK0019864
				Poole Bay to Lyme Bay Reefs pSAC	-
ST30	-	0.05	0.05	River Axe SAC	UK0030248
ST32	15.58	-	15.58	Somerset Levels & Moors SPA	UK9010031
ST33	7.59	-	7.59	Somerset Levels & Moors SPA	UK9010031
ST34	7.38	0.93	7.39	Severn Estuary/Môr Hafren SAC	UK0013030
				Severn Estuary/Môr Hafren SPA	UK9015022
				Somerset Levels & Moors SPA	UK9010031
ST35	2.52	4.11	4.11	Mendip Limestone Grasslands SAC	UK0030203
				North Somerset & Mendip Bats SAC	UK0030052
				Severn Estuary/Môr Hafren SAC	UK0013030
				Severn Estuary/Môr Hafren SPA	UK9015022
ST36	13.36	42.68	43.41	Severn Estuary/Môr Hafren SAC	UK0013030
				Severn Estuary/Môr Hafren SPA	UK9015022
ST37	1.35	99.05	99.09	Severn Estuary/Môr Hafren SAC	UK0013030
				Severn Estuary (Wales) SPA	UK9015022
				Severn Estuary/Môr Hafren SPA	UK9015022
ST38	12.32	28.07	28.12	River Usk/Afon Wysg SAC	UK0013007
				Severn Estuary/Môr Hafren SAC	UK0013030
				Severn Estuary (Wales) SPA	UK9015022
ST39	-	1.68	1.68	River Usk/Afon Wysg SAC	UK0013007
SO30	-	1.12	1.12	River Usk/Afon Wysg SAC	UK0013007
SO31	-	0.21	0.21	River Usk/Afon Wysg SAC	UK0013007
				Sugar Loaf Woodlands SAC	UK0030072
SJ33	-	0.15	0.15	River Dee and Bala Lake/Afon Dyfrdwy a Llyn Tegid (Wales) SAC	UK0030252
				River Dee and Bala Lake/Afon Dyffrdwy a Llyn Tegid SAC	UK0030252
SJ34	-	1.60	1.60	Johnstown Newt Sites SAC	UK0030173
				River Dee and Bala Lake/Afon Dyfrdwy a Llyn Tegid (Wales) SAC	UK0030252
				River Dee and Bala Lake/Afon Dyffrdwy a Llyn Tegid SAC	UK0030252
SJ35	-	0.06	0.06	River Dee and Bala Lake/Afon Dyfrdwy a Llyn Tegid (Wales) SAC	UK0030252
				River Dee and Bala Lake/Afon Dyffrdwy a Llyn Tegid SAC	UK0030252
SJ36	-	1.79	1.79	Dee Estuary/Aber Dyfrdwy SAC	UK0030131
				River Dee and Bala Lake/Afon Dyfrdwy a Llyn Tegid (Wales) SAC	UK0030252
				River Dee and Bala Lake/Afon Dyffrdwy a Llyn Tegid SAC	UK0030252
SJ37	1.97	0.53	2.28	Dee Estuary/Aber Dyfrdwy SAC	UK0030131
				Mersey Estuary SPA	UK9005131

Block/ OS Grid Ref	% block covered			Designation(s)	Site Code
	SPA	SAC	Total*		
				The Dee Estuary (Wales) SPA	UK9013011
				The Dee Estuary/Aber Afon Dyfrdwy SPA	UK9013011
SJ38	10.72	-	10.72	Mersey Estuary SPA	UK9005131
SJ39	1.50	1.83	4.70	Dee Estuary/Aber Dyfrdwy SAC	UK0030131
				Sefton Coast SAC	UK0013076
				Ribble & Alt Estuaries SPA	UK9005103
				Liverpool Bay/Bae Lerpwl pSPA	UK9020294
SD30	0.00	0.00	0.00	Sefton Coast SAC	UK0013076
				Ribble & Alt Estuaries SPA	UK9005103
SD31	15.26	12.18	19.52	Sefton Coast SAC	UK0013076
				Ribble & Alt Estuaries SPA	UK9005103
SD32	66.26	-	68.56	Ribble & Alt Estuaries SPA	UK9005103
				Liverpool Bay/Bae Lerpwl pSPA	UK9020294
SD33	1.35	-	2.03	Morecambe Bay SPA	UK9005081
				Ribble & Alt Estuaries SPA	UK9005103
				Liverpool Bay/Bae Lerpwl pSPA	UK9020294
SD34	16.77	11.31	19.29	Morecambe Bay SAC	UK0013027
				Morecambe Bay SPA	UK9005081
				Liverpool Bay/Bae Lerpwl pSPA	UK9020294
SD35	39.66	99.78	99.78	Morecambe Bay SAC	UK0013027
				Morecambe Bay SPA	UK9005081
SD36	62.26	99.77	99.77	Morecambe Bay SAC	UK0013027
				Morecambe Bay SPA	UK9005081
NT34	-	58.50	58.49	Moorfoot Hills SAC	UK0030215
				River Tweed SAC	UK0012691
				Moorfoot Hills SAC	UK0030215
				River Tweed SAC	UK0012691
NT35	0.83	10.97	11.76	Moorfoot Hills SAC	UK0030215
				River Tweed SAC	UK0012691
				Moorfoot Hills SAC	UK0030215
				Gladhouse Reservoir SPA	UK9004231
NT37	2.50	-	2.50	Firth of Forth SPA	UK9004411
NT39	0.47	-	0.47	Firth of Forth SPA	UK9004411
NO30	0.65	-	0.65	Firth of Forth SPA	UK9004411
NO32	24.91	45.29	45.36	Firth of Tay and Eden Estuary SAC	UK0030311
				Firth of Tay and Eden Estuary SPA	UK9004121
NO33	0.01	0.01	0.01	Firth of Tay and Eden Estuary SAC	UK0030311
				Firth of Tay and Eden Estuary SPA	UK9004121
NO34	-	0.41	0.41	River Tay SAC	UK0030312
NO35	0.85	0.22	1.07	River South Esk SAC	UK0030262
				River Tay SAC	UK0030312
				Loch of Kinnordy SPA	UK9004051
SY48	-	0.30	66.34	Chesil & The Fleet SAC	UK0017076

Block/ OS Grid Ref	% block covered			Designation(s)	Site Code
	SPA	SAC	Total*		
				Poole Bay to Lyme Bay Reefs pSAC	-
SY49	-	1.29	9.29	Chesil & The Fleet SAC	UK0017076
				Sidmouth to West Bay SAC	UK0019864
				Poole Bay to Lyme Bay Reefs pSAC	-
ST42	7.11	-	7.11	Somerset Levels & Moors SPA	UK9010031
ST43	5.31	-	5.31	Somerset Levels & Moors SPA	UK9010031
ST44	21.87	-	21.87	Somerset Levels & Moors SPA	UK9010031
ST45	-	6.04	6.04	Mendip Limestone Grasslands SAC	UK0030203
				Mendip Woodlands SAC	UK0030048
				North Somerset & Mendip Bats SAC	UK0030052
ST46	-	1.27	1.27	North Somerset & Mendip Bats SAC	UK0030052
ST47	5.59	41.15	41.16	Severn Estuary/Môr Hafren SAC	UK0013030
				Severn Estuary (Wales) SPA	UK9015022
				Severn Estuary/Môr Hafren SPA	UK9015022
ST48	35.88	53.85	53.85	Severn Estuary/Môr Hafren SAC	UK0013030
				Severn Estuary (Wales) SPA	UK9015022
				Severn Estuary/Môr Hafren SPA	UK9015022
				Severn Estuary/Môr Hafren SPA	UK9015022
ST49	-	0.00	0.00	Wye Valley and Forest of Dean Bat Sites/Safleoedd Ystlumod Dyffryn Gwy a Fforest y Ddena(Wales) SAC	UK0014794
SO40	-	0.00	0.00	Wye Valley and Forest of Dean Bat Sites/Safleoedd Ystlumod Dyffryn Gwy a Fforest y Ddena(Wales) SAC	UK0014794
SJ43	-	8.20	8.20	Fenn's, Whixall, Bettisfield, Wem & Cadney Mosses SAC	UK0012912
				Fenn's, Whixall, Bettisfield, Wem and Cadney Mosses (Wales) SAC	UK0012912
				West Midlands Mosses SAC	UK0013595
SJ44	-	0.37	0.37	River Dee and Bala Lake/Afon Dyfrdwy a Llyn Tegid (Wales) SAC	UK0030252
				River Dee and Bala Lake/Afon Dyffrdwy a Llyn Tegid SAC	UK0030252
SJ45	-	0.74	0.72	River Dee and Bala Lake/Afon Dyfrdwy a Llyn Tegid (Wales) SAC	UK0030252
				River Dee and Bala Lake/Afon Dyffrdwy a Llyn Tegid SAC	UK0030252
SJ46	-	0.62	0.62	River Dee and Bala Lake/Afon Dyffrdwy a Llyn Tegid SAC	UK0030252
SJ47	20.29	-	20.29	Mersey Estuary SPA	UK9005131
SJ48	16.95	-	16.95	Mersey Estuary SPA	UK9005131
SD41	1.20	-	1.20	Martin Mere SPA	UK9005111
SD42	10.44	-	10.44	Ribble & Alt Estuaries SPA	UK9005103
SD44	0.87	0.87	0.87	Morecambe Bay SAC	UK0013027
				Morecambe Bay SPA	UK9005081
SD45	32.44	32.44	32.44	Morecambe Bay SAC	UK0013027

