

# WMRSS Phase Three

## Habitats Regulations Assessment of the Regional Interim Policy Statement for Construction Aggregates

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for:

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## Executive Summary

The West Midlands Regional Spatial Strategy (WMRSS) Phase 3 Revision is to be taken forward into the new Regional Strategy (RS) through Policy Recommendations and two Policy Statements. A review of the implications of the Policy Recommendations for European Sites is presented in a separate report (TEC 2010a) and this considers implications of Minerals Safeguarding in the West Midlands for European Sites.

Treweek Environmental Consultants (TEC) was appointed by the West Midlands Regional Assembly to consider the possible implications of the proposed Regional Interim Policy Statement for Construction Aggregates. This report summarises the results of a review carried out to identify the likely implications of alternative apportionment options and the final preferred sub-regional apportionment for European Sites as set out in the Policy Statement.

The Regional Interim Policy Statement for Construction Aggregates is intended to become a material consideration in minerals planning processes across the region pending the publication of the Regional Strategy, but the process for finalising the Interim Policy Statement and consulting on it is currently unclear.

This report summarises the implications of the Regional Interim Policy Statement for European sites.

Key conclusions are as follows:

1. Intensive consultation took place concerning alternative sub-regional apportionments in order to reach consensus on a preferred option. An iterative review of likely implications for European sites took place and the results were used to inform development of alternatives and their appraisal. The preferred option was announced on 18<sup>th</sup> March 2010 and represents a significant departure from average past production patterns, most notably by reducing the sand and gravel apportionment for Staffordshire and increasing it in Herefordshire and Shropshire.
2. The preferred option shifts a proportion of the apportionment for sand and gravel from Staffordshire to other Mineral Planning Areas, notably Herefordshire and Shropshire. This could have implications for the River Wye SAC and the Midlands Meres and Mosses Phases I and II Ramsar sites and the West Midlands Mosses SAC. Further sub-regional consultation is required to clarify the extent to which extraction might be required in future from locations where these sites would be affected in order to be able to reach firm conclusions about impacts on integrity of these sites.
3. The increased apportionment for Shropshire potentially has implications for transport distances from where sand and gravel is extracted (the northern part of the County) to where it is used (largely South and East) and this potentially conflicts with other RSS policies on air quality and climate change.
4. Another aspect which needs to be addressed at regional level and requires further information before clear conclusions can be reached concerns the possible implications of imported material (there could be up to 23m t of net imports). An in combination effects assessment will be required to include implications for European sites in neighbouring regions in England and in Wales. This will need to be supported by a process of inter-regional consultation because there is little documented information available about minerals plans in neighbouring regions of England or in Wales.
5. HRA-review of the WMRSS Phase 3 Policy Recommendations (TEC, 2010a) suggested that a review should be carried out of the extent to which European Sites are located in or near the Minerals Safeguarding Areas. This would be an essential first step in confirming risk of

future impact and any further attempt to predict or quantify the possible future risks to European sites associated with the proposed sub-regional apportionment.

6. Impacts on European sites are most likely to occur as a result of extension of existing minerals sites for:

- Sites in the Staffordshire sub-region on Peak District Dales SAC (inactive crushed rock quarry within 1.2km), Cannock Chase SAC (active sand and gravel quarry within 100m), Cannock Extension Canal SAC (active sand and gravel pit within 4km and proposed minerals site within 100m), River Mease SAC (active sand and gravel pit within 700m); Midlands Meres and Mosses Phase 2 Ramsar (inactive sand and gravel pit within 400m);
- Sites in the Shropshire sub-region on Midlands Meres and Mosses Phase 1 Ramsar (active sand and gravel quarry within 400m and Phase 2 Ramsar (active sand and gravel quarry within 800m) and West Midlands Mosses SAC (active sand and gravel pit within 2km);
- Sites in the Herefordshire sub-region on the River Wye SAC (active sand and gravel pit within 100m).

7. A range of site-specific impacts are possible for other European sites in future depending on the nature and location of minerals proposals in new locations. These would be appraised through HRA at the Core Strategy stage and HRA would also be required for any specific proposal likely to have an adverse effect on any European site. Mineral extraction from areas within European designated sites would not be possible unless it could be demonstrated through HRA that there would be no adverse impact on the integrity of those sites.

8. Nevertheless the sub-regional apportionment could increase the risk of effects on certain European sites in cases where a sub-region has a likely shortfall and/or has its most workable or more commercially viable reserves located near European sites. This is difficult to establish due to confidentiality about commercial viability and the fact that the sub-regions in the West Midlands are at different stages in their Minerals Planning processes. However the following issues have been identified:

i) the increased apportionment for sand and gravel in Shropshire potentially means that transport distances from reserves to point of use could be higher. This would increase carbon emissions and levels of diffuse pollution affecting European sites.

ii) the apportionment for sand and gravel in Shropshire might represent a risk to the Midlands Meres and Mosses Phases I and II Ramsar sites as deposits near these sites would probably have to be considered for working in future in order to meet the apportionment.

iii) Herefordshire's apportionment could have implications for demand for deposits in the floodplain of the River Wye SAC.

Staffordshire's sub-regional apportionment for sand and gravel has been reduced, but work on the core strategy suggests that it could remain a challenge to meet the apportionment without risk of adverse effects on:

- Cannock Chase SAC;
- River Mease SAC; and
- Midlands Meres and Mosses Phase 2 Ramsar.

Further consideration may also be required for the Peak District Dales SAC as a result of possible increases in crushed rock extraction and because a high proportion of the site is within 200 m of a road.

It is not possible to conclude with certainty that there will not be adverse effects on certain European sites as a result of the proposed Regional Interim Policy Statement and the sub-regional apportionment it recommends.

These are:

- The River Wye SAC as a result of an increased apportionment for sand and gravel in Herefordshire (most of the workable sand and gravel deposits are in the floodplains of the Rivers Wye and Lugg, so the apportionment could put extra pressure on the SAC in the medium to long term).
- The Midlands Meres and Mosses Phases I and II Ramsar sites and the West Midlands Mosses SAC as a result of an increased apportionment for sand and gravel in Shropshire and the possible need for future extraction near these sites, with particular implications for land use (the coherence of the Natura 2000 network) and hydrology.

Further consultation with minerals planners and the statutory nature conservation bodies is required to determine the need for avoidance or mitigation measures for these sites.

In addition, transport of aggregate (predominantly by road) could have implications for several sites in the region depending on likely transport patterns. Particular risks have been identified for:

- Cannock Chase SAC.
- Peak District Dales SAC.
- Fenns, Wixhall, Bettisfield, Wem and Cadney Mosses SAC.
- West Midlands Mosses SAC.

The Regional Interim Policy Statement was partially developed to reflect criteria of environmental sustainability, including that of reducing likely transport distances from sources of minerals and aggregates to locations where they are likely to be used. The resulting Policy Statement and sub-regional apportionment departs from this in certain key aspects however. The sub-regional apportionment may require aggregate extraction in relatively unsustainable locations in Shropshire, (where reserves are located in the North of the County but are used largely in the major conurbations) and in Herefordshire (where workable sand and gravel reserves are restricted largely to the catchment of the River Wye).

Further consideration should be given to the role of the "quality of the environment" policies which are currently in the form of Phase 3 Policy Recommendations (see TEC 2010a) in buffering European sites from potentially damaging effects of land use change, noise, disturbance, hydrological alteration, water quality change and air pollution associated with extraction of aggregates. Review of the coincidence of Mineral Safeguarding Areas and European sites (see TEC 2010a and section 4.2.2) could be complemented by consideration of possible buffers around European sites within which appropriate land use is required to maintain their integrity.

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# 1 Introduction

The West Midlands Regional Spatial Strategy (WMRSS) Phase 3 Revision is to be taken forward into the new Regional Strategy (RS) through Policy Recommendations and two Policy Statements.

Treweek Environmental Consultants (TEC) was appointed by the West Midlands Regional Assembly to carry out a Habitats Regulations Assessment of the proposed Regional Interim Policy Statement on Construction Aggregates. A review of the implications of the Policy Recommendations for European Sites is presented in a separate report (TEC, 2010a) which considers the implications of Minerals Safeguarding for European Sites.

This report summarises the results of a review carried out to identify the likely implications of the alternative apportionment options and the final preferred sub-regional apportionment for European Sites. It then considers the implications of the proposed Regional Interim Policy Statement on Construction Aggregates which is intended to become a material consideration in minerals planning processes across the region pending the publication of the Regional Strategy, but the process for finalising the policy and carrying out consultation on it is currently unclear.

## 1.1 Approach to regional planning for aggregate provision

On 29th June 2009 the Government issued revised national and regional guidelines for the provision of aggregates for the period 2005-2020. The new guidelines replace the June 2003 guidelines which are incorporated in Policy M2 of the West Midlands Regional Spatial Strategy (WMRSS), approved in June 2004. The revised guideline figures show no change to the draft figures consulted upon by Government in April 2008 and which were used in the WMRSS Phase Three Options issued for public consultation by the WMRA in summer 2009.

The revised regional guideline total provision for the West Midlands is 370 million tonnes of materials to be provided over the next 16 years and comprises the following requirements and assumptions:-

- 165 million tonnes of sand and gravel
- 82 million tonnes of crushed rock
- 100 million tonnes of alternate materials (secondary and recycled aggregates)
- 23 million tonnes of imports, principally from Wales.

Before the regional guidelines can be used in the preparation of minerals development plans they need to be broken down, as far as possible, to Mineral Planning Authority (MPA) areas. This apportionment of the regional guidelines is the responsibility of the WMRA (as the Regional Planning Body), taking into account advice from the MPAs and the West Midlands Regional Aggregates Working Party (WMRAWP).

Various options and scenarios were developed and considered to suggest how this total level of provision might be met, resulting in a range of sub-regional apportionments.

On 18 December 2009 a technical consultation was issued on three scenarios ("the WMRAWP scenarios"), based on recent trends, increased substitution with recycled aggregates and increased substitution of crushed rock for sand and gravel or vice-versa. Including the variations on each scenario, this consultation comprised six options in total. A separate paper, prepared by consultants for the Regional Assembly, was distributed

simultaneously. This included five further options (“the LUC options”), based on Supply, Growth, Environment, Equal Weighting and Demand/Resource.

Two further options on sub-regional apportionment of aggregates were issued by the West Midlands Regional Assembly on 8th February 2010 and further refinements of these were consulted on during March 2010. Options were developed to taken into account past patterns of sales and production, likely patterns of demand arising from new housing growth and also environmental implications (including likely transport distances). The apportionment of aggregates provision was agreed by the West Midlands Regional Assembly (WMRA) at its Assembly Board meeting on 17th March 2010.

When the sub-regional apportionment is completed, the apportionment becomes a material consideration in decision making by the Regional Planning Body and MPAs. The Interim Policy Statement is therefore intended to become a material consideration in minerals planning processes across the region pending the publication of the Regional Strategy. The policy objective is to produce new sub-regional apportionments for construction aggregates for the West Midlands for the period 2005 – 2020 and to provide advice to MPAs on extending those apportionments up to 2026. The Sub-regional apportionment and the proposed Policy Statement are described in more detail in Chapter 2 which also describes some of the alternatives that were considered.

## **1.2 Approach to HRA**

Article 6(3) of the European Habitats Directive dealing with the conservation of European protected sites states that;

*‘Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans and projects, shall be subject to assessment of its implications for the site in view of the site’s conservation objectives. In light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public.’*

Under the terms of amendments made to the Habitats Directive in 2007 Regional Spatial Strategies require HRA under Part 1 of the 2004 Planning Act.

The purpose of Habitats Regulation Assessment (HRA) of land use plans is to ensure that protection of the integrity of European sites is a part of the planning process at a regional and local level. The network of European protected sites is referred to as ‘Natura 2000’ and comprises Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and Ramsar sites. Government guidance advises that potential SPAs (p SPAs), candidate SACs (c SACs) and potential Ramsar sites are also included in HRAs.

Habitats Regulations Assessment was carried out on an iterative basis to inform the development of alternative sub-regional apportionments for the West Midlands and to allow the WMRA to take account of possible implications for European Sites during development of Policy Statements and Recommendations for minerals in the region.

We considered the conclusions of the HRAs carried out for the WMRSS Phase 2 Preferred Option (TEC, 2007), the HRA Screening Report produced for the WMRSS Phase 3 (TEC, 2009) and also the results of consultation on these reports. Relevant information was also obtained from the JNCC website (<http://www.jncc.gov.uk/>) and from a report on “Information on the Natura 2000 sites in the West Midlands” by TEC, (July 2009 version)”.

## 2 The interim regional policy statement on construction aggregates

The current regional provision was apportioned sub-regionally by the Regional Planning Body following advice from the West Midlands Regional Aggregates Working Party and incorporated into the West Midlands Regional Spatial Strategy (June 2004) as Policy M2 following an examination in public. The 2003 national and regional guidelines and sub-regional apportionment set out in Policy M2 covered the period up to 2016. The figures need to be reviewed and projected forward to cover the period up to 2020 to ensure supplies are available to meet future needs. The objective of the interim policy statement is therefore “to produce new sub-regional apportionments for construction aggregates for the West Midlands for the period 2005 – 2020 and to provide advice to Mineral Planning Authorities (MPAs) on extending those apportionments up to 2026”.

The interim policy statement applies specifically to construction aggregates (sand and gravel and crushed rock) which are essential to built development, other construction and maintenance of infrastructure (e.g. roads, flood defences). They are seen as key to the delivery of growth and of urban and rural renaissance in the West Midlands.

The new regional allocation slightly reduces the requirement for the region but the level of growth associated with Phase 2 policies on housing and other development is substantial and will require large amounts of construction aggregate.

### 2.1 The sub-regional apportionment

The sub-regional apportionment relates to the following Mineral Planning Areas of MPAs within the West Midlands:

Staffordshire
Shropshire
Herefordshire
Warwickshire
Worcestershire
W. Midlands County

In the absence of mechanisms to apportion the requirement for “alternate materials” amongst these Mineral Planning Authorities, the figure of 247 million tonnes was used to carry out the sub regional apportionment for primary aggregates.

