

# **DERBYSHIRE AND DERBY MINERALS LOCAL PLAN**

## **TOWARDS A STRATEGY FOR THE RESTORATION AND AFTER-CARE OF MINERAL WORKINGS**

**APRIL 2016**

Derbyshire County Council and Derby City Council (the mineral planning authorities) are working together to prepare a joint minerals local plan. It will be called the Derbyshire and Derby Joint Minerals Local Plan and will cover the geographical area of Derbyshire, excluding the Peak District National Park. It will cover the period to 2030.

Minerals are essential raw materials, which are used to provide the infrastructure, buildings, energy and goods that our country needs. They are vital for economic growth and our quality of life. They are, however, a finite resource and can only be worked where they are found. It is important therefore, that we make the best use of them to enable their long term conservation.

The Plan area has a wealth of mineral resources. Mineral extraction and development has, for a long time, been a part of the Derbyshire landscape and an important part of the local economy, making an important contribution to the national, sub-regional and local need for minerals. Whilst mineral working can also provide environmental benefits, residents and local businesses are often concerned about any unwelcome impacts.

A clear, long-term Minerals Local Plan is a way of setting out the future scale and location of mineral working in the Plan area to support economic growth whilst protecting the environment and local communities. It is important that the Minerals Local Plan gets the balance right between the needs of the economy, the environment and local communities. It is vital, therefore, that communities, businesses, organisations and people throughout Derbyshire and Derby are involved in developing the Minerals Local Plan so that, as far as possible, it contains an agreed set of priorities that will deliver sustainable minerals development that is right for the Plan area.

**This consultation presents a series of papers, which seek to develop further the emerging vision and objectives, strategies and policies of the Minerals Local Plan. We now need your comments, suggestions and input on these papers, which will then be used to feed into the Draft Minerals Local Plan. We will ask for your views on this document later in the year.**

**This paper discusses the emerging approach to the restoration of mineral sites. It examines the challenges presented by mineral working to the delivery of well restored sites which maximise the potential benefits of the site and also the opportunities for enhancement and improvement that such development can create. It asks questions about how the Plan will set out the requirements for the restoration of sites and the standards that will be required.**

<b>Contents</b>	<b>Page</b>
1. Introduction	4
2. National Policy Considerations	4
3. Current Minerals Local Plan	7
4. Vision and Objectives	7
5. Duty to Co-operate	7
6. Progress so far – what you have said and how we have responded	8
7. Restoration Issues	11
8. Next Steps	23

## **1 Introduction**

- 1.1 Mineral workings can have a substantial impact on the landscape and the uses of land. Although the extraction process is a temporary use of land, the impacts can be long-term or even permanent. It is important, when mineral working ceases, that the area affected is restored to a beneficial after-use for the local community at the earliest opportunity and is then maintained to a high standard for a period of time until it is established sufficiently to a stage where it can be maintained by established methods. Effective restoration and long-term aftercare of minerals sites is integral to all proposals for mineral extraction in Derbyshire and Derby.
- 1.2 There are opportunities for habitat creation during the life of a quarry, through phased restoration, compensation and mitigation, and moreover, at the end of their working life, all sites should be restored to an appropriate and beneficial after-use, which presents particular opportunities for green infrastructure and recreation.
- 1.3 Well considered restoration schemes help to ensure that the restored site integrates with the character of the landscape, mitigates any visual intrusion, enhances biodiversity and provides benefits to the local community. The potential contribution of restored mineral workings to the UK Biodiversity Action Plan (BAP) targets is considerable.
- 1.4 Improvement to habitats and biodiversity may allow for the creation of green corridors which can help to link important habitats, whilst also playing a role in mitigating and adapting to climate change. Measures to mitigate and adapt to the impacts of climate change should be incorporated into mineral restoration schemes wherever possible.

## **2 National Planning Policy Considerations**

- 2.1 The National Planning Policy Framework (NPPF) sets out that policies should be included in minerals local plans to ensure that worked land is reclaimed at the earliest opportunity, taking account of aviation safety, and that high quality restoration and aftercare of mineral sites takes place, including for agriculture

(safeguarding the long-term potential of best and most versatile agricultural land and conserving soil resources), geodiversity, biodiversity, native woodland, the historic environment and recreation.