Block/ OS Grid Ref	% block covered			Designation(s)	Site Code
	SPA	SAC	Total*		
				Morecambe Bay SPA	UK9005081
SD46	41.28	44.46	44.46	Morecambe Bay SAC	UK0013027
				Morecambe Bay SPA	UK9005081
SD47	56.84	59.08	60.38	Morecambe Bay SAC	UK0013027
				Morecambe Bay Pavements SAC	UK0014777
				Leighton Moss SPA	UK9005091
				Morecambe Bay SPA	UK9005081
NT45	3.18	0.11	3.29	River Tweed SAC	UK0012691
				Fala Flow SPA	UK9004241
NT47	3.40	-	3.40	Firth of Forth SPA	UK9004411
NT48	5.61	-	9.58	Firth of Forth SPA	UK9004411
				Forth Islands SPA extension	UK9004171
NT49	0.07	-	0.07	Firth of Forth SPA	UK9004411
NO40	2.12	-	2.12	Firth of Forth SPA	UK9004411
NO41	6.59	5.68	6.59	Firth of Tay and Eden Estuary SAC	UK0030311
				Cameron Reservoir SPA	UK9004131
				Firth of Tay and Eden Estuary SPA	UK9004121
NO42	6.48	19.43	19.56	Firth of Tay and Eden Estuary SAC	UK0030311
				Firth of Tay and Eden Estuary SPA	UK9004121
NO43	1.94	9.23	9.23	Firth of Tay and Eden Estuary SAC	UK0030311
				Firth of Tay and Eden Estuary SPA	UK9004121
NO44	-	0.17	0.17	River Tay SAC	UK0030312
NO45	-	0.97	0.97	River South Esk SAC	UK0030262
				River Tay SAC	UK0030312
SY58	1.90	4.53	38.21	Chesil & The Fleet SAC	UK0017076
				Chesil Beach & the Fleet SPA	UK9010091
				Poole Bay to Lyme Bay Reefs pSAC	-
SY59	-	2.88	2.88	West Dorset Alder Woods SAC	UK0030299
ST50	-	0.95	0.95	Bracket's Coppice SAC	UK0030095
				West Dorset Alder Woods SAC	UK0030299
ST54	-	0.83	0.83	Mendip Woodlands SAC	UK0030048
				North Somerset & Mendip Bats SAC	UK0030052
NT67	3.31	-	3.31	Firth of Forth SPA	UK9004411
NT68	3.07	-	13.53	Firth of Forth SPA	UK9004411
				Forth Islands SPA	UK9004171
				Forth Islands SPA extension	UK9004171
NT69	0.62	2.65	18.65	Isle of May SAC	UK0030172
				Forth Islands SPA	UK9004171
				Forth Islands SPA extension	UK9004171
NO60	0.56	0.91	13.40	Isle of May SAC	UK0030172
				Firth of Forth SPA	UK9004411
				Forth Islands SPA	UK9004171
				Forth Islands SPA extension	UK9004171

Block/ OS Grid Ref	% block covered			Designation(s)	Site Code
	SPA	SAC	Total*		
NO65	7.19	0.57	7.73	River South Esk SAC	UK0030262
				Montrose Basin SPA	UK9004031
NO66	0.31	-	0.31	Montrose Basin SPA	UK9004031
SY76	-	-	59.28	Poole Bay to Lyme Bay Reefs pSAC	-
SY77	-	0.58	26.36	Isle of Portland to Studland Cliffs SAC	UK0019861
				Poole Bay to Lyme Bay Reefs pSAC	-
SY78	1.11	3.32	11.03	Dorset Heaths SAC	UK0019857
				Isle of Portland to Studland Cliffs SAC	UK0019861
				Dorset Heathlands SPA	UK9010101
				Poole Bay to Lyme Bay Reefs pSAC	-
ST71	-	0.62	0.62	Rooksmoor SAC	UK0012681
ST74	-	1.36	1.36	Mells Valley SAC	UK0012658
				Mendip Woodlands SAC	UK0030048
ST76	-	0.49	0.49	Bath & Bradford on Avon Bats SAC	UK0012584
SO70	11.95	10.67	12.27	Severn Estuary/Môr Hafren SAC	UK0013030
				Severn Estuary/Môr Hafren SPA	UK9015022
SO71	0.53	-	0.53	Walmore Common SPA	UK9007051
SJ75	-	0.02	0.02	West Midlands Mosses SAC	UK0013595
SJ79	-	0.03	0.03	Manchester Mosses SAC	UK0030200
SD75	0.83	0.29	1.12	North Pennine Dales Meadows SAC	UK0014775
				Bowland Fells SPA	UK9005151
SD76	-	1.83	1.83	Ingleborough Complex SAC	UK0012782
SD77	-	53.38	53.38	Ingleborough Complex SAC	UK0012782
				North Pennine Dales Meadows SAC	UK0014775
SD78	-	0.14	0.14	North Pennine Dales Meadows SAC	UK0014775
SD79	1.47	2.05	2.05	Asby Complex SAC	UK0014778
				North Pennine Dales Meadows SAC	UK0014775
				North Pennine Moors SAC	UK0030033
				River Eden SAC	UK0012643
				North Pennine Moors SPA	UK9006272
NO75	2.34	-	2.34	Montrose Basin SPA	UK9004031
SY87	-	1.94	50.10	Isle of Portland to Studland Cliffs SAC	UK0019861
				Poole Bay to Lyme Bay Reefs pSAC	-
SY88	13.59	17.88	19.60	Dorset Heaths SAC	UK0019857
				Isle of Portland to Studland Cliffs SAC	UK0019861
				Dorset Heathlands SPA	UK9010101
				Poole Bay to Lyme Bay Reefs pSAC	
SY89	6.95	6.99	6.99	Dorset Heaths SAC	UK0019857
				Dorset Heathlands SPA	UK9010101
ST81	-	2.11	2.11	Fontmell & Melbury Downs SAC	UK0012550
ST82	-	0.20	0.20	Fontmell & Melbury Downs SAC	UK0012550
ST84	5.10	5.16	5.16	River Avon SAC	UK0013016
				Salisbury Plain SAC	UK0012683

Block/ OS Grid Ref	% block covered			Designation(s)	Site Code
	SPA	SAC	Total*		
				Salisbury Plain SPA	UK9011102
ST85	0.51	0.51	0.51	Salisbury Plain SAC	UK0012683
				Salisbury Plain SPA	UK9011102
ST86	-	0.59	0.59	Bath & Bradford on Avon Bats SAC	UK0012584
SO80	-	1.38	1.38	Cotswold Beechwoods SAC	UK0013658
				Rodborough Common SAC	UK0012826
SO81	-	2.94	2.94	Cotswold Beechwoods SAC	UK0013658
SO85	-	0.01	0.01	Lyppard Grange Ponds SAC	UK0030198
SJ81	-	0.44	0.44	Motley Meadows SAC	UK0030051
SD80	-	0.14	0.14	Rochdale Canal SAC	UK0030266
SD81	-	0.03	0.03	Rochdale Canal SAC	UK0030266
SD82	0.48	0.48	0.48	South Pennine Moors SAC	UK0030280
				South Pennine Moors Phase 2 SPA	UK9007022
SD83	2.31	2.31	2.31	South Pennine Moors SAC	UK0030280
				South Pennine Moors Phase 2 SPA	UK9007022
SD86	-	9.19	9.19	Craven Limestone Complex SAC	UK0014776
SD87	-	0.22	0.22	Craven Limestone Complex SAC	UK0014776
				Ingleborough Complex SAC	UK0012782
				North Pennine Dales Meadows SAC	UK0014775
SD88	-	0.20	0.20	North Pennine Dales Meadows SAC	UK0014775
SD89	39.73	39.80	39.80	North Pennine Dales Meadows SAC	UK0014775
				North Pennine Moors SAC	UK0030033
				North Pennine Moors SPA	UK9006272
NY80	35.39	35.53	35.53	North Pennine Dales Meadows SAC	UK0014775
				North Pennine Moors SAC	UK0030033
				North Pennine Dales Meadows SAC	UK0014775
				North Pennine Moors SAC	UK0030033
				North Pennine Moors SPA	UK9006272
NY81	24.88	25.42	25.42	Helbeck & Swindale Woods SAC	UK0030167
				Moor House-Upper Teesdale SAC	UK0014774
				North Pennine Moors SAC	UK0030033
				River Eden SAC	UK0012643
				North Pennine Moors SPA	UK9006272
NY82	92.55	89.74	92.58	Moor House-Upper Teesdale SAC	UK0014774
				North Pennine Dales Meadows SAC	UK0014775
				North Pennine Moors SAC	UK0030033
				Moor House-Upper Teesdale SAC	UK0014774
				North Pennine Moors SPA	UK9006272
NY83	49.75	49.80	49.80	Moor House-Upper Teesdale SAC	UK0014774
				North Pennine Dales Meadows SAC	UK0014775
				North Pennine Moors SPA	UK9006272
NY84	45.30	40.19	45.48	North Pennine Dales Meadows SAC	UK0014775
				North Pennine Moors SAC	UK0030033

