

Appendix 1: Constraints considered in the current Minerals Local Plan and our approach now

A1.1 The 1997 Hereford and Worcester Minerals Local Plan (referred to below as the current Minerals Local Plan) identified “constraints” and used them in a sieve process to identify potential areas for sand and gravel extraction. This method was developed a long time ago; not all of the designations used then are still valid now or are no longer considered absolute constraints on minerals development.

A1.2 The issues identified as constraints in the current Minerals Local Plan are detailed in Table 29, along with the regulatory and national policy context as it exists today. We have then set out how we propose to address each of the issues in the new Minerals Local Plan.

Constraints identified in the adopted Minerals Local Plan and how the council proposes to address them in the emerging Minerals Local Plan

Constraints identified in current Minerals Local Plan	Regulatory and policy context	How we propose to address these issues in the new Minerals Local Plan
<p>Soil resources:</p> <ul style="list-style-type: none"> • “Best and most versatile agricultural land where restoration to a high standard seems unlikely” • “Best and most versatile agricultural land where restoration to a high standard is possible” 	<p>Soil resources, and best and most versatile agricultural land in particular, are still a significant consideration.</p> <p>National policy⁸² says “Local planning authorities should take into account the economic and other benefits of the best and most versatile agricultural land. Where significant development of agricultural land is demonstrated to be necessary, local planning authorities should seek to use areas of poorer quality land in preference to that of a higher quality” and “In preparing Local Plans, local planning authorities should: put in place policies to ensure worked land is reclaimed at the earliest opportunity... 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).”</p>	<p>Although the extraction of minerals will usually require the removal of overlying soil resources which could lead to the temporary or permanent loss of high quality agricultural land, and removing soils can potentially disrupt the soil ecosystem, this will not always be the case.</p> <p>In addition Minerals can only be worked where they are found and over 80% of Worcestershire is categorised as having high quality agricultural land. This means that there is significant cross-over between the location of mineral resources and high-grade land. Based on this information we do not think it is appropriate for this to be an absolute constraint on mineral development.</p> <p>We will seek to protect and enhance soil resources, including best and most versatile agricultural land, through policies relating to working practices, the location of development and the restoration of mineral workings. (See Sections 10, 11 and 12 for details).</p>

Constraints identified in current Minerals Local Plan	Regulatory and policy context	How we propose to address these issues in the new Minerals Local Plan
<p>Landscape:⁸³</p> <ul style="list-style-type: none"> • “Areas of Outstanding Natural Beauty” (AONB) • “Areas of Great Landscape Value”⁸⁴ • “Adopted Landscape Protection Areas”⁸⁵ • “The landscape quality of the site where no specific landscape designation exists. Factors to be considered in assessing landscape quality include: <ul style="list-style-type: none"> a the importance of the loss of landscape features in areas which have not been identified as being of particular landscape value. The major features to be included in the assessment of the impact on landscape quality area: <ul style="list-style-type: none"> • skyline and hill features including prominent views of such features; • areas of dense hedgerows and tree patterns; • trees and groups of trees; • water features; • landscape setting of other features, e.g. historic buildings, water courses, historic landscapes, SSSIs and other conservation features; • linear features of visual importance. b The scale of the loss” 	<p>Landscape is still a significant consideration, although some of the terms in the current Minerals Local Plan are no longer used.</p> <p>National policy⁸⁶ says “In preparing Local Plans, local planning authorities should: ...set out environmental criteria, in line with the policies in this Framework, against which planning applications will be assessed so as to ensure that permitted operations do not have unacceptable adverse impacts on the natural and historic environment...” and “When determining planning applications, local planning authorities should: ... as far as is practical, provide for the maintenance of landbanks of non-energy minerals from outside... Areas of Outstanding Natural Beauty...”.</p> <p>The factors listed in the current Minerals Local Plan as contributing to landscape quality are fundamental parts of the county’s current Landscape Character Assessment (LCA). The LCA is designed to identify the character and qualities of all the landscape types in the county. The Landscape Character Assessment Supplementary Guidance states that “Landscape character is an expression of pattern, resulting from particular combinations of natural and cultural factors that make one place different from another, rather than better or worse”.</p>	<p>Although national policy gives the highest status of protection to Areas of Outstanding Natural Beauty, mineral working is not excluded from them, or any other landscapes. We therefore do not think it is appropriate for landscape to be an absolute constraint on mineral development.</p> <p>We will seek to protect and enhance landscapes and landscape character, including the Areas of Outstanding Natural Beauty, through policies relating to working practices, the location of development and the restoration of mineral workings (See Sections 10, 11 and 12 for details). As we are not considering specific sites in the emerging Minerals Local Plan it is not appropriate to consider the factors listed in the current Minerals Local Plan as contributing to landscape quality for individual areas of search but we intend to develop policies to address these aspects as proposals are brought forward. absolute constraints on mineral development.</p>

⁸³ The 1997 Hereford and Worcester Minerals Local Plan included policy 5 “Abberley Hills Quarrying Policy” which stated: “WITHIN THE AREA SHOWN ON THE PROPOSALS MAP AS THE ABBERLEY HILLS QUARRYING POLICY AREA, UNLESS IT CAN BE SHOWN THAT THE NEED FOR THE MINERAL OVERRIDES ENVIRONMENTAL CONSIDERATIONS, NO FURTHER PLANNING PERMISSIONS WILL BE GRANTED BY THE COUNTY COUNCIL FOR QUARRYING APART FROM THE POSSIBLE MODIFICATION OF WORKING SUBJECT TO ENVIRONMENTAL CONSIDERATIONS WITHIN THE EXISTING LATERAL LIMITS OF WOODBURY AND SHAVERS END QUARRIES. The County Council believe that the landscape of the Abberley Hills is of such importance as to merit its exclusion from further consideration for hard rock extraction.” National policy does not exclude mineral working from any landscapes, including any designated areas. Retaining the “Abberley Hills Quarrying Policy” would not be in line with national policy. We must therefore consider the Abberley Hills in the same way as other areas of the county.

⁸⁴ Areas of Great Landscape Value – this was a local designation which dated from the County Development Plan of 1959, which was used to inform the County Structure and other Plans. Those Plans have now been revoked or superseded. Areas of Great Landscape Value were identified to include land over the 800 feet contour. This approach no longer accords with modern concepts about the value of landscapes, national policy or the approach in the Council’s Landscape Character Assessment.

⁸⁵ Adopted Landscape Protection Areas - this was an overarching term, which incorporated AONBs, Greenbelt, “Area of Great Landscape Value”, “Additional Landscape Protection Areas” (a local designation included in the then Wyre Forest Urban Areas Local Plan, April 1989), an Area of Great Landscape Value altered to Landscape Protection Area in the Wyre Forest Urban Areas Local Plan, April 1989, and the Area of Great Landscape Value (Northern Parishes and Tenbury Local Plans, adopted by Leominster District Council in 1989). With the exception of AONBs (addressed above) and Green Belt none of these designations still exist.

⁸⁶ National Planning Policy Framework, paragraph 143 and paragraph 144.

Constraints identified in current Minerals Local Plan	Regulatory and policy context	How we propose to address these issues in the new Minerals Local Plan
<p>Natural environment:</p> <ul style="list-style-type: none"> • “Sites of Special Scientific Interest” • “National Nature Reserves” • “Ancient Semi-Natural Woodland” • “Special Wildlife Sites”⁸⁸ • “Section 39 Nature Conservation Sites (defined under the 1981 Wildlife and Countryside Act)”⁸⁹ • “Local Nature Reserves” • “Other County Trust Reserves”⁹⁰ • “Areas of nature conservation importance”⁹¹ 	<p>The natural environment and nature conservation designations in particular are still significant considerations.</p> <p>National policy⁸⁷ says “When determining planning applications, local planning authorities should aim to conserve and enhance biodiversity by applying the following principles:</p> <ul style="list-style-type: none"> • if significant harm resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused; • proposed development on land within or outside a Site of Special Scientific Interest likely to have an adverse effect on a Site of Special Scientific Interest (either individually or in combination with other developments) should not normally be permitted. Where an adverse effect on the site’s notified special interest features is likely, an exception should only be made where the benefits of the development, at this site, clearly outweigh both the impacts that it is likely to have on the features of the site that make it of special scientific interest and any broader impacts on the national network of Sites of Special Scientific Interest; • development proposals where the primary objective is to conserve or enhance biodiversity should be permitted; • opportunities to incorporate biodiversity in and around developments should be encouraged; • planning permission should be 	<p>Although national policy gives a high level of protection to the natural environment, mineral working is not completely prohibited even in the most stringently protected sites provided a number of tests are met. We therefore do not think it is appropriate for the natural environment, and nature conservation designations in particular, to be an absolute constraint on mineral development.</p> <p>Where appropriate working practices are adopted mineral workings close to identified nature conservation sites need not have an adverse impact and can enable greater restoration gains, particularly where restoration schemes are designed to expand existing habitat networks. In addition, working these areas can prevent a strip of mineral resource adjacent to the nature conservation site from becoming sterilised and therefore can contribute positively towards the long-term sustainability of mineral supply.</p> <p>We will seek to protect and enhance the natural environment through policies relating to working practices, the location of development and the restoration of mineral workings. (See Sections 10, 11 and 12 for details). We are also developing a Habitats Regulations Assessment alongside the emerging Minerals Local Plan and this will be taken into account as policies are developed.</p>

⁸⁷National Planning Policy Framework, paragraph 118 and paragraph 119.

⁸⁸Special Wildlife Sites are now known as Local Wildlife Sites (LWS)

⁸⁹Section 39 Nature Conservation Sites - This section of the Act is still in place. It allows “relevant bodies” such as the County Council, to make management agreements for the purpose of conserving or enhancing the natural beauty or amenity of any land within their area or promoting its enjoyment by the public. In practice there are no section 39 sites or agreements in place in this county at present but this could change over the course of the plan.

⁹⁰Other County Trust Reserves - This designation reflects a time of local government re-organisation when Local Planning Authorities’ boundaries were being changed wholesale and responsibility for some nature conservation sites was not clear. It was intended to ensure that any sites of nature conservation importance in the county, that for historical reasons were now under the control of nature conservation trusts based outside the county, were protected.

⁹¹ Areas of Nature Conservation Importance – This term was used to inform the Hereford and Worcester County Structure Plans. Those and other Structure Plans have now been revoked and carry no weight. The term “Areas of nature conservation importance” is no longer used.

Constraints identified in current Minerals Local Plan	Regulatory and policy context	How we propose to address these issues in the new Minerals Local Plan
	<p>refused for development resulting in the loss or deterioration of irreplaceable habitats, including ancient woodland and the loss of aged or veteran trees found outside ancient woodland, unless the need for, and benefits of, the development in that location clearly outweigh the loss;</p> <ul style="list-style-type: none"> the following wildlife sites should be given the same protection as European sites: <ul style="list-style-type: none"> potential Special Protection Areas and possible Special Areas of Conservation; listed or proposed Ramsar sites; and sites identified, or required, as compensatory measures for adverse effects on European sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.” and <p>“The presumption in favour of sustainable development (paragraph 14) does not apply where development requiring appropriate assessment under the Birds or Habitats Directives is being considered, planned or determined.”</p> <ul style="list-style-type: none"> National policy⁹² also says “In preparing Local Plans, local planning authorities should...set out environmental criteria, in line with the policies in this Framework, against which planning applications will be assessed so as to ensure that permitted operations do not have unacceptable adverse impacts on the natural and historic environment...” 	

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⁹²National Planning Policy Framework, paragraph 143.

Constraints identified in current Minerals Local Plan	Regulatory and policy context	How we propose to address these issues in the new Minerals Local Plan
<p>Water environment:</p> <ul style="list-style-type: none"> “Groundwater Source Protection Zone, as defined by the National Rivers Authority in their document ‘Policy and Practice for the Protection of Groundwater’” 	<p>The water environment and groundwater Source Protection Zones in particular are still significant considerations.</p> <p>National policy⁹³ says “In preparing Local Plans, local planning authorities should:</p> <p>...set out environmental criteria, in line with the policies in this Framework, against which planning applications will be assessed so as to ensure that permitted operations do not have unacceptable adverse impacts on the natural and historic environment or human health, including from...impacts on the flow and quantity of surface and groundwater and migration of contamination from the site; and take into account the cumulative effects of multiple impacts from individual sites and/or a number of sites in a locality...”.</p>	<p>Although national policy gives a high level of protection to the natural environment, mineral working is not prohibited in source protection zones.</p> <p>Groundwater source protection zones are a useful indicator of the areas where mineral operations could have an adverse impact on the flow and quantity of surface and groundwater, however mineral extraction commonly takes place below the water table and more complex hydro-geological assessments are therefore likely to be required on a proposal-by-proposal basis. National policy also supports the use of environmental criteria to manage these impacts. We therefore do not think it is appropriate for the natural environment and source protection zones in particular, to be an absolute constraint on mineral development.</p> <p>Where appropriate working practices are adopted, mineral workings close to river banks need not have an adverse impact on the water course and can enable restoration which has environmental, flood alleviation or water quality benefits. Examples might include the creation of fish refuge areas or re-profiling canalised watercourses. In addition working these areas can prevent a strip of mineral resource along the river bank from becoming sterilised and therefore can contribute positively towards the long-term sustainability of mineral supply.</p> <p>We will seek to protect and enhance the natural environment through policies relating to working practices, the location of development and the restoration of mineral workings. (See Sections 10, 11 and 12 for details).</p>

93 National Planning Policy Framework, paragraph 143.

Constraints identified in current Minerals Local Plan	Regulatory and policy context	How we propose to address these issues in the new Minerals Local Plan
<p>Historic environment:</p> <ul style="list-style-type: none"> • “Scheduled and other Ancient Monuments” • “Land within or abutting a Conservation Area” • “Sites of archaeological importance”⁹⁵ 	<p>The historic environment is still a significant consideration.</p> <p>National policy⁹⁴ says: “When considering the impact of a proposed development on the significance of a designated heritage asset, great weight should be given to the asset’s conservation. The more important the asset, the greater the weight should be. Significance can be harmed or lost through alteration or destruction of the heritage asset or development within its setting. As heritage assets are irreplaceable, any harm or loss should require clear and convincing justification. Substantial harm to or loss of a grade II listed building, park or garden should be exceptional. Substantial harm to or loss of designated heritage assets of the highest significance, notably scheduled monuments, protected wreck sites, battlefields, grade I and II* listed buildings, grade I and II* registered parks and gardens, and World Heritage Sites, should be wholly exceptional.”</p> <p>“Where a proposed development will lead to substantial harm to or total loss of significance of a designated heritage asset, local planning authorities should refuse consent, unless it can be demonstrated that the substantial harm or loss is necessary to achieve substantial public benefits that outweigh that harm or loss, or all of the following apply:</p> <ul style="list-style-type: none"> • the nature of the heritage asset prevents all reasonable uses of the site; and • no viable use of the heritage asset itself can be found in the medium term through appropriate marketing that will enable its conservation; and 	<p>Although national policy gives a high level of protection to the historic environment, mineral working is not prohibited.</p> <p>Heritage assets and their settings often only cover a small area of land in comparison to the scale of the areas of search identified. In addition, when considering the setting of a heritage asset it is difficult to identify an appropriate ‘area of constraint’. In some cases it may be possible to work in close proximity to a heritage asset without impacting on the setting, whereas in other case proposals at a greater distance may have a significant impact. This is likely to depend on the character of the assets and their setting, the nature of the proposal and other local factors such as topography, landscape character and vegetation cover and would need to be assessed on a proposal-by-proposal basis.</p> <p>We therefore do not think it is appropriate for the historic environment to be an absolute constraint on mineral development.</p> <p>We will seek to protect and enhance the historic environment through policies relating to working practices, the location of development and the restoration of mineral workings. (See Sections 10, 11 and 12 for details).</p>

⁹⁴National Planning Policy Framework, paragraph 132, paragraph 133, paragraph 134, paragraph 137, paragraph 143, and paragraph 144.

⁹⁵Sites of Archaeological Importance - This term included designated and undesignated assets, single features, areas such as Conservation Areas and World Heritage Sites and in all cases, their settings. This term is no longer used.

Constraints identified in current Minerals Local Plan	Regulatory and policy context	How we propose to address these issues in the new Minerals Local Plan
	<ul style="list-style-type: none"> • conservation by grant-funding or some form of charitable or public ownership is demonstrably not possible; and • the harm or loss is outweighed by the benefit of bringing the site back into use.” <p>“Where a development proposal will lead to less than substantial harm to the significance of a designated heritage asset, this harm should be weighed against the public benefits of the proposal, including securing its optimum viable use.”</p> <p>“Local planning authorities should look for opportunities for new development within Conservation Areas and World Heritage Sites and within the setting of heritage assets to enhance or better reveal their significance. Proposals that preserve those elements of the setting that make a positive contribution to or better reveal the significance of the asset should be treated favourably.”</p> <p>“In preparing Local Plans, local planning authorities should..... set out environmental criteria, in line with the policies in this Framework, against which planning applications will be assessed so as to ensure that permitted operations do not have unacceptable adverse impacts on the... historic environment”.</p> <p>“When determining planning applications, local planning authorities should: ...as far as is practical, provide for the maintenance of landbanks of non-energy minerals from outside ... World Heritage sites [and] Scheduled Monuments...”</p> <p>National policy ⁹⁶ also says that “Local</p>	

96National Planning Policy Framework, paragraph 126.

Constraints identified in current Minerals Local Plan	Regulatory and policy context	How we propose to address these issues in the new Minerals Local Plan
	<p>planning authorities should set out in their Local Plan a positive strategy for the conservation and enjoyment of the historic environment... In doing so, they should recognise that heritage assets are an irreplaceable resource and conserve them in a manner appropriate to their significance.”</p>	
<p>Health and amenity</p> <ul style="list-style-type: none"> • “A buffer strip of 200m from the boundary of a potential working area to the nearest main walls of the nearest property in a settlement group of 6 or more dwellings” • “Country Parks” 	<p>Health and amenity are still significant considerations.</p> <p>National policy makes a number of points about health and amenity : ⁹⁷</p> <p>“planning should... always seek to secure high quality design and a good standard of amenity for all existing and future occupants of land and buildings”;</p> <p>“In preparing plans to meet development needs, the aim should be to minimise pollution and other adverse effects on the local and natural environment. Plans should allocate land with the least environmental or amenity value, where consistent with other policies in [the] Framework”;</p> <p>“To prevent unacceptable risks from pollution and land instability, planning policies and decisions should ensure that new development is appropriate for its location. The effects (including cumulative effects) of pollution on health, the natural environment or general amenity, and the potential sensitivity of the area or proposed development to adverse effects from pollution, should be taken into account. Where a site is affected by contamination or land stability issues, responsibility for securing a safe development rests with the developer and/or landowner”;</p> <p>“Planning policies and decisions should aim to:</p> <ul style="list-style-type: none"> • avoid noise from giving rise to significant adverse impacts on health, 	<p>Although national policy gives a high level of protection to health and amenity, we do not think it is appropriate for this to be an absolute constraint on mineral development.</p> <p>A buffer strip is only one method by which impacts can be managed. It is not, in itself, supported by national policy. Where appropriate working practices are adopted working close to properties need not have an adverse impact. This will be dependent on both the physical features of the site (including topography, planting, predominant wind direction) and the working practices (including the number of days and hours of operation). Instead of setting a minimum distance it is considered more appropriate to require applicants to demonstrate that there will be no unacceptable adverse impacts on properties.</p> <p>The distance and size thresholds which were used in the adopted Minerals Local Plan are not clearly justified. Practical application of the existing policy has always been a challenge, particularly when determining whether properties in more remote areas should be considered a cluster of 6.</p> <p>This consideration of country parks as a constraint is no longer considered valid. Although national policy gives protection to land with amenity value, mineral working is not prohibited. The owners of such facilities can use their discretion as to what development they would consider on their land like</p>

⁹⁷ National Planning Policy Framework, paragraph 17, paragraph 110, paragraph 120, paragraph 123, paragraph 125, paragraph 143, paragraph 144.

Constraints identified in current Minerals Local Plan	Regulatory and policy context	How we propose to address these issues in the new Minerals Local Plan
	<p>and quality of life arising from noise from new development, including through the use of conditions;</p> <ul style="list-style-type: none"> recognise that development will often create some noise and existing businesses wanting to develop in continuance of their business should not have unreasonable restrictions put on them because of changes in nearby land uses since they were established; and identify and protect areas of tranquillity which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason.” <p>“By encouraging good design, planning policies and decisions should limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation”;</p> <p>“In preparing Local Plans, local planning authorities should... set out environmental criteria, in line with the policies in [the] Framework, against which planning applications will be assessed so as to ensure that permitted operations do not have unacceptable adverse impacts on... human health, including from noise, dust, visual intrusion, traffic, tip- and quarry-slope stability, differential settlement of quarry backfill, mining subsidence, increased flood risk, impacts on the flow and quantity of surface and groundwater and migration of contamination from the site; and take into account the cumulative effects of multiple impacts from individual sites and/or a number of sites in a locality; [and] when developing noise limits, recognise</p>	<p>any other landowner. Where appropriate working practices are adopted mineral workings close to country parks need not have an adverse impact and can enable greater restoration gains, particularly where restoration schemes are designed to expand existing sites.</p> <p>We will seek to protect and enhance health and amenity through policies relating to working practices, the location of development and the restoration of mineral workings (See Sections 10, 11 and 12 for details).</p>

Constraints identified in current Minerals Local Plan	Regulatory and policy context	How we propose to address these issues in the new Minerals Local Plan
	<p>that some noisy short-term activities, which may otherwise be regarded as unacceptable, are</p> <p>unavoidable to facilitate minerals extraction”,</p> <p>“When determining planning applications, local planning authorities should... ensure, in granting planning permission for mineral development, that there are no unacceptable adverse impacts on... human health... and take into account the cumulative effect of multiple impacts from individual sites and/or from a number of sites in a locality; [and] ensure that any unavoidable noise, dust and particle emissions and any blasting vibrations are controlled, mitigated or removed at source, and establish appropriate noise limits for extraction in proximity to noise sensitive properties”.</p>	
<p>Transport:</p> <ul style="list-style-type: none"> • “Access to the site including effects on the surrounding highway network and local environment. In practical terms the following criteria are used: <ul style="list-style-type: none"> a ease of access to Class ‘A’ or ‘B’ road; b the avoidance of existing villages in the vicinity of the working.” 	<p>Transport is still a significant consideration.</p> <p>National policy ⁹⁸ says that plans should “set out environmental criteria...against which planning applications will be assessed so as to ensure that permitted operations do not have unacceptable adverse impacts on the</p> <p>natural and historic environment or human health, including from ... traffic, ...and take into account the cumulative effects of multiple impacts from individual sites”.</p>	<p>The approach in the emerging Minerals Local Plan is to identify areas of search rather than specific sites. It is therefore not considered practicable to identify and assess possible transport routes.</p> <p>Instead, we will develop policies to address the transport implications of mineral development, including amenity along transport routes. This might include consideration of rail, water, and other modes of transport as well as road transport.</p> <p>(See Sections 10, 11 and 12 for details).</p>

⁹⁸National Planning Policy Framework, paragraph 143.

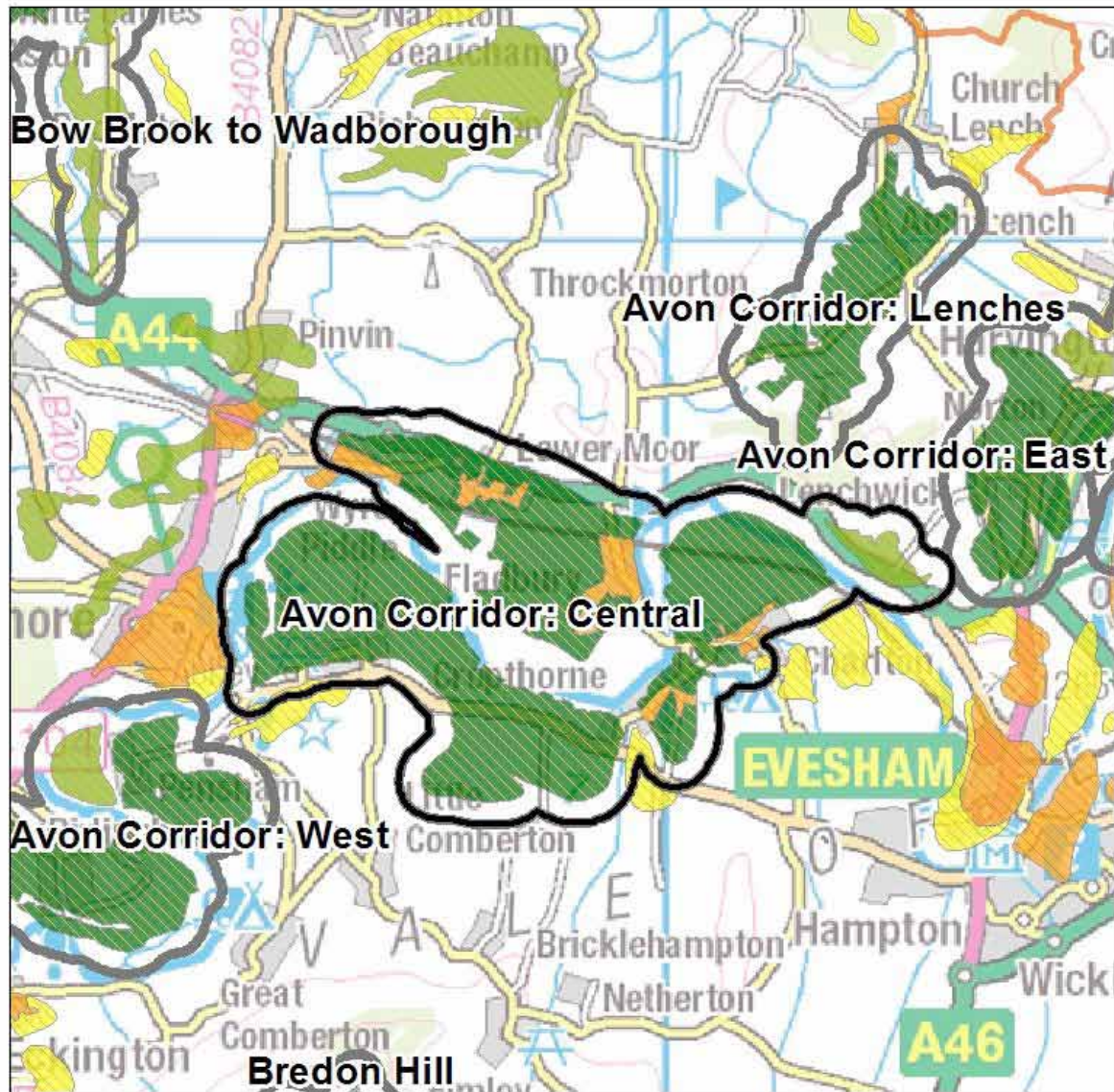
Constraints identified in current Minerals Local Plan	Regulatory and policy context	How we propose to address these issues in the new Minerals Local Plan
<p>Visual intrusion:</p> <ul style="list-style-type: none"> • “The immediate visual impact of the working. The major elements which create visual impact can be related to: <ul style="list-style-type: none"> a the frequency of the observation, b the numbers of observers affected, • the exposure of the site and the ability to screen the working” 	<p>Visual intrusion is still a significant consideration.</p> <p>National policy ⁹⁹ says “Planning policies and decisions should aim to ensure that developments... are visually attractive as a result of good architecture and appropriatelandscaping”, and “In preparing Local Plans, local planning authorities should... set out environmental criteria, in line with the policies in [the] Framework, against which planning applications will be assessed so as to ensure that permitted operations do not have unacceptable adverse impacts on the natural and historic environment or human health, including from... visual intrusion... and take into account the cumulative effects of multiple impacts from individual sites and/or a number of sites in a locality”.</p>	<p>Although national policy gives some protection against visual intrusion, the approach in the emerging Minerals Local Plan is to identify areas of search rather than specific sites. The measures which were used in the adopted Minerals Local Plan are more appropriately applied on a site-by-site basis. We therefore do not think it is appropriate for visual intrusion to be an absolute constraint on mineral development.</p> <p>We will seek to prevent inappropriate visual intrusion through policies relating to working practices, the location of development and the restoration of mineral workings. (See Sections 10, 11 and 12 for details).</p>
<p>Land ownership:</p> <ul style="list-style-type: none"> • “Common land” ¹⁰⁰ • “National Trust land” 	<p>Land ownership, including common land and National Trust land, is not a significant consideration.</p> <p>National policy does not refer to land ownership, common land or National Trust land.</p>	<p>National policy does not indicate that any specific land owners should be considered an absolute constraint on development, and in most cases landowners can use their discretion as to what development they would consider on their land.</p> <p>The regulatory regime to protect common land is already established. In addition the ownership of mineral rights can vary for different areas of common land and would not necessarily restrict mineral working.</p>

⁹⁹ National Planning Policy Framework, paragraph 58, paragraph 143.

¹⁰⁰ Landowners of commons may take gravel, loam, turf, coal and stone from the land provided that this does not infringe upon the commoners rights. (Commoners rights are protected by a separate regulatory regime.)

Appendix 2: Restoration profiles for the areas of search

Restoration profile for the area of search "Avon Corridor: Central"



Legend

Worcestershire County Boundary

Areas of Search

Terrace and glacial sand and gravel resources

- Key resource
- Significant resource
- Not significant
- Compromised
- Out of county

Solid sand resources

- Key resource
- Significant resource
- Not significant
- Compromised
- Out of county

Crushed rock resources

- Key resource
- Significant resource
- Out of county

Overall approach

Landscape character

A2.1. The landscape character of this area is predominantly Principal Village Farmlands, with areas of Village Farmlands with Orchards to the east and Riverside Meadows alongside the River Avon:

- **Principal Village Farmlands:** Principal Village Farmlands are open, rolling landscapes characterised by a nucleated pattern of expanded rural villages, surrounded by large arable fields, often sub-divided into a series of smaller plots. This is an intensively farmed landscape associated with fertile, free draining soils which give rise to high quality farmland used for growing a wide variety of cash crops. This is a landscape of contrasts, the intensely functional, yet often very open and empty character of the farmland and the focused, communal density of the villages.

The landscape guidelines in this landscape character type are to:

- Retain the pattern of strongly nucleated villages with associated low dispersal of settlement between.
 - Conserve and enhance the hedgerow structure, with emphasis on the primary hedgelines.
 - Conserve and enhance tree cover along watercourses.
 - Encourage opportunities for tree planting in and around villages.
 - Conserve and restore old orchards around villages, with an emphasis placed upon the fruit type and varieties associated with different localities.
 - Conserve and restore lines of hedgerow fruit trees.
 - Promote the development of wide field margins for wildlife benefit.
 - Promote the management of roadside verges for wildlife benefit.
- **Village Farmlands with Orchards:** This is a distinctive planned lowland agricultural landscape with a notably dominant orchard land use. It is an intensively cultivated landscape characterised by a nucleated pattern of expanded villages surrounded by large cultivated fields.

The landscape guidelines in this landscape character type are to:

- Conserve and restore traditional orchards, with emphasis placed upon the fruit type and varieties associated with different localities.
 - Conserve and restore lines of hedgerow fruit trees.
 - Retain pattern of strongly nucleated villages with associated low dispersal of settlement between.
 - Conserve and restore hedgerow structure with emphasis upon the primary hedge lines.
 - Conserve and enhance tree cover along watercourses.
 - Encourage opportunities for tree planting in and around villages.
 - Promote development of wide field margins for wildlife benefit.
 - Promote management of roadside verges for wildlife benefit.
- **Riverside Meadows:** Riverside Meadows are linear riverine landscapes associated with a flat, generally well-defined alluvial floodplain, in places framed by steeply rising ground. These are secluded pastoral landscapes,

characterised by meandering, tree-lined rivers, flanked by alluvial meadows which are defined by hedge and ditch boundaries. Settlement is typically absent.

The landscape guidelines in this landscape character type are to:

- Seek to retain the unity of the linear form of these landscapes.
- Conserve all existing areas of permanent pasture.
- Seek opportunities to encourage the conversion of arable land back to pasture.
- Conserve and enhance continuous tree cover along hedgelines, ditches and
- watercourses.
- Conserve existing wetland habitats and seek opportunities for further wetland
- habitat creation.
- Avoid building or road construction works.
- Avoid further drainage of waterside meadows.
- Explore opportunities to return to patterns and processes of natural flooding cycles.

Summary of priority levels

Table 1. Restoration priorities in Avon Corridor: Central.

Determining Factors			
Water quality		Horticulture and food production	
Significant components			
Flood alleviation	Habitat quality and fragmentation	Historic Environment	Access and recreation

Detail

Flood alleviation

Flood alleviation: Significant component

Table 2. Determining the level of priority to be given to flood alleviation

Category	Priority level	Performance of Area of Search
The River Severn Catchment Flood Management Plan Policy 4 or 5 area	1	
The River Severn Catchment Flood Management Plan Policy 3 area	2	✓
The River Severn Catchment Flood Management Plan Policy 2 area	3	
The River Severn Catchment Flood Management Plan Policy 1 area	-	

Key messages

A2.2. This area of search is in sub-area 8 of The River Severn Catchment Flood Management Plan (RSCFMP): "Middle Avon, Tributaries, Arrow and Alne, Redditch, Rugby and Teme". This is a Policy 3 area: "Areas of low to moderate flood risk where we [the Environment Agency] are generally managing existing flood risk effectively."

A2.3. The RSCFMP considers that the risks are currently managed appropriately in this sub-area and that the risk of flooding is not expected to increase significantly in the long-term.

A2.4. The consideration of surface and ground water flooding issues in the RSCFMP is limited due to a lack of available information. It is therefore worth noting that there is a general risk in Wychavon District from surface water flooding from sewers and overland flow. Groundwater flooding is not considered to be a major issue.

A2.5. The key messages in this sub-area which are relevant to mineral extraction and/or restoration are:

- to reduce dependence on raised flood defences, as this is unsustainable in the long term, by taking opportunities to restore sustainable natural storage of floodwater on undeveloped floodplains.
- Surface water flooding is a growing problem. Local authorities are mainly responsible for managing this, but it often has to be integrated with other organisations' assets, for example their sewers or rivers.
- Development/redevelopment must be managed to minimise flood risks. Methods must be sustainable over the long-term. For example, making more space for rivers through urban areas via 'blue corridors' (i.e. Restoring access for floodwater onto key strips of floodplain. This requires redevelopment to be limited to flood-compatible land-uses e.g. parkland).
- Some designated 'aquatic conservation' sites are in unfavourable condition (for example Teme SSSI). Activities that affect these sites must be changed to improve their condition.

A2.6. The proposed actions to implement the policy in this sub-area which are most relevant to mineral restoration are:

- Encourage rural and urban best practices in land-use and in land-management to restore more sustainable natural floodplains and to reduce run-off.
- Ensure that the run-off from all proposed development is minimised.
- Encourage compatibility between urban open spaces and their ability to make space for rivers to expand as flood flows occur and appraise strategies to create 'blue corridors' by developing/ redeveloping to link these flood-compatible spaces.
- Support ecological improvements. Examples of this include Severn & Avon Wetlands Project; Natural England's three fluvial SSSIs; Cotswold AONB.