The sub-regional apportionment for the West Midlands must reflect geographical imbalances between the supply of, and demand for, aggregates which is characterised by the relationship between consumption in urban areas and the provision of supplies of primary aggregates from mainly rural areas particularly (Staffordshire for sand and gravel and Shropshire for crushed rock).

**Table 1 apportionment of the Regional Guidelines (million tonnes) provision by existing sub-regions**

	Annual Provision	Annual Provision
	Sand & Gravel	Crushed Rock
Herefordshire	0.462	0.364
Worcestershire	1.009	0.157
Shropshire	1.496	2.647
Staffordshire	5.662	1.210
Warwickshire	1.154	0.745
West Midlands County	0.528	0
<b>Regional - Annual Total</b>	10.31	5.12
<b>Regional Total 2005-2020</b>	165	82
+ West Midlands County Apportionment redistributed between the other counties in 2006.		

### 3 European Sites which could be affected

European Sites which were considered are listed in Table 2. This includes sites in the West Midlands, in neighbouring regions of England and in Wales. Starting with this long-list we carried out a screening process to try and identify those sites most likely to be affected by the sub-regional apportionment.

Sites likely to be affected fall into three main categories:

1. those likely to be exposed to effects of mineral or aggregate extraction itself;
2. those located within 200m of a major route along which minerals or aggregates might be transported; and
3. those sensitive to transport-related air pollution and which could therefore be affected by diffuse air pollution if transport of minerals and aggregates represents a significant and increasing source.

Extraction could take place through expansion of existing sites or development of new ones. It was therefore necessary to consider:

- Whether any European sites are located near existing mineral workings which could be expanded.
- Whether the level of regional apportionment might be expected to require extraction from new locations where mineral working might give rise to additional effects on the integrity of European sites.

#### 3.1 Sites which could be affected by expansion of existing workings

To identify European sites most likely to be affected by expansion of existing workings, we mapped the locations of existing active and inactive sand and gravel, and crushed rock sites in GIS, drawing on the information provided in the latest West Midlands Regional Aggregate Working Party Report (2007, published in 2009). 97 such sites were identified, as shown in

Figure 1. Locations of those sites submitted as candidate strategic sites for Minerals Core Strategies in LDFs (where these are in the public domain), were also reviewed to inform assessment of the potential effects of sub-regional apportionment options. These were available only for Staffordshire and Warwickshire.

We attempted to identify a precautionary distance which could be used for screening purposes to identify those existing minerals workings for which expansion might have implications for European sites. Various assessments and studies have considered the establishment of “effect distances” for different types of activity or operation; or “buffer zones” for European sites within which such activities or operations might be expected to have a possible effect. No such distances appear to have been established for minerals workings *per se* but other HRA screening studies have used distances ranging from 1 to 10km (Staffordshire County Council, 2008). For direct impacts of operations we considered 10km to represent a precautionary distance and therefore identified those European sites located within 10km of one or more extraction site are shown on Figure 1.

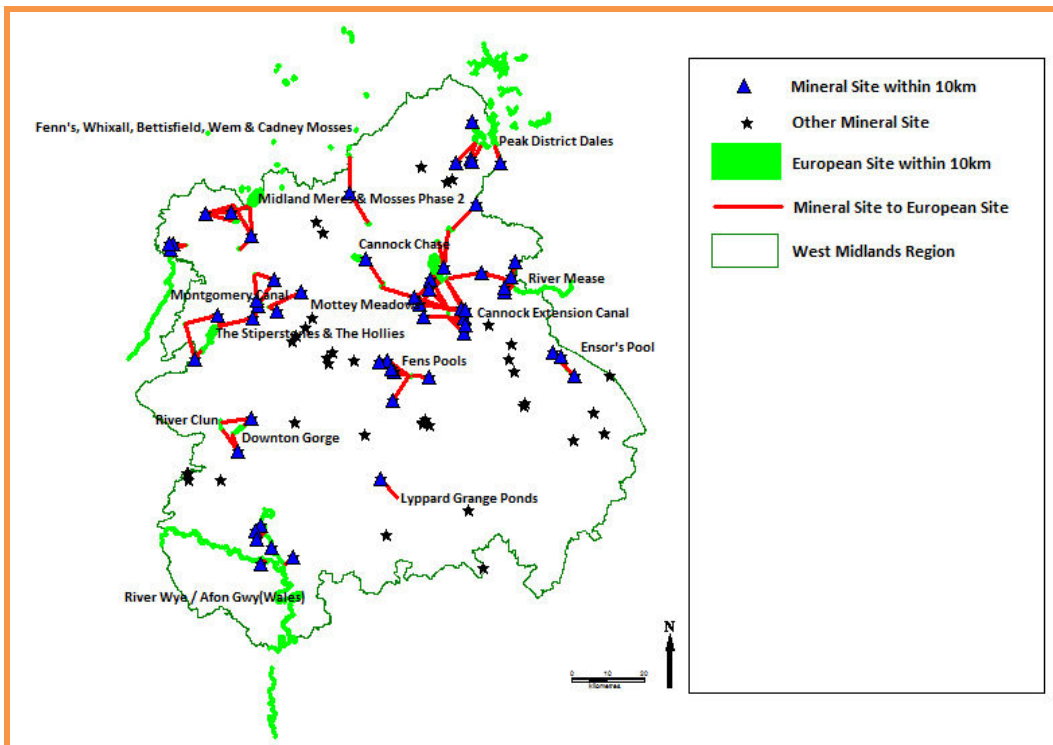
Note that this doesn’t exclude the possibility of impacts on sites more than 10km away due to transport of minerals and aggregates and deposition of dust or air pollution on sites within 200m of roads on which minerals and aggregates are transported; or of diffuse air pollution impacts caused by transport-related air emissions. It would also remain necessary to consider the implications of any proposal to expand an existing minerals works in any case where hydrological alteration might occur and there were European sites more than 10km away but nevertheless in hydrological continuity.

### **3.2 Sites which could be affected by new workings**

It is not possible at this stage to predict which additional European sites might be affected by future minerals proposals in new locations. HRA will be required for Minerals Core Strategies and for any specific proposal that might affect a European site, but it is important (if possible) to consider whether the sub-regional apportionment itself might increase the risk of adverse effects on any particular European site. The following chapter reviews likely sensitivities of European sites to the types of impact that might be expected as a result of extraction or transport of minerals and aggregates and identifies sites in addition to those located near existing minerals sites which could potentially be affected by any future proposal.

HRA-review of the WMRSS Phase 3 Policy Recommendations (TEC, 2010a) suggests that a review should be carried out of the extent to which European Sites are located in or near the Minerals Safeguarding Areas which have been identified. These would be an essential first step in considering risk of future impact.

Figure 1 Minerals sites within 10km of a European Site



**Table 2: European sites considered in the West Midlands RSS Phase 3 HRA screening**

<b>SAC, c SACs, SCIs</b>	<b>SPAs</b>	<b>Ramsar Sites</b>
Berwyn and South Clwyd	Elenydd Mallaen	Humber Estuary
Bettisfield, Wem and Cadney Mosses	Humber Estuary	Midlands Meres and Mosses Phase 1
Bredon Hill	Peak District Moors (South Pennine Moors Phase 1)	Midlands Meres and Mosses Phase 2
Brecon Beacons	Severn Estuary	Severn Estuary
Brown Moss	South Pennine Moors Phase 2	
Cannock Chase	Walmore Common	
Cannock Extension Canal		
Dixton Woods		
Downton Gorge		
Elan Valley Woodlands		
Elenydd Mallaen		
Fenn's Wixhall, Bettisfield, Wem and Cadney Mosses		
Fens Pool		
Humber Estuary		
Lyppard Grange Ponds		
Mottey Meadows		
Pasturefields Salt Marsh		
Peak District Dales		
River Clun		
River Dee and Bala Lake		
River Mease		
River Usk		
River Wye		
Severn Estuary		
South Pennine Moors		
The Stiperstones and the Holley		
West Midlands Mosses		
Wye Valley and Forest of Dean bat sites		
Wye Valley Woodlands		

**Table 3 European sites within 10km of existing aggregate extraction sites in the West Midlands**

Bredon Hill SAC (Lower Moor Quarry)
Cannock Chase SAC (Rugely Quarry and Pottal Pool Quarry)
Cannock Extension Canal SAC
Downton Gorge SAC (Leinthall Earls and Bromfield quarries)
Ensor's Pool SAC
Fenn's, Whixall, Bettisfield, Wem & Cadney Mosses SAC
Fens Pools SAC
Lyppard Grange Ponds SAC
Midland Meres & Mosses - Phase 1 Ramsar (Wood Lane Quarry Sand and Gravel)
Midland Meres & Mosses Phase 2 Ramsar (Weavers Hill Quarry)
Montgomery Canal SAC
Motley Meadows SAC
Pasturefields Salt Marsh SAC
Peak District Dales SAC
River Clun SAC
River Mease SAC (possible extraction in the floodplain, existing locations are Barton Quarry, Alrewas Quarry and Whitmoor Hayes)
River Wye / Afon Gwy(Wales) SAC (Wellington South is within 300m of the River Lugg, which is part of the River Wye SAC)
The Stiperstones & The Hollies SAC
West Midlands Meres and Mosses SAC

## **4 Results and recommendations**

The HRA Screening Report (TEC, 2009) for the WMRSS Phase 3 Revision concluded that options for apportioning future supplies of aggregates could have a range of possible impacts including land take, disturbance, pollution and hydrological change. Table 8 identifies those European sites most likely to be sensitive to these types of impact. In the West Midlands region, the demand for aggregates is driven largely by growth in urban areas, while supply of primary aggregates is predominantly from rural areas, particularly from Staffordshire for sand and gravel and Shropshire for crushed rock. Transport-related impacts are therefore a key consideration.

### **4.1 Impacts of alternative options**

In the absence of information about likely future locations of minerals workings, it is difficult to predict the implications of the sub-regional apportionment for any individual site. To inform development of alternative options we reviewed the implications of the sub-regional apportionment from the perspective of European sites in the region as a whole, on the basis that the best option would be a sub-regional apportionment which minimised:

- a) proximity of minerals workings to European sites;
- b) likely transport distances for minerals; and
- c) proximity of European sites to key transport corridors.

An “HRA preferred option” was derived using a scoring system as explained in Appendix B. This was based on proximity of European sites to existing minerals workings and therefore gives an indication of regional-level risk if these workings were to be expanded. It also reflected proximity of source to likely demand (as this would reduce overall transport distances and therefore levels of diffuse air pollution) and the extent to which European sites sensitive to air pollution are located within likely transport corridors. Note that this scoring method was intended to help compare a large number of possible options at regional level and doesn’t reflect actual risks to individual sites. It was used for comparative purposes to refine options. Results of the scoring are summarised in the following tables. Staffordshire emerges as the most “sensitive” sub region for sand and gravel extraction and Shropshire for crushed rock.

**Table 4 Relative sensitivities of different sub regions with respect to European sites (sand and gravel)**

<b>SAND &amp; GRAVEL</b>	<b>Mineral Site - European Site Proximities</b>	<b>Transport Corridor/ Air Pollution Sensitivities</b>	<b>Total</b>	<b>Sensitivity Rank</b>
Staffordshire	20	6	26	1
Shropshire	11	1	12	2
Herefordshire	6	0	6	3
Warwickshire	0	0	0	4=
Worcestershire	0	0	0	4=
W. Midlands County	0	0	0	4=

**Table 5 Relative sensitivities of different sub regions with respect to European sites (crushed rock)**

<b>CRUSHED ROCK</b>	<b>Mineral Site - European Site Proximities</b>	<b>Transport Corridor/ Air Pollution Sensitivities</b>	<b>Total</b>	<b>Sensitivity Rank</b>
Shropshire	9	1	10	1
Staffordshire	3	1	4	2
Warwickshire	3	0	3	3
Herefordshire	2	0	2	4
W. Midlands County	1	0	1	5
Worcestershire	0	0	0	6

The following tables summarise the proposed sub-regional apportionment, the current figures and the HRA recommendation. The proposed apportionment reflects HRA input by allowing for a reduction in Staffordshire but to a lesser extent than that considered likely to be necessary to minimise regional level risks to European sites. For Shropshire and Herefordshire, the proposed apportionment actually increases the requirement. This does

not mean there will necessarily be adverse impacts on the integrity of European sites in these sub-regions but further consideration of the implications of the apportionment is required to gain better understanding of the likely need to develop minerals in the catchments of SAC-designated rivers or on arterial transport routes, including those used to import minerals from Wales.

**Table 6 apportionment of the Regional Guidelines (million tonnes) provision for sand and gravel**

Sub-region	Proposed apportionment	Current levels	HRA recommendation
Staffordshire	5.662	6.60	3.94
Shropshire	1.496	0.82	0.66
Herefordshire	0.462	0.28	0.12
Warwickshire	1.154	1.04	2.53
Worcestershire	1.009	0.87	0.71
W. Midlands County	0.528	0.51	0.78
<b>Regional - Annual Total</b>	<b>10.31</b>	<b>10.13</b>	<b>8.75</b>

For crushed rock, the proposed sub-regional apportionment decreases the requirements for Shropshire, Staffordshire and Warwickshire, in this case the most sensitive sub-regions.

**Table 7 apportionment of the Regional Guidelines (million tonnes) provision for crushed rock**

Sub-region	Proposed apportionment	Current levels	HRA recommendation
Shropshire	2.647	2.95	3.15
Staffordshire	1.210	1.40	0.61
Warwickshire	0.745	0.88	0.83
Herefordshire	0.364	0.42	0.19
W. Midlands County	0		0.11
Worcestershire	0.157	0.16	0.23
<b>Regional - Annual Total</b>	<b>5.12</b>	<b>5.81</b>	<b>5.12</b>

At a regional level, the proposed apportionment appears to result in a slightly reduced level of risk to European sites due to sand and gravel extraction and transport in Staffordshire, but an increased risk from sand and gravel extraction in Shropshire and Herefordshire. For further details refer to Appendix B. For crushed rock the proposed sub-regional apportionment results in slightly reduced overall risk to European sites from extraction when compared with the current situation.