2.2 The NPPF also advises that the planning system should protect and enhance our valued landscapes and the natural environment by minimising impacts on biodiversity and providing net gains in biodiversity, contributing to the Government's commitment to halt the overall decline in biodiversity (para 109), and that planning policies should promote the preservation, restoration and re-creation of priority habitats at a landscape scale (para 117). When determining applications, planning authorities should encourage opportunities to incorporate biodiversity (para 118).

2.3 National Planning Practice Guidance (NPPG) sets out that responsibility for the restoration and aftercare of mineral sites, including financial responsibility, lies with the minerals operator and, in the case of default, with the landowner. It goes on to state that there are many potential uses of land once mineral extraction is complete. These include:

- creation of new habitats and biodiversity;
- use for agriculture;
- forestry;
- recreational activities;
- waste management, including waste storage; and
- the built environment, such as residential, industrial or retail, where appropriate.

2.4 Some former mineral sites may also be restored as a landfill facility using suitable imported waste materials as an intermediate stage in restoration, prior to the site being restored fully to an appropriate after-use.

2.5 Paragraph 38 of NPPG highlights a number of key stages involved in the restoration and aftercare of mineral sites.

- 1 Stripping of soils and soil-making material and either their storage or their direct replacement (i.e. restoration) on another part of the site;
- 2 Storage and replacement of overburden;
- 3 Achieving landscape and landform objectives for the site, including filling operations if required, following mineral extraction;
- 4 Restoration, including soil placement, relief of compaction and provision of surface features;
- 5 Aftercare to ensure that following restoration the land is brought up to the required standard for its intended after use.

2.6 Paragraph 40 of the NPPG sets out the level of detail that should be submitted on restoration and aftercare at the planning application stage. To some extent it will depend on the individual circumstances at each site including the expected duration of operations. The information must be able to demonstrate that the overall objectives of the restoration scheme are practically achievable and it would normally include:

- an overall restoration strategy, identifying the proposed after use of the site;
- information about soil resources and hydrology, and how the topsoil/subsoil/overburden/soil making materials are to be handled whilst extraction is taking place;
- where land is agricultural land, an assessment of the agricultural land classification grade; and
- landscape strategy.

2.7 The 1995 Environment Act gave Mineral Planning Authorities the opportunity to review existing mineral extraction planning conditions for long established mineral sites and to modify them to reflect modern aspirations and current policy.

- 2.8 When the Mineral Planning Authority considers that a review is necessary, it will take the opportunity to reconsider the restoration scheme for the site, for example, by improving public rights of way, biodiversity enhancements, creation of farmland, etc. Where land is to be used for biodiversity enhancements, it is appropriate that habitat development reflects and respects the surrounding landscape.
- 2.9 The Government's Natural Environment White Paper (2011) places the value of nature at the heart of the planning system, ensuring that the environment is enhanced and considered alongside economic growth and social wellbeing.

### **3 Current Minerals Local Plan**

- 3.1 The adopted Minerals Local Plan for Derby and Derbyshire (2000) includes policies for both existing and proposed mineral workings in the Plan area, which include protecting the environment and providing for progressive restoration to a beneficial after-use. Policies seek to:
- strike a balance between the demand for all mineral resources and the need to protect the environment, having regard to the principles of sustainable development.
  - protect the character, quality and the diversity of the County's landscapes including their nature conservation, historic and water environments.
  - provide for enhancement of the environment, reflecting the major opportunity that former mineral sites can make.

### **4 Vision and Objectives**

4.1 A separate paper will seek your views on the emerging vision and objectives for the Minerals Local Plan (MLP). They will contain matters relating to the restoration of former mineral workings, including, ensuring that, after extraction, land is reclaimed to high standards at the earliest practicable opportunity, making optimal use of inert fill material. Also, that high quality, sensitively designed restoration and

long term managed aftercare takes place, which maximises economic, community and environmental benefits.

## **5 Duty to Co-operate**

- 5.1 The development of a strategy for the restoration of mineral workings is considered to be a strategic issue as restored mineral sites often cover a large area and can have an impact on land in adjoining administrative areas. As a result, there is the requirement to liaise with a number of organisations in the preparation of the strategy. We will continue to work closely with the mineral operators, local planning authorities and adjoining mineral planning authorities to ensure a co-ordinated approach is taken to the restoration of former mineral workings, and also with other organisations (including the Local Economic Partnership and the Local Nature Partnership and East Midlands Airport, Nature After Minerals and The Canal and River Trust) in the preparation and development of all of these strategies.
- 5.2 We will be seeking your views on Duty to Co-operate issues in a separate paper, which will be published later in the process.