*Habitat quality and fragmentation***Habitat quality and fragmentation: Determining Factor****Table 3. Determining the level of priority to be given to habitat quality and fragmentation**

		Biodiversity quality		
		High	Medium	Low
Landscape fragmentation	Low	1	2✓	3
	Medium	2	2	3
	High	2	3	3

Key messages

A2.7. Biodiversity priorities identified for this area of search¹ in the Worcestershire Green Infrastructure Strategy (WGIS) focus on managing and buffering of existing habitats as a first principle, with newly created Green Infrastructure augmenting the existing resource, and linking priority habitats, including neutral grassland, field boundaries and traditional orchards. This should focus on maintaining the River Avon corridor as a key green infrastructure link, with the floodplain being critical for a number of GI aspirations.

A2.8. The Severn and Avon Vales Biodiversity Delivery Area (BDA) crossed the centre of this area of search, following the river corridor. Minerals development and restoration could contribute towards the delivery of biodiversity priorities in this BDA by:

- Restoring the functionality and biodiversity value of the wetland/floodplain ecosystem
- Contributing to the delivery of Water Framework Directive targets through reversion of arable land to wet grassland
- Creating new wetland habitat including reedbed, fen, marsh and ditch networks
- Creating ecological networks that are resilient to climate change

¹ See ECA profile 16: Evesham Valley, available on www.worcestershire.gov.uk/mineralsbackground.

Water Quality

Water Quality: Determining Factor

Table 4. Determining the level of priority to be given to water quality

		Chemical Status of water bodies within area of search		
		Fail	Good	Not required
Ecological Status of water bodies within area of search	Bad or Poor	1	1	1
	Moderate	1✓	2	2
	Good	2	3	3
	High	3	-	-
	No WFD water bodies in area of search	-	-	-

Key messages

A2.9. There are two Water Framework Directive water courses in this Area of Search:

- River Avon – Workman Bridge, Evesham to confluence with River Severn**
 Chemical Status: Fail
 Ecological Status: Moderate potential
 Heavily modified hydromorphological status. This water course includes the River Avon and its tributaries south of the A44 at Wyre Piddle.
- Elmley Castle – Source to confluence with River Avon**
 Chemical Status: Not required
 Ecological Status: Moderate

A2.10. Where this method results in water quality being identified as a relevant consideration for the area of search we would like to give some high-level guidance. We are aware that the Environment Agency is working on Water Improvement Plans and Water Action Plans to implement the objectives of the WFD and hope that this will be useful in helping us develop this guidance.

A2.11. However these are not currently available. If they are completed during the preparation of the Minerals Local Plan we will consider opportunities to take them into account in this methodology and the area of search restoration priority profiles.

Geodiversity

Geodiversity: Not likely to be significant in this area of search

Table 5. Determining the level of priority to be given to geodiversity

	Priority level	Performance of Area of Search
Area of search in or partially within the Cotswolds or Malvern Hills Area of Outstanding Natural Beauty	1	-
Area of search in or partially within the Abberley and Malvern Hills Geopark	1	-
Area of search contains a geological SSSI or local geological site	2	-
Area of Search within 1km of geological SSSI or 500m of local geological site	3	-
Area of Search not in the Abberley and Malvern Hills Geopark and further than 1km from geological SSSI or 500m of local geological site	-	✓

Key messages

A2.12. The way in which geodiversity can be considered in a restoration approach will vary significantly depending on the nature and location of the features to be incorporated, but it may be possible to protect certain geological features which are uncovered during extraction and incorporate them into the restoration scheme.

Horticulture and food production

Horticulture and food production: Significant component

Table 6. Determining the level of priority to be given to horticulture and food production

Agricultural land	Priority level	Performance of Area of Search
More than ½ of the area of search classified as grade 1 or 2	1	✓
½ - ¼ of the area of search classified as grade 1 or 2	2	
Less than 1/4 grade of the area of search classified as grade 1 or 2	3	
None of the area of search classified as grade 1 or 2	-	

Key messages

A2.13. Minerals site development and restoration could contribute to conserving high quality soil resources and safeguarding the long term potential of best and most versatile agricultural land by:

- stripping and storing soils in line with best practice guidance,
- reinstating the original soil asset where possible,

- concentrating high quality soil resources in restoring some parts of the site to high grade agricultural land and delivering low intensity grazing or wetland habitats in parts of the site with lower soil quality or where the lowered land level following mineral extraction does not allow for restoration of the entire area to high quality agricultural land.

Historic Environment

Historic Environment: Determining factor/significant component

Table 7. Determining the level of priority to be given to the historic environment

Potential for the presence of heritage assets	Priority level	Performance of Area of Search
More than ½ of the area of search identified as high potential	1	
½ to ¼ of the area of search identified as high potential	2	✓
Less than ¼ of the area of search identified as high potential	3	

Key messages

A2.14. In the River Avon corridor, which is rich in sand and gravel deposits, cropmarked sites, surface finds, surveys and excavations have revealed a settled landscape from prehistoric times onwards. Below-ground evidence survives well, although in places its potential will have been reduced by the intensive arable cultivation. There is potential for alluvial deposits often associated with palaeochannels, which preserve important environmental deposits.

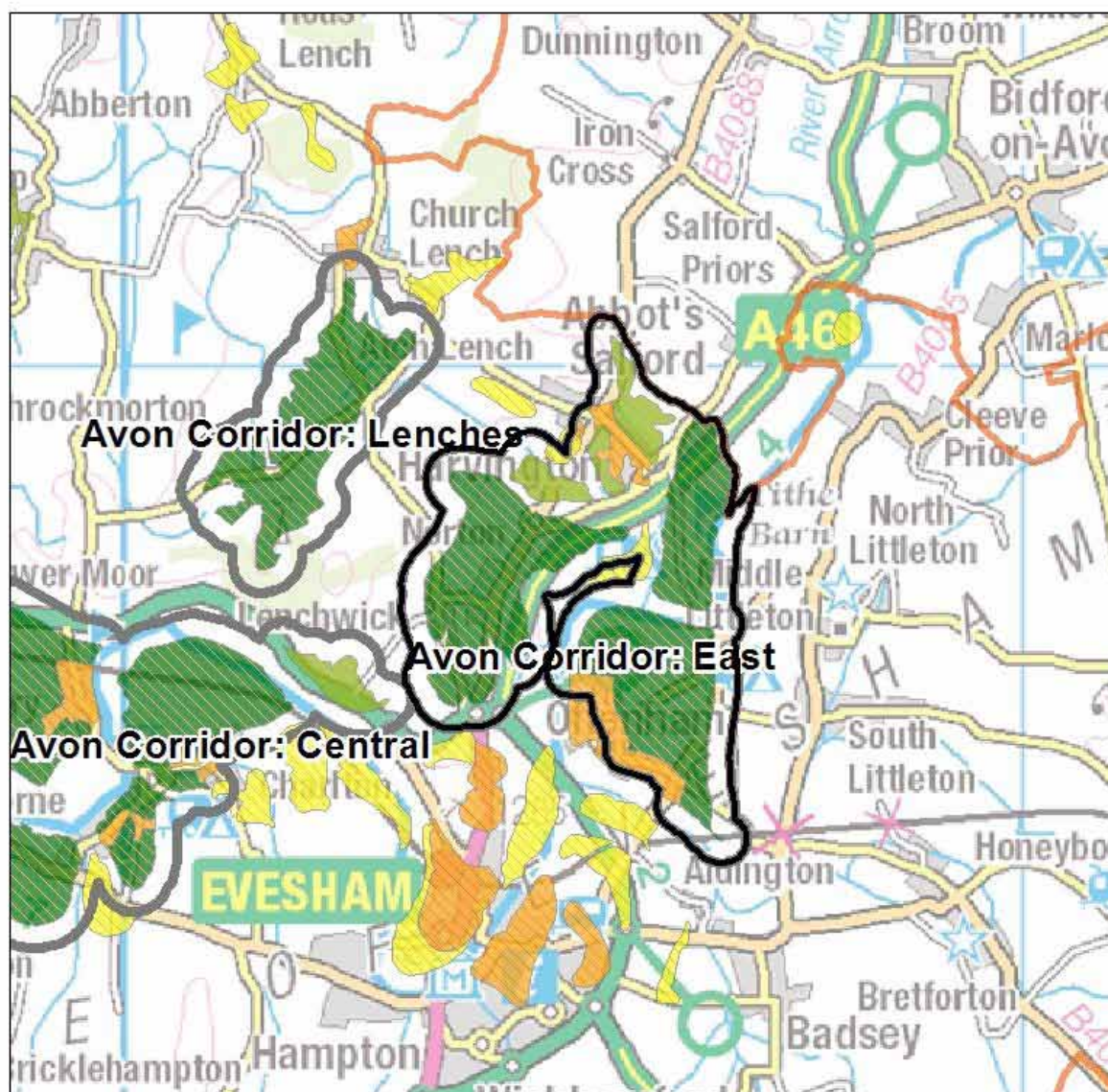
Access and recreation**Access and Recreation: Significant component****Table 8. Determining the level of priority to be given to the historic environment**

	Priority level	Performance of Area of Search
Part of the minerals area of search identified as area of search for recreation in adopted or emerging local plan	1	
Part of the minerals area of search identified as area of search for recreation in Worcestershire GI Strategy	1	
Minerals area of search is in an area where less than 75% of households meet ANGSt standards for district scale provision (sites or habitats over 20ha within 2km)	2	✓
In area where more than 75% of households meet ANGSt standards for district scale provision and no areas of search for recreation have been identified.	3	

Key messages

A2.15. In Wychavon District only 44.2% of households are within 2km of a 20ha+ access and recreation site. There is potential to integrate access and recreation into broader restoration schemes.

Restoration profile for the area of search "Avon Corridor: East"



Legend

Worcestershire County Boundary

Areas of Search

Terrace and glacial sand and gravel resources

- Key resource
- Significant resource
- Not significant
- Compromised
- Out of county

Solid sand resources

- Key resource
- Significant resource
- Not significant
- Compromised
- Out of county

Crushed rock resources

- Key resource
- Significant resource
- Out of county

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Overall approach

Landscape character

A2.16. The landscape character of this area varies between the east and the west. In the east the Landscape Type is Principal Village Farmlands and in the west, Village Farmlands with Orchards:

- **Principal Village Farmlands:** Principal Village Farmlands are open, rolling landscapes characterised by a nucleated pattern of expanded rural villages, surrounded by large arable fields, often sub-divided into a series of smaller plots. This is an intensively farmed landscape associated with fertile, free draining soils which give rise to high quality farmland used for growing a wide variety of cash crops. This is a landscape of contrasts, the intensely functional, yet often very open and empty character of the farmland and the focused, communal density of the villages.

The landscape guidelines in this landscape character type are to:

- Retain the pattern of strongly nucleated villages with associated low dispersal of settlement between.
 - Conserve and enhance the hedgerow structure, with emphasis on the primary hedgelines.
 - Conserve and enhance tree cover along watercourses.
 - Encourage opportunities for tree planting in and around villages.
 - Conserve and restore old orchards around villages, with an emphasis placed upon the fruit type and varieties associated with different localities.
 - Conserve and restore lines of hedgerow fruit trees.
 - Promote the development of wide field margins for wildlife benefit.
 - Promote the management of roadside verges for wildlife benefit.
- **Village Farmlands with Orchards:** This is a distinctive planned lowland agricultural landscape with a notably dominant orchard land use. It is an intensively cultivated landscape characterised by a nucleated pattern of expanded villages surrounded by large cultivated fields.

The landscape guidelines in this landscape character type are to:

- Conserve and restore traditional orchards, with emphasis placed upon the fruit type and varieties associated with different localities.
- Conserve and restore lines of hedgerow fruit trees.
- Retain pattern of strongly nucleated villages with associated low dispersal of settlement between.
- Conserve and restore hedgerow structure with emphasis upon the primary hedge lines.
- Conserve and enhance tree cover along watercourses.
- Encourage opportunities for tree planting in and around villages.
- Promote development of wide field margins for wildlife benefit.
- Promote management of roadside verges for wildlife benefit.

Summary of priority levels

Table 1. Restoration priorities in Avon Corridor: East.

Determining Factors				
Water quality				
Significant components				
Flood alleviation	Habitat quality and fragmentation	Horticulture and food production	Historic environment	Access and recreation

Detail

Flood alleviation

Flood alleviation: Significant component

Table 2. Determining the level of priority to be given to flood alleviation

Category	Priority level	Performance of Area of Search
The River Severn Catchment Flood Management Plan Policy 4 or 5 area	1	
The River Severn Catchment Flood Management Plan Policy 3 area	2	✓
The River Severn Catchment Flood Management Plan Policy 2 area	3	
The River Severn Catchment Flood Management Plan Policy 1 area	-	

Key messages

A2.17. This area of search is in sub-area 8 of The River Severn Catchment Flood Management Plan (RSCFMP): "Middle Avon, Tributaries, Arrow and Alne, Redditch, Rugby and Teme". This is a Policy 3 area: "Areas of low to moderate flood risk where we [the Environment Agency] are generally managing existing flood risk effectively."

A2.18. The RSCFMP considers that the risks are currently managed appropriately in this sub-area and that the risk of flooding is not expected to increase significantly in the long-term.

A2.19. The consideration of surface and ground water flooding issues in the RSCFMP is limited due to a lack of available information. It is therefore worth noting that there is a general risk in Wychavon District from surface water flooding from sewers and overland flow. Groundwater flooding is not considered to be a major issue.

A2.20. The key messages in this sub-area which are relevant to mineral extraction and/or restoration are:

- to reduce dependence on raised flood defences, as this is unsustainable in the long term, by taking opportunities to restore sustainable natural storage of floodwater on undeveloped floodplains.
- Surface water flooding is a growing problem. Local authorities are mainly responsible for managing this, but it often has to be integrated with other organisations' assets, for example their sewers or rivers.
- Development/redevelopment must be managed to minimise flood risks. Methods must be sustainable over the long-term. For example, making more space for rivers through urban areas via 'blue corridors' (i.e. Restoring access for floodwater onto key strips of floodplain. This requires redevelopment to be limited to flood-compatible land-uses e.g. parkland).
- Some designated 'aquatic conservation' sites are in unfavourable condition (for example Teme SSSI). Activities that affect these sites must be changed to improve their condition.

A2.21. The proposed actions to implement the policy in this sub-area which are most relevant to mineral restoration are:

- Encourage rural and urban best practices in land-use and in land-management to restore more sustainable natural floodplains and to reduce run-off.
- Ensure that the run-off from all proposed development is minimised.
- Encourage compatibility between urban open spaces and their ability to make space for rivers to expand as flood flows occur and appraise strategies to create 'blue corridors' by developing/ redeveloping to link these flood-compatible spaces.
- Support ecological improvements. Examples of this include Severn & Avon Wetlands Project; Natural England's three fluvial SSSIs; Cotswold AONB.

Habitat quality and fragmentation

Habitat quality and fragmentation: Significant component

Table 3. Determining the level of priority to be given to habitat quality and fragmentation

		Biodiversity quality		
		High	Medium	Low
Landscape fragmentation	Low	1	2	3
	Medium	2	2	3
	High	2✓	3	3

Key messages

A2.22. Biodiversity priorities identified for this area of search¹ in the Worcestershire Green Infrastructure Strategy (WGIS) focus on managing and buffering of existing habitats as a first principle, with newly created Green Infrastructure augmenting the existing resource, and linking priority habitats, including neutral grassland, field boundaries and traditional orchards. This should focus on maintaining the River Avon corridor as a key green infrastructure link, with the floodplain being critical for a number of GI aspirations.

A2.23. The Severn and Avon Vales Biodiversity Delivery Area (BDA) crosses the centre of this area of search, following the river corridor. Minerals development and restoration could contribute towards the delivery of biodiversity priorities in this BDA by:

- Restoring the functionality and biodiversity value of the wetland/floodplain ecosystem
- Contributing to the delivery of Water Framework Directive targets through reversion of arable land to wet grassland
- Creating new wetland habitat including reedbed, fen, marsh and ditch networks
- Creating ecological networks that are resilient to climate change

Water Quality

Water Quality: Determining Factor

Table 4. Determining the level of priority to be given to water quality

		Chemical Status of water bodies within area of search		
		Fail	Good	Not required
Ecological Status of water bodies within area of search	Bad or Poor	1	1 ✓	1
	Moderate	1	2	2
	Good	2	3	3
	High	3	-	-
	No WFD water bodies in area of search	-	-	-

Key messages

A2.24. There are three Water Framework Directive Water Courses in this Area of Search:

- **Badsey Brook – confluence with Bretforton Brook to confluence with River Avon:**
Chemical Status: Not required
Ecological Status: Poor
- **River Avon – Tramway Bridge Stratford to Workman Bridge Evesham**
Chemical Status: Good

¹ See ECA profile 16: Evesham Valley, available on www.worcestershire.gov.uk/mineralsbackground.

Ecological Status: Moderate Potential

- **Harvington Brook – Source to confluence with Avon**

Chemical Status: Not Required

Ecological Status: Poor

A2.25. Where this method results in water quality being identified as a relevant consideration for the area of search we would like to give some high-level guidance. We are aware that the Environment Agency is working on Water Improvement Plans and Water Action Plans to implement the objectives of the WFD and hope that this will be useful in helping us develop this guidance.

A2.26. However these are not currently available. If they are completed during the preparation of the Minerals Local Plan we will consider opportunities to take them into account in this methodology and the area of search restoration priority profiles.

Geodiversity

Geodiversity: Not likely to be significant in this area of search

Table 5. Determining the level of priority to be given to geodiversity

	Priority level	Performance of Area of Search
Area of search in or partially within the Cotswolds or Malvern Hills Area of Outstanding Natural Beauty	1	-
Area of search in or partially within the Abberley and Malvern Hills Geopark	1	-
Area of search contains a geological SSSI or local geological site	2	-
Area of Search within 1km of geological SSSI or 500m of local geological site	3	-
Area of Search not in the Abberley and Malvern Hills Geopark and further than 1km from geological SSSI or 500m of local geological site	-	✓

Key messages

A2.27. The way in which geodiversity can be considered in a restoration approach will vary significantly depending on the nature and location of the features to be incorporated, but it may be possible to protect certain geological features which are uncovered during extraction and incorporate them into the restoration scheme.

Horticulture and food production

Horticulture and food production: Significant component

Table 6. Determining the level of priority to be given to horticulture and food production

Agricultural land	Priority level	Performance of Area of Search
More than ½ of the area of search classified as grade 1 or 2	1	
½ - ¼ of the area of search classified as grade 1 or 2	2	✓
Less than 1/4 grade of the area of search classified as grade 1 or 2	3	
None of the area of search classified as grade 1 or 2	-	

Key messages

A2.28. Minerals site development and restoration could contribute to conserving high quality soil resources and safeguarding the long term potential of best and most versatile agricultural land by:

- stripping and storing soils in line with best practice guidance,
- reinstating the original soil asset where possible,
- concentrating high quality soil resources in restoring some parts of the site to high grade agricultural land and delivering low intensity grazing or wetland habitats in parts of the site with lower soil quality or where the lowered land level following mineral extraction does not allow for restoration of the entire area to high quality agricultural land.

Historic Environment

Historic Environment: Significant component

Table 7. Determining the level of priority to be given to the historic environment

Potential for the presence of heritage assets	Priority level	Performance of Area of Search
More than ½ of the area of search identified as high potential	1	
½ to ¼ of the area of search identified as high potential	2	✓
Less than ¼ of the area of search identified as high potential	3	

Key messages

A2.29. In the River Avon corridor, which is rich in sand and gravel deposits, cropmarked sites, surface finds, surveys and excavations have revealed a settled landscape from prehistoric times onwards. Below-ground evidence survives well, although in places its potential will have been reduced by the intensive arable cultivation.

There is potential for alluvial deposits often associated with palaeochannels, which preserve important environmental deposits.

Access and recreation

Access and Recreation: Significant component

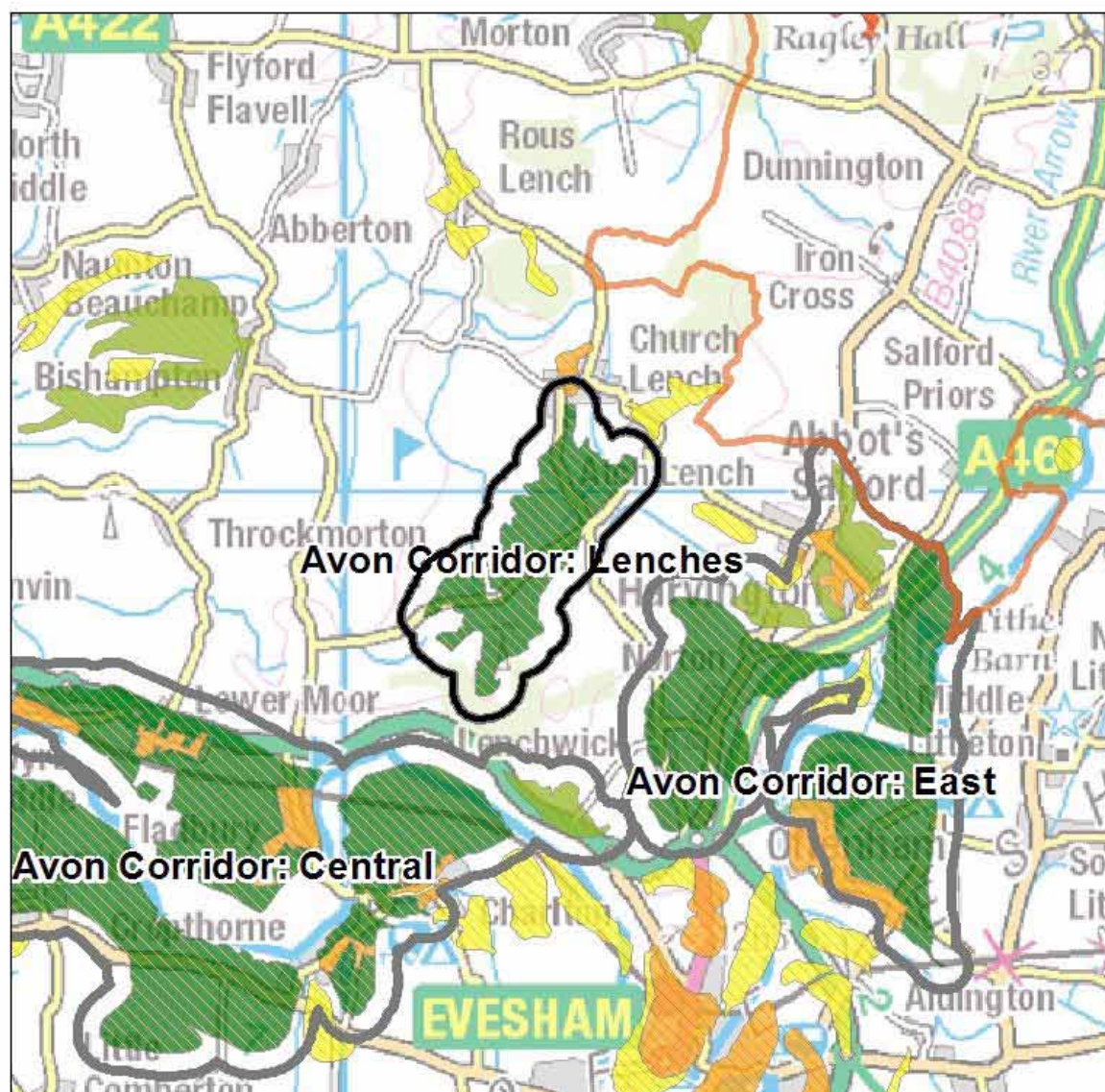
Table 8. Determining the level of priority to be given to the historic environment

	Priority level	Performance of Area of Search
Part of the minerals area of search identified as area of search for recreation in adopted or emerging local plan	1	
Part of the minerals area of search identified as area of search for recreation in Worcestershire GI Strategy	1	
Minerals area of search is in an area where less than 75% of households meet ANGSt standards for district scale provision (sites or habitats over 20ha within 2km)	2	✓
In area where more than 75% of households meet ANGSt standards for district scale provision and no areas of search for recreation have been identified.	3	

Key messages

A2.30. In Wychavon District only 44.2% of households are within 2km of a 20ha+ access and recreation site. There is potential to integrate access and recreation into broader restoration schemes.

Restoration profile for the area of search "Avon Corridor: Lenches"



Legend

Worcestershire County Boundary

Areas of Search

Terrace and glacial sand and gravel resources

Key resource

Significant resource

Not significant

Compromised

Out of county

Solid sand resources

Key resource

Significant resource

Not significant

Compromised

Out of county

Crushed rock resources

Key resource

Significant resource

Out of county

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Overall approach

Landscape character

A2.31. The landscape character of this area is predominantly Timbered Plateau Farmlands with Principal Wooded Hills in the south and north-east corner:

- **Timbered Plateau Farmlands:** The Timbered Plateau Farmlands are varied, mixed farming landscapes of hedged fields, scattered farms, woods and wooded valleys associated with upstanding areas of undulating relief. The landform conveys a sense of strength and dominance which tends to override the pattern of tree cover and fields. Variations in landform within this landscape create a changing sequence of visual perspectives, ranging from open vistas on plateau summits to more secluded scenes along valley bottoms.

The landscape guidelines in this landscape character type are to:

- Conserve and manage all ancient woodland sites, restocking with locally occurring native stock.
 - Promote the coalescence of fragmented remnants of ancient woodland.
 - Promote new woodland planting, favouring native broadleaves with oak as the major species.
 - Promote infilling of gaps in tree cover along watercourses and dingles.
 - Conserve hedgerow oaks and promote the importance of veteran trees.
 - Conserve and restore the pattern of hedgerows throughout the area, giving priority to primary boundaries and boundaries of assarted origin.
 - Conserve and restore existing parkland areas.
 - Encourage new populations of hedgerow oaks, particularly through natural regeneration.
 - Maintain the characteristic dispersed settlement pattern, avoiding the formation of pronounced settlement nuclei.
- **Principal Wooded Hills:** These are upstanding, wooded landscapes with a sloping, in places steeply undulating topography, often on the edge of higher ground. These are landscapes of large, irregularly shaped ancient woodlands and wooded streamlines, typically forming an interlocking pattern with surrounding hedged fields. The flowing woodland cover is a key visual element within the landscape, resulting in a strong sense of unity and visual integration.

The landscape guidelines in this landscape character type are to:

- Conserve and restore the ancient broadleaved character of all woodlands.
- Seek to restore the wooded character of the area through large scale woodland planting in areas where the interlocking pattern has become diluted.
- Conserve and restore the irregular pattern of assarted fields.

- Strengthen the wooded character of hedgelines and streamlines through replanting or natural regeneration.
- New woodland planting and felling coupes should be carefully designed to take particular account of their visual impact.

Summary of priority levels

Table 1. Restoration priorities in Avon Corridor: Lenches

Determining Factors		
Habitat quality and fragmentation	Water quality	
Significant components		
Flood alleviation	Horticulture and food production	Access and recreation
Integrate where possible		
Historic Environment		

Detail

Flood alleviation

Flood alleviation: Significant component

Table 2. Determining the level of priority to be given to flood alleviation

Category	Priority level	Performance of Area of Search
The River Severn Catchment Flood Management Plan Policy 4 or 5 area	1	
The River Severn Catchment Flood Management Plan Policy 3 area	2	✓
The River Severn Catchment Flood Management Plan Policy 2 area	3	
The River Severn Catchment Flood Management Plan Policy 1 area	-	

Key messages

A2.32. This area of search is in sub-area 8 of The River Severn Catchment Flood Management Plan (RSCFMP): "Middle Avon, Tributaries, Arrow and Alne, Redditch, Rugby and Teme". This is a Policy 3 area: "Areas of low to moderate flood risk where we [the Environment Agency] are generally managing existing flood risk effectively."

A2.33. The RSCFMP considers that the risks are currently managed appropriately in this sub-area and that the risk of flooding is not expected to increase significantly in the long-term.

A2.34. The consideration of surface and ground water flooding issues in the RSCFMP is limited due to a lack of available information. It is therefore worth noting that there is a general risk in Wychavon District from surface water flooding from sewers and overland flow. Groundwater flooding is not considered to be a major issue.

A2.35. The key messages in this sub-area which are relevant to mineral extraction and/or restoration are:

- to reduce dependence on raised flood defences, as this is unsustainable in the long term, by taking opportunities to restore sustainable natural storage of floodwater on undeveloped floodplains.
- Surface water flooding is a growing problem. Local authorities are mainly responsible for managing this, but it often has to be integrated with other organisations' assets, for example their sewers or rivers.
- Development/redevelopment must be managed to minimise flood risks. Methods must be sustainable over the long-term. For example, making more space for rivers through urban areas via 'blue corridors' (i.e. Restoring access for floodwater onto key strips of floodplain. This requires redevelopment to be limited to flood-compatible land-uses e.g. parkland).
- Some designated 'aquatic conservation' sites are in unfavourable condition (for example Teme SSSI). Activities that affect these sites must be changed to improve their condition.

A2.36. The proposed actions to implement the policy in this sub-area which are most relevant to mineral restoration are:

- Encourage rural and urban best practices in land-use and in land-management to restore more sustainable natural floodplains and to reduce run-off.
- Ensure that the run-off from all proposed development is minimised.
- Encourage compatibility between urban open spaces and their ability to make space for rivers to expand as flood flows occur and appraise strategies to create 'blue corridors' by developing/ redeveloping to link these flood-compatible spaces.
- Support ecological improvements. Examples of this include Severn & Avon Wetlands Project; Natural England's three fluvial SSSIs; Cotswold AONB.

Habitat quality and fragmentation

Habitat quality and fragmentation: Determining Factor

Table 3. Determining the level of priority to be given to habitat quality and fragmentation

		Biodiversity quality		
		High	Medium	Low
Landscape fragmentation	Low	1✓	2	3
	Medium	2	2	3
	High	2	3	3

Key messages

A2.37. Biodiversity priorities identified for this area of search¹ in the Worcestershire Green Infrastructure Strategy (WGIS) focus on managing and buffering of existing habitats as a first principle. Where sites are closely associated, buffering should be merged to form links. The River Avon corridor in this area is already well linked but augmentation of this in the floodplain will be critical for a number of GI aspirations.

A2.38. The Forest of Feckenham Biodiversity Delivery Area (BDA) covers all of this area of search. Minerals development and restoration could contribute towards the delivery of biodiversity priorities in this BDA through the creation, restoration and management of lowland meadows, traditional orchards, native woodland, veteran trees and hedgerows, with small meadow and orchard sites.

Water Quality

Water Quality: Determining Factor

Table 4. Determining the level of priority to be given to water quality

		Chemical Status of water bodies within area of search		
		Fail	Good	Not required
Ecological Status of water bodies within area of search	Bad or Poor	1	1	1✓
	Moderate	1	2	2
	Good	2	3	3
	High	3	-	-
	No WFD water bodies in area of search	-	-	-

¹ See ECA profile 16: Evesham Valley, available on www.worcestershire.gov.uk/mineralsbackground.

Key messages

A2.39. There is one Water Framework Directive Water Courses in this Area of Search:

- **Harvington Brook – Source to confluence with River Avon**

Chemical Status: Not required

Ecological Status: Poor

Only a small part of this water course in this area of search.

A2.40. Where this method results in water quality being identified as a relevant consideration for the area of search we would like to give some high-level guidance. We are aware that the Environment Agency is working on Water Improvement Plans and Water Action Plans to implement the objectives of the WFD and hope that this will be useful in helping us develop this guidance.

A2.41. However these are not currently available. If they are completed during the preparation of the Minerals Local Plan we will consider opportunities to take them into account in this methodology and the area of search restoration priority profiles.

Geodiversity

Geodiversity: Not likely to be significant in this area of search

Table 5. Determining the level of priority to be given to geodiversity

	Priority level	Performance of Area of Search
Area of search in or partially within the Cotswolds or Malvern Hills Area of Outstanding Natural Beauty	1	-
Area of search in or partially within the Abberley and Malvern Hills Geopark	1	-
Area of search contains a geological SSSI or local geological site	2	-
Area of Search within 1km of geological SSSI or 500m of local geological site	3	-
Area of Search not in the Abberley and Malvern Hills Geopark and further than 1km from geological SSSI or 500m of local geological site	-	✓

Key messages

A2.42. The way in which geodiversity can be considered in a restoration approach will vary significantly depending on the nature and location of the features to be incorporated, but it may be possible to protect certain geological features which are uncovered during extraction and incorporate them into the restoration scheme.

*Horticulture and food production***Horticulture and food production: Significant component****Table 6. Determining the level of priority to be given to horticulture and food production**

Agricultural land	Priority level	Performance of Area of Search
More than ½ of the area of search classified as grade 1 or 2	1	
½ - ¼ of the area of search classified as grade 1 or 2	2	✓
Less than 1/4 grade of the area of search classified as grade 1 or 2	3	
None of the area of search classified as grade 1 or 2	-	

Key messages

A2.43. Minerals site development and restoration could contribute to conserving high quality soil resources and safeguarding the long term potential of best and most versatile agricultural land by:

- stripping and storing soils in line with best practice guidance,
- reinstating the original soil asset where possible,
- concentrating high quality soil resources in restoring some parts of the site to high grade agricultural land and delivering low intensity grazing or wetland habitats in parts of the site with lower soil quality or where the lowered land level following mineral extraction does not allow for restoration of the entire area to high quality agricultural land.

*Historic Environment***Historic Environment: Integrate where possible****Table 7. Determining the level of priority to be given to the historic environment**

Potential for the presence of heritage assets	Priority level	Performance of Area of Search
More than ½ of the area of search identified as high potential	1	
½ to ¼ of the area of search identified as high potential	2	
Less than ¼ of the area of search identified as high potential	3	✓

Key messages

A2.44. In the River Avon corridor, which is rich in sand and gravel deposits, cropmarked sites, surface finds, surveys and excavations have revealed a settled landscape from prehistoric times onwards. Below-ground evidence survives well, although in places its potential will have been reduced by the intensive arable cultivation. There is potential for alluvial deposits often associated with palaeochannels, which preserve important environmental deposits.

