AECOM

Derbyshire and Derby Minerals Local Plan

Sustainability Appraisal

2nd Interim SA Report
December 2017

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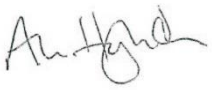
Project Director	Alan Houghton	Regional Director	Sign-off		December 2017

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1 INTRODUCTION

1.1 Background

1.1.1 AECOM is commissioned to undertake sustainability appraisal of the emerging Derbyshire and Derby Minerals Local Plan. The Plan is being jointly prepared by Derbyshire County Council and Derby City Council. It covers that part of Derbyshire lying outside of the Peak District National Park. The Plan period is to 2030. An important feature of sustainability appraisal is the influence the process has on the development of the plan through appraisal of draft policies, emerging approaches and different options. The Minerals Plan is currently under a 'rolling consultation', which consists of a series of documents setting out the background, steps taken so far and the emerging strategy for different minerals. An appraisal of these emerging approaches (and alternatives to these) has been undertaken to ensure that the plan is influenced by sustainability throughout its development.

1.1.2 The findings of these appraisals are presented in this single interim SA Report. However, for ease of access in consultation, a summary of the findings will also be provided as part of the Plan consultation documents themselves.

1.1.3 It should be noted that this interim SA report is not a statutory output of the Strategic Environmental Assessment Regulations. Rather, it is a voluntary report to document the steps taken as part of the SA process as the Plan develops. This ensures early and effective engagement as well as providing a decision aiding tool to the Councils in shaping the Minerals Plan.

1.2 The SA process so far

1.2.1 The SA process runs in parallel to the plan-making process and a variety of tasks have already been undertaken as follows:

- An SA scoping report has been produced which sets out the key issues to be addressed in the SA, as well as methodologies for appraisal. The scope of the SA evolves continually, so needs to be updated periodically to ensure that the SA (and the Plan) is focused on the correct issues. The Scope of the SA has been updated in December 2017 to review the key issues and focus of the SA process.

- An interim SA report was prepared and consulted upon in July 2013 which appraised a series of options and emerging approaches as set out in the Minerals Plan Issues and Options Paper (2010).

2 SCOPING SUMMARY

2.1 Background

2.1.1 The Scoping stage of the SA process is used to establish the key issues that should be the focus of the appraisal, as well as the assessment methodologies.

2.1.2 It was considered appropriate and proportionate to undertake a joint Scoping process for the Minerals and Waste Plans, as both would be implemented in the same geographical area and could have similar issues.

2.1.3 A Scoping Report was first prepared and published for consultation in July 2013. Following consideration of the comments received, the scope of the SA was determined and provided the baseline position against which appraisals have been undertaken.

2.1.4 It should be noted that the scope of the SA is fluid and should be updated throughout the plan making process in light of new evidence. The scope of the SA has been updated on several occasions to ensure that the key issues and methodologies remain relevant. A full update will be presented in the final SA Report.

2.1.5 The identification of key sustainability issues facing Derbyshire and Derby regarding waste and minerals planning provides an opportunity to develop sustainable plan objectives and options to resolve them. The identification of sustainability issues will also provide useful information to inform the SA / SEA process.

2.1.6 The requirement to identify sustainability problems arises from the SEA Directive:

2.1.7 The 'Environmental Report' required under the SEA Directive should include:

"*any existing environmental problems which are relevant to the plan or programme including, in particular those relating to any areas of a particular environmental importance, such as areas designated pursuant to directives 79/409/EEC 'the Birds Directive' and 92/43/EEC the 'Habitats Directive*" (Annex 1(d))

2.1.8 Key sustainability issues identified for the Derbyshire and Derby Minerals and Waste Plans are outlined below. These have been identified from the context review and the review of baseline data.

2.1.9 It is also important to identify issues which cut across themes where there is tension within the sustainability issues i.e. between economic and/or social and environmental issues, these are also identified below.

2.2 Key Sustainability Issues

Biodiversity

- Derbyshire and Derby has a rich natural environment with a high proportion of land designated for nature and landscape conservation. Minerals and waste planning will need to ensure designated sites and the features they seek to conserve are protected and that development does not adversely affect those sites, any European Protected Species (including bats) or any priority habitats and species identified in the Lowlands Derbyshire Biodiversity Action Plan 2011-2020 and identified heritage of a more local value is given suitable levels of protection in proportion to their relative importance.

- There is a need to achieve appropriate reclamation on former minerals sites as they can contribute towards biodiversity-led restoration and habitat enhancement. Alternatively, the option of non-intervention to allow natural colonisation to occur should be considered in certain situations, where significant nature conservation interest has developed over time.

Water

- The ecological and biological status of river and lake water bodies in the Lower Trent and Erewash catchment is below the average for the Wider Humber River Basin District.

- A combination of low annual rainfall, low water storage capability and high water abstraction has caused pressure on water supplies in the East Midlands, with particular issues relating to over-abstraction and insufficient water resources towards the north and west of Derbyshire. By 2050 climate change could reduce river flow by 10 to 15 per cent on an annual average basis, and could reduce summer river flows by 50 to 80 per cent. There is a need to manage and reduce water consumption.

- The water resources of Derbyshire and Derby, including that in the aquifers, are under stress and need appropriate protection from pollution and over abstraction.

Soil

- Loss of the best and most versatile agricultural land and greenfield sites should be avoided, and locational decisions should seek to protect the extent, openness and quality of the Green Belt, recognising that waste or minerals development would not always be inappropriate development. Waste facilities should be provided on previously developed land where practicable.

Waste

- The amount of residual household waste generated per household in Derbyshire and Derby is higher than the East Midlands average. Furthermore, the amount of residual household waste sent for reuse, recycling or composting is lower than the East Midlands average. Therefore, there is a need to divert waste from landfill to achieve more sustainable waste management.

- Waste arisings in Derbyshire and Derby are expected to continue to rise. While there is slowly increasing capacity for waste management locally this is not enough to drive waste up the waste hierarchy.

- Waste management facilities and infrastructure is required throughout Derbyshire and Derby that will facilitate waste management in accordance with the proximity principle and in the most appropriate locations.

- Locational decisions should be taken to ensure that any potential negative impacts associated with waste management facilities are avoided.

- Communities in some remoter western areas of Derbyshire have comparatively limited access to waste processing facilities and services due to the relatively low population density and associated infrastructure.

Minerals

- The Minerals Plan is required to provide for a steady and adequate supply of minerals to meet anticipated needs over the Plan period to 2030.

- The negative effects of minerals operations should be minimised through careful location and the positive effects should be maximised. The proximity of mineral operations to internationally and nationally designated areas of landscape value and nature conservation, sensitive receptors and pathways should be considered and the benefits of restoration of mineral sites should be maximised.

- The prudent, efficient and sustainable use of minerals should be ensured, as far as practicable. This will ensure that the requirement for new primary extraction is minimised. The production of recycled and secondary aggregates should be particularly supported in order to promote resource efficiency in the construction sector.

- It is important that mineral resources within Derbyshire and Derby are safeguarded as far as possible in the future in order to prevent their sterilization from non-mineral development. The production of mineral waste should be prevented or minimized.

- There is a need to protect and enhance the overall quality of the environment once extraction has ceased, through the highest standards of restoration and aftercare. This includes safeguarding the long-term potential of land for a wide range of after-uses and addressing potential adverse effects on communities' quality of life, including impacts arising from land stability and other public safety risks. Alternatively, non-intervention may be appropriate where significant nature conservation interest has developed over time.

Transportation and air quality

- There are significant cross-regional movements of waste especially around the large conurbations and adjacent to the borders of Derbyshire and Derby which create negative environmental and social impacts.

- Derbyshire and Derby experience significant traffic congestion, within urban areas, on the strategic road network (especially the A38) and associated with access to the strategic road network. The impacts of transportation in relation to the mining and quarrying industry in particular; is a significant problem.

- Certain areas of Derbyshire and Derby already suffer from unacceptable levels of air pollution; especially those covered by AQMAs related to high traffic flows and associated congestion. In preparing the Minerals and Waste Plans the need to improve these areas is a factor to be taken into account. There is also a need to take into account the nearby sensitive receptors, existing congestion and pollution hotspots in towns such as Spondon and close to the M1 north and south.

- The need to mitigate potential negative impacts on air pollution from new and redeveloped minerals and waste facilities through the Minerals and Waste Local Plans and at the planning application stage.

- There is a need to increase the number of minerals and waste transport movements in Derbyshire and Derby made by rail and provide sensitive routing for waste transfer vehicles.

- The continuing need to reduce CO2 emissions from transport, despite the level of growth planned in Derbyshire and Derby, increased car ownership and rising public transport costs.

- The need to ensure that local waste facilities have sustainable transport links and are therefore accessible to those who do not have access to a car across Derbyshire and Derby.

Climatic factors, flooding and energy

- Greenhouse gas emissions, associated with minerals and waste activities, including transport and methane produced from landfill sites, contribute to global warming.

- Some Local Authorities in Derbyshire and Derby (particularly High Peak and Bolsover) are not performing well in terms of CO2 emissions from industrial and commercial activity. There is the potential to promote energy from waste options, and also other technologies that increase the energy efficiency of minerals and waste operations (for example, wastewater treatment is an energy intensive process).

- A number of areas towards the south of Derbyshire and Derby are at significant risk of flooding, and this situation is likely to worsen with climate change. Patterns of fluvial flood risk are likely to change as a result of sea level rise, changing rainfall patterns and also development and changing land use. Mineral reclamation (e.g. gravel extraction) may offer positive benefits by reducing flood risk in certain locations.

- The majority of energy usage in Derbyshire and Derby is sourced from fossils fuels. This is generated outside of Derbyshire and Derby.

Heritage

- Development that would affect designated heritage assets (including development affecting the setting) located in Derbyshire and Derby should be avoided or the conflict minimised. This is especially important where the asset is of national or international significance, such as the World Heritage Site.

- There are a number of heritage assets located in Derbyshire and Derby that are on the 'Heritage at Risk' Register. It is important that these assets are protected and where possible, enhanced in the future. Any new development should be sensitive to the setting of heritage assets.

- Minerals sites play a role in the upkeep of heritage assets through continued supply of local building materials such as sandstone, 5-6000 tonnes of sandstone is quarried in the county each year for use as building stone. Along with other various sources of stone, the NPPF offers protection for mineral extraction such as this[1].

Landscape

- The integrity of the sensitive areas of landscape located in Derbyshire and Derby should be protected in the future. This includes that of the Peak National Park which is defined for its landscape importance.

- Minerals and waste operations (including associated transport infrastructure) can have a negative impact on the landscape and visual amenity in the immediate and surrounding area. Sensitive location and design however can avoid or minimise effects of this. Landscape restoration proposals provide an opportunity to enhance and improve landscape quality.

[1] National Planning Policy Framework (2012) Facilitating the sustainable use of minerals, p.33.

- There is a need to achieve sensitive and appropriate restoration of former minerals sites as they can contribute towards improving landscape quality.

Communities and health

- It will be important to continue to respond to the greater demands placed on resources and minerals and waste infrastructure from an increasing population in Derbyshire and Derby over the next two decades.

- There is a need to improve the overall skills levels of Derbyshire and Derby's workforce in order to enhance economic performance and raise the income level of residents in Derbyshire.

- In terms of barriers to community services the most deprived areas are in the predominantly urban east of the county.

- The need to ensure the sustainable location of new waste and minerals facilities and appropriate mitigation at the planning application stage for new, extended and redeveloped minerals facilities in relation to impacts on community amenity; including noise, air, odour, litter, dust and visual impacts. An ageing population in Derbyshire and Derby may be more vulnerable to such amenity impacts.