## **6 Progress so far – What you have said and how we have responded**

- 6.1 At the Stakeholder Workshop in 2009, which marked the start of the preparation of the Minerals Local Plan, restoration was highlighted as a key issue which the Plan should seek to address. The idea of a specific restoration strategy for the Trent Valley was also suggested.
- 6.2 At the Issues and Options stage in 2010, two issues were presented relating to the restoration of mineral workings. These were for a proposed long-term strategy for the restoration of sand and gravel sites in the Trent Valley and a similar proposal for

Further more detailed information regarding the proposed strategy for the Trent, Derwent and Lower Dove valleys is available in the paper: “Towards a Strategy for the Trent, Derwent and Lower Dove Valleys”, November 2014 and for the quarries in the Carboniferous Limestone area in the paper, “Towards a Restoration Strategy for Carboniferous Limestone Quarries”, April 2016.



series of limestone quarries along the A515 corridor in Buxton. There was overall support for the preparation of these two strategies. 65% of responses at this stage supported the development of these strategies. Support continued to be expressed for the Trent Valley Strategy at the Sand and Gravel Drop-in Sessions in late 2012.

- 6.3 In late 2012, through a series of sand and gravel drop-in sessions, which were held with communities in the river valleys, the local communities continued to express their support for the development of a restoration strategy and to offer comments on how this should be developed. At these sessions, communities were also presented with the Environmental Sensitivity Mapping project. This work assesses the relative sensitivity of the river valleys in overall environmental terms. The most sensitive areas are considered to be those which are most susceptible to change and which should be protected from mineral working. Those areas defined as the least sensitive have the potential to be worked for minerals and therefore to absorb more change, in particular, change that can help to deliver a range of economic, environmental and community benefits that will help to make the local environment more attractive and accessible.
- 6.4 Consideration is also being given to extending the strategy for the A515 quarries to cover all such quarries in the carboniferous limestone part of the Plan area. Details of this can be found in the consultation paper referred to above. The intention is that these additional strategies would build upon the overarching restoration strategy whilst also ensuring a co-ordinated approach is taken to the restoration of quarries in these areas.
- 6.5 Since these two key stages in the preparation of the Plan, there has been a period of ongoing engagement regarding the development of the Plan. People have told us throughout the process of ongoing engagement on the MLP that we should continue to strive to promote high standards of working, restoration and aftercare of mineral workings, which bring real and positive benefits to the local communities and which help to offset any adverse impacts that may result from mineral working. This is included, therefore, as a key issue that will be addressed by the Plan, and is

embedded in the draft Strategic Sustainability Principles for the emerging Plan (emerging policies SMP3 and SMP4).

- 6.6 The section below includes a summary of the issues and ideas that have emerged during the process of the preparation of the Plan with regard to the restoration of mineral workings in the Plan area, and which will be used to develop the emerging restoration strategy.

The interim Sustainability Appraisal reported that, for the Trent Valley Strategy, significant positive effects were likely in the medium to long-term upon the Trent Valley local landscape under Option 1 (the strategy) as it would provide a joined up approach to landscape management in the area and the potential to ensure a particular standard is met for all sites in terms of management and after care, providing certainty to the minerals industry. Compared to Option 2 (the current approach), it concluded that Option 1 is therefore expected to perform better with regards to achieving objectives related to heritage and landscape, biodiversity flora and fauna, land and water resources, communities and health and the local economy.

The interim Sustainability Appraisal reported that, for the A515 Corridor Strategy, overall, Option 1 (the strategy) is expected to perform better with regards to achieving objectives 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 under option 1 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.

## **7 Restoration Issues**

7.1 The restoration of mineral extraction sites raises a number of important issues, some of which are common to most extraction sites whilst others are more relevant to specific types of minerals. The following issues are considered to be relevant to the restoration of all types of mineral workings. Where appropriate this section identifies how the Plan could consider and resolve these issues in accordance with overarching restoration principles. A set of emerging restoration principles are set out below for consideration.