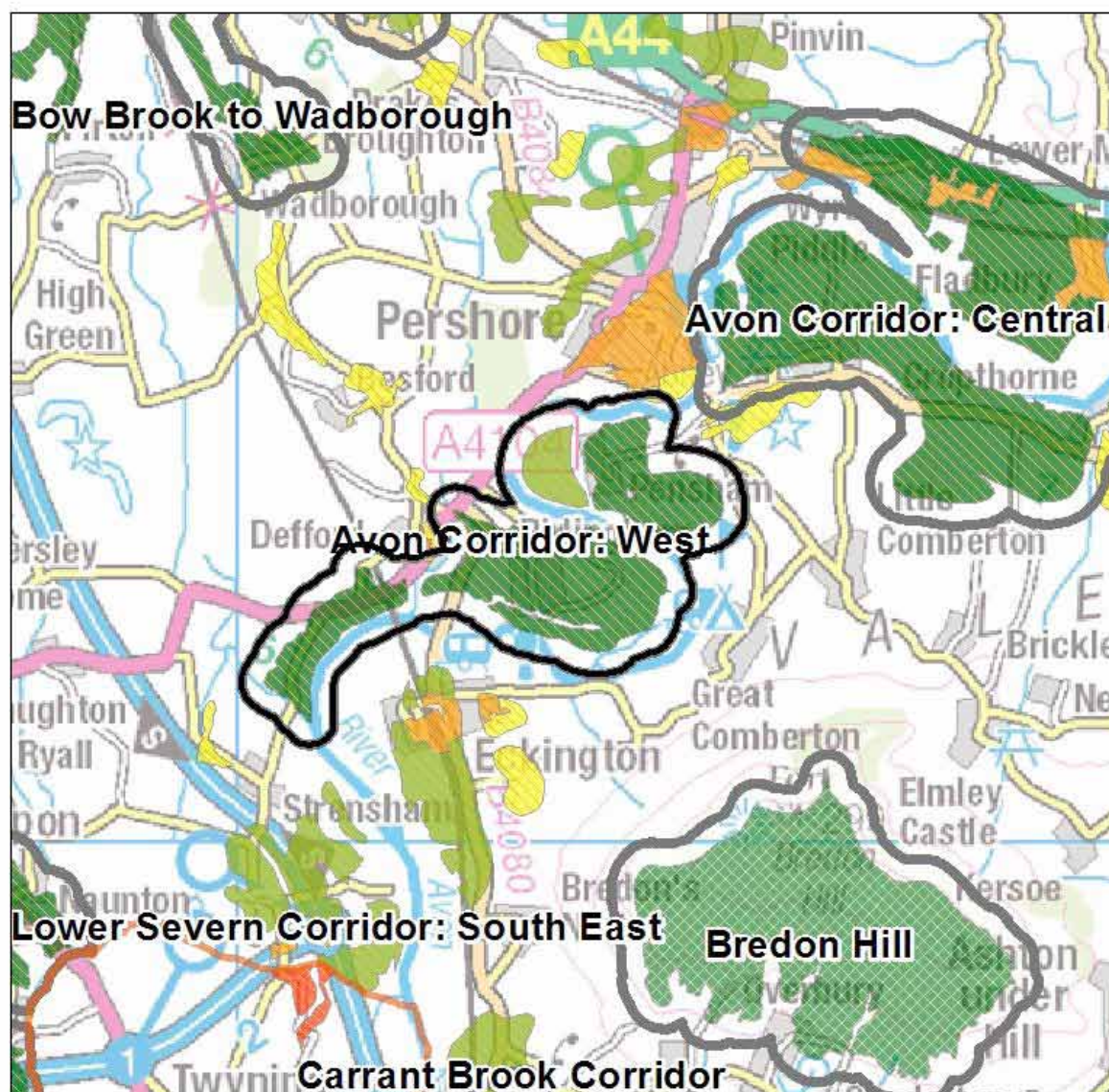
Access and recreation**Access and Recreation: Significant component****Table 8. Determining the level of priority to be given to the historic environment**

	Priority level	Performance of Area of Search
Part of the minerals area of search identified as area of search for recreation in adopted or emerging local plan	1	
Part of the minerals area of search identified as area of search for recreation in Worcestershire GI Strategy	1	
Minerals area of search is in an area where less than 75% of households meet ANGSt standards for district scale provision (sites or habitats over 20ha within 2km)	2	✓
In area where more than 75% of households meet ANGSt standards for district scale provision and no areas of search for recreation have been identified.	3	

Key messages

A2.45. In Wychavon District only 44.2% of households are within 2km of a 20ha+ access and recreation site. There is potential to integrate access and recreation into broader restoration schemes.

Restoration profile for the area of search "Avon Corridor: West"



Legend

Worcester County Boundary

Areas of Search

Terrace and glacial sand and gravel resources

Key resource

Significant resource

Not significant

Compromised

Out of county

Solid sand resources

Key resource

Significant resource

Not significant

Compromised

Out of county

Crushed rock resources

Key resource

Significant resource

Out of county

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Overall approach

Landscape character

A2.46. The landscape character of this area is predominantly Principal Village Farmlands, with some areas of Riverside Meadows along the River Avon, Wooded Estatelands in the north-west and Principal settled farmlands in the south-west:

- **Principal Village Farmlands:** Principal Village Farmlands are open, rolling landscapes characterised by a nucleated pattern of expanded rural villages, surrounded by large arable fields, often sub-divided into a series of smaller plots. This is an intensively farmed landscape associated with fertile, free draining soils which give rise to high quality farmland used for growing a wide variety of cash crops. This is a landscape of contrasts, the intensely functional, yet often very open and empty character of the farmland and the focused, communal density of the villages.

The landscape guidelines in this landscape character type are to:

- Retain the pattern of strongly nucleated villages with associated low dispersal of settlement between.
 - Conserve and enhance the hedgerow structure, with emphasis on the primary hedgelines.
 - Conserve and enhance tree cover along watercourses.
 - Encourage opportunities for tree planting in and around villages.
 - Conserve and restore old orchards around villages, with an emphasis placed upon the fruit type and varieties associated with different localities.
 - Conserve and restore lines of hedgerow fruit trees.
 - Promote the development of wide field margins for wildlife benefit.
 - Promote the management of roadside verges for wildlife benefit.
- **Riverside Meadows:** Riverside Meadows are linear riverine landscapes associated with a flat, generally well-defined alluvial floodplain, in places framed by steeply rising ground. These are secluded pastoral landscapes, characterised by meandering, tree-lined rivers, flanked by alluvial meadows which are defined by hedge and ditch boundaries. Settlement is typically absent.

The landscape guidelines in this landscape character type are to:

- Seek to retain the unity of the linear form of these landscapes.
- Conserve all existing areas of permanent pasture.
- Seek opportunities to encourage the conversion of arable land back to pasture.
- Conserve and enhance continuous tree cover along hedgelines, ditches and watercourses.
- Conserve existing wetland habitats and seek opportunities for further wetland habitat creation.
- Avoid building or road construction works.
- Avoid further drainage of waterside meadows.

- Explore opportunities to return to patterns and processes of natural flooding cycles.
- **Wooded estatelands:** This is a large scale, wooded agricultural landscape of isolated brick farmsteads, clusters of wayside dwellings and occasional small estate villages. The key visual element in this landscape is the frequent large, irregularly shaped ancient woodlands, often prominently situated on low crests. It is a landscape that, due to its scale, lacks intimacy and can appear rather functional.

The landscape guidelines in this landscape character type are to:

- Conserve all ancient woodland sites and restock with locally occurring native species.
 - Promote new large scale woodland planting.
 - New woodland planting should be of native broadleaved species, favouring oak as the dominant species and relate to the scale and spatial pattern of the Landscape Type.
 - Conserve and restore the hedgerow pattern, particularly primary hedgerows and hedgerow tree cover.
 - Seek to ensure hedgerow linkage to all woodland blocks, for visual cohesion and wildlife benefit.
 - Conserve and restore parkland including historically correct ornamental planting and with an emphasis on arable reversion.
 - Conserve the integrity of estate villages and their associated tree cover.
- **Principal Settled Farmlands:** These are small to medium scale, settled agricultural landscapes of scattered farms, relic commons and clusters of wayside dwellings. These buildings are linked by a network of narrow, winding lanes which nestle within a matrix of hedged fields. Tree cover is largely restricted to thinly scattered hedgerow trees and groups of trees around dwellings. The land use is primarily one of mixed farming.

The landscape guidelines in this landscape character type are to:

- Conserve and enhance the pattern of hedgerows.
- Retain the integrity of the dispersed pattern of settlement.
- Conserve and enhance tree cover along watercourses.
- Enhance patterns of tree cover associated with settlement.
- Seek opportunities to conserve all remaining areas of permanent pasture.

Summary of priority levels

Table 1. Restoration priorities in Avon Corridor: West

Determining Factors		
Water quality	Horticulture and food production	Historic Environment
Significant components		
Flood alleviation	Habitat quality and fragmentation	Access and recreation
Integrate where possible		
Geodiversity		

Detail

Flood alleviation

Flood alleviation: Significant component

Table 2. Determining the level of priority to be given to flood alleviation

Category	Priority level	Performance of Area of Search
The River Severn Catchment Flood Management Plan Policy 4 or 5 area	1	
The River Severn Catchment Flood Management Plan Policy 3 area	2	✓
The River Severn Catchment Flood Management Plan Policy 2 area	3	
The River Severn Catchment Flood Management Plan Policy 1 area	-	

Key messages

A2.47. This area of search is in sub-area 8 of The River Severn Catchment Flood Management Plan (RSCFMP): "Middle Avon, Tributaries, Arrow and Alne, Redditch, Rugby and Teme". This is a Policy 3 area: "Areas of low to moderate flood risk where we [the Environment Agency] are generally managing existing flood risk effectively."

A2.48. The RSCFMP considers that the risks are currently managed appropriately in this sub-area and that the risk of flooding is not expected to increase significantly in the long-term.

A2.49. The consideration of surface and ground water flooding issues in the RSCFMP is limited due to a lack of available information. It is therefore worth noting that there is a general risk in Wychavon District from surface water flooding from sewers and overland flow. Groundwater flooding is not considered to be a major issue.

A2.50. The key messages in this sub-area which are relevant to mineral extraction and/or restoration are:

- to reduce dependence on raised flood defences, as this is unsustainable in the long term, by taking opportunities to restore sustainable natural storage of floodwater on undeveloped floodplains.
- Surface water flooding is a growing problem. Local authorities are mainly responsible for managing this, but it often has to be integrated with other organisations' assets, for example their sewers or rivers.
- Development/redevelopment must be managed to minimise flood risks. Methods must be sustainable over the long-term. For example, making more space for rivers through urban areas via 'blue corridors' (i.e. Restoring access for floodwater onto key strips of floodplain. This requires redevelopment to be limited to flood-compatible land-uses e.g. parkland).
- Some designated 'aquatic conservation' sites are in unfavourable condition (for example Teme SSSI). Activities that affect these sites must be changed to improve their condition.

A2.51. The proposed actions to implement the policy in this sub-area which are most relevant to mineral restoration are:

- Encourage rural and urban best practices in land-use and in land-management to restore more sustainable natural floodplains and to reduce run-off.
- Ensure that the run-off from all proposed development is minimised.
- Encourage compatibility between urban open spaces and their ability to make space for rivers to expand as flood flows occur and appraise strategies to create 'blue corridors' by developing/ redeveloping to link these flood-compatible spaces.
- Support ecological improvements. Examples of this include Severn & Avon Wetlands Project; Natural England's three fluvial SSSIs; Cotswold AONB.

Habitat quality and fragmentation

Habitat quality and fragmentation: Significant component

Table 3. Determining the level of priority to be given to habitat quality and fragmentation

		Biodiversity quality		
		High	Medium	Low
Landscape fragmentation	Low	1	2✓	3
	Medium	2	2	3
	High	2	3	3

Key messages

A2.52. Biodiversity priorities identified for this area of search¹ in the Worcestershire Green Infrastructure Strategy (WGIS) focus on managing and buffering of existing habitats as a first principle, with newly created Green Infrastructure augmenting the existing resource, and linking priority habitats. Opportunities should be sought to retain pastoral land uses in the Riverside Meadows landscape².

A2.53. The Severn and Avon Vales Biodiversity Delivery Area (BDA) covers much of this area of search. Minerals development and restoration could contribute towards the delivery of biodiversity priorities in this BDA by:

- Restoring the functionality and biodiversity value of the wetland/floodplain ecosystem
- Contributing to the delivery of Water Framework Directive targets through reversion of arable land to wet grassland
- Creating new wetland habitat including reedbed, fen, marsh and ditch networks
- Creating ecological networks that are resilient to climate change.

Water Quality

Water Quality: Determining Factor

Table 4. Determining the level of priority to be given to water quality

		Chemical Status of water bodies within area of search		
		Fail	Good	Not required
Ecological Status of water bodies within area of search	Bad or Poor	1	1	1
	Moderate	1 ✓	2	2
	Good	2	3	3
	High	3	-	-
	No WFD water bodies in area of search	-	-	-

Key messages

A2.54. There are three Water Framework Directive Water Courses in this Area of Search:

- **River Avon – confluence Workman Bridge, Evesham to confluence with River Severn**
Chemical Status: Fail
Ecological Status: Moderate potential
Heavily modified hydromorphological status

¹ See ECA profiles 7: Severn Valley South, 16: Evesham Valley and 26: Birlingham, available on www.worcestershire.gov.uk/mineralsbackground.

² See the Worcestershire Landscape Character Assessment <http://www.worcestershire.gov.uk/cms/landscape-character-assessment.aspx>

- **Mary Brook – Source to confluence with River Avon**
Chemical Status: Not Required
Ecological Status: Moderate
- **Bourne Brook – Source to confluence with River Avon**
Chemical Status: Not required
Ecological Status: Moderate
Heavily modified hydromorphological status
- **Bow Brook – Shell to confluence with River Avon (Bristol)**
Chemical Status: Good
Ecological Status: Moderate
Heavily modified hydromorphological status

A2.55. Where this method results in water quality being identified as a relevant consideration for the area of search we would like to give some high-level guidance. We are aware that the Environment Agency is working on Water Improvement Plans and Water Action Plans to implement the objectives of the WFD and hope that this will be useful in helping us develop this guidance.

A2.56. However these are not currently available. If they are completed during the preparation of the Minerals Local Plan we will consider opportunities to take them into account in this methodology and the area of search restoration priority profiles.

Geodiversity

Geodiversity: Integrate wherever possible

Table 5. Determining the level of priority to be given to geodiversity

	Priority level	Performance of Area of Search
Area of search in or partially within the Cotswolds or Malvern Hills Area of Outstanding Natural Beauty	1	-
Area of search in or partially within the Abberley and Malvern Hills Geopark	1	-
Area of search contains a geological SSSI or local geological site	2	-
Area of Search within 1km of geological SSSI or 500m of local geological site	3	✓
Area of Search not in the Abberley and Malvern Hills Geopark and further than 1km from geological SSSI or 500m of local geological site	-	-

Key messages

A2.57. The way in which geodiversity can be considered in a restoration approach will vary significantly depending on the nature and location of the features to be incorporated, but it may be possible to protect certain geological features which are uncovered during extraction and incorporate them into the restoration scheme.

Horticulture and food production

Horticulture and food production: Significant component

Table 6. Determining the level of priority to be given to horticulture and food production

Agricultural land	Priority level	Performance of Area of Search
More than ½ of the area of search classified as grade 1 or 2	1	✓
½ - ¼ of the area of search classified as grade 1 or 2	2	
Less than 1/4 grade of the area of search classified as grade 1 or 2	3	
None of the area of search classified as grade 1 or 2	-	

Key messages

A2.58. Minerals site development and restoration could contribute to conserving high quality soil resources and safeguarding the long term potential of best and most versatile agricultural land by:

- stripping and storing soils in line with best practice guidance,
- reinstating the original soil asset where possible,
- concentrating high quality soil resources in restoring some parts of the site to high grade agricultural land and delivering low intensity grazing or wetland habitats in parts of the site with lower soil quality or where the lowered land level following mineral extraction does not allow for restoration of the entire area to high quality agricultural land.

Historic Environment

Historic Environment: Determining factor/significant component

Table 7. Determining the level of priority to be given to the historic environment

Potential for the presence of heritage assets	Priority level	Performance of Area of Search
More than ½ of the area of search identified as high potential	1	✓
½ to ¼ of the area of search identified as high potential	2	
Less than ¼ of the area of search identified as high potential	3	

Key messages³

A2.59. In the River Avon corridor, which is rich in sand and gravel deposits, cropmarked sites, surface finds, surveys and excavations have revealed a settled landscape from prehistoric times onwards. Below-ground evidence survives well, although

³ See ECA profiles 7: Severn Valley South, 16: Evesham Valley and 26: Birlingham, available on www.worcestershire.gov.uk/mineralsbackground.

in places its potential will have been reduced by the intensive arable cultivation. There is potential for alluvial deposits often associated with palaeochannels, which preserve important environmental deposits.

Access and recreation

Access and Recreation: Significant component

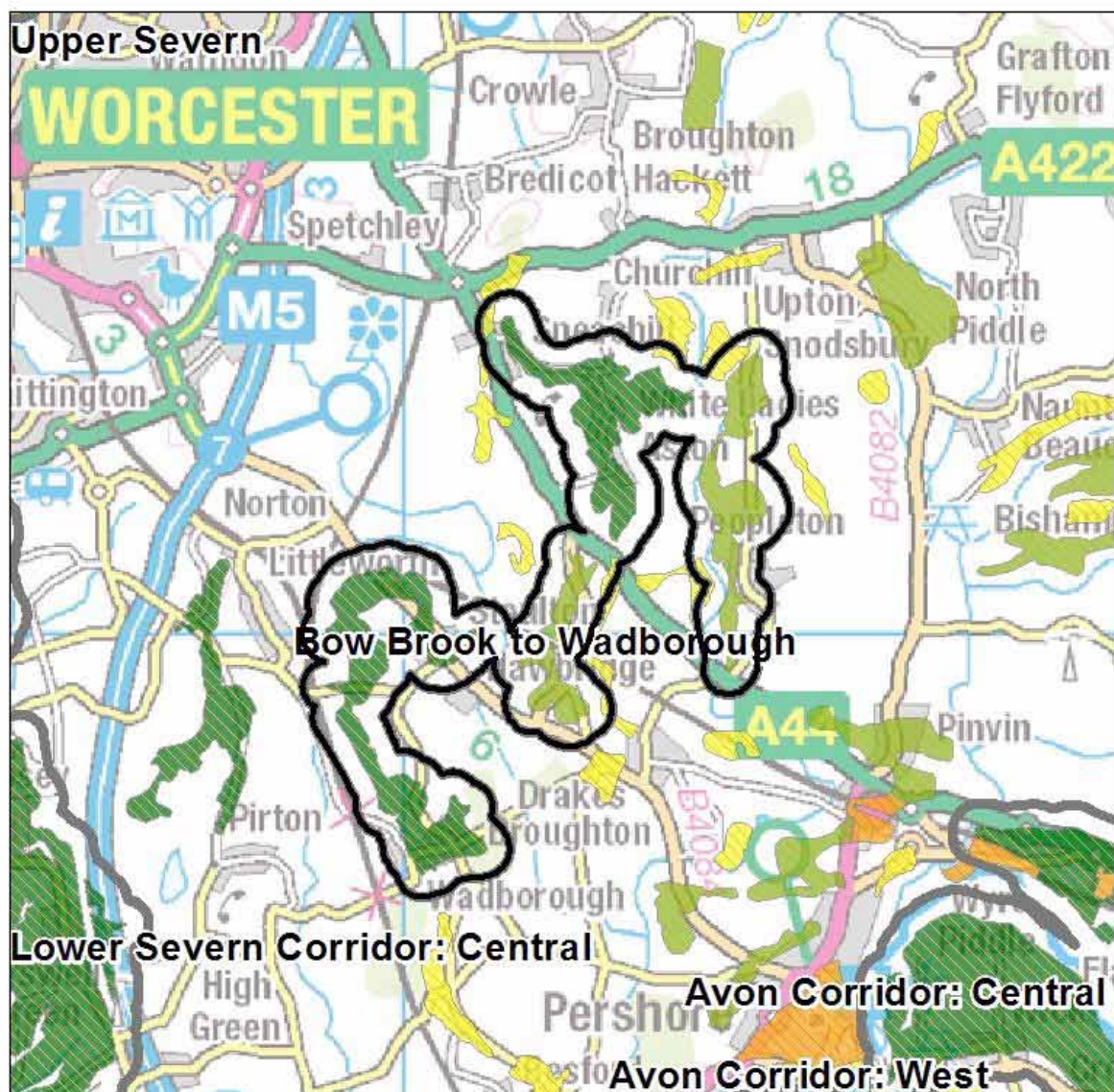
Table 8. Determining the level of priority to be given to the historic environment

	Priority level	Performance of Area of Search
Part of the minerals area of search identified as area of search for recreation in adopted or emerging local plan	1	
Part of the minerals area of search identified as area of search for recreation in Worcestershire GI Strategy	1	
Minerals area of search is in an area where less than 75% of households meet ANGSt standards for district scale provision (sites or habitats over 20ha within 2km)	2	✓
In area where more than 75% of households meet ANGSt standards for district scale provision and no areas of search for recreation have been identified.	3	

Key messages

A2.60. In Wychavon District only 44.2% of households are within 2km of a 20ha+ access and recreation site. There is potential to integrate access and recreation into broader restoration schemes.

Restoration profile for the area of search "Bow Brook to Wadborough"



Legend

Worcestershire County Boundary

Areas of Search

Terrace and glacial sand and gravel resources

- Key resource
- Significant resource
- Not significant
- Compromised
- Out of county

Solid sand resources

- Key resource
- Significant resource
- Not significant
- Compromised
- Out of county

Crushed rock resources

- Key resource
- Significant resource
- Out of county

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Overall approach

Landscape character

A2.61. The landscape character varies across this area. In the west the predominant landscape character is Wooded Estatelands, in the centre this changes to Principal Timbered Farmlands, with Village Claylands to the eastern end.

- **Wooded Estatelands:** This is a large scale, wooded agricultural landscape of isolated brick farmsteads, clusters of wayside dwellings and occasional small estate villages. The key visual element in this landscape is the frequent large, irregularly shaped ancient woodlands, often prominently situated on low crests. It is a landscape that, due to its scale, lacks intimacy and can appear rather functional.

The landscape guidelines in this landscape character type are to:

- Conserve all ancient woodland sites and restock with locally occurring native species.
 - Promote new large scale woodland planting.
 - New woodland planting should be of native broadleaved species, favouring oak as the dominant species and relate to the scale and spatial pattern of the Landscape Type.
 - Conserve and restore the hedgerow pattern, particularly primary hedgerows and hedgerow tree cover.
 - Seek to ensure hedgerow linkage to all woodland blocks, for visual cohesion and wildlife benefit.
 - Conserve and restore parkland including historically correct ornamental planting and with an emphasis on arable reversion.
 - Conserve the integrity of estate villages and their associated tree cover.
- **Principal Timbered Farmlands:** Principal Timbered Farmlands are rolling lowland landscapes with occasional steep sided hills and low escarpments. They have a small scale, wooded, agricultural appearance characterised by filtered views through densely scattered hedgerow trees. These are complex, in places intimate, landscapes of irregularly shaped woodlands, winding lanes and frequent wayside dwellings and farmsteads. The Principal Timbered Farmlands are characterised by a mosaic of agricultural land cleared directly from woodland, on a piecemeal basis, together with land enclosed from former localised areas of open fields, resulting in their dispersed pattern of farmsteads and wayside cottages and lack of strong settlement nuclei.

The landscape guidelines in this landscape character type are to:

- Maintain the tree cover character of hedgerow oaks, and enhance the age structure of the hedgerow oak population.
- Conserve all ancient woodland sites and restock with locally occurring native species.
- Seek to bring about coalescence of fragmented relic ancient woodlands.
- Encourage the planting of new woodlands, reflecting the scale, shape and composition of the existing ancient woodland character, favouring oak as the major species.

- Conserve and restore tree cover along water courses and streamlines.
 - Seek opportunities to enhance tree cover along highways and other non-farmed locations.
 - Conserve and restore the pattern and composition of the hedgerow structure through appropriate management, and replanting.
 - Conserve the organic pattern and character of the lane networks.
 - Maintain the historic dispersed settlement pattern.
- **Village Claylands:** These are open, gently rolling agricultural landscapes characterised by an ordered pattern of hedged fields and discrete rural villages connected by a network of minor roads. These are landscapes of heavy, poorly drained soils, typically associated with broad clay vales backed by steeply sloping escarpments. Ridge and furrow, a relic of medieval farming practice is often distinctive. The field pattern tends to define the scale of the landscape.
 - Conserve the pattern of hedgerow boundaries.
 - Conserve all remaining areas of permanent pasture.
 - Conserve and enhance tree cover along water courses.
 - Conserve and enhance the scattered populations of hedgerow trees.
 - Seek to retain the integrity of the distinctive settlement pattern of small villages.
 - Encourage the planting of tree groups in association with settlements.
 - Opportunities for conversion of arable land back to pasture should be given consideration.

Summary of priority levels

Table 1. Restoration priorities in Bow Brook to Wadborough.

Determining Factors				
Habitat quality and fragmentation				
Significant components				
Flood alleviation	Water quality	Horticulture and food production	Historic Environment	Access and recreation

Detail***Flood alleviation*****Flood alleviation: Significant component****Table 2. Determining the level of priority to be given to flood alleviation**

Category	Priority level	Performance of Area of Search
The River Severn Catchment Flood Management Plan Policy 4 or 5 area	1	
The River Severn Catchment Flood Management Plan Policy 3 area	2	✓
The River Severn Catchment Flood Management Plan Policy 2 area	3	
The River Severn Catchment Flood Management Plan Policy 1 area	-	

Key messages

A2.62. This area of search is in sub-area 8 of The River Severn Catchment Flood Management Plan (RSCFMP): "Middle Avon, Tributaries, Arrow and Alne, Redditch, Rugby and Teme". This is a Policy 3 area: "Areas of low to moderate flood risk where we [the Environment Agency] are generally managing existing flood risk effectively."

A2.63. The RSCFMP considers that the risks are currently managed appropriately in this sub-area and that the risk of flooding is not expected to increase significantly in the long-term.

A2.64. The consideration of surface and ground water flooding issues in the RSCFMP is limited due to a lack of available information. It is therefore worth noting that there is a general risk in Wychavon District from surface water flooding from sewers and overland flow. Groundwater flooding is not considered to be a major issue.

A2.65. The key messages in this sub-area which are relevant to mineral extraction and/or restoration are:

- to reduce dependence on raised flood defences, as this is unsustainable in the long term, by taking opportunities to restore sustainable natural storage of floodwater on undeveloped floodplains.
- Surface water flooding is a growing problem. Local authorities are mainly responsible for managing this, but it often has to be integrated with other organisations' assets, for example their sewers or rivers.
- Development/redevelopment must be managed to minimise flood risks. Methods must be sustainable over the long-term. For example, making more space for rivers through urban areas via 'blue corridors' (i.e. Restoring access for floodwater onto key strips of floodplain. This requires redevelopment to be limited to flood-compatible land-uses e.g. parkland).
- Some designated 'aquatic conservation' sites are in unfavourable condition (for example Teme SSSI). Activities that affect these sites must be changed to improve their condition.

A2.66. The proposed actions to implement the policy in this sub-area which are most relevant to mineral restoration are:

- Encourage rural and urban best practices in land-use and in land-management to restore more sustainable natural floodplains and to reduce run-off.
- Ensure that the run-off from all proposed development is minimised.
- Encourage compatibility between urban open spaces and their ability to make space for rivers to expand as flood flows occur and appraise strategies to create 'blue corridors' by developing/ redeveloping to link these flood-compatible spaces.
- Support ecological improvements. Examples of this include Severn & Avon Wetlands Project; Natural England's three fluvial SSSIs; Cotswold AONB.

Habitat quality and fragmentation

Habitat quality and fragmentation: Determining factor

Table 3. Determining the level of priority to be given to habitat quality and fragmentation

		Biodiversity quality		
		High	Medium	Low
Landscape fragmentation	Low	1✓	2	3
	Medium	2	2	3
	High	2	3	3

Key messages

A2.67. Biodiversity priorities identified for this area of search in WGIS¹ focus on managing and buffering of existing habitats as a first principle, with newly created Green Infrastructure linking priority habitats, including wet grassland, wet woodland, reedbed and functional flood plain habitats and sites and neutral grassland.

A2.68. The Bow Brook Biodiversity Delivery Area (BDA) covers this area of search. Minerals development and restoration could contribute towards the delivery of biodiversity priorities in this BDA by:

- Restoring the functionality and connectivity of the floodplain grassland ecosystem through the restoration and creation of lowland meadows, hedgerows, ancient semi-natural woodland, wet grassland, fen and marsh, traditional orchards and arable plants.
- Creating grassland that can be managed through grazing animal schemes.
- Creating ecological networks that are resilient to climate change.

¹ See ECA profiles 4: Forest of Feckenham and Feckenham Wetlands, 7: Severn Valley South and 15: Bow Brook South, available on www.worcestershire.gov.uk/mineralsbackground.

Water Quality

Water Quality: Significant component

Table 4. Determining the level of priority to be given to water quality

		Chemical Status of water bodies within area of search		
		Fail	Good	Not required
Ecological Status of water bodies within area of search	Bad or Poor	1	1	1
	Moderate	1	2✓	2
	Good	2	3	3
	High	3	-	-
	No WFD water bodies in area of search	-	-	-

Key messages

A2.69. There are two Water Framework Directive Water Courses in this Area of Search:

- Bow Brook – Shell to confluence with River Avon**
 Chemical Status: Good
 Ecological Status: Moderate Potential
 Heavily modified hydromorphological status
- Stoulton Brook – Source to confluence with Bow Brook**
 Chemical Status: Not required
 Ecological Status: Moderate

A2.70. Where this method results in water quality being identified as a relevant consideration for the area of search we would like to give some high-level guidance. We are aware that the Environment Agency is working on Water Improvement Plans and Water Action Plans to implement the objectives of the WFD and hope that this will be useful in helping us develop this guidance.

A2.71. However these are not currently available. If they are completed during the preparation of the Minerals Local Plan we will consider opportunities to take them into account in this methodology and the area of search restoration priority profiles.

Geodiversity

Geodiversity: Not likely to be significant in this area of search

Table 5. Determining the level of priority to be given to geodiversity

	Priority level	Performance of Area of Search
Area of search in or partially within the Cotswolds or Malvern Hills Area of Outstanding Natural Beauty	1	-
Area of search in or partially within the Abberley and Malvern Hills Geopark	1	-
Area of search contains a geological SSSI or local geological site	2	-
Area of Search within 1km of geological SSSI or 500m of local geological site	3	-
Area of Search not in the Abberley and Malvern Hills Geopark and further than 1km from geological SSSI or 500m of local geological site	-	✓

Key messages

A2.72. The way in which geodiversity can be considered in a restoration approach will vary significantly depending on the nature and location of the features to be incorporated, but it may be possible to protect certain geological features which are uncovered during extraction and incorporate them into the restoration scheme.

Horticulture and food production

Horticulture and food production: Significant component

Table 6. Determining the level of priority to be given to horticulture and food production

Agricultural land	Priority level	Performance of Area of Search
More than ½ of the area of search classified as grade 1 or 2	1	
½ - ¼ of the area of search classified as grade 1 or 2	2	✓
Less than 1/4 grade of the area of search classified as grade 1 or 2	3	
None of the area of search classified as grade 1 or 2	-	

Key messages

A2.73. Minerals site development and restoration could contribute to conserving high quality soil resources and safeguarding the long term potential of best and most versatile agricultural land by:

- stripping and storing soils in line with best practice guidance,
- reinstating the original soil asset where possible,
- concentrating high quality soil resources in restoring some parts of the site to high grade agricultural land and delivering low intensity grazing or

wetland habitats in parts of the site with lower soil quality or where the lowered land level following mineral extraction does not allow for restoration of the entire area to high quality agricultural land.

Historic Environment

Historic Environment: Determining factor/significant component

Table 7. Determining the level of priority to be given to the historic environment

Potential for the presence of heritage assets	Priority level	Performance of Area of Search
More than ½ of the area of search identified as high potential	1	
½ to ¼ of the area of search identified as high potential	2	✓
Less than ¼ of the area of search identified as high potential	3	

Key messages

A2.74. This area is predominantly characterised by relic medieval and post medieval landscapes. There are a large number of moated enclosures and fragments of former parkland, field systems and settlements. Where lighter soils occur over the bands of sands and gravels there is increased evidence in the form of surface artefact scatters, for earlier occupation sites dating from the prehistoric and Romano British periods.

Access and recreation

Access and Recreation: Significant component

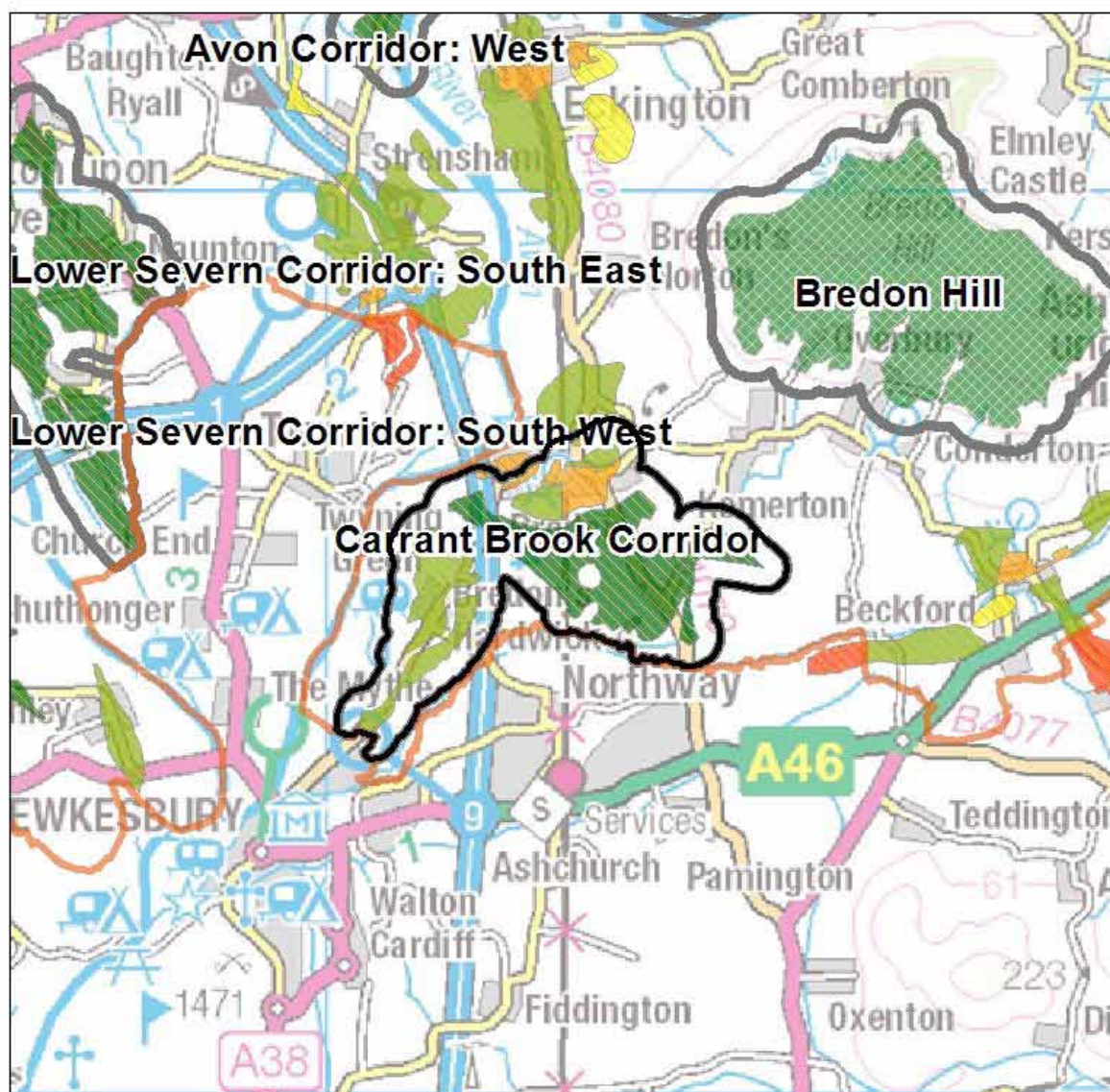
Table 8. Determining the level of priority to be given to the historic environment

	Priority level	Performance of Area of Search
Part of the minerals area of search identified as area of search for recreation in adopted or emerging local plan	1	
Part of the minerals area of search identified as area of search for recreation in Worcestershire GI Strategy	1	
Minerals area of search is in an area where less than 75% of households meet ANGSt standards for district scale provision (sites or habitats over 20ha within 2km)	2	✓
In area where more than 75% of households meet ANGSt standards for district scale provision and no areas of search for recreation have been identified.		