## 4.2 Impacts associated with extraction

Minerals workings can be expected to give rise to the following broad categories of impact:

- Direct land-take within sites.
- Land use change around and between sites.
- Air pollution.
- Dust pollution.
- Deterioration in water quality.
- Water abstraction or disruption of hydrological regime.
- Disturbance, including noise.

Table 8 identifies those sites most likely to be sensitive to these impacts, given their designated interest features.

Key aspects to consider at the regional level are air pollution and hydrological change. Other types of impact are perhaps more tractable to appraise at core strategy level or for specific proposals

### 4.2.1 Expansion of existing workings

The following European sites are in closest proximity to existing minerals sites:

- Wellington South Sand and Gravel (within 300m of the River Lugg, which is part of the River Wye SAC), Herefordshire – River Wye SAC
- Pottal Pool Quarry and Rugely Quarry – Cannock Chase SAC
- Wood Lane Quarry Sand and Gravel, Shropshire – Midland Meres and Mosses Phase 1 Ramsar

There is also extraction in the catchment of the River Mease SAC (see Figure 2, Figure 3 and Figure 4) and from the Severn Estuary.

A separate report (BGS, 2008) suggests that the first two sites actually overlap with the European Sites, making them particularly vulnerable to direct land-take, land use change in supporting habitat and effects of hydrological change if extraction increases. This is not possible to confirm on the basis of existing information, but any proposal to extend these sites would require full consideration of effects on site integrity through HRA. The sites in question are already adversely affected by development of surrounding land and are exposed to a range of cumulative impacts which threaten their integrity, so there would be a high burden of proof of “no significant adverse effect” for any future proposals located within or near these sites.

The existing sand and gravel quarry at Rugeley is currently scheduled to have a cessation date of 2031 and on this basis it is unlikely, therefore, that it will represent an additional future risk to Cannock Chase SAC.

**Table 8 Sensitivities of European Sites to Different Types of Impact likely to be associated with minerals extraction**

Nature of Impact	Description	Sites likely to be sensitive
Increases in deposition of atmospheric pollutants from diffuse sources	Transport of minerals and aggregates throughout the region and between the West Midlands, other regions and Wales, will result in increased transport-related air emissions. The sub-regional apportionment influences likely transport distances from where aggregate is extracted to where it is used.	Berwyn & South Clwyd SAC, Brecon Beacons SAC, Cannock Chase SAC, Downton Gorge SAC, Elan Valley Woodlands SAC, Elenydd Mallaen SAC/SPA, Fenns, Wixhall, Bettisfield, Wem and Cadney Mosses SAC, Peak District Dales SAC, South Pennine Moors SAC, The Stiperstones and the Holley SAC, West Midlands Mosses SAC, Wye valley woodlands SAC, Peak District Moors SPA, South Pennine Moors Phase II SPA.
Increases in deposition of atmospheric pollutants from local sources within 200m of the site boundary	This relates largely to acid and nitrogen deposition associated with emissions from transport of minerals and aggregates, affecting European sites which are in close proximity to possible transport routes.	Cannock Chase SAC, Peak District Dales SAC, South Pennine Moors SAC, Peak District Moors (South Pennine Moors Phase I) SPA.
Effects of dust deposition	<p>Dust (larger air-borne particles) can be associated with quarrying and aggregate extraction and possibly transport (if vehicles are not covered). Dust can smother vegetation, preventing light-penetration and water transport and therefore affecting growth. Dust from construction activities may be alkali in nature (e.g. cement dust) and dust from such sources can adversely affect acid habitats such as heathland and blanket bog and water pH levels, affecting the growth of aquatic vegetation.</p> <p>Most dust levels become insignificant relatively close to the source (within tens of metres) because dust particles settle out of the air fairly quickly, so only those sites in very close proximity to proposed extraction sites are likely to be at risk,</p>	This could represent a risk to the integrity of any European site located in close proximity to minerals workings (or transport routes unless vehicles are covered). Because dust deposition generally occurs close to source, it is most appropriately addressed at core strategy level.

	provided that vehicles transporting materials are covered.	
Contaminated surface water runoff	This is likely to be specific to individual minerals workings and European sites.	Severn Estuary Sites; River Mease SAC; River Wye SAC; West Midlands Mosses SAC, Midlands Meres and Mosses Phases I and II Ramsar.
Altered water supply	Extraction of minerals and aggregates from river floodplains can cause hydrological alterations which might have implications a) for the European site within which such extraction takes place or for any site in hydrological continuity.	Cannock Chase SAC, Cannock Extension Canal SAC, Ensor's Pool SAC, Fenn's. Whixall, Bettisfield, Wem and Cadney Mosses SAC, Midlands Meres and Mosses Phases I and II Ramsar, Montgomery Canal SAC, River Dee and Bala Lake SAC; River Mease SAC; River Wye/ Afon Gwy(Wales) SAC; Severn Estuary sites (pSAC, SPA and Ramsar); River Usk SAC, West Midlands Mosses SAC.
Spread of invasive species	When developing any proposal in close proximity to any of the sites listed here, risk of introducing alien invasive species should be considered.	Cannock Chase SAC; South Pennine Moors SAC; Midlands Meres and Mosses Phases I and II Ramsar. Aquatic sites, River Wye SAC.
Land use change, fragmentation, loss of supporting habitat	Minerals extraction can cause significant changes in the landscape with implications for European sites in terms of their supporting habitat. Understanding these impacts requires spatially-specific information, but HRA of minerals core strategies should give particular consideration to the risk of land use change for any proposals affecting the sites listed here.	Cannock Chase SAC; Wye Valley Woodlands and Forest of Dean Bat Sites SACs; River Dee and Bala Lake SAC. Also Midlands Meres and Mosses Phases I and II Ramsar, Lyppard Grange Ponds SAC.
Disturbance, including by noise	Largely specific to individual minerals workings and European sites. It is established good practice to consider noise-buffers when locating minerals workings. Any such requirements should be considered in HRA of minerals core strategies.	Severn Estuary SPA, Peak District Moors SPA, South Pennine Moors Phase II SPA.

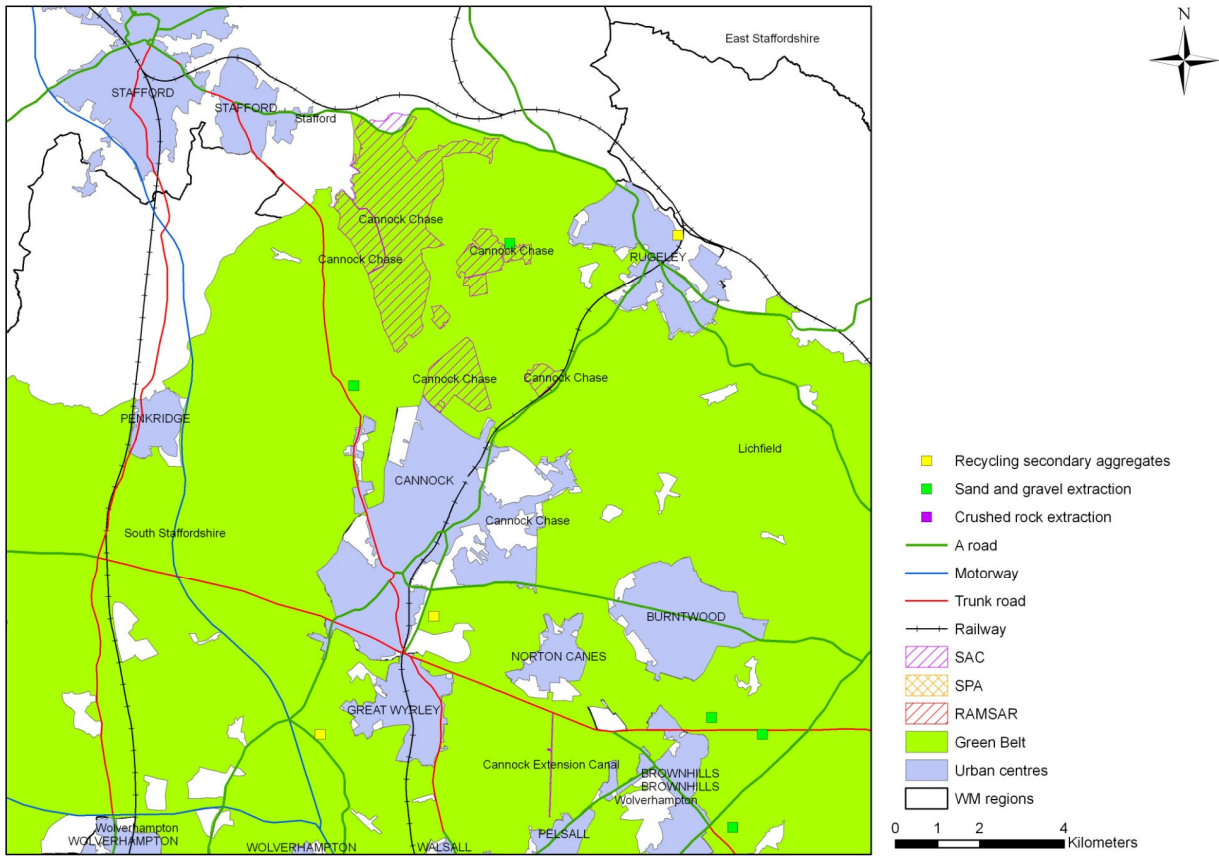
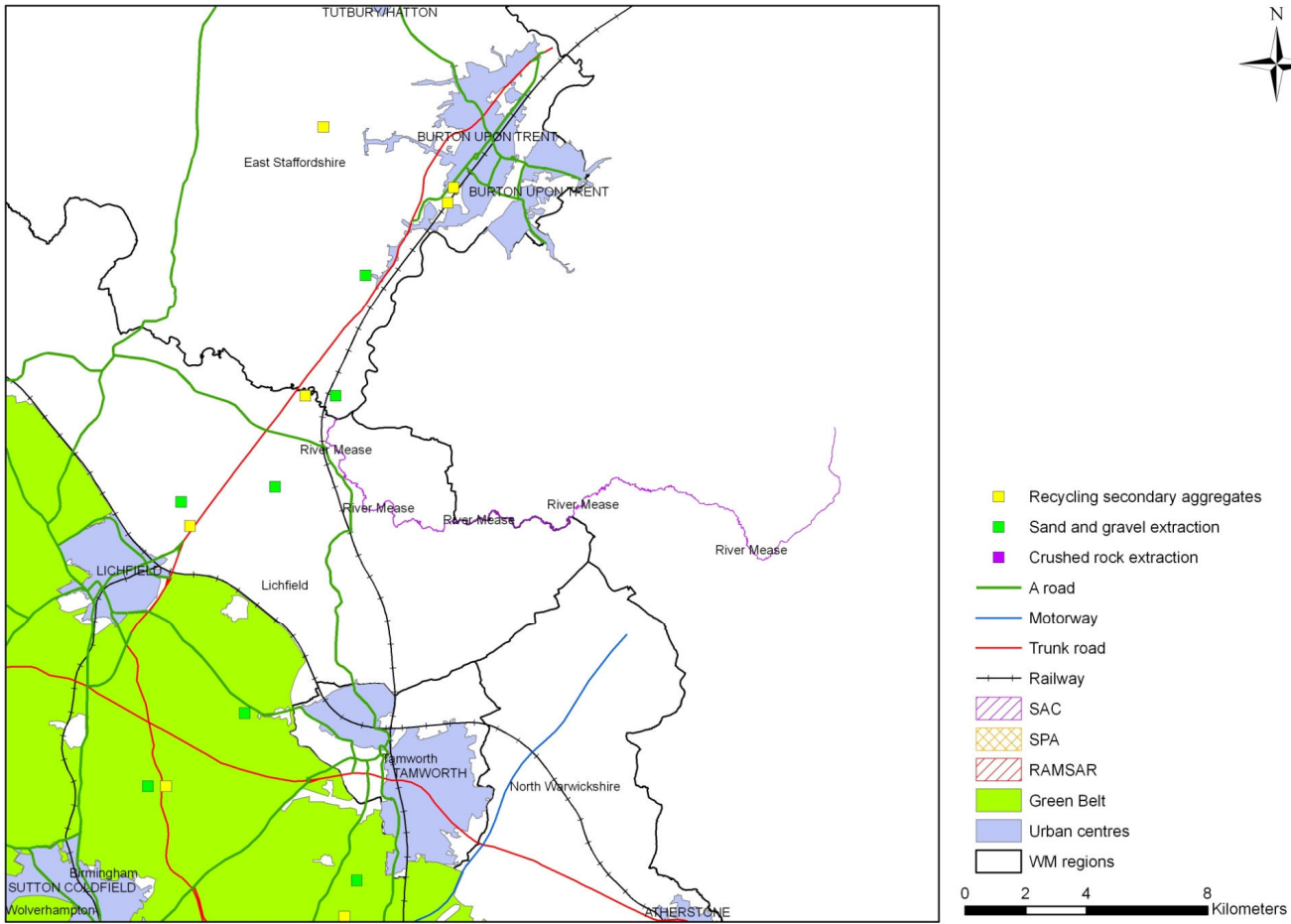


Figure 2 Extraction in the vicinity of Cannock Chase SAC



**Figure 3 Extraction in the vicinity of River Mease SAC**

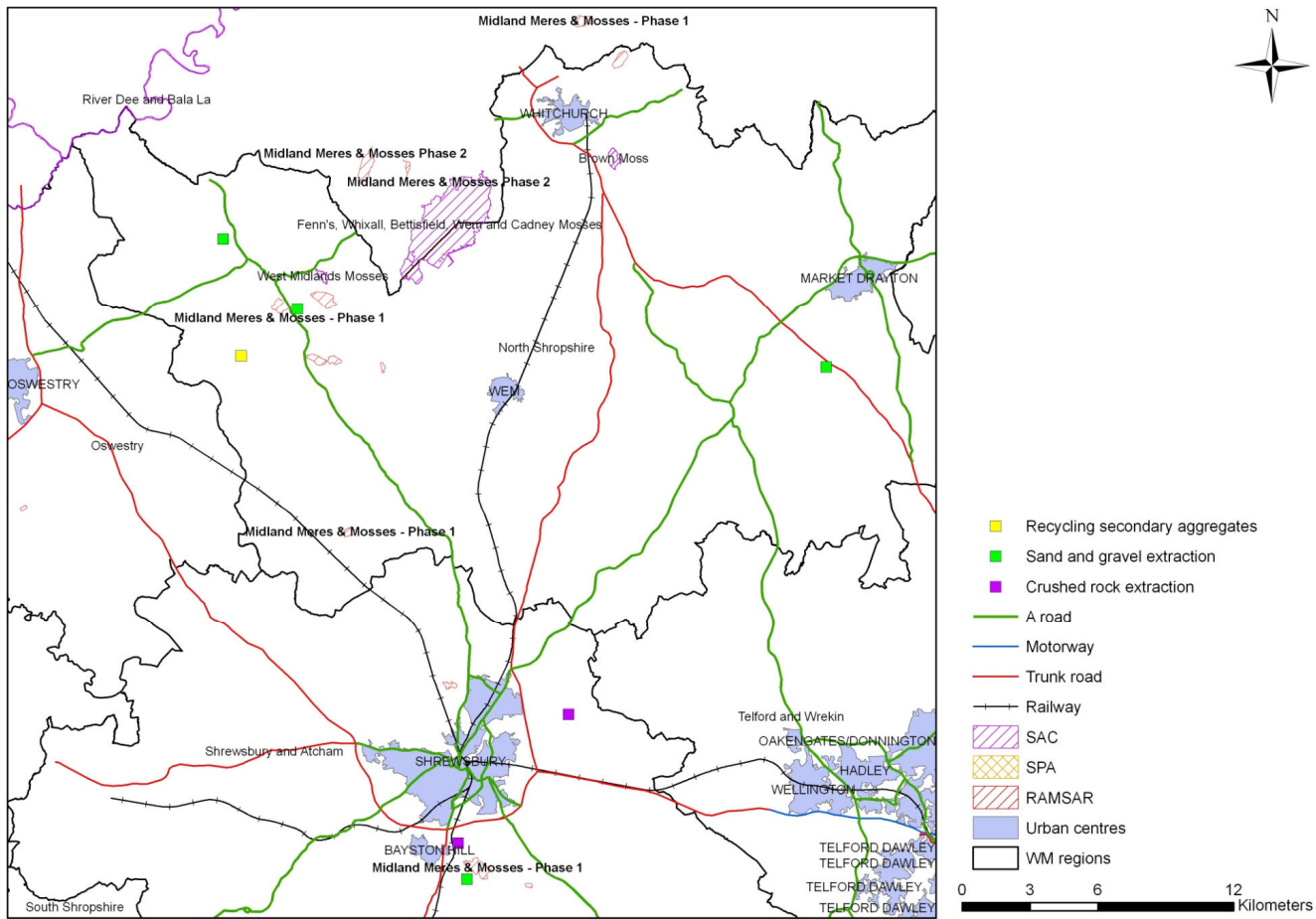


Figure 4 Extraction in the vicinity of Midlands Meres and Mosses Phases I and II Ramsar sites

#### 4.2.2 Development of reserves in new locations

It is not possible to identify all the possible effects on European sites associated with minerals development in the region at this stage. Specific impacts on individual European sites will depend on future proposals to develop minerals reserves. Impacts on the integrity of European sites would be contingent on the proximity and nature of pressures exerted by each mineral site and the sensitivity of the relevant European site to that pressure in the context of other background threats and pressures. However all the sites identified in Table 3 could potentially be affected. Shropshire, Staffordshire and Herefordshire have relatively high numbers of European sites that might be affected by future development of minerals resources. This is because they are either within or near transport corridors within which minerals and aggregates might be transported to likely growth areas or because they have European sites already located close to existing minerals sites which could be extended.

A review to determine the extent to which European sites are located within or near MSAs is required to appraise risks at regional level in more detail. Further information about any likely sub-regional shortfalls would also be required to establish the extent to which the proposed apportionment can be met from existing licensed reserves. This information is difficult to obtain at present as the various MPAs in the West Midlands are at different stages in the planning process.

Understanding the implications of the apportionment itself for European sites which are not located near existing minerals workings would require information about the likely commercial viability and workability of reserves. This information tends to be difficult to obtain because of commercial confidentiality.

In the absence of documented information, further consultation with Minerals Planners in Staffordshire, Shropshire and Herefordshire is recommended to explore likely risks in more detail. This is required to establish the likely risks to certain European sites associated with the sub-regional apportionment, notably the River Wye SAC, the Midlands Meres and Mosses Phases I and II Ramsar sites and the West Midlands Mosses SAC, given the locations of workable deposits.

There are particular risks associated with hydrological change for the River Wye SAC, the Midlands Meres and Mosses Phases I and II Ramsar sites, the West Midlands Mosses SAC and the River Mease SAC. These should be considered in more detail in HRA for the relevant minerals core strategies and for any specific proposal potentially affecting one of these sites.

There are particular risks associated with noise and disturbance for the Severn Estuary SPA, Peak District Moors SPA, South Pennine Moors Phase II SPA. It is established good practice to consider this when locating minerals workings and assessing their environmental effects. Any requirements for buffers around sensitive European sites should be considered in HRA of minerals core strategies

Land use change associated with extraction is likely to be a particular risk for Cannock Chase SAC, the Midlands Meres and Mosses Phases I and II Ramsar sites. HRA of minerals core strategies should also give consideration to this risk for Wye Valley Woodlands and Forest of Dean Bat Sites SACs; River Dee and Bala Lake SAC and Lyppard Grange Ponds SAC.

### 4.3 Impacts associated with transport

There are two main categories of impact associated with transport of aggregates:

- i) direct effects of pollutant deposition from roads located within 200m of European sites; and
- ii) effects of diffuse air pollution caused by transport emissions in general, to which transport of aggregates will contribute.

#### 4.3.1 Direct effects of pollutant deposition

Appendix D and Table 8 identify European sites which could be affected by diffuse air pollution (transport of minerals within and through the region could add to this) or by deposition of atmospheric pollutants within 200m of roads along which minerals are transported.

Cannock Chase SAC is particularly vulnerable in this regard due to its proximity to existing workings and to major roads. Any transport of aggregates along roads within 200m of the site (in particular the A513, A460 and A34) can be expected to add to its pollution loadings, regardless of where the minerals are extracted from. Similar impacts could affect the Peak District Dales SAC, South Pennine Moors SAC, Peak District Moors (South Pennine Moors Phase I) SPA. The Peak District Dales SAC could be particularly affected by the crushed rock apportionment and by transport of aggregate through or near the site as a relatively high proportion of the site's total area is located near to roads.

It is currently unclear whether transport of aggregate into the West Midlands from Wales might have implications for any particular European site as transport routes and patterns are unknown.

In general, transport of aggregates is unlikely to be the major source of acid or nitrogen deposition for any European site against the background of traffic emissions in general. However HRAs of minerals core strategies should consider likely transport routes for aggregate and attempt to identify cases where alternative routings may be required to avoid adverse effects on the integrity of any European site.

HRAs of minerals Core Strategies should attempt to identify likely transport routes and patterns for aggregate and identify any specific case where alternative routings might be required to avoid deposition of atmospheric pollutants on sensitive European sites located within 200m of a transport route.

A particular risk has been identified for Cannock Chase SAC and the Peak District Dales SAC but other such impacts are possible depending on transport patterns.

In Shropshire there is a particular additional need to address this risk in the case of Fenns, Wixhall, Bettisfield, Wem and Cadney Mosses SAC, and West Midlands Mosses SAC as the apportionment increases the likely need for transport of aggregates by road over increased distances within the sub-region (see following section).

#### 4.3.2 Effects of diffuse air pollution

Transport of large volumes of aggregate from where they are extracted to where they are used could have significant implications for carbon emissions and other air pollution. Effects of diffuse air pollution have been considered throughout the process of HRA for different phases of the West Midlands Regional Spatial Strategy and policy has been recommended to

promote reduction in air emissions across the Strategy. However one particular issue has been identified with respect to the proposed sub-regional apportionment.

The apportionment for Shropshire could mean increased extraction of sand and gravel from the north of the sub-region, requiring the transport of relatively large volumes for relatively long distances by road to point of use. This could conflict with other WMRSS policies by inducing an adverse trend in carbon emissions which could potentially be avoided.

The implications of sourcing increased volumes of aggregate from locations in Shropshire which are relatively distant from point of use should be reviewed as it potentially conflicts with other regional policies on air pollution and climate change.

The policy statement should place stronger emphasis on use of secondary and recycled aggregates in order to help minimise transport distances.

#### **4.4 In combination effects**

The demand for aggregate in the West Midlands, and therefore the need for extraction and transport, is driven by policies addressed elsewhere in the Regional Spatial Strategy. Housing and infrastructure development is a key driver. The Regional Interim Minerals Policy Statement needs to be considered together with other RSS policies on housing, transport and quality of the environment as well as similar policies in neighbouring regions of England and in Wales, all of which are expected to result in increased demand for aggregate and increased levels of transport, predominantly by road.

MPAs in the West Midlands are at different stages in their minerals planning processes. Staffordshire has already produced a Minerals Core Strategy but Herefordshire is at relatively early stages. A brief summary of the implications of Staffordshire's Minerals Core Strategy for European sites is given in the following section.

##### **4.4.1 Staffordshire Minerals Core Strategy**

The Minerals Core Strategy (Staffordshire County Council 2008) set out plans for future mineral development as well as identifying potential 'strategic sites'. At the time when the Core Strategy was produced the RSS required the County Council to plan for the provision of 6.6 million tonnes of sand and gravel per annum. On this basis, existing reserves were expected to be depleted by 2019 if new sources were not identified. This apportionment has been reduced in the Regional Interim Policy Statement.

Staffordshire has Permitted Minerals Sites within relatively close proximity to:

- Cannock Chase SAC.
- Cannock Extension Canal SAC.
- River Mease SAC.
- West Midlands Meres and Mosses SAC.
- Peak District Dales SAC.

Two proposals were submitted for consideration in Staffordshire's Minerals Core Strategy. These were suggested by the minerals industry and landowners, at the Poplars, Cannock and at York's Bridge, Lime Lane, Norton Canes. The Poplars proposals were for removal of 2.8 m tons of high quality ball clay, within the existing operational Poplars Landfill site, over a ten year period and transported by road via the A5, 7 miles south to a brick making works at Walsall.

The Norton Canes proposal was to extract 3m tons of clay of mixed quality and 800,000 tons of opencast coal, from a 200 acre site, about half of which is in the Cannock Chase Council area, with the remainder in the Walsall Metropolitan Borough Council area. The destination of the clay would be Brownhills and the Potteries, with an alternative site in Aldridge. It is envisaged that the coal would be transported to Rugeley Power Station. The proposed means of transport for the clay and the coal was by road although reference was also made to possible movement by canal. This proposal is in close proximity to the Cannock Extension Canal SAC. Objections were raised to both these proposals by reason of conflict with existing Green Belt policy, in respect to nature conservation interests up to and including at European level.

A petroleum exploration and development licence, for the development of oil or gas, has also been issued by the Government, for a site between Cannock and Rugeley.

#### **4.4.2 Minerals plans in neighbouring regions**

There is little documented information available about the status of minerals plans in neighbouring regions of England or in Wales. At sub-regional level these are all at different stages of development.

Proposed levels of housing and other economic development in the North West are expected to result in increased demand for construction aggregate, with possible implications for some sites in the West Midlands. The North West Regional Spatial Strategy (4NW 2009) sets an aspirational target for use of secondary and recycled aggregate. It also emphasises the need to consider alternative modes of transporting construction aggregates (other than by road). The North West imports a relatively high proportion of construction aggregate and it is not clear what the origin of this is. The North West RSS provides for a high level of growth in the region, so it is possible that there could be in combination effects on certain European sites located near the regional border, notably the Midlands Meres and Mosses Phases I and 2 Ramsar sites, the West Midlands Mosses SAC and the Peak District sites.

A screening process was undertaken for the Cheshire West and Chester Borough Council's Core Strategy which identified a need for further consideration of possible impacts on some sites in the West Midlands (Midlands Meres and Mosses Phases I and II Ramsar and West Midlands Mosses SAC) and also River Dee and Bala Lake/ Afon Dyfrdwy a Llyn Tegid SAC in Wales. The particular component sites affected are outside the West Midlands however. The West Cheshire/ North East Wales Sub-Regional Spatial Strategy provides for approximately 30,000 to 35,000 new dwellings to 2021. In combination with the Cheshire West and Chester Borough Council's Core Strategy, this could result in a further increase in demand for construction sand from the Delamere Sandsheet with possible implications for West Midlands Mosses SAC and the Midlands Meres and Mosses Phase 2 Ramsar sites (altered hydrology). Policy EM7 in the Cheshire West and Chester Borough council's Core Strategy states that "Plans and strategies should make provision for a steady and adequate supply of a range of minerals to meet the region's apportionments of land-won aggregates and requirements of national planning guidance".

Nevertheless it would seem appropriate to carry out further inter-regional assessment of demand driven by levels of housing growth in neighbouring regions order to gain a better understanding of likely movement patterns of aggregates and therefore transport-related impacts. This is particularly important for the Midlands Meres and Mosses Phase 2 Ramsar site.

The Severn Estuary designated sites could also be affected by increased demand for aggregates in the South West Region, the West Midlands Region, the North West Region and

Wales if this translated into increased dredging from the estuary. In 2008 1.47 million tonnes of aggregate were dredged from the Severn Estuary and Bristol Channel from a total licensed dredging area of 130 km<sup>2</sup>, but HRA would be required for any proposal to increase this in future.

## 5 Conclusions and next steps

MPS1 provides a stronger national policy for safeguarding minerals by introducing on all Mineral Planning Authorities (MPAs) an obligation to define Mineral Safeguarding Areas (MSAs), with an associated obligation on district councils to show MSAs in district Development Plan Documents. MSAs are intended to ensure that mineral resources are adequately and effectively protected in land-use planning decisions when linked to appropriate local planning policies. The presence of an MSA does not preclude other forms of development, rather they are intended to highlight the fact that minerals may be sterilised by proposed development and that this factor should be considered in its decision-making process regarding that development. It is important to stress that the same logic should apply to any case where future development of a minerals resource might have adverse consequences for a European site. Before policy is finalised, it is suggested that consideration should be given to a regional mapping exercise carried out to indicate where there is potential conflict between MSAs and European Sites (see TEC, 2010a). This is likely to be necessary before it can be confirmed with any confidence that the sub regional apportionment (and subsequent proposals developed to meet it) will be compatible with maintaining the integrity of European sites.

It is, however, important to emphasise that Minerals Policy Statement 1 states that “Sub-regional apportionments should not be regarded as inflexible” and points out that the preparation of LDDs by MPAs provides an important opportunity to test the practicality and environmental acceptability of policy proposals at the local level. The provision to be made in each area has to be justified in relation to other relevant considerations affecting planning for the area and this provides an opportunity to identify specific impacts and constraints relevant to European sites.

The HRA process highlighted concerns that all of the options being considered might carry a high risk of adverse effects on European Sites associated with hydrological change, habitat fragmentation that might damage the integrity of the Natura 2000 network, noise and disturbance and increased air pollution from transport of aggregates that might exacerbate critical pollutant loads. None of the eleven options presented for consultation appeared to provide an entirely satisfactory solution with these considerations taken into account, including that labelled “environment led”. A suggested alternative was developed which might be expected to have a reduced risk of impacts on European Sites in the region. This is summarised in Appendix B. It is important to note that this was based on an overall reduction of regional-level impacts associated with transport emissions and likely proximity of extraction (existing workings) or transport to European sites. It therefore did not address site-specific impacts. Only recommendations relating to a reduced apportionment in Staffordshire were incorporated in the Regional Interim Policy Statement.

The lack of spatial precision of actual extraction sites across the region presents a difficulty in rigorous assessment of sub-regional apportionment impacts. Each Minerals Planning Authority is at a different stage of preparation of its minerals core strategy. Staffordshire and Warwickshire have completed a call for sites and while these are publicly available, they have not yet been fully assessed against emerging strategy criteria. Shropshire has completed a call for sites but these are not yet publicly available. The process in the other sub-regions appears to be less advanced.

Staffordshire, the sub-region assessed as the most sensitive to sand and gravel extraction, will be allowed a modest reduction in extraction rates under the Interim Policy Statement, compared with the past decade. This is a positive change that should ease pressure on European sites in the sub-region, notably

- Cannock Chase SAC.
- Cannock Extension Canal SAC.
- River Mease SAC.
- West Midlands Meres and Mosses SAC.
- Peak District Dales SAC.

Nevertheless there are some outstanding issues relating to these sites which are summarised in the key conclusions below.

Shropshire, the sub-region assessed as the next most sensitive to sand and gravel extraction, will be required to increase its extraction rate by around 85% (compared with the average for the past decade). While the distribution of new site proposals is not yet publicly available, the concentration of these sites is in the north and west of the county, with one proposed site extension and three new proposed sites in close proximity to the Meres and Mosses Ramsar Site (A. Roper, Shropshire County Council, pers. comm.).

The implications of the Shropshire allocation are of concern for European Sites for two reasons. The majority of potential extraction sites in the north and west of the county lie more than 40km from the West Midlands conurbation, the primary market, and add significant transport distance compared with historic patterns. This in turn will add to the background diffuse air pollutant levels, which already impact on sensitive features of many European sites in the region. The main potential extraction region in north west Shropshire contains Midlands Meres and Mosses Phases 1 and 2 Ramsar sites and West Midlands Mosses SAC, sites potentially vulnerable to off-site impacts associated with minerals development.

Herefordshire, the sub-region assessed as the third most sensitive to sand and gravel extraction, will be required to increase its extraction rate by around 65%. This is a concern because most of the workable sand and gravel resource in Herefordshire is located in the floodplain of the Rivers Wye and Lugg (D. Klein, Herefordshire Council, pers. Com), and one of the existing active extraction sites, Wellington South, is within 300 metres of the River Wye SAC. Another dormant site, Lugg Bridge, is adjacent to the SAC. While it is difficult to be definitive in the absence of a fully developed minerals strategy for Herefordshire, the significant increase in allocation risks further pressure on the River Wye SAC and adverse effects cannot be ruled out. A further concern is that the Herefordshire resource is more than 60km from the West Midlands conurbation, and increased transport will add to air pollution impacts.

## **5.1 Key conclusions are as follows:**

1. Intensive consultation took place concerning alternative sub-regional apportionments in order to reach consensus on a preferred option. An iterative review of likely implications for European sites took place and the results were used to inform development of alternatives and their appraisal. The preferred option was announced on 18<sup>th</sup> March 2010 and represents a significant departure from average past production patterns, most notably by reducing the sand and gravel apportionment for Staffordshire and increasing it in Herefordshire and Shropshire.

2. The preferred option shifts a proportion of the apportionment for sand and gravel from Staffordshire. This is expected to benefit European sites in Staffordshire in the medium to long term, though risk of damage to the integrity of these sites due to aggregate extraction and transport remains.

3. The preferred option shifts a proportion of the apportionment for sand and gravel from Staffordshire to other Mineral Planning Areas, notably Herefordshire and Shropshire. This could have implications for the **River Wye SAC**, the **Midlands Meres and Mosses Phases I and II Ramsar sites** and the **West Midlands Mosses SAC**. Further consultation is required to establish the likely future need for aggregate extraction in locations where these sites would be affected in order to meet the apportionment.

4. The increased apportionment for Shropshire has implications for transport distances from where sand and gravel is extracted (the northern part of the County) to where it is used (largely South and East) and this potentially conflicts with other RSS policies on air quality and climate change. This has particular implications for **Fenns, Wixhall, Bettisfield, Wem and Cadney Mosses SAC**, and **West Midlands Mosses SAC**.

5. Another aspect which needs to be addressed at regional level and requires further information before clear conclusions can be reached concerns the possible implications of imported material (there could be up to 23m t of net imports). An in combination effects assessment will be required to include implications for European sites in neighbouring regions in England and in Wales. This will need to be supported by a process of inter-regional consultation because there is little documented information available about minerals plans in neighbouring regions of England or in Wales.

6. HRA-review of the WMRSS Phase 3 Policy Recommendations (TEC, 2010a) suggested that a review should be carried out of the extent to which European Sites are located in or near the Minerals Safeguarding Areas which have been identified. This would be an essential first step in confirming risk of future impact and any further attempt to predict or quantify the possible future risks to European sites associated with the proposed sub-regional apportionment.

7. Impacts on European sites are most likely to occur as a result of extension of existing minerals sites for:

- Sites in the Staffordshire sub-region on **Peak District Dales SAC** (inactive crushed rock quarry within 1.2km), **Cannock Chase SAC** (active sand and gravel quarry within 100m), **Cannock Extension Canal SAC** (active sand and gravel pit within 4km and proposed minerals site within 100m), **River Mease SAC** (active sand and gravel pit within 700m); **Midlands Meres and Mosses Phase 2 Ramsar** (inactive sand and gravel pit within 400m);
- Sites in the Shropshire sub-region on **Midlands Meres and Mosses Phase 1 Ramsar** (active sand and gravel quarry within 400m and **Phase 2 Ramsar** (active sand and gravel quarry within 800m) and **West Midlands Mosses SAC** (active sand and gravel pit within 2km);
- Sites in the Herefordshire sub-region on the **River Wye SAC** (active sand and gravel pit within 100m).

8. A range of site-specific impacts are possible for other European sites in future depending on the nature and location of minerals proposals in new locations. These would be appraised through HRA at the Core Strategy stage and HRA would also be required for any specific proposal likely to have an adverse effect on any European site. Mineral extraction from areas within European designated sites would not be possible unless it could be

demonstrated through HRA that there would be no adverse impact on the integrity of those sites.

9. Transport-related emissions associated with transport of aggregate could represent a particular risk to **Cannock Chase SAC, Peak District Dales SAC, Fenns, Wixhall, Bettisfield, Wem and Cadney Mosses SAC**, and **West Midlands Mosses SAC**.

10. While many site-specific impacts are appropriately addressed at core strategy level, the sub-regional apportionment itself could increase the risk of effects on certain European sites in cases where a sub-region has a likely shortfall and/or has its most workable or more commercially viable reserves located near European sites. This is difficult to establish due to confidentiality about commercial viability and the fact that the sub-regions in the West Midlands are at different stages in their Minerals Planning processes. However the following specific issues have been identified:

i) the increased apportionment for sand and gravel in Shropshire means that transport distances from reserves to point of use may increase. This would increase carbon emissions and levels of diffuse pollution affecting European sites.

ii) the apportionment for sand and gravel in Shropshire might represent a risk to the **Midlands Meres and Mosses Phases I and II Ramsar sites** and the **West Midlands Mosses SAC** as deposits near these sites might have to be considered for working in future in order to meet the apportionment.

iii) Herefordshire's apportionment could potentially increase demand for extraction from sand and gravel deposits in the floodplain of the **River Wye SAC**.

Final conclusions are presented in the box overleaf. In addition to the conclusions recommended here, previous sections include recommendations for issues that should be considered in HRAs for minerals core strategies or for individual proposals with respect to specific European sites. This does not mean that additional effects are unlikely, depending on the nature and location of proposals.

Staffordshire's sub-regional apportionment for sand and gravel has been reduced, but work on the core strategy suggests that it could remain a challenge to meet the apportionment without risk of adverse effects on:

- Cannock Chase SAC;
- River Mease SAC; and
- Midlands Meres and Mosses Phase 2 Ramsar.

Further consideration may also be required for the Peak District Dales SAC as a result of possible increases in crushed rock extraction and because a high proportion of the site is within 200 m of a road.

It is not possible to conclude with certainty that there will not be adverse effects on certain European sites as a result of the proposed Regional Interim Policy Statement and the sub-regional apportionment it recommends. These are:

- The River Wye SAC as a result of an increased apportionment for sand and gravel in Herefordshire (there are workable sand and gravel deposits in the floodplains of the Rivers Wye and Lugg, so the apportionment may put extra pressure on the SAC in the medium to long term).
- The Midlands Meres and Mosses Phases I and II Ramsar sites and the West Midlands Mosses SAC as a result of an increased apportionment for sand and gravel in Shropshire and the possible need for future extraction near these sites, with particular implications for land use (the coherence of the Natura 2000 network) and hydrology.

Further consultation with minerals planners and the statutory nature conservation bodies is required to determine the need for avoidance or mitigation measures for these sites.

In addition, transport of aggregate (predominantly by road) could have implications for several sites in the region depending on likely transport patterns. Particular risks have been identified for:

- Cannock Chase SAC.
- Peak District Dales SAC.
- Fenns, Wixhall, Bettisfield, Wem and Cadney Mosses SAC.
- West Midlands Mosses SAC.

The Regional Interim Policy Statement was partially developed to reflect criteria of environmental sustainability, including that of reducing likely transport distances from sources of minerals and aggregates to locations where they are likely to be used. The resulting Policy Statement and sub-regional apportionment departs from this in certain key aspects however. The sub-regional apportionment could require aggregate extraction in relatively unsustainable locations in Shropshire, (where reserves are located in the North of the County but are used largely in the major conurbations) and in Herefordshire (where workable sand and gravel reserves are restricted largely to the catchment of the River Wye).

Further consideration should be given to the role of the "quality of the environment" policies which are currently in the form of Phase 3 Policy Recommendations (see TEC 2010a) in buffering European sites from potentially damaging effects of land use change, noise, disturbance, hydrological alteration, water quality change and air pollution associated with extraction of aggregates. Review of the coincidence of Mineral Safeguarding Areas and European sites (see TEC 2010a and section 4.2.2) could be complemented by consideration of possible buffers around European sites within which appropriate land use is required to maintain their integrity.

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## **7 Appendix A: Regional Interim Policy Statement for Construction Aggregates Based on Option F**

### **7.1 Policy Objective**

1. To produce new sub-regional apportionments for construction aggregates for the West Midlands for the period 2005 – 2020 and to provide advice to Mineral Planning Authorities (MPAs) on extending those apportionments up to 2026.
2. Construction aggregates (sand and gravel and crushed rock) are essential to built development, other construction and maintenance of infrastructure (e.g. roads, flood defences). They are and are therefore essential to deliver growth, create and maintain sustainable communities and to sustain Urban and Rural Renaissance in the West Midlands.

### **7.2 Key Messages from the Phase Three Option Consultation**

3. The suggested aggregates apportionment is not considered realistic. There was a considerable body of opinion which considered that the apportionment is too high for Staffordshire, and some were of the view that it is too high for the region as a whole. Most of those responding supported an apportionment using different sub-regions and methods, although there is some resistance to using the sub-regions proposed by the Section 4(4) authorities.

### **7.3 Background**

4. In order to maintain adequate and steady supplies of materials on the one hand, and protect valuable landscapes and communities on the other, a national managed aggregates supply system operates providing guidelines for regional provision.
5. The Government determines the future national requirements for aggregates and apportions it between the regions based on past production, regional shares, future levels of construction activity and growth to give a regional requirement.(National and Regional Guidelines for Aggregates Provision in England: 2005-2020 ) (June 2009)
6. The current regional provision based on the 2003 guidelines was apportioned sub-regionally by the Regional Planning Body following advice from the West Midlands Regional Aggregates Working Party and incorporated into the West Midlands Regional Spatial Strategy (June 2004) as Policy M2 following an examination in public. The 2003 national and regional guidelines and sub-regional apportionment set out in Policy M2 cover the period up to 2016. The figures need to be reviewed and projected forward to cover the period up to 2020 to ensure supplies are available to meet future needs.
7. Across the country there are geographical imbalances between the supply of, and demand for, aggregates at national level and therefore a mixture of sites is needed to contribute to meeting local, regional or national demands. This imbalance is reflected in the West Midlands region by the relationship between consumption in urban areas and the provision of supplies of primary aggregates from mainly rural areas particularly from Staffordshire for sand and gravel and Shropshire for crushed rock.
8. However not all the material produced and sold in the region is consumed in the West Midlands region. Based on the most recent information (AM2005 Collation) 87% of the sales were consumed in the West Midlands. As a whole the West Midlands consumed 17,827million tonnes of aggregates in 2005 of which 33% were imports. Of that 33% ninety three percent was crushed rock imported from other regions and Wales.

9. The draft revision to the WMRSS Phase 2 (covering the period up to 2026) proposes major new housing development across the region, additional employment sites and the development of a better transport system.

10. This level of future growth may require additional materials to be found by defining areas for new minerals extraction. However, demand for resources could be reduced by reducing the quantity of material used in new construction, and maximising the use of alternative materials in construction projects wherever possible.

## **7.4 Policy Position**

11. The Government has published a new regional guideline for the West Midlands which requires 370 million tonnes of aggregates and alternate materials to be provided over the period 2005-2020 (June 2009)

12. This comprises the production of 247 million tonnes of primary aggregates (165 million tonnes of sand and gravel and 82 million tonnes of crushed rock), and assumes that 100 million tonnes of alternate materials will become available and 23 million tonnes of materials will come from imports outside the region during the 16 year period of the guidelines

13. In the absence of mechanisms to apportion the alternate materials requirements amongst the various Mineral Planning Authorities in the region the figure of 247 million tonnes for primary aggregates has been used to carry out the sub regional apportionment.

14. The West Midlands Regional Assembly carried out two technical consultations with WMRAWP members on eleven options ,six derived from the RAWP based on past sales, increased proportions of recycled aggregates and substitutions between mineral types and five alternative options produced by consultants.

15. The methodology developed by the consultants to generate the five options was based on consideration of a range of criteria, including the location of the mineral resources, past sales, potential future demand and environmental constraints. By applying different weightings to the various factors five alternative different/ (extreme) options were produced and they were:-

- Supply led
- Growth led
- Environment led
- Equal weighting to all the factors
- Demand and resource

16. In response to comments made during the first consultation about the datasets, weightings and the five options not being considered to be deliverable and sustainable, the consultants produced two further refined options based on past sales and phasing. These further two options together with a past sales option were considered by the RAWP and the Regional Planning and Environment Executive Assembly before a final decision was made by the Regional Assembly Board on the 17th March 2010.

17. The Regional Assembly took into account the information and evidence from the consultations, the technical advice from the WMRAWP and the results of the Habitats Regulations Assessment and the Sustainability Appraisal/Strategic Environment Assessment and agreed that the regional guidelines could be met at an acceptable environmental cost. They also agreed that the apportionment methodology which represented the most

practicable, realistic and sustainable option capable of being delivered was Option F for both sand and gravel and crushed rock.

18. The adopted method applied is based largely on past sales but taking into account the distribution of demand and the availability of relatively unconstrained sand and gravel and crushed rock resources in the region. For the purposes of carrying out the apportionment of both sand and gravel and crushed rock a 10 year average was chosen to reflect the need for a better indication of trends over time and would be based on the period 1998 -2007.

19. Table 1 is the sub-regional apportionment up to 2020 agreed by the Regional Assembly following technical advice from the WMRAWP and the constituent Mineral Planning Authorities.

**Table 1: Apportionment of the Regional Guidelines 2005-2020 (million tonnes) provision by existing sub-regions**

	Annual Provision	Annual Provision
	Sand & Gravel	Crushed Rock
Herefordshire	0.462	0.364
Worcestershire	1.009	0.157
Shropshire	1.496	2.647
Staffordshire	5.662	1.210
Warwickshire	1.154	0.745
West Midlands County	0.528	0
<b>Regional - Annual Total</b>	10.31	5.12
<b>Regional Total 2005-2020</b>	165	82
+ West Midlands County Apportionment redistributed between the other counties in 2006.		

20. In determining the requirements beyond 2020 the MPAs will have to project the agreed figures at a constant value for a further period of 6 years up to 2026. This is based on advice from CLG when determining the likely sub-regional apportionment for the period 2016-2021 (which was the end date of the current WMRSS) from the previous National and Regional Guidelines (June 2003)

21. Mineral Planning Authorities (MPAs) will need to plan to maintain appropriate land banks for sand and gravel and for crushed rock, which is sufficient to deliver 10.31 million tonnes and 5.12 million tonnes per annum respectively across the region.

22. Mineral Development Plan Documents (DPDs) should include policies that reflect the new sub regional provisions for sand and gravel and crushed rock following the redistribution of the sand and gravel future provision amongst the various mineral planning authorities as a result of the application of the new sub regional apportionment methodology.

23. MPAs in collaboration with local planning authorities and the minerals industry should ensure that economically important aggregate mineral resources in the region are safeguarded and that aggregates and aggregates related infrastructure are safeguarded particularly existing and planned rail depots in order to meet future demands.

24. It will be essential to ensure that production is maintained from existing and planned aggregates sites and aggregates and aggregates related infrastructure by limiting encroachment from non mineral development through applying buffers or consultation zones.

25. The sub regional provisions for both sand and gravel and crushed rock should be subject to testing of practicality and environmental acceptability in the preparation of mineral DPDs including through Sustainability Appraisal/Strategic Environment Assessment and Habitats Regulations Assessment. Mineral DPDs must consider the potential adverse effects of aggregates extraction, processing and transportation on the integrity of European nature conservation sites and adopt measures to avoid those adverse effects.

26. The regional guideline will be reviewed annually and revised when necessary according to Mineral Policy Statement No1 (annex 1 paragraph 5.1). The delivery of the sub regional provision will need to be monitored on an annual basis and reviewed before 2015 or as part of the preparation and approval of the Regional Strategy.

## **7.5 Contribution of Alternative Materials to Future Supply**

27. The Government's regional provision includes a requirement to provide 100 million tonnes of alternative materials over the period 2005-2020. This is an increase in the contribution towards total aggregates provision from 24% to 27% and an increase of 17.5% for the annual requirement – 5.5 million to 6.66 million tonnes.

28. The quality of the available data is not sufficiently robust to determine reliable geographical area based local apportionments for alternate materials. However, Policy W9 in the revised draft WMRSS (Phase 2) requires new sites for facilities to store, treat and recycle soils and construction and demolition waste to be provided and for more recycling through on site activities and purpose built facilities in urban areas.

29. MPAs in their LDFs will need to consider if there is sufficient capacity to deliver the increase level of recycling now required. They will also need to consider what other measures they can take to maximise the use of alternative materials in local construction projects.

30. The delivery of this increase in use of alternative materials will require better collection of data (e.g. through regular WMRAWP surveys of secondary aggregates, waste management capacity monitoring, and monitoring of on-site recycling through the development management process) and greater emphasis being placed on the reuse and recycling of on-site materials particularly in the Major Urban Areas subject to environmental considerations being met.

## 8 Appendix B: Sensitivities of European sites to different types of impact

Site	Air pollution		Water quality		Water Supply		Biological Disturbance			
	Acidification	Eutrophication	Eutrophication	Siltation/ turbidity	Flow reduction	Reduced water level or supply	Inappropriate grazing or management	Invasive species	Physical damage	Disturbance
Berwyn and South Clwyd Mountains SAC	X	X				X	X	X	X	X
Brecon Beacons SAC	X	X							X	X
Bredon Hill SAC										
Brown Moss SAC	X	X	X	X		X		X	X	
Cannock Chase SAC	X	X	X			X		X	X	X
Cannock Extension Canal SAC	X	X	X		X				X	
Dixton Woods SAC								X		
Downton Gorge SAC	X	X						X		
Elan Valley Woodlands SAC	X	X					X	X		
Elenydd SAC	X	X					X		X	
Elenydd Mallaen SPA							X			
Ensor's Pool SAC				X		X		X		

Site	Air pollution		Water quality		Water Supply		Biological Disturbance			
	Acidification	Eutrophication	Eutrophication	Siltation/ turbidity	Flow reduction	Reduced water level or supply	Inappropriate grazing or management	Invasive species	Physical damage	Disturbance
Fenn's, Wixhall, Bettisfield, Wem and Cadney Mosses SAC	X	X	X	X		X		X	X	
Fens Pools SAC	X	X		X		X			X	
Humber Estuary Ramsar	X	X	X		X			X	X	
Humber Flats, Marshes and Coast (Phase 2) SPA	X	X	X		X				X	
Llangorse Lake SAC			X							
Lyppard Grange Ponds SAC	X	X		X	X			X	X	X
Midlands Meres and Mosses Phase 1 Ramsar	X	X	X	X		X		X	X	
Midlands Meres and Mosses Phase 2 Ramsar	X	X	X	X	X	X		X	X	
Motley Meadows SAC	X	X	X						X	
Pasturefields Saltmarsh SAC	X	X	X	X		X			X	
Peak District Dales SAC	X	X	X	X		X	X	X	X	X
Peak District Moors (South Pennine Moors Phase 1) SPA	X	X							X	
Rhos Goch SAC	X	X	X			X	X			

Site	Air pollution		Water quality		Water Supply		Biological Disturbance			
	Acidification	Eutrophication	Eutrophication	Siltation/ turbidity	Flow reduction	Reduced water level or supply	Inappropriate grazing or management	Invasive species	Physical damage	Disturbance
River Clun SAC			X	X	X			X	X	X
River Dee and Bala Lake SAC			X	X	X			X	X	
River Mease SAC			X	X	X			X	X	X
River Usk SAC			X		X					
River Wye SAC			X	X	X			X	X	X
Severn Estuary Ramsar/ SAC/SPA			X	X	X			X		X
South Pennine Moors Phase 2 SPA	X	X	X		X				X	
South Pennine Moors SAC	X	X						X	X	
Sugarloaf Woodlands SAC	X	X					X			
The Stiperstones and the Hollies SAC	X	X							X	
Walmore Common Ramsar/ SPA			X		X					
West Midlands Mosses SAC	X	X	X	X		X		X		
Wye Valley and Forest of Dean Bat Sites SAC	X		X							X
Wye Valley Woodlands SAC	X	X	X					X	X	

## 9 Appendix C: review of sub-regional apportionment options

Eleven options were appraised for sand and gravel (Table 11) and for crushed rock (Table 12). Those options which result in an increase of at least 5% of current rates are shown in red, a decrease of at least 5% in green and those with little change in yellow. A new combined scenario ("Scenario 4") is also shown which is considered to represent a preferable option in terms of overall environmental sustainability based on transport distances and measures of proximity to European sites. In order to evaluate each policy scenario or option against potential effects on European Sites, two measures were developed.

1. The number of minerals sites within 5km of a European site. A 5km buffer was selected as the range over which the majority of off-site impacts, such as dust pollution and hydrological effects, could be expected to operate, (but this does not preclude the possibility of effects occurring over larger distances).
2. The number of minerals sites in locations where a 5km wide corridor around a straight line drawn from the minerals site to the nearest point in the West Midlands sub-region that intersects with a European site that is sensitive to local air pollution and has a main road nearby. This is used as a surrogate measure to reflect potential adverse effects of road transport of aggregates between the extraction site and the main regional conurbation, where the demand for most aggregate is likely to be located.

The two numbers are then added together to give an index of sensitivity for each sub-region. The results for Sand and Gravel are shown in Table 9 and for Crushed Rock in Table 10.

<b>SAND &amp; GRAVEL</b>	<b>Mineral Site - European Site Proximities</b>	<b>Transport Corridor/ Air Pollution Sensitivities</b>	<b>Total</b>	<b>Sensitivity Rank</b>
Staffordshire	20	6	26	1
Shropshire	11	1	12	2
Herefordshire	6	0	6	3
Warwickshire	0	0	0	4=
Worcestershire	0	0	0	4=
W. Midlands County	0	0	0	4=

**Table 9 Indices of sensitivity for sand and gravel extraction by sub-region**

<b>CRUSHED ROCK</b>	<b>Mineral Site - European Site Proximities</b>	<b>Transport Corridor/ Air Pollution Sensitivities</b>	<b>Total</b>	<b>Sensitivity Rank</b>
Shropshire	9	1	10	1
Staffordshire	3	1	4	2
Warwickshire	3	0	3	3
Herefordshire	2	0	2	4
W. Midlands County	1	0	1	5
Worcestershire	0	0	0	6

**Table 10 Indices of sensitivity for extraction of crushed rock by sub-region**

Sand & Gravel (million tonnes per annum)	Current	WMRAWP Scenarios						LUC Options					Combined
		Scenario 1a Extraction Trends Last 3 Years	Scenario 1b Extraction Trends Last 5 Years	Scenario 1c Extraction Trends Last 10 Years	Scenario 2 10% substitution with recycled materials	Scenario 3a 10% substitution of sand and gravel with crushed rock	Scenario 3b 10% substitution of crushed rock with sand and gravel	A Supply Led	B Growth Led	C Environment Led	D Equal Weighting	E Demand & Resource	Scenario 4 (Combined Scenario 2 with resource close to demand)
Herefordshire	0.28	0.22	0.24	0.24	0.25	0.26	0.32	0.95	0.51	0.97	0.71	0.73	0.12
Worcestershire	0.87	0.80	0.86	0.89	0.75	0.79	0.93	1.09	0.99	1.13	1.02	1.04	0.71
Shropshire	0.82	0.84	0.87	0.86	0.71	0.75	0.87	3.07	1.55	2.99	2.25	2.31	0.66
Staffordshire	6.60	6.74	6.73	6.72	5.70	6.05	7.01	2.80	2.47	2.70	3.34	2.64	3.94
Warwickshire	1.04	1.08	1.01	1.04	0.90	0.96	1.11	1.54	1.14	1.57	1.36	1.34	2.53
W.Midlands County	0.51	0.62	0.59	0.55	0.44	0.46	0.53	0.85	3.64	0.94	1.61	2.25	0.78
<b>Regional Total</b>	<b>10.13</b>	<b>10.30</b>	<b>10.30</b>	<b>10.30</b>	<b>8.75</b>	<b>9.27</b>	<b>10.77</b>	<b>10.30</b>	<b>10.30</b>	<b>10.30</b>	<b>10.30</b>	<b>10.30</b>	<b>8.75</b>

Per Centages													
Herefordshire	2.80	2.12	2.33	2.33	2.86	2.80	2.97	9.24	4.96	9.40	6.91	7.10	1.40
Worcestershire	8.60	7.76	8.35	8.64	8.57	8.52	8.64	10.55	9.62	10.95	9.94	10.08	8.16
Shropshire	8.10	8.17	8.45	8.35	8.11	8.09	8.08	29.79	15.01	29.06	21.88	22.40	7.56
Staffordshire	65.20	65.36	65.34	65.24	65.14	65.26	65.09	27.19	23.99	26.24	32.41	25.59	45.06
Warwickshire	10.30	10.51	9.81	10.10	10.29	10.36	10.31	14.95	11.10	15.24	13.23	13.03	28.89
W.Midlands County	5.00	5.98	5.73	5.34	5.03	4.96	4.92	8.29	35.32	9.10	15.64	21.81	8.94
<b>Regional Total</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>

Table 11 Extraction of sand and gravel under the assessment scenarios

Crushed Rock (million tonnes per annum)	Current	WMRAWP Scenarios						LUC Options					Combined
		Scenario 1a Extraction Trends Last 3 Years	Scenario 1b Extraction Trends Last 5 Years	Scenario 1c Extraction Trends Last 10 Years	Scenario 2 10% substitution with recycled materials	Scenario 3a 10% substitution of sand and gravel with crushed rock	Scenario 3b 10% substitution of crushed rock with sand and gravel	A Supply Led	B Growth Led	C Environment Led	D Equal Weighting	E Demand & Resource	Scenario 4 (Combined Scenario 2 with resource close to demand)
Herefordshire	0.42	0.40	0.50	0.66	NA	0.45	0.34	0.66	0.46	0.87	0.62	0.56	0.19
Worcestershire	0.16	note 1	note 1	note 1	NA	0.17	0.13	0.22	0.70	0.22	0.34	0.46	0.23
Shropshire	2.95	3.02	3.20	3.36	NA	3.09	2.34	2.81	1.58	2.71	2.41	2.20	3.15
Staffordshire	1.40	note 2	note 2	note 2	NA	1.46	1.11	1.04	1.57	0.89	1.18	1.30	0.61
Warwickshire	0.88	1.70	0.45	1.10	NA	0.92	0.70	0.40	0.81	0.42	0.58	0.60	0.83
W.Midlands County					NA			0.00	0.00	0.00	0.00	0.00	0.11
<b>Regional Total</b>	<b>5.81</b>	<b>5.12</b>	<b>5.12</b>	<b>5.12</b>		<b>6.09</b>	<b>4.61</b>	<b>5.12</b>	<b>5.12</b>	<b>5.12</b>	<b>5.12</b>	<b>5.12</b>	<b>5.12</b>

Per Centages													
Herefordshire	7.30	7.81	9.77	12.89	NA	7.31	7.37	12.81	9.08	17.06	12.04	10.94	3.65
Worcestershire	2.80	note 1	note 1	note 1	NA	2.79	2.82	4.23	13.61	4.38	6.64	8.92	4.54
Shropshire	50.74	58.98	62.50	65.63	NA	50.74	50.73	54.90	30.93	52.88	46.99	42.92	61.44
Staffordshire	24.00	note 2	note 2	note 2	NA	23.97	24.06	20.32	30.57	17.38	22.97	25.45	12.00
Warwickshire	15.14	33.20	8.79	21.48	NA	15.11	15.17	7.74	15.82	8.29	11.37	11.78	16.16
W.Midlands County	0	0	0	0	NA	0	0	0	0	0	0	0	2.20
<b>Regional Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>		<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

Note 1 – Herefordshire and Worcestershire data combined for confidentiality reasons Note 2 Staffordshire data combined with Warwickshire

**Table 12 Crushed rock extraction under the various assessment scenarios**

The ranks can were applied to the eleven options, as shown in Table 13.

Scenario/ Option	Sand and Gravel	Crushed Rock
Scenario 1a Extraction Trends Last 3 Years	Essentially a Business as Usual option. Risks new adverse effects on European Sites, especially in Staffordshire.	Reduced overall total reduces pressure on European sites, but outcome potentially sub-optimal spatially.
Scenario 1b Extraction Trends Last 5 Years	Essentially a Business as Usual option. Risks new adverse effects on European Sites, especially in Staffordshire.	Reduced overall total reduces pressure on European sites, but Shropshire, the most sensitive county, has increased pressure.
Scenario 1c Extraction Trends Last 10 Years	Essentially a Business as Usual option. Risks new adverse effects on European Sites, especially in Staffordshire	Reduced overall total reduces pressure on European sites, especially in Staffordshire, but Shropshire, the most sensitive county, has increased pressure.
Scenario 2 10% substitution with recycled materials	Reduces risks to European sites, especially in Staffordshire. The best of the options presented for sand and gravel.	This scenario assumes all substitution will be for sand and gravel so there is no equivalent policy for crushed rock to evaluate.
Scenario 3a 10% substitution of sand and gravel with crushed rock	Also reduces risks to European sites, but less effectively than Scenario 2. Must also be evaluated alongside the crushed rock apportionment.	Marginally increased risk to European sites in Shropshire.
Scenario 3b 10% substitution of crushed rock with sand and gravel	Clearly the most damaging option presented, with increased risk to European sites in Staffordshire, Shropshire and Herefordshire.	Reduces risks to European sites and therefore the best of the options presented for crushed rock. However the scenario must be evaluated alongside the sand and gravel option, which is the most damaging.

A Supply Led	Significantly reduced risk to European sites in Staffordshire, but at the expense of substantially increased risk elsewhere, especially in Shropshire and Herefordshire. Likely also to lead to increased road transport, with resulting impact on climate change and air pollution.	Reduced overall total reduces pressure on European sites, but sub-optimal spatially.
B Growth Led	Significantly reduced risk to European sites in Staffordshire, but at the expense of increased risk elsewhere. Reduced transport impacts, but option of questionable feasibility in terms of availability of supply in West Midlands County sub-region.	Significantly reduced pressure to European sites in Shropshire, the most sensitive county with regard to crushed rock aggregates, but slightly increased pressure on Staffordshire.
C Environment Led	In spite of the title of the option, this is no better than other options for European sites. Almost identical in outcome to Option A, and the same comments apply.	Reduced pressure to European sites in Shropshire, although less marked than in Option B, and reduced pressure in Staffordshire.
D Equal Weighting	Also similar to Option A.	As Option C.
E Demand & Resource	Also similar to Option A, with less pronounced effect.	As Option C.

**Table 13 Assessment of alternative scenarios or options in terms of likely implications for European Sites**

The colour coding reflects the relative merit of the option for the type of mineral extraction concerned – green = preferred or relatively low-risk; amber = some adverse effects or risk; red = highest risk.

It is unclear whether the option must necessarily apply to both types of mineral, or the optimal option can be selected in each column. The only scenarios that clearly must be applied to both if selected are 3a and 3b.

### **9.1.1 Proposal for a new apportionment option**

Given the importance of the issue and the concerns highlighted for the majority of options presented, including that labelled “environment led”, we developed a new option for consideration which might be expected to have a reduced risk of impacts on European Sites in the region. We called this Scenario 4 and some aspects of it were later included in the preferred Option, F.

This scenario was developed primarily in relation to sand and gravel, as the environmental impacts appear to be more serious in comparison with those caused by crushed rock extraction in this region. However the scenario is applied also to crushed rock for completeness.

The scenario is proposed within the context of the Sustainability Appraisal and the Habitat Regulations Assessment of emerging policy options. The HRA context reflects concerns that existing options carry a high risk of adverse effects on European Sites, through off-site impacts such as hydrological change, habitat fragmentation that damages the integrity of the Natura 2000 network and increased air pollution from transport of aggregates that exacerbates critical pollutant loads. The Sustainability Appraisal context reflects the sustainability objectives of the regional plan.

None of the eleven options in the consultation appeared to provide an entirely satisfactory solution with these considerations taken into account. Some options are of doubtful feasibility. While several of the options have positive elements, many of also have significant downsides, and it is possible that a preferred solution could be achieved by combining the best elements of several options.

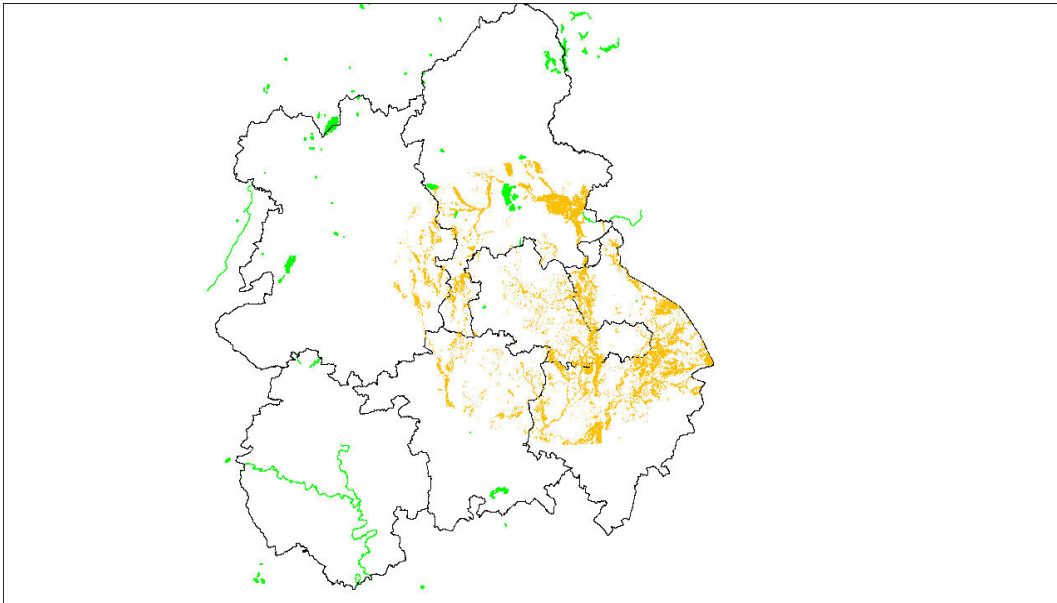
The criteria for apportionment used in this option are:

1. Distance from the West Midlands County Conurbation. This recognises that the West Midlands conurbation forms the dominant growth area in the regional plan and can therefore be expected to generate most demand for aggregates in the region. A radius of 20km from the West Midlands Conurbation boundary is used for sand and gravel, reflecting the importance of high transport costs of this relatively low value product, and the probability that the industry will not find it economic to transport material for significantly higher distances. The criterion also reflects sustainability considerations, including minimising air pollution impacts on European sites, and CO2 emissions contributing to climate change impacts. Note that this criterion is applied spatially in GIS and not generically across sub-regions; it can therefore distinguish between resources in different parts of large counties. For crushed rock, insufficient resource occurs within 20km, and a radius of 30km is therefore used.
2. The sand and gravel resource, as mapped by BGS, outside of “sterilised areas” including developed land and transport infrastructure, and outside of internationally and nationally designated areas. This is equivalent to the information used by Land Use Consultants in their options development, i.e. a combination of “Factor 3 – sterilised resource” and “Factor 4 – constraints”. This recognises that new consents are unlikely to be granted in many internationally and nationally designated areas, and therefore this should be regarded as a key consideration. Note that, while this is best available information, it suffers from the same defects, i.e. does not include

locally selected wildlife sites and has no adjustment for depth or quality of the sand and gravel resource.

3. An increased substitution of recycled aggregates, as in WMRAWP Scenario 2, which minimises the need for damaging new primary aggregate extraction and also minimises road transport impacts.

Figure 5 shows the distribution of the unsterilised sand and gravel resource within 20km of the West Midlands County Conurbation boundary, outside of international and national designations (legend is brown for sand and gravel resource, green representing European sites).



**Figure 5 Unsterilised sand and gravel resource within 20km of the West Midlands County Conurbation Boundary**

To generate the sub-regional apportionment for Scenario 4, criteria 1 and 2 above were combined spatially in GIS and analysed by sub-region. A 50% weighting was used between these figures and current allocation, the latter reflecting current sales distribution. The total allocation reflects reduced demand as a consequence of increased substitution with recycled aggregates, as in Scenario 2. The inclusion of current sales distribution as a factor reflects the need for a gradual change towards an improved spatial solution, rather than abrupt change. The outcomes for Scenario 4 are shown alongside the other options in Table 11 and Table 12 above.

With respect to the HRA, Scenario 4 significantly reduces sand and gravel extraction pressure on European sites in Staffordshire, the most sensitive of the sub-regions, without simultaneously exporting the problem to other sensitive counties.

With respect to the Sustainability Appraisal, Scenario 4 effectively reduces aggregates transport environmental impacts while realistically accommodating resource distribution.

Scenario 4 is less effective in relation to Crushed Rock, and options C, D or E may be optimal. The difference partly relates to the unavailability of a recycled aggregates substitution option for Crushed Rock.

## 10 Appendix D: European Sites Vulnerable to Increased Air Pollution/ Deposition Levels

The original Phase Two HRA assessment (completed in October 2007) used the best information that was available at the time through the Air Pollution Information System and available through the Electricity Supply Industry Habitats Spreadsheet<sup>1</sup> to understand the areas at risk from the adverse effects of acidification and eutrophication. APIS has since been updated with the addition of Site Relevant Critical Loads and a Source Apportionment for the UK Natura 2000 network<sup>2</sup>.

This updated “detailed site based assessment” tool enables an assessment against a “critical load function” (CLF) as opposed to a “critical load value” and the deposition data for nitrogen and sulphur at each specific site is provided. The user is able to select a specific European site, and identify the critical load function for acidification for this site where applicable, together with a range of critical loads for nutrient nitrogen deposition.

Because of the site-specific nature of these values, they provide a more accurate reflection of the sensitivity of individual sites to acid and nutrient nitrogen deposition than the previous Simple Site-Based Assessment data. The higher level of detail enables an assessment against a critical load function for acid deposition to be carried out, rather than being limited to a critical load value. This function was available through the Electricity Supply Industry Habitats Spreadsheet and the values presented in Table 7 of the Phase Two HRA were checked against these to confirm whether or not a site’s critical load was exceeded. Nonetheless, it is prudent to check that the APIS models provides the same results for each site at least in terms of whether or not the site exceeds the lower bounds of the critical loads for acidity and nutrient nitrogen.

The table below examines the sensitive sites identified in the RSS Phase 2 HRA using the detailed site-based assessment methodology.

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<sup>1</sup> Impact of atmospheric emissions from JEP coal and oil-fired power stations on sites protected by the Habitats Directive. Diane Brooke, Steve Griffiths, Keith Sadler and Rob Lennard. Joint Environment Programme report ENV/054/2005, PT/06/BE130/R. Issued February 2006.

<sup>2</sup> Addition of Site Relevant Critical Loads and Source Apportionment for UK Natura 2000 network in 20<sup>th</sup> October 2007. [http://www.apis.ac.uk/cgi\\_bin/updates.pl](http://www.apis.ac.uk/cgi_bin/updates.pl)

**Table 14 – information on Critical Loads (CL) for acidity and nutrient nitrogen at different European sites**

European site	Interest Feature	Does site exceed the lower bounds of CL for acidity – 2003	Does site exceed minimum CL for Nutrient Nitrogen - 2003	Does site exceed the lower bounds of CL for acidity – 2010	Does site exceed minimum CL for Nutrient Nitrogen - 2010
Berwyn & South Clwyd SAC	European dry heaths (H4030)	Yes	Yes – exceeds upper bound levels	Yes	Yes – but below upper bound levels
	Semi-natural dry grasslands and scrubland facies: on calcareous substrates ( <i>Festuco-Brometalia</i> ) (H6210)	No	Yes	No	Yes
	Blanket bogs (H7130)	Yes – exceeds the upper bound levels	Yes – exceeds upper bound levels	Yes – exceeds upper bound levels	Yes – exceeds upper bound levels
	Transition mires and quaking bogs (H7140)	Yes – exceeds the upper bound levels	Yes – exceeds upper bound levels	Yes – exceeds upper bound levels	Yes - but below upper bound levels
	Calcareous and calcshist screes of the montane to alpine levels ( <i>Thlaspietea rotundifolii</i> ) (H8120)	No – Feature not sensitivity to acidification	Sensitive to Nutrient Nitrogen and total deposition currently exceeds upper bound levels	No – Feature not sensitivity to acidification	Sensitive to Nutrient Nitrogen and total deposition currently exceeds upper bound levels
	Calcareous rocky slopes with chasmophytic vegetation (H8210)	Yes	Yes – exceeds upper bound levels	Yes	Yes – exceeds upper bound levels
Brecon Beacons SAC	European dry heaths (H4030)	Yes – exceeds upper bound levels	Yes – exceeds upper bound levels	Yes	Yes
	Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels (H6430)	Yes – exceeds upper bound levels	Yes – exceeds upper bound levels	Yes – exceeds upper bound levels	Yes – exceeds upper bound levels
	Calcareous rocky slopes with	Yes – exceeds upper	Yes – exceeds upper	Yes – exceeds upper	Yes – exceeds upper

European site	Interest Feature	Does site exceed the lower bounds of CL for acidity – 2003	Does site exceed minimum CL for Nutrient Nitrogen - 2003	Does site exceed the lower bounds of CL for acidity – 2010	Does site exceed minimum CL for Nutrient Nitrogen - 2010
	chasmophytic vegetation (H8210)	bound levels	bound levels	bound levels	bound levels
	Siliceous rocky slopes with chasmophytic vegetation (H8220)	Yes – exceeds upper bound levels	Yes – exceeds upper bound levels	Yes – exceeds upper bound levels	Yes – exceeds upper bound levels
Bredon Hill SAC	<i>Limoniscus violaceus</i> (S1079) (Violet click beetle)	No – in addition there is no expected negative impact on the species due to impacts on the species' broad habitat.	Broad habitat sensitive to Nutrient Nitrogen but there is no expected negative impact on species due to impacts on the species' broad habitat.	No – in addition there is no expected negative impact on the species due to impacts on the species' broad habitat.	Broad habitat sensitive to Nutrient Nitrogen but there is no expected negative impact on species due to impacts on the species' broad habitat.
Cannock Chase SAC	Northern Atlantic wet heaths with <i>Erica tetralix</i> (H4010)	Yes	Yes	Yes	Yes
	European dry heaths (H4030)	Yes	Yes	Yes	Yes
Dixton Wood SAC	<i>Limoniscus violaceus</i> (S1079) (Violet click beetle)	No – in addition there is no expected negative impact on the species due to impacts on the species' broad habitat.	Broad habitat sensitive to Nutrient Nitrogen but there is no expected negative impact on constituent species due to impacts on the species' broad habitat.	No – in addition there is no expected negative impact on constituent species due to impacts on the species' broad habitat.	Broad habitat sensitive to Nutrient Nitrogen but there is no expected negative impact on constituent species due to impacts on the species' broad habitat.

European site	Interest Feature	Does site exceed the lower bounds of CL for acidity – 2003	Does site exceed minimum CL for Nutrient Nitrogen - 2003	Does site exceed the lower bounds of CL for acidity – 2010	Does site exceed minimum CL for Nutrient Nitrogen - 2010
Downton Gorge SAC	Tilio-Acerion forests of slopes, screes and ravines (H9180)	Yes – exceeds upper bound levels	Yes – exceeds upper bound levels	Yes – but below upper bound levels	Yes – exceeds upper bound levels
Elan Valley Woodlands SAC	Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles (H91A0)	Yes	Yes – exceeds upper bound levels	Yes	Yes – exceeds upper bound levels
	Tilio-Acerion forests of slopes, screes and ravines (H9180)	Yes	Yes – exceeds upper bound levels	Yes	Yes – exceeds upper bound levels
	European dry heaths (H4030)	Yes	Yes	Yes	Yes
Elenydd SAC	Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i> and/or of the Iso?to-Nanojuncetea (H3130)	Info not available – feature is sensitive to acidity	Yes – exceeds upper bound levels	Info not available – feature is sensitive to acidity	Yes – exceeds upper bound levels
	European dry heaths (H4030)	Yes	Yes	Yes	Yes
	Calaminarian grasslands of the <i>Violetalia calaminariae</i> (H6130)	No	Yes	No	No
	Blanket bogs (H7130)	Yes – exceeds upper bound levels	Yes – exceeds upper bound levels	Yes – exceeds upper bound levels	Yes – exceeds upper bound levels
	<i>Luronium natans</i> (S1831)	Info not available – feature is sensitive to	Yes – exceeds upper bound levels	Info not available – feature is sensitive to	Yes – exceeds upper bound levels

European site	Interest Feature	Does site exceed the lower bounds of CL for acidity – 2003	Does site exceed minimum CL for Nutrient Nitrogen - 2003	Does site exceed the lower bounds of CL for acidity – 2010	Does site exceed minimum CL for Nutrient Nitrogen - 2010
		acidity		acidity	
Fenns, Wixhall, Bettisfield, Wem and Cadney Mosses SAC	Active raised bogs (H7110)	Yes – exceeds upper bound levels	Yes – exceeds upper bound levels	Yes – exceeds upper bound levels	Yes – exceeds upper bound levels
	Degraded raised bogs still capable of natural regeneration (H7120)	Yes – exceeds upper bound levels	Yes – exceeds upper bound levels	Yes – exceeds upper bound levels	Yes – exceeds upper bound levels
Peak District Dales SAC	European dry heaths (H4030)	Yes	Yes – exceeds upper bound levels	Yes	Yes – exceeds upper bound levels
	Calaminarian grasslands of the <i>Violetalia calaminariae</i> (H6130)	No	Yes – exceeds upper bound levels	No	Yes - but below upper bound levels
	Semi-natural dry grasslands and scrubland facies: on calcareous substrates ( <i>Festuco-Brometalia</i> ) (H6210)	No	Yes – exceeds upper bound levels	No	Yes - but below upper bound levels
	Alkaline fens (H7230)	No	Yes	No	Yes
	Calcareous and calcshist screes of the montane to alpine levels ( <i>Thlaspietea rotundifolii</i> ) (H8120)	No	Yes – exceeds upper bound levels	No	Yes – exceeds upper bound levels
	Calcareous rocky slopes with chasmophytic vegetation (H8210)	Yes	Yes – exceeds upper bound levels	Yes	Yes – exceeds upper bound levels
	Tilio-Acerion forests of slopes,	Yes	Yes – exceeds upper	Yes	Yes – exceeds upper

European site	Interest Feature	Does site exceed the lower bounds of CL for acidity – 2003	Does site exceed minimum CL for Nutrient Nitrogen - 2003	Does site exceed the lower bounds of CL for acidity – 2010	Does site exceed minimum CL for Nutrient Nitrogen - 2010
	scree and ravines (H9180)		bound levels		bound levels
	<i>Austropotamobius pallipes</i> (S1092). White-clawed (or Atlantic stream) crayfish <i>Lampetra planeri</i> (S1096) (Brook lamprey) <i>Cottus gobio</i> (S1163)	There is insufficient knowledge to make a judgement about the impacts on this species. Decision should be made at a site specific level. Further research is required to assess sensitivity to acidification of this species. Nutrient nitrogen - Decision to be taken at a site specific level since habitat sensitivity depends on N or P limitation.			
	Northern Atlantic wet heaths with <i>Erica tetralix</i> (H4010)	Yes	Yes	Yes	Yes
	European dry heaths (H4030)	Yes	Yes – exceeds upper bound levels	Yes	Yes – exceeds upper bound levels
	Blanket bogs (H7130)	Yes – exceeds upper bound levels	Yes – exceeds upper bound levels	Yes – exceeds upper bound levels	Yes – exceeds upper bound levels
	Transition mires and quaking bogs (H7140)	Yes – exceeds upper bound levels	Yes – exceeds upper bound levels	Yes – exceeds upper bound levels	Yes – exceeds upper bound levels
	Old sessile oak woods with Ilex and Blechnum in the British Isles (H91A0)	Yes	Yes – exceeds upper bound levels	Yes	Yes – exceeds upper bound levels
The Stiperstones	European dry heaths (H4030)	Yes	Yes	Yes	Yes

European site	Interest Feature	Does site exceed the lower bounds of CL for acidity – 2003	Does site exceed minimum CL for Nutrient Nitrogen - 2003	Does site exceed the lower bounds of CL for acidity – 2010	Does site exceed minimum CL for Nutrient Nitrogen - 2010
and the Holley SAC	Old sessile oak woods with Ilex and Blechnum in the British Isles (H91A0)	Yes – exceeds upper bound levels	Yes – exceeds upper bound levels	Yes - but below upper bound levels	Yes – exceeds upper bound levels
West Midlands Mosses SAC	Natural dystrophic lakes and ponds (H3160)	No	Yes – exceeds upper bound levels	No	Yes – exceeds upper bound levels
	Acid peat-stained lakes and ponds				
	Transition mires and quaking bogs (H7140)	Yes – exceeds upper bound levels	Yes	Yes – exceeds upper bound levels	Yes
Wye valley woodlands SAC	<i>Asperulo-Fagetum</i> beech forests (H9130)	Yes	Yes – exceeds upper bound levels	Yes	Yes – exceeds upper bound levels
	<i>Tilio-Acerion</i> forests of slopes, screes and ravines (H9180)	Yes	Yes – exceeds upper bound levels	Yes	Yes – exceeds upper bound levels
	<i>Taxus baccata</i> woods of the British Isles (H91J0)	Yes	Yes – exceeds upper bound levels	Yes	Yes – exceeds upper bound levels
	<i>Rhinolophus hipposideros</i> (S1303)	There is insufficient knowledge to make a judgment of the impacts on this species. Decision should be made at a site specific level.			
Elenydd - Mallaen SPA	<i>Falco columbarius</i> & <i>Milvus milvus</i>	No expected negative impact on these species due to impacts on the species' broad habitat.			

European site	Interest Feature	Does site exceed the lower bounds of CL for acidity – 2003	Does site exceed minimum CL for Nutrient Nitrogen - 2003	Does site exceed the lower bounds of CL for acidity – 2010	Does site exceed minimum CL for Nutrient Nitrogen - 2010
Peak District Moors SPA & South Pennine Moors Phase II SPA		<p>A number of species are considered sensitive to Nutrient Nitrogen.</p> <p>Potential negative impact on species due to impacts on the species' broad habitat (Transition of breeding habitat (moorland, unmanaged heather moor, bogs and hill pasture) to grass).</p> <p>However, potential positive impact due to increased food supply caused by eutrophication.</p>			

Key:

Total deposition falls below the lower curve of CLF – unlikely to be a problem
Total deposition falls between estimates of CLF – may be a problem – more detailed site specific assessment needed
Total deposition falls above the upper estimates of CLF – very likely to be a problem