### ***Restoration Plans and Phased Working***

7.2 The form of restoration and after-use of a site will depend on the type of mineral, the nature of extraction, and the availability of fill material as well as the general characteristics and local planning policies for the area. Generally, all mineral workings should be restored to an acceptable and beneficial after-use. Where long-term extraction is anticipated, phased and progressive restoration linked to phased working is preferable in order to minimise the area of disturbance. Phased restoration allows worked land to be restored as extraction progresses in other parts of the site. It can also help to offset any impacts of the development on biodiversity, the landscape and visual amenity, as well as helping to maintain and enhance local distinctiveness during the life of the development.

7.3 At the planning application stage, applicants will be required to demonstrate that the site can be restored to an acceptable condition and after-use. A restoration and after-use scheme, which is integrated fully with the extraction programme from the start of the process, will be expected to be submitted as part of the planning application for the working of the site. This should provide comprehensive details of the order and timing of phases of mineral working, restoration and of the final main after-uses.

### ***Landscape Character***

7.4 National policy seeks to protect and enhance valued landscapes. In order to implement this policy both mineral working and restoration schemes should be

informed by the landscape character of the area, ensuring that the schemes fit into, respects and connects with the surrounding landscape.

- 7.5 All restoration schemes should include landscaping proposals, which ensure that sites can be assimilated into the surrounding landscape and which are compatible with the proposed after-use. We will continue to ensure that all mineral extraction sites are restored to beneficial after-uses which are in keeping with the landscape character of the local area.
- 7.6 Mineral operators and the mineral planning authority should seek to develop restoration schemes in partnership, in order to agree the most appropriate after-use of the site and how it will integrate into the surrounding area. Restoration designs should integrate with, and as far as possible, enhance the natural environment and wider landscape and should be informed by an understanding of the development of landscape over time.

### ***Enhancing Biodiversity***

- 7.7 The use of sites for mineral extraction could have a significant impact on the biodiversity interests of the site but good restoration offers a significant opportunity to recreate and improve those interests. It could enable the establishment or re-establishment of priority habitats and thus providing net gains in biodiversity, particularly through providing linkages between fragmented blocks of specific habitat types, delivering local ecological networks.
- 7.8 The impact of working and the standard of restoration that can be achieved would be enhanced by careful consideration to these issues in the design of mineral workings, including at both excavation and reclamation stages. Biodiversity is a very important issue and therefore designs should seek to optimise the delivery of biodiversity, balancing the benefits of extraction with the benefits associated with other services, including those associated with the intended after-use and any off-site benefits.
- 7.9 At the local level, the County and City Councils are signatories to the Local Biodiversity Action Plan (LBAP) that aims to aid the recovery of threatened priority habitats and species. Minerals extraction, particularly sand and gravel extraction in the Trent Valley,

but also the extraction of resources in other parts of the county, could contribute significantly towards meeting these targets and add to the success of existing wetland reclamation schemes.

### ***Agricultural Land***

7.10 National policy requires that the best and most versatile (BMV) agricultural land is safeguarded i.e. it should be afforded long-term protection from development that would adversely affect the quality of the land and the yields it can produce. Where mineral extraction is considered appropriate and necessary in these areas, the soil resources should be managed and conserved throughout the period of extraction, then reinstated under appropriate conditions as part of the restoration scheme. The standard of restoration and the agricultural value of the site post restoration may be prejudiced if they are not.

7.11 It is important therefore that sites are chosen, where possible to avoid the best and most versatile resource and where this is not possible the management of soils should be an integral part of the overall design.

### ***Infill***

7.12 At sites where there is a high volume of mineral extraction it may not be possible to restore the land to pre-extraction levels without the use of imported materials to make up the difference. The ability to restore land to original ground levels will impact on the options for site restoration, particularly where restoration to agricultural use is the preferred option.

7.13 Inert infill material, such as pulverised fuel ash (pfa) from coal-fired power stations and construction material (builders' rubble and soils from ground excavations) has been used to restore land to the required level, although this type of material is becoming increasingly scarce as a consequence of firstly, the run-down of the coal-fired power stations which produce pfa and, in respect of construction material, the result of increasing costs from the landfill tax as well as greater incentives to recycle materials. The location of some sites also means that the delivery of infill material by road may not be possible or could result in further and unacceptable adverse impacts.