Key messages

A2.75. In Wychavon District only 44.2% of households are within 2km of a 20ha+ access and recreation site. There is potential to integrate access and recreation into broader restoration schemes.

Restoration profile for the area of search "Carrant Brook Corridor"



Legend

Worcestershire County Boundary

Areas of Search

Terrace and glacial sand and gravel resources

- Key resource
- Significant resource
- Not significant
- Compromised
- Out of county

Solid sand resources

- Key resource
- Significant resource
- Not significant
- Compromised
- Out of county

Crushed rock resources

- Key resource
- Significant resource
- Out of county

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Overall approach

Landscape character

A2.76. The landscape character varies across this area. The predominant landscape character is Principal Village Farmlands, with areas of Village Claylands in the south and Riverside Meadows in the west.

- **Principal Village Farmlands:** Principal Village Farmlands are open, rolling landscapes characterised by a nucleated pattern of expanded rural villages, surrounded by large arable fields, often sub-divided into a series of smaller plots. This is an intensively farmed landscape associated with fertile, free draining soils which give rise to high quality farmland used for growing a wide variety of cash crops. This is a landscape of contrasts, the intensely functional, yet often very open and empty character of the farmland and the focused, communal density of the villages.

The landscape guidelines in this landscape character type are to:

- Retain the pattern of strongly nucleated villages with associated low dispersal of settlement between.
 - Conserve and enhance the hedgerow structure, with emphasis on the primary hedgelines.
 - Conserve and enhance tree cover along watercourses.
 - Encourage opportunities for tree planting in and around villages.
 - Conserve and restore old orchards around villages, with an emphasis placed upon the fruit type and varieties associated with different localities.
 - Conserve and restore lines of hedgerow fruit trees.
 - Promote the development of wide field margins for wildlife benefit.
 - Promote the management of roadside verges for wildlife benefit.
- **Village Claylands:** These are open, gently rolling agricultural landscapes characterised by an ordered pattern of hedged fields and discrete rural villages connected by a network of minor roads. These are landscapes of heavy, poorly drained soils, typically associated with broad clay vales backed by steeply sloping escarpments. Ridge and furrow, a relic of medieval farming practice is often distinctive. The field pattern tends to define the scale of the landscape.

The landscape guidelines in this landscape character type are to:

- Conserve the pattern of hedgerow boundaries.
- Conserve all remaining areas of permanent pasture.
- Conserve and enhance tree cover along water courses.
- Conserve and enhance the scattered populations of hedgerow trees.
- Seek to retain the integrity of the distinctive settlement pattern of small villages.
- Encourage the planting of tree groups in association with settlements.
- Opportunities for conversion of arable land back to pasture should be given consideration.

- **Riverside Meadows:** Riverside Meadows are linear riverine landscapes associated with a flat, generally well-defined alluvial floodplain, in places framed by steeply rising ground. These are secluded pastoral landscapes, characterised by meandering, tree-lined rivers, flanked by alluvial meadows which are defined by hedge and ditch boundaries. Settlement is typically absent.

The landscape guidelines in this landscape character type are to:

- Seek to retain the unity of the linear form of these landscapes.
- Conserve all existing areas of permanent pasture.
- Seek opportunities to encourage the conversion of arable land back to pasture.
- Conserve and enhance continuous tree cover along hedgelines, ditches and watercourses.
- Conserve existing wetland habitats and seek opportunities for further wetland habitat creation.
- Avoid building or road construction works.
- Avoid further drainage of waterside meadows.
- Explore opportunities to return to patterns and processes of natural flooding cycles.

Summary of priority levels

Table 1. Restoration priorities in Carrant Brook Corridor.

Determining Factors			
Geodiversity	Horticulture and food production		Historic Environment
Significant components			
Flood alleviation	Habitat quality and fragmentation	Water quality	Access and recreation

Detail***Flood alleviation*****Flood alleviation: Significant component****Table 2. Determining the level of priority to be given to flood alleviation**

Category	Priority level	Performance of Area of Search
The River Severn Catchment Flood Management Plan Policy 4 or 5 area	1	
The River Severn Catchment Flood Management Plan Policy 3 area	2	✓
The River Severn Catchment Flood Management Plan Policy 2 area	3	
The River Severn Catchment Flood Management Plan Policy 1 area	-	

Key messages

A2.77. This area of search is in sub-area 8 of The River Severn Catchment Flood Management Plan (RSCFMP): "Middle Avon, Tributaries, Arrow and Alne, Redditch, Rugby and Teme". This is a Policy 3 area: "Areas of low to moderate flood risk where we [the Environment Agency] are generally managing existing flood risk effectively."

A2.78. The RSCFMP considers that the risks are currently managed appropriately in this sub-area and that the risk of flooding is not expected to increase significantly in the long-term.

A2.79. The consideration of surface and ground water flooding issues in the RSCFMP is limited due to a lack of available information. It is therefore worth noting that there is a general risk in Wychavon District from surface water flooding from sewers and overland flow. Groundwater flooding is not considered to be a major issue.

A2.80. The key messages in this sub-area which are relevant to mineral extraction and/or restoration are:

- to reduce dependence on raised flood defences, as this is unsustainable in the long term, by taking opportunities to restore sustainable natural storage of floodwater on undeveloped floodplains.
- Surface water flooding is a growing problem. Local authorities are mainly responsible for managing this, but it often has to be integrated with other organisations' assets, for example their sewers or rivers.
- Development/redevelopment must be managed to minimise flood risks. Methods must be sustainable over the long-term. For example, making more space for rivers through urban areas via 'blue corridors' (i.e. Restoring access for floodwater onto key strips of floodplain. This requires redevelopment to be limited to flood-compatible land-uses e.g. parkland).
- Some designated 'aquatic conservation' sites are in unfavourable condition (for example Teme SSSI). Activities that affect these sites must be changed to improve their condition.

A2.81. The proposed actions to implement the policy in this sub-area which are most relevant to mineral restoration are:

- Encourage rural and urban best practices in land-use and in land-management to restore more sustainable natural floodplains and to reduce run-off.
- Ensure that the run-off from all proposed development is minimised.
- Encourage compatibility between urban open spaces and their ability to make space for rivers to expand as flood flows occur and appraise strategies to create 'blue corridors' by developing/ redeveloping to link these flood-compatible spaces.
- Support ecological improvements. Examples of this include Severn & Avon Wetlands Project; Natural England's three fluvial SSSIs; Cotswold AONB.

Habitat quality and fragmentation

Habitat quality and fragmentation: Determining factor

Table 3. Determining the level of priority to be given to habitat quality and fragmentation

		Biodiversity quality		
		High	Medium	Low
Landscape fragmentation	Low	1	2✓	3
	Medium	2	2	3
	High	2	3	3

Key messages

A2.82. The priority habitats in and around this area of search include the riparian habitat of the river, followed by lowland meadow (neutral grassland) in the Village Claylands, hedgerows, hedgerow trees and traditional orchards. In intensively farmed areas, connectivity across the landscape with linear corridors consisting of arable field margins, well-managed hedgerows and buffering along streams and ditches is important to allow the movement of species within the farmed landscape.

A2.83. Biodiversity priorities identified for this area of search in WGIS¹ focus on improving the biodiversity and quality of the brook and creating and enhancing biodiversity stepping stones between Bredon Hill and the Cotswolds. This includes the enhancement and protection of hedgerow field boundaries and linear tree belts along hedgerows, ditches and watercourses. Supporting the natural river and flood plain of the Riverside Meadows is also a priority.

¹ Worcestershire County Council (July 2012) *Planning for a Multifunctional Green Infrastructure Framework in Worcestershire: Green Infrastructure Framework*. See ECA profile 18: Carrant Brook, available on www.worcestershire.gov.uk/mineralsbackground.

Water Quality

Water Quality: Significant component

Table 4. Determining the level of priority to be given to water quality

		Chemical Status of water bodies within area of search		
		Fail	Good	Not required
Ecological Status of water bodies within area of search	Bad or Poor	1	1	1
	Moderate	1	2	2✓
	Good	2	3	3
	High	3	-	-
	No WFD water bodies in area of search	-	-	-

Key messages

A2.84. There is one Water Framework Directive Water Course in this Area of Search:

- **Carrant Brook – Confluence Washbourne brook to confluence with River Avon**

Chemical Status: Not required

Ecological Status: Moderate

A2.85. Where this method results in water quality being identified as a relevant consideration for the area of search we would like to give some high-level guidance. We are aware that the Environment Agency is working on Water Improvement Plans and Water Action Plans to implement the objectives of the WFD and hope that this will be useful in helping us develop this guidance.

A2.86. However these are not currently available. If they are completed during the preparation of the Minerals Local Plan we will consider opportunities to take them into account in this methodology and the area of search restoration priority profiles.

Geodiversity

Geodiversity: Not likely to be significant in this area of search

Table 5. Determining the level of priority to be given to geodiversity

	Priority level	Performance of Area of Search
Area of search in or partially within the Cotswolds or Malvern Hills Area of Outstanding Natural Beauty	1	✓
Area of search in or partially within the Abberley and Malvern Hills Geopark	1	-
Area of search contains a geological SSSI or local geological site	2	-
Area of Search within 1km of geological SSSI or 500m of local geological site	3	-
Area of Search not in the Abberley and Malvern Hills Geopark and further than 1km from geological SSSI or 500m of local geological site	-	-

Key messages

A2.87. The way in which geodiversity can be considered in a restoration approach will vary significantly depending on the nature and location of the features to be incorporated, but it may be possible to protect certain geological features which are uncovered during extraction and incorporate them into the restoration scheme.

Horticulture and food production

Horticulture and food production: Significant component

Table 6. Determining the level of priority to be given to horticulture and food production

Agricultural land	Priority level	Performance of Area of Search
More than ½ of the area of search classified as grade 1 or 2	1	✓
½ - ¼ of the area of search classified as grade 1 or 2	2	
Less than 1/4 grade of the area of search classified as grade 1 or 2	3	
None of the area of search classified as grade 1 or 2	-	

Key messages

A2.88. Minerals site development and restoration could contribute to conserving high quality soil resources and safeguarding the long term potential of best and most versatile agricultural land by:

- stripping and storing soils in line with best practice guidance,
- reinstating the original soil asset where possible,
- concentrating high quality soil resources in restoring some parts of the site to high grade agricultural land and delivering low intensity grazing or

wetland habitats in parts of the site with lower soil quality or where the lowered land level following mineral extraction does not allow for restoration of the entire area to high quality agricultural land.

Historic Environment

Historic Environment: Determining factor

Table 7. Determining the level of priority to be given to the historic environment

Potential for the presence of heritage assets	Priority level	Performance of Area of Search
More than ½ of the area of search identified as high potential	1	✓
½ to ¼ of the area of search identified as high potential	2	
Less than ¼ of the area of search identified as high potential	3	

Key messages

A2.89. This area has a very high archaeological potential with extensive and complex archaeological sites dating from the prehistoric and Romano British periods. The Current Brook appears to have been a focus for settlement and activity, and sites extend almost continuously along its northern banks. There are two scheduled ancient monuments of settlement sites, however the area has been the focus for sand and gravel extraction for a long time, and many areas have been affected without archaeological recording.

Access and recreation

Access and Recreation: Significant component

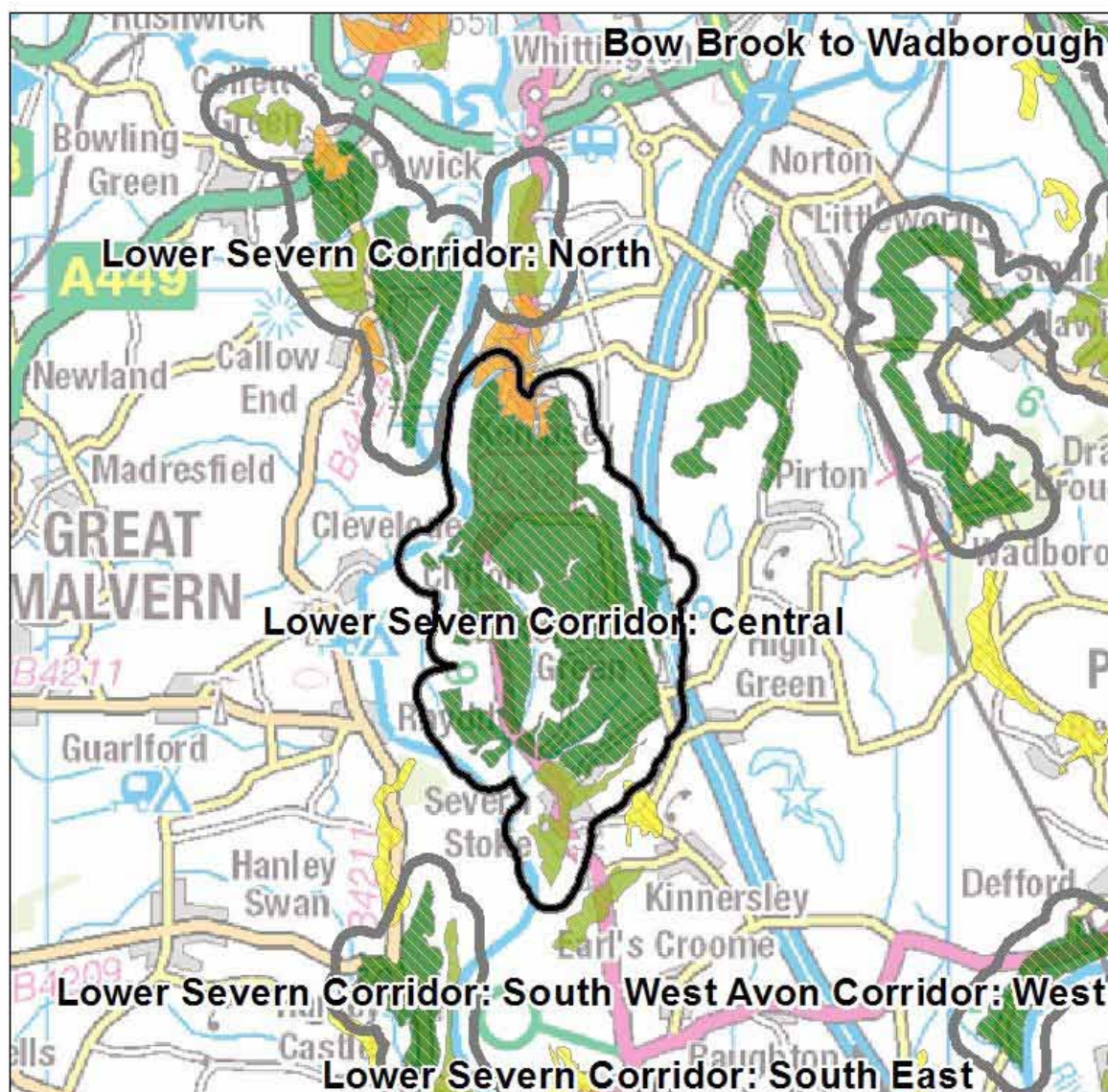
Table 8. Determining the level of priority to be given to the historic environment

	Priority level	Performance of Area of Search
Part of the minerals area of search identified as area of search for recreation in adopted or emerging local plan	1	
Part of the minerals area of search identified as area of search for recreation in Worcestershire GI Strategy	1	
Minerals area of search is in an area where less than 75% of households meet ANGSt standards for district scale provision (sites or habitats over 20ha within 2km)	2	✓
In area where more than 75% of households meet ANGSt standards for district scale provision and no areas of search for recreation have been identified.	3	

Key messages

A2.90. In Wychavon District only 44.2% of households are within 2km of a 20ha+ access and recreation site. There is potential to integrate access and recreation into broader restoration schemes.

Restoration profile for the area of search "Lower Sever: Central"



Legend

Worcestershire County Boundary

Areas of Search

Terrace and glacial sand and gravel resources

Key resource

Significant resource

Not significant

Compromised

Out of county

Solid sand resources

Key resource

Significant resource

Not significant

Compromised

Out of county

Crushed rock resources

Key resource

Significant resource

Out of county

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Overall approach

Landscape character

A2.91. The landscape character of this area is predominantly Settled Farmlands on River terrace but there narrow areas of other character types around the margins; Riverside Meadows along most of the western boundary, Estate Farmlands to the south east, Principal Settled Farmlands to the north east and very small areas of Unenclosed Commons and Urban area around Kempsey.

- **Settled Farmlands on River terrace:** This is a medium scale, settled agricultural landscape where horticulture and cropping is the dominant land use, reflecting the fertile free draining soils. The settlement pattern is represented by scattered farms and clusters of wayside dwellings, linked by a matrix of winding lanes. Fields are bounded by hedgerows, with tree cover largely concentrated in groups associated with dwellings.

The landscape guidelines in this landscape character type are to:

- Retain the integrity of the dispersed settlement pattern.
 - Conserve and enhance tree cover along watercourses.
 - Seek to maintain cropping/horticultural land uses.
 - Enhance patterns of tree cover associated with settlement.
 - Conserve and enhance patterns of hedgerows.
- **Riverside Meadows:** Riverside Meadows are linear riverine landscapes associated with a flat, generally well-defined alluvial floodplain, in places framed by steeply rising ground. These are secluded pastoral landscapes, characterised by meandering, tree-lined rivers, flanked by alluvial meadows which are defined by hedge and ditch boundaries. Settlement is typically absent.

The landscape guidelines in this landscape character type are to:

- Seek to retain the unity of the linear form of these landscapes.
 - Conserve all existing areas of permanent pasture.
 - Seek opportunities to encourage the conversion of arable land back to pasture.
 - Conserve and enhance continuous tree cover along hedgelines, ditches and watercourses.
 - Conserve existing wetland habitats and seek opportunities for further wetland habitat creation.
 - Avoid building or road construction works.
 - Avoid further drainage of waterside meadows.
 - Explore opportunities to return to patterns and processes of natural flooding cycles.
- **Estate Farmlands:** This is an ordered agricultural landscape characterised by a sub-regular pattern of medium to large sized fields, small geometric plantations and groups of ornamental trees associated with large country houses. Settlement is largely restricted to discrete clusters of dwellings and occasional small estate villages.

The landscape guidelines in this landscape character type are to:

- Enhance tree cover through further planting of small scale plantations and tree belts.
 - Conserve the pattern of hedged fields, with priority given to primary hedgelines.
 - Conserve and restore parkland and the tree cover associated with large ornamental grounds.
 - Conserve and enhance the tree cover along water courses.
 - Promote the development of wide field margins for wildlife benefit.
 - Conserve the integrity of estate villages.
- **Principal Settled Farmlands:** These are small to medium scale, settled agricultural landscapes of scattered farms, relic commons and clusters of wayside dwellings. These buildings are linked by a network of narrow, winding lanes which nestle within a matrix of hedged fields. Tree cover is largely restricted to thinly scattered hedgerow trees and groups of trees around dwellings. The land use is primarily one of mixed farming.

The landscape guidelines in this landscape character type are to:

- Conserve and enhance the pattern of hedgerows.
 - Retain the integrity of the dispersed pattern of settlement.
 - Conserve and enhance tree cover along watercourses.
 - Enhance patterns of tree cover associated with settlement.
 - Seek opportunities to conserve all remaining areas of permanent pasture.
- **Unenclosed Commons:** This is a category of landscape that offers tremendous variety of scale and size, the overriding characteristics being the lack of enclosure and, usually, a land use of rough grazing. The smaller unenclosed commons are ranked as features within other Landscape Types but a few are considered to be of sufficient extent to warrant separate classification. Settlement, where present, is usually restricted to wayside dwellings situated around the perimeter of the common.

The landscape guidelines in this landscape character type are to:

- Conserve and enhance the visual distinctiveness of open common areas.
- Conserve and enhance the spatial pattern, scale and specific character of wayside dwellings associated with commons.
- Recognising that each common will have a different historical profile, seek to define management objectives to integrate wildlife benefit, current recreational interests and other uses, together with the historical interest.
- Seek to avoid municipal/tidy approaches to management.

Summary of priority levels

Table 1. Restoration priorities in Lower Severn Central

Determining Factors				
Habitat quality and fragmentation	Geodiversity	Horticulture and Food Production	Historic Environment	Access and recreation
Significant components				
Water quality				
Integrate wherever possible				
Flood Alleviation				

Detail

Flood alleviation

Flood alleviation: Integrate wherever possible

Table 2. Determining the level of priority to be given to flood alleviation

Category	Priority level	Performance of Area of Search
The River Severn Catchment Flood Management Plan Policy 4 or 5 area	1	
The River Severn Catchment Flood Management Plan Policy 3 area	2	
The River Severn Catchment Flood Management Plan Policy 2 area	3	✓
The River Severn Catchment Flood Management Plan Policy 1 area	-	

Key messages

A2.92. This area of search is in sub-area 6 of The River Severn Catchment Flood Management Plan (RSCFMP): "Lower Severn Corridor and Leadon catchment". This is a Policy 2 area: "Areas of low to moderate flood risk where we (the Environment Agency) can generally reduce existing flood risk management actions. The RSCFMP considers that the current and future risks do not warrant as much intervention (for example on maintaining existing defences) and it is therefore not worth continuing. We (the Environment Agency) can allow the risk of flooding to increase in a managed way so that we do not create unacceptable risks.

A2.93. The consideration of surface and ground water flooding issues in the RSCFMP is limited due to a lack of available information. The main cause of flooding in Malvern Hills District is from local watercourses and surface water sewers. In particular, rapid response catchments are of concern, and as many of the watercourses at risk are less than 3km² in area there are no flood risk maps covering these areas. The Environment Agency has identified that there is a

problem of fluvial flooding from the Hatfield Brook downstream of Worcester in Kempsey. The Environment Agency has installed a flood alleviation scheme for the village but they still require surface water flows from new developments to be attenuated to greenfield runoff rates. Any surface water drainage solution should take fully into account the flooding issues downstream at Kempsey.

A2.94. The key messages in this sub-area which are relevant to mineral extraction and/or restoration are:

- to reduce dependence on raised flood defences, as this is not sustainable in the long term, by taking opportunities to restore sustainable natural storage of floodwater on undeveloped floodplains and
- that surface water is a growing problem in this catchment.

A2.95. The proposed actions to implement the policy in this sub-area which are most relevant to mineral restoration are:

- Encourage rural and urban best practices in land-use and in land-management to restore more sustainable natural floodplains and to reduce run-off.
- Raise awareness of flooding among the public and key partners, especially major operators of infrastructure, allowing them to be better prepared. Encourage them all to increase the resilience and resistance of vulnerable buildings, infrastructure and businesses.
- Ensure floodplains are not inappropriately developed.
- Seek opportunities to improve watercourses where it would benefit fisheries (especially salmon.)
- Consider the impact of flood risk management activities on SSSIs.

Habitat quality and fragmentation

Habitat quality and fragmentation: Determining Factor¹

Table 3. Determining the level of priority to be given to habitat quality and fragmentation

		Biodiversity quality		
		High	Medium	Low
Landscape fragmentation	Low	1✓	2	3
	Medium	2	2	3
	High	2	3	3

¹ **Precautionary approach adopted that in this case:** There is no data for a Land Cover Parcel in this Area of Search. The omission is sufficient to make the difference between scoring High and Low. In accordance with the spirit of the Habitats Directive and Regulations the Council has adopted a precautionary approach and made habitat quality and fragmentation a Determining Factor. This will be revised if further data becomes available.

Key messages

A2.96. Biodiversity priorities identified for this area of search² in the Worcestershire Green Infrastructure Strategy (WGIS) focus on maintaining the River Severn Corridor as a key green infrastructure link. The floodplain will be critical for a number of GI aspirations, opportunities to re-create or restore wetland habitats in the wet Pasture Meadows, including sustainable water management systems should also be sought.

A2.97. The Severn and Avon Vales Biodiversity Delivery Area (BDA) runs along the west of this area, following the river corridor. Minerals development and restoration could contribute towards the delivery of biodiversity priorities in this BDA by:

- Restoring the functionality and biodiversity value of the wetland/floodplain ecosystem
- Contributing to the delivery of Water Framework Directive targets through reversion of arable land to wet grassland
- Creating new wetland habitat including reedbed, fen, marsh and ditch networks
- Creating ecological networks that are resilient to climate change

Water Quality

Water Quality: Significant Component

Table 4. Determining the level of priority to be given to water quality

		Chemical Status of water bodies within area of search		
		Fail	Good	Not required
Ecological Status of water bodies within area of search	Bad or Poor	1	1	1
	Moderate	1	2✓	2
	Good	2	3	3
	High	3	-	-
	No WFD water bodies in area of search	-	-	-

Key messages

A2.98. There is one Water Framework Directive Water Course in this Area of Search:

- **River Severn - confluence River Teme to confluence River Avon**
Chemical Status: Good
Ecological Status: Moderate Potential
This watercourse has heavily modified Hydromorphological status.
The defined watercourse also includes the minor watercourse from the north-east, Norton area.

² See ECA profiles 7: Severn Valley South and 20: Kempsey Plain, available on www.worcestershire.gov.uk/mineralsbackground

A2.99. Where this method results in water quality being identified as a relevant consideration for the area of search we would like to give some high-level guidance. We are aware that the Environment Agency is working on Water Improvement Plans and Water Action Plans to implement the objectives of the WFD and hope that this will be useful in helping us develop this guidance.

A2.100. However these are not currently available. If they are completed during the preparation of the Minerals Local Plan we will consider opportunities to take them into account in this methodology and the area of search restoration priority profiles.

Geodiversity

Geodiversity: Determining Factor

Table 5. Determining the level of priority to be given to geodiversity

	Priority level	Performance of Area of Search
Area of search in or partially within the Cotswolds or Malvern Hills Area of Outstanding Natural Beauty	1	-
Area of search in or partially within the Abberley and Malvern Hills Geopark	1	✓
Area of search contains a geological SSSI or local geological site	2	-
Area of Search within 1km of geological SSSI or 500m of local geological site	3	-
Area of Search not in the Abberley and Malvern Hills Geopark and further than 1km from geological SSSI or 500m of local geological site	-	-

Key messages

A2.101. The way in which geodiversity can be considered in a restoration approach will vary significantly depending on the nature and location of the features to be incorporated, but it may be possible to protect certain geological features which are uncovered during extraction and incorporate them into the restoration scheme.

*Horticulture and food production***Horticulture and food production: Determining Factor****Table 6. Determining the level of priority to be given to horticulture and food production**

Agricultural land	Priority level	Performance of Area of Search
More than ½ of the area of search classified as grade 1 or 2	1	✓
½ - ¼ of the area of search classified as grade 1 or 2	2	
Less than 1/4 grade of the area of search classified as grade 1 or 2	3	
None of the area of search classified as grade 1 or 2	-	

Key messages

- A2.102. Minerals site development and restoration could contribute to conserving high quality soil resources and safeguarding the long term potential of best and most versatile agricultural land by:
- stripping and storing soils in line with best practice guidance,
 - reinstating the original soil asset where possible,
 - concentrating high quality soil resources in restoring some parts of the site to high grade agricultural land and delivering low intensity grazing or wetland habitats in parts of the site with lower soil quality or where the lowered land level following mineral extraction does not allow for restoration of the entire area to high quality agricultural land.

*Historic Environment***Historic Environment: Determining factor****Table 7. Determining the level of priority to be given to the historic environment**

Potential for the presence of heritage assets	Priority level	Performance of Area of Search
More than ½ of the area of search identified as high potential	1	✓
½ to ¼ of the area of search identified as high potential	2	
Less than ¼ of the area of search identified as high potential	3	

Key messages

- A2.103. The gravel terraces of the River Severn from Worcester southwards have revealed extensive remains of settlement and funerary sites. The broader meanders of the river have also left a series of palaeochannel's sealed beneath later alluvial deposits. These have been shown by excavation to be a focus of activity during the Neolithic period onwards. Later palaeochannel's are likely to be the focus of mills and water management features.

*Access and recreation***Access and Recreation: Determining Factor****Table 8. Determining the level of priority to be given to the historic environment**

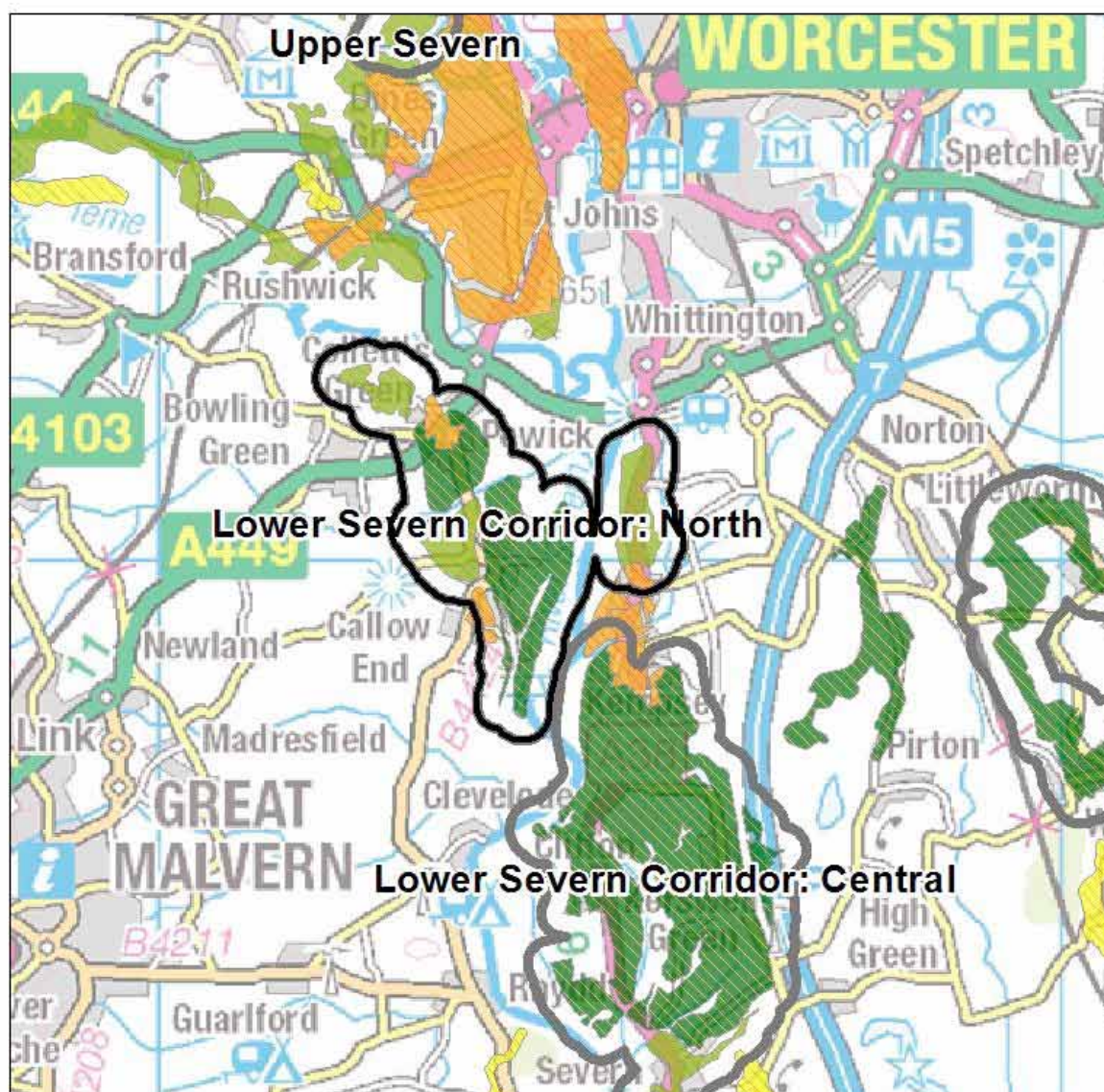
	Priority level	Performance of Area of Search
Part of the minerals area of search identified as area of search for recreation in adopted or emerging local plan	1	✓
Part of the minerals area of search identified as area of search for recreation in Worcestershire GI Strategy	1	
Minerals area of search is in an area where less than 75% of households meet ANGSt standards for district scale provision (sites or habitats over 20ha within 2km)	2	
In area where more than 75% of households meet ANGSt standards for district scale provision and no areas of search for recreation have been identified.	3	

Key messages

A2.104. In Malvern Hills District 88% of households are within 2km of a 20ha+ access and recreation site. However the South Worcestershire Development Plan and GI Framework Document 3 identify an "area of search" for a strategic recreation asset in this minerals area of search.

A2.105. The area of search for a strategic recreation asset, known as Clifton Water Park, identifies that the old gravel pits around Sandford, by the edge of the River Severn just south of Kempsey provide a significant opportunity to create an alternative destination for visitors to the Malvern Hills (potentially reducing the number of car journeys to the Malvern Hills) and an additional new resource to serve the significant new developments that are planned for the south of Worcester and the north of Great Malvern. This is not necessarily limited to the site suggested. Any recreation asset would need to provide visitor facilities including provision for a number of different activities as well as enhancing biodiversity in order to create a visitor experience that is distinctive and attractive enough to take pressure away from the Malvern Hills.

Restoration profile for the area of search "Lower Severn Corridor: North"



Legend

Worcestershire County Boundary

Areas of Search

Terrace and glacial sand and gravel resources

Key resource

Significant resource

Not significant

Compromised

Out of county

Solid sand resources

Key resource

Significant resource

Not significant

Compromised

Out of county

Crushed rock resources

Key resource

Significant resource

Out of county

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Overall approach

Landscape character

A2.106. The landscape character of this area has four components. In the east the Landscape Type is Principal Settled Farmlands, in the centre, Settled Farmlands on River Terrace, in the west, Principal Timbered Farmlands and alongside the river Severn, Riverside Meadows.

- **Principal Settled farmlands:** These are small to medium scale, settled agricultural landscapes of scattered farms, relic commons and clusters of wayside dwellings. These buildings are linked by a network of narrow, winding lanes which nestle within a matrix of hedged fields. Tree cover is largely restricted to thinly scattered hedgerow trees and groups of trees around dwellings. The land use is primarily one of mixed farming.