Block/ OS Grid Ref	% block covered			Designation(s)	Site Code
	SPA	SAC	Total*		
				North Pennine Moors SPA	UK9006272
NY85	54.83	48.26	54.92	North Pennine Dales Meadows SAC	UK0014775
				North Pennine Moors SAC	UK0030033
				North Pennine Moors SPA	UK9006272
				North Pennine Moors SPA	UK9006272
NY86	4.40	2.43	5.14	Border Mires, Kielder-Butterburn SAC	UK0012923
				North Pennine Moors SAC	UK0030033
				Tyne & Allen River Gravels SAC	UK0012816
				North Pennine Moors SPA	UK9006272
NO87	0.01	-	5.04	Fowlsheugh SPA	UK9002271
				Fowlsheugh SPA extension	UK9002271
NO88	0.09	0.16	7.31	Garron Point SAC	UK0030356
				Fowlsheugh SPA	UK9002271
				Fowlsheugh SPA extension	UK9002271
SY97	-	3.20	61.60	Isle of Portland to Studland Cliffs SAC	UK0019861
				St Albans Head to Durlston Head SAC	UK0019863
				Poole Bay to Lyme Bay Reefs pSAC	
SY98	28.68	16.45	29.85	Dorset Heaths SAC	UK0019857
				Dorset Heaths (Purbeck & Wareham) & Studland Dunes SAC	UK0030038
				Dorset Heathlands SPA	UK9010101
				Poole Harbour SPA	UK9010111
SY99	12.28	7.96	12.39	Dorset Heaths SAC	UK0019857
				Dorset Heaths (Purbeck & Wareham) & Studland Dunes SAC	UK0030038
				Dorset Heathlands SPA	UK9010101
				Poole Harbour SPA	UK9010111
ST91	-	0.33	0.33	Fontmell & Melbury Downs SAC	UK0012550
ST92	-	0.79	0.79	Prescombe Down SAC	UK0012553
				River Avon SAC	UK0013016
ST93	-	0.21	0.21	Chilmark Quarries SAC	UK0016373
				River Avon SAC	UK0013016
ST94	45.65	45.72	45.72	River Avon SAC	UK0013016
				Salisbury Plain SAC	UK0012683
				Salisbury Plain SPA	UK9011102
ST95	7.71	7.71	7.71	Salisbury Plain SAC	UK0012683
				Salisbury Plain SPA	UK9011102
SO90	-	0.01	0.01	Cotswold Beechwoods SAC	UK0013658
SO91	-	2.66	2.66	Cotswold Beechwoods SAC	UK0013658
SO93	-	1.23	1.23	Bredon Hill SAC	UK0012587
				Dixton Wood SAC	UK0030135
SO94	-	2.51	2.51	Bredon Hill SAC	UK0012587
SO98	-	0.20	0.20	Fens Pools SAC	UK0030150
SJ91	-	8.50	8.50	Cannock Chase SAC	UK0030107
SJ92	-	1.73	1.73	Cannock Chase SAC	UK0030107

Block/ OS Grid Ref	% block covered			Designation(s)	Site Code
	SPA	SAC	Total*		
				Pasturefields Salt Marsh SAC	UK0012789
SJ96	3.16	2.80	3.16	South Pennine Moors SAC	UK0030280
				Peak District Moors (South Pennine Moors Phase 1) SPA	UK9007021
SJ97	4.19	4.19	4.19	South Pennine Moors SAC	UK0030280
				Peak District Moors (South Pennine Moors Phase 1) SPA	UK9007021
SD91	30.12	30.20	30.20	Rochdale Canal SAC	UK0030266
				South Pennine Moors SAC	UK0030280
				South Pennine Moors Phase 2 SPA	UK9007022
SD92	25.94	25.94	25.94	South Pennine Moors SAC	UK0030280
				South Pennine Moors Phase 2 SPA	UK9007022
SD93	68.12	68.12	68.12	South Pennine Moors SAC	UK0030280
				South Pennine Moors Phase 2 SPA	UK9007022
SD94	7.75	7.75	7.75	South Pennine Moors SAC	UK0030280
				South Pennine Moors Phase 2 SPA	UK9007022
SD95	6.41	6.41	6.41	North Pennine Moors SAC	UK0030033
				North Pennine Moors SPA	UK9006272
SD96	0.00	40.43	40.43	Craven Limestone Complex SAC	UK0014776
				North Pennine Dales Meadows SAC	UK0014775
				North Pennine Moors SAC	UK0030033
				North Pennine Moors SPA	UK9006272
SD97	-	3.78	3.78	Craven Limestone Complex SAC	UK0014776
				North Pennine Dales Meadows SAC	UK0014775
SD98	-	0.26	0.26	Ox Close SAC	UK0030234
SD99	52.98	54.41	54.41	North Pennine Dales Meadows SAC	UK0014775
				North Pennine Moors SAC	UK0030033
				Ox Close SAC	UK0030234
				North Pennine Moors SPA	UK9006272
NY90	74.86	74.96	74.96	North Pennine Dales Meadows SAC	UK0014775
				North Pennine Moors SAC	UK0030033
				North Pennine Moors SPA	UK9006272
NY91	46.34	43.87	46.48	North Pennine Dales Meadows SAC	UK0014775
				North Pennine Moors SAC	UK0030033
				North Pennine Moors SPA	UK9006272
NY92	24.43	20.77	25.09	Moor House-Upper Teesdale SAC	UK0014774
				North Pennine Dales Meadows SAC	UK0014775
				North Pennine Moors SAC	UK0030033
				North Pennine Moors SPA	UK9006272
NY93	46.61	46.74	46.74	Moor House-Upper Teesdale SAC	UK0014774
				North Pennine Dales Meadows SAC	UK0014775
				North Pennine Moors SAC	UK0030033
				North Pennine Moors SPA	UK9006272
NY94	58.53	58.17	58.54	North Pennine Dales Meadows SAC	UK0014775

Block/ OS Grid Ref	% block covered			Designation(s)	Site Code
	SPA	SAC	Total*		
NY95	24.86	19.22	24.86	North Pennine Moors SAC	UK0030033
				North Pennine Moors SPA	UK9006272
				North Pennine Moors SAC	UK0030033
				North Pennine Moors SPA	UK9006272
NY96	-	0.01	0.01	Tyne & Allen River Gravels SAC	UK0012816
NY99	-	12.22	12.22	Simonside Hills SAC	UK0030336
SZ07	-	1.67	16.50	Isle of Portland to Studland Cliffs SAC	UK0019861
				St Albans Head to Durlston Head SAC	UK0019863
				Poole Bay to Lyme Bay Reefs pSAC	-
SZ08	15.37	9.69	21.79	Dorset Heaths SAC	UK0019857
				Dorset Heaths (Purbeck & Wareham) & Studland Dunes SAC	UK0030038
				Isle of Portland to Studland Cliffs SAC	UK0019861
				Dorset Heathlands SPA	UK9010101
				Poole Harbour SPA	UK9010111
				Poole Bay to Lyme Bay Reefs pSAC	-
SZ09	8.83	7.45	8.97	Dorset Heaths SAC	UK0019857
				Dorset Heathlands SPA	UK9010101
				Poole Harbour SPA	UK9010111
SU00	8.27	8.16	8.27	Dorset Heaths SAC	UK0019857
				Dorset Heathlands SPA	UK9010101
SU01	0.42	0.43	0.43	Dorset Heaths SAC	UK0019857
				Dorset Heathlands SPA	UK9010101
SU03	-	0.63	0.63	River Avon SAC	UK0013016
SU04	35.68	37.74	37.74	River Avon SAC	UK0013016
				Salisbury Plain SAC	UK0012683
				Salisbury Plain SPA	UK9011102
SU05	36.84	36.84	36.84	Salisbury Plain SAC	UK0012683
				Salisbury Plain SPA	UK9011102
SU06	-	0.42	0.42	Pewsey Downs SAC	UK0012552
SU09	-	1.05	1.05	North Meadow & Clattinger Farm SAC	UK0016372
SK00	-	0.05	0.05	Cannock Extension Canal SAC	UK0012672
SK01	-	2.08	2.08	Cannock Chase SAC	UK0030107
SK02	-	1.28	1.28	Cannock Chase SAC	UK0030107
				West Midlands Mosses SAC	UK0013595
SK05	1.58	2.87	3.08	Peak District Dales SAC	UK0019859
				South Pennine Moors SAC	UK0030280
				Peak District Moors (South Pennine Moors Phase 1) SPA	UK9007021
SK06	28.04	20.16	28.04	Peak District Dales SAC	UK0019859
				South Pennine Moors SAC	UK0030280
				Peak District Moors (South Pennine Moors Phase 1) SPA	UK9007021
SK07	16.04	16.73	16.78	Peak District Dales SAC	UK0019859

Block/ OS Grid Ref	% block covered			Designation(s)	Site Code
	SPA	SAC	Total*		
				South Pennine Moors SAC	UK0030280
				Peak District Moors (South Pennine Moors Phase 1) SPA	UK9007021
SK08	25.10	25.10	25.10	South Pennine Moors SAC	UK0030280
				Peak District Moors (South Pennine Moors Phase 1) SPA	UK9007021
SK09	49.06	49.06	49.06	South Pennine Moors SAC	UK0030280
				Peak District Moors (South Pennine Moors Phase 1) SPA	UK9007021
SE00	71.70	71.79	71.79	South Pennine Moors SAC	UK0030280
				Peak District Moors (South Pennine Moors Phase 1) SPA	UK9007021
				South Pennine Moors Phase 2 SPA	UK9007022
SE01	27.06	27.06	27.06	South Pennine Moors SAC	UK0030280
				Peak District Moors (South Pennine Moors Phase 1) SPA	UK9007021
				South Pennine Moors Phase 2 SPA	UK9007022
SE02	7.47	7.47	7.47	South Pennine Moors SAC	UK0030280
				South Pennine Moors Phase 2 SPA	UK9007022
SE03	17.30	17.30	17.30	South Pennine Moors SAC	UK0030280
				South Pennine Moors Phase 2 SPA	UK9007022
SE04	6.28	6.28	6.28	South Pennine Moors SAC	UK0030280
				South Pennine Moors Phase 2 SPA	UK9007022
SE05	32.59	32.59	32.59	North Pennine Moors SAC	UK0030033
				North Pennine Moors SPA	UK9006272
SE06	29.67	29.72	29.72	Craven Limestone Complex SAC	UK0014776
				North Pennine Dales Meadows SAC	UK0014775
				North Pennine Moors SAC	UK0030033
				North Pennine Moors SPA	UK9006272
SE07	10.39	10.39	10.39	North Pennine Moors SAC	UK0030033
				North Pennine Moors SPA	UK9006272
SE08	6.83	6.95	6.95	North Pennine Dales Meadows SAC	UK0014775
				North Pennine Moors SAC	UK0030033
				North Pennine Moors SPA	UK9006272
SE09	43.94	43.94	43.94	North Pennine Moors SAC	UK0030033
				North Pennine Moors SPA	UK9006272
NZ00	3.95	3.95	3.95	North Pennine Moors SAC	UK0030033
				North Pennine Moors SPA	UK9006272
NZ01	0.27	0.27	0.27	North Pennine Moors SAC	UK0030033
				North Pennine Moors SPA	UK9006272
NZ02	19.01	19.01	19.01	North Pennine Moors SAC	UK0030033
				North Pennine Moors SPA	UK9006272
NZ03	34.17	34.10	34.26	North Pennine Dales Meadows SAC	UK0014775
				North Pennine Moors SAC	UK0030033

Block/ OS Grid Ref	% block covered			Designation(s)	Site Code
	SPA	SAC	Total*		
				North Pennine Moors SPA	UK9006272
NZ04	28.81	28.19	28.81	North Pennine Moors SAC	UK0030033
				North Pennine Moors SPA	UK9006272
NZ05	1.78	1.78	1.78	North Pennine Moors SAC	UK0030033
				North Pennine Moors SPA	UK9006272
NZ09	-	8.61	8.61	Simonside Hills SAC	UK0030336
SZ19	9.67	5.72	10.52	Dorset Heaths SAC	UK0019857
				River Avon SAC	UK0013016
				The New Forest SAC	UK0012557
				Avon Valley SPA	UK9011091
				Dorset Heathlands SPA	UK9010101
SU10	31.46	25.58	32.37	Dorset Heaths SAC	UK0019857
				River Avon SAC	UK0013016
				The New Forest SAC	UK0012557
				Avon Valley SPA	UK9011091
				Dorset Heathlands SPA	UK9010101
SU11	20.37	21.09	21.92	New Forest SPA	UK9011031
				Dorset Heaths SAC	UK0019857
				River Avon SAC	UK0013016
				The New Forest SAC	UK0012557
				Avon Valley SPA	UK9011091
SU12	-	0.86	0.86	Dorset Heathlands SPA	UK9010101
				New Forest SPA	UK9011031
				Great Yews SAC	UK0012770
SU13	0.26	0.82	0.82	River Avon SAC	UK0013016
				Salisbury Plain SAC	UK0012683
				Porton Down SPA	UK9011101
SU14	28.73	29.20	29.20	River Avon SAC	UK0013016
				Salisbury Plain SAC	UK0012683
				Salisbury Plain SPA	UK9011102
SU15	21.69	21.87	21.87	River Avon SAC	UK0013016
				Salisbury Plain SAC	UK0012683
				Salisbury Plain SPA	UK9011102
SU16	-	1.23	1.23	Pewsey Downs SAC	UK0012552
				River Avon SAC	UK0013016
SU19	-	0.00	0.00	North Meadow & Clattinger Farm SAC	UK0016372
SK11	-	0.03	0.03	River Mease SAC	UK0030258
SK15	-	7.50	7.50	Peak District Dales SAC	UK0019859
SK16	-	2.43	2.43	Peak District Dales SAC	UK0019859
SK17	-	7.18	7.18	Peak District Dales SAC	UK0019859
SK18	19.38	19.38	19.38	South Pennine Moors SAC	UK0030280
				Peak District Moors (South Pennine Moors	UK9007021

Block/ OS Grid Ref	% block covered			Designation(s)	Site Code
	SPA	SAC	Total*		
				Phase 1) SPA	
SK19	89.06	89.06	89.06	South Pennine Moors SAC	UK0030280
				Peak District Moors (South Pennine Moors Phase 1) SPA	UK9007021
SE10	24.04	24.08	24.08	South Pennine Moors SAC	UK0030280
				Peak District Moors (South Pennine Moors Phase 1) SPA	UK9007021
SE14	19.14	19.14	19.14	North Pennine Moors SAC	UK0030033
				South Pennine Moors SAC	UK0030280
				North Pennine Moors SPA	UK9006272
				South Pennine Moors Phase 2 SPA	UK9007022
SE15	36.47	36.47	36.47	North Pennine Moors SAC	UK0030033
				North Pennine Moors SPA	UK9006272
SE16	38.37	38.37	38.37	North Pennine Moors SAC	UK0030033
				North Pennine Moors SPA	UK9006272
SE17	55.22	55.22	55.22	North Pennine Moors SAC	UK0030033
				North Pennine Moors SPA	UK9006272
SE18	23.20	23.20	23.20	North Pennine Moors SAC	UK0030033
				North Pennine Moors SPA	UK9006272
SE19	1.92	1.92	1.92	North Pennine Moors SAC	UK0030033
				North Pennine Moors SPA	UK9006272
NZ10	-	0.09	0.09	North Pennine Dales Meadows SAC	UK0014775
SZ28	-	4.19	4.19	Isle of Wight Downs SAC	UK0016254
				South Wight Maritime SAC	UK0030061
SZ29	12.09	12.16	12.25	Solent Maritime SAC	UK0030059
				The New Forest SAC	UK0012557
				New Forest SPA	UK9011031
				Solent & Southampton Water SPA	UK9011061
SU20	83.67	84.15	84.18	The New Forest SAC	UK0012557
				New Forest SPA	UK9011031
SU21	58.28	60.52	60.57	The New Forest SAC	UK0012557
				River Avon SAC	UK0013016
				The New Forest SAC	UK0012557
				New Forest SPA	UK9011031
SU22	-	2.72	2.72	The New Forest SAC	UK0012557
SU23	15.36	15.36	15.36	Salisbury Plain SAC	UK0012683
				Porton Down SPA	UK9011101
SU24	9.27	9.27	9.27	Salisbury Plain SAC	UK0012683
				Porton Down SPA	UK9011101
				Salisbury Plain SPA	UK9011102
SU25	5.98	5.98	5.98	Salisbury Plain SAC	UK0012683
				Salisbury Plain SPA	UK9011102
SK21	-	0.14	0.14	River Mease SAC	UK0030258
SK25	-	3.02	3.02	Bees Nest & Green Clay Pits SAC	UK0030087

Block/ OS Grid Ref	% block covered			Designation(s)	Site Code
	SPA	SAC	Total*		
SK26	8.76	8.08	9.13	Gang Mine SAC	UK0012817
				Peak District Dales SAC	UK0019859
				Peak District Dales SAC	UK0019859
				South Pennine Moors SAC	UK0030280
				Peak District Moors (South Pennine Moors Phase 1) SPA	UK9007021
SK27	29.50	30.32	30.36	Peak District Dales SAC	UK0019859
				South Pennine Moors SAC	UK0030280
				Peak District Moors (South Pennine Moors Phase 1) SPA	UK9007021
SK28	47.02	44.68	47.02	South Pennine Moors SAC	UK0030280
				Peak District Moors (South Pennine Moors Phase 1) SPA	UK9007021
SK29	31.52	31.12	31.52	South Pennine Moors SAC	UK0030280
				Peak District Moors (South Pennine Moors Phase 1) SPA	UK9007021
SE20	0.03	0.03	0.03	South Pennine Moors SAC	UK0030280
				Peak District Moors (South Pennine Moors Phase 1) SPA	UK9007021
SE21	-	0.19	0.19	Denby Grange Colliery Ponds SAC	UK0030036
SE26	1.68	1.68	1.68	North Pennine Moors SAC	UK0030033
				North Pennine Moors SPA	UK9006272
SE27	1.04	1.04	1.04	North Pennine Moors SAC	UK0030033
				North Pennine Moors SPA	UK9006272
NZ29	0.35		0.35	Northumbria Coast SPA	UK9006131
NU20	1.32	1.93	3.25	North Northumberland Dunes SAC	UK0017097
				Coquet Island SPA	UK9006031
				Northumbria Coast SPA	UK9006131
SZ38	1.58	43.55	44.03	Isle of Wight Downs SAC	UK0016254
				Solent Maritime SAC	UK0030059
				South Wight Maritime SAC	UK0030061
				Solent & Southampton Water SPA	UK9011061
SZ39	18.68	19.48	23.37	Solent Maritime SAC	UK0030059
				The New Forest SAC	UK0012557
				Solent & Isle of Wight Lagoons SAC	UK0017073
				New Forest SPA	UK9011031
				Solent & Southampton Water SPA	UK9011061
SU30	66.56	69.22	69.24	The New Forest SAC	UK0012557
				Solent Maritime SAC	UK0030059
				New Forest SPA	UK9011031
				Solent & Southampton Water SPA	UK9011061
SU31	7.05	6.69	7.72	The New Forest SAC	UK0012557
				Solent Maritime SAC	UK0030059
				New Forest SPA	UK9011031

Block/ OS Grid Ref	% block covered			Designation(s)	Site Code
	SPA	SAC	Total*		
				Solent & Southampton Water SPA	UK9011061
SU32	-	2.27	2.27	Mottisfont Bats SAC	UK0030334
				Emer Bog SAC	UK0030147
SU33	-	0.05	0.05	Mottisfont Bats SAC	UK0030334
SU36	-	0.51	0.51	Kennet & Lambourn Floodplain SAC	UK0030044
				Kennet Valley Alderwoods SAC	UK0030175
SU37	-	0.49	0.49	Kennet & Lambourn Floodplain SAC	UK0030044
				River Lambourn SAC	UK0030257
SU38	-	0.39	0.39	Hackpen Hill SAC	UK0030162
SP39	-	0.04	0.04	Ensor's Pool SAC	UK0012646
SK31	-	0.06	0.06	River Mease SAC	UK0030258
SK36	2.15	2.15	2.15	South Pennine Moors SAC	UK0030280
				Peak District Moors (South Pennine Moors Phase 1) SPA	UK9007021
SK37	0.21	0.21	0.21	South Pennine Moors SAC	UK0030280
				Peak District Moors (South Pennine Moors Phase 1) SPA	UK9007021
SE35	-	0.04	0.04	Kirk Deighton SAC	UK0030178
NZ33	-	0.22	0.22	Thrislington SAC	UK0012838
NZ36	0.36	0.32	0.53	Durham Coast SAC	UK0030140
				Northumbria Coast SPA	UK9006131
NZ37	0.71	-	0.71	Northumbria Coast SPA	UK9006131
NZ38	1.03	-	1.03	Northumbria Coast SPA	UK9006131
NZ39	0.35	-	0.35	Northumbria Coast SPA	UK9006131
SZ47	-	34.28	34.28	South Wight Maritime SAC	UK0030061
SZ48	0.08	7.18	7.18	Isle of Wight Downs SAC	UK0016254
				Solent Maritime SAC	UK0030059
				South Wight Maritime SAC	UK0030061
				Solent & Southampton Water SPA	UK9011061
SZ49	11.31	16.25	21.36	Solent Maritime SAC	UK0030059
				Solent & Southampton Water SPA	UK9011061
SU40	20.62	19.07	22.60	Solent Maritime SAC	UK0030059
				The New Forest SAC	UK0012557
				New Forest SPA	UK9011031
				Solent & Southampton Water SPA	UK9011061
SU41	0.70	1.50	2.16	River Itchen SAC	UK0012599
				Solent Maritime SAC	UK0030059
				Solent & Southampton Water SPA	UK9011061
SU42	-	1.26	1.26	Emer Bog SAC	UK0030147
				River Itchen SAC	UK0012599
SU43	-	0.10	0.10	River Itchen SAC	UK0012599
SU46	-	0.48	0.48	Kennet Valley Alderwoods SAC	UK0030175
				River Lambourn SAC	UK0030257
				Kennet & Lambourn Floodplain SAC	UK0030044

Block/ OS Grid Ref	% block covered			Designation(s)	Site Code
	SPA	SAC	Total*		
				River Lambourn SAC	UK0030257
SU47	-	0.28	0.27	River Lambourn SAC	UK0030257
				Kennet & Lambourn Floodplain SAC	UK0030044
				River Lambourn SAC	UK0030257
SU49	-	0.26	0.26	Cothill Fen SAC	UK0012889
SE48	0.92	0.92	0.92	North York Moors SAC	UK0030228
				North York Moors SPA	UK9006161
SE49	23.55	23.55	23.55	North York Moors SAC	UK0030228
				North York Moors SPA	UK9006161
NZ40	0.67	0.67	0.67	North York Moors SAC	UK0030228
				North York Moors SPA	UK9006161
NZ42	0.66	-	0.66	Teesmouth & Cleveland Coast SPA	UK9006061
NZ43	0.77	2.26	2.71	Castle Eden Dene SAC	UK0012768
				Durham Coast SAC	UK0030140
				Northumbria Coast SPA	UK9006131
				Teesmouth & Cleveland Coast SPA	UK9006061
NZ44	0.05	2.12	2.17	Castle Eden Dene SAC	UK0012768
				Durham Coast SAC	UK0030140
				Northumbria Coast SPA	UK9006131
NZ45	0.40	0.29	0.40	Durham Coast SAC	UK0030140
				Northumbria Coast SPA	UK9006131
NZ46	0.46	0.80	0.80	Durham Coast SAC	UK0030140
				Northumbria Coast SPA	UK9006131
SZ57	-	19.74	19.74	Isle of Wight Downs SAC	UK0016254
				South Wight Maritime SAC	UK0030061
SZ58	<0.00	4.77	4.77	Briddlesford Copses SAC	UK0030328
				Solent Maritime SAC	UK0030059
				South Wight Maritime SAC	UK0030061
				Solent & Southampton Water SPA	UK9011061
SZ59	3.06	5.38	7.11	Briddlesford Copses SAC	UK0030328
				Solent Maritime SAC	UK0030059
				Solent & Southampton Water SPA	UK9011061
SU50	4.47	0.01	4.48	Solent Maritime SAC	UK0030059
				Portsmouth Harbour SPA	UK9011051
				Solent & Southampton Water SPA	UK9011061
SU51	0.80	0.80	0.82	Solent Maritime SAC	UK0030059
				Solent & Southampton Water SPA	UK9011061
SU52	-	0.02	0.02	River Itchen SAC	UK0012599
SU53	-	0.28	0.28	River Itchen SAC	UK0012599
SU56	-	0.26	0.26	Kennet & Lambourn Floodplain SAC	UK0030044
SU59	-	0.69	0.69	Little Wittenham SAC	UK0030184
SE58	3.65	3.65	3.65	North York Moors SAC	UK0030228
				North York Moors SPA	UK9006161

Block/ OS Grid Ref	% block covered			Designation(s)	Site Code
	SPA	SAC	Total*		
SE59	53.91	53.91	53.91	North York Moors SAC	UK0030228
				North York Moors SPA	UK9006161
NZ50	14.96	14.96	14.96	North York Moors SAC	UK0030228
				North York Moors SPA	UK9006161
NZ51	1.65	1.65	1.65	North York Moors SAC	UK0030228
				North York Moors SPA	UK9006161
NZ52	10.19	-	10.19	Teesmouth & Cleveland Coast SPA	UK9006061
NZ53	0.61	-	0.61	Teesmouth & Cleveland Coast SPA	UK9006061
SZ68	5.24	66.43	70.48	Solent & Isle of Wight Lagoons SAC	UK0017073
				South Wight Maritime SAC	UK0030061
				Solent & Southampton Water SPA	UK9011061
SZ69	4.06	5.01	8.17	Solent & Isle of Wight Lagoons SAC	UK0017073
				Solent Maritime SAC	UK0030059
				South Wight Maritime SAC	UK0030061
				Chichester and Langstone Harbours SPA	UK9011011
				Portsmouth Harbour SPA	UK9011051
				Solent & Southampton Water SPA	UK9011061
SU60	22.67	11.02	22.69	Solent & Isle of Wight Lagoons SAC	UK0017073
				Solent Maritime SAC	UK0030059
				Chichester and Langstone Harbours SPA	UK9011011
				Portsmouth Harbour SPA	UK9011051
SU67	-	0.34	0.34	Hartslock Wood SAC	UK0030164
SK66	-	2.70	2.70	Birklands & Bilhaugh SAC	UK0012740
SE60	2.41	4.73	4.73	Hatfield Moor SAC	UK0030166
				Thorne & Hatfield Moors SPA	UK9005171
SE61	-	0.01	0.01	Thorne Moor SAC	UK0012915
SE62	-	0.25	0.25	River Derwent SAC	UK0030253
SE63	1.85	4.81	4.81	Lower Derwent Valley SAC	UK0012844
				River Derwent SAC	UK0030253
				Skipwith Common SAC	UK0030276
				Lower Derwent Valley SPA	UK9006092
SE64	2.59	2.59	2.59	Lower Derwent Valley SAC	UK0012844
				River Derwent SAC	UK0030253
				Lower Derwent Valley SPA	UK9006092
SE65	-	2.92	2.92	Strensall Common SAC	UK0030284
SE66	-	2.80	2.80	Strensall Common SAC	UK0030284
SE69	49.01	49.01	49.01	North York Moors SAC	UK0030228
				North York Moors SPA	UK9006161
NZ60	67.23	67.23	67.23	North York Moors SAC	UK0030228
				North York Moors SPA	UK9006161
NZ61	28.99	28.99	28.99	North York Moors SAC	UK0030228
				North York Moors SPA	UK9006161
NZ62	0.59	-	0.59	Teesmouth & Cleveland Coast SPA	UK9006061

Block/ OS Grid Ref	% block covered			Designation(s)	Site Code
	SPA	SAC	Total*		
SZ79	8.68	20.30	21.13	Solent Maritime SAC	UK0030059
				South Wight Maritime SAC	UK0030061
				Chichester and Langstone Harbours SPA	UK9011011
SU70	31.70	28.60	31.70	Solent Maritime SAC	UK0030059
				Chichester and Langstone Harbours SPA	UK9011011
SU71	-	1.19	1.19	Butser Hill SAC	UK0030103
SU72	1.19	3.33	4.52	Butser Hill SAC	UK0030103
				East Hampshire Hangers SAC	UK0012723
				Wealden Heaths Phase II SPA	UK9012132
SU73	4.74	6.95	8.86	East Hampshire Hangers SAC	UK0012723
				Shortheath Common SAC	UK0030275
				Woolmer Forest SAC	UK0030304
				Wealden Heaths Phase II SPA	UK9012132
SU74	-	0.04	0.04	East Hampshire Hangers SAC	UK0012723
SU75	6.76	-	6.76	Thames Basin Heaths SPA	UK9012141
SU76	3.98	-	3.98	Thames Basin Heaths SPA	UK9012141
SU79	-	3.35	3.35	Aston Rowant SAC	UK0030082
				Chilterns Beechwoods SAC	UK0012724
SE70	2.93	8.88	8.88	Hatfield Moor SAC	UK0030166
				Thorne & Hatfield Moors SPA	UK9005171
SE71	19.05	19.10	19.10	Thorne Moor SAC	UK0012915
				Thorne & Hatfield Moors SPA	UK9005171
SE72	5.19	5.24	5.24	Humber Estuary SAC	UK0030170
				River Derwent SAC	UK0030253
				Humber Estuary SPA	UK9006111
SE73	2.00	2.27	2.27	Lower Derwent Valley SAC	UK0012844
				River Derwent SAC	UK0030253
				Lower Derwent Valley SPA	UK9006092
SE74	4.35	4.35	4.36	Lower Derwent Valley SAC	UK0012844
				River Derwent SAC	UK0030253
				Lower Derwent Valley SPA	UK9006092
SE75	0.11	0.76	0.76	Lower Derwent Valley SAC	UK0012844
				River Derwent SAC	UK0030253
				Lower Derwent Valley SPA	UK9006092
SE76	-	0.77	0.77	River Derwent SAC	UK0030253
SE77	-	0.12	0.12	River Derwent SAC	UK0030253
SE79	46.66	46.66	46.66	North York Moors SAC	UK0030228
				North York Moors SPA	UK9006161
NZ70	42.80	43.33	43.33	Arnecliff & Park Hole Woods SAC	UK0030142
				North York Moors SAC	UK0030228
				North York Moors SPA	UK9006161
NZ71	20.06	20.06	20.06	North York Moors SAC	UK0030228
				North York Moors SPA	UK9006161

Block/ OS Grid Ref	% block covered			Designation(s)	Site Code
	SPA	SAC	Total*		
SZ89	6.29	-	6.29	Pagham Harbour SPA	UK9012041
SU80	4.67	4.22	4.70	Kingley Vale SAC	UK0012767
				Solent Maritime SAC	UK0030059
				Chichester and Langstone Harbours SPA	UK9011011
SU81	-	2.11	2.11	Kingley Vale SAC	UK0012767
				Rook Cliff SAC	UK0030058
				Singleton and Cocking Tunnels SAC	UK0030337
SU82	0.36	-	0.36	Wealden Heaths Phase II SPA	UK9012132
SU83	16.46	6.05	16.46	Thursley, Ash, Pirbright & Chobham SAC	UK0012793
				Woolmer Forest SAC	UK0030304
				Thursley, Hankley & Frensham Commons SPA	UK9012131
				Wealden Heaths Phase II SPA	UK9012132
SU84	9.77	8.26	9.77	Thursley, Ash, Pirbright & Chobham SAC	UK0012793
				Thames Basin Heaths SPA	UK9012141
				Thursley, Hankley & Frensham Commons SPA	UK9012131
SU85	15.49	1.27	15.49	Thursley, Ash, Pirbright & Chobham SAC	UK0012793
				Thames Basin Heaths SPA	UK9012141
SU86	16.97	-	16.97	Thames Basin Heaths SPA	UK9012141
SU88	-	1.10	1.10	Chilterns Beechwoods SAC	UK0012724
SU89	-	1.96	1.96	Chilterns Beechwoods SAC	UK0012724
SK80	6.87	-	6.87	Rutland Water SPA	UK9008051
SE81	-	3.20	3.20	Humber Estuary SAC	UK0030170
SE82	14.08	14.40	14.45	Humber Estuary SAC	UK0030170
				Humber Estuary SPA	UK9006111
SE87	-	0.30	0.30	River Derwent SAC	UK0030253
SE88	-	0.04	0.04	Ellers Wood & Sand Dale SAC	UK0030039
SE89	37.04	37.26	37.26	Fen Bog SAC	UK0030332
				North York Moors SAC	UK0030228
				North York Moors SPA	UK9006161
NZ80	24.81	24.81	24.81	North York Moors SAC	UK0030228
				North York Moors SPA	UK9006161
SU91	-	2.14	2.14	Dunton to Bignor Escarpment SAC	UK0030138
SU92	-	2.35	2.35	Ebernoe Common SAC	UK0012715
SU93	0.59	0.59	0.59	Thursley, Ash, Pirbright & Chobham SAC	UK0012793
				Thursley, Hankley & Frensham Commons SPA	UK9012131
SU94	7.76	7.76	7.76	Thursley, Ash, Pirbright & Chobham SAC	UK0012793
				Thursley, Hankley & Frensham Commons SPA	UK9012131
SU95	23.57	21.18	23.57	Thursley, Ash, Pirbright & Chobham SAC	UK0012793
				Thames Basin Heaths SPA	UK9012141
SU96	11.63	11.85	13.16	Thursley, Ash, Pirbright & Chobham SAC	UK0012793

Block/ OS Grid Ref	% block covered			Designation(s)	Site Code
	SPA	SAC	Total*		
				Windsor Forest & Great Park SAC	UK0012586
				Thames Basin Heaths SPA	UK9012141
SU97	-	15.33	15.33	Windsor Forest & Great Park SAC	UK0012586
SU98	-	3.84	3.84	Burnham Beeches SAC	UK0030034
SK90	8.68	-	8.68	Rutland Water SPA	UK9008051
SE92	31.54	31.54	31.54	Humber Estuary SAC	UK0030170
				Humber Estuary SPA	UK9006111
SE99	11.42	11.53	11.53	Beast Cliff-Whitby (Robin Hood's Bay) SAC	UK0030086
				North York Moors SAC	UK0030228
				North York Moors SPA	UK9006161
NZ90	13.62	15.81	15.81	Beast Cliff-Whitby (Robin Hood's Bay) SAC	UK0030086
				North York Moors SAC	UK0030228
				North York Moors SPA	UK9006161
TQ01	5.30	-	5.30	Arun Valley SPA	UK9020281
TQ02	-	2.05	2.05	The Mens SAC	UK0012716
TQ05	2.24	-	2.24	Thames Basin Heaths SPA	UK9012141
TQ06	1.40	-	1.40	South West London Waterbodies SPA	UK9012171
				Thames Basin Heaths SPA	UK9012141
TQ07	6.98	-	6.98	South West London Waterbodies SPA	UK9012171
TF00	-	0.24	0.24	Barnack Hills & Holes SAC	UK0030031
TF02	-	0.00	0.00	Grimsthorpe SAC	UK0030043
TA02	27.28	25.19	27.28	Humber Estuary SAC	UK0030170
				Humber Estuary SPA	UK9006111
TA09	-	0.34	0.34	Beast Cliff-Whitby (Robin Hood's Bay) SAC	UK0030086
OV00	-	0.00	0.00	Beast Cliff-Whitby (Robin Hood's Bay) SAC	UK0030086
TQ15	-	6.59	6.59	Mole Gap to Reigate Escarpment SAC	UK0012804
TQ16	0.63	-	0.63	South West London Waterbodies SPA	UK9012171
TQ17	0.25	4.84	5.09	Richmond Park SAC	UK0030246
				South West London Waterbodies SPA	UK9012171
TF11	-	0.02	0.02	Baston Fen SAC	UK0030085
TA11	6.81	6.59	6.81	Humber Estuary SAC	UK0030170
				Humber Estuary SPA	UK9006111
TA12	43.47	43.01	43.47	Humber Estuary SAC	UK0030170
				Humber Estuary SPA	UK9006111
TA14	2.26	-	2.26	Hornsea Mere SPA	UK9006171
TA16	-	1.07	1.07	Flamborough Head SAC	UK0013036
TA17	0.66	2.29	2.31	Flamborough Head SAC	UK0013036
				Flamborough Head & Bempton Cliffs SPA	UK9006101
TQ25	-	2.33	2.33	Mole Gap to Reigate Escarpment SAC	UK0012804
TQ27	-	7.14	7.14	Richmond Park SAC	UK0030246
				Wimbledon Common SAC	UK0030301
TF20	0.03	-	0.03	Nene Washes SPA	UK9008031
TA20	0.03	0.03	0.03	Humber Estuary SAC	UK0030170