7.14 The potential or limitations on the ability to restore ground levels should be addressed in the planning application documents and be taken into consideration in the design of the development at the earliest opportunity. Mineral operators should be able to demonstrate that sufficient infill material is likely to be available and within an acceptable period to avoid delays in restoration.

### ***Flexibility and Adaptation to Climate Change***

7.15 The National Planning Policy Framework states that local all planning authorities should adopt proactive strategies to mitigate and adapt to climate change. It adds that local plans should take account of climate change over the longer term, including factors such as flood risk, coastal change, water supply and changes to biodiversity and landscape. Minerals development and the form and quality of restoration are matters which are relevant to the issue of climate change.

7.16 There are opportunities to increase resilience to climate change through the restoration of mineral operations. Restoration schemes, for example, could be tailored to contribute towards reducing the risk and scale of flooding through, for example, river braiding.

7.17 Other measures include providing opportunities for the provision of winter water storage in reclaimed quarries and ensuring that reclamation schemes take into account the effect of climate change and, where appropriate, provide opportunities for the creation of habitat for species that are most affected by climate change.

### ***Flood Risk***

7.18 The use of land for mineral extraction will affect the capacity of the site to store water at the surface and the movement of water below ground level which could increase the risk of flooding both on the site and in the surrounding area. Minerals can only be worked where they are found and some important minerals are commonly found near rivers. As set out in National Planning Practice Guidance (flood zone and flood risk tables), water compatible development within the functional floodplain includes sand and gravel workings. This means that it is appropriate for sand and gravel working to take place within areas that are considered to be at risk of flooding. It is very

important therefore that the design of a mineral development, including the form of restoration, takes full account of these issues.

7.19 Good quality restoration can deliver benefits that may not otherwise be possible. Restored sand and gravel workings can help to store water, diverting it from the river channel, thus reducing the risk of flooding. Opportunities to improve connectivity between the river and floodplain, such as river braiding, which increases space for flood water, can have the additional benefit of leading to the improvement of wetland habitats.

7.20 Mineral operators will be required to take full account of flood risk issues in the planning application documents and the design of the site.

### ***Aftercare***

7.21 In order to ensure that a restored site is fit for purpose and remains so it is important that they are properly managed afterwards. Legislation requires a period of 5 years aftercare to rehabilitate mineral sites. However in some cases, in order to achieve a beneficial after-use it may be necessary to secure an extended period of aftercare. Aftercare can include the processes of cultivating, fertilising, planting, draining and otherwise treating the land. An appropriate period of aftercare is needed to ensure mineral sites are restored to a standard suitable for their intended after-use. The length of the aftercare period will normally be at least five years and will be negotiated on a case-by-case basis, depending on the restoration scheme and after-uses agreed for the site. Where appropriate, the Mineral Planning Authority will seek to ensure that the long-term management of the site is secured through a legal agreement.

### ***Financial Guarantees***

7.22 National policy requires that financial guarantees are only provided in exceptional circumstances. Large mineral operators tend to be members of trade associations such as the Mineral Products Association who have their own Restoration Guarantee Fund (although this is limited to £1 million). However for a variety of reasons, many large mineral operators are concentrating their resources on larger sites. They are also selling or transferring smaller sites to smaller operators towards the end of the

extraction phase or during the restoration phase. For these reasons, it is important to ensure that the developers or land owners left in control of the sites have adequate financial provision to fulfil the final restoration and aftercare requirements. This can be through membership of a trade association with an adequate Restoration Guarantee Fund or by providing an equivalent guarantee bond.

7.23 The following section identifies those restoration issues that are associated with specific minerals.

### **Sand and Gravel**

7.24 Since the 1960s, sand and gravel extraction in the Trent Valley has led to a gradual change in the landscape, with the incremental loss of traditional water meadows and their replacement with areas of water. A strategy is being developed as part of this Plan, to help address this issue, ensuring that a more strategic and landscape scale approach is taken to the restoration of sand and gravel workings.

7.25 River valley sand and gravels are relatively shallow and do not generate large quantities of overburden for use as fill material in the final restoration scheme. Inert infill material, such as pulverised fuel ash, builders' rubble and soils from ground excavations is used, where appropriate and available, to restore land levels. The drive to divert these materials from landfill in general and to increase recycling has reduced the availability of suitable infill materials and this will continue to be an issue throughout the Plan period which could limit restoration options. The closure of coal fired power stations in the area will also reduce the amount of pulverised fuel ash that will be available in the future.

7.26 The shallow nature of sand and gravel workings means that opportunities to assimilate restored sites into the landscape is greater, than for example, restored hard rock quarries where extraction can be very deep into the ground.

7.27 Former sand and gravel workings can be restored to a variety of end uses. Sites can be restored to agricultural uses where sufficient infill material is available. Many restored



sites provide valuable areas for nature conservation, providing important opportunities to increase biodiversity (for example by the incorporation of reed beds, wet grasslands, wet woodlands and open water areas). They also provide opportunities for formal recreation (sailing, fishing, bird watching) and informal recreation (walking, cycling and picnicking).

7.28 Where restoration of sites involves areas of open water and/or grassland this can result in the attraction of large numbers and species of birds that can pose a strike hazard to aircraft where the site is close to an airport. In general, large and/or flocking bird species are more likely to cause damage to an aircraft given the greater mass involved in the collision. Species such as Mute Swans and Canada Geese are known to pose the greatest risk to aircraft. A 13km safeguarding zone is delineated around airports to ensure that bird strike is taken into account when considering proposals for development in this area. This zone is based on a statistic that 95% of bird strikes occur below 2000ft, and that an aircraft approaching an aerodrome on a normal approach would descend below 2000ft approximately 13km from the runway<sup>1</sup>. This may suggest that the majority of infill material which is available infill material should be used in the restoration of sites which lie within this safeguarding zone.

7.29 Where infill material is limited the risk of bird strike can be reduced by adopting well-considered restoration design and habitat management principles which discourage large flocking birds from settling in these water areas. For example, steep-sided water bodies with no islands and surrounded by areas of wet woodland rather than short grass are less attractive to many of the species of flocking birds which pose the greatest risk to aircraft, but at the same time this has implications for the appearance of the restored site. A balance should be struck between competing interests, and the aim should be to maximise biodiversity benefits while managing the risk of bird strike. Some design approaches to reducing bird strike may not be conducive to a biodiversity-rich restoration, particularly for certain bird species, and so should only be used where high bird strike risk is demonstrated and cannot otherwise be overcome.

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<sup>1</sup> CAA (2002) CAP 660 Aerodrome Bird Control

- 7.30 We work closely with airport authorities and other interested bodies to ensure that sites close to airports are restored in ways which minimise the risk of bird strike. In the Plan area, these include East Midlands Airport, Derby Aerodrome near Egginton and Tatenhill Aerodrome near Burton-Upon-Trent in Staffordshire.
- 7.31 Where infilling is intended to be used as a means of restoring the site it is important that there is confidence that sufficient supplies of suitable material will be available so that restoration is likely to proceed broadly at the same rate as extraction and for the whole operation to be completed within a reasonable timescale.
- 7.32 The emerging Strategy for the Trent Valley area will set out a more detailed long-term strategy for the restoration of sand and gravel workings in the Trent, Lower Derwent and lower Dove valleys. This will be informed and supported by work which has been undertaken to identify those areas of landscape considered to be of multiple, environmental sensitivity relating to ecology, historic environment and landscape attributes. It will provide guidance about how each site in the Trent, Derwent and lower Dove valleys could be restored in the most appropriate way. It will seek to achieve a more co-ordinated and joined up approach to the way in which sites are restored. This will be supported by a Supplementary Planning Document (SPD). It is expected that this SPD will be developed once the Minerals Local Plan is adopted.

Further more detailed information regarding the environmental sensitivity mapping is available in the “Methodology to Map Environmentally Sensitive Areas in the Trent Valley” Technical Paper, November 2014.

The paper, Towards a Strategy for the Trent, Derwent and Dove Valleys, November 2014 should also be read in conjunction with this paper.

### **Crushed Rock**

7.33 The extraction of hard rock has the potential for substantial impact on the environment. The scale of the operations and the relatively small quantities of waste material involved compared to the rock which is removed means that it is not possible generally to restore land to its original levels following completion of working. This means that the configuration of the land is changed permanently, although, where the operation can be designed so as to be contained visually by the existing topography in advance of working, visual impact can be limited. Opportunities for progressive restoration are more limited, although an early start can often be made in the treatment of the quarry face or floor. Final restoration depends to a large extent on the depth of the quarry and level of the water table. In cases where the depth is not too great, the quarry floor can be restored for agriculture. Bolsover Moor Quarry is a good example of this.

7.34 Former crushed rock quarries have the potential to provide opportunities for recreational activities such as climbing and abseiling, as well as educational opportunities, for example, providing valuable areas for students to study geological formations and structures.

7.35 Natural regeneration is usually more appropriate where the quarry is deeper and many quarries can become important areas for wildlife and natural history in such cases. When informed properly by the character of the surrounding landscape, innovative restoration blasting techniques can be used to create more varied and more natural looking slope sequences consisting of rock screes, buttresses and

headwalls, which can be vegetated selectively to replicate natural limestone valley sides.

7.36 Consideration is being given to the development of a Strategy for the restoration of the carboniferous limestone quarries, which will be included in the Minerals Local Plan. This has emerged and evolved from the idea at Issues and Options stage of preparing a strategy for the four A515 Quarries. In view of the Government's policy support for the concept of landscape scale strategic restoration and taking into account support shown for the approach of having a restoration strategy for the A515 quarries, the Councils are now considering whether this Strategy should be extended to encompass all hard rock quarries lying within the Carboniferous Limestone. The Strategy would set out a framework of strategic principles that would deliver a preferred pattern of restoration for all hard rock quarries within the Carboniferous Limestone area.

Further more detailed information can be found in the paper, *Towards a Strategy for the Restoration of Carboniferous Limestone Quarries*, April 2016.

### **Surface Coal**

7.37 Although surface coal mining is essentially a temporary use of land, lasting anything from 18 months to 10 years, some of its effects can remain for a period after working has ceased. For example, it can take several years for a restored site, including the landscaping, to mature to a point where the site has been assimilated fully into the surrounding landscape and the footprint is no longer discernible. Poor examples of restoration of these sites in the past has increased the concern of local communities.

7.38 These negative effects can be ameliorated to some extent by careful pre-development planning and the effective monitoring of operations. The large amounts of overburden that have to be removed to access the coal means that,

through sympathetic and well-managed restoration, original landforms can be recreated or more attractive ones produced over time. Furthermore, as the volume of coal that is extracted is relatively small in comparison to the surface area, sites can often be restored to original levels.

7.39 Surface coal mining schemes often result in the loss of mature trees and hedgerows which, even when replaced, take a long time to mature. However, restoration schemes can provide important local environmental benefits that would not otherwise be achieved, including the creation of additional ecological features and wildlife habitats. For example, surface mining developments have, in the past, enabled areas of despoiled and derelict land to be reclaimed or have involved the removal of problems arising from underground workings such as subsidence and dangerous emissions of methane gas.

7.40 One particular area of concern for local communities has been the impact on drainage, particularly where clay is also extracted as part of the scheme to extract the coal. This issue will need to be addressed properly when considering future schemes.

### **Deep-Mined Coal**

7.41 The underground working of coal at major collieries creates large volumes of waste or 'spoil', the disposal of which is one of the main potential causes of environmental damage. Greater mechanisation resulted in large increases in the production of spoil, and despite the cessation of large-scale deep mine coal production in Derbyshire, the remaining spoil tips are part of the legacy of the mining industry. Some of the tips have been removed completely as part of redevelopment schemes, whilst many others have been restored and landscaped. These restoration schemes often involve re-profiling of the tips rather than complete removal but this, in combination with the landscaping, reduces the appearance of the tips and helps them to be assimilated into the surrounding area. Some of the materials which were previously placed in the tips as unwanted and unusable waste materials now have a commercial use and several tips have since been reworked to extract this previously discarded resource, which has provided an opportunity to revisit the restoration of the landscape.

## **Building Stone**

7.42 Quarries which produce building stone usually produce relatively small amounts of stone, intermittently, over long periods of time and often regenerate naturally to some extent between periods of extraction. Final restoration of these quarries depends on the particular characteristics of the site but usually, given their often secluded countryside location, a variety of uses including agriculture, woodland and nature conservation is often most appropriate.

## **Clay**

7.43 The nature of the brick clay market raises particular issues for clay working in terms of the length of time taken to work and restore sites and in terms of the need for stockpiling. Fluctuations in the economy impact on the construction industry and the consequent demand for structural clay products especially bricks. Periods of decline may lead to the mothballing or closure of extraction and processing facilities, including brickworks, which may result in a landscape of inactivity. This presents a particular need to minimise the impact of stockpiled clay material both on the environment and local amenity.

7.44 If brick clay or fireclay is worked in association with surface coal, schemes usually require short extraction periods with quick restoration, which limits stockpiling opportunities. Brick and fireclay may be stocked at the brick works or the clay products site rather than at the excavation site.

**Do you agree that this list encompasses all the restoration related issues which will need to be taken into consideration in the Minerals Local Plan? If you think that there are also other issues that need to be taken into consideration please state what they are and explain the reason for your answer.**

## **8 Next Steps**

- 8.1 In order to deliver a comprehensive strategy for the restoration of mineral workings, covering all parts of the Plan area and all the different minerals which are extracted, a balance has to be struck between a number of competing interests. Issues such as flood alleviation, conservation, biodiversity enhancement, bird strike, groundwater and community requirements must all be taken into consideration. The approach of the Plan to resolving these issues will be set out in r strategic policy which will be relevant to all mineral developments. It is also likely that the Plan will include additional, more specific guidance for the restoration of sand and gravel sites in the Trent Valley (Trent Valley Restoration Strategy) and for quarries in the carboniferous limestone area (Strategy for Restoring Hard Rock Quarries). Specific restoration principles will also be set out for new sites which are allocated for mineral extraction in the Plan.
- 8.2 Taking account of all the issues and information that is set out above, the following approach to restoration is emerging.

## Emerging Approach for the Restoration and After-Use of Mineral Sites

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. The general policy approach to restoration and after-use will be set out in a strategic policy in the Minerals Local Plan. Restoration schemes for allocated sites should also be in accordance with the specific, more detailed principles for those particular sites.

The following requirements and criteria could be included in the strategic policy:

1. Restoration schemes will need to demonstrate, where applicable, that the scheme complies with any specific restoration strategy for that area, for example the Trent Valley Strategy or the Strategy for Hard Rock Quarries.
2. Restoration should be sympathetic to and have regard to the wider context of the site, in terms of the character of the surrounding landscape and historic environment and existing land uses in the area.
3. Schemes should, where appropriate, make provision for progressive restoration
4. Schemes should provide details of the final landform on which the restoration scheme is based and include indicative details of the drainage system and landscaping, including the retention of any existing, important landscape features.
5. Where restoration will involve the use of imported materials to achieve the intended ground levels the operator will be required to demonstrate that sufficient infill materials are likely to be available to restore the site within an acceptable timescale.
6. Schemes will need to indicate how soils and subsoils are to be removed, stored during the extraction operations and finally replaced, in accordance with established best practice.



7. Development proposals will need to demonstrate how the scheme will retain, enhance and/or replace areas of the best and most versatile agricultural land.
8. Demonstrate that flood risk on the site or in the surrounding area would not be increased and any opportunities to reduce flooding would be maximised.
9. Where sites lie within an Airport Safeguarding Zone, the issue of bird strike and its impact on the final restoration scheme will be considered carefully.
10. Where possible, proposals should seek to provide benefits to the local and wider community including enhancement and creation of biodiversity and geodiversity interests, linking of site restoration to other green infrastructure initiatives, enhanced landscape character, improved public access, recreation, education, employment or tourism opportunities.
11. The restoration plan should be sufficiently flexible to accommodate changes in design needed during the lifetime of the scheme without affecting the integrity of the overall scheme, including allowing for adaptation to the effects of climate change.
12. Cumulative effects associated with reclamation and long-term management should be considered at the outset of the application process, with a view to minimising impacts and optimising potential benefits.
13. To ensure that an appropriate period of aftercare is agreed to enable the site to be restored to a standard suitable for its intended after-use.
14. Developers will be required to demonstrate that adequate financial provision has been made to fulfil the restoration and aftercare requirements when proposals are submitted. Alternatively, developers will be required to provide a Restoration Guarantee Bond or other financial guarantee to cover all or part of the restoration and aftercare costs.

**Do you support this approach? If you consider that additional requirements and criteria should be included please state the terms of your suggestion and explain the reasons for your answer.**