The landscape guidelines in this landscape character type are to:

- Conserve and enhance the pattern of hedgerows.
- Retain the integrity of the dispersed pattern of settlement.
- Conserve and enhance tree cover along watercourses.
- Enhance patterns of tree cover associated with settlement.
- Seek opportunities to conserve all remaining areas of permanent pasture.

- **Settled Farmlands on River Terrace** This is a medium scale, settled agricultural landscape where horticulture and cropping is the dominant land use, reflecting the fertile free draining soils. The settlement pattern is represented by scattered farms and clusters of wayside dwellings, linked by a matrix of winding lanes. Fields are bounded by hedgerows, with tree cover largely concentrated in groups associated with dwellings.

The landscape guidelines in this landscape character type are to:

- Retain the integrity of the dispersed settlement pattern.
- Conserve and enhance tree cover along watercourses.
- Seek to maintain cropping/horticultural land uses.
- Enhance patterns of tree cover associated with settlement.
- Conserve and enhance patterns of hedgerows.

- **Principal Timbered farmlands.** Principal Timbered Farmlands are rolling lowland landscapes with occasional steep sided hills and low escarpments. They have a small scale, wooded, agricultural appearance characterised by filtered views through densely scattered hedgerow trees. These are complex, in places intimate, landscapes of irregularly shaped woodlands, winding lanes and frequent wayside dwellings and farmsteads. The Principal Timbered Farmlands are characterised by a mosaic of agricultural land cleared directly from woodland, on a piecemeal basis, together with land enclosed from former localised areas of open fields, resulting in their dispersed pattern of farmsteads and wayside cottages and lack of strong settlement nuclei.

The landscape guidelines in this landscape character type are to:

- Maintain the tree cover character of hedgerow oaks, and enhance the age structure of the hedgerow oak population.
 - Conserve all ancient woodland sites and restock with locally occurring native species.
 - Seek to bring about coalescence of fragmented relic ancient woodlands.
 - Encourage the planting of new woodlands, reflecting the scale, shape and composition of the existing ancient woodland character, favouring oak as the major species.
 - Conserve and restore tree cover along water courses and streamlines.
 - Seek opportunities to enhance tree cover along highways and other non-farmed locations.
 - Conserve and restore the pattern and composition of the hedgerow structure through appropriate management, and replanting.
 - Conserve the organic pattern and character of the lane networks.
 - Maintain the historic dispersed settlement pattern.
- **Riverside Meadows:** Riverside Meadows are linear riverine landscapes associated with a flat, generally well-defined alluvial floodplain, in places framed by steeply rising ground. These are secluded pastoral landscapes, characterised by meandering, tree-lined rivers, flanked by alluvial meadows which are defined by hedge and ditch boundaries. Settlement is typically absent are linear riverine landscapes associated with a flat, generally well-defined alluvial floodplain, in places framed by steeply rising ground. These are secluded pastoral landscapes, characterised by meandering, tree-lined rivers, flanked by alluvial meadows which are defined by hedge and ditch boundaries. Settlement is typically absent are linear riverine landscapes associated with a flat, generally well-defined alluvial floodplain, in places framed by steeply rising ground. These are secluded pastoral landscapes, characterised by meandering, tree-lined rivers, flanked by alluvial meadows which are defined by hedge and ditch boundaries. Settlement is typically absent.

The landscape guidelines in this landscape character type are to:

- Seek to retain the unity of the linear form of these landscapes.
- Conserve all existing areas of permanent pasture.
- Seek opportunities to encourage the conversion of arable land back to pasture.
- Conserve and enhance continuous tree cover along hedgelines, ditches and watercourses.
- Conserve existing wetland habitats and seek opportunities for further wetland habitat creation.
- Avoid building or road construction works.
- Avoid further drainage of waterside meadows.
- Explore opportunities to return to patterns and processes of natural flooding cycles.

Summary of priority levels

Table 1. Restoration priorities in Lower Severn Corridor: North.

Determining Factors		
Habitat Quality and Fragmentation	Geodiversity	Historic Environment
Significant components		
Water Quality	Horticulture and food production	
Integrated where possible		
Flood Alleviation	Access and recreation	

Detail

Flood alleviation

Flood alleviation: Determining Factor

Table 2. Determining the level of priority to be given to flood alleviation

Category	Priority level	Performance of Area of Search
The River Severn Catchment Flood Management Plan Policy 4 or 5 area	1	
The River Severn Catchment Flood Management Plan Policy 3 area	2	
The River Severn Catchment Flood Management Plan Policy 2 area	3	✓
The River Severn Catchment Flood Management Plan Policy 1 area	-	

Key messages

A2.107. This area of search is in sub-area 6 of The River Severn Catchment Flood Management Plan (RSCFMP): "Lower Severn Corridor and Leadon catchment". This is a Policy 2 area: "Areas of low to moderate flood risk where we (the Environment Agency) can generally reduce existing flood risk management actions.

A2.108. The RSCFMP considers that the current and future risks do not warrant as much intervention (for example on maintaining existing defences) and it is therefore not worth continuing. We (the Environment Agency) can allow the risk of flooding to increase in a managed way so that we do not create unacceptable risks.

A2.109. The consideration of surface and ground water flooding issues in the RSCFMP is limited due to a lack of available information. The main cause of flooding in Malvern Hills District is from local watercourses and surface water sewers. In particular, rapid response catchments are of concern, and as many of the watercourses at risk are less than 3km² in area there are no flood risk maps

covering these areas. . The Environment Agency has identified that there is a problem of fluvial flooding from the Hatfield Brook downstream of Worcester in Kempsey. The Environment Agency has installed a flood alleviation scheme for the village but they still require surface water flows from new developments to be attenuated to greenfield runoff rates. Any surface water drainage solution should take fully into account the flooding issues downstream at Kempsey.

- A2.110. The key messages in this sub-area which are relevant to mineral extraction and/or restoration are:
- to reduce dependence on raised flood defences, as this is not sustainable in the long term, by taking opportunities to restore sustainable natural storage of floodwater on undeveloped floodplains and
 - that surface water is a growing problem in this catchment.
- A2.111. The proposed actions to implement the policy in this sub-area which are most relevant to mineral restoration are:
- Encourage rural and urban best practices in land-use and in land-management to restore more sustainable natural floodplains and to reduce run-off.
 - Raise awareness of flooding among the public and key partners, especially major operators of infrastructure, allowing them to be better prepared. Encourage them all to increase the resilience and resistance of AONB, vulnerable buildings, infrastructure and businesses.
 - Ensure floodplains are not inappropriately developed.
 - Seek opportunities to improve watercourses where it would benefit fisheries (especially salmon.)
 - Consider the impact of flood risk management activities on SSSIs.

Habitat quality and fragmentation

Habitat quality and fragmentation: Determining Factor

Table 3. Determining the level of priority to be given to habitat quality and fragmentation

		Biodiversity quality		
		High	Medium	Low
Landscape fragmentation	Low	1✓	2	3
	Medium	2	2	3
	High	2	3	3

Key messages

- A2.112. Biodiversity priorities identified for this area of search¹ in the Worcestershire Green Infrastructure Strategy (WGIS) focus on protecting,

¹ See ECA profiles 9: Malvern Chase and Commons and 20: Kempsey Plain, available on www.worcestershire.gov.uk/mineralsbackground

buffering and enhancing existing sites to create linked networks of habitat where possible. Newly created GI features should aim to augment the existing resource concentrating on the main priorities for protection and creation including wetland and floodplain habitats in the river corridors or create and enhance existing neutral grassland habitats and traditional field boundaries to aid connectivity and landscape permeability. Opportunities should be sought to retain pastoral land use and management regimens in the Riverside Meadows that support natural river and flood plain function.

A2.113. The Severn and Avon Vales Biodiversity Delivery Area (BDA) runs along the west of this area, following the river corridor. Minerals development and restoration could contribute towards the delivery of biodiversity priorities in this BDA by:

- Restoring the functionality and biodiversity value of the wetland/floodplain ecosystem
- Contributing to the delivery of Water Framework Directive targets through reversion of arable land to wet grassland
- Creating new wetland habitat including reedbed, fen, marsh and ditch networks
- Creating ecological networks that are resilient to climate change.

A2.114. The Malvern Chase with Laugharne Valley Biodiversity Delivery Area (BDA) runs along the western edge of this area of search. Minerals development and restoration could contribute towards the delivery of biodiversity priorities in this BDA by:

- Restoring connectivity of habitats by restoring hedgerows, hedgerow tree networks, pond networks and connections between blocks of ancient woodland
- Restoring land to lowland meadows, acid grassland and traditional orchard sites and making provision for their long-term management.
- Restoring wood pasture and parkland and protecting veteran trees.

Water Quality

Water Quality: Determining Factor

Table 4. Determining the level of priority to be given to water quality

		Chemical Status of water bodies within area of search		
		Fail	Good	Not required
Ecological Status of water bodies within area of search	Bad or Poor	1	1	1
	Moderate	1	2✓	2
	Good	2	3	3
	High	3	-	-
	No WFD water bodies in area of search	-	-	-

Key messages

A2.115. There are two Water Framework Directive Water Courses in this Area of Search:

- **River Severn – confluence with River Teme to confluence with River Avon**
Chemical Status: Good
Ecological Status: Moderate Potential
This watercourse has heavily modified Hydromorphological status.
- **Carey's Brook – source to confluence with River Severn**
Chemical Status: Not Required
Ecological Status: Moderate

A2.116. Where this method results in water quality being identified as a relevant consideration for the area of search we would like to give some high-level guidance. We are aware that the Environment Agency is working on Water Improvement Plans and Water Action Plans to implement the objectives of the WFD and hope that this will be useful in helping us develop this guidance.

A2.117. However these are not currently available. If they are completed during the preparation of the Minerals Local Plan we will consider opportunities to take them into account in this methodology and the area of search restoration priority profiles.

Geodiversity

Geodiversity: Determining Factor

Table 5. Determining the level of priority to be given to geodiversity

	Priority level	Performance of Area of Search
Area of search in or partially within the Cotswolds or Malvern Hills Area of Outstanding Natural Beauty	1	-
Area of search in or partially within the Abberley and Malvern Hills Geopark	1	✓
Area of search contains a geological SSSI or local geological site	2	-
Area of Search within 1km of geological SSSI or 500m of local geological site	3	-
Area of Search not in the Abberley and Malvern Hills Geopark and further than 1km from geological SSSI or 500m of local geological site	-	-

Key messages

A2.118. The way in which geodiversity can be considered in a restoration approach will vary significantly depending on the nature and location of the features to be incorporated, but it may be possible to protect certain geological features which are uncovered during extraction and incorporate them into the restoration scheme.

Horticulture and food production

Horticulture and food production: Significant component

Table 6. Determining the level of priority to be given to horticulture and food production

Agricultural land	Priority level	Performance of Area of Search
More than ½ of the area of search classified as grade 1 or 2	1	
½ - ¼ of the area of search classified as grade 1 or 2	2	✓
Less than 1/4 grade of the area of search classified as grade 1 or 2	3	
None of the area of search classified as grade 1 or 2	-	

Key messages

- A2.119. Minerals site development and restoration could contribute to conserving high quality soil resources and safeguarding the long term potential of best and most versatile agricultural land by:
- stripping and storing soils in line with best practice guidance,
 - reinstating the original soil asset where possible,
 - concentrating high quality soil resources in restoring some parts of the site to high grade agricultural land and delivering low intensity grazing or wetland habitats in parts of the site with lower soil quality or where the lowered land level following mineral extraction does not allow for restoration of the entire area to high quality agricultural land.

Historic Environment

Historic Environment: Determining factor

Table 7. Determining the level of priority to be given to the historic environment

Potential for the presence of heritage assets	Priority level	Performance of Area of Search
More than ½ of the area of search identified as high potential	1	✓
½ to ¼ of the area of search identified as high potential	2	
Less than ¼ of the area of search identified as high potential	3	

Key messages

- A2.120. This forms part of the principle area of known prehistoric and Romano British settlement sites and landscapes in the County. The gravel terraces of the River Severn from Worcester southwards have revealed extensive remains of settlement and funerary sites. The broader meanders of the river have also left a series of palaeochannel's sealed beneath later alluvial deposits. These have been shown by excavation to be a focus of activity during the Neolithic period

onwards. Later palaeochannel's are likely to be the focus of mills and water management features.

Access and recreation

Access and Recreation: Integrate wherever possible

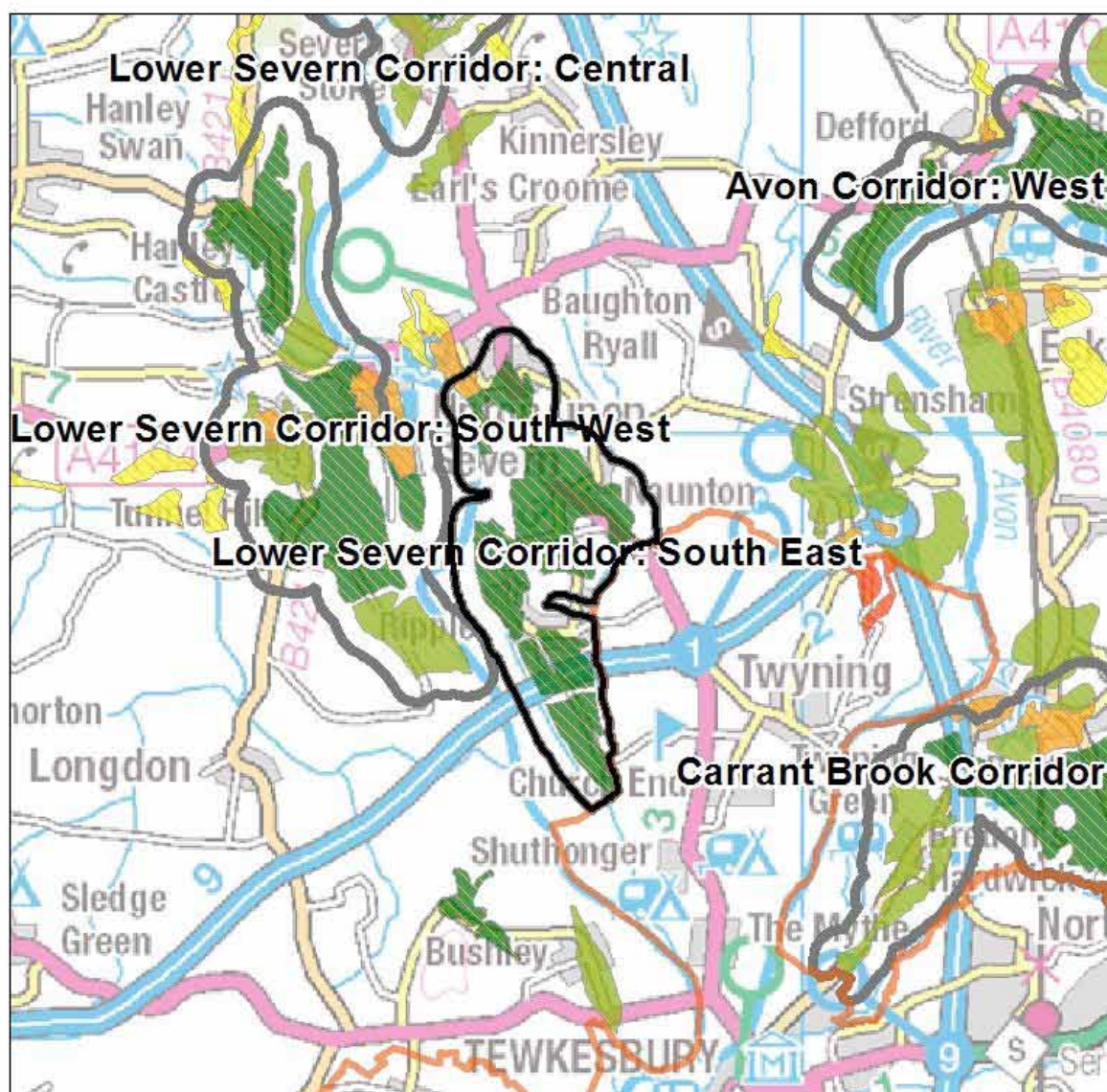
Table 8. Determining the level of priority to be given to the historic environment

	Priority level	Performance of Area of Search
Part of the minerals area of search identified as area of search for recreation in adopted or emerging local plan	1	
Part of the minerals area of search identified as area of search for recreation in Worcestershire GI Strategy	1	
Minerals area of search is in an area where less than 75% of households meet ANGSt standards for district scale provision (sites or habitats over 20ha within 2km)	2	
In area where more than 75% of households meet ANGSt standards for district scale provision and no areas of search for recreation have been identified.		

Key messages

A2.121. In Malvern Hills District 88% of households are within 2km of a 20ha+ access and recreation site. There is however potential to integrate access and recreation into broader restoration schemes.

Restoration profile for the area of search "Lower Sever: South East"



Legend

Worcestershire County Boundary

Areas of Search

Terrace and glacial sand and gravel resources

Key resource

Significant resource

Not significant

Compromised

Out of county

Solid sand resources

Key resource

Significant resource

Not significant

Compromised

Out of county

Crushed rock resources

Key resource

Significant resource

Out of county

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Overall approach

Landscape character

A2.122. The landscape character of this area is principally Settled Farmlands on River Terrace, to the west, adjoining the river Severn it is Riverside Meadows.

- **Settled Farmlands on River Terrace:** This is a medium scale, settled agricultural landscape where horticulture and cropping is the dominant land use, reflecting the fertile free draining soils. The settlement pattern is represented by scattered farms and clusters of wayside dwellings, linked by a matrix of winding lanes. Fields are bounded by hedgerows, with tree cover largely concentrated in groups associated with dwellings.

The landscape guidelines in this landscape character type are to:

- Retain the integrity of the dispersed settlement pattern.
 - Conserve and enhance tree cover along watercourses.
 - Seek to maintain cropping/horticultural land uses.
 - Enhance patterns of tree cover associated with settlement.
 - Conserve and enhance patterns of hedgerows.
- **Riverside Meadows:** are linear riverine landscapes associated with a flat, generally well-defined alluvial floodplain, in places framed by steeply rising ground. These are secluded pastoral landscapes, characterised by meandering, tree-lined rivers, flanked by alluvial meadows which are defined by hedge and ditch boundaries. Settlement is typically absent.

The landscape guidelines in this landscape character type are to:

- Seek to retain the unity of the linear form of these landscapes.
- Conserve all existing areas of permanent pasture.
- Seek opportunities to encourage the conversion of arable land back to pasture.
- Conserve and enhance continuous tree cover along hedgelines, ditches and watercourses.
- Conserve existing wetland habitats and seek opportunities for further wetland habitat creation.
- Avoid building or road construction works.
- Avoid further drainage of waterside meadows.
- Explore opportunities to return to patterns and processes of natural flooding cycles.

Summary of priority levels

Table 1. Restoration priorities in Lower Severn South East.

Determining Factors			
Habitat Quality and Fragmentation	Geodiversity	Horticulture and food production	Historic Environment
Significant components			
Water quality			
Integrate where possible			
Flood Alleviation		Access and recreation	

Detail

Flood alleviation

Flood alleviation: Integrate wherever possible

Table 2. Determining the level of priority to be given to flood alleviation

Category	Priority level	Performance of Area of Search
The River Severn Catchment Flood Management Plan Policy 4 or 5 area	1	
The River Severn Catchment Flood Management Plan Policy 3 area	2	
The River Severn Catchment Flood Management Plan Policy 2 area	3	✓
The River Severn Catchment Flood Management Plan Policy 1 area	-	

Key messages

A2.123. This area of search is in sub-area 6 of The River Severn Catchment Flood Management Plan (RSCFMP): "Lower Severn Corridor and Leadon catchment". This is a Policy 2 area: "Areas of low to moderate flood risk where we (the Environment Agency) can generally reduce existing flood risk management actions.

A2.124. The RSCFMP considers that the current and future risks do not warrant as much intervention (for example on maintaining existing defences) and it is therefore not worth continuing. We (the Environment Agency) can allow the risk of flooding to increase in a managed way so that we do not create unacceptable risks.

A2.125. The consideration of surface and ground water flooding issues in the RSCFMP is limited due to a lack of available information. The main cause of flooding in Malvern Hills District is from local watercourses and surface water sewers. In particular, rapid response catchments are of concern, and as many of the watercourses at risk are less than 3km² in area there are no flood risk maps

covering these areas. Groundwater flooding is not considered to be a major issue in this area.

A2.126. The key messages in this sub-area which are relevant to mineral extraction and/or restoration are:

- to reduce dependence on raised flood defences, as this is not sustainable in the long term, by taking opportunities to restore sustainable natural storage of floodwater on undeveloped floodplains
- Seek opportunities to improve watercourses where it would benefit fisheries and
- that surface water is a growing problem in this catchment.

A2.127. The proposed actions to implement the policy in this sub-area which are most relevant to mineral restoration are:

- Encourage rural and urban best practices in land-use and in land-management to restore more sustainable natural floodplains and to reduce run-off.
- Raise awareness of flooding among the public and key partners, especially major operators of infrastructure, allowing them to be better prepared. Encourage them all to increase the resilience and resistance of vulnerable buildings, infrastructure and businesses.
- Ensure floodplains are not inappropriately developed.
- Seek opportunities to improve watercourses where it would benefit fisheries (especially salmon.)
- Consider the impact of flood risk management activities on SSSIs.

Habitat quality and fragmentation

Habitat quality and fragmentation: Determining factor

Table 3. Determining the level of priority to be given to habitat quality and fragmentation

		Biodiversity quality		
		High	Medium	Low
Landscape fragmentation	Low	1✓	2	3
	Medium	2	2	3
	High	2	3	3

Key messages

A2.128. Biodiversity priorities identified for this area of search¹ in the Worcestershire Green Infrastructure Strategy (WGIS) focus on maintaining the River Severn Corridor as a key green infrastructure link. The floodplain will be critical for a number of GI aspirations, opportunities to re-create or restore

¹ See ECA profile 19: Longdon Hinterland, available on www.worcestershire.gov.uk/mineralsbackground.

wetland habitats in the wet Pasture Meadows, including sustainable water management systems should also be sought.

- A2.129. The Malvern Chase with Laugharne Valley BDA runs along the western edge of this area of search. Minerals development and restoration could contribute towards the delivery of biodiversity priorities in this BDA by:
- Restoring connectivity of habitats by restoring hedgerows, hedgerow tree networks, pond networks and connections between blocks of ancient woodland
 - Restoring land to lowland meadows, acid grassland and traditional orchard sites and making provision for their long-term management.
 - Restoring wood pasture and parkland and protecting veteran trees.

- A2.130. The Severn and Avon Vales Biodiversity Delivery Area (BDA) crosses the eastern half of this area of search, following the river corridor. Minerals development and restoration could contribute towards the delivery of biodiversity priorities in this BDA by:
- Restoring the functionality and biodiversity value of the wetland/floodplain ecosystem
 - Contributing to the delivery of Water Framework Directive targets through reversion of arable land to wet grassland
 - Creating new wetland habitat including reedbed, fen, marsh and ditch networks
 - Creating ecological networks that are resilient to climate change

Water Quality

Water Quality: Determining Factor

Table 4. Determining the level of priority to be given to water quality

		Chemical Status of water bodies within area of search		
		Fail	Good	Not required
Ecological Status of water bodies within area of search	Bad or Poor	1	1	1
	Moderate	1	2✓	2
	Good	2	3	3
	High	3	-	-
	No WFD water bodies in area of search	-	-	-

Key messages

- A2.131. There are two Water Framework Directive Water Courses in this Area of Search:
- **River Severn – confluence River Teme to confluence with River Avon:**
Chemical Status: Good
Ecological Status: Moderate Potential

This watercourse has heavily modified Hydromorphological status

Ripple Brook to confluence River Severn

Chemical Status: Not Required

Ecological Status: Moderate

A2.132. Where this method results in water quality being identified as a relevant consideration for the area of search we would like to give some high-level guidance. We are aware that the Environment Agency is working on Water Improvement Plans and Water Action Plans to implement the objectives of the WFD and hope that this will be useful in helping us develop this guidance.

A2.133. However these are not currently available. If they are completed during the preparation of the Minerals Local Plan we will consider opportunities to take them into account in this methodology and the area of search restoration priority profiles.

Geodiversity

Geodiversity: Determining factor

Table 5. Determining the level of priority to be given to geodiversity

	Priority level	Performance of Area of Search
Area of search in or partially within the Cotswolds or Malvern Hills Area of Outstanding Natural Beauty	1	-
Area of search in or partially within the Abberley and Malvern Hills Geopark	1	✓
Area of search contains a geological SSSI or local geological site	2	-
Area of Search within 1km of geological SSSI or 500m of local geological site	3	-
Area of Search not in the Abberley and Malvern Hills Geopark and further than 1km from geological SSSI or 500m of local geological site	-	-

Key messages

A2.134. The way in which geodiversity can be considered in a restoration approach will vary significantly depending on the nature and location of the features to be incorporated, but it may be possible to protect certain geological features which are uncovered during extraction and incorporate them into the restoration scheme.

*Horticulture and food production***Horticulture and food production: Determining factor****Table 6. Determining the level of priority to be given to horticulture and food production**

Agricultural land	Priority level	Performance of Area of Search
More than ½ of the area of search classified as grade 1 or 2	1	✓
½ - ¼ of the area of search classified as grade 1 or 2	2	
Less than 1/4 grade of the area of search classified as grade 1 or 2	3	
None of the area of search classified as grade 1 or 2	-	

Key messages

- A2.135. Minerals site development and restoration could contribute to conserving high quality soil resources and safeguarding the long term potential of best and most versatile agricultural land by:
- stripping and storing soils in line with best practice guidance,
 - reinstating the original soil asset where possible,
 - concentrating high quality soil resources in restoring some parts of the site to high grade agricultural land and delivering low intensity grazing or wetland habitats in parts of the site with lower soil quality or where the lowered land level following mineral extraction does not allow for restoration of the entire area to high quality agricultural land.

*Historic Environment***Historic Environment: Determining factor****Table 7. Determining the level of priority to be given to the historic environment**

Potential for the presence of heritage assets	Priority level	Performance of Area of Search
More than ½ of the area of search identified as high potential	1	✓
½ to ¼ of the area of search identified as high potential	2	
Less than ¼ of the area of search identified as high potential	3	

Key messages

- A2.136. This area of search forms part of the principal area of known prehistoric and Romano British settlement sites and landscapes in the County. The gravel terraces of the River Severn from Worcester southwards have revealed extensive remains of settlement and funerary sites. The broader meanders of the river have also left a series of palaeochannels sealed beneath later alluvial deposits,

which have been shown by excavation to be a focus of activity during the Neolithic period onwards.

A2.137. Where clays dominate over the lighter sands and gravels there is greater survival of medieval landscape and settlement earthworks.

A2.138. Edge environments around Longdon Marsh have been shown to be a significant focus for early occupation, with prehistoric and later communities utilising the resources of the marshland.

Access and recreation

Access and Recreation: Significant component

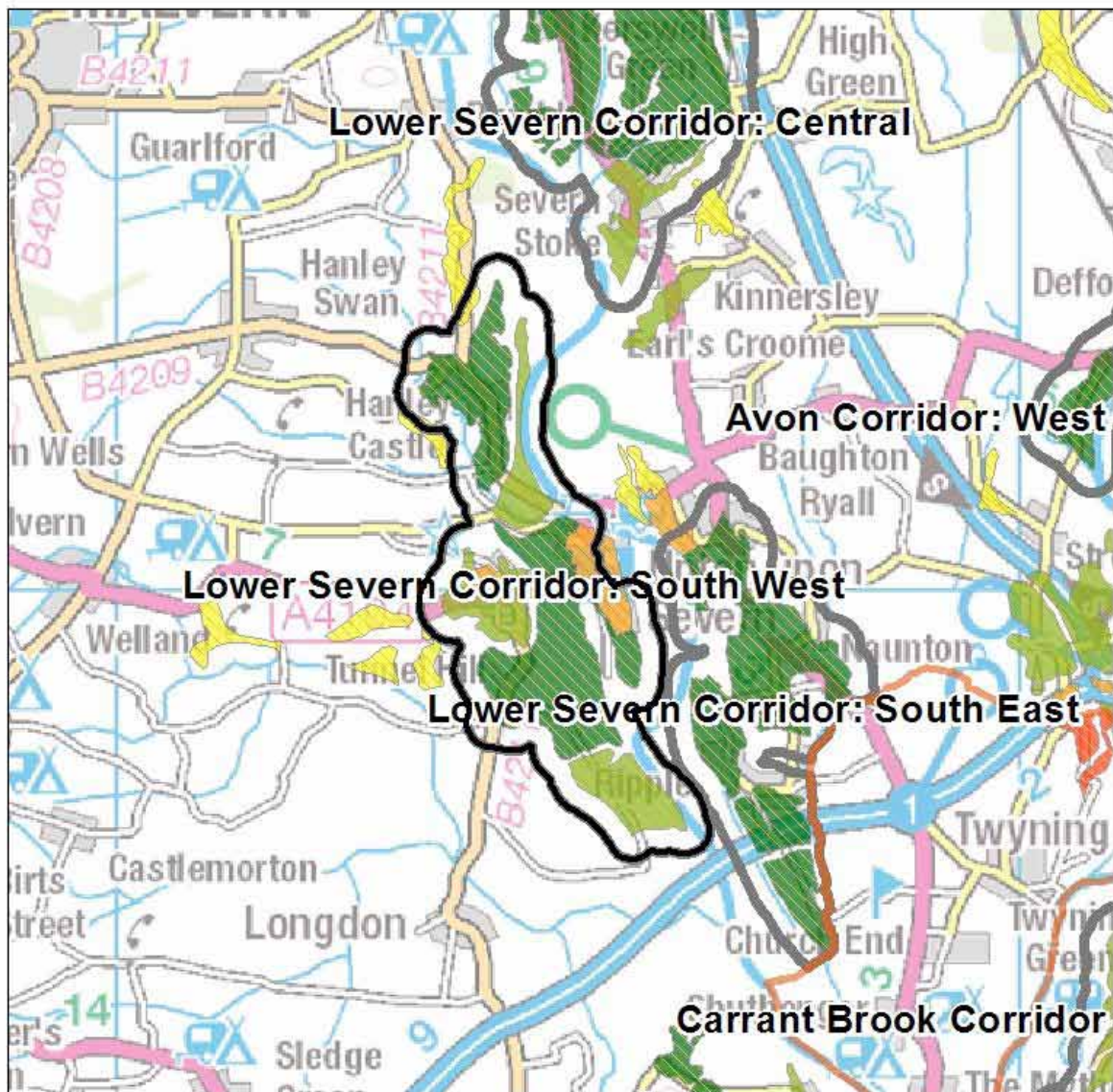
Table 8. Determining the level of priority to be given to the historic environment

	Priority level	Performance of Area of Search
Part of the minerals area of search identified as area of search for recreation in adopted or emerging local plan	1	
Part of the minerals area of search identified as area of search for recreation in Worcestershire GI Strategy	1	
Minerals area of search is in an area where less than 75% of households meet ANGSt standards for district scale provision (sites or habitats over 20ha within 2km)	2	
In area where more than 75% of households meet ANGSt standards for district scale provision and no areas of search for recreation have been identified.	3	✓

Key messages

A2.139. In Malvern Hills District 88% of households are within 2km of a 20ha+ access and recreation site. There is however potential to integrate access and recreation into broader restoration schemes.

Restoration profile for the area of search Lower Severn: South West



Legend

Worcestershire County Boundary

Areas of Search

Terrace and glacial sand and gravel resources

- Key resource
- Significant resource
- Not significant
- Compromised
- Out of county

Solid sand resources

- Key resource
- Significant resource
- Not significant
- Compromised
- Out of county

Crushed rock resources

- Key resource
- Significant resource
- Out of county

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Overall approach

Landscape character

A2.140. The landscape character of this area is varied; there is a small area of Settled Farmlands with Pastoral Land Use on the north western fringe, larger areas of Estate Farmlands in the north and south west, Riverside Meadows fringing the river Severn, an area of Wet Pasture Meadows in the centre and Principal Settled Farmlands south of Upton-upon-Severn, which is itself characterised as Urban. The area of Estate Farmlands may just predominate.

- **Estate Farmlands:** This is an ordered agricultural landscape characterised by a sub-regular pattern of medium to large sized fields, small geometric plantations and groups of ornamental trees associated with large country houses. Settlement is largely restricted to discrete clusters of dwellings and occasional small estate villages.

The landscape guidelines in this landscape character type are to:

- Enhance tree cover through further planting of small scale plantations and tree belts.
- Conserve the pattern of hedged fields, with priority given to primary hedgelines.
- Conserve and restore parkland and the tree cover associated with large ornamental grounds.
- Conserve and enhance the tree cover along water courses.
- Promote the development of wide field margins for wildlife benefit.
- Conserve the integrity of estate villages.

- **Settled Farmlands with Pastoral Land Use**

These are small-scale rolling lowland, settled agricultural landscapes with a dominant pastoral land use, defined by their hedged fields. Hedgerow and streamside trees, together with those associated with settlement provide tree cover in a landscape with a notable network of winding lanes, scattered farms and clusters of wayside settlements.

The landscape guidelines in this landscape character type are to:

- Conserve and enhance the pattern of hedgerows.
- Maintain overall pastoral land use.
- Seek opportunities to conserve all remaining areas of permanent pasture.
- Conserve and enhance tree cover along watercourses.
- Conserve hedgerow tree populations and promote new hedgerow tree planting.
- Retain the integrity of the dispersed pattern of settlement
- This is a distinctive planned lowland agricultural landscape with a notably dominant orchard land use. It is an intensively cultivated landscape characterised by a nucleated pattern of expanded villages surrounded by large cultivated fields.

- **Riverside Meadows:** are linear riverine landscapes associated with a flat, generally well-defined alluvial floodplain, in places framed by steeply rising ground. These are secluded pastoral landscapes, characterised by

meandering, tree-lined rivers, flanked by alluvial meadows which are defined by hedge and ditch boundaries. Settlement is typically absent.

The landscape guidelines in this landscape character type are to:

- Seek to retain the unity of the linear form of these landscapes.
 - Conserve all existing areas of permanent pasture.
 - Seek opportunities to encourage the conversion of arable land back to pasture.
 - Conserve and enhance continuous tree cover along hedgelines, ditches and watercourses.
 - Conserve existing wetland habitats and seek opportunities for further wetland habitat creation.
 - Avoid building or road construction works.
 - Avoid further drainage of waterside meadows.
 - Explore opportunities to return to patterns and processes of natural flooding cycles.
- **Principal Settled Farmlands:** These are small to medium scale, settled agricultural landscapes of scattered farms, relic commons and clusters of wayside dwellings. These buildings are linked by a network of narrow, winding lanes which nestle within a matrix of hedged fields. Tree cover is largely restricted to thinly scattered hedgerow trees and groups of trees around dwellings. The land use is primarily one of mixed farming.