Block/ OS Grid Ref	% block covered			Designation(s)	Site Code
	SPA	SAC	Total*		
				Humber Estuary SPA	UK9006111
TA21	53.98	53.98	53.98	Humber Estuary SAC	UK0030170
				Humber Estuary SPA	UK9006111
TA22	3.69	3.69	3.69	Humber Estuary SAC	UK0030170
				Humber Estuary SPA	UK9006111
TA24	0.06	-	0.06	Hornsea Mere SPA	UK9006171
TA26	0.46	30.73	30.73	Flamborough Head SAC	UK0013036
				Flamborough Head & Bempton Cliffs SPA	UK9006101
TA27	0.96	24.28	24.28	Flamborough Head SAC	UK0013036
				Flamborough Head & Bempton Cliffs SPA	UK9006101
TQ30	-	1.15	1.15	Castle Hill SAC	UK0012836
TQ33	0.26	0.26	0.26	Ashdown Forest SAC	UK0030080
				Ashdown Forest SPA	UK9012181
TQ38	1.46	0.92	2.38	Epping Forest SAC	UK0012720
				Lee Valley SPA	UK9012111
TF30	6.69	0.33	6.69	Nene Washes SAC	UK0030222
				Nene Washes SPA	UK9008031
TF33	18.93	18.93	18.93	The Wash & North Norfolk Coast SAC	UK0017075
				The Wash SPA	UK9008021
TF34	0.45	0.45	0.45	The Wash & North Norfolk Coast SAC	UK0017075
				The Wash SPA	UK9008021
TA30	54.49	54.49	54.49	Humber Estuary SAC	UK0030170
				Humber Estuary SPA	UK9006111
TA31	81.40	81.32	81.40	Humber Estuary SAC	UK0030170
				Humber Estuary SPA	UK9006111
TQ40	-	0.72	0.72	Lewes Downs SAC	UK0012832
TQ41	-	0.75	0.74	Lewes Downs SAC	UK0012832
TQ42	11.05	10.60	11.05	Ashdown Forest SAC	UK0030080
				Ashdown Forest SPA	UK9012181
TQ43	20.45	16.26	20.45	Ashdown Forest SAC	UK0030080
				Ashdown Forest SPA	UK9012181
TF42	6.17	6.17	6.17	The Wash & North Norfolk Coast SAC	UK0017075
				The Wash SPA	UK9008021
TF43	80.08	80.04	80.08	The Wash & North Norfolk Coast SAC	UK0017075
				The Wash SPA	UK9008021
TF44	76.33	76.33	76.33	The Wash & North Norfolk Coast SAC	UK0017075
				The Wash SPA	UK9008021
TF45	5.82	5.82	5.82	The Wash & North Norfolk Coast SAC	UK0017075
				The Wash SPA	UK9008021
TF48	2.89	1.69	2.89	Saltfleetby-Theddlethorpe Dunes & Gibraltar Point SAC	UK0030270
				Humber Estuary SPA	UK9006111
TF49	18.83	16.43	18.83	Saltfleetby-Theddlethorpe Dunes & Gibraltar Point SAC	UK0030270

Block/ OS Grid Ref	% block covered			Designation(s)	Site Code
	SPA	SAC	Total*		
				Humber Estuary SAC	UK0030170
				Humber Estuary SPA	UK9006111
TA40	23.08	23.08	23.08	Humber Estuary SAC	UK0030170
				Humber Estuary SPA	UK9006111
TA41	9.43	8.72	9.43	Humber Estuary SAC	UK0030170
				Humber Estuary SPA	UK9006111
TQ53	0.31	0.17	0.31	Ashdown Forest SAC	UK0030080
				Ashdown Forest SPA	UK9012181
TF50	-	0.12	0.12	Ouse Washes SAC	UK0013011
TF52	40.87	40.87	40.87	The Wash & North Norfolk Coast SAC	UK0017075
				The Wash SPA	UK9008021
TF53	100.00	100.00	100.00	The Wash & North Norfolk Coast SAC	UK0017075
				The Wash SPA	UK9008021
TF54	100.00	100.00	100.00	The Wash & North Norfolk Coast SAC	UK0017075
				The Wash SPA	UK9008021
TF55	59.70	75.90	76.86	Saltfleetby-Theddlethorpe Dunes & Gibraltar Point SAC	UK0030270
				The Wash & North Norfolk Coast SAC	UK0017075
				Gibraltar Point SPA	UK9008022
				The Wash SPA	UK9008021
				Inner Dowsing, Race Bank and North Ridge pSAC	
TF56	0.61	1.70	13.79	Saltfleetby-Theddlethorpe Dunes & Gibraltar Point SAC	UK0030270
				The Wash & North Norfolk Coast SAC	UK0017075
				Gibraltar Point SPA	UK9008022
				Inner Dowsing, Race Bank and North Ridge pSAC	-
TF57	-	1.52	1.52	Inner Dowsing, Race Bank and North Ridge pSAC	-
TF58	0.12	-	0.12	Humber Estuary SPA	UK9006111
TQ66	-	1.46	1.46	North Downs Woodlands SAC	UK0030225
TQ67	1.86	-	1.86	Thames Estuary & Marshes SPA	UK9012021
TF62	8.86	12.38	12.38	Roydon Common & Dersingham Bog SAC	UK0012801
				The Wash & North Norfolk Coast SAC	UK0017075
				The Wash SPA	UK9008021
TF63	56.01	56.01	56.01	The Wash & North Norfolk Coast SAC	UK0017075
				The Wash SPA	UK9008021
TF64	67.31	91.22	91.23	North Norfolk Coast SAC	UK0019838
				The Wash & North Norfolk Coast SAC	UK0017075
				N Norfolk Coast SPA	UK9009031
				The Wash SPA	UK9008021
TF65	4.27	55.85	82.05	The Wash & North Norfolk Coast SAC	UK0017075
				The Wash SPA	UK9008021

Block/ OS Grid Ref	% block covered			Designation(s)	Site Code
	SPA	SAC	Total*		
				Inner Dowsing, Race Bank and North Ridge pSAC	-
TQ75	-	0.95	0.95	North Downs Woodlands SAC	UK0030225
TQ76	0.78	0.76	1.54	North Downs Woodlands SAC	UK0030225
				Peters Pit SAC	UK0030237
				Medway Estuary & Marshes SPA	UK9012031
TQ77	22.13	-	22.13	Medway Estuary & Marshes SPA	UK9012031
				Thames Estuary & Marshes SPA	UK9012021
				Breckland SAC	UK0019865
TF70	18.19	1.21	19.18	Norfolk Valley Fens SAC	UK0012892
				Breckland SPA	UK9009201
				Norfolk Valley Fens SAC	UK0012892
TF71	0.00	0.63	0.63	Breckland SPA	UK9009201
TF72		0.01	0.01	Roydon Common & Dersingham Bog SAC	UK0012801
TF74	17.58	57.75	58.95	North Norfolk Coast SAC	UK0019838
				The Wash & North Norfolk Coast SAC	UK0017075
				N Norfolk Coast SPA	UK9009031
TQ80	-	0.18	0.18	Hastings Cliffs SAC	UK0030165
TQ81	1.25	1.65	2.90	Hastings Cliffs SAC	UK0030165
				Dungeness to Pett Level SPA	UK9012091
TQ86	15.23	0.14	15.37	Queendown Warren SAC	UK0012833
				Medway Estuary & Marshes SPA	UK9012031
TQ87	46.71	-	46.71	Medway Estuary & Marshes SPA	UK9012031
				Thames Estuary & Marshes SPA	UK9012021
TF82	-	0.46	0.46	River Wensum SAC	UK0012647
TF83	-	0.07	0.07	River Wensum SAC	UK0012647
TF84	20.36	49.86	56.12	North Norfolk Coast SAC	UK0019838
				The Wash & North Norfolk Coast SAC	UK0017075
				N Norfolk Coast SPA	UK9009031
TQ91	9.93	3.77	10.71	Dungeness SAC	UK0013059
				Dungeness to Pett Level SPA	UK9012091
TQ92	0.00	-	0.00	Dungeness to Pett Level SPA	UK9012091
TQ96	32.63	-	32.63	Medway Estuary & Marshes SPA	UK9012031
				The Swale SPA	UK9012011
TQ97	4.17	-	46.66	Medway Estuary & Marshes SPA	UK9012031
				Thames Estuary & Marshes SPA	UK9012021
				The Swale SPA	UK9012011
				Outer Thames Estuary pSPA	-
TF91	-	0.06	0.06	Norfolk Valley Fens SAC	UK0012892
TF92	-	1.37	1.37	River Wensum SAC	UK0012647
TF93	-	0.08	0.08	River Wensum SAC	UK0012647
TF94	26.85	58.41	58.40	North Norfolk Coast SAC	UK0019838
				The Wash & North Norfolk Coast SAC	UK0017075