- It is important that leisure and recreational sites are protected from new minerals and waste developments where appropriate across Derbyshire and Derby. Minerals and waste sites have the potential to affect the recreational value of such areas through, for example severance of sites.

- The reclamation of mineral sites has the potential to increase recreational facilities. Uses could for example involve lakes for fishing or sailing, new footpaths or bridleways and land for camping and caravan sites.

- The need to ensure that all potential health impacts and quality of life issues are fully considered in allocating and designing new waste and minerals facilities and opportunities are taken to enhance health and well-being particularly in the after use of mineral sites.

- Opportunities should be taken to enhance health and well-being through proposals for the sensitive restoration and after use of mineral sites, including addressing potential land stability and other public safety risks arising from former minerals winning activities, including the risk of aircraft bird strike, taking into account the limited availability of inert fill for restoration.

Economy and housing

- Ensuring Derbyshire and Derby provides sufficient mineral resources to meet demand - through aggregates, other minerals and protecting mineral resources.

- There is a need to ensure that minerals and waste development does not act as a constraint to residential development.

- The Minerals and Waste Plans should seek to have a direct positive impact on local economic activity and employment opportunities through the creation of jobs to meet the skills and aspirations of local people.

- The Minerals and Waste Plans must support and not hinder wider efforts to diversify economic activity. The plan must be 'positively prepared' in adherence with the NPPF.

- There is a need to improve the overall skills levels of Derbyshire's and Derby's workforce in order to enhance economic performance and raise the income level of residents in Derbyshire.

- There is a need to ensure the infrastructure is in place in Derbyshire and Derby to continue to attract and retain investment and business.

- The decline of coal mining and traditional manufacturing in the north-east of Derbyshire has led to a concentration of areas where there are higher levels of unemployment and deprivation.

- The industrial structure of both Derbyshire's and Derby's economies remain heavily dependent upon the manufacturing sector. Waste facilities need to provide industries and other businesses with access to cost-effective waste management solutions that also meet environmental regulations, improving the commercial attractiveness of the area to new and existing businesses**.**

3 INFLUENCING PLAN DEVELOPMENT

3.1 Introduction

3.1.1 An important feature of the sustainability appraisal process is to influence the Plan as it is being prepared. The consideration of options to address plan issues is one way of shaping the Plan approach. This section discusses the options that have been considered throughout the development of the Derbyshire and Derby Minerals Local Plan so far.

3.2 Options appraisal

3.2.1 The initial stages of the Minerals Plan development involved consultation on a series of issues and options. Were appropriate, the SA appraised the reasonable options and presented the findings in an interim SA Report in July 2013. The appraisals at this stage were relatively high level given that the options did not contain detailed approaches. Nevertheless, the findings were taken into account as the Plan was moved forward into the Rolling Consultation stage.

3.2.2 The Rolling Consultation period started in 2015 and represented the next stage in engaging the wider community of Derbyshire and Derby in developing the vision, objectives, strategies and policies of the Minerals Local Plan.

3.2.3 This stage involved further development of different elements of the Plan supported by supporting evidence papers. The SA was undertaken alongside the development of the different elements of the Plan as and when the relevant information became available. The SA findings helped in the development of the different elements of the Plan, ultimately leading to a proposed approach. The findings relating to the appraisals undertaken throughout the Rolling Consultation are presented in this second Interim SA Report.

3.3 Methodology

3.3.1 The appraisal at this stage is necessarily 'high-level', as most of the policy options and emerging policy approaches do not contain specific details about the location of minerals sites or the precise criteria that certain policies will contain. As such, it is difficult to accurately predict the significance of effects at this stage. However, it is possible to discuss the general merits of each approach (and any alternatives) to identify the broad sustainability credentials of emerging approaches and how these can be enhanced as the Plan progresses further.

3.3.2 One of the following symbols is assigned to each policy approach (or option) to highlight the broad effects that are likely to occur for each sustainability objective.

⇧ Positive effects likely

⇩ Negative effects likely

⇔ Neutral effects

? Uncertainty

3.3.3 For some plan issues, the Councils have identified options for how the policy approach could proceed. These are predominantly procedural in nature, and whilst these are useful to guide consultation, they are not considered to be 'reasonable alternatives' in the context of SA. Nevertheless, the broad implications of different approaches have been identified to highlight the merits of each across a range of sustainability factors. These are discussed in **Section 3.5.**

3.4 Appraisal of the vision and objectives

3.4.1 An appraisal of the draft vision and objectives was undertaken at earlier stages of the SA process. The findings were presented in an interim SA Report (July, 2013). Along with these findings and feedback from consultation, the vision and objectives have been amended. This section presents an updated appraisal of the vision and objectives to reflect the changes made as the Plan has progressed. Given the high level nature of vision and objectives, the appraisal focuses on the compatibility with SA objectives and whether the objectives are locally distinctive so as to ensure sustainable development is achieved.

SA commentary on the emerging draft Vision

The emerging draft vision supports a number of sustainability objectives. There is a clear aim to achieve a suitable balance between economic, social and environmental impacts.

In particular, there is a focus on protecting valuable minerals that can be processed and transported sustainably with minimal negative effects and maximum benefit through aftercare. This will help to support the local economy.

Addressing the contribution towards and adaptation to climate change impacts is a positive aspect of the vision. Achieving sustainable modes of transport is also comprehensively discussed.

3.4.2 Logically, the objectives follow on from the vision but provide additional detail. The table below illustrates where the emerging draft Plan objectives would help to support the SA objectives (⇧), where there may be a potential conflict (?) and where there is a negligible relationship between objectives (⇔). Where there are no relationships between SA Objectives and the Pan Objectives predicted, this could highlight opportunities for the Minerals Plan to widen the scope of its objectives.

3.4.3 It should be remembered that plan objectives have the potential to conflict with one another as they often reflect different aspects of sustainability (economic / social / environmental). This does not mean that objectives are inappropriate. The aim of plan making and SA is to achieve the most appropriate balance between these different objectives so as to achieve sustainable development.

Obj .	Biodiversity, Flora and Fauna	Land and Water Resources	Waste and Minerals	Heritage and Landscape	Air quality and Transport	Climatic Factors, Energy and Flooding	Community and Health	Local Economy, Employment and Housing
1	?	?	⇧	?	?	?	⇧	⇧
2	⇧	⇧	⇧	⇧	⇧	⇧	⇧	⇧
3	⇔	⇧	⇧	⇔	⇧	⇔	⇧	⇧
4	⇔	⇔	⇧	⇔	⇧	⇔	⇔	?
5	⇔	⇔	?	⇧	⇧	⇔	⇧	⇔
6	⇧	⇧	?	⇧	⇔	⇧	⇧	⇔
7	⇧	⇧	⇧	⇧	⇔	⇔	⇔	⇔
8	⇧	⇧	⇧	⇔	⇔	⇧	⇧	⇧

3.4.4 Providing a sufficient supply of minerals could well mean that sensitive landscapes and habitats are negatively affected during preparation and operation. Therefore, objective 1 is potentially in conflict with SA objectives that seek to protect the environment. However, impacts could be avoided or mitigated and further stages of SA should deal with such issues. The draft plan objective 6 also aims to protect the environment from the impacts of minerals development, whilst objective 7 will reduce impacts in the Peak District National Park and objective 8 will help to address flood risk. In the long term, minerals developments could also have positive effects as restoration schemes often involve habitat creation and landscaping.

3.4.5 Objective 2 seeks to achieve an appropriate balance between different elements of sustainability. It is therefore broadly compatible with each of the SA objectives.

3.4.6 Objective 3 is positive with regards to minerals planning, transport and local communities, as it promotes a spatial strategy that reduces the distance materials need to be transported. It also seeks to ensure mineral sites are viable, which is positive for the local economy. The effects upon the environment, local communities, and landscape depend upon site locations. Minerals extraction is limited to where resources are available though.

3.4.7 Objective 4 supports minerals and waste objectives, as well as protecting infrastructure that could help to reduce transport emissions. It is possible that housing and employment development could be restricted in safeguarded areas, but this is an uncertainty.

3.4.8 Objectives 5 and 6 could conflict with waste and minerals and economic SA objectives, as certain locations containing resources may be deemed inappropriate on the grounds of social and environmental impacts. This is the challenge of minerals planning though, and well-designed schemes can mitigate potential effects. Conversely, both policies are broadly compatible with objectives relating to communities, and the built and natural environment.

3.4.9 Objective 5 could seek to enhance community amenity and social health (through restoration and aftercare) rather than focusing only on avoiding negative effects.

3.4.10 Objective 7 should have a positive effect on the built and natural environment of the Peak District National Park, though the increase in provision in the Plan area could have effects in that area.

3.4.11 On balance, the objective is considered to be broadly compatible with the SA objectives given the national importance of the Peak District National Park and concentration of designated habitats in this area. This objective should also have positive effects on the minerals industry by ensuring that a reduction in provision in the Peak District is offset by an increase in the Plan area

3.4.12 Objective 8 is compatible with the majority of SA objectives. Planning to mitigate and adapt to climate change is positive for biodiversity, water resources and community health. Improved resilience to climate change is also positive for the local economy and improved energy and water efficiency is beneficial for the minerals industry.

3.5 Emerging strategies for mineral resources

3.5.1 This section sets out a high level assessment of the emerging approaches for different mineral resources and for the broader plan principles. Where new options have been identified (following the initial issues and options stage) a commentary on their broad performance is provided.

Aggregate crushed rock: Options were identified at previous stages of the plan making process. The results of the appraisal were presented in an interim SA Report (reference). The strategy towards aggregate crushed rock has progressed and an emerging policy approach has been developed which is the focus of this appraisal (see below).

Derbyshire and Derby will maintain provision for the production of land won aggregate crushed rock at a rate of 7.27 mtpa throughout the Plan period. This figure will be kept under review and revised if necessary in accordance with the Local Aggregate Assessment. The MPAs will maintain a landbank of at least 10 years of planning permissions for the extraction of aggregate grade crushed rock.

Biodiversity , Flora and Fauna	Land and Water Resources	Waste and Minerals	Heritage and Landscape	Air quality and Transport	Climatic Factors, Energy and Flooding	Communities and Health	Local Economy, Employment and Housing
⇔	⇔	⇧	⇔	⇔	⇔	⇔	⇧

Appraisal summary: The emerging approach is underpinned by evidence (The Local Aggregate Assessment), which suggests that the provision of crushed rock at a rate of 7.27 mtpa is adequate to support needs in Derbyshire. A positive effect on minerals provision is predicted, with knock on benefits for employment in this sector and construction trades that rely upon a supply of aggregates. There is sufficient landbank to meet supply beyond the plan period from current reserves. Whilst there may be environmental effects to the working of minerals at existing sites, these will have been explored through the plan permitting process. Although the provision is slightly higher to allow for recovery in the economy, it is not clear whether there would be significant effects on environmental assets. At this stage, the effects are not predicted to be significant and further extraction would need to be accompanied by an assessment of environmental effects. The effect on transport and air quality is predicted to be similar given that levels of provision would remain fairly similar to past rates of supply. Provision for a higher rate of 7.27 mtpa helps to offset/facilitate reduced quarrying in the Peak District National Park. Whilst this falls outside the plan area, there are clearly benefits for the environment and landscapes in the Peak District. It is difficult to restore quarries formed from crushed rock extraction to their former uses, which can have significant environmental effects. However, as discussed above, the provision over the plan period is already permitted, and there will be no need for the allocation of new sites. Therefore, the effects upon the environment should already be understood and form part of the 'projected baseline'. As such, a neutral effect is predicted for environmental factors.

Brickclay and fireclay (Supply): Three options have been developed to help move towards a strategy for the supply of bricklay and fireclay. These are procedural in nature, and not considered to be 'reasonable alternatives' in the context of the SA. However, a high-level appraisal of each approach is provided below to demonstrate the sustainability credentials of each option.

Issue 1 – Ensuring an adequate and steady supply of brickclay

- Option 1: Make provision through permitted reserves and specific site allocations
- Option 2: Make provision through permitted reserves and a criteria based policy
- Option 3: Make provision through permitted reserves and a combination of site allocations and a criteria based policy

	Biodiversity , Flora and Fauna	Land and Water Resources	Waste and Minerals	Heritage and Landscape	Air quality and Transport	Climatic Factors, Energy and Flooding	Communities and Health	Local Economy, Employment and Housing
1	⇔	⇔	⇧⇩	⇔	⇔	⇔	⇧	⇧
2	?	?	⇧	?	⇔	⇔	?	⇧
3	⇔	⇔	⇧	⇔	⇔	⇔	⇧	⇧

Appraisal summary: Each option involves reliance on existing permitted reserves, which would form the bulk of supply over the plan period. The effects of extracting these reserves have already been explored and are 'committed', therefore the policy would have a neutral effect in this respect. With regards to additional resources being extracted, option 1 would provide the greatest certainty. Only one site has been identified at present (an extension of the working area at the existing Mouselow Quarry site). Given that this site is already operational (and the nature of the proposed site extension) increased extraction is not likely to lead to significant effects on the environment. Consequently, a neutral effect is predicted for biodiversity, land and water and heritage and landscape. Increased workings at Mouselow Quarry are not likely to have a significant effect on transport and air quality as there are already established links to the manufacturing plant at Denton, and overall levels of output are similar.

No further sites have been identified for workings, which would make this option difficult to achieve without allowing flexibility for further sites to come forward. This approach could therefore have negative implications for waste and minerals provision (albeit there would still be positive effects given the certainty of the site extension at Mouselow).

A criteria based policy (option 2) would provide less certainty that sites would be identified for further provision. There is also the potential that sites could have negative environmental effects, and could generate traffic and emissions. It is expected that a criteria based policy would take these factors into account though, and sites that were not well related to manufacturers/buyers would no doubt be less economically viable so not be proposed. Nevertheless, more uncertain effects are predicted for option 2 with regards to biodiversity, land and water and heritage/landscape.

Option 3 combines option 1 and 2, and so the effects are likely to be similar. Allocations at known / promoted sites could help to add certainty, whilst a criteria based element to the policy will provide the flexibility to support further workings. This approach is therefore the most positive for minerals and waste.

Building Stone: Options were identified at previous stages of the plan making process. The results of the appraisal were presented in the first interim SA Report. However, the strategy towards building stone has progressed and an emerging policy approach is being developed. Two options have been identified following the submission of a site for potential working at Bent Lane / Darley Lane - New Parish Quarry).

These options that follow have been presented in the 'Towards a Strategy for Building Stone Paper' as part of the rolling consultation.

1. Should the site at Bent Lane / Darley Lane be allocated as a site in addition to a criteria based policy?
2. Should all applications for building stone works be determined by a criteria based policy?

A high level appraisal of these two broad policy options is presented below.

	Biodiversity , Flora and Fauna	Land and Water Resources	Waste and Minerals	Heritage and Landscape	Air quality and Transport	Climatic Factors, Energy and Flooding	Communities and Health	Local Economy, Employment and Housing
1	?⇩	⇧	⇧	⇧⇩	⇩	⇧	⇩	⇧
2	?	?	⇔	?	?	?	?	⇔

Appraisal summary:

Broadly speaking, the site proposed for option 1 would not generate significant negative effects on ecology. However, there may be potential to affect the connectivity of habitats, and locally important species. Though mitigation should be possible, a potential negative effect is recorded. For option 2, the effects depend on the location of sites. Whilst a criteria based approach will include biodiversity as a key consideration, it is possible that minor impacts on biodiversity could still occur. The effects at this stage are uncertain though.

With regards to agricultural land and water, the site proposed as part of option 1 is located in Flood Zone 1 on low value agricultural land. Therefore, there would be avoidance of negative effects. Whilst it is still possible that other sites could be brought forward through a criteria based policy, the requirement to do so would be lesser. Therefore, the potential for negative effects would be lower. For option 2, sites may come forward that have some impacts in terms of land, but it is expected that the criteria would ensure that unsuitable sites did not come forward, especially with regards to flooding. However, negative impacts may be more likely to occur given that the location of sites is unknown.

Option 1 provides greater certainty of a supply of minerals compared to option 2. It is possible to ascertain that positive effects would occur for option 1, but for option 2 there is greater uncertainty.

Option 1 would provide greater certainty to meet specific needs to support the character of buildings and settlements in Derbyshire and Derby and beyond that are reliant on the types of building stone found in Derbyshire. Effects of this option could therefore secure benefits in terms of local distinctiveness in the Plan area. However, the quarry itself could have negative effects on landscapes with historic environment. Therefore, mixed effects are recorded. Some of the building stone resources are located close to the Peak District National Park and therefore there is potential for extensions to existing sites and proposals coming forward under option 2 to have negative effects upon its setting. However promoting extensions to existing sites could also assist with securing restoration of existing sites. It is uncertain what the effects would be at this stage.

As this is a new site (for option 1), access and exiting infrastructure does not exist. The export route could potentially have negative effects on local road networks. It is also possible that negative effects could occur on sites determined through a criteria-based policy, but there are uncertainties at this stage.

A criteria based policy will seek to ensure that impacts on communities and health are minimised. However, the extent to which effects occurs is dependent upon the location of sites. For Option 1, there are some known issue that could occur with regards to dust, noise and visual amenity. Therefore negative impacts would be anticipated without mitigation. For option 2, the effects are uncertain.

Both options could support the local economy by allowing for extraction of minerals. However, the effects for option 1 are more certain given that a site is identified.

Coal: An appraisal of an emerging approach for coal was undertaken at issues and options stage, with the findings presented in an interim SA Report. A range of issues and options were established. Each of these is discussed below.

Although these options are not considered to be reasonable alternatives in the context of the SA; a proportionate appraisal of each has been undertaken below.

Issue 1 – Identifying Future Coal Extraction Areas

Option 1 - Identify the extent of shallow coal resources and list the environmental, social and economic constraints.
Option 2 - Identify broad locations where coal extraction may be acceptable
Option 3 – Identify specific sites where coal extraction could be suitable

	Biodiversity , Flora and Fauna	Land and Water Resources	Waste and Minerals	Heritage and Landscape	Air quality and Transport	Climatic Factors, Energy and Flooding	Communities and Health	Local Economy, Employment and Housing
1	⇔	⇔	⇧?	⇔	⇔	⇧	⇔	?
2	⇔	⇔	⇧	⇔	⇔	⇧	⇔	⇔
3	⇧	⇩	⇧⇩	⇧	⇧	⇩	⇔	⇧⇩

Appraisal summary:

The effects of option 1 are difficult to predict as the location of extraction sites would not be known and spread over a large area of potential. However, having regard to environmental constraints ought to help minimize the potential for negative effects (consequently neutral effects are predicted at this stage). This approach does not set a specific target for extraction, but is flexible enough to ensure that coal resources can be accessed and not sterilized. Consequently, a positive effect is predicted for waste and minerals. This option does not assume that coal resources will be extracted and could set criteria to ensure that extraction is located in locations which reduce the need to travel (which would be positive with regards to climatic factors and energy use). The lack of location specific policy under this approach puts the onus on developers to identify suitable sites and prepare applications. This creates some uncertainty about the likelihood of coal resources being extracted. There will be a need to balance the need for housing and employment development against the need for minerals resources. It is important to ensure that development is not restricted in the broad area of search.

Option 2 is similar to option 1, but narrows the areas of search, which would presumably exclude areas that were not suitable due to environmental constraints, viability issues and transportation. This would help to focus future applications for coal in areas that are more likely to be suitable, which provides the industry with more confidence in achieving successful applications for extraction in these areas. Whilst this approach provides more certainty and direction than option 1, it is unclear whether the information is available to identify appropriate broad locations in the Local Plan. It is presumed that this approach would be more positive for the waste and minerals industry, as it provides direction to broad locations, whilst not restricting provision to specific sites.

Option 3 would identify specific sites for allocation. This would be difficult to achieve as the level of information required to support allocations is not available to the Councils. There would therefore be a need to invest in substantial technical studies to support such an approach. Notwithstanding this, an approach that relied upon site allocations would have mixed effects. On one hand it would be positive for the minerals industry by giving confidence that specific sites are suitable for coal extraction. However, it would also limit opportunities in other locations throughout the Plan area which could be negative should opportunities be identified throughout the plan period. It is presumed that the site allocation process would give consideration of environmental factors, which should ensure that negative effects are minimised on biodiversity, heritage and landscape. However, without knowing what sites would be allocated there is still a degree of uncertainty.

In terms of climate change, it is desirable to encourage the use of alternative sources of fuel, so allocating sites would not be attractive in this respect as it pre-empts the use of coal and will also be likely to lead to the loss of soil resources (whilst this could also happen under the other two options, it is not as certain given that site allocations would not be identified).

The allocation of sites should be positive for the local economy, as it provides a clear steer to the minerals industry. It would also avoid the need to identify larger areas of safeguarding, which would be less restrictive to other types of development. However, negative effects could occur by allocating sites that do not come forward.

Coal *(further issues, with no reasonable alternatives identified)*

Issue 2 - Surface mining constraint areas

Two options were identified relating to whether surface water constraint areas should be identified in the Local Plan. These are procedural in nature and it is not considered that these area reasonable alternatives in the context of the SA.

Issue 3 - Sustainable Principles for the Provision of Coal Extraction

No options were identified with regards to this issue.

Issue 4 - The Need for a Specific Criterion Based Policy for Coal Extraction and Related Development Proposals

Two options were identified relating to whether a specific policy should be included in the Plan or not. This is a procedural matter and not likely to lead to substantial differences in SA terms (nor would it be possible to deduce meaningful conclusions from such a comparison).

Issue 5 - In Addition to the Environmental Criteria Policy, what additional matters should be included in a separate and specific coal development policy

Two options were identified relating to whether a specific policy should be included in the Plan or not. This is a procedural matter and not likely to lead to substantial differences in SA terms (nor would it be possible to deduce meaningful conclusions from such a comparison)

Issue 6: Methodology for the Assessment of Cumulative Impacts (see separate assessment).

Issue 7: How to Assess the Benefits of Coal Extraction and Other Coal Related Developments

Two options were identified relating to how benefits are considered. This is a procedural matter and not likely to lead to substantial differences in SA terms (nor would it be possible to deduce meaningful conclusions from such a comparison).

Issue 8: Prior extraction of coal

Two options were identified relating to whether a specific policy should be included in the Plan or not. This is a procedural matter and not likely to lead to substantial differences in SA terms (nor would it be possible to deduce meaningful conclusions from such a comparison)

Issue 9: Reworking of Colliery Spoil Tips

Two options were identified relating to whether a specific policy should be included in the Plan or not. This is a procedural matter and not likely to lead to substantial differences in SA terms (nor would it be possible to deduce meaningful conclusions from such a comparison)

Deep mined coal: The interim Sustainability Appraisal found that a criterion based policy should be adequate to avoid the sterilisation of reserves, particularly in light of the lack of technical information about the location, scale and viability of those reserves. It was also considered an appropriate approach in climate change terms by not pre-empting the use of coal in preference to other alternatives. It was considered that the designation of constraint areas would help to protect the most sensitive areas with positive implications for biodiversity, landscape, heritage and natural resources. In contrast, the lack of detailed information about the extent of constraints could mean that non-designated areas with unknown constraints could be more vulnerable to development pressures.

At this stage, four issues have been identified. Options have only been identified for issue three and four as outlined below.

Issue 1: Making provision for possible future deep mined coal extraction
Issue 2: How should the plan develop a policy approach for proposals for deep mine coal extraction

It is a national policy requirement to consider provision for deep mined coal, and so no alternative approaches are suggested.

Issue 3: The need for a specific and separate policy for deep mined coal:

This is more of a procedural issue, as criteria could be included within a standalone policy (and still include specific criteria relating to certain minerals).

Issue 4: The need for additional criteria for testing the acceptability of deep mined coal:

Two procedural options have been presented; 1) to rely upon the NPPF/ NPPG 2) to include additional criteria.

A high level appraisal of the emerging approach is presented below, with some commentary on the possible implications of the identified options.

Biodiversity , Flora and Fauna	Land and Water Resources	Waste and Minerals	Heritage and Landscape	Air quality and Transport	Climatic Factors, Energy and Flooding	Communities and Health	Local Economy, Employment and Housing
⇔	⇔	⇔	⇔	⇔	⇔	⇔	⇔

Appraisal summary: It is difficult to ascertain the effects of the emerging policy approach, as different procedural options are still being consulted upon, and would probably result in very similar outcomes against the SA Framework. Generally, the inclusion of a policy is a positive approach, as it helps to set out what will be expected of proposals, where opportunities may exist, and how developments should be tested for acceptability. The criteria listed in the NPPF/NPPG cover a wide range of sustainability factors, and so the policy is likely to have a neutral effect at worst. An approach that adds some more specific criteria could have further benefits on those aspects of sustainability, but there would be a need to balance requirements with practicality and viability issues. An approach that implements the national policy perspective is likely to have neutral effects, as this would be a requirement anyway. Where additional criteria are identified, as well as possible opportunity areas for extraction, the potential for effects (mainly positive) increases. However, these can only be tested once a more firm policy approach has been established.

Hydrocarbons: An appraisal of an emerging approach for hydrocarbons was undertaken at issues and options stage, with the findings presented in an interim SA Report. Subsequently, a range of broad procedural options for hydrocarbon have been identified. These options are not considered to be reasonable alternatives in the context of the SA; however, a proportionate appraisal of the emerging approach to Hydrocarbons has been undertaken below, including a commentary on different approaches proposed in the 'Towards a Strategy for Hydrocarbons' consultation.

Emerging approach to the provision of hydrocarbons

It is intended that the Plan will adopt an approach to the provision of hydrocarbon minerals in accordance with the policy guidance of the NPPF and NPPG. The Plan, as a minimum, will identify on a plan the areas currently subject to Petroleum Exploration and Development Licences and also any operational sites at the time of publication but will not seek to identify specific sites for future development due to the limitations of the existing information. The Plan may be able to identify areas where hydrocarbons resources are present and where development could be undertaken *(for which three procedural options have been established).* The Plan will also set out criteria for the assessment of planning applications including the following: Landscape, Biodiversity/Ecology, Heritage, Archaeology, Geology/Geomorphology, Water Protection/Flood Zones, Green Belt, Contaminated Land.

Biodiversity , Flora and Fauna	Land and Water Resources	Waste and Minerals	Heritage and Landscape	Air quality and Transport	Climatic Factors, Energy and Flooding	Communities and Health	Local Economy, Employment and Housing
⇔	⇩	⇧	⇔	⇔	⇧	⇔	⇔

Appraisal summary: The proposed approach is in-line with the NPPF and NPPG, which ought to lead to neutral effects in the main. Not allocating sites for future development is positive with regards to climatic factors, as it does not pre-empt the use of fossil fuels. The plan could identify broader areas of potential development, which would help to guide the minerals industry. However, this approach has yet to be determined and is the subject of consultation. In the long term, it may be necessary to make use of hydrocarbon resources to improve energy security and a reliable mix of fuel. Therefore, an approach that identifies areas where hydrocarbons development may be suitable in principle could be more positive on the economy (which is heavily reliant upon and affected by the supply and price of energy). However, the information required to adopt this approach is not available, and not identifying areas in the Plan does not preclude the potential for future development.

The draft list of assessment criteria will ensure that most aspects of environmental sustainability are addressed. However, it is suggested that soil resources should be included on this list, as there may be potential for the loss of high quality agricultural land. Towards the eastern border of the Plan area along the coal measures, much of the agricultural land is grade 4. However, there are parcels of Grade 3 land throughout the County, and a large swathe of Grade 2 land to the east of Hardstoft, Heath and Calow (which are on the edge of the East Midlands oil and gas province.

Industrial limestone: An appraisal of an emerging approach for industrial limestone was undertaken at issues and options stage, with the findings presented in an interim SA Report. Subsequently, a range of broad procedural options for industrial limestone have been identified. These options are not considered to be reasonable alternatives in the context of the SA; however, a proportionate appraisal of the emerging approach to Industrial Limestone has been undertaken below; including a commentary on different approaches proposed in the 'Towards a Strategy for Industrial Limestone' consultation. This includes five 'issues' relating to maintaining an adequate and steady supply of industrial limestone and the materials required for cement production. The key issue, which all other issues relate to is Issue 1, which is replicated below:

Issue 1: Options for making provision for an adequate and steady supply of industrial limestone

- Option 1: Make provision through existing permitted reserves and allocations
- Option 2: Make provision through existing permitted reserves and a criteria based policy.
- Option 3: Make provision through existing permitted reserves, allocations and a criteria based policy.

Biodiversity , Flora and Fauna	Land and Water Resources	Waste and Minerals	Heritage and Landscape	Air quality and Transport	Climatic Factors, Energy and Flooding	Communities and Health	Local Economy, Employment and Housing
?	⇔	⇧	?	⇔	⇔	⇔	⇧

Appraisal summary: Each option relies substantially on existing permitted reserves, which means that the effects upon sustainability factors is not likely to be significant (i.e. these reserves are likely to be worked in the absence of Plan anyway). However, further supply could be needed, which could have positive or negative effects upon aspects of sustainability. It is difficult to compare procedural options, without further information about the location of development. However, it is possible to discuss the general merits of different approaches, and the overall effect that a policy on industrial limestone is likely to have.

In broad terms, each policy approach would have a positive effect on 'waste and minerals', as the primary principle is to secure a steady and stable supply of industrial limestone. However, an approach that relies solely upon allocations is likely to fall short, given that there is uncertainty about the level of need required, the complexity of the market (e.g. changing specifications) and a lack of information about potential site options or areas of search. Conversely, an approach reliant solely on criteria based policy does not provide the same level of certainty. For this reason, option 3 is considered to be the most beneficial approach to waste, minerals and the local economy.

The only sites that have been identified as potential sources of supply are extensions to existing sites (Ashwood Dale and Whitwell Quarry and Aldwark / Brassington Moor). The constraints associated with these sites are already known and continued operation of existing processing plant and access would be unlikely to have significant effects. However, extensions to the site could lead to further impacts on environmental receptors, particularly landscape. Ashwood Dale Quarry (Buxton) is the subject of a planning application, with the accompanying Environmental Statement demonstrating that effects upon communities or environmental assets are unlikely. Positive socio-economic effects are predicted though.

Five potential extension sites have been identified at Whitwell Quarry (one of which is in Nottinghamshire). General constraints in the area are the presence of Welbeck Abbey Registered Park, Scheduled Monuments at Creswell Crags and falling within a SSSI risk zone. Expansion at Aldwark/Brassington Moor has the potential to have impacts on the landscape and adjoining Peak District National Park.

A criteria based policy is likely to include consideration of environmental constraints and transport links; which should help to minimise negative effects and direct growth to the most suitable areas.

Reducing quarrying in the Peak District National Park: Two options were appraised as part of an issues and options stage, with the findings presented in the interim SA Report. An appraisal of an emerging approach for this plan element was also undertaken as part of the SA.

The first Interim Sustainability Appraisal concluded that Option 2 (to reduce the landbank of crushed rock in DCC and the Peak District National Park) is expected to perform better than Option 1 (to reduce the landbank of crushed rock in DCC) in terms of achieving environmental and social objectives by reducing permitted extraction in the Peak District National Park and therefore assist in the delivery of the Park's objectives and also maintain potential recreational areas for Derbyshire and Derby's communities.

In terms of meeting economic objectives, both options would reduce the overall land bank for crushed rock however this is not expected to result in provision for less than what is required as part of the apportionment set out in the national and regional guidelines for aggregates provision and both options would still grant new permissions where these are applied for therefore still encouraging minerals extraction where this is needed. This would also help to maintain the important role the extraction of this aggregate plays in national supplies as the Plan area has the second highest annual output of limestone in England.

A draft policy is being prepared and an appraisal will be presented in the SA Report.

Cumulative impacts: Three issues have been identified in relation to cumulative impacts. For issues 2 and 3, two procedural options have been identified related to the methodology for assessing cumulative impacts. Although these options are not considered to be reasonable alternatives in the context of the SA; a proportionate appraisal of each has been undertaken below.

Issue 2 – Methodology for the assessment of cumulative effects

- Option 1: Based upon NPPF guidance
- Option 2: Based upon the approach suggested by Mr Justice Brown.

	Biodiversity , Flora and Fauna	Land and Water Resources	Waste and Minerals	Heritage and Landscape	Air quality and Transport	Climatic Factors, Energy and Flooding	Communities and Health	Local Economy, Employment and Housing
1	⇔	⇔	⇔	⇔	⇔	⇔	⇔	⇔
2	⇔	⇔	⇔	⇔	⇔	⇔	⇔	⇔

Issue 2 - Appraisal summary: The significance of effects is difficult to determine given the high level procedural nature of these options. However, both options ought to have positive effects upon sustainability factors as they seek to ensure that new developments in combination with existing and planned developments do not have significant negative effects upon the environment, communities or the economy. This should ensure a neutral effect upon the baseline position for each sustainability objective. Option 2 is likely to be more positive with regards to the identification of negative effects as it takes a more comprehensive approach compared to option 1. In turn, this could be more costly in terms of mitigation measures.

Issue 3 – Methodology for establishing the baseline for assessing cumulative impacts

- Option 1: Use different baselines taking into account historical context.
- Option 2: Use the same criteria for all areas.

1	⇔	⇔	⇔	⇧	⇩	⇔	⇧	⇔
2	⇔	⇔	⇧	⇔	⇔	⇔	⇔	⇔

Issue 3 – Appraisal Summary

Taking into account historical context in determining sensitivity (option 1) could be positive for heritage and landscapes which have already been affected by development (i.e. these areas may be more sensitive to further development). This approach could also be positive for communities by recognising the effects of industrial decline, which are more prominent in some locations. Conversely, this approach could direct development away from areas that are well served by infrastructure and supply lines (*i.e. those areas which are determined to be most sensitive due to past and present activities*), which is less positive for transport. Option 2 which sets a consistent (but flexible) across the Plan area is likely to be more balanced for the minerals industry, and does not place areas at an 'advantage' or 'disadvantage' on the basis of historic activity. For both options, it is difficult to determine the significance of effects as they are procedural in nature and do not relate to specific areas or sites.

Safeguarding mineral resources (SMP6): An appraisal of an emerging approach for this plan element was undertaken at previous stages of plan making. The findings were presented in the interim SA Report. Subsequently, a policy approach has been developed for Safeguarding mineral resources (i.e. draft Policy SMP6). An appraisal of this policy is presented below (essentially an update of the appraisal for the emerging approach).

Biodiversity , Flora and Fauna	Land and Water Resources	Waste and Minerals	Heritage and Landscape	Air quality and Transport	Climatic Factors, Energy and Flooding	Communities and Health	Local Economy, Employment and Housing
⇔	⇔	⇧	⇔	⇔	⇧	⇧	?

Appraisal summary: There is a need to include a policy to safeguard minerals. The proposed approach would have positive implications by ensuring a steady supply of minerals for economic development. It would also help to ensure that the need for mineral imports was minimised, which would reduce carbon emissions.

The SA of the emerging approach suggested a more flexible approach to protection dependent upon the scarcity of mineral resources and their 'importance'. The revised policy (SMP6) take this into account by identifying that safeguarded areas for some minerals will be more selective; involving the land around existing workings.

The draft policy will safeguard minerals in urban areas where there are proven resources. There is an exemption list, to ensure that the majority of development is unaffected. However, larger housing and employment development in areas where minerals are known to exist would need to demonstrate that the resources cannot be extracted prior to their development. This could discourage the development of some sites, including brownfield land, but on the other hand, provides opportunities to extract resources, which could possibly partially fund subsequent development for other uses. An uncertain effect is predicted at this stage for economy and housing as further detail is to be drawn up relating to redevelopment of a site in the urban area. However, it is not expected that significant effects would occur as the policy ought to take account of viability and feasibility of resource extraction.

Safeguarding minerals infrastructure: The issues of safeguarding infrastructure were not explicitly explored at previous stages of the issues and options process. However, the MSA identified a number of key issues that need to be addressed to be able to develop the final strategy. Some of the options identified for these issues are procedural in nature and therefore, the impacts in the SA would not be particularly discernable between the different approaches. The issues are as follows.

Issue 1 - How should minerals infrastructure be safeguarded?
Issue 2 - The use of consultation areas.
Issue 3 - Allowing redevelopment for other uses.
Issue 4 – The need for a protocol for setting out safeguarding consultation procedures.

Options have been identified for issues 1-3. A discussion is presented below.

Issue 1
Option 1 - Safeguard only the strategic facilities
Option 2 - Determine the need to safeguard facilities on a case by case basis
Option 3 - Apply an overarching policy covering all infrastructure

Each approach relates to how safeguarded areas would be determined. Whilst this would affect the process of determining appropriate development, the options are unlikely to result in significantly different impacts from one another (the options are procedural). Therefore, it is not considered necessary or helpful to appraise these options in the SA.

Issue 2

Option 1 - Determine the need and size of consultation areas on a case by case basis.
Option 2 - Establish a standard consultation area around all facilities
Option 3 - Define consultation areas around the strategic infrastructure facilities only with the area defined on a site by site basis.

Whilst these options would affect the number of schemes that would potentially fall within consultation areas, the outcome of consultation is likely to be very similar irrespective of the option (these options are procedural). Option 2 would lead to a greater consideration of a wider range of facilities, which could be more beneficial for minerals and transport, but have negative implications in terms of other forms of potential development. Effects on other aspects of sustainability are unlikely to occur regardless of the option.

Issue 3

Option 1 - All safeguarded sites to remain protected for the duration of the plan.
Option 2 - Allow for the removal of safeguarding protection in some circumstances.

These options differ in their approach to the protection of safeguarded infrastructure and could lead to differences in effects for a number of sustainability factors. These issues are discussed below.

	Biodiversity , Flora and Fauna	Land and Water Resources	Waste and Minerals	Heritage and Landscape	Air quality and Transport	Climatic Factors, Energy and Flooding	Communities and Health	Local Economy, Employment and Housing
1	⇔	⇔	⇧	⇩	⇧	⇔	⇔	⇩
2	⇔	⇔	?	⇧	⇔	⇔	⇔	⇧

Option 1 provides the strongest level of protection in terms of waste and minerals and in the longer term would best ensure that there is infrastructure to support minerals workings and transport (without having to development new facilities). However, it does not provide the flexibility for other uses to be supported if appropriate. This could have negative implications in terms of other forms of development. It may also lead to facilities falling into dereliction, which could be negative with regards to landscape and townscape character. Option 2 is more flexible, and could therefore lead to possible loss of infrastructure in the long term. However, this is unlikely given that there would be a need to demonstrate that infrastructure was not needed and/or inadequate. This option would also provide opportunities for economic growth in other sectors if appropriate which is positive for the economy and for the public realm.

Restoration of Hard Rock - Carboniferous Limestone Quarries:

The first Interim SA Report presents a high level assessment of two options relating to the restoration of quarries along the A515 corridor. Developing a specific coherent strategy was considered to be the most desirable approach, compared to the continuation of a criteria based policy on a site-by-site basis.

The next stage of the Plan making process sought to consider whether a strategic approach could also be taken for other hard rock quarries. Three options are identified as follows.

Issue 1 – What area should the strategy cover

- Option 1: Apply to the A515 quarries only
- Option 2: Apply to all of the hard rock quarries within the Carboniferous Limestone
- Option 3: Apply to all hard rock quarries within the Plan area?

Issue 2 identifies the issues that could affect the restoration of Carboniferous limestone quarries, whilst Issue 3 identified draft principles for restoration. There are no options for either of these issues.

	Biodiversity , Flora and Fauna	Land and Water Resources	Waste and Minerals	Heritage and Landscape	Air quality and Transport	Climatic Factors, Energy and Flooding	Communities and Health	Local Economy, Employment and Housing
1	⇧	⇔	⇔	⇧	⇔	⇔	⇧	⇧
2	⇧	⇔	⇔	⇧	⇔	⇔	⇧	⇧
3	⇧	⇔	⇔	⇧⇩	⇔	⇔	⇧	⇧

Option 1 is expected to have benefits related to heritage and landscape, biodiversity flora and fauna, land and water resources, communities and health and the local economy by providing a strategic landscape management scheme for this area. In particular significant positive effects upon the local landscape along this corridor and potentially indirect positive effects on the setting of the nearby Peak District National Park are expected as it will ensure a particular standard is met for all sites in terms of management and after care and this will also provide certainty to the minerals industry. These effects are somewhat uncertain as it will depend on the types of restoration proposed and when sites are expected to be restored which is unknown.

Option 2 expands the area covered by a restoration strategy. Whilst this is positive with regards to encouraging a joined-up approach to restoration, there may be differences across the carboniferous limestone that is not reflected by a standard approach. Covering a wider area could potentially lead to stronger ecological connections and green infrastructure corridors. It also provides clarity on requirements across a larger area. However, a standard approach would possibly not reflect locally specific issues that need to be addressed.

Option 3 expands the area covered by a restoration strategy even further. Again, this is positive in some respects by allowing for strategic links to be established that could benefit biodiversity and communities. However, the character of the landscape is different for sandstone producing sites, which are also dispersed more widely and present less opportunities for joined-up restoration.

Ultimately it may be most appropriate to devise a number of restoration strategies that are predicated on the landscape character within which they sit, and the proximity of other quarries that could form part of a wider strategy.

Sand and gravel: At issues and options stage, an appraisal of an emerging approach for sand and gravel was undertaken. It was concluded that allocating extensions to existing sites rather than finding new extraction sites could put additional pressure on the environments within which current facilities are located. However, it would help to negate environmental impacts in other parts of the Plan area. It would also prevent the need to identify alternative sources of supply; helping to reduce barriers/costs to extraction. Expanding existing sites also helps to retain employment over a longer period of time for communities that currently rely upon these opportunities. Emerging policy approaches for sand and gravel provision and site selection have subsequently been developed as follows:

Emerging policy for the provision of sand and gravel

Derbyshire and Derby will maintain provision for the production of land won sand and gravel at a rate of 1.04mtpa throughout the Plan period. This figure will be kept under review and revised if necessary in accordance with the Local Aggregate Assessment.

The MPAs will maintain a landbank of at least seven years of planning permissions for the extraction of sand and gravel.

Emerging Approach for Sand and Gravel Site Selection

In order to maintain an adequate and steady supply of minerals during the Plan period, land will be allocated to meet the identified shortfall of 2 million tonnes in the requirement for sand and gravel, where acceptable in economic, social and environmental terms.

Taking into account all of the above considerations, the suggested sites will all be assessed against the same set of social, economic and environmental criteria, which will determine their potential for mineral working in overall sustainability terms. These criteria are being developed through engagement with local communities and other stakeholders. Taking account of the responses at the recent drop-in sessions, there will be no weighting applied to the sites as a result of their general location, either in the Trent and Derwent Valleys or the Lower Dove Valley. Preference will be given to extensions of existing sites over new sites.

Biodiversity , Flora and Fauna	Land and Water Resources	Waste and Minerals	Heritage and Landscape	Air quality and Transport	Climatic Factors, Energy and Flooding	Communities and Health	Local Economy, Employment and Housing
⇧⇩	⇧⇩	⇧	⇧⇩	⇔	⇔	⇔	⇧

Appraisal summary: The policy approach identifies that the shortfall in sand and gravel will be met through the allocation of sites. Though there is a preference for extensions, this does not rule out new sites if they are demonstrably sustainable. As such, an appraisal of each site option will need to be undertaken to determine more accurately what the effects of the strategy for sand and gravel will be. At this stage it is possible to comment on the broad approach being proposed in general terms.

The main aspect of the policy relevant to the appraisal is the consistency in appraisal for all sites, as well as the preference for existing sites rather than new sites. Applying consistent criteria ensures a fair assessment of sites against sustainability factors, and is therefore likely to inform an appropriate strategy. The preference applied to existing sites could have mixed effects. On one hand, it will ensure that new development is located in accessible locations, make good use of existing infrastructure and continue to provide employment for communities that rely upon these industries. However, there is potential for negative effects upon biodiversity, land and water, and heritage and landscape, especially given that these areas have already experienced historic extraction of minerals.

On the other hand, it does protect 'new' areas from potential negative effects, and the potential effects of extensions should be well understood given the assessment required to support permission of current sites. Furthermore, the emerging approach towards restoration in the river valleys should also help to ensure that a managed strategy for restoration is implemented across these areas.

Restoration of the Trent river valleys: The SA undertaken at issues and options stage appraised two broad options for the delivery of a strategy for the restoration and working of minerals in the river valley. It was concluded in the SA that a joined-up approach to landscape management would have a more positive effect upon biodiversity, land and water resources, communities and health and the local economy. An emerging policy (replicated below) has been drafted that takes account of the findings in the SA as well as other evidence and consultation responses.

This Strategy will ensure that a more coordinated landscape scale approach is taken to the working and restoration of mineral workings in the Trent Valley. It will seek to create more resilient landscapes; firstly, through the conservation of the areas identified as being of highest environmental value, secondly with robust mitigation and management in those areas where some change is proposed and thirdly through the planning and enhancement of areas which have been identified as currently being deficient in these environmental qualities.

The Councils will work with communities and mineral operators and other stakeholders to help ensure that proposals for mineral working in the Trent, Derwent and Lower Dove Valleys show how the restoration of these sites will fit in with this long term strategy.

Biodiversity , Flora and Fauna	Land and Water Resources	Waste and Minerals	Heritage and Landscape	Air quality and Transport	Climatic Factors, Energy and Flooding	Communities and Health	Local Economy, Employment and Housing
⇧	?	⇧	⇧	⇔	?	⇧	⇧

Appraisal summary: The policy approach is likely to have medium to long term positive effects upon biodiversity and landscape management by delivering a network of green infrastructure, which could involve water habitats. This could have knock-on benefits for communities by creating opportunities for recreation.

The policy will set a clear standard for the restoration of sand and gravel sites, which will give the minerals industry certainty about the standard of restoration and aftercare expected, as well as guiding the allocation of sand and gravel sites.