The landscape guidelines in this landscape character type are to:

- Conserve and enhance the pattern of hedgerows.
 - Retain the integrity of the dispersed pattern of settlement.
 - Conserve and enhance tree cover along watercourses.
 - Enhance patterns of tree cover associated with settlement.
 - Seek opportunities to conserve all remaining areas of permanent pasture.
- **Wet Pasture Meadows:** A flat, low-lying, largely uninhabited landscape associated with irregularly shaped, poorly draining basins fringed by low hills or scarps. This is a secluded pastoral landscape characterised by a regular pattern of hedged fields and ditches fringed by lines of willow and alder. Pollarded willows are often a distinctive feature.

The landscape guidelines in this landscape character type are to:

- Conserve all permanent pasture.
- Conserve and restore linear tree cover along watercourses, ditches and hedgelines.
- Seek opportunities to encourage the conversion of arable land back to pasture.
- Encourage the retention and appropriate management of existing wetland habitats.
- Encourage the creation of new wetland habitats.
- Discourage activities likely to increase the drainage, or lower the water table of these areas.
- Discourage any building or construction works in these landscapes.

Summary of priority levels

Table 1. Restoration priorities in Lower Severn: South West

Determining Factors			
Habitat quality and fragmentation	Water quality	Geodiversity	Historic Environment
Significant components			
Horticulture and food production			
Integrate wherever possible			
Flood alleviation		Access and recreation	

Detail

Flood alleviation

Flood alleviation: Integrate wherever possible

Table 2. Determining the level of priority to be given to flood alleviation

Category	Priority level	Performance of Area of Search
The River Severn Catchment Flood Management Plan Policy 4 or 5 area	1	
The River Severn Catchment Flood Management Plan Policy 3 area	2	
The River Severn Catchment Flood Management Plan Policy 2 area	3	✓
The River Severn Catchment Flood Management Plan Policy 1 area	-	

Key messages

A2.141. This area of search is in sub-area 6 of The River Severn Catchment Flood Management Plan (RSCFMP): "Lower Severn Corridor and Leadon catchment". This is a Policy 2 area: "Areas of low to moderate flood risk where we (the Environment Agency) can generally reduce existing flood risk management actions. The RSCFMP considers that the current and future risks do not warrant as much intervention (for example on maintaining existing defences) and it is therefore not worth continuing. We (the Environment Agency) can allow the risk of flooding to increase in a managed way so that we do not create unacceptable risks.

A2.142. The consideration of surface and ground water flooding issues in the RSCFMP is limited due to a lack of available information. The main cause of flooding in Malvern Hills District is from local watercourses and surface water sewers. In particular, rapid response catchments are of concern, and as many of the watercourses at risk are less than 3km² in area there are no flood risk maps covering these areas. There is no direct connection to the Longdon Marshes at present in this Area of Search but any development proposals affecting the Longdon Marshes or Longdon Brook will need to be discussed with the Severn

IDB to agree strategies for surface water disposal and flood protection.
Groundwater flooding is not considered to be a major issue in this area.

- A2.143. The key messages in this sub-area which are relevant to mineral extraction and/or restoration are:
- to reduce dependence on raised flood defences, as this is not sustainable in the long term, by taking opportunities to restore sustainable natural storage of floodwater on undeveloped floodplains and
 - that surface water is a growing problem in this catchment.
- A2.144. The proposed actions to implement the policy in this sub-area which are most relevant to mineral restoration are:
- Encourage rural and urban best practices in land-use and in land-management to restore more sustainable natural floodplains and to reduce run-off.
 - Raise awareness of flooding among the public and key partners, especially major operators of infrastructure, allowing them to be better prepared. Encourage them all to increase the resilience and resistance of vulnerable buildings, infrastructure and businesses.
 - Ensure floodplains are not inappropriately developed.
 - Seek opportunities to improve watercourses where it would benefit fisheries (especially salmon.)
 - Consider the impact of flood risk management activities on SSSIs.

Habitat quality and fragmentation

Habitat quality and fragmentation: Determining Factor

Table 3. Determining the level of priority to be given to habitat quality and fragmentation

		Biodiversity quality		
		High	Medium	Low
Landscape fragmentation	Low	1✓	2	3
	Medium	2	2	3
	High	2	3	3

Key messages

- A2.145. Biodiversity priorities identified for this area of search¹ in the Worcestershire Green Infrastructure Strategy (WGIS) focus on maintaining the River Severn Corridor as a key green infrastructure link. The floodplain will be critical for a number of GI aspirations, opportunities to re-create or restore wetland habitats in the wet Pasture Meadows, including sustainable water management systems should also be sought.

¹ See ECA profiles 9: Malvern Chase and Commons 19: Longdon Hinterland, 20: Kempsey Plain, available on www.worcestershire.gov.uk/mineralsbackground

A2.146. The Severn and Avon Vales Biodiversity Delivery Area (BDA) runs along the west of this area, following the river corridor. Minerals development and restoration could contribute towards the delivery of biodiversity priorities in this BDA by:

- Restoring the functionality and biodiversity value of the wetland/floodplain ecosystem
- Contributing to the delivery of Water Framework Directive targets through reversion of arable land to wet grassland
- Creating new wetland habitat including reedbed, fen, marsh and ditch networks
- Creating ecological networks that are resilient to climate change.

A2.147. The Malvern Chase with Laugharne Valley Biodiversity Delivery Area (BDA) runs along the western edge of this area of search. Minerals development and restoration could contribute towards the delivery of biodiversity priorities in this BDA by:

- Restoring connectivity of habitats by restoring hedgerows, hedgerow tree networks, pond networks and connections between blocks of ancient woodland
- Restoring land to lowland meadows, acid grassland and traditional orchard sites and making provision for their long-term management.
- Restoring wood pasture and parkland and protecting veteran trees.

Water Quality

Water Quality: Determining Factor

Table 4. Determining the level of priority to be given to water quality

		Chemical Status of water bodies within area of search		
		Fail	Good	Not required
Ecological Status of water bodies within area of search	Bad or Poor	1	1 ✓	1
	Moderate	1	2	2
	Good	2	3	3
	High	3	-	-
	No WFD water bodies in area of search	-	-	-

Key messages

A2.148. There are four Water Framework Directive Water Courses in this Area of Search:

- **River Severn, confluence River Teme to River Avon**
Chemical Status: Good
Ecological Status: Moderate Potential
This watercourse is heavily modified Hydromorphological status.
- **Pool Brook- source to confluence Mere Brook**
Chemical Status: Not Required

- Ecological Status: Moderate
- **Mere Brook - source to confluence Pool Brook**
Chemical Status: Not Required
Ecological Status: Moderate
- Pool Brook- confluence Mere Brook to confluence River Severn**
Chemical Status: Not Required
Ecological Status: Poor

A2.149. Where this method results in water quality being identified as a relevant consideration for the area of search we would like to give some high-level guidance. We are aware that the Environment Agency is working on Water Improvement Plans and Water Action Plans to implement the objectives of the WFD and hope that this will be useful in helping us develop this guidance.

A2.150. However these are not currently available. If they are completed during the preparation of the Minerals Local Plan we will consider opportunities to take them into account in this methodology and the area of search restoration priority profiles.

Geodiversity

Geodiversity: Determining Factor

Table 5. Determining the level of priority to be given to geodiversity

	Priority level	Performance of Area of Search
Area of search in or partially within the Cotswolds or Malvern Hills Area of Outstanding Natural Beauty	1	-
Area of search in or partially within the Abberley and Malvern Hills Geopark	1	✓
Area of search contains a geological SSSI or local geological site	2	-
Area of Search within 1km of geological SSSI or 500m of local geological site	3	-
Area of Search not in the Abberley and Malvern Hills Geopark and further than 1km from geological SSSI or 500m of local geological site	-	-

Key messages

A2.151. The way in which geodiversity can be considered in a restoration approach will vary significantly depending on the nature and location of the features to be incorporated, but it may be possible to protect certain geological features which are uncovered during extraction and incorporate them into the restoration scheme.

*Horticulture and food production***Horticulture and food production: Significant component****Table 6. Determining the level of priority to be given to horticulture and food production**

Agricultural land	Priority level	Performance of Area of Search
More than ½ of the area of search classified as grade 1 or 2	1	
½ - ¼ of the area of search classified as grade 1 or 2	2	✓
Less than 1/4 grade of the area of search classified as grade 1 or 2	3	
None of the area of search classified as grade 1 or 2	-	

Key messages

- A2.152. Minerals site development and restoration could contribute to conserving high quality soil resources and safeguarding the long term potential of best and most versatile agricultural land by:
- stripping and storing soils in line with best practice guidance,
 - reinstating the original soil asset where possible,
 - concentrating high quality soil resources in restoring some parts of the site to high grade agricultural land and delivering low intensity grazing or wetland habitats in parts of the site with lower soil quality or where the lowered land level following mineral extraction does not allow for restoration of the entire area to high quality agricultural land.

*Historic Environment***Historic Environment: Determining factor****Table 7. Determining the level of priority to be given to the historic environment**

Potential for the presence of heritage assets	Priority level	Performance of Area of Search
More than ½ of the area of search identified as high potential	1	✓
½ to ¼ of the area of search identified as high potential	2	
Less than ¼ of the area of search identified as high potential	3	

Key messages

- A2.153. The gravel terraces of the River Severn from Worcester southwards have revealed extensive remains of settlement and funerary sites. The broader meanders of the river have also left a series of palaeochannel's sealed beneath later alluvial deposits, which have been shown by excavation to be a focus of

activity during the Neolithic period onwards. Later palaeochannel's are likely to be the focus of mills and water management features.

Access and recreation

Access and Recreation: Integrate wherever possible

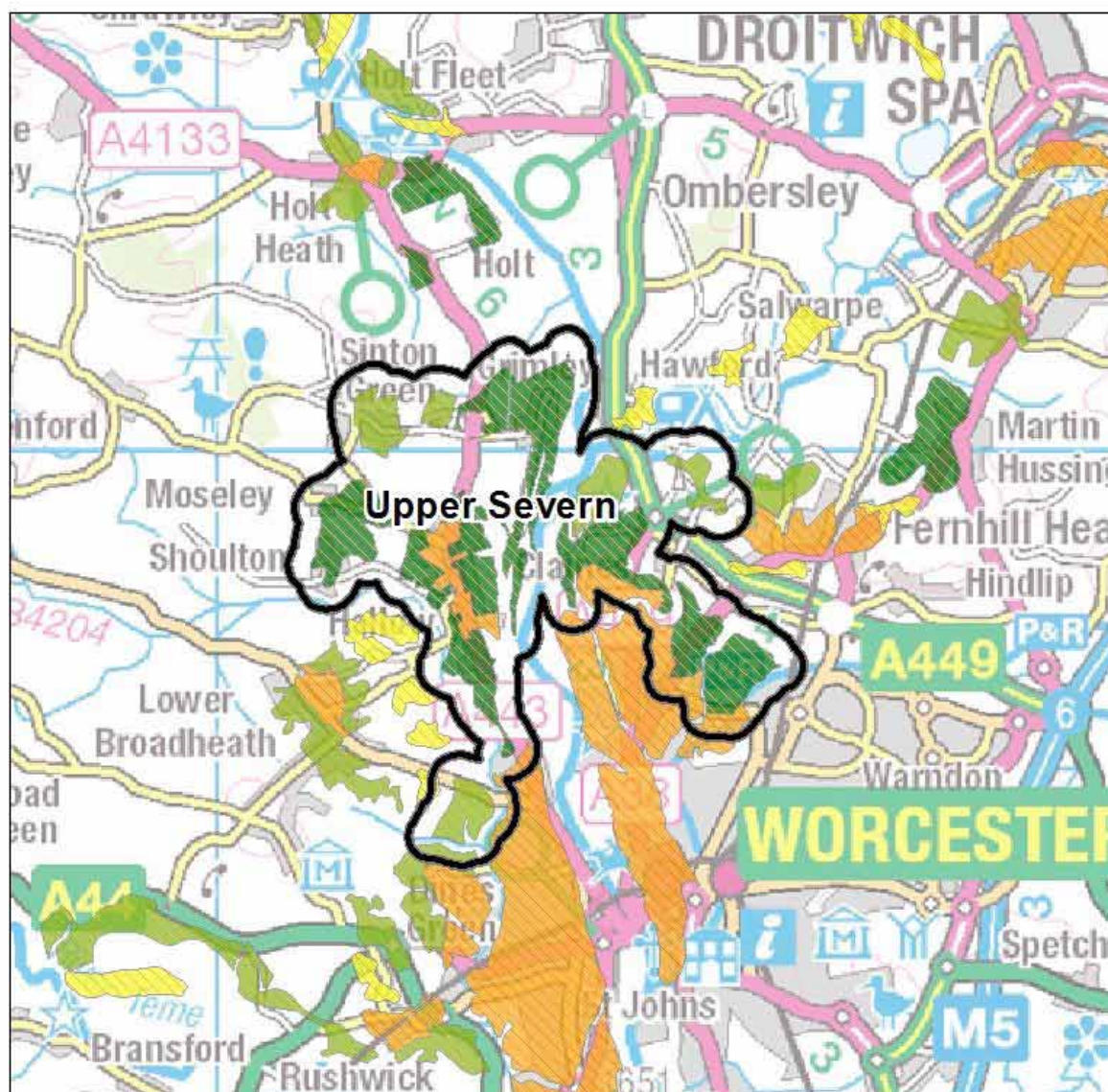
Table 8. Determining the level of priority to be given to the historic environment

	Priority level	Performance of Area of Search
Part of the minerals area of search identified as area of search for recreation in adopted or emerging local plan	1	
Part of the minerals area of search identified as area of search for recreation in Worcestershire GI Strategy	1	
Minerals area of search is in an area where less than 75% of households meet ANGSt standards for district scale provision (sites or habitats over 20ha within 2km)	2	
In area where more than 75% of households meet ANGSt standards for district scale provision and no areas of search for recreation have been identified.		

Key messages

A2.154. In Malvern Hills District 88% of households are within 2km of a 20ha+ access and recreation site. There is however potential to integrate access and recreation into broader restoration schemes.

Restoration profile for the area of search "Upper Severn Corridor"



Legend

Worcestershire County Boundary

Areas of Search

Terrace and glacial sand and gravel resources

Key resource

Significant resource

Not significant

Compromised

Out of county

Solid sand resources

Key resource

Significant resource

Not significant

Compromised

Out of county

Crushed rock resources

Key resource

Significant resource

Out of county

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Overall approach

Landscape character

A2.155. The landscape character of this area is predominantly Principal Timbered Farmlands and Settled Farmlands on the River Terrace, with some areas of Riverside Meadows along the River Severn, Principal Settled Farmlands and Settled Farmlands with Pastoral use:

- **Principal Timbered Farmlands:** Principal Timbered Farmlands are rolling lowland landscapes with occasional steep sided hills and low escarpments. They have a small scale, wooded, agricultural appearance characterised by filtered views through densely scattered hedgerow trees. These are complex, in places intimate, landscapes of irregularly shaped woodlands, winding lanes and frequent wayside dwellings and farmsteads.

The Principal Timbered Farmlands are characterised by a mosaic of agricultural land cleared directly from woodland, on a piecemeal basis, together with land enclosed from former localised areas of open fields, resulting in their dispersed pattern of farmsteads and wayside cottages and lack of strong settlement nuclei.

The landscape guidelines in this landscape character type are to:

- Maintain the tree cover character of hedgerow oaks, and enhance the age structure of the hedgerow oak population.
 - Conserve all ancient woodland sites and restock with locally occurring native species.
 - Seek to bring about coalescence of fragmented relic ancient woodlands.
 - Encourage the planting of new woodlands, reflecting the scale, shape and composition of the existing ancient woodland character, favouring oak as the major species.
 - Conserve and restore tree cover along water courses and streamlines.
 - Seek opportunities to enhance tree cover along highways and other non-farmed locations.
 - Conserve and restore the pattern and composition of the hedgerow structure through appropriate management, and replanting.
 - Conserve the organic pattern and character of the lane networks.
 - Maintain the historic dispersed settlement pattern.
- **Settled Farmlands on River Terrace:** This is a medium scale, settled agricultural landscape where horticulture and cropping is the dominant land use, reflecting the fertile free draining soils. The settlement pattern is represented by scattered farms and clusters of wayside dwellings, linked by a matrix of winding lanes. Fields are bounded by hedgerows, with tree cover largely concentrated in groups associated with dwellings.

The landscape guidelines in this landscape character type are to:

- Retain the integrity of the dispersed settlement pattern.
- Conserve and enhance tree cover along watercourses.

- Seek to maintain cropping/horticultural land uses.
- Enhance patterns of tree cover associated with settlement.
- Conserve and enhance patterns of hedgerows.
- **Principal Settled Farmlands:** These are small to medium scale, settled agricultural landscapes of scattered farms, relic commons and clusters of wayside dwellings. These buildings are linked by a network of narrow, winding lanes which nestle within a matrix of hedged fields. Tree cover is largely restricted to thinly scattered hedgerow trees and groups of trees around dwellings. The land use is primarily one of mixed farming.

The landscape guidelines in this landscape character type are to:

- Conserve and enhance the pattern of hedgerows.
- Retain the integrity of the dispersed pattern of settlement.
- Conserve and enhance tree cover along watercourses.
- Enhance patterns of tree cover associated with settlement.
- Seek opportunities to conserve all remaining areas of permanent pasture.
- **Riverside Meadows:** Riverside Meadows are linear riverine landscapes associated with a flat, generally well-defined alluvial floodplain, in places framed by steeply rising ground. These are secluded pastoral landscapes, characterised by meandering, tree-lined rivers, flanked by alluvial meadows which are defined by hedge and ditch boundaries. Settlement is typically absent.

The landscape guidelines in this landscape character type are to:

- Seek to retain the unity of the linear form of these landscapes.
- Conserve all existing areas of permanent pasture.
- Seek opportunities to encourage the conversion of arable land back to pasture.
- Conserve and enhance continuous tree cover along hedgelines, ditches and watercourses.
- Conserve existing wetland habitats and seek opportunities for further wetland habitat creation.
- Avoid building or road construction works.
- Avoid further drainage of waterside meadows.
- Explore opportunities to return to patterns and processes of natural flooding cycles.
- **Settled Farmlands with Pastoral Use** These are small-scale rolling lowland, settled agricultural landscapes with a dominant pastoral land use, defined by their hedged fields. Hedgerow and streamside trees, together with those associated with settlement provide tree cover in a landscape with a notable network of winding lanes, scattered farms and clusters of wayside settlements.

The landscape guidelines in this landscape character type are to:

- Conserve and enhance the pattern of hedgerows.
- Maintain overall pastoral land use.

- Seek opportunities to conserve all remaining areas of permanent pasture.
- Conserve and enhance tree cover along watercourses.
- Conserve hedgerow tree populations and promote new hedgerow tree planting.
- Retain the integrity of the dispersed pattern of settlement.

Summary of priority levels

Table 1. Restoration priorities in Avon Corridor: West.

Determining Factors			
Habitat quality and fragmentation	Geodiversity	Historic Environment	Access and recreation

Significant components		
Flood alleviation	Water Quality	Horticulture and food production

Detail

Flood alleviation

Flood alleviation: Significant component

Table 2. Determining the level of priority to be given to flood alleviation

Category	Priority level	Performance of Area of Search
The River Severn Catchment Flood Management Plan Policy 4 or 5 area	1	
The River Severn Catchment Flood Management Plan Policy 3 area	2	✓
The River Severn Catchment Flood Management Plan Policy 2 area	3	
The River Severn Catchment Flood Management Plan Policy 1 area	-	

Key messages

A2.156. This area of search is in sub-area 8 of The River Severn Catchment Flood Management Plan (RSCFMP): "Middle Avon, Tributaries, Arrow and Alne, Redditch, Rugby and Teme". This is a Policy 3 area: "Areas of low to moderate flood risk where we [the Environment Agency] are generally managing existing flood risk effectively."

A2.157. The RSCFMP considers that the risks are currently managed appropriately in this sub-area and that the risk of flooding is not expected to increase significantly in the long-term.

A2.158. The consideration of surface and ground water flooding issues in the RSCFMP is limited due to a lack of available information. It is therefore worth

noting that there is a general risk in Wychavon District from surface water flooding from sewers and overland flow. Groundwater flooding is not considered to be a major issue.

A2.159. The key messages in this sub-area which are relevant to mineral extraction and/or restoration are:

- to reduce dependence on raised flood defences, as this is unsustainable in the long term, by taking opportunities to restore sustainable natural storage of floodwater on undeveloped floodplains.
- Surface water flooding is a growing problem. Local authorities are mainly responsible for managing this, but it often has to be integrated with other organisations' assets, for example their sewers or rivers.
- Development/redevelopment must be managed to minimise flood risks. Methods must be sustainable over the long-term. For example, making more space for rivers through urban areas via 'blue corridors' (i.e. Restoring access for floodwater onto key strips of floodplain. This requires redevelopment to be limited to flood-compatible land-uses e.g. parkland).
- Some designated 'aquatic conservation' sites are in unfavourable condition (for example Teme SSSI). Activities that affect these sites must be changed to improve their condition.

A2.160. The proposed actions to implement the policy in this sub-area which are most relevant to mineral restoration are:

- Encourage rural and urban best practices in land-use and in land-management to restore more sustainable natural floodplains and to reduce run-off.
- Ensure that the run-off from all proposed development is minimised.
- Encourage compatibility between urban open spaces and their ability to make space for rivers to expand as flood flows occur and appraise strategies to create 'blue corridors' by developing/ redeveloping to link these flood-compatible spaces.
- Support ecological improvements. Examples of this include Severn & Avon Wetlands Project; Natural England's three fluvial SSSIs; Cotswold AONB.

Habitat quality and fragmentation

Habitat quality and fragmentation: Significant component

Table 3. Determining the level of priority to be given to habitat quality and fragmentation

		Biodiversity quality		
		High	Medium	Low
Landscape fragmentation	Low	1✓	2	3
	Medium	2	2	3
	High	2	3	3

Key messages

Biodiversity priorities identified for this area of search¹ in the Worcestershire Green Infrastructure Strategy (WGIS) focus on protecting and enhancing existing site and biodiversity interest, managing and buffering of existing habitats as a first principle and protecting and enhancing the hedgerow network. Newly created Green Infrastructure should focus on the restoration and re-linking of the functional stream corridors, in particular wet and floodplain grassland, reedbed and wet woodlands.

Water Quality

Water Quality: Determining Factor

Table 4. Determining the level of priority to be given to water quality

		Chemical Status of water bodies within area of search		
		Fail	Good	Not required
Ecological Status of water bodies within area of search	Bad or Poor	1	1	1
	Moderate	1	2✓	2
	Good	2	3	3
	High	3	-	-
	No WFD water bodies in area of search	-	-	-

Key messages

A2.161. There are six Water Framework Directive Water Courses in this Area of Search:

- River Severn – confluence with River Stour to confluence with River Teme**
 Chemical Status: Not required
 Ecological Status: Moderate potential
 Heavily modified hydromorphology. This includes a minor watercourse from South of Fernhill Heath to the River Severn.
- River Salwarpe – confluence with Elmbridge Brook to River Severn**
 Chemical Status: Good
 Ecological Status: Moderate
- Droitwich Canal**
 Chemical Status: Not required
 Ecological Status: Moderate
 Artificial
- Worcester to Birmingham Canal – Tardebigge top lock to River Severn**
 Chemical Status: Not required
 Ecological Status: Good Potential

¹ See ECA profiles 1: Teme Valley and Wyre Forest, 2: Severn Valley North and 22: Severn Meadows Corridor.

- Artificial
- **Laughern Brook – Source to confluence with River Teme**
Chemical Status: Not required
Ecological Status: Moderate
- **Grimley Brook – Source to River Severn**
Chemical Status: Not required
Ecological Status: Moderate

A2.162. Where this method results in water quality being identified as a relevant consideration for the area of search we would like to give some high-level guidance. We are aware that the Environment Agency is working on Water Improvement Plans and Water Action Plans to implement the objectives of the WFD and hope that this will be useful in helping us develop this guidance.

A2.163. However these are not currently available. If they are completed during the preparation of the Minerals Local Plan we will consider opportunities to take them into account in this methodology and the area of search restoration priority profiles.

Geodiversity

Geodiversity: Determining factor

Table 5. Determining the level of priority to be given to geodiversity

	Priority level	Performance of Area of Search
Area of search in or partially within the Cotswolds or Malvern Hills Area of Outstanding Natural Beauty	1	-
Area of search in or partially within the Abberley and Malvern Hills Geopark	1	✓
Area of search contains a geological SSSI or local geological site	2	-
Area of Search within 1km of geological SSSI or 500m of local geological site	3	-
Area of Search not in the Abberley and Malvern Hills Geopark and further than 1km from geological SSSI or 500m of local geological site	-	-

Key messages

A2.164. The way in which geodiversity can be considered in a restoration approach will vary significantly depending on the nature and location of the features to be incorporated, but it may be possible to protect certain geological features which are uncovered during extraction and incorporate them into the restoration scheme.

*Horticulture and food production***Horticulture and food production: Significant component****Table 6. Determining the level of priority to be given to horticulture and food production**

Agricultural land	Priority level	Performance of Area of Search
More than ½ of the area of search classified as grade 1 or 2	1	
½ - ¼ of the area of search classified as grade 1 or 2	2	✓
Less than 1/4 grade of the area of search classified as grade 1 or 2	3	
None of the area of search classified as grade 1 or 2	-	

Key messages

- A2.165. Minerals site development and restoration could contribute to conserving high quality soil resources and safeguarding the long term potential of best and most versatile agricultural land by:
- stripping and storing soils in line with best practice guidance,
 - reinstating the original soil asset where possible,
 - concentrating high quality soil resources in restoring some parts of the site to high grade agricultural land and delivering low intensity grazing or wetland habitats in parts of the site with lower soil quality or where the lowered land level following mineral extraction does not allow for restoration of the entire area to high quality agricultural land.

*Historic Environment***Historic Environment: Determining factor/significant component****Table 7. Determining the level of priority to be given to the historic environment**

Potential for the presence of heritage assets	Priority level	Performance of Area of Search
More than ½ of the area of search identified as high potential	1	✓
½ to ¼ of the area of search identified as high potential	2	
Less than ¼ of the area of search identified as high potential	3	

Key messages²

- A2.166. This character area is dominated by sand and gravel deposits, many of which have been exploited heavily during the twentieth century. These terraces have revealed a diverse and extensive settled landscape from the Neolithic

² See ECA profiles 1: Teme Valley and Wyre Forest, 2: Severn Valley North and 22: Severn Meadows Corridor, available on www.worcestershire.gov.uk/mineralsbackground

through to the post medieval period, with notable large prehistoric and Romano British farmsteads and field systems, as well as prehistoric funerary complexes. The meanders of the river are likely to have left a series of palaeochannel's sealed beneath later alluvial deposits.

- A2.167. The strategic importance of the river crossing at Holt is highlighted by the remnants of the medieval castle and the WWII defensive monuments.

Access and recreation

Access and Recreation: Significant component

Table 8. Determining the level of priority to be given to the historic environment

	Priority level	Performance of Area of Search
Part of the minerals area of search identified as area of search for recreation in adopted or emerging local plan	1	✓
Part of the minerals area of search identified as area of search for recreation in Worcestershire GI Strategy	1	✓
Minerals area of search is in an area where less than 75% of households meet ANGSt standards for district scale provision (sites or habitats over 20ha within 2km)	2	
In area where more than 75% of households meet ANGSt standards for district scale provision and no areas of search for recreation have been identified.		

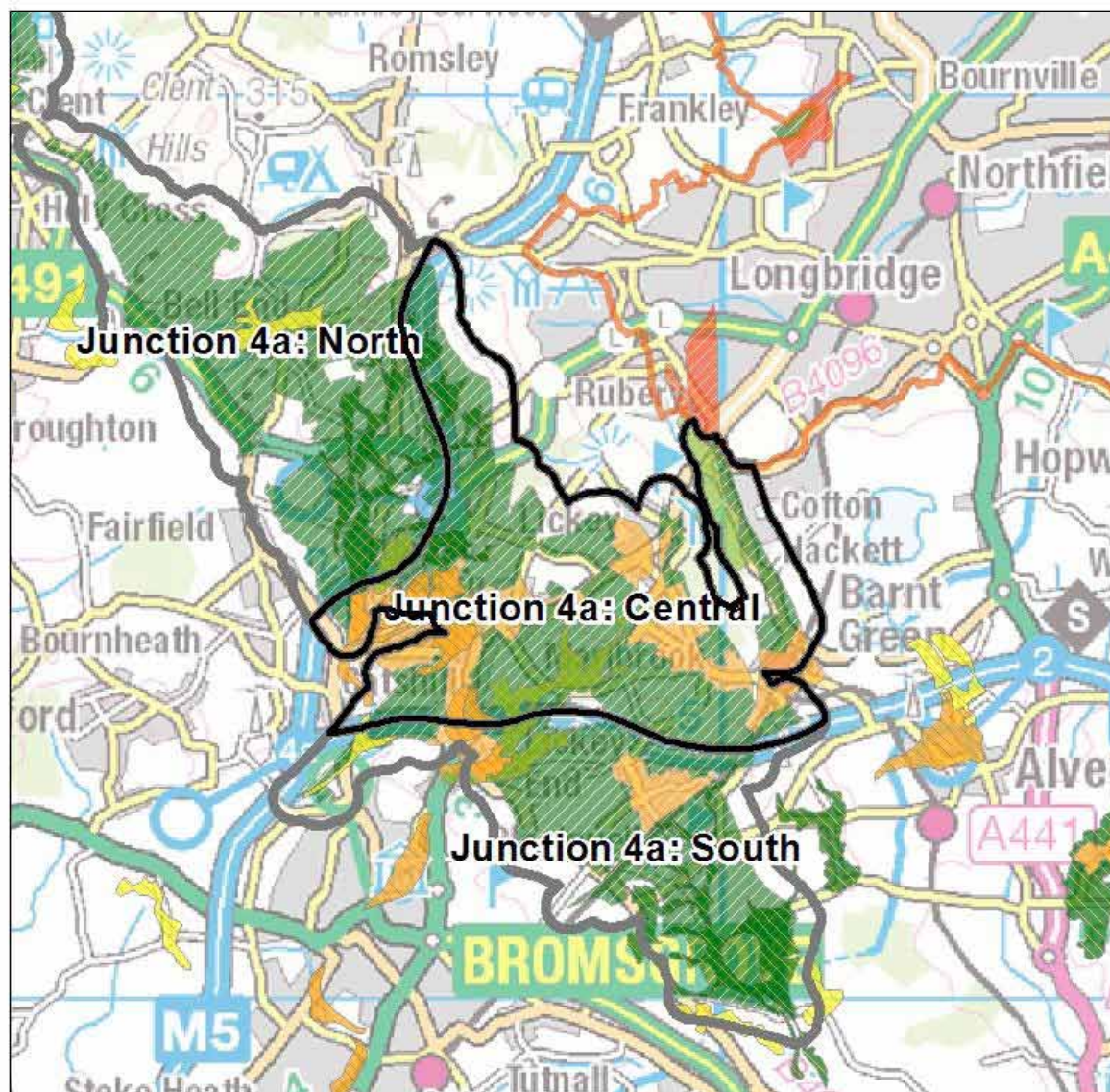
Key messages

- A2.168. In Wychavon District only 44.2% of households are within 2km of a 20ha+ access and recreation site, in Malvern Hills District this increase to 88% and 96% in Worcester City.

- A2.169. The "area of search" for a strategic recreation asset, known as Hallow Riverside Park, identified in the Worcestershire GI Framework 3 document and the emerging South Worcestershire Development Plan overlaps this minerals area of search. The Framework 3 document states that "the areas adjoining the River Severn to the north of Worcester surrounding the villages of Hallow and Grimley contains many water courses, and flooded former gravel pits. This area provides an opportunity to create an additional new resource that enhances both biodiversity and helps to provide flood storage. Provision of new recreational opportunities would also be important as the area around Worcester currently has few sub-regional assets close by and yet significant new housing growth is likely to be seen to the south, north and west of Worcester. Its location close to Worcester may also persuade people to not drive for long distances for recreation to areas such as the Malvern Hills."

- A2.170. There is potential to integrate access and recreation into broader restoration schemes.

Restoration profile for the area of search "Junction 4A: Central"



Legend

Worcestershire County Boundary

Areas of Search

Terrace and glacial sand and gravel resources

Key resource

Significant resource

Not significant

Compromised

Out of county

Solid sand resources

Key resource

Significant resource

Not significant

Compromised

Out of county

Crushed rock resources

Key resource

Significant resource

Out of county

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Overall approach

Landscape character

A2.171. The landscape character in the area of search is varied with Principal Settled Farmlands in the west, with Wooded Hills and Farmlands in the east and Settled Farmlands with Pastoral Land Use in the south.

- **Principal Settled Farmlands:** These are small to medium scale, settled agricultural landscapes of scattered farms, relic commons and clusters of wayside dwellings. These buildings are linked by a network of narrow, winding lanes which nestle within a matrix of hedged fields. Tree cover is largely restricted to thinly scattered hedgerow trees and groups of trees around dwellings. The land use is primarily one of mixed farming.

The landscape guidelines in this landscape character type are to:

- Conserve and enhance the pattern of hedgerows.
- Retain the integrity of the dispersed pattern of settlement.
- Conserve and enhance tree cover along watercourses.
- Enhance patterns of tree cover associated with settlement.
- Seek opportunities to conserve all remaining areas of permanent pasture.

- **Wooded Hills and Farmlands:** These are medium to large scale upstanding, wooded landscapes with a sloping topography and well defined character. They are similar to the Principal Wooded Hills, but with more of an emphasis on farmland. The woods tend to occur as discrete blocks framing larger areas of enclosed fields. The latter are often associated with a small village or hamlet. There is a sense of balance, with a character that is less extreme than the Principal Wooded Hills.

The landscape guidelines in this landscape character type are to:

- Conserve existing blocks of woodland.
- Seek opportunities to restore the balance of woodland cover throughout these landscapes.
- Conserve and restore the ancient woodland character of all woodlands.
- Conserve the historic pattern of large hedged fields, with priority being given to strengthening and restoring primary hedge lines.
- Enhance tree cover along watercourses and dingles.
- Conserve all remaining areas of permanent pasture.

- **Settled Farmlands with Pastoral Land Use:** These are small-scale rolling lowland, settled agricultural landscapes with a dominant pastoral land use, defined by their hedged fields. Hedgerow and streamside trees, together with those associated with settlement provide tree cover in a landscape with a notable network of winding lanes, scattered farms and clusters of wayside settlements.

The landscape guidelines in this landscape character type are to:

- Conserve and enhance the pattern of hedgerows.
- Maintain overall pastoral land use.

- Seek opportunities to conserve all remaining areas of permanent pasture.
- Conserve and enhance tree cover along watercourses.
- Conserve hedgerow tree populations and promote new hedgerow tree planting.
- Retain the integrity of the dispersed pattern of settlement.