Block/ OS Grid Ref	% block covered			Designation(s)	Site Code
	SPA	SAC	Total*		
				N Norfolk Coast SPA	UK9009031
TR01	3.24	21.65	23.45	Dungeness SAC	UK0013059
				Dungeness to Pett Level SPA	UK9012091
TR02	0.36	6.99	7.22	Dungeness SAC	UK0013059
				Dungeness to Pett Level SPA	UK9012091
TR04	-	1.11	1.11	Wye & Crundale Downs SAC	UK0012831
				Blean Complex SAC	UK0013697
TR06	31.41	0.68	45.83	The Swale SPA	UK9012011
				Outer Thames Estuary pSPA	-
TR07	0.32	-	88.96	The Swale SPA	UK9012011
				Norfolk Valley Fens SAC	UK0012892
				Outer Thames Estuary pSPA	-
TG01		0.54	0.54	River Wensum SAC	UK0012647
TG02		0.17	0.17	River Wensum SAC	UK0012647
TG03		0.50	0.50	Norfolk Valley Fens SAC	UK0012892
TG04	13.08	54.49	57.11	North Norfolk Coast SAC	UK0019838
				The Wash & North Norfolk Coast SAC	UK0017075
				N Norfolk Coast SPA	UK9009031
TR13	-	1.05	1.05	Folkestone to Etchinghill Escarpment SAC	UK0012835
TR14	-	0.07	0.07	Parkgate Down SAC	UK0030338
TR15	0.21	1.00	1.00	Blean Complex SAC	UK0013697
				Stodmarsh SAC	UK0030283
				Stodmarsh SPA	UK9012121
TR16	3.11	4.9	25.55	Blean Complex SAC	UK0013697
				Stodmarsh SAC	UK0030283
				Stodmarsh SPA	UK9012121
				Thanet Coast & Sandwich Bay SPA	UK9012071
				The Swale SPA	UK9012011
				Margate and Long Sands pSAC	-
				Outer Thames Estuary pSPA	-
TG11	-	0.57	0.57	River Wensum SAC	UK0012647
TG12	-	0.76	0.76	Norfolk Valley Fens SAC	UK0012892
TG14	-	0.25	0.25	Norfolk Valley Fens SAC	UK0012892
TR23	-	0.82	0.82	Folkestone to Etchinghill Escarpment SAC	UK0012835
TR24	-	0.63	0.63	Lydden & Temple Ewell Downs SAC	UK0012834
TR26	5.92	5.39	11.39	Stodmarsh SAC	UK0030283
				Thanet Coast SAC	UK0013107
				Stodmarsh SPA	UK9012121
				Thanet Coast & Sandwich Bay SPA	UK9012071
				Margate and Long Sands pSAC	-
				Outer Thames Estuary pSPA	-
TR27	0.31	3.65	100.00	Thanet Coast SAC	UK0013107
				Thanet Coast & Sandwich Bay SPA	UK9012071

Block/ OS Grid Ref	% block covered			Designation(s)	Site Code
	SPA	SAC	Total*		
				Margate and Long Sands pSAC	-
				Outer Thames Estuary pSPA	-
TG21	0.12	0.12	0.12	The Broads SAC	UK0013577
				Broadland SPA	UK9009253
TG23	-	0.05	0.05	Norfolk Valley Fens SAC	UK0012892
TG24	-	0.30	0.30	Overstrand Cliffs SAC	UK0030232
TR34	-	1.85	1.85	Dover to Kingsdown Cliffs SAC	UK0030330
TR35	3.07	4.58	6.30	Sandwich Bay SAC	UK0013077
				Thanet Coast & Sandwich Bay SPA	UK9012071
TR36	8.07	10.56	11.40	Sandwich Bay SAC	UK0013077
				Thanet Coast SAC	UK0013107
				Thanet Coast & Sandwich Bay SPA	UK9012071
TR37	2.99	12.71	91.79	Thanet Coast SAC	UK0013107
				Thanet Coast & Sandwich Bay SPA	UK9012071
				Margate and Long Sands pSAC	-
				Outer Thames Estuary pSPA	-
TG31	11.34	11.34	11.34	The Broads SAC	UK0013577
				Broadland SPA	UK9009253
TG32	6.36	6.36	6.36	The Broads SAC	UK0013577
				Broadland SPA	UK9009253
TG33	-	0.01	14.23	Paston Great Barn SAC	UK0030235
				Haisborough, Hammond and Winterton pSAC	-
TR46	0.25	4.59	4.59	Thanet Coast SAC	UK0013107
				Thanet Coast & Sandwich Bay SPA	UK9012071
TR47	0.06	2.29	15.70	Thanet Coast SAC	UK0013107
				Thanet Coast & Sandwich Bay SPA	UK9012071
				Margate and Long Sands pSAC	-
				Outer Thames Estuary pSPA	-
TG42	12.21	14.88	40.48	The Broads SAC	UK0013577
				Winterton-Horsey Dunes SAC	UK0013043
				Broadland SPA	UK9009253
				Great Yarmouth North Denes SPA	UK9009271
				Haisborough, Hammond and Winterton pSAC	-
NX07	10.10	-	10.10	Glen App and Galloway Moors SPA	UK9003351
SJ30	-	2.78	2.78	The Stiperstones & The Hollies SAC	UK0012810
SO39	-	3.24	3.24	The Stiperstones & The Hollies SAC	UK0012810
TL35	-	0.67	0.67	Eversden and Wimpole Woods SAC	UK0030331
NY00	-	0.07	0.07	Drigg Coast SAC	UK0013031
NY01	-	1.30	1.30	Lake District High Fells SAC	UK0012960
				River Ehen SAC	UK0030057
NY02	-	0.42	0.42	River Derwent and Bassenthwaite Lake SAC	UK0030032
NY13	-	0.88	0.88	River Derwent and Bassenthwaite Lake SAC	UK0030032

Block/ OS Grid Ref	% block covered			Designation(s)	Site Code
	SPA	SAC	Total*		
				Clints Quarry SAC	UK0030035
NY15	48.07	50.41	50.41	Solway Firth SAC	UK0013025
				South Solway Mosses SAC	UK0030310
				Upper Solway Flats and Marshes SPA	UK9005012
NY23	-	28.41	28.41	Lake District High Fells SAC	UK0012960
				River Derwent and Bassenthwaite Lake SAC	UK0030032
NY26	36.23	41.11	41.11	Solway Firth SAC	UK0013025
				South Solway Mosses SAC	UK0030310
				Upper Solway Flats and Marshes SPA	UK9005012
NY27	-	0.64	0.64	Raeburn Flow SAC	UK0030314
NY33	-	38.38	38.38	River Eden SAC	UK0012643
				Lake District High Fells SAC	UK0012960
				River Derwent and Bassenthwaite Lake SAC	UK0030032
NY34	-	0.43	0.43	River Eden SAC	UK0012643
NY35	0.87	2.00	2.00	River Eden SAC	UK0012643
				Solway Firth SAC	UK0013025
				Upper Solway Flats and Marshes SPA	UK9005012
NY38	100	-	100	Langholm – Newcastleton Hills SPA	UK9003271
NY45	-	2.27	2.27	River Eden SAC	UK0012643
NY46	-	4.06	4.06	River Eden SAC	UK0012643
				Walton Moss SAC	UK0030093
				Bolton Fell Moss SAC	UK0030362
NY48	22.81	-	22.81	Langholm – Newcastleton Hills SPA	UK9003271
NY56	-	4.10	4.10	River Eden SAC	UK0012643
				Walton Moss SAC	UK0030093
				Bolton Fell Moss SAC	UK0030362
NY57	-	9.29	9.29	Border Mires, Kielder – Butterburn SAC	UK0012923
NY58	-	14.05	14.05	Border Mires, Kielder – Butterburn SAC	UK0012923

Note: *includes marine pSACs and pSPAs where these sites fall within an OS 10x10 grid square which also has a terrestrial component.