Some sites could be vulnerable to flooding or the proposed restoration may result in increased flood risk, or effects upon water quality. However, conversely, a joined up approach may better help identify potential for water / flood management schemes. Therefore, an uncertain effect is predicted for climatic factors, energy and flooding and land and water resources.

Sustainability principles (SMP1: Sustainability): Sustainability has been identified as a key issue for the Plan from the early stages. Consequently, a draft policy has been developed that will embed sustainability principles in the Minerals Local Plan.

When considering proposals for mineral development, the Councils will take a positive approach that reflects the presumption in favour of sustainable development contained in the National Planning Policy Framework. The Councils will always work proactively with applicants to find solutions, which mean that proposals can be approved wherever possible, and to secure well-designed schemes and development that makes the most efficient use of the resource and improves the economic, social and environmental conditions in the plan area. Planning applications that accord with the relevant policies in this Minerals Local Plan will be approved without delay, unless material considerations indicate otherwise.

If there is an issue that is not addressed in this Plan, it will be judged in accordance with the policies in the National Planning Policy Framework.

Biodiversity , Flora and Fauna	Land and Water Resources	Waste and Minerals	Heritage and Landscape	Air quality and Transport	Climatic Factors, Energy and Flooding	Communities and Health	Local Economy, Employment and Housing
⇔	⇔	⇧	⇔	⇔	⇔	⇔	⇧

Appraisal summary: Whilst this policy sets a positive framework for the achievement of sustainable minerals development, it essentially repeats national principles, which it is expected would be delivered through a Minerals Plan anyway. Therefore, in isolation, this policy is unlikely to have any significant effects upon the majority of sustainability factors. Notwithstanding this, the strong emphasis placed upon ensuring that developments come forward (without delay) ought to be positive with regards to waste and minerals and the economy.

Sustainability principles (SMP2: Climate Change): Climate Change has been identified as a key issue for the Plan from the early stages. Consequently, a draft policy has been developed that will seek to address strategic climate change issues.

Planning permission will be granted for proposals for minerals development that take account of climate change for the lifetime of the development, from construction through to operation, decommissioning and restoration.

Proposals should incorporate measures to minimise greenhouse gas emissions (mitigation) and to allow flexibility for future adaptation to the impacts of climate change (adaptation), which may include some or all of the following:

- *Locating and designing the facility, and designing transport related to the development, in ways that seek to minimise greenhouse gas emissions, Incorporating carbon off-setting measures.*
- *Using renewable, decentralised, or low carbon energy sources to power the facility.*
- *Incorporating measures to minimise flood risk associated with the development.*

Biodiversity , Flora and Fauna	Land and Water Resources	Waste and Minerals	Heritage and Landscape	Air quality and Transport	Climatic Factors, Energy and Flooding	Communities and Health	Local Economy, Employment and Housing
?	⇔	⇧	⇔	⇧	⇧	⇧	⇧

Appraisal summary: The draft policy is likely to have a positive effect on a number of sustainability factors. Primarily, the requirement for developments to minimise greenhouse gas emissions should have a positive effect on energy and climate change. Encouraging efficient reuse and recycling of materials as well as smarter transportation of materials should also have positive effects on minerals and waste, air quality and transport. In some instances, it may be possible to contribute to increased resilience to climate change (for example improving habitat connectivity, and managing flood risk). An uncertain effect is predicted at this stage; as such opportunities will depend upon the location and details of minerals sites. However, in principle, the policy is positive in this respect.

Sustainability principles (SMP3: Economic, social and environmental principles for Minerals Development): In order to reflect those issues which are particularly important to local people in dealing with proposals for minerals development in the Plan area, an emerging strategic approach has been captured in the following draft policy.

Proposals for minerals development will be supported:

- *To maintain the continued and sustained production of minerals from the Plan area over the Plan period to support the economy of Derbyshire and Derby, as well as the national economy.*
- *Where they make the most efficient use of those resources, whilst ensuring that any minerals development does not harm significantly the special built and natural character of the area and does not cause harm to local communities, either individually or cumulatively with other development in the same area.*
- *Where it would not have an adverse impact on areas covered by international, national and local environmental designations, apart from in special circumstances.*
- *Where high standards of working, restoration and aftercare of mineral workings will be promoted, to help offset any harm that may be caused by mineral working.*

Biodiversity , Flora and Fauna	Land and Water Resources	Waste and Minerals	Heritage and Landscape	Air quality and Transport	Climatic Factors, Energy and Flooding	Communities and Health	Local Economy, Employment and Housing
⇩?	⇔	⇧	⇧	⇔	⇔	⇧	⇧

Appraisal summary: The draft policy is likely to have a positive effect upon minerals and waste development, as it is generally supportive of development if reasonable requirements are met. Maintaining a steady supply of minerals is a key element to the policy, which will help to ensure that economic development is supported both locally and nationally. The policy seeks to protect communities, as well as heritage and landscape character. The effects on biodiversity are potentially negative, as although the policy seeks to protect designated sites, it allows for harm in 'special circumstances' (*this is different to the consideration of effects for the built and natural character of the area, which states that development should not cause 'significant harm'*). There is also no mention of non-designated biodiversity areas or priority species. The fourth clause does provide the framework for 'offsetting' impacts through measures during working, restoration and aftercare. This could (and usually does) involve habitat enhancement measures. However, to be clearer and provide a more proactive policy approach, it is recommended that the policy makes specific reference to the need to mitigate effects as far as possible, followed by compensation and/or enhancement. As written, the policy could be perceived as suggesting that the built and natural character of an area is more important than potential effects upon designated environmental sites.

The policy does not allude to potential effects on soil, air or water resources. Though these issues would typically be picked up in an EIA, it would be useful to provide a positive policy framework regarding their protection, mitigation and enhancement (*Given that this policy seeks to achieve an appropriate balance between economic, social and environmental factors*).

Sustainability principles (SMP4: Spatial Strategy):

Proposals for mineral development in Derbyshire and Derby which embrace the following spatial principles will be supported:

- *Where proposals ensure the availability of sites and facilities for the production of secondary and/or recycled materials which can substitute for primary minerals.*
- *Where sites are proposed for primary mineral production, it can be shown that the need for the mineral cannot be met from sources of secondary and/or recycled materials and that it provides overall gains across the three sustainability themes, giving priority to the extension of existing sites.*
- *Where the site is in a location where the use of sustainable modes of transport can be maximised thus helping to ensure that the development minimises its impact on the causes of climate change.*
- *Where development will be located which minimises adverse impacts on the local environment and the amenity and quality of life of local communities, including where maximum use will be made of the primary road network to reduce the need for transport through villages.*
- *Where the strategic restoration of mineral workings has been considered from the outset in their planning and development and that the sites will be restored at the earliest opportunity and in the most appropriate manner for the area, resulting in after-uses which provide benefits to the environment and local communities.*

Biodiversity , Flora and Fauna	Land and Water Resources	Waste and Minerals	Heritage and Landscape	Air quality and Transport	Climatic Factors, Energy and Flooding	Communities and Health	Local Economy, Employment and Housing
?	⇧	⇧	?	⇧	⇧	⇧	⇧

Appraisal summary: Rather than setting out a detailed spatial strategy, the policy sets strategic principles for the location of minerals development. This makes it more difficult to ascertain the likely significant effects of development. However, it can be assumed that there will be a focus on the extension of existing sites, recycled and secondary materials as a substitute for primary minerals and a link to existing strategic infrastructure networks. This approach should have a positive effect upon waste and minerals by encouraging recycling, and the extension of existing sites, which have proven resources. Taking this approach, there is an assumption that sand and gravel sites would be extended or re-opened (where they are inactive) along the river valleys in particular. Although there could be some localised effects upon communities and amenity, landscape and heritage, it is possible that these could be mitigated, as the issues associated with existing sites (and their surroundings) should be well known. There are no significant constraints with regards to biodiversity in this area, and good links to the strategic road network, which should help to minimise transport emissions.

With regards to crushed rock there are concentrations of existing quarries around the Buxton and Wirksworth areas both of which lie close to the Peak District National Park. These areas lie close to a number of SSSIs and so there is potential for negative effects upon wildlife if expansion occurs here. Having said this, it should be possible to mitigate effects, and some of the quarries themselves are designated as SSSIs due to their value to wildlife. Consequently an uncertain effect is predicted against biodiversity. Similarly, a number of existing quarries lie within the Derwent Valley Mills World Heritage Site, so there would be potential for negative effects upon its setting should extensions to these sites be proposed. At this stage it is uncertain whether extensions to such quarries would be proposed. Furthermore, the development of new sites could also have similar effects as known resources also fall into areas of sensitivity for biodiversity and landscape/heritage. Therefore, an uncertain effect is predicted at this stage.

The principles ought to have a positive effect on land resources and energy use, by encouraging the reuse of materials on focusing on extensions to exiting sites. The effect on housing and employment should also be positive as the principles should ensure a steady supply of minerals to support economic activity and housebuilding.

Sustainable transport of minerals: An emerging policy approach has been established for the transport of minerals. This requires proposals for minerals development to minimise the impact of transport movements on the environment and local communities and maximise the use of alternatives to road transport. Proposals for minerals development should demonstrate:

1. *how transport movements relate to mineral resources and markets;*
2. *how opportunities for alternative methods of transport have been evaluated;*
3. *how access to the strategic highway network is suitable and how impacts on road safety and congestion have been addressed; and*
4. *what measures have been incorporated including mitigation to avoid unacceptable harm to the environment and local communities?*

Where appropriate, developer contributions will be sought for transport/highway improvements to mitigate the impacts of mineral development.

Biodiversity , Flora and Fauna	Land and Water Resources	Waste and Minerals	Heritage and Landscape	Air quality and Transport	Climatic Factors, Energy and Flooding	Communities and Health	Local Economy, Employment and Housing
⇔	⇔	⇔	⇔	⇧	⇧	⇧	⇔

Appraisal summary: Given the reliance upon existing transport networks, and the relationship between current minerals sites / resources and the end market, it is acknowledged that the dominant mode of travel going forward is likely to be road transport. Rail and water transport can be expensive to implement the required infrastructure, and so they only tend to be utilised for high value materials and / or longer distances. In this respect, the policy (though positive in its intention) is unlikely to have significant effects upon air quality and transport or climatic factors. However, the policy is positive and should ensure that all possibilities to reduce transport and to source alternative methods of transport have at least been evaluated.

Perhaps the greatest potential for reducing the transport of minerals is to minimise the demand for virgin materials I the first instance and to make use of resources more efficiently. By reducing waste, and re-using secondary materials locally, it will help to reduce the need to transport minerals. This is something that the end market needs to improve upon though, and not necessarily something minerals developments can ensure. Nevertheless, perhaps it would be beneficial to include a clause that requires development proposals to demonstrate a need for virgin minerals in the immediate area and a lack of supply from other areas that are closer / more easily reached by sustainable modes of transport (particularly where there are longer distances involved to end markets).

The effects upon communities and health ought to be positive, as there is a need to ensure road safety and amenity is protected. With regards to environmental factors uh as biodiversity, heritage and landscape, the effects are in all likelihood going to remain the same, because existing routes are expected to remain the most suitable and most utilised. Therefore, a neutral effect could be expected. In the instance that the policy identified more sustainable modes of travel (rail or water) there may be a potential for increased effects on water environments, or biodiversity, but these effects could likely be managed. Conversely, a reduction in road transport of minerals would have positive implications for air quality, communities and health.