Summary of priority levels

Table 1. Restoration priorities in Junction 4a: Central

Determining Factors			
Flood alleviation	Habitat quality and fragmentation	Historic environment	Access and recreation
Significant components			
Water quality			
Integrate wherever possible			
Geodiversity		Horticulture and food production	

Detail

Flood alleviation

Flood alleviation: Determining Factor

Table 2. Determining the level of priority to be given to flood alleviation

Category	Priority level	Performance of Area of Search
The River Severn Catchment Flood Management Plan Policy 4 or 5 area	1	✓
The River Severn Catchment Flood Management Plan Policy 3 area	2	
The River Severn Catchment Flood Management Plan Policy 2 area	3	
The River Severn Catchment Flood Management Plan Policy 1 area	-	

This Area of Search falls into two Policy Areas in the Environment Agency River Severn Catchment Flood Management Plan, areas 3 and 5. Area 5 is the more significant and has been used to define the priority.

Key messages

A2.172. This area of Search is fairly evenly divided between two Environment Agency policy areas, sub-area 5 of the River Severn Catchment Flood Management Plan (RSCFMP): "Telford and Black Country, Bromsgrove, Kidderminster and Coventry Cluster" and sub-area 8 of the River Severn Catchment Flood Management Plan (RSCFMP): "Middle Avon, Tributaries, Arrow and Alne, Redditch, Rugby and Teme"

The part of this area of search in sub-area 8 of the River Severn Catchment Flood Management Plan (RSCFMP): "Middle Avon, Tributaries, Arrow and Alne, Redditch, Rugby and Teme" is in a Policy 3 area: "Areas of low to moderate flood risk where we [the Environment Agency] are generally managing existing flood risk effectively." The RSCFMP considers that this is an areas of moderate to high flood risk where we (the Environment Agency) can generally take further action to reduce flood risk.

A2.173. The key messages in this RSCFMP sub-area which are relevant to mineral extraction and/or restoration are:

- Ensure floodplains are not inappropriately developed.
- Encourage compatibility between urban open spaces and their ability to make space for rivers to expand as flood flows occur.
- Develop strategies to create 'blue corridors' by developing/redeveloping to link these flood-compatible spaces.
- Manage fly-tipping [on floodplains and in channels.] Avoid excessive silt accumulation in artificial channels [Either by channel modifications or by de-silting.] Focus on bottlenecks

A2.174. The part of this area of search in sub-area 8 of the River Severn Catchment Flood Management Plan (RSCFMP): "Middle Avon, Tributaries, Arrow and Alne, Redditch, Rugby and Teme" is in a Policy 3 area: "Areas of low to moderate flood risk where we [the Environment Agency] are generally managing existing flood risk effectively." The RSCFMP considers that the risks are currently managed appropriately in this sub-area and that the risk of flooding is not expected to increase significantly in the long-term.

A2.175. The key messages in this sub-area which are relevant to mineral extraction and/or restoration are:

- to reduce dependence on raised flood defences, as this is unsustainable in the long term, by taking opportunities to restore sustainable natural storage of floodwater on undeveloped floodplains.
- Surface water flooding is a growing problem. Local authorities are mainly responsible for managing this, but it often has to be integrated with other organisations' assets, for example their sewers or rivers.
- Development/redevelopment must be managed to minimise flood risks. Methods must be sustainable over the long-term. For example, making more space for rivers through urban areas via 'blue corridors' (i.e. restoring access for floodwater onto key strips of floodplain. This requires redevelopment to be limited to flood-compatible land-uses e.g. parkland).
- Some designated 'aquatic conservation' sites are in unfavourable condition (for example Teme SSSI). Activities that affect these sites must be changed to improve their condition.

A2.176. The proposed actions to implement the policy in this sub-area which are most relevant to mineral restoration are:

- Encourage rural and urban best practices in land-use and in land-management to restore more sustainable natural floodplains and to reduce run-off.
- Ensure that the run-off from all proposed development is minimised.

- Encourage compatibility between urban open spaces and their ability to make space for rivers to expand as flood flows occur and appraise strategies to create 'blue corridors' by developing/ redeveloping to link these flood-compatible spaces.
- Support ecological improvements. Examples of this include Severn & Avon Wetlands Project; Natural England's three fluvial SSSIs; Cotswold AONB.

A2.177. The consideration of surface and ground water flooding issues in the RSCFMP is limited due to a lack of available information. The majority of flooding from watercourses within Bromsgrove town has occurred along the Spadesbourne Brook, the Sugar Brook and the River Salwarpe; part of the Spadesbourne Brook flows through this Area of Search. Groundwater flooding is not a particular cause for concern within this area; the underlying aquifer tends to drain when water levels within it become too high. The Environment Agency has also stated that due to the high levels of abstraction from this aquifer for water supply, the groundwater levels have never reached the surface.

Habitat quality and fragmentation

Habitat quality and fragmentation: Determining factor

Table 3. Determining the level of priority to be given to habitat quality and fragmentation

		Biodiversity quality		
		High	Medium	Low
Landscape fragmentation	Low	1✓	2	3
	Medium	2	2	3
	High	2	3	3

Key messages

A2.178. Biodiversity priorities identified for this area of search¹ in the Worcestershire Green Infrastructure Strategy (WGIS) focus on managing and buffering of existing habitats as a first principle, with newly created Green Infrastructure augmenting the existing resource, and linking priority habitats. Protecting and enhancing smaller areas of biodiversity interest, such as heathland, wet woodland, marsh and unimproved grassland is a priority.

¹ See ECA profile 3: North Worcestershire Hills and 12 Bromsgrove – Redditch Corridor, available on www.worcestershire.gov.uk/mineralsbackground.

Water Quality

Water Quality: Significant Component

Table 4. Determining the level of priority to be given to water quality

		Chemical Status of water bodies within area of search		
		Fail	Good	Not required
Ecological Status of water bodies within area of search	Bad or Poor	1	1	1
	Moderate	1	2	2✓
	Good	2	3	3
	High	3	-	-
	No WFD water bodies in area of search	-	-	-

Key messages

A2.179. There are two Water Framework Directive Water Courses in this Area of Search:

- Battlefield Brook – source to confluence with Spadesbourne Brook:**
 Chemical Status: Not required
 Ecological Status: Moderate
 There is only a very small part of this watercourse in a small part of this Area of Search, near Junction 4A of the motorway.
- Spadesbourne Brook – source to confluence Battlefield Brook**
 Chemical Status: Not Required
 Ecological Status: Moderate Potential
 Heavily Modified Hydromorphological status

A2.180. Where this method results in water quality being identified as a relevant consideration for the area of search we would like to give some high-level guidance. We are aware that the Environment Agency is working on Water Improvement Plans and Water Action Plans to implement the objectives of the WFD and hope that this will be useful in helping us develop this guidance.

A2.181. However these are not currently available. If they are completed during the preparation of the Minerals Local Plan we will consider opportunities to take them into account in this methodology and the area of search restoration priority profiles.

Geodiversity

Geodiversity: Integrate wherever possible

Table 5. Determining the level of priority to be given to geodiversity

	Priority level	Performance of Area of Search
Area of search in or partially within the Cotswolds or Malvern Hills Area of Outstanding Natural Beauty	1	-
Area of search in or partially within the Abberley and Malvern Hills Geopark	1	-
Area of search contains a geological SSSI or local geological site	2	-
Area of Search within 1km of geological SSSI or 500m of local geological site	3	✓
Area of Search not in the Abberley and Malvern Hills Geopark and further than 1km from geological SSSI or 500m of local geological site	-	-

Key messages

A2.182. The Shepley Sandpit and Knoll local geological site is just south of this area of search. It is associated with historic mineral working. This working took place before mineral extraction was regulated by the planning regime.

A2.183. The way in which geodiversity can be considered in a restoration approach will vary significantly depending on the nature and location of the features to be incorporated, but it may be possible to protect certain geological features which are uncovered during extraction and incorporate them into the restoration scheme.

Horticulture and food production

Horticulture and food production: Integrate wherever possible

Table 6. Determining the level of priority to be given to horticulture and food production

Agricultural land	Priority level	Performance of Area of Search
More than ½ of the area of search classified as grade 1 or 2	1	
½ - ¼ of the area of search classified as grade 1 or 2	2	
Less than 1/4 grade of the area of search classified as grade 1 or 2	3	✓
None of the area of search classified as grade 1 or 2	-	

Key messages

- A2.184. Minerals site development and restoration could contribute to conserving high quality soil resources and safeguarding the long term potential of best and most versatile agricultural land by:
- stripping and storing soils in line with best practice guidance,
 - reinstating the original soil asset where possible,
 - concentrating high quality soil resources in restoring some parts of the site to high grade agricultural land and delivering low intensity grazing or wetland habitats in parts of the site with lower soil quality or where the lowered land level following mineral extraction does not allow for restoration of the entire area to high quality agricultural land.

Historic Environment**Historic Environment: Determining factor****Table 7. Determining the level of priority to be given to the historic environment**

Potential for the presence of heritage assets	Priority level	Performance of Area of Search
More than ½ of the area of search identified as high potential	1	
½ to ¼ of the area of search identified as high potential	2	✓
Less than ¼ of the area of search identified as high potential	3	

Key messages²

- A2.185. The archaeological character and potential of this area is relatively poorly understood. The north-western area of this character area contains coal deposits that have been exploited historically, and as such the landscape is one that reflects its industrial past, principally along the Wasslegrove Dingle.
- A2.186. Occasional finds of prehistoric flints and buried remains indicate that this area was utilised during this period, but to date no significant settlement sites have been found.
- A2.187. Where sandstone outcrops occur historic quarries have the potential to contain remains of industrial archaeological significance.

² See ECA profile 3: North Worcestershire Hills and 12 Bromsgrove – Redditch Corridor.

*Access and recreation***Access and Recreation: Significant component****Table 8. Determining the level of priority to be given to the historic environment**

	Priority level	Performance of Area of Search
Part of the minerals area of search identified as area of search for recreation in adopted or emerging local plan	1	
Part of the minerals area of search identified as area of search for recreation in Worcestershire GI Strategy	1	✓
Minerals area of search is in an area where less than 75% of households meet ANGSt standards for district scale provision (sites or habitats over 20ha within 2km)	2	
In area where more than 75% of households meet ANGSt standards for district scale provision and no areas of search for recreation have been identified.	3	

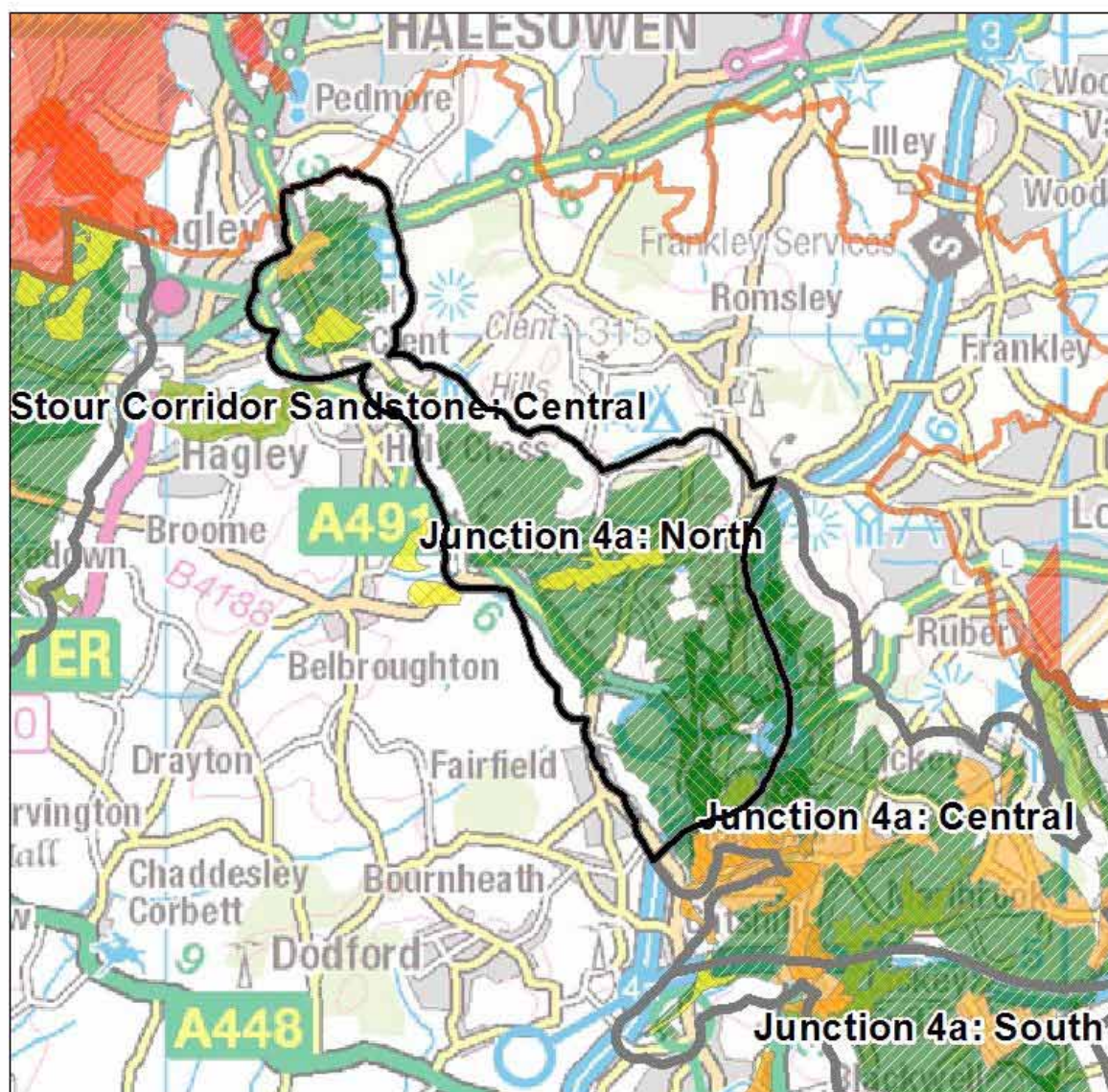
Key messages

A2.188. In Bromsgrove District only 44% of households are within 2km of a 20ha+ access and recreation site. There is potential to integrate access and recreation into broader restoration schemes.

A2.189. In addition GI Framework Document 3 identifies five "area of search" for strategic recreation facilities. The Lickey Hill extension opportunity area extends through part of this minerals area of search.

A2.190. The location of the Lickey Hills on the south west edge of Birmingham means it is heavily used and likely to come under increased pressure as growth in Birmingham (such as at Longbridge) and in Bromsgrove District increases visitor numbers. Waseley Hills Country Park and the Lickey Hills form a green skirt around the urban area between Frankley and Longbridge. Extending this green corridor and the publicly accessible open space east of the Lickey Hills to encompass the Upper and Lower Bittell reservoirs will help reduce existing pressure on the Lickey Hills whilst providing additional space to absorb the increased visitors especially from the new development at Longbridge. Centering the open space around Upper and Lower Bittell reservoirs and the Worcester and Birmingham Canal will provide a sufficiently different visitor experience to the Lickey Hills in order to make it an attractive alternative for visitors. Enhancing the areas surrounding the Worcester and Birmingham Canal south to Worcester will add another dimension to this area creating a starting and finishing point to longer distance walking, cycling and boating activities.

Restoration profile for the area of search "Junction 4A: North"



Legend

Worcestershire County Boundary

Areas of Search

Terrace and glacial sand and gravel resources

Key resource

Significant resource

Not significant

Compromised

Out of county

Solid sand resources

Key resource

Significant resource

Not significant

Compromised

Out of county

Crushed rock resources

Key resource

Significant resource

Out of county

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Overall approach

Landscape character

A2.191. The landscape character of this area is predominantly Principal Settled Farmlands, with small areas of Wooded Hills in the west and very small areas of Estate Farmlands in the north:

- **Principal Settled Farmlands:** These are small to medium scale, settled agricultural landscapes of scattered farms, relic commons and clusters of wayside dwellings. These buildings are linked by a network of narrow, winding lanes which nestle within a matrix of hedged fields. Tree cover is largely restricted to thinly scattered hedgerow trees and groups of trees around dwellings. The land use is primarily one of mixed farming.

The landscape guidelines in this landscape character type are to:

- Conserve and enhance the pattern of hedgerows.
 - Retain the integrity of the dispersed pattern of settlement.
 - Conserve and enhance tree cover along watercourses.
 - Enhance patterns of tree cover associated with settlement.
 - Seek opportunities to conserve all remaining areas of permanent pasture.
- **Wooded Hills and Farmlands:** These are medium to large scale upstanding, wooded landscapes with a sloping topography and well defined character. They are similar to the Principal Wooded Hills, but with more of an emphasis on farmland. The woods tend to occur as discrete blocks framing larger areas of enclosed fields. The latter are often associated with a small village or hamlet. There is a sense of balance, with a character that is less extreme than the Principal Wooded Hills.

The landscape guidelines in this landscape character type are to:

- Conserve existing blocks of woodland.
- Seek opportunities to restore the balance of woodland cover throughout these landscapes.
- Conserve and restore the ancient woodland character of all woodlands.
- Conserve the historic pattern of large hedged fields, with priority being given to strengthening and restoring primary hedge lines.
- Enhance tree cover along watercourses and dingles.
- Conserve all remaining areas of permanent pasture.

Summary of priority levels

Table 1. Restoration priorities in Junction 4a North

Determining Factors		
Flood alleviation	Habitat Quality and Fragmentation	Historic environment

Significant components		
Horticulture and food production	Water quality	Access and recreation

Detail

Flood alleviation

Flood alleviation: Determining Factor

Table 2. Determining the level of priority to be given to flood alleviation

Category	Priority level	Performance of Area of Search
The River Severn Catchment Flood Management Plan Policy 4 or 5 area	1	✓
The River Severn Catchment Flood Management Plan Policy 3 area	2	
The River Severn Catchment Flood Management Plan Policy 2 area	3	
The River Severn Catchment Flood Management Plan Policy 1 area	-	

Key messages

A2.192. This area of Search is in sub-area 5 of the River Severn Catchment Flood Management Plan (RSCFMP): "Telford and Black Country, Bromsgrove, Kidderminster and Coventry Cluster" is a Policy area 5 area in the RSCFMP.

A2.193. The RSCFMP consider that this is an area of moderate to high flood risk where we (the Environment Agency) can generally take further action to reduce flood risk.

A2.194. The key messages in this sub-area which are relevant to mineral extraction and/or restoration are:

- Ensure floodplains are not inappropriately developed.
 - Encourage compatibility between urban open spaces and their ability to make space for rivers to expand as flood flows occur.
 - Develop strategies to create 'blue corridors' by developing/redeveloping to link these flood-compatible spaces.
- Manage fly-tipping [on floodplains and in channels.] Avoid excessive silt accumulation in artificial channels [Either by channel modifications or by de-silting.] Focus on bottlenecks

A2.195. The consideration of surface and ground water flooding issues in the RSCFMP is limited due to a lack of available information. The majority of flooding from watercourses within Bromsgrove town has occurred along the Spadesbourne Brook, the Sugar Brook and the River Salwarpe none of which are within this Area of Search.

A2.196. Groundwater flooding is not a particular cause for concern within this area; the underlying aquifer tends to drain when water levels within it become too high. The Environment Agency has also stated that due to the high levels of abstraction from this aquifer for water supply, the groundwater levels have never reached the surface.

Habitat quality and fragmentation

Habitat quality and fragmentation: Determining Factor

Table 3. Determining the level of priority to be given to habitat quality and fragmentation

		Biodiversity quality		
		High	Medium	Low
Landscape fragmentation	Low	1✓	2	3
	Medium	2	2	3
	High	2	3	3

Key messages

A2.197. Biodiversity priorities identified for this area of search¹ in the Worcestershire Green Infrastructure Strategy (WGIS) focus on pursuing the appropriate management of heathlands and enhancing wetland woodland, marsh and unimproved grasslands. They also seek opportunities to enhance and protect the hedgerow field boundaries and protect and strengthen woodland through the eventual removal of conifers and non-native tree species and replacement with appropriate non-native species.

A2.198. In the north of this area of search the reversion of the Hagley designed landscape park from arable to grazing is encouraged.

¹ See ECA profile 3: North Worcestershire Hills and 10: Hagley Hinterland

Water Quality

Water Quality: Significant Component

Table 4. Determining the level of priority to be given to water quality

		Chemical Status of water bodies within area of search		
		Fail	Good	Not required
Ecological Status of water bodies within area of search	Bad or Poor	1	1	1
	Moderate	1	2	2✓
	Good	2	3	3
	High	3	-	-
	No WFD water bodies in area of search	-	-	-

Key messages

- A2.199. There is one Water Framework Directive Water Courses in this Area of Search:
- Battlefield Brook – source to confluence with Spadesbourne Brook:**
 Chemical Status: Not required
 Ecological Status: Moderate
 There is only a very small part of this watercourse in a small part of this Area of Search, at Upper Catshill
- A2.200. Where this method results in water quality being identified as a relevant consideration for the area of search we would like to give some high-level guidance. We are aware that the Environment Agency is working on Water Improvement Plans and Water Action Plans to implement the objectives of the WFD and hope that this will be useful in helping us develop this guidance.
- A2.201. However these are not currently available. If they are completed during the preparation of the Minerals Local Plan we will consider opportunities to take them into account in this methodology and the area of search restoration priority profiles.

Geodiversity

Geodiversity: Significant component

Table 5. Determining the level of priority to be given to geodiversity

	Priority level	Performance of Area of Search
Area of search in or partially within the Cotswolds or Malvern Hills Area of Outstanding Natural Beauty	1	-
Area of search in or partially within the Abberley and Malvern Hills Geopark	1	-
Area of search contains a geological SSSI or local geological site	2	✓
Area of Search within 1km of geological SSSI or 500m of local geological site	3	-
Area of Search not in the Abberley and Malvern Hills Geopark and further than 1km from geological SSSI or 500m of local geological site	-	-

Key messages

A2.202. The Madeley Heath pit geological SSSI is found in this area of search. It is associated with historic mineral working. These working took place before mineral extraction was regulated by the planning regime.

A2.203. The way in which geodiversity can be considered in a restoration approach will vary significantly depending on the nature and location of the features to be incorporated, but it may be possible to protect certain geological features which are uncovered during extraction and incorporate them into the restoration scheme.

Horticulture and food production

Horticulture and food production: Significant Component

Table 6. Determining the level of priority to be given to horticulture and food production

Agricultural land	Priority level	Performance of Area of Search
More than ½ of the area of search classified as grade 1 or 2	1	
½ - ¼ of the area of search classified as grade 1 or 2	2	✓
Less than 1/4 grade of the area of search classified as grade 1 or 2	3	
None of the area of search classified as grade 1 or 2	-	

Key messages

A2.204. Minerals site development and restoration could contribute to conserving high quality soil resources and safeguarding the long term potential of best and most versatile agricultural land by:

- stripping and storing soils in line with best practice guidance,
- reinstating the original soil asset where possible,
- concentrating high quality soil resources in restoring some parts of the site to high grade agricultural land and delivering low intensity grazing or wetland habitats in parts of the site with lower soil quality or where the lowered land level following mineral extraction does not allow for restoration of the entire area to high quality agricultural land.

Historic Environment

Historic Environment: Determining factor

Table 7. Determining the level of priority to be given to the historic environment

Potential for the presence of heritage assets	Priority level	Performance of Area of Search
More than ½ of the area of search identified as high potential	1	✓
½ to ¼ of the area of search identified as high potential	2	
Less than ¼ of the area of search identified as high potential	3	

Key messages²

A2.205. The archaeological character and potential of this area is relatively poorly understood. Occasional finds of prehistoric flints and buried remains indicate that this area was utilised during this period, but to date no significant settlement sites have been found.

A2.206. Where sandstone outcrops occur historic quarries have the potential to contain remains of industrial archaeological significance.

² See ECA profile 3: North Worcestershire Hills and 10: Hagley Hinterland, available on www.worcestershire.gov.uk/mineralsbackground

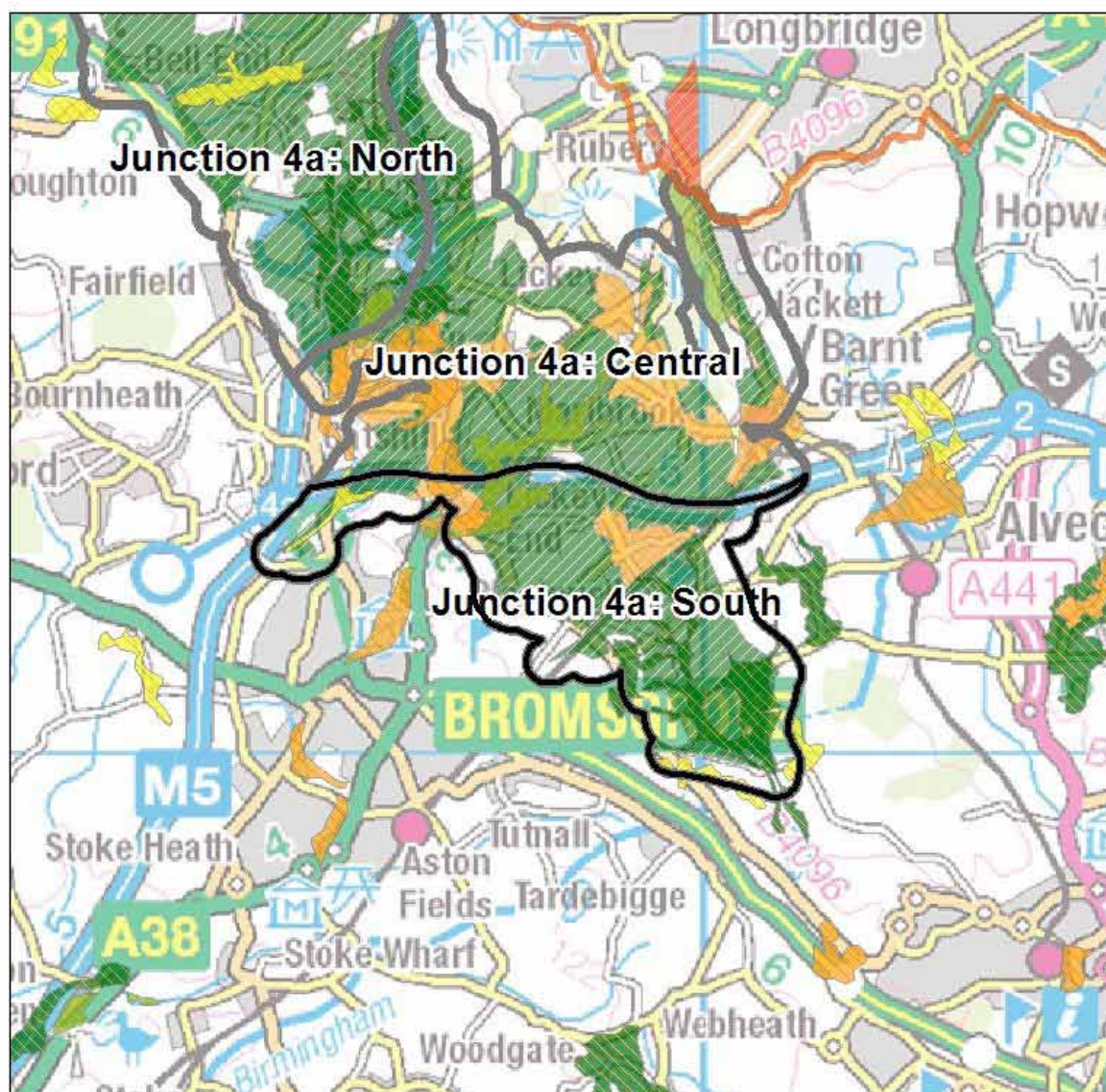
Access and recreation**Access and Recreation: Significant component****Table 8. Determining the level of priority to be given to the historic environment**

	Priority level	Performance of Area of Search
Part of the minerals area of search identified as area of search for recreation in adopted or emerging local plan	1	
Part of the minerals area of search identified as area of search for recreation in Worcestershire GI Strategy	1	
Minerals area of search is in an area where less than 75% of households meet ANGSt standards for district scale provision (sites or habitats over 20ha within 2km)	2	✓
In area where more than 75% of households meet ANGSt standards for district scale provision and no areas of search for recreation have been identified.	3	

Key messages

A2.207. In Bromsgrove District only 44% of households are within 2km of a 20ha+ access and recreation site. There is potential to integrate access and recreation into broader restoration schemes.

Restoration profile for the area of search "Junction 4A: South"



Legend

Worcestershire County Boundary

Areas of Search

Terrace and glacial sand and gravel resources

Key resource

Significant resource

Not significant

Compromised

Out of county

Solid sand resources

Key resource

Significant resource

Not significant

Compromised

Out of county

Crushed rock resources

Key resource

Significant resource

Out of county

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Overall approach

Landscape character

A2.208. The landscape character of this area is predominantly Principal Settled Farmlands in the west and Settled Farmlands with pastoral land use in the North. There are small areas of Principal Timbered Farmlands in the east and wooded estate lands in the south:

- **Principal Settled Farmlands:** These are small to medium scale, settled agricultural landscapes of scattered farms, relic commons and clusters of wayside dwellings. These buildings are linked by a network of narrow, winding lanes which nestle within a matrix of hedged fields. Tree cover is largely restricted to thinly scattered hedgerow trees and groups of trees around dwellings. The land use is primarily one of mixed farming.

The landscape guidelines in this landscape character type are to:

- Conserve and enhance the pattern of hedgerows.
- Retain the integrity of the dispersed pattern of settlement.
- Conserve and enhance tree cover along watercourses.
- Enhance patterns of tree cover associated with settlement.
- Seek opportunities to conserve all remaining areas of permanent pasture.

- **Settled Farmlands with Pastoral Land Use:** These are small-scale rolling lowland, settled agricultural landscapes with a dominant pastoral land use, defined by their hedged fields. Hedgerow and streamside trees, together with those associated with settlement provide tree cover in a landscape with a notable network of winding lanes, scattered farms and clusters of wayside settlements.

The landscape guidelines in this landscape character type are to:

- Conserve and enhance the pattern of hedgerows.
- Maintain overall pastoral land use.
- Seek opportunities to conserve all remaining areas of permanent pasture.
- Conserve and enhance tree cover along watercourses.
- Conserve hedgerow tree populations and promote new hedgerow tree planting.
- Retain the integrity of the dispersed pattern of settlement.

Summary of priority levels

Table 1. Restoration priorities in Junction 4a: South.

Determining Factors			
Flood alleviation	Habitat quality and fragmentation	Historic environment	Access and recreation
Significant components			
Water quality	Geodiversity	Horticulture and food production	

Detail***Flood alleviation*****Flood alleviation: Determining Factor****Table 2. Determining the level of priority to be given to flood alleviation**

Category	Priority level	Performance of Area of Search
The River Severn Catchment Flood Management Plan Policy 4 or 5 area	1	✓
The River Severn Catchment Flood Management Plan Policy 3 area	2	
The River Severn Catchment Flood Management Plan Policy 2 area	3	
The River Severn Catchment Flood Management Plan Policy 1 area	-	

This Area of Search falls into two Policy Areas in the Environment Agency River Severn Catchment Flood Management Plan, areas 3 and 5. Area 5 is the more significant and has been used to define the priority.

Key messages

A2.209. This area of Search is fairly evenly divided between two Environment Agency policy areas, sub-area 5 of the River Severn Catchment Flood Management Plan (RSCFMP): "Telford and Black Country, Bromsgrove, Kidderminster and Coventry Cluster" and sub-area 8 of the River Severn Catchment Flood Management Plan (RSCFMP): "Middle Avon, Tributaries, Arrow and Alne, Redditch, Rugby and Teme"

The part of this area of search in sub-area 8 of the River Severn Catchment Flood Management Plan (RSCFMP): "Middle Avon, Tributaries, Arrow and Alne, Redditch, Rugby and Teme" is in a Policy 3 area: "Areas of low to moderate flood risk where we [the Environment Agency] are generally managing existing flood risk effectively." The RSCFMP considers that this is an areas of moderate to high flood risk where we (the Environment Agency) can generally take further action to reduce flood risk.

A2.210. The key messages in this RSCFMP sub-area which are relevant to mineral extraction and/or restoration are:

- Ensure floodplains are not inappropriately developed.
- Encourage compatibility between urban open spaces and their ability to make space for rivers to expand as flood flows occur.
- Develop strategies to create 'blue corridors' by developing/redeveloping to link these flood-compatible spaces.
- Manage fly-tipping [on floodplains and in channels.] Avoid excessive silt accumulation in artificial channels [Either by channel modifications or by de-silting.] Focus on bottlenecks

A2.211. The part of this area of search in sub-area 8 of the River Severn Catchment Flood Management Plan (RSCFMP): "Middle Avon, Tributaries, Arrow and Alne, Redditch, Rugby and Teme" is in a Policy 3 area: "Areas of low to moderate flood risk where we [the Environment Agency] are generally managing existing flood risk effectively." The RSCFMP considers that the risks are currently managed appropriately in this sub-area and that the risk of flooding is not expected to increase significantly in the long-term.

A2.212. The key messages in this sub-area which are relevant to mineral extraction and/or restoration are:

- to reduce dependence on raised flood defences, as this is unsustainable in the long term, by taking opportunities to restore sustainable natural storage of floodwater on undeveloped floodplains.
- Surface water flooding is a growing problem. Local authorities are mainly responsible for managing this, but it often has to be integrated with other organisations' assets, for example their sewers or rivers.
- Development/redevelopment must be managed to minimise flood risks. Methods must be sustainable over the long-term. For example, making more space for rivers through urban areas via 'blue corridors' (i.e. restoring access for floodwater onto key strips of floodplain. This requires redevelopment to be limited to flood-compatible land-uses e.g. parkland).
- Some designated 'aquatic conservation' sites are in unfavourable condition (for example Teme SSSI). Activities that affect these sites must be changed to improve their condition.

A2.213. The proposed actions to implement the policy in this sub-area which are most relevant to mineral restoration are:

- Encourage rural and urban best practices in land-use and in land-management to restore more sustainable natural floodplains and to reduce run-off.
- Ensure that the run-off from all proposed development is minimised.
- Encourage compatibility between urban open spaces and their ability to make space for rivers to expand as flood flows occur and appraise strategies to create 'blue corridors' by developing/ redeveloping to link these flood-compatible spaces.
- Support ecological improvements. Examples of this include Severn & Avon Wetlands Project; Natural England's three fluvial SSSIs; Cotswold AONB.

A2.214. The consideration of surface and ground water flooding issues in the RSCFMP is limited due to a lack of available information. The majority of flooding from watercourses within Bromsgrove town has occurred along the Spadesbourne Brook, the Sugar Brook and the River Salwarpe; part of the Spadesbourne Brook flows through this Area of Search. Groundwater flooding is not a particular cause for concern within this area; the underlying aquifer tends to drain when water levels within it become too high. The Environment Agency has also stated that due to the high levels of abstraction from this aquifer for water supply, the groundwater levels have never reached the surface.

Habitat quality and fragmentation

Habitat quality and fragmentation: Determining factors

Table 3. Determining the level of priority to be given to habitat quality and fragmentation

		Biodiversity quality		
		High	Medium	Low
Landscape fragmentation	Low	1✓	2	3
	Medium	2	2	3
	High	2	3	3

Key messages

A2.215. Biodiversity priorities identified for this area of search¹ in the Worcestershire Green Infrastructure Strategy (WGIS) focus on managing, buffering and merging of existing habitats to restore habitat connectivity. Newly created Green Infrastructure should augmenting the existing resource, and linking priority habitats. Protecting and enhancing smaller areas of biodiversity interest, such as heathland, wet woodland, marsh and unimproved grassland is also a priority.

Water Quality

Water Quality: Significant Component

Table 4. Determining the level of priority to be given to water quality

		Chemical Status of water bodies within area of search		
		Fail	Good	Not required
Ecological Status of water bodies within area of search	Bad or Poor	1	1	1
	Moderate	1	2	2✓
	Good	2	3	3
	High	3	-	-
	No WFD water bodies in area of search	-	-	-

Key messages

A2.216. There are two Water Framework Directive Water Courses in this Area of Search:

¹ See ECA profile 3: North Worcestershire Hills, 4: Forest of Feckenham and 12 Bromsgrove – Redditch Corridor.

- **Battlefield Brook – source to confluence with Spadesbourne Brook:**
Chemical Status: Not required
Ecological Status: Moderate
- **Spadesbourne Brook – source to confluence Battlefield Brook**
Chemical Status: Not Required
Ecological Status: Moderate Potential
Heavily Modified Hydromorphological status

A2.217. Where this method results in water quality being identified as a relevant consideration for the area of search we would like to give some high-level guidance. We are aware that the Environment Agency is working on Water Improvement Plans and Water Action Plans to implement the objectives of the WFD and hope that this will be useful in helping us develop this guidance.

A2.218. However these are not currently available. If they are completed during the preparation of the Minerals Local Plan we will consider opportunities to take them into account in this methodology and the area of search restoration priority profiles.

Geodiversity

Geodiversity: Significant Component

Table 5. Determining the level of priority to be given to geodiversity

	Priority level	Performance of Area of Search
Area of search in or partially within the Cotswolds or Malvern Hills Area of Outstanding Natural Beauty	1	-
Area of search in or partially within the Abberley and Malvern Hills Geopark	1	-
Area of search contains a geological SSSI or local geological site	2	✓
Area of Search within 1km of geological SSSI or 500m of local geological site	3	-
Area of Search not in the Abberley and Malvern Hills Geopark and further than 1km from geological SSSI or 500m of local geological site	-	-

Key messages

A2.219. The Shepley Sandpit and Knoll local geological site is in this area of search. It is associated with historic mineral working. This working took place before mineral extraction was regulated by the planning regime.

A2.220. The way in which geodiversity can be considered in a restoration approach will vary significantly depending on the nature and location of the features to be incorporated, but it may be possible to protect certain geological features which are uncovered during extraction and incorporate them into the restoration scheme.

*Horticulture and food production***Horticulture and food production: Significant component****Table 6. Determining the level of priority to be given to horticulture and food production**

Agricultural land	Priority level	Performance of Area of Search
More than ½ of the area of search classified as grade 1 or 2	1	
½ - ¼ of the area of search classified as grade 1 or 2	2	✓
Less than 1/4 grade of the area of search classified as grade 1 or 2	3	
None of the area of search classified as grade 1 or 2	-	

Key messages

- A2.221. Minerals site development and restoration could contribute to conserving high quality soil resources and safeguarding the long term potential of best and most versatile agricultural land by:
- stripping and storing soils in line with best practice guidance,
 - reinstating the original soil asset where possible,
 - concentrating high quality soil resources in restoring some parts of the site to high grade agricultural land and delivering low intensity grazing or wetland habitats in parts of the site with lower soil quality or where the lowered land level following mineral extraction does not allow for restoration of the entire area to high quality agricultural land.

*Historic Environment***Historic Environment: Determining factor****Table 7. Determining the level of priority to be given to the historic environment**

Potential for the presence of heritage assets	Priority level	Performance of Area of Search
More than ½ of the area of search identified as high potential	1	✓
½ to ¼ of the area of search identified as high potential	2	
Less than ¼ of the area of search identified as high potential	3	

Key messages²

- A2.222. The archaeological character and potential of this area is relatively poorly understood. The north-western area of this character area contains coal deposits

² See ECA profile 3: North Worcestershire Hills, 4: Forest of Feckenham and 12 Bromsgrove – Redditch Corridor, available on www.worcestershire.gov.uk/mineralsbackground.

that have been exploited historically, and as such the landscape is one that reflects its industrial past, principally along the Wasslegrove Dingle.

A2.223. Occasional finds of prehistoric flints and buried remains indicate that this area was utilised during this period, but to date no significant settlement sites have been found.

A2.224. Where sandstone outcrops occur historic quarries have the potential to contain remains of industrial archaeological significance.

Access and recreation

Access and Recreation: Significant component

Table 8. Determining the level of priority to be given to the historic environment

	Priority level	Performance of Area of Search
Part of the minerals area of search identified as area of search for recreation in adopted or emerging local plan	1	
Part of the minerals area of search identified as area of search for recreation in Worcestershire GI Strategy	1	✓
Minerals area of search is in an area where less than 75% of households meet ANGSt standards for district scale provision (sites or habitats over 20ha within 2km)	2	
In area where more than 75% of households meet ANGSt standards for district scale provision and no areas of search for recreation have been identified.	3	

Key messages

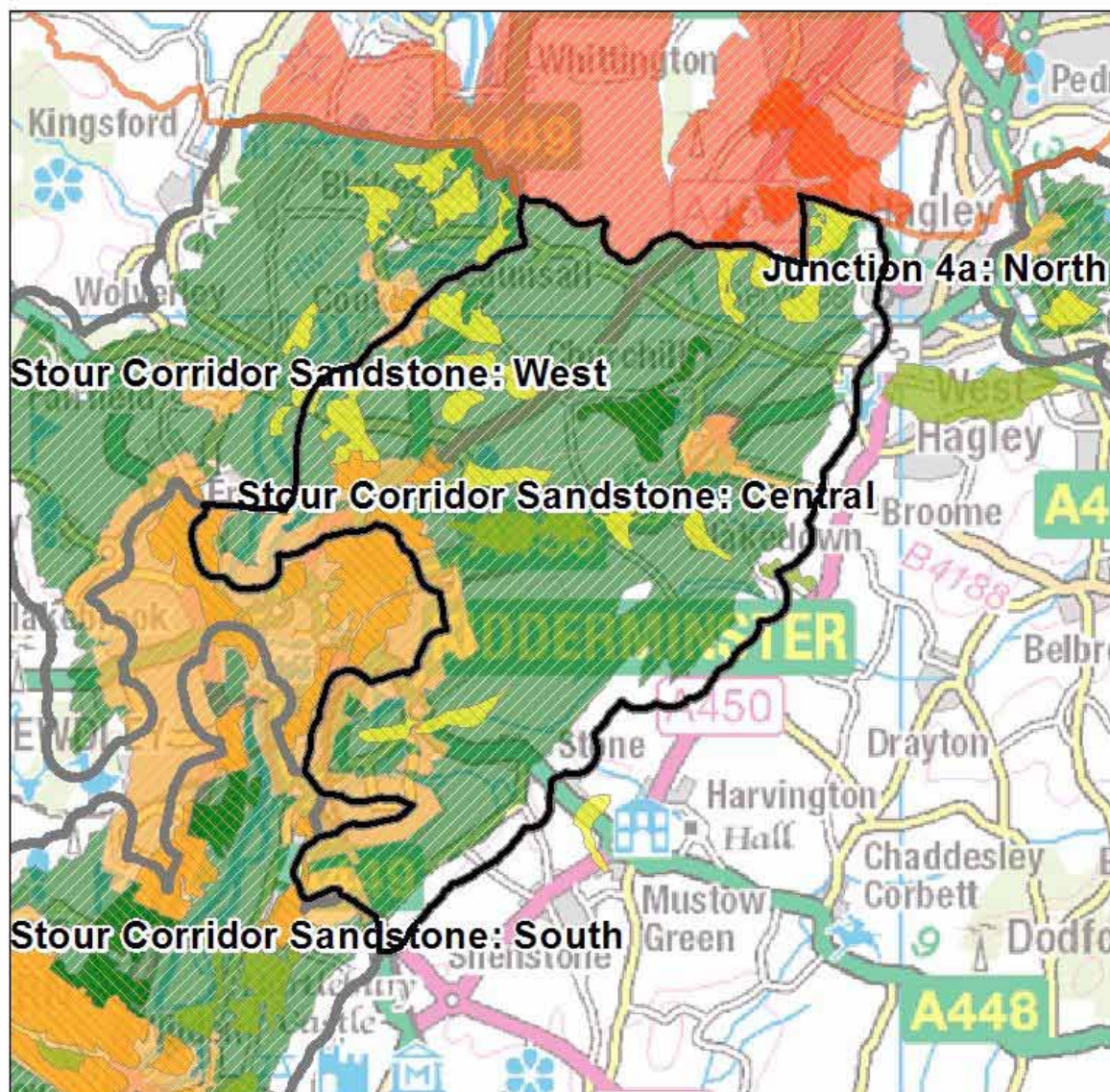
A2.225. In Bromsgrove District only 44% of households are within 2km of a 20ha+ access and recreation site. There is potential to integrate access and recreation into broader restoration schemes.

A2.226. In addition GI Framework Document 3 identifies four "area of search" for strategic recreation facilities. The Lickey Hill extension opportunity area extends through part of this minerals area of search.

A2.227. The location of the Lickey Hills on the south west edge of Birmingham means it is heavily used and likely to come under increased pressure as growth in Birmingham (such as at Longbridge) and in Bromsgrove District increases visitor numbers. Waseley Hills Country Park and the Lickey Hills form a green skirt around the urban area between Frankley and Longbridge. Extending this green corridor and the publicly accessible open space east of the Lickey Hills to encompass the Upper and Lower Bittell reservoirs will help reduce existing pressure on the Lickey Hills whilst providing additional space to absorb the increased visitors especially from the new development at Longbridge. Centering the open space around Upper and Lower Bittell reservoirs and the Worcester and

Birmingham Canal will provide a sufficiently different visitor experience to the Lickey Hills in order to make it an attractive alternative for visitors. Enhancing the areas surrounding the Worcester and Birmingham Canal south to Worcester will add another dimension to this area creating a starting and finishing point to longer distance walking, cycling and boating activities.

Restoration profile for the area of search "Stour Corridor: Central"



Legend

Worcestershire County Boundary

Areas of Search

Terrace and glacial sand and gravel resources

Key resource

Significant resource

Not significant

Compromised

Out of county

Solid sand resources

Key resource

Significant resource

Not significant

Compromised

Out of county

Crushed rock resources

Key resource

Significant resource

Out of county

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Overall approach

Landscape character

A2.228. The landscape character of this area is predominantly Sandstone Estatelands:

- **Sandstone Estatelands:** These are open, rolling landscapes characterised by an ordered pattern of large, arable fields, straight roads and estate plantations. Fields are typically defined by straight thorn hedges, reflecting the late enclosure of much of this landscape from woodland and waste. This historic land use pattern is also reflected in the occurrence of isolated brick farmsteads and clusters of wayside dwellings, interspersed with occasional small villages. Despite the fact that this is a functional landscape, the consistent geometric pattern can convey a strong sense of visual unity.

The landscape guidelines in this landscape character type are to:

- Conserve and restore the distinctive hedgerow pattern with priority given to primary hedgerows.
- Identify opportunities for further large scale planting of woodlands and tree belts to strengthen the regular patterns of the landscape.
- Conserve and restore parklands.
- Conserve and enhance tree cover along watercourses.
- Conserve the integrity of estate villages.
- Promote the creation and appropriate management of natural vegetation communities along highways and other non-farmed areas.
- Promote the development of wide field margins for wildlife benefit.

Summary of priority levels

Table 1. Restoration priorities in Stour Corridor Sandstone: Central

Determining Factors		
Flood alleviation	Water quality	Historic environment
Significant components		
Habitat quality and fragmentation	Horticulture and food production	
Integrate wherever possible		
Geodiversity	Access and recreation	

Detail***Flood alleviation*****Flood alleviation: Determining Factor****Table 2. Determining the level of priority to be given to flood alleviation**

Category	Priority level	Performance of Area of Search
The River Severn Catchment Flood Management Plan Policy 4 or 5 area	1	✓
The River Severn Catchment Flood Management Plan Policy 3 area	2	
The River Severn Catchment Flood Management Plan Policy 2 area	3	
The River Severn Catchment Flood Management Plan Policy 1 area	-	

Key messages

A2.229. This area of search is in sub-area 5 of The River Severn Catchment Flood Management Plan (RSCFMP): "Telford, Black Country, Bromsgrove, Kidderminster and Coventry Cluster". This is a Policy 5 area: "Areas of moderate to high flood risk where we can generally take further action to reduce flood risk".

A2.230. The RSCFMP considers that this is an area where the case for further action to reduce flood risk is most compelling, for example where there are many people at high risk, or where changes in the environment have already increased risk.

A2.231. The key messages in this sub-area which are relevant to mineral extraction and/or restoration are:

- Surface water flooding is a growing problem. Local authorities are mainly responsible for managing this, but it often has to be integrated with other organisations' assets, for example their sewers or rivers.
- Development/redevelopment must be managed to minimise flood risks. Methods must be sustainable over the long-term. For example, making more space for rivers through urban areas via 'blue corridors' (i.e. restoring access for floodwater onto key strips of floodplain. This requires redevelopment to be limited to flood-compatible landuses e.g. parkland.)
- To offset the increasing flood risk from trends including climate change, by taking opportunities to restore sustainable natural storage of floodwater on undeveloped floodplains.

A2.232. The proposed actions to implement the policy in this sub-area which are most relevant to mineral restoration are:

- Ensure floodplains are not inappropriately developed. Follow the 'sequential approach' of PPS 25 and consider land swapping opportunities.
- Encourage compatibility between urban open spaces and their ability to make space for rivers to expand as flood flows occur. One example of a

flood-compatible use is playing fields. Develop strategies to create 'blue corridors' by developing/redeveloping to link these flood-compatible spaces.

- Avoid excessive silt accumulation in artificial channels [Either by channel modifications or by de-silting.] Focus on bottlenecks.

A2.233. The consideration of surface and ground water flooding issues in the RSCFMP is limited due to a lack of available information but historically, the key source of flooding within this area of search was from the Stour in Kidderminster, in area of search, Stour Corridor Sandstone West, particularly where it combines with flooding from the canal. However, the flooding that occurred as a result of the June and July 2007 events was attributable to drainage problems and flash flooding from the smaller tributaries, a number of which have not been enmained. Surface water run-off management in the entire Wyre Forest District remains an important issue.

A2.234. The Environment Agency is not aware of any specific incidences of groundwater flooding within the Wyre Forest District.

Habitat quality and fragmentation

Habitat quality and fragmentation: Significant component

Table 3. Determining the level of priority to be given to habitat quality and fragmentation

		Biodiversity quality		
		High	Medium	Low
Landscape fragmentation	Low	1	2✓	3
	Medium	2	2	3
	High	2	3	3

Key messages

A2.235. Biodiversity priorities identified for this area of search¹ in the Worcestershire Green Infrastructure Strategy (WGIS) focus on linking site to achieve site expansion and buffering key priority habitats including wet woodlands and grasslands. The appropriate management of heathlands in order to maintain their non-wooded character and existing biodiversity interest is also a priority.

¹ See ECA profiles 1: Teme Valley and 10: Hagley Hinterland.

Water Quality

Water Quality: Determining Factor

Table 4. Determining the level of priority to be given to water quality

		Chemical Status of water bodies within area of search		
		Fail	Good	Not required
Ecological Status of water bodies within area of search	Bad or Poor	1 ✓	1	1
	Moderate	1	2	2
	Good	2	3	3
	High	3	-	-
	No WFD water bodies in area of search	-	-	-

Key messages

A2.236. There are four Water Framework Directive Water Courses in this Area of Search:

- River Stour (Worcestershire) – confluence with Smethstow Brook to confluence with River Sever:**
 Chemical Status: Fail
 Ecological Status: Poor
- Stourbridge Canal**
 Chemical Status: Not required
 Ecological Status: Good Potential
 Additional Information: Artificial
- Blakedown Brook – Source to confluence with River Stour**
 Chemical Status: Not Required
 Ecological Status: Moderate
- Hoo Brook – Source to confluence with River Stour**
 Chemical Status: Not Required
 Ecological Status: Moderate

A2.237. Where this method results in water quality being identified as a relevant consideration for the area of search we would like to give some high-level guidance. We are aware that the Environment Agency is working on Water Improvement Plans and Water Action Plans to implement the objectives of the WFD and hope that this will be useful in helping us develop this guidance.

A2.238. However these are not currently available. If they are completed during the preparation of the Minerals Local Plan we will consider opportunities to take them into account in this methodology and the area of search restoration priority profiles.

Geodiversity

Geodiversity: Integrate wherever possible

Table 5. Determining the level of priority to be given to geodiversity

	Priority level	Performance of Area of Search
Area of search in or partially within the Cotswolds or Malvern Hills Area of Outstanding Natural Beauty	1	-
Area of search in or partially within the Abberley and Malvern Hills Geopark	1	-
Area of search contains a geological SSSI or local geological site	2	-
Area of Search within 1km of geological SSSI or 500m of local geological site	3	✓
Area of Search not in the Abberley and Malvern Hills Geopark and further than 1km from geological SSSI or 500m of local geological site	-	-

Key messages

A2.239. This area of search is within 500m of the Worcester Road Cutting Local Geological Site near Hoobrook, Kidderminster.

A2.240. The way in which geodiversity can be considered in a restoration approach will vary significantly depending on the nature and location of the features to be incorporated, but it may be possible to protect certain geological features which are uncovered during extraction and incorporate them into the restoration scheme.

Horticulture and food production

Horticulture and food production: Significant component

Table 6. Determining the level of priority to be given to horticulture and food production

Agricultural land	Priority level	Performance of Area of Search
More than ½ of the area of search classified as grade 1 or 2	1	
½ - ¼ of the area of search classified as grade 1 or 2	2	✓
Less than 1/4 grade of the area of search classified as grade 1 or 2	3	
None of the area of search classified as grade 1 or 2	-	

Key messages

- A2.241. Minerals site development and restoration could contribute to conserving high quality soil resources and safeguarding the long term potential of best and most versatile agricultural land by:
- stripping and storing soils in line with best practice guidance,
 - reinstating the original soil asset where possible,
 - concentrating high quality soil resources in restoring some parts of the site to high grade agricultural land and delivering low intensity grazing or wetland habitats in parts of the site with lower soil quality or where the lowered land level following mineral extraction does not allow for restoration of the entire area to high quality agricultural land.

Historic Environment**Historic Environment: Determining factor****Table 7. Determining the level of priority to be given to the historic environment**

Potential for the presence of heritage assets	Priority level	Performance of Area of Search
More than ½ of the area of search identified as high potential	1	
½ to ¼ of the area of search identified as high potential	2	
Less than ¼ of the area of search identified as high potential	3	
Potential not known (Wyre Forest only)	1	✓

Key messages²

- A2.242. This area is poorly understood and has had little archaeological investigation, with the majority of records relating to post medieval industrial sites. The sandstone hills have a high potential for Mesolithic activity, but to date have had little significant investigation.
- A2.243. There have been a small number of prehistoric finds, including Palaeolithic, indicating activity during this period. The Cookley valley contains numerous post medieval industrial sites.
- A2.244. The extensive Wyre Forest to the north the character area is known to overlay earlier prehistoric and medieval landscapes.

² See ECA profiles 1: Teme Valley and 10: Hagley Hinterland, available on www.worcestershire.gov.uk/mineralsbackground.

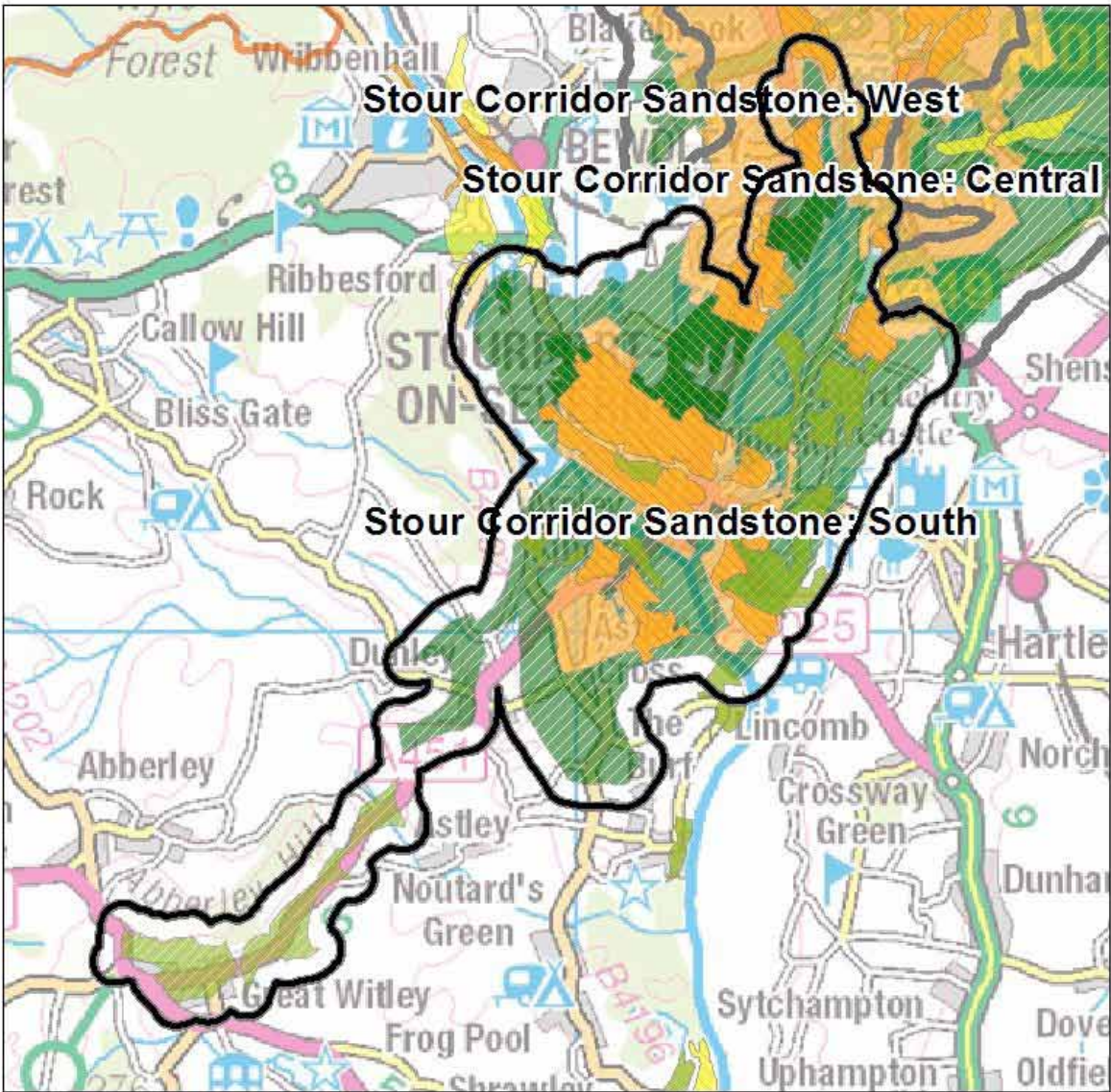
*Access and recreation***Access and Recreation: Significant component****Table 8. Determining the level of priority to be given to the historic environment**

	Priority level	Performance of Area of Search
Part of the minerals area of search identified as area of search for recreation in adopted or emerging local plan	1	
Part of the minerals area of search identified as area of search for recreation in Worcestershire GI Strategy	1	
Minerals area of search is in an area where less than 75% of households meet ANGSt standards for district scale provision (sites or habitats over 20ha within 2km)	2	
In area where more than 75% of households meet ANGSt standards for district scale provision and no areas of search for recreation have been identified.	3	✓

Key messages

A2.245. In Wyre Forest 98% of households are within 2km of a 20ha+ access and recreation site. There is however still potential to integrate access and recreation into broader restoration schemes.

Restoration profile for the area of search "Stour Corridor Sandstone: South"



Legend

- Worcestershire County Boundary
- Areas of Search

Terrace and glacial sand and gravel resources

- Key resource
- Significant resource
- Not significant
- Compromised
- Out of county

Solid sand resources

- Key resource
- Significant resource
- Not significant
- Compromised
- Out of county

Crushed rock resources

- Key resource
- Significant resource
- Out of county

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Overall approach

Landscape character

A2.246. The landscape character of this area is predominantly Sandstone Estatelands with Wooded Estatelands in the south, Riverside Meadows along the River Severn and River Stour, and Unenclosed Commons in the east at Hartlebury Common:

- **Sandstone Estatelands:** These are open, rolling landscapes characterised by an ordered pattern of large, arable fields, straight roads and estate plantations. Fields are typically defined by straight thorn hedges, reflecting the late enclosure of much of this landscape from woodland and waste. This historic land use pattern is also reflected in the occurrence of isolated brick farmsteads and clusters of wayside dwellings, interspersed with occasional small villages. Despite the fact that this is a functional landscape, the consistent geometric pattern can convey a strong sense of visual unity.

The landscape guidelines in this landscape character type are to:

- Conserve and restore the distinctive hedgerow pattern with priority given to primary hedgerows.
 - Identify opportunities for further large scale planting of woodlands and tree belts to strengthen the regular patterns of the landscape.
 - Conserve and restore parklands.
 - Conserve and enhance tree cover along watercourses.
 - Conserve the integrity of estate villages.
 - Promote the creation and appropriate management of natural vegetation communities along highways and other non-farmed areas.
 - Promote the development of wide field margins for wildlife benefit.
- **Wooded Estatelands:** This is a large scale, wooded agricultural landscape of isolated brick farmsteads, clusters of wayside dwellings and occasional small estate villages. The key visual element in this landscape is the frequent large, irregularly shaped ancient woodlands, often prominently situated on low crests. It is a landscape that, due to its scale, lacks intimacy and can appear rather functional.

The landscape guidelines in this landscape character type are to:

- Conserve all ancient woodland sites and restock with locally occurring native species.
- Promote new large scale woodland planting.
- New woodland planting should be of native broadleaved species, favouring oak as the dominant species and relate to the scale and spatial pattern of the Landscape Type.
- Conserve and restore the hedgerow pattern, particularly primary hedgerows and hedgerow tree cover.
- Seek to ensure hedgerow linkage to all woodland blocks, for visual cohesion and wildlife benefit.
- Conserve and restore parkland including historically correct ornamental planting and with an emphasis on arable reversion.

- Conserve the integrity of estate villages and their associated tree cover.
- **Riverside Meadows:** Riverside Meadows are linear riverine landscapes associated with a flat, generally well-defined alluvial floodplain, in places framed by steeply rising ground. These are secluded pastoral landscapes, characterised by meandering, tree-lined rivers, flanked by alluvial meadows which are defined by hedge and ditch boundaries. Settlement is typically absent.

The landscape guidelines in this landscape character type are to:

- Seek to retain the unity of the linear form of these landscapes.
 - Conserve all existing areas of permanent pasture.
 - Seek opportunities to encourage the conversion of arable land back to pasture.
 - Conserve and enhance continuous tree cover along hedgelines, ditches and watercourses.
 - Conserve existing wetland habitats and seek opportunities for further wetland habitat creation.
 - Avoid building or road construction works.
 - Avoid further drainage of waterside meadows.
 - Explore opportunities to return to patterns and processes of natural flooding cycles.
- **Unenclosed commons:** This is a category of landscape that offers tremendous variety of scale and size, the overriding characteristics being the lack of enclosure and, usually, a land use of rough grazing. The smaller unenclosed commons are ranked as features within other Landscape Types but a few are considered to be of sufficient extent to warrant separate classification. Settlement, where present, is usually restricted to wayside dwellings situated around the perimeter of the common.

The landscape guidelines in this landscape character type are to:

- Conserve and enhance the visual distinctiveness of open common areas.
- Conserve and enhance the spatial pattern, scale and specific character of wayside dwellings associated with commons.
- Recognising that each common will have a different historical profile, seek to define management objectives to integrate wildlife benefit, current recreational interests and other uses, together with the historical interest.
- Seek to avoid municipal/tidy approaches to management.

Summary of priority levels

Table 1. Restoration priorities in Stour Corridor Sandstone: South.

Determining Factors				
Flood alleviation	Habitat quality and fragmentation	Water quality	Geodiversity	Historic environment
Significant factors				
Horticulture and Food Production				
Integrate wherever possible				
Access and recreation				

Detail

Flood alleviation

Flood alleviation: Determining factor

Table 2. Determining the level of priority to be given to flood alleviation

Category	Priority level	Performance of Area of Search
The River Severn Catchment Flood Management Plan Policy 4 or 5 area	1	✓
The River Severn Catchment Flood Management Plan Policy 3 area	2	
The River Severn Catchment Flood Management Plan Policy 2 area	3	
The River Severn Catchment Flood Management Plan Policy 1 area	-	

Key messages

A2.247. This area of search is in sub-area 4 of The River Severn Catchment Flood Management Plan (RSCFMP): "Middle Severn Corridor". This is a Policy 4 area: "Areas of low, moderate or high flood risk where we [the Environment Agency] are already managing the flood risk effectively but where we may need to take further actions to keep pace with climate change".

A2.248. The RSCFMP considers that the risks are currently managed appropriately in this sub-area but the risk of flooding is expected to significantly rise in the future.

A2.249. The key messages in this sub-area which are relevant to mineral extraction and/or restoration are:

- to reduce dependence on raised flood defences as this is not sustainable in the long term, by taking opportunities to restore sustainable natural storage of floodwater on undeveloped floodplains.
- Surface water flooding is a growing problem. Local authorities are mainly responsible for managing this, but it often has to be integrated with other organisations' assets, for example their sewers or rivers.
- Development/redevelopment must be managed to minimise flood risks. Methods must be sustainable over the long-term. For example, making more space for rivers through urban areas via 'blue corridors' (i.e. restoring access for floodwater onto key strips of floodplain. This requires redevelopment to be limited to flood-compatible land-uses e.g. parkland.)

A2.250. The proposed actions to implement the policy in this sub-area which are most relevant to mineral restoration are:

- Ensure floodplains are not inappropriately developed. Follow the 'sequential approach' of PPS 25, and consider land swapping opportunities.
- Encourage compatibility between urban open spaces, and their ability to make space for rivers to expand as flood flows occur. One example of a flood-compatible use is playing fields. Develop strategies to create 'blue corridors' by developing/redeveloping to link these flood-compatible spaces.
- Encourage rural and urban best practices in land-use and in land-management to restore more sustainable natural floodplains and to reduce run-off.
- Review how effective and sustainable each flood defence is. Review maintenance operations to ensure they are proportionate to flood risk. Focus efforts on protecting communities and making them more resilient to flooding. It should be noted that protecting large areas of agricultural land in the floodplain tends to increase flood risk for downstream communities.
- Seek ecological improvements.

A2.251. The consideration of surface and ground water flooding issues in the RSCFMP is limited due to a lack of available information but historically, the key source of flooding in Kidderminster was from the Stour, particularly where it combines with flooding from the canal. Stourport and Bewdley are most at risk from the Severn. However, the flooding that occurred as a result of the June and July 2007 events was attributable to drainage problems and flash flooding from the smaller tributaries, a number of which have not been enmained. Surface water run-off management in the entire Wyre Forest District remains an important issue.

A2.252. The Environment Agency is not aware of any specific incidences of groundwater flooding within the Wyre Forest District.

*Habitat quality and fragmentation***Habitat quality and fragmentation: Determining factor****Table 3. Determining the level of priority to be given to habitat quality and fragmentation**

		Biodiversity quality		
		High	Medium	Low
Landscape fragmentation	Low	1✓	2	3
	Medium	2	2	3
	High	2	3	3

Key messages

- A2.253. This area of search covers some of the urban areas of Stourport and Kidderminster which have not been assessed for their habitat quality or fragmentation, therefore the level of priority has been determined based on the portion of the area which has been assessed.
- A2.254. Biodiversity priorities identified for this area of search¹ in the Worcestershire Green Infrastructure Strategy (WGIS) focus on protecting and enhancing ancient woodland cover through management and replanting with mixed, native species where appropriate, protecting and enhancing tree cover pattern through planting watercourse, highway and hedgerow trees to address density and age structure, protecting and enhancing the hedgerow network, restoring and enhancing the functional stream corridors, and seeking opportunities to protect and create areas of permanent pasture (particularly in the Riverside Meadows landscapes). In the Unenclosed Commons landscape, opportunities should be sought to retain rough grazing land use and management regimes which support the unwooded and unenclosed nature of the landscape.
- A2.255. Links should be made with existing site management in order to achieve site expansion and buffer the key priorities including wet woodlands and grasslands, and where sites are closely associated, buffering should be merged to form direct links. Augmentation of these links in the River Severn floodplain will be critical for a number of Green Infrastructure aspirations in conjunction with enhancements to the blue infrastructure.
- A2.256. The Wyre Forest Acid Grasslands and Heaths Biodiversity Delivery Area (BDA) covers much of the northern half of this area of search. Minerals development and restoration could contribute towards the delivery of biodiversity priorities in this BDA by restoring or creating and linking acid grassland and lowland heathland.

¹ See ECA profile 1: Teme Valley and Wyre Forest, ECA profile 2: Severn Valley North and ECA profile 25: Birchen Coppice, available on www.worcestershire.gov.uk/mineralsbackground.

Water Quality

Water Quality: Determining Factor

Table 4. Determining the level of priority to be given to water quality

		Chemical Status of water bodies within area of search		
		Fail	Good	Not required
Ecological Status of water bodies within area of search	Bad or Poor	1 ✓	1	1
	Moderate	1	2	2
	Good	2	3	3
	High	3	-	-
	No WFD water bodies in area of search	-	-	-

Key messages

A2.257. There are five Water Framework Directive Water Courses in this Area of Search:

- River Severn – confluence with River Worfe to confluence with River Stour:**
 Chemical Status: Not required
 Ecological Status: Moderate Potential
 Additional information: Heavily modified hydromorphological
- Gladder Brook – Source to confluence with River Severn**
 Chemical Status: Not required
 Ecological Status: Moderate Potential
- River Stour – confluence with Smestow Brook to confluence with River Severn**
 Chemical Status: Fail
 Ecological Status: Poor
- Staffordshire and Worcestershire Canal – Stourbridge Canal to River Severn**
 Chemical Status: Not required
 Ecological Status: Moderate Potential
 Additional information: Artificial
- Hartlebury Brook – source to confluence with River Severn**
 Chemical Status: Not required
 Ecological Status: Moderate Potential

A2.258. Where this method results in water quality being identified as a relevant consideration for the area of search we would like to give some high-level guidance. We are aware that the Environment Agency is working on Water Improvement Plans and Water Action Plans to implement the objectives of the WFD and hope that this will be useful in helping us develop this guidance.

A2.259. However these are not currently available. If they are completed during the preparation of the Minerals Local Plan we will consider opportunities to take them

into account in this methodology and the area of search restoration priority profiles.

Geodiversity

Geodiversity: Determining factor

Table 5. Determining the level of priority to be given to geodiversity

	Priority level	Performance of Area of Search
Area of search in or partially within the Cotswolds or Malvern Hills Area of Outstanding Natural Beauