

Derby & Derbyshire Minerals Plan HRA Screening Report

Derbyshire County Council and Derby City Council

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Quality information

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1. Introduction

Background to the Project

1.1 AECOM was appointed by Derbyshire County Council and Derby City Council to assist in undertaking Habitats Regulations Assessment (HRA) of its Minerals Local Plan (hereafter referred to as the 'Plan'). The objectives of the assessment are to:

- Identify any aspects of the Plan that would cause a likely significant effect on any European sites, otherwise known as European Sites, which include Special Areas of Conservation (SACs), candidate SACs (cSACs), Special Protection Areas (SPAs) and potential SPAs (pSPAs) and as a matter of Government policy, Ramsar sites, both in isolation and in combination with other plans and projects; and
- Determine whether appropriate assessment (AA) would be required in order to identify potential adverse effects on the integrity of any European sites.

Legislation

1.2 The need for Habitats Regulations Assessment is set out within the Conservation of Habitats and Species Regulations 2017 (as amended). The Regulations apply the precautionary principle to European sites. Plans and projects can only be permitted having ascertained that there will be no adverse effect on the integrity of the site(s) in question. Plans and projects with predicted adverse effects on European sites may still be permitted if there are no alternatives to them and there are Imperative Reasons of Overriding Public Interest (IROPI) as to why they should proceed. In such cases, compensation would be necessary to ensure the overall integrity of the site network.

1.3 In order to ascertain whether or not site integrity will be affected, a Habitats Regulations Assessment should be undertaken of the plan or project in question:

Box 1. The legislative basis for appropriate assessment

Conservation of Habitats and Species Regulations 2017 (as amended)

The Regulations state that:

“A competent authority, before deciding to ... give any consent for a plan or project which is likely to have a significant effect on a European site ... shall make an appropriate assessment of the implications for the site in view of that site's conservation objectives... The authority shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the European site.”

1.4 Over the years the phrase 'Habitats Regulations Assessment' has come into wide currency to describe the overall process set out in the Conservation of Habitats and Species Regulations 2017 (as amended) from screening through to IROPI. This has arisen in order to distinguish the process from the individual stage described in the law as an 'appropriate assessment'. Throughout this report we use the term Habitats Regulations Assessment for the overall process.

1.5 In 2018, the 'People Over Wind' European Court of Justice (ECJ) ruling¹ determined that 'mitigation' (i.e. measures that are specifically introduced to avoid or reduce otherwise harmful effects of a plan or project on European sites) should not be taken into account when forming a view on likely significant effects. Mitigation should instead only be considered at the appropriate assessment stage. Appropriate assessment is not a technical term: it simply means 'an assessment that is appropriate' for the plan or project in question. As such, the law purposely does not prescribe what it should consist of or how it should be presented; these are decisions to be made on a case by case basis by the competent authority.

1.6 In 2018 the Holohan ECJ ruling² was also handed down. This determined that an HRA must catalogue (i.e. list/identify) all the features for which a European site is designated. It also determined that a European site

¹ People Over Wind and Sweetman v Coillte Teoranta (C-323/17).

² Case C-461/17.

must be considered within the context of its functional relationships in terms of a) whether any interest features of the European site may be located outside the site boundary and could be affected by the plan or project, and b) whether habitats and species for which the European site is *not* designated are nonetheless fundamental to the ability of that site to achieve its conservation objectives and could be affected by the plan or project. This HRA report considers those issues.

- 1.7 The UK is no longer part of the European Union. However, the latest amendments to the Conservation of Habitats & Species Regulations (the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019) make it clear that the need for HRA will continue.

Report Structure

- 1.8 Section 2 of this report summarises the methodology for the assessment. Section 3 identifies the possible pathways by which adverse effects on European sites could arise. Section 4 discusses the results of the test of likely significant effects. Possible effects in combination with other relevant plans and documents are examined in Section 5. Section 6 provides recommendations based on the outcome of screening, and conclusions are detailed in Section 7. Background Information on the European sites discussed in this report, including a catalogue of their interest features (as required by the Holohan ruling), is provided in Appendix A. Full screening of site allocations undertaken in the likely significant effects test is included as Appendix B. Appendix C presents a map of the European sites and site allocations assessed in this report.

2. Methodology

Introduction

2.1 This section sets out our approach and methodology for undertaking the HRA. Habitats Regulations Assessment itself operates independently from the Planning Policy system, being a legal requirement of a discrete Statutory Instrument.

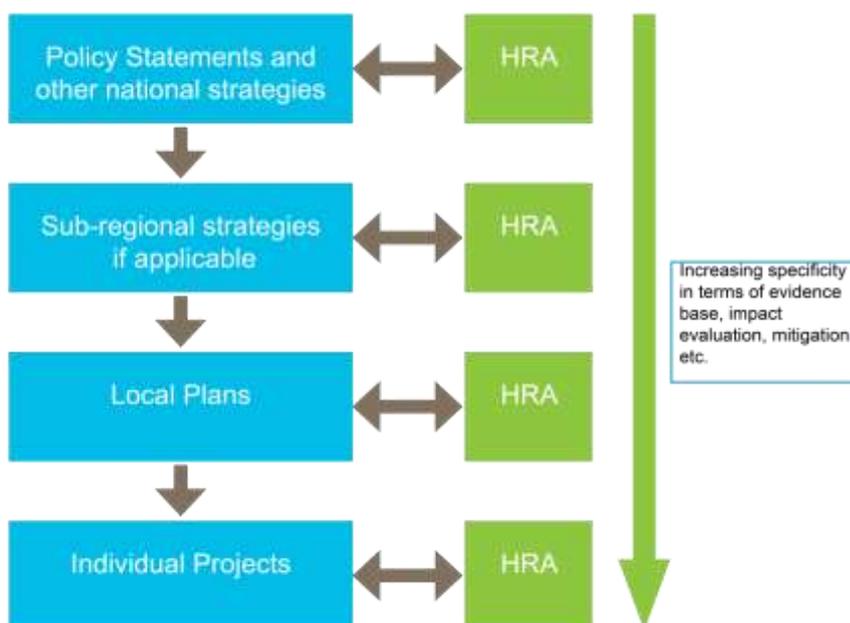
A Proportionate Assessment

2.2 Project-related HRA often requires bespoke survey work and novel data generation in order to accurately determine the significance of adverse effects. In other words, to look beyond the risk of an effect to a justified prediction of the actual likely effect and to the development of avoidance or mitigation measures.

2.3 However, the draft MHCLG guidance³ makes it clear that when implementing HRA of land-use plans, the HRA should be undertaken at a level of detail that is appropriate and proportional to the level of detail provided within the plan itself:

2.4 *'The comprehensiveness of the [appropriate] assessment work undertaken should be proportionate to the geographical scope of the option and the nature and extent of any effects identified. An AA need not be done in any more detail, or using more resources, than is useful for its purpose. It would be inappropriate and impracticable to assess the effects [of a strategic land use plan] in the degree of detail that would normally be required for the Environmental Impact Assessment (EIA) of a project.'*

2.5 In other words, there is a tacit acceptance that appropriate assessment can be tiered and that all impacts are not necessarily appropriate for consideration to the same degree of detail at all tiers (Box 2).



Box 2. Tiering in HRA of land use plans

2.6 For a land use plan, the level of detail concerning the developments that will be delivered is usually insufficient to make a highly detailed assessment of the significance of effects. For example, precise and full determination of the impacts and significant effects of a new settlement will require extensive details concerning its design, including the layout of greenspace and type of development to be delivered in particular locations, yet these data will not be finalised until subsequent stages.

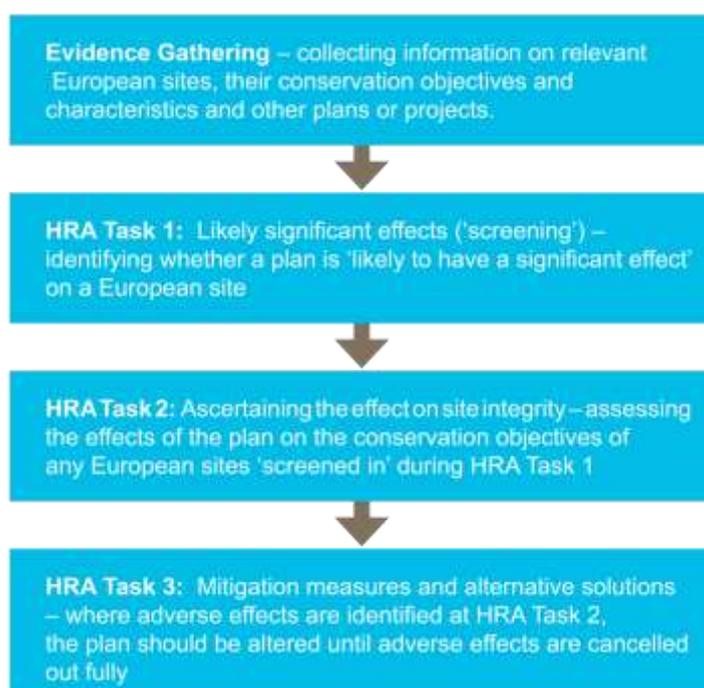
³ CLG. (2006) Planning for the Protection of European Sites, Consultation Paper

2.7 On these occasions the advice of Advocate-General Kokott⁴ to the European Court of Justice is worth considering. She commented that: *“It would ...hardly be proper to require a greater level of detail in preceding plans [rather than planning applications] or the abolition of multi-stage planning and approval procedures so that the assessment of implications can be concentrated on one point in the procedure. Rather, adverse effects on areas of conservation must be assessed at every relevant stage of the procedure to the extent possible on the basis of the precision of the plan. This assessment is to be updated with increasing specificity in subsequent stages of the procedure”* [emphasis added].

The Process of HRA

2.8 The HRA has been carried out in the continuing absence of formal Government guidance on plan HRA. CLG (now MHCLG) released a consultation paper on the appropriate assessment of plans in 2006⁵. In addition, central government has released general guidance on HRA and appropriate assessment⁶.

2.9 Box 3 below outlines the stages of HRA according to current draft MHCLG guidance. The stages are essentially iterative, being revisited as necessary in response to more detailed information, recommendation and any relevant changes to the plan until no significant adverse effects remain.



Box 3. Four-stage approach to HRA

2.10 In practice, this broad outline requires some amendment in order to feed into a developing land use plan. The following process has been adopted for carrying out the HRA.

Physical Scope

2.11 The physical scope of the assessment (i.e. the range of European sites to be considered) is based on a combination of tracing impact pathways and using distances derived from various studies.

2.12 The European sites of relevance to this HRA are shown in Table 1. Full details of reasons for their designation (in accordance with the Holohan ruling), conservation objectives and key vulnerabilities are presented in Appendix A. The locations of these European sites in relation to Derbyshire County and Derby City are presented in Figure 1.

⁴ Opinion of Advocate-General Kokott, 9th June 2005, Case C-6/04. Commission of the European Communities v United Kingdom of Great Britain and Northern Ireland, paragraph 49.
<http://curia.europa.eu/juris/document/document.jsf?docid=58359&doclang=EN>

⁵ Ibid

⁶ <https://www.gov.uk/guidance/appropriate-assessment>

Table 1. European sites of relevance to HRA of the Plan

| European site | Site summary | Proximity to Derbyshire County and Derby City |
|---|---|---|
| Bees Nest & Green Clay Pits SAC | Designated for its calcareous grassland and population of great crested newts | Within County |
| Gang Mine SAC | Designated for its calaminarian grassland (vegetation communities unique to substrates with unusually high metal levels) | Within County |
| Peak District Dales SAC | Designated for its calcareous grassland, Tilio-Acerion forests of slopes, screes and ravines, European dry heaths, Calaminarian grasslands, Alkaline fens, Calcareous and calcshist screes of the montane to alpine levels (<i>Thlaspietea rotundifolii</i>), Calcareous rocky slopes with chasmophytic vegetation and its populations of white-clawed crayfish, brook lamprey and bullhead | Within County |
| South Pennine Moors SAC | Designated for their dry and wet heath, blanket bog and quaking bog and oak forest | Within County |
| Peak District Moors (South Pennine Moors Phase 1) SPA | Designated for its breeding merlin, golden plover and short-eared owl | Within County |
| River Mease SAC | Designated for its river habitat, spined loach and bullhead, with other qualifying features including otter and white-clawed crayfish | On border of Derbyshire and Leicestershire |
| West Midland Mosses SAC | The SAC supports large basin mires which have developed as quaking bogs, known as Schwingmoors, together with a variety of associated hollows and pools showing various types and stages of mire development. This complexity of habitats gives rise to a diverse assemblage of associated plants and invertebrates of national significance. | 8.5 km west of Derbyshire in Staffordshire |
| Midland Meres and Mosses Phase 1 Ramsar | The Meres & Mosses form a geographically discrete series of lowland open water and peatland sites in the north-west Midlands of England. These have developed in natural depressions in the glacial drift left by receding ice sheets which formerly covered the Cheshire/Shropshire Plain. The 16 component sites include open water bodies (meres), the majority of which are nutrient-rich with associated fringing habitats; reed swamps, fen, carr & damp pasture. | 8.5 km west of Derbyshire in Staffordshire |
| Birklands & Bilhaugh SAC | 270.5ha comprising old acidophilous oak woodland (the most northerly site selected for this habitat). | 7 km east of Derbyshire in Nottinghamshire |
| Sherwood Forest ppSPA ⁷ | A portion of the Sherwood Forest area is currently being advocated by local groups as a possible potential Special Protection Area (referred to in this report as a 'ppSPA'), with regard to birds of European importance (nightjar and woodlark) that this area supports. | <1 km east of Derbyshire in Nottinghamshire |

⁷ Sherwood Forest is neither designated nor formally proposed for designation as a Special Protection Area (SPA) and until that time there is no legal obligation to undertake a HRA of this site. However, the site has been included within the scope of this HRA for completeness.

In Combination Scope

- 2.13 It is a requirement of the Conservation of Habitats and Species Regulations 2017 (as amended) that the impacts and effects of any plan being assessed are not considered in isolation but 'in combination' with other plans and projects that may also affect the European sites(s) in question.
- 2.14 In practice, in combination assessment is of greatest importance when the plan would otherwise be screened out because the individual contribution is inconsequential. The principal other plans and projects of relevance regarding in combination effects are:
- Amber Valley Borough Draft Local Plan (2017);
 - Severn Trent Water Resources Management Plan (2019);
 - Derbyshire Dales Local Plan (adopted 2017);
 - North-East Derbyshire Local Plan (Main Modifications 2020);
 - Chesterfield Local Plan (adopted 2020);
 - High Peak Local Plan (adopted 2016);
 - Derby City Local Plan (adopted 2017);
 - Erewash Core Strategy (adopted 2014);
 - South Derbyshire Local Plan (adopted 2016);
 - Bolsover District Local Plan (adopted 2020);
 - Derbyshire Local Transport Plan (adopted 2011);
 - Nottinghamshire Minerals Local Plan (adopted 2021)
 - Peak District National Park Local Development Framework Core Strategy (adopted 2011)+ Development Management Policies (2019).

Stage One: Likely Significant Effects Test (Screening)

- 2.15 The first stage of any HRA is a likely significant effects (LSE) test. This is essentially a high-level assessment to decide whether the full subsequent stage known as appropriate assessment is required. The essential question is:
- 'Is the Plan, either alone or in combination with other relevant projects and plans, likely to result in a significant effect upon European sites?'*
- 2.16 The objective is to 'screen out' those plans and projects (or allocations/policies) that can, without any detailed appraisal, be said to be unlikely to result in significant adverse effects upon European sites, usually because there is no mechanism or pathway for an adverse interaction with European sites. This stage is undertaken in Section 4 of this report.
- 2.17 It is important to determine the various ways in which a plan can affect European sites by following any potential impact pathways from policies and site allocations. Briefly defined, pathways are routes by which a change in activity associated with a policy can lead to an effect upon an internationally designated site.
- 2.18 In evaluating significance, AECOM has relied on professional judgement as well as the results of previous stakeholder consultation regarding development impacts on the European sites considered within this assessment.

3. Pathways of Impact

Introduction

3.1 When carrying out an HRA it is important to determine the various ways in which land use plans can affect internationally designated sites. This means studying the pathways along which development can be connected with internationally designated sites, in some cases many kilometres distant. Briefly defined, pathways are routes by which a change in activity associated with a plan document or development can lead to an effect upon an internationally designated site. Given that this plan will be delivering minerals development, the following pathways have been identified as requiring further analysis in this HRA:

- Direct landtake;
- Disturbance;
- Water quality and resources; and
- Air quality

Direct Landtake

3.2 European sites and their supporting ('functionally linked') habitat are vulnerable to direct loss of land to development. Loss of habitat is likely to have adverse impacts on populations of SPA bird species, which depend on sufficiently large areas of suitable foraging and nesting habitat. A reduction in the area of suitable habitat also increases the vulnerability of bird populations to other threats and pressures (e.g. fires, changes in habitat structure).

3.3 Direct landtake is of particular concern regarding functionally linked habitat to European sites. Species for which European sites may be designated will often also use habitat outside of the boundary of the European site. As such, this habitat may be important to the long-term success of the European site's population of the species in question. Therefore, where developments are proposed near to European sites, it is necessary to assess the suitability of the site of the proposed development and adjacent affected land to provide functionally linked habitat to the European site with respect to species for which the European site is designated.

3.4 The requirement to consider potential effects on functionally linked habitat was recently reinforced by the Holohan ruling⁸. In the case of Derbyshire and Derby City, the nature of Gang Mine SAC, Peak District Dales SAC and South Pennine Moors SAC means their ability to achieve their conservation objectives depends entirely on land within the boundary of the SACs. The great crested newt population of Bees Nest & Green Clay Pits SAC will, like newt populations everywhere, be dependent on land up to 500m from its breeding ponds and these areas could extend up to 500m beyond the boundary of the SAC. The golden plover, merlin and short-eared owl populations of the Peak District Moors SPA are heavily dependent on habitats within the SPA, but golden plover will also utilise marginal or low-intensity agricultural pastures outside the SPA where these are near to moorland nesting habitat. According to the Supplementary Advice on the Conservation Objectives of the SPA the golden plover will use adjacent grassland within 4km of moorlands (used for nesting) for feeding. The same document also indicates that the merlin population is also dependent on specific feeding areas outside the SPA, notably Stalybridge Moor, Thurlstone Moor and Canyards Hills.

Disturbance

3.5 Mineral extraction and quarrying activities can have significant disturbance impacts on birds. The conservation objectives of the Peak District Moors SPA indicate that all three breeding SPA species are highly disturbance sensitive, particularly when on or around the nest. Disturbance can take many forms, including noise (e.g. from blasting/rock crushing (where undertaken), vehicle movements), visual (e.g. from vehicle movements) and vibration (e.g. from blasting, where undertaken).

⁸ Case C-461/17

- 3.6 Concern regarding the effects of disturbance on birds stems from the fact that they are expending energy unnecessarily and the time they spend responding to disturbance is time that is not spent feeding⁹. Disturbance therefore risks increasing energetic output while reducing energetic input, which can adversely affect the 'condition' and ultimately survival of the birds. In addition, displacement of birds from one feeding site to others can increase the pressure on the resources available within the remaining sites, as they have to sustain a greater number of birds¹⁰. Moreover, the more time a breeding bird spends disturbed from its nest, the more its eggs are likely to cool and the more vulnerable they are to predators. Human activity can affect birds either directly (e.g. through causing them to flee, incurring an energetic cost) or indirectly (e.g. through damaging their habitat). This can lead to behavioural changes (e.g. alterations in feeding behaviour, avoidance of certain areas etc.) and physiological changes (e.g. an increase in heart rate) that, although less noticeable, may ultimately result in major population-level effects by altering the balance between immigration/birth and emigration/death¹¹.
- 3.7 There is often a need for blasting at hard rock quarries (e.g. Aldwark South Quarry) to break up in-situ material which cannot feasibly be removed by mechanical equipment. It is always in the operator's interest to reduce both ground and airborne vibration from blast events to the minimum possible for any specific blast design because it is this that substantially increases the efficiency, and therefore, economy of blasting operations. Despite this, even the best designed and executed blasts will generate a certain amount of unwanted energy. Air overpressure is energy transmitted from the blast site within the atmosphere in the form of pressure waves. As these waves pass a given position, the pressure of the air rises very rapidly then falls more slowly and finally returns to the ambient value after a number of oscillations. The maximum excess pressure in this wave is known as the peak air overpressure, generally measured in decibels linear (dB). The pressure waves consist of energy over a wide range of frequencies, some of which are audible. Peak levels from blasting are comparable to the sort of levels typically generated at properties by passing cars, etc., only in the case of blasting the noise would exist for around a second and occur relatively infrequently. It is because of this very brief duration and its infrequent occurrence that blast noise is rarely measured in terms of dB(A) but rather looked at as part of the air overpressure generated and measured by the more meaningful parameter of dB¹². The distance over which blasting noise or overpressure effects (or vibration effects) may be disturbing differs greatly depending on the details of the blasting (such as whether exposed detonating cord is used, as this changes the noise from a sharp crack to a dull thump) as well as factors such as meteorology and substrate. However, it is considered that a 1km screening distance from the Peak District Moors SPA is likely to be precautionary for the purposes of HRA screening.
- 3.8 Other than Aldwark South Quarry, the other proposed allocations are all sand and gravel quarries where no blasting will be required. The noisiest typical activities associated with minerals extraction at these quarries is likely to be noisy outdoor machinery and conveyors, which at their loudest are likely to produce noise levels below 100dB (A) at 1m from source. Noise in atmosphere attenuates by 6dB for every doubling in distance from source. Therefore, even these noisiest activities are likely to result in noise levels below 70 dB at c. 100m from source. This is relevant because research (primarily conducted on waterfowl but broadly transferable to other bird species) indicates that birds typically exhibit a flight response at noise levels exceeding 84dB, while at levels below 55 dB there is no effect.¹³ These therefore define the two extremes. It is also generally advised that an activity will not have disturbance effects on birds if the maximum noise level (at the bird) is below 70dB¹⁴.
- 3.9 Overall, it is considered in this HRA that blasting *might* result in disturbance to the SPA birds where it occurs within 1km of the SPA boundary. For quarries where no blasting occurs a 200m distance is used for noise/disturbance impacts. In practice it is expected that both these distances are precautionary.
- 3.10 Unlike frogs, newts do not have a tympanum (ear-type external membrane). It is therefore generally assumed that their sense of 'hearing', if it exists at all, is extremely poor. Therefore, the great crested newt population of Bees Nest & Green Clay Pits SAC is not considered sensitive to this impact pathway. The bullhead and white-clawed crayfish populations of the SAC are expected to be very sensitive to underwater noise, although this will generally only be significant from noise sources that are in the same waterbody

⁹ Riddington, R. *et al.* 1996. The impact of disturbance on the behaviour and energy budgets of Brent geese. *Bird Study* 43:269-279

¹⁰ Gill, J.A., Sutherland, W.J. & Norris, K. 1998. The consequences of human disturbance for estuarine birds. *RSPB Conservation Review* 12: 67-72

¹¹ Riley, J. (2003) Review of Recreational Disturbance Research on Selected Wildlife in Scotland. Scottish Natural Heritage.

¹² <https://www.gov.scot/publications/blasting-surface-mineral/>

¹³ Cutts N. & Allan J. (1999) Avifaunal Disturbance Assessment. Flood Defence Works: Saltend. Report to Environment Agency.

¹⁴ Cutts, N., Phelps, A. & Burdon, D. (2009) Construction and waterfowl: Defining Sensitivity, Response, Impacts and Guidance. Report to Humber INCA, Institute of Estuarine and Coastal Studies, University of Hull.

rather than separated by a thickness of rock and soil. Much less is known about lamprey hearing, but it is believed they are less sensitive to noise.

Air Quality

3.11 Mineral extraction and quarrying activities have the potential for air quality impacts on European sites, both by increasing levels of pollutants (e.g. through increased vehicle use) and through the spread of dust.

Nitrogen deposition

3.12 Other than dust, the main pollutants of concern for European sites are oxides of nitrogen (NO_x), ammonia (NH₃) and sulphur dioxide (SO₂). Ammonia can be directly toxic to vegetation, and research suggests that this may also be true for NO_x at very high concentrations. More significantly, greater NO_x or ammonia concentrations within the atmosphere lead to greater rates of nitrogen deposition to vegetation and soils. An increase in the deposition of nitrogen from the atmosphere is generally regarded to increase soil fertility, which can have a serious deleterious effect on the quality of semi-natural, nitrogen-limited terrestrial habitats. Further information on the sources and effects of air pollutants is provided in Table 3.

Table 2. Main sources and effects of air pollutants on habitats and species

| Pollutant | Source | Effects on habitats and species |
|------------------------------------|--|--|
| Acid deposition | SO ₂ , NO _x and ammonia all contribute to acid deposition. Although future trends in SO ₂ emissions and subsequent deposition to terrestrial and aquatic ecosystems will continue to decline, it is likely that increased NO _x emissions may cancel out any gains produced by reduced SO ₂ levels. | Can affect habitats and species through both wet (acid rain) and dry deposition. Some sites will be more at risk than others depending on soil type, bed rock geology, weathering rate and buffering capacity. |
| Ammonia (NH ₃) | Ammonia is released following decomposition and volatilisation of animal wastes. It is a naturally occurring trace gas, but levels have increased considerably with the expansion in agricultural livestock numbers. Ammonia reacts with acid pollutants such as the products of SO ₂ and NO _x emissions to produce fine ammonium (NH ₄ ⁺) - containing aerosol which may be transferred much longer distances (and can therefore be a significant trans-boundary issue). | Adverse effects are as a result of nitrogen deposition leading to eutrophication. As emissions mostly occur at ground level in the rural environment and NH ₃ is deposited rapidly, some of the most acute problems of NH ₃ deposition are for small relict nature reserves located in intensive agricultural landscapes. |
| Nitrogen oxides (NO _x) | Nitrogen oxides are mostly produced in combustion processes. About one quarter of the UK's emissions are from power stations, one half from motor vehicles, and the rest from other industrial and domestic combustion processes. | Deposition of nitrogen compounds (e.g. nitrates (NO ₃), nitrogen dioxide (NO ₂) and nitric acid (HNO ₃)) can lead to soil and freshwater acidification. In addition, NO _x can cause eutrophication of soils and water. This alters the species composition of plant communities and can eliminate sensitive species. |
| Nitrogen (N) deposition | The pollutants that contribute to nitrogen deposition derive mainly from NO _x and NH ₃ emissions. These pollutants cause acidification (see also acid deposition) as well as eutrophication. | Species-rich plant communities with relatively high proportions of slow-growing perennial species and bryophytes are most at risk from nitrogen eutrophication, due to its promotion of competitive and invasive species which can respond readily to elevated nitrogen levels. Nitrogen deposition can also increase the risk of damage from abiotic factors (e.g. drought, frost). |
| Ozone (O ₃) | A secondary pollutant generated by photochemical reactions from NO _x and volatile organic compounds (VOCs). These are mainly released by the combustion of fossil fuels. The increased combustion of fossil fuels in the UK has led to a large rise in background ozone concentration, increasing the number of days when levels across the region are above 40ppb. Reducing ozone pollution is believed to require action at an international level to reduce levels of the precursors that form ozone. | Concentrations of O ₃ above 40ppb can be toxic to humans and wildlife and can affect buildings. Increased ozone concentrations may lead to a reduction in growth of agricultural crops, decreased forest production and altered species composition in semi-natural plant communities. |
| Sulphur dioxide | Main sources of SO ₂ emissions are electricity generation, industry and domestic fuel | Wet and dry deposition of SO ₂ acidifies soils and freshwater and alters the species compositions of plant |

| | | |
|--------------------|--|--|
| (SO ₂) | combustion. May also arise from shipping and increased atmospheric concentrations in busy ports. Total SO ₂ emissions have decreased substantially in the UK since the 1980s. | and associated animal communities. The significance of impacts depends on deposition levels and the buffering capacity of soils. |
|--------------------|--|--|

- 3.13 Sulphur dioxide emissions are overwhelmingly influenced by the output of power stations and industrial processes that require the combustion of coal and oil. Ammonia emissions are dominated by agriculture, with some chemical processes also making notable contributions. However, emissions of nitrogen oxides are dominated by the output of vehicle exhausts, while diesel generators associated with some mineral activities will also emit NOx. Emissions of nitrogen oxides could therefore be reasonably expected to be associated with any increase in net vehicle movements as an indirect effect of the Plan.
- 3.14 According to the Department of Transport's Transport Analysis Guidance, "beyond 200m, the contribution of vehicle emissions from the roadside to local pollution levels is not significant"¹⁵. This distance has therefore been used in this HRA to determine whether European sites are likely to be significantly affected by Plan site allocations (Figure 2).

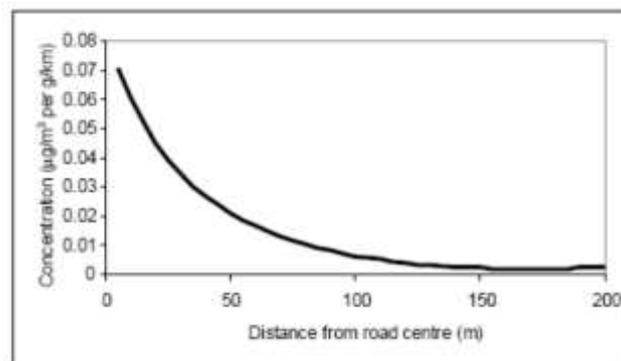


Figure 2. Traffic contribution to pollutant concentrations in relation to the distance from a road (DFT)

- 3.15 According to the World Health Organisation, the critical NOx concentration (critical threshold) for the protection of vegetation is 30 µgm⁻³; the threshold for sulphur dioxide is 20 µgm⁻³. In addition, ecological studies have determined 'critical loads'¹⁶ of atmospheric nitrogen deposition (that is, NOx combined with ammonia NH₃).
- 3.16 This assessment therefore considers the effects of traffic movements on European sites where a minerals site may be associated with a net increase in annual average daily traffic (AADT) within 200m of a sensitive European site, including the strategic road network. At the same time, it must be borne in mind that a minerals site allocation may be associated with the extension in years of operation for an existing minerals site, rather than a net increase in minerals extraction activity and thus may not be associated with any forecast net change in AADT. All the SACs in this study, as well as the Peak District Moors SPA, are considered sensitive to nitrogen deposition. The bog habitats of the Peak District Moors SPA/South Pennine Moors SAC are particularly sensitive. The high metal content in the substrates may limit the ability of nitrogen deposition to interfere with the achievement of the conservation objectives for Gang Mine SAC and Bees Nest & Green Clay Pits SAC, as it may limit the ability of more competitive plants to colonise or respond to nitrogen deposition.

Dust

- 3.17 Atmospheric pollutants generated by minerals sites also include dust emissions. The effects of dust will depend on the prevailing wind direction, and the transport distance is related to particle size. Dust particle size and chemical composition is important as smaller particles can enter or block stomata and thus interfere with gas exchange, while sufficient coverage may prevent light penetration to the chloroplasts. In prolonged cases, death can result.
- 3.18 In the absence of control measures, dust generation is most likely to occur during soil stripping (and from wind blow of associated spoil heaps), extraction or rock blasting, screening, crushing, track out and operation of conveyors. It may also occur during soil manipulation as part of site restoration. For the

¹⁵ www.webtag.org.uk/archive/feb04/pdf/feb04-333/pdf

¹⁶ The critical load is the rate of deposition beyond which research indicates that adverse effects can reasonably be expected to occur.

purposes of screening, according to guidance from the Institute of Air Quality Management¹⁷, with respect to possible effects due to dust, “an assessment will normally be required where there is...an ‘ecological receptor’ within: 50m of the boundary of the site; or 50m of the route(s) used by construction vehicles on the public highway, up to 500m from the site entrance(s)”.

- 3.19 Blasting drill rigs have potential for the emission of significant quantities of dust if the waste air that is vented to atmosphere is not first filtered. Such dust suppression techniques are commonplace and hence the relatively high potential for dust emissions from this source is rarely if ever realised. Detonation of the explosives results the formation of a rock pile which also involves the generation of dust depending upon specific ground conditions. Institute of Air Quality Management guidance employs a 1km initial screening criterion for minerals sites regarding dust generation¹⁸. A 1km distance is therefore used throughout this HRA screening report where extraction from hard rock quarries is involved (e.g. Aldwark South).

Water quality and resources

- 3.20 The quality of the water that feeds European sites is an important determinant of the nature of their habitats and the species they support. Poor water quality can have a range of environmental impacts.
- 3.21 Water quality may be adversely affected by minerals sites through pollution through water runoff from hard surfaces carrying oils, heavy metals and/or de-icing compounds. While these effects can be dispersed throughout the downstream water catchment, they will be most visibly manifested within tens of metres to a few hundred metres of the site.¹⁹
- 3.22 In practice, it is illegal to pollute watercourses (whether or not they are designated as European sites) under the Environmental Damage (Prevention and Remediation) (England) Regulations 2015 and Environmental Permitting (England and Wales) Regulations 2016 so any site where a risk exists will build protection measures into their construction and operational procedures.
- 3.23 There are several ways in which quarrying / mining can affect water quality/resources:
- Quarries and mines that are below the water table will require dewatering on a regular basis. Dewatering²⁰ can lead to a reduction in the water table and “draw down” from hydraulically linked groundwater dependent habitats (including streams and rivers);
 - The physical presence of a new quarry in the unsaturated zone (i.e. above the water table) can increase the possibility of aquifer contamination and result in a direct reduction in temporary groundwater storage capacity;
 - If the water that is pumped from a quarry as a result of dewatering has a high proportion of clays and suspended particles, or is contaminated with metals, it can reduce water quality within those watercourses that receive the water; and
 - Backfilling a dormant quarry with overburden or imported fill may cause changes to groundwater levels, quality and flow paths in adjoining areas.
- 3.24 It is understood regarding previous extensions to Aldwark South Quarry that Natural England expressed concerns regarding potential impacts through dewatering drawdown on the Via Gellia SSSI component of the Peak District Dales SAC. This will therefore be specifically considered in this HRA regarding the potential further extension to this quarry.

¹⁷ IAQM. (2016) *Guidance on the assessment of dust from demolition and construction*. The Institute of Air Quality Management. Version 1.1.

¹⁸ http://www.iaqm.co.uk/text/guidance/mineralsguidance_2016.pdf

¹⁹ Scottish Environment Protection Agency. 2003. Technical Guidance Note - Habitats Regulations & The Landfill Regulations Guidance.

http://www.sepa.org.uk/pdf/guidance/landfill_directive/habitats_landfill_regulations_guidance.pdf

²⁰ Dewatering is most commonly carried out by intermittent pumping from a sump located in the deepest part of the quarry, to keep pace with the inflow of groundwater.

4. Likely Significant Effects Test

Introduction

- 4.1 An assessment of the likely significant effects of all policies has been undertaken in Appendix C. It concludes that all policies can be dismissed from having such effects, except for Policies SP5 and SP11 which contain the Plan's site allocations. The Plan includes the following minerals allocations, which require screening to determine if there is potential for likely significant effects on European sites (the locations of which are shown in Figure 1):
- Aldwark South: Extension to existing site for industrial minerals (Brassington Moor Quarry) and the only hard rock quarry to be allocated.
 - Foston: New site for sand and gravel.
 - Elvaston: Extension to existing sand and gravel site (Elvaston Quarry).
 - Swarkestone south: Extension to existing sand and gravel site (Swarkestone Quarry).
 - Swarkestone north: possible second extension to Swarkestone Quarry. A small part of the proposed allocation (one field parcel in the east close to the silt lagoons) has already been worked and is currently awaiting restoration.
 - Willington: Extension to existing sand and gravel site (Willington Quarry).
 - Sudbury: New site for sand and gravel.
- 4.2 Other than Aldwark South, all the allocated sites are remote from European sites. The closest European sites to the other allocations are West Midland Mosses SAC & Midland Meres and Mosses Phase 1 Ramsar in Staffordshire, which is 12km west of Sudbury Quarry, and the River Mease SAC in Leicestershire, which is 13km from Willington Quarry. Both the River Dove and River Mease SAC drain to the River Trent but the quarries in the Trent Valley are all considerably downstream of both SACs. There is therefore no connecting impact pathway.
- 4.3 The rest of this section therefore focusses on Aldwark South Quarry, the extension to which is 1km from the closest part of the nearest European site (the Via Gellia Woodlands component of Peak District Dales SAC).

Disturbance and loss of functionally-linked land

- 4.4 The closest allocation to Peak District Moors SPA (the only European site sensitive to land-based disturbance sources) is Aldwark South Quarry Extension which is 9.5km distant. This is sufficiently great that no disturbance effect, or loss of functionally-linked land will arise. Similarly, the Extension lies 1.4km from Bees Nest & Green Clay Pits SAC which is sufficiently distant that no loss of functionally-linked land associated with the great crested newt population will arise.

Air Quality

- 4.5 Aldwark South Quarry Extension is located 1km from the nearest dust sensitive European site (Peak District Dales SAC) at its closest, which according to IAQM guidance is sufficiently distant that no dust impact would arise. Moreover, the extension is located considerably further away from the SAC than the current active minerals operations. As such it is possible that the SAC may experience a reduction in dust exposure once the extension is being worked.
- 4.6 None of the European sites are located within 200m of the Aldwark South Quarry Extension. The A5012 directly connects the quarry site to the Peak District Dales SAC (as the road runs through the Via Gellia Woodlands part of the SAC). However, the proposed extension is to ensure continuity of supply of an industrial mineral (namely low cadmium mineral resources) rather than an expansion of operations associated with the site. As such, no net increase in vehicle movements on this road compared to current movements is expected as a result of the Extension. Therefore, no air quality effect is expected to result on any European sites from this Extension.

Water quality and flows

- 4.7 According to the list of monitored features for Via Gellia Woodlands on the Natural England website, this part of Peak District Dales SAC contains several habitats that would be sensitive to changes in water supply or groundwater levels: Lowland wetland including basin fen, valley fen, floodplain fen, waterfringe fen, spring/flush fen and raised bog lag, as well as spring/flush fen. For the purposes of this HRA it is assumed that the fens are part of the international qualifying features of the SAC. As identified earlier, the Quarry Extension is 1km from this part of the SAC. When the previous extension to Aldwark South Quarry was environmentally assessed in 2006/2007 a hydrological investigation was undertaken to determine whether that extension might affect water levels and flows in the Via Gellia stream. Following analysis of the results of that work the Environment Agency confirmed to Derbyshire County Council and Derby City Council that no adverse effect on flows would arise. No specific hydrological investigation has been undertaken to support the allocation of the Extension area, but it is reasonable to conclude that a similar conclusion would be drawn when such a study is undertaken for the planning application. As a precaution a flow monitoring condition was imposed relating to the Via Gellia Stream in order to demonstrate no significant effect on flows.
- 4.8 As a safeguard, it is advised that a requirement is incorporated into the Minerals Plan which stipulates that an updated hydrological study must be undertaken to support any planning application for the Aldwark South Quarry Extension in order to reaffirm that no adverse effect on the Via Gellia stream (and thus no likely significant effect on Peak District Dales SAC) will arise. The same water flow monitoring condition that was imposed for the 2006/2007 extension to the quarry should also be carried forward for this Extension. Monitoring is not mitigation and it is therefore compliant with the People over Wind ruling for this requirement to be discussed in the Likely Significant Effect test.
- 4.9 Aldwark South Quarry Extension is also 1.4km from Bees Nest & Green Clay Pits SAC which is designated for breeding great crested newt. However, since this is a former clay pit it will not be dependent on groundwater as clay is an aquiclude.

5. In Combination Effects

- 5.1 It is a requirement of the Conservation of Habitats and Species Regulations 2017 (as amended) that the impacts and effects of any plan being assessed are not considered in isolation but 'in combination' with other plans and projects that may also affect the European sites(s) in question.
- 5.2 The Local Plans for the following districts overlap with Derby City and Derbyshire: Amber Valley, Derbyshire Dales, North-East Derbyshire, Chesterfield, High Peak, Derby City, Erewash, South Derbyshire and Bolsover. They propose the delivery of housing and employment land over a period leading up to approximately 2033 (actual date varies by Core Strategy or Local Plan). Delivery of housing in the northern part of the county (High Peak District, Derbyshire Dales and part of North-East Derbyshire) could lead to increased recreational pressure on the accessible parts of the Peak District Dales SAC, Peak District Moors SPA and South Pennine Moors SAC. However, all three Local Plans have undertaken HRAs which consider impacts on the SPA and SAC, and all conclude no adverse effect on integrity.
- 5.3 Moreover, most of the proposed minerals sites are remote from European sites, located in the Trent Valley. As such, the impact zones of those sites do not overlap with the key areas of recreational pressure on European sites. While Aldwark South Quarry Extension is much closer to a European site, being 1km from the Via Gellia component of the Peak District Dales SAC no impact pathways that would interact with growth in Local Plans have been identified.
- 5.4 As a result, a conclusion of no likely significant effects 'in combination' with other plans and projects can be drawn.

6. Conclusion

- 6.1 An assessment of the likely significant effects of all policies has been undertaken. It concludes that all policies can be dismissed from having such effects, except for Policies SP5 and SP11 which contain the Plan's site allocations. The Plan includes the following minerals allocations:
- Aldwark South: Extension to existing site for industrial minerals (Brassington Moor Quarry, the only hard rock quarry to be allocated)
 - Foston: New site for sand and gravel
 - Elvaston: Extension to existing sand and gravel site (Elvaston Quarry)
 - Swarkestone south: Extension to existing sand and gravel site (Swarkestone Quarry)
 - Swarkestone north: possible second extension to Swarkestone Quarry. A small part of the proposed allocation (one field parcel in the east close to the silt lagoons) has already been worked and is currently awaiting restoration.
 - Willington: Extension to existing sand and gravel site (Willington Quarry)
 - Sudbury: new site for sand and gravel
- 6.2 However, other than Aldwark South, all the allocated sites are remote from European sites. The closest European sites are West Midland Mosses SAC & Midland Meres and Mosses Phase 1 Ramsar in Staffordshire, which is 12km west of Sudbury Quarry, and the River Mease SAC on the border of Derbyshire and Leicestershire, which is 13km from Willington Quarry. Both the River Dove and River Mease SAC drain to the River Trent but the quarries in the Trent Valley are all considerably downstream of both SACs. There is therefore no connecting impact pathway.
- 6.3 For Aldwark South Quarry Extension the pathways of disturbance, loss of functionally-linked land, air quality and hydrology were all investigated. It was concluded that no likely significant effect would arise on any European site via any such pathway, although a continuation of water flow monitoring within Via Gellia SSSI was recommended.
- 6.4 It is concluded that the Derby & Derbyshire Minerals Local Plan will have no likely significant effect on any European sites either alone or in combination with other plans and projects.

Appendix A European Sites within 10km of Derby and Derbyshire

Peak District Dales SAC

Conservation Objectives

With regard to the SAC and the habitats for which the site has been classified (the 'Qualifying Features' listed below), and subject to natural change:

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring:

- The extent and distribution of qualifying natural habitats;
- The structure and function (including typical species) of qualifying natural habitats; and
- The supporting processes on which qualifying natural habitats rely.

Qualifying Features

The following features are reasons for designation as an SAC:

- Calcareous grassland
- Tilio-Acerion forests of slopes, screes and ravines
- European dry heaths
- Calaminarian grasslands of the *Violetalia calaminariae*
- Alkaline fens
- Calcareous and calcshist screes of the montane to alpine levels (*Thlaspietea rotundifolii*)
- Calcareous rocky slopes with chasmophytic vegetation
- White-clawed crayfish
- Brook lamprey
- Bullhead

Key Threats and Pressures from the Site Improvement Plan

The threats and pressures likely to affect the SAC are listed below:

- Inappropriate scrub control
- Fertiliser use
- Water pollution
- Inappropriate weirs, dams and other structures
- Overgrazing
- Undergrazing
- Inappropriate water levels
- Disease
- Invasive species
- Climate change
- Air pollution
- Off-road vehicles

- Forestry and woodland management
- Public access/disturbance

Peak District Moors (South Pennine Moors Phase 1) SPA

Conservation Objectives

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring;

- The extent and distribution of the habitats of the qualifying features
- The structure and function of the habitats of the qualifying features
- The supporting processes on which the habitats of the qualifying features rely
- The population of each of the qualifying features, and,
- The distribution of the qualifying features within the site.

Qualifying Features

The following features are reasons for designation as an SPA:

- *Falco columbarius*; Merlin (Breeding)
- *Pluvialis apricaria*; European golden plover (Breeding)
- *Asio flammeus*; Short-eared owl (Breeding)

Key Threats and Pressures from the Site Improvement Plan

The threats and pressures likely to affect the SPA are listed below:

- Hydrological changes
- Rotational burning
- Poor recruitment
- Inappropriate management practices
- Public access/disturbance
- Air pollution
- Wildfire/arson
- Off-road vehicles
- Overgrazing
- Forestry and woodland management
- Disease
- Undergrazing
- Invasive species

South Pennine Moors SAC

Conservation Objectives

With regard to the SAC and the habitats for which the site has been classified (the 'Qualifying Features' listed below), and subject to natural change:

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring:

- The extent and distribution of qualifying natural habitats;
- The structure and function (including typical species) of qualifying natural habitats; and
- The supporting processes on which qualifying natural habitats rely.

Qualifying Features

The following features are reasons for designation as an SAC:

- Dry heath
- Blanket bog
- Old sessile oak woods with Ilex and Blechnum
- Wet heath
- Transition mires & quaking bogs

Key Threats and Pressures from the Site Improvement Plan

The threats and pressures likely to affect the SAC are listed below:

- Hydrological changes
- Rotational burning
- Poor recruitment
- Inappropriate management practices
- Public access/disturbance
- Air pollution
- Wildfire/arson
- Off-road vehicles
- Overgrazing
- Forestry and woodland management
- Disease
- Undergrazing
- Invasive species

Bees Nest & Green Clay Pits SAC

Conservation Objectives

With regard to the SAC and the habitats for which the site has been classified (the 'Qualifying Features' listed below), and subject to natural change:

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring:

- The extent and distribution of qualifying natural habitats;
- The structure and function (including typical species) of qualifying natural habitats; and
- The supporting processes on which qualifying natural habitats rely.

Qualifying Features

The following features are reasons for designation as an SAC:

- Calcareous grassland
- Great crested newt

Key Threats and Pressures from the Site Improvement Plan

The threats and pressures likely to affect the SAC are listed below:

- Air pollution

Gang Mine SAC

Conservation Objectives

With regard to the SAC and the habitats for which the site has been classified (the 'Qualifying Features' listed below), and subject to natural change:

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring:

- The extent and distribution of qualifying natural habitats;
- The structure and function (including typical species) of qualifying natural habitats; and
- The supporting processes on which qualifying natural habitats rely.

Qualifying Features

The following features are reasons for designation as an SAC:

- Calaminarian grassland

Key Threats and Pressures from the Site Improvement Plan

The threats and pressures likely to affect the SAC are listed below:

- Air pollution

River Mease SAC

Introduction

The River Mease is representative of a relatively un-modified clay lowland river which supports nationally significant populations of Spined Loach *Cobitis taenia* and Bullhead *Cottus gobio*, both of which are of International importance. Other interest features include freshwater White-clawed Crayfish *Austropotamoisus pallipes* and Otter *Lutra lutra*, both have restricted distribution within the East Midlands.

Conservation Objectives²¹

With regard to the SAC and the natural habitats and/or species for which the site has been designated (the 'Qualifying Features' listed below), and subject to natural change;

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring;

- The extent and distribution of qualifying natural habitats and habitats of qualifying species
- The structure and function (including typical species) of qualifying natural habitats
- The structure and function of the habitats of qualifying species

²¹ <http://publications.naturalengland.org.uk/publication/6217720043405312> [Accessed 21/10/2021]

- The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely
- The populations of qualifying species, and,
- The distribution of qualifying species within the site.

Qualifying Features²²

The following features are reasons for designation as an SAC:

Annex 1 habitats present as a qualifying feature, but not a primary reason for selection of this site:

- Water courses of the plain to montane levels with the Ranunculion Fluitantis and Callitriche-Batrachion vegetation

Annex II species that are a primary reason for selection of this site:

- Spined loach (*Cobitis taenia*)
- Bullhead (*Cottus gobio*)

Annex II species present as a qualifying feature, but not a primary reason for site selection

- White-clawed (or Atlantic stream) crayfish (*Austropotamobius pallipes*)
- Otter (*Lutra lutra*)

Key Threats and Pressures from the Site Improvement Plan²³

- Water pollution
- Drainage
- Inappropriate weirs, dams and other structures
- Invasive species
- Siltation
- Water abstraction

West Midland Mosses SAC

Introduction

The West Midlands Mosses comprises four sites: Clarepool Moss, Abbots Moss, Chartley Moss and Wybunbury Moss. These support large basin mires which have developed as quaking bogs, known as Schwingmoors, together with a variety of associated hollows and pools showing various types and stages of mire development. This complexity of habitats gives rise to a diverse assemblage of associated plants and invertebrates of national significance.

Conservation Objectives²⁴

With regard to the SAC and the habitats for which the site has been classified (the 'Qualifying Features' listed below), and subject to natural change:

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring:

- The extent and distribution of qualifying natural habitats;
- The structure and function (including typical species) of qualifying natural habitats; and
- The supporting processes on which qualifying natural habitats rely.

²² <https://sac.jncc.gov.uk/site/UK0030258> [Accessed 21/10/2021]

²³ <http://publications.naturalengland.org.uk/publication/6640857448972288> [Accessed 21/10/2021]

²⁴ <http://publications.naturalengland.org.uk/publication/6449667604742144> [Accessed 21/20/2021]

Qualifying Features²⁵

The following features are reasons for designation as an SAC:

Annex I habitats that are a primary reason for selection of this site:

- Natural dystrophic lakes and ponds
- Transition mires and quaking bogs

Key Threats and Pressures from the Site Improvement Plan²⁶

- Water pollution
- Hydrological changes
- Air pollution: impact of atmospheric nitrogen
- Inappropriate scrub control
- Game management: pheasant rearing
- Habitat fragmentation

Midland Meres and Mosses Phase 1 Ramsar

Introduction

The Meres & Mosses form a geographically discrete series of lowland open water and peatland sites in the north-west Midlands of England. These have developed in natural depressions in the glacial drift left by receding ice sheets which formerly covered the Cheshire/Shropshire Plain. The 16 component sites include open water bodies (meres), the majority of which are nutrient-rich with associated fringing habitats; reed swamps, fen, carr & damp pasture. Peat accumulation has resulted in nutrient poor peat bogs (mosses) forming in some sites in the fringes of meres or completely infilling basins. In a few cases the result is a floating quaking bog or schwingmoor. The wide range of resulting habitats support nationally important flora & fauna

Qualifying Features²⁷

Ramsar Criterion 1

The site comprises a diverse range of habitats from open water to raised bog.

Ramsar Criterion 2

Supports a number of rare species of plants associated with wetlands including five nationally scarce species together with an assemblage of rare wetland invertebrates (three endangered insects and five other British Red Data Book species of invertebrates).

Key Threats and Pressures and Conservation Objectives

Key threats and pressure and the conservation objectives will be similar to those covered under the West Midland Mosses SAC Site Improvement Plan as the two designations cover the same area of land (Chartley Moss SSSI).

Birklands and Billaugh SAC

Introduction

Birklands and Billaugh SAC covers 270.5ha, predominantly comprising broad-leaved deciduous woodland (89%). It is the most northerly site selected for old acidophilous oak woods.

Conservation Objectives²⁸

²⁵ <https://sac.jncc.gov.uk/site/UK0013595> [Accessed 21/10/2021]

²⁶ <http://publications.naturalengland.org.uk/publication/5422476326600704> [Accessed 21/10/2021]

²⁷ <https://jncc.gov.uk/jncc-assets/RIS/UK11043.pdf> [Accessed 21/10/2021]

²⁸ <http://publications.naturalengland.org.uk/publication/5179475394297856> [Accessed 13/02/2019]

With regard to the SAC and the habitats for which the site has been classified (the 'Qualifying Features' listed below), and subject to natural change:

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring:

- The extent and distribution of qualifying natural habitats;
- The structure and function (including typical species) of qualifying natural habitats; and
- The supporting processes on which qualifying natural habitats rely.

Qualifying Features²⁹

The following features are reasons for designation as an SAC:

Annex I habitats that are a primary reason for selection of this site:

- Old acidophilous oak woods with *Quercus robur* on sandy plains

Key Threats and Pressures from the Site Improvement Plan³⁰

The threats and pressures likely to affect the SAC are listed below:

- Public access/disturbance
- Changing land management
- Physical modification
- Disease
- Invasive species
- Air pollution

Sherwood Possible pSPA

Introduction

A portion of the Sherwood Forest area is currently being considered as a possible potential Special Protection Area (referred to in this report as a 'ppSPA'), with regard to birds of European importance (nightjar and woodlark) that this area supports.

According to evidence submitted for the Rufford Energy Recovery Facility (ERF) Public Inquiry (February – September 2010), a draft ppSPA boundary was drawn and was based on combined Indicative Core Areas submitted by Natural England and Sherwood Important Bird Areas submitted by RSPB. The updated advice letter submitted by Natural England (March 2014), advises that it is the combined boundaries of these areas that form an informal ppSPA boundary. The Birklands and Bilhaugh SAC is included within this boundary.

Potential Qualifying Features and Conservation Objectives

Draft *Conservation Objectives* and *Qualifying Features of Interest* were submitted by Natural England as part of the ERF public inquiry, of which Natural England has advised that these are used to inform a 'risk-based approach'. These are summarised in Table 3.

Table 3. Sherwood ppSPA probable interest features and conservation objectives

| | |
|-------------------------------|--|
| Conservation Objective | 'To maintain the species features in favourable condition, which is defined in part in relation to their population attributes. On this site favourable condition requires the maintenance of the population of each species feature. Maintenance also implies restoration, if evidence from condition assessment suggests a reduction in size of population.' |
|-------------------------------|--|

| | |
|--|--|
| Qualifying Features of Interest | Nightjar and woodlark populations including breeding sites and occupied territories. |
|--|--|

²⁹ <http://jncc.defra.gov.uk/ProtectedSites/SACselection/sac.asp?EUCode=UK0012740> [Accessed 13/02/2019]

³⁰ <http://publications.naturalengland.org.uk/publication/6727956374224896> [Accessed 13/02/2019]

Nightjar and woodlark habitats including lowland heathland, coniferous woodland with a mosaic of bare ground and low vegetation amongst young scrub, scattered trees or dense stands of young conifer trees.

Based on 2004-2006 survey results, the Sherwood Area contains more than 1% of the UK's population of nightjar and woodlark. This constitutes the 'first step' (Stage 1) towards considering if the area qualifies as an SPA or potential SPA (pSPA)³¹. This information is currently being assessed along-side a UK-wide review programme led by Defra³².

The full SPA selection process has yet to be formally implemented and the formal UK Review of the existing suite of sites for nightjar and woodlark is pending. Accordingly, the Review Panel (JNCC) has not yet formed a view on whether a site within the Sherwood Forest region is one of the 'most suitable territories' for these species and therefore has not so far provided any advice to the Secretary of State on the selection of any SPA in the Sherwood Forest Area.

Potential Environmental Vulnerabilities

Currently, since the site is not officially proposed for designation, there are no formal conservation objectives or site boundaries available; therefore it is difficult to provide the same level of detail regarding site vulnerabilities, as has been given to other European sites discussed in this report. In the absence of this information, a more informal approach has been taken.

Potential threats and pressures likely to affect the ppSPA are listed below:

- Public access/disturbance: ground-nesting nightjar and woodlark are vulnerable to disturbance from people and domestic pets.
- Construction-related disturbance: nightjar and woodlark are susceptible to disturbance by noise, traffic and artificial lighting which could occur during/following construction in close proximity to territories.
- Inappropriate habitat management: nightjar and woodlark have specific habitat requirements which require appropriate management of plantation habitat.
- Invasive plants: can change the vegetation structure required by SPA bird species.

³¹ For more information, see the Joint Nature Conservation Committee's website on SPA classification: <http://jncc.defra.gov.uk/page-1405>

³² The time schedule of this UK SPA Review has been changeable. There are many issues included in this review, including a more realistic alignment with the European Habitats Directive. This may have implications for how sites are selected and what complimentary areas are included. For more information, see the Joint Nature Conservation Committee's website (Review of the UK SPA Network): <http://jncc.defra.gov.uk/page-162>

Appendix B Figure 1 – Map of European Sites

Appendix C Policy Screening Table

| Policy | Summary | Likely Significant Effects? |
|--|--|---|
| SP1 Sustainable Minerals Development | Identifies that proposals for mineral development and mineral related development will be supported where they contribute towards achieving the economic, social and environmental objectives of sustainable development and also lists several specific sustainability criteria, which includes protect, conserve and enhance the Plan area's natural, built and historic environment. | None. A requirement for minerals development to be sustainable will not negatively affect European sites. |
| SP2 Climate Change | Proposals for mineral development and mineral related development will be supported where, taking into account the lifetime of the development (including restoration and aftercare), they include measures that clearly demonstrate a series of criteria that indicate their contribution to minimising climate change. | None. A requirement for minerals development to contribute to minimising climate change will not negatively affect European sites. |
| SP3 The Supply of Recycled and Secondary Aggregates | Policy states that proposals for the reception, processing, treatment and distribution of waste materials in order to produce recycled and secondary aggregates will be supported where the proposal will promote the sustainable management of waste in accordance with the principles of the Waste Hierarchy and will facilitate a reduction in the need for primary aggregates. It also lists other requirements that must be met such as high-quality restoration. | None. This does not discuss specific locations for recycled and secondary aggregate processing, it simply sets out a list of requirements. Therefore this policy will not negatively affect European sites. |
| SP4 The Supply of Sand and Gravel | Indicates the sand and gravel need and the broad strategy for achieving this which is continued working of existing reserves, together with provision at additional sites, at an annual minimum rate of 0.93 million tonnes. | None. This broad statement of requirement and strategy will not negatively affect European sites. Individual allocations may so but these are covered by separate policies. |
| SP5 Allocation of Sites for Sand and Gravel Extraction | Policy identifies that land is allocated to provide for at least an additional 6.38mt of sand and gravel over the Plan period as extensions to Swarkestone and Elvaston Quarries and new sites at Foston and Sudbury, as shown on the Policies Map. | Potentially. This policy makes specific allocations which could result in likely significant effects on European sites. |

| Policy | Summary | Likely Significant Effects? |
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| | <p>The extraction of sand and gravel from the proposed allocated sites at Swarkestone and Elvaston quarries will be supported:</p> <p>1) where the extensions follow cessation of mineral working within the existing working area, unless it is demonstrated that there are operational reasons why this is not practicable or there would be significant environmental benefits to be gained from alternative phasing.</p> <p>2) provided that the processing of the material produced at the site will be carried out via the established plant and access arrangements unless there are significant environmental benefits in alternative arrangements.</p> <p>Proposals will need to satisfactorily address the Principal Planning Requirements set out at Appendix A of the Plan.</p> | |
| SP6 Other Sites for Sand and Gravel Supply | Policy states that outside the allocated areas, proposals for sand and gravel extraction for aggregate purposes will be supported provided that the site is required to meet an identified need to address a shortfall in the landbank and/or to sustain production capacity to meet current and anticipated need, as identified by the Local Aggregate Assessment. | None. This does not allocate sites but identifies the approach to sites which have not been allocated. Any such sites, if and when they come forward, will need to comply with the other policies in the Minerals Plan including the protection of European sites. |
| SP7 The Supply of Aggregate Crushed Rock | Indicates the aggregate crushed rock need and the broad strategy for achieving this which is continued working of existing reserves at an annual minimum rate of 8.85 million tonnes. | None. This broad statement of requirement and strategy will not negatively affect European sites. No new allocations are made for aggregate crushed rock. |
| SP8 Helping to Reduce Quarrying in the Peak District National Park | Policy states that Derbyshire and Derby will compensate for a continued reduction in quarrying from the Peak District National Park over the Plan period through an increase in its provision figure for aggregate crushed rock, as set out in the most recent Local Aggregate Assessment. | None. This is an environmentally positive policy that will not negatively affect European sites. |

| Policy | Summary | Likely Significant Effects? |
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| SP9 The Supply of Building Stone | <p>Proposals for new building stone quarries or extensions to existing quarries will be supported where it can be demonstrated that:</p> <ol style="list-style-type: none"> 1) The stone extracted would be primarily used for building purposes rather than for aggregate purposes. 2) Proposals for the supply of building stone are supported by evidence to demonstrate the contribution that the stone proposed to be worked would make to the quality and distinctiveness of the built and/or historic environment in the Plan area and/or to meeting particular requirements for building stone outside the area. 3) The scale of the proposal is consistent with the identified needs for the stone. | <p>None. This policy makes no allocations but rather sets out the circumstances under which proposals will be determined for acceptability. Individual proposals when they come forward may or may not pose likely significant effects on European sites but that will be assessed as part of the scrutiny process when any applications are made.</p> |
| SP10 Supply of Industrial Limestone | <p>Proposals for the extraction of Industrial Limestone will be supported where additional reserves are required for use in industrial and manufacturing processes and where:</p> <ol style="list-style-type: none"> 1) they are required because of their particular chemical and/or physical properties; and/or 2) the stock of permitted reserves can be shown to have fallen below the level required to sustain production throughout the plan period; and/or 3) they are required to provide the necessary level of security of supply to support the level of actual and proposed investment required for new or existing plant and the maintenance and improvement of existing plant and equipment; and 4) the recovery of the mineral is maximised to meet that use; and 5) the method of their extraction would not result in an unreasonable delay to the proposed restoration of the site. | <p>None. This policy makes no allocations but rather sets out the circumstances under which proposals will be determined for acceptability. Individual proposals when they come forward may or may not pose likely significant effects on European sites but that will be assessed as part of the scrutiny process when any applications are made.</p> |

| Policy | Summary | Likely Significant Effects? |
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| | Where appropriate, the MPA will seek to enter into a planning obligation to control the use of industrial limestone for industrial purposes. | |
| SP11 Aldwark South Allocation of Land For Industrial Limestone Working at Brassington Moor Quarry | <p>Policy states that land is allocated for mineral extraction at Aldwark/Brassington Moor Quarry, shown on the Policies Map.</p> <p>Proposals for the extraction of mineral from the allocated site will be supported provided that the processing and distribution of material from the site will be carried out via the established and permitted plant and access arrangements unless there are operational reasons why this is not practicable or there would be significant environmental benefits to be gained from alternative arrangements.</p> <p>Proposals will need to satisfactorily address the Principal Planning Requirements set out at Appendix A of the Plan.</p> | Potentially. This policy makes specific allocations which could result in likely significant effects on European sites. |
| SP12 Supply of Cement Making Materials | <p>Proposals for the extraction of Limestone, Clay or Shale for use in the manufacture of cement will be supported where they are required to supply a cement works and where:</p> <ol style="list-style-type: none"> 1) They will contribute towards the maintenance of a stock of reserves of at least 15 years to support an existing kiln or 25 years to support a new kiln and/or 2) They are required because of their particular chemical or physical composition. <p>Proposals that accord with the criteria set out in SP12 will be supported provided that:</p> <ol style="list-style-type: none"> 1) They are extensions of time and/or physical extensions to existing limestone/clay/shale quarries; or 2) Where the proposal involves a new quarry, it is located as near as possible to the cement works where the material will be used. | None. This policy makes no allocations but rather sets out the circumstances under which proposals will be determined for acceptability. Individual proposals when they come forward may or may not pose likely significant effects on European sites but that will be assessed as part of the scrutiny process when any applications are made. |

| Policy | Summary | Likely Significant Effects? |
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| SP13 Supply of Brick Clay | <p>Proposals for the extraction of brick clay will be supported where additional reserves are required to supply a brick works or clay products manufacturing site and where:</p> <ol style="list-style-type: none"> 1) they are required to contribute towards the maintenance of a minimum 25 year stock of permitted reserves; and/or 2) they are required to enable the appropriate blending of clays; and/or 3) they are required because of their particular chemical or physical composition; and where 4) the need for stockpiling will not significantly delay the reclamation of the site. <p>Proposals that accord with the criteria set out in SP13 will be supported provided that:</p> <ol style="list-style-type: none"> 1) they are extensions of time and/or physical extensions to existing brick clay pits/quarries; or 2) they are located as near as possible to the site where the clay will be used. <p>Where practicable, proposals that include the location of stockpiles at the excavation site will need to make provision for their progressive restoration, as material is removed, in order to minimise their impact and ensure the timely restoration of the site.</p> | None. This policy makes no allocations but rather sets out the circumstances under which proposals will be determined for acceptability. Individual proposals when they come forward may or may not pose likely significant effects on European sites but that will be assessed as part of the scrutiny process when any applications are made. |
| SP14 Supply of Vein Minerals | <p>Proposals for the extraction of vein minerals will be supported where additional reserves are required for use in industrial and manufacturing processes and where the duration and scale of the development is limited to the minimum necessary to extract the vein mineral.</p> | None. This policy makes no allocations but rather sets out the circumstances under which proposals will be determined for acceptability. Individual proposals when they come forward may or may not pose likely significant effects on European sites but that will be assessed as part of the scrutiny process when any applications are made. |

| Policy | Summary | Likely Significant Effects? |
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| SP15 Coal Extraction and Colliery Spoil Disposal | <p>Policy states that proposals for the extraction of coal and the associated disposal of colliery spoil will not be supported unless the need for the proposal is for markets other than electricity generation and it can be demonstrated that it will meet several other criteria such as it being environmentally acceptable. Where appropriate, proposals for coal extraction should also make provision for the extraction and stockpiling of fireclays.</p> <p>Proposals for the reworking of former colliery spoil tips will be supported where it can be demonstrated that the environmental and economic benefits of the development outweigh the environmental or amenity impacts of the development.</p> | None. This policy makes no allocations but rather sets out the circumstances under which proposals will be determined for acceptability. Individual proposals when they come forward may or may not pose likely significant effects on European sites but that will be assessed as part of the scrutiny process when any applications are made. |
| SP16 Supply of Conventional and Unconventional Oil and Gas | Policy sets out a list of criteria when proposals for the exploration and/or appraisal of onshore conventional and unconventional oil and gas will be supported, including minimising the impact on geology and other factors. | None. This policy makes no allocations but rather sets out the circumstances under which proposals will be determined for acceptability. Individual proposals when they come forward may or may not pose likely significant effects on European sites but that will be assessed as part of the scrutiny process when any applications are made. |
| OM1 Borrow Pits | Policy sets out the criteria against which proposals for borrow pits will be supported. | None. This policy makes no allocations (since by definition that is not possible for borrow pits which are ad hoc sources of minerals), but rather sets out the circumstances under which proposals will be determined for acceptability. Individual proposals when they come forward may or may not pose likely significant effects on European sites but that will be assessed as part of the scrutiny process when any applications are made. |
| OM2 Reworking of Former Spoil Tips | Policy sets out the criteria against which proposals for reworking spoil tips will be supported. | None. This policy makes no allocations but rather sets out the circumstances under which proposals will be determined for acceptability. Individual proposals when they come forward may or may not pose likely significant effects on European sites but that will be assessed as part of the scrutiny process when any applications are made. |

| Policy | Summary | Likely Significant Effects? |
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| OM3 The Incidental and Prior Working of Clay | Policy sets out the criteria against which proposals for the incidental working of clay will be supported. | None. This policy makes no allocations but rather sets out the circumstances under which proposals will be determined for acceptability. Individual proposals when they come forward may or may not pose likely significant effects on European sites but that will be assessed as part of the scrutiny process when any applications are made. |
| OM4 Mineral Related Development | Policy sets out the criteria against which proposals for mineral-related development will be supported, including that such development would not have significant adverse environmental and local amenity impacts. | None. This policy makes no allocations but rather sets out the circumstances under which proposals will be determined for acceptability. Individual proposals when they come forward may or may not pose likely significant effects on European sites but that will be assessed as part of the scrutiny process when any applications are made. |
| OM5 Mineral Exploration | Policy sets out the criteria against which proposals for minerals exploration will be supported, including that such activities would not have significant adverse environmental and local amenity impacts. | None. This policy makes no allocations but rather sets out the circumstances under which proposals will be determined for acceptability. Individual proposals when they come forward may or may not pose likely significant effects on European sites but that will be assessed as part of the scrutiny process when any applications are made. |
| DM1 Protecting Local Amenity, Health, Wellbeing and Safety | Policy sets out that proposals for minerals development and minerals related development will be supported where it can be demonstrated that there will be no unacceptable impacts to local amenity, health, wellbeing and safety. | None. This is a development management policy which will have a positive or neutral impact on European sites. |
| DM2 Criteria for Assessing the Benefits of Mineral Development Proposals | Policy indicates that, with the exception of development proposals involving coal extraction, the MPA will give great weight to the benefits of minerals extraction. It then lists the considerations that will be taken into account in determining the benefits, including the extent to which environmental enhancements to the site and surrounding area can be delivered. | None. This is a development management policy which will have a positive or neutral impact on European sites. |

| Policy | Summary | Likely Significant Effects? |
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| DM3 Transport | Primary thrust of the policy is that proposals for minerals development and minerals related development should seek to maximise sustainable modes of transport, including rail, barge, conveyor and pipeline. Proposals should also seek to maximise measures to reduce emissions through the use of efficient logistics, low carbon fuels and vehicles to extract and transport the mineral to market. | None. This is a development management policy which will have a positive or neutral impact on European sites. |
| DM4 Landscape | Sets out requirements for landscape protection associated with any minerals development. | None. This is a development management policy which will have a positive or neutral impact on European sites. |
| DM5 Biodiversity and Geodiversity | Sets out requirements for biodiversity protection associated with any minerals development. This includes a requirement to avoid adverse effects on the integrity of European sites unless the derogation tests can be passed. This is expanded upon in the supporting text. | None. This is a development management policy which will have a positive impact on European sites. |
| DM6 Trees Woodland and Hedgerows | Policy sets out the requirements for minerals development related to trees and woodland. The main requirement is that proposals for minerals development and minerals related development should seek to protect trees, woodland and hedgerows from loss or damage unless it can be demonstrated that their removal is necessary and appropriate mitigation can be achieved. | None. This is a development management policy which will have a positive or neutral impact on European sites. |
| DM7 Historic Environment and Archaeology | Sets out requirements for historic environment protection associated with any minerals development. | None. This is a development management policy which will have a neutral impact on European sites. |
| DM8 Water Management and Flood Risk | Sets out requirements for water resource protection associated with any minerals development. | None. This is a development management policy which will have a positive or neutral impact on European sites. |
| DM9 Soil Quality and Agricultural Land | Sets out requirements for agricultural protection associated with any minerals development. | None. This is a development management policy which will have a neutral impact on European sites. |
| DM10 Aviation Safety | Sets out the limitations on minerals development and minerals related development within an airport safeguarding area | None. This is a development management policy which will have a neutral impact on European sites. |

| Policy | Summary | Likely Significant Effects? |
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| DM11 Green Belt | Policy sets out that proposals for minerals development and minerals related development will be supported where it can be demonstrated that they will maintain the openness of the Green Belt and the purposes of including land within it. | None. This is a development management policy which will have a neutral impact on European sites. |
| DM12 Green and Blue Infrastructure | Policy sets out the requirement for green and blue infrastructure, including that proposals for minerals development and minerals related development will be supported where it can be demonstrated that they will not compromise the integrity of existing strategic and local green and blue infrastructure assets or the natural capital of the Plan area. | None. This is a development management policy which will have a neutral impact on European sites. |
| DM13 Public Access | Policy sets out the requirements relating to public access; in particular that proposals for minerals development and minerals related development will be supported where it can be demonstrated that they will not have an unacceptable impact on the existing rights of way network and its users. Where this is not practicable, satisfactory proposals for temporary or permanent diversions, which are of at least an equivalent convenience, quality or interest must be provided. | None. This is a development management policy which will have a neutral impact on European sites. |
| DM14 Cumulative Impacts | Policy sets out the requirement for assessment of minerals development to consider cumulative impacts. | None. This is a development management policy which will have a neutral impact on European sites. |
| DM15 Restoration, Aftercare and Afteruse | Policy sets out the restoration, aftercare and reuse requirements related to minerals development. | None. This is a development management policy which will have a positive or neutral impact on European sites. |
| DM16 Planning Obligations | Policy sets out the councils approach to use of planning obligations in consenting minerals development. | None. This is a development management policy which will have a positive or neutral impact on European sites. |
| MO1 Monitoring and Implementation | Policy sets out the monitoring framework related to delivery of the Minerals Plan and its policies. | None. This is a development management policy which will have a neutral impact on European sites. |