Vein minerals:

Issue 1: Emerging approach to vein minerals

At issues and options stage, an appraisal of an emerging approach for vein minerals was undertaken. The interim Sustainability Appraisal found that a criteria based policy would have positive implications for landscape, geodiversity, biodiversity and natural resources. However, given that it can be difficult to find suitable sites for vein mineral extraction and that demand fluctuates widely, it may be appropriate to allow development without the need to demonstrate there is a demand for the mineral. Scale and methods of working could still be included in a criteria based policy though. Moving forward, the approach that has been identified is as follows:

To include a plan identifying the area or areas where vein minerals are known to exist or are likely to be found. Not to attempt to indicate the potential acceptability of extraction within those areas, nor to set out any targets or provision figures for vein minerals

Issue 2: The need for a specific environmental criteria policy for vein minerals

This is more of a procedural issue, as criteria could be included within a standalone policy (and still include specific criteria relating to certain minerals.

Issue 3: The criteria to be used to assess development proposals for vein minerals

A list of issues/criteria is proposed as follows: *noise, dust, air quality, lighting, visual intrusion, landscape character, archaeological and heritage features, traffic, contamination of land, soil resources, best and most versatile agricultural land, flood risk, the water environment, land stability and subsidence, nationally protected geological and geomorphological site features, site restoration and aftercare, the proportion of host rock compared to that of vein minerals, impacts upon the Peak District National Park.*

Biodiversity , Flora and Fauna	Land and Water Resources	Waste and Minerals	Heritage and Landscape	Air quality and Transport	Climatic Factors, Energy and Flooding	Communities and Health	Local Economy, Employment and Housing
⇧	⇧	⇧	⇧	⇧	⇧	⇧	⇔

Appraisal summary: The emerging policy approach is fairly 'light touch' in terms of identifying sites for extraction (i.e. it simply provides a map of known and potential resources. This allows a degree of flexibility to allow for sites to be identified within a broader area of potential. The effects are positive for waste and minerals, but not significantly so.

The list of site assessment criteria are wide-ranging and ought to address any potential effects upon environmental and social factors. However, it is difficult to predict the extent of effects at this stage as no firm criterial have been established, and the policy is also high-level, and not site specific. Nevertheless, positive implications have been recorded for biodiversity, land and water resources, waste and minerals, heritage and landscape, air quality, flooding and communities and health. A neutral effect on the economy and housing is predicted, as the policy is unlikely to significantly affect levels of housebuilding or economic activity. A criterion could potentially be added to the list of assessment criteria to cover the potential for minerals developments to ensure that local communities benefit from employment opportunities.

Restoration and aftercare: An emerging policy approach has been established that sets out the likely content and approach to this issue. A high level appraisal is presented below.

Planning proposals for all mineral extraction schemes will have to demonstrate that, from the outset of the preparation of the application, provision has been made for the restoration and sustainable after-use of the site. Restoration schemes for allocated sites should also be in accordance with the specific, more detailed principles for those particular sites. A range of requirements and criteria could be included in the strategic policy.

Biodiversity , Flora and Fauna	Land and Water Resources	Waste and Minerals	Heritage and Landscape	Air quality and Transport	Climatic Factors, Energy and Flooding	Communities and Health	Local Economy, Employment and Housing
⇧	⇧	⇔	⇧	⇔	⇧	⇧	?

Appraisal summary: The emerging policy approach ought to have a positive effect upon biodiversity in the long term by requiring enhancements to be integral to site restoration. The same is the case for landscape and green infrastructure, which should ensure that important features are protected, and the site restored in a sympathetic way.

With regards to land, there is a requirement to demonstrate how best and most agricultural land would be retained or enhanced, which should limit the loss of such resources in the longer term (ensuring minimal negative changes to the baseline position). The certainty of effects should be secured, as there is a need to ensure adequate financial contributions to cover restoration and aftercare costs. Provision is also made to ensure no net increase in flood risk.

There is potential for positive effects to communities, as restoration proposals should seek to provide community benefits and where possible employment opportunities. Where any wider restoration strategies exist, schemes must consider how they can implement the aims of those plans, as well as securing better integration with current and new landscapes, ecology networks and green infrastructure.

The effect on waste and minerals are predicted to be neutral as restoration schemes ought not to hold back mineral extraction, and waste materials could be used as part of infill materials (preferably from sources of close proximity).

4 APPRAISAL OF SITE OPTIONS

4.1 Site and gravel site assessment methodology

4.1.1 The site assessment methodology along with the detailed site assessments were presented as part of the rolling consultation in December 2016:

4.1.2 The Councils have developed a site assessment methodology for testing reasonable site options. The full methodology is presented on the Council's website along with a detailed completed proforma for each of the site options. These show each sites performance across the full range of assessment criteria.

https://consultations.derbyshirepartnership.gov.uk/consult.ti/Minerals_Local_Plan/viewCompoundDoc?docid=7397268&sessionid=&voteid

4.1.3 The methodology is comprehensive, covering a range of planning related issues and site constraints and opportunities. Many of the criteria within the site assessment section overlap with the SA Objectives. In developing a site appraisal framework for the SA, the starting point was therefore to draw upon the criteria already established in the wider site assessment methodology. This avoids duplication of effort and provides a consistent approach to site assessment.

4.1.4 The table below sets out the relevant site assessment criteria for each of the SA Objectives. As there are sufficient site assessment criteria for each of the objectives, it was considered unnecessary to add additional criteria (i.e. further to those already considered in the site assessment).

4.1.5 Each of the site criteria is 'scored' as follows:

--	Major negative effects
-	Minor negative effects
+	Minor positive effects
++	Major positive effects

SA Topics	SA Objectives	Site assessment criteria
Biodiversity, flora and fauna	To protect and enhance biodiversity and geodiversity	*Ecology* - existing impacts from mineral extraction *Ecology* - UK, regional and local BAP priority species and habitats *Ecology* - ecological coherence: Natural Areas/ Wildlife Corridors/linkages *Ecology* - Habitat creation *Geodiversity* - Geological and geomorphological features
Land and water resources	To protect, conserve and enhance air, water and soil quality, minimise light and noise pollution and land instability.	*Soil* - Best and most versatile agricultural land *Water environment* - Groundwater *Water environment* - Aquifer protection

SA Topics	SA Objectives	Site assessment criteria
Waste and minerals	To achieve a more efficient use of natural resources and infrastructure, minimise the production of waste and increase reuse, recycling and recovery of waste in Derby and Derbyshire.	*Existing Infrastructure* - Is there existing infrastructure on site? *Location of site* – Proximity to intended market
Heritage and landscape	To protect, conserve and enhance the quality, local distinctiveness and enjoyment of Derby and Derbyshire's diverse landscapes, green infrastructure, townscape character and cultural heritage.	*Landscape* - Existing impacts from mineral extraction *Landscape* - Existing infrastructure *Landscape* - Strength of existing infrastructure *Landscape* - Visual impact *Historic environment* - Designated sites and settings *Historic environment* - Archaeology H*istoric environment* - Historic landscape
Air quality and transport	To protect, conserve and enhance air, water and soil quality, minimise light and noise pollution and land instability.	*Soil covered in 'land and water resources'* *Water covered in 'land and water resources'*
	To minimise traffic levels, journey lengths, the number of road traffic related accidents, and to encourage sustainable forms of transport in Derby and Derbyshire.	*Transport* - Distance to market *Transport* - Mode of transport to market
Climatic factors and energy	To reduce contributions to climate change, by reducing greenhouse gas emissions, promoting efficient energy use and encouraging the use of renewable energy.	No criteria identified. Design and operation of sites can incorporate efficient uses of energy and renewable energy regardless of location.
	To limit vulnerability to flooding, taking account of climate change	*Water environment* - Flood risk
Communities and health	To protect, maintain and improve the health and well-being of Derby and Derbyshire's people and communities.	*Transport* - Safe and effective access to and from the site *Transport* - Local amenity *Air quality/human health* – Proximity to AQMA *Nuisance dust* – Proximity to sensitive receptors *Noise* - Proximity to sensitive receptors *Visual intrusion* - Proximity to sensitive receptors
Local employment and housing	To maximise the potential economic benefits of mineral operations and waste management to a sustainable economy in Derby and Derbyshire and other parts of the Country.	*Employment* – New and existing jobs

4.2 Sand and Gravel site assessment summary (December 2016)

4.2.1 The summary table below sets out the performance of each sand and gravel site option against each of the relevant site assessment criteria. This information has been drawn from the detailed site proformas.

Site assessment criteria	Willington	Swarkestone North	Swarkestone South	Elvaston	Chapel Farm	Foremark	Foston	Egginton
Biodiversity								
Ecology - existing impacts from mineral extraction								
Ecology - BAP priority species and habitats								
Ecology - Ecological coherence								
Ecology - Habitat creation								
Land and water resources								
Soil - Best and most versatile agricultural land								
Water environment - Groundwater								
Water environment - Aquifer protection								
Waste and minerals								
Existing Infrastructure - Is there existing infrastructure on site?								
Location of site – Proximity to intended market								
Heritage and landscape								
Landscape and visual amenity- Existing infrastructure								
Landscape - Strength of existing landscape character								
Landscape - Visual impact								
Landscape - Existing impacts from mineral extraction								
Historic environment - Designated sites and settings								
Historic environment - Archaeology								
H*istoric environment* - Historic landscape character								
Air quality and transport								
Transport - Distance to market								
Transport - Mode of transport to market								
Climatic factors								
Water environment - Flood risk								
Communities and health								
Transport - Local amenity								
Air quality/human health – Proximity to AQMA								
Nuisance dust – Proximity to sensitive receptors								
Noise - Proximity to sensitive receptors								
Visual intrusion – Properties and rights of way								
Local Employment and housing								
Employment – New and existing jobs								

4.3 Discussion of sand and gravel site performance

Willington

4.2.2 As an existing site, there is good access to markets, suitable infrastructure and potential for sustainable transportation. The impacts on communities and health are thought to be negligible given the proximity from sensitive receptors. However, there is potential for negative effects upon biodiversity given the presence of BAP species and possible severance of ecological networks. The strength of the landscape character may also lead to negative impacts on landscape and heritage features.

4.2.3 On balance a site extension is likely to be acceptable in broad sustainability terms.

Swarkestone South

4.2.4 As an extension to an active site, it would be possible to make use of existing infrastructure and to support the retention of existing jobs. Exiting markets are also within close proximity.

4.2.5 There are potential minor negative impacts upon biodiversity as well as impacts on the visual amenity of the landscape. In some instances this could be significant.

4.2.6 With regards to local amenity, there could be intrusion in terms of transport, properties and rights of way.

4.2.7 On balance, a site extension is likely to be acceptable in broad sustainability terms.

Swarkestone North

4.2.8 As an extension to an active site, it would be possible to make use of existing infrastructure and to support the retention of existing jobs.

4.2.9 Whilst there could be minor negative effects on ecology, the potential for habitat creation is strong and impacts on the landscape are unlikely to be significant.

4.2.10 There could be potential effects on a scheduled monument, as well as minor amenity impacts in terms of noise and dust and transport movements.

4.2.11 On balance a site extension is likely to be acceptable in broad sustainability terms.

Elvaston

4.2.12 As an extension to an existing site, there will be potential to use existing infrastructure and the retention of jobs would be more likely. The distance to markets is also very close and the transport routes do not affect local amenity significantly.

4.2.13 The site extension would be on low quality agricultural land but would have visual amenity implications and could have a significant effect on heritage. There may also be some minor impacts on residential amenity (dust / noise).

4.2.14 Though there is potential BAP habitat and effects on ecological coherence, the impacts on biodiversity would not be anticipated to be major with suitable mitigation.

4.2.15 On balance a site extension is likely to be acceptable in broad sustainability terms.

Chapel farm

4.2.16 As a site extension on an inactive pit, there would be a requirement for new infrastructure. However, the site would achieve positive yields.

4.2.17 New workings could affect areas of priority habitat, with opportunities for habitat enhancement being limited. Given the sensitive nature of the area, the effects could be significant.

4.2.18 There are also clear historical field patterns, and potential archaeological remains that would be affected by development.

4.2.19 Whilst the scheme would be within close proximity to market, there could be amenity impacts associated with transport movements as well as the site being within close proximity to sensitive receptors in terms of dust and noise.

Foremark

4.2.20 The site is physically separated from existing minerals workings. Consequently, there is no current disturbance to biodiversity, landscape/heritage or human receptors. The site is located in the River Trent Valley and would be visually intrusive, have amenity impacts and significantly affect ecological connectivity.

4.2.21 The site has no existing infrastructure, but it is well connected to markets. However, the potential for sustainable transport is limited.

4.2.22 On balance, this site performs the poorest of any of the site options in sustainability terms.

Foston

4.2.23 This is a new site and so there would be a requirement for new infrastructure to be developed. There is no current disturbance to biodiversity, landscape / heritage receptors or amenity. Therefore, working of the site would be likely to lead to an adverse impact on landscape character, visual amenity and biodiversity. There could also be noise and dust issues.

4.2.24 On balance, the impacts are not anticipated to be significant and ought to be possible to mitigate.

4.2.25 The site is also within reasonable proximity to markets, but sustainable modes of travel could be limited.

Egginton

4.2.26 The site is physically separated from existing minerals workings. Consequently, there is no current disturbance to biodiversity, landscape/heritage or human receptors. The site would be visually intrusive, have amenity impacts and could significantly affect ecological connectivity.

4.2.27 The site has no existing infrastructure, but it is well connected to markets. However, the potential for sustainable transport is limited.

4.4 Hard Rock site assessment methodology

4.4.1 The Councils have developed a site assessment methodology for testing reasonable site options. The full methodology is presented on the Council's website along with a detailed completed proforma for each of the site options. These show each sites performance across the full range of assessment criteria.

4.4.2 The site assessment methodology along with the detailed site assessments were presented as part of the rolling consultation in December 2016:

https://consultations.derbyshirepartnership.gov.uk/consult.ti/DCCMLP/consultationHome?done=OBJChangesSaved&descName=main_description

4.4.3 The methodology is comprehensive, covering a range of planning related issues and site constraints and opportunities. Many of the criteria within the site assessment section overlap with the SA Objectives. In developing a site appraisal framework for the SA, the starting point was therefore to draw upon the criteria already established in the wider site assessment methodology. This avoids duplication of effort and provides a consistent approach to site assessment.

4.4.4 The table below sets out the relevant site assessment criteria for each of the SA Objectives. As there are sufficient site assessment criteria for each of the objectives, it was considered unnecessary to add additional criteria (i.e. further to those already considered in the site assessment).

4.4.5 It should be noted that some criteria are slightly different to the sand and gravel site appraisal criteria. This is to account to the different issues with hard rock resources compared to sand and gravel. In the main though, the criteria are the same.

4.4.6 Each of the site criteria is 'scored' as follows:

--	Major negative effects
-	Minor negative effects
+	Minor positive effects
++	Major positive effects

SA Topics	SA Objectives	Site assessment criteria
Biodiversity, flora and fauna	To protect and enhance biodiversity and geodiversity	*Ecology* - existing impacts from mineral extraction *Ecology* - UK, regional and local BAP priority species and habitats *Ecology* - ecological coherence: Natural Areas/ Wildlife Corridors/linkages *Ecology* - Habitat creation
Land and water resources	To protect, conserve and enhance air, water and soil quality, minimise light and noise pollution and land instability.	*Soil* - Best and most versatile agricultural land *Water environment* - Groundwater *Water environment* - Aquifer protection

SA Topics	SA Objectives	Site assessment criteria
Waste and minerals	To achieve a more efficient use of natural resources and infrastructure, minimise the production of waste and increase reuse, recycling and recovery of waste in Derby and Derbyshire.	*Quality/Yield of minerals* *Minerals use* *Existing Infrastructure* - Is there existing infrastructure on site? *Location of site* – Proximity to intended market *Sterilisation of resources* – Likelihood of sterilisation if site not allocated
Heritage and landscape	To protect, conserve and enhance the quality, local distinctiveness and enjoyment of Derby and Derbyshire's diverse landscapes, green infrastructure, townscape character and cultural heritage.	*Landscape* - Existing impacts from mineral extraction *Landscape* - Strength of existing infrastructure Landscape – Impact on Peak District National Park *Historic environment* - Designated sites and settings *Historic environment* - Archaeology H*istoric environment* - Historic landscape
Air quality and transport	To protect, conserve and enhance air, water and soil quality, minimise light and noise pollution and land instability.	*Soil covered in 'land and water resources'* *Water covered in 'land and water resources'*
	To minimise traffic levels, journey lengths, the number of road traffic related accidents, and to encourage sustainable forms of transport in Derby and Derbyshire.	*Transport* – Export route *Transport* - Capacity for sustainable travel *Air quality/human health* – Proximity to AQMA
Climatic factors and energy	To reduce contributions to climate change, by reducing greenhouse gas emissions, promoting efficient energy use and encouraging the use of renewable energy.	No criteria identified. Design and operation of sites can incorporate efficient uses of energy and renewable energy regardless of location.
	To limit vulnerability to flooding, taking account of climate change	*Water environment* - Flood risk
Communities and health	To protect, maintain and improve the health and well-being of Derby and Derbyshire's people and communities.	*Transport* - Safe and effective access to and from the site *Duration of mineral extraction* *Transport* - Local amenity *Nuisance dust* – Proximity to sensitive receptors *Noise* - Proximity to sensitive receptors *Visual intrusion* - Proximity to sensitive receptors
Local employment and housing	To maximise the potential economic benefits of mineral operations and waste management to a sustainable economy in Derby and Derbyshire and other parts of the Country.	*Employment* – New and existing jobs

4.5 Hard Rock site assessment summary (December 2016 / January 2017)

4.5.1 The summary table below sets out the performance of each hard rock site option against each of the relevant site assessment criteria. Following publication of the Site Assessment Methodology in 2016/2017 the methodology was revised and the initial assessments updated. The revised methodology and reassessments form part of the 'proposed approach'.

Site assessment criteria	Aldwark Brassington	Ashwood Dale	Mouselow	Parish Quarry	Whitwell
Biodiversity					
Ecology - existing impacts from mineral extraction					
Ecology - BAP priority species and habitats					
Ecology - Ecological coherence					
Ecology - Habitat creation					
Geodiversity - Geological and geomorphological features					
Land and water resources					
Soil - Best and most versatile agricultural land					
Water environment - Groundwater					
Water environment - Aquifer protection					
Waste and minerals					
Use of mineral resources					
Quality / Yield of minerals					
Existing Infrastructure - Is there existing infrastructure on site?					
Conservation of resources – Likelihood if site not allocated					
Location of site – Proximity to intended market					
Heritage and landscape					
Landscape - Strength of existing landscape character					
Landscape - Existing impacts from mineral extraction					
Landscape - Impact on the Peak District National Park					
Historic environment - Designated sites and settings					
Historic environment - Archaeology					
H*istoric environment* - Historic landscape character					
Air quality and transport					
Air quality/human health – Proximity to AQMA					
Transport - Export Route					
Transport - Capacity for sustainable transport options					
Climatic factors					
Water environment - Flood risk					
Communities and health					
Transport - Safe and effective access to site					
Duration of mineral extraction					
Transport - Local amenity					
Nuisance dust – Proximity to sensitive receptors					
Noise - Proximity to sensitive receptors					
Visual intrusion – Sensitive receptors					
Local Employment and housing					
Employment – New and existing jobs					

4.6 Discussion of hard rock site performance

Whitwell

4.6.1 The site will have major positive effects with regards to the use of minerals and the efficiency of extraction.

4.6.2 The Whitwell site also performs well against most of the site assessment criteria. As an existing site, it has good access to markets, established infrastructure and transport links. However, the potential for sustainable transport modes is limited.

4.6.3 Whilst there could be a small loss of best and most versatile agricultural land and the site lies over an aquifer, the effects on the environment are mostly limited. There are positive effects recorded in relation to ecology due to the relatively insensitive nature of the site. The effects on landscape and heritage would also be mostly 'positive' as the character of the existing areas is already affected by previous workings and the site is also relatively well contained visually.

4.6.4 There are some potential noise and dust issues in parts of the sites that could affect sensitive receptors. However, it ought to be possible to implement appropriate mitigation.

Ashwood Dale

4.6.5 The site will have major positive effects with regards to the use of minerals and the efficiency of extraction. As an existing site, it has good access to markets, established infrastructure and transport links. However, the potential for sustainable transport modes is limited.

4.6.6 Though the extension would not be on best and most versatile agricultural land it demonstrates historic pastoral field patterns which contribute to the wider landscape character. The extension would also be visually intrusive in some locations and there could be dust and noise issues.

4.6.7 On the other hand, the ecological impacts are likely to be limited.

Mouselow

4.6.8 The site will have major positive effects with regards to the use of minerals and the efficiency of extraction. As an existing site, it also has good access to markets, established infrastructure and transport links. However, the potential for sustainable transport modes is somewhat limited.

4.6.9 The potential for effects on environmental factors is mostly limited in the context of the exiting workings. However, the extension could affect areas with some value for landscape and ecology. These issues ought to be possible to mitigate though.

4.6.10 In respect of amenity concerns, noise and dust could present minor issues, but the site should present safe and effective transport access.

New Parish Quarry

4.6.11 The site would have minor positive effects with regards to the use of minerals and efficiency of extraction. As a new site, there is no existing infrastructure or established access routes, but the creation of a new workings would lead to positive effects in terms of job creation.

4.6.12 As a new site in the countryside, there could be significant effects on landscape and amenity would likely be affected in terms of visual intrusion, traffic and noise. There is also potential for significant negative effects on the historic landscape.

Aldwark Brassington

4.6.13 The site would have major positive effects with regards to the use of minerals and the efficiency of extraction. As an existing site, it has good access to markets, established

infrastructure and transport links. However, the potential for sustainable transport modes is somewhat limited.

4.6.14 The rural nature of the site means that potential dust and noise issues are less likely to affect sensitive receptors. However, there is potential for major negative impacts on landscape character, and visual intrusion, including in the Peak District National Park.

4.6.15 Though the effects on ecology are not anticipated to be significant, there is potential for priority species to be affected nearby.

5 NEXT STEPS

5.1 Next Steps

5.1.1 During the rolling consultation, the Councils have presented a series of evidence papers and posed a number of questions relating to issues and options for different mineral resources. Alongside the rolling consultation, the SA process has been undertaken to help shape a proposed approach for the strategy as it was being prepared. The findings of the SA up to this stage are presented in this second interim SA Report, covering an assessment of the vision and objectives, a range of options and emerging draft policy approaches.

5.1.2 The Councils are moving towards the development of a proposed approach, which will bring together all the information and feedback gathered so far into one document.

5.1.3 A further round of consultation (Regulation 18) will take place inviting comments on the proposed approach.

5.1.4 Further SA work will be undertaken to support this next stage of plan making. Specifically, a third interim SA Report will be prepared which sets out an appraisal of the proposed approach. This will involve the appraisal of the proposed policies in isolation and also viewed together 'as a whole'.

5.1.5 In some instances, emerging draft approaches have already been appraised in the SA (and helped to shape the draft policies in the proposed approach). However, there are also a range of new policies that have not been addressed by the SA up to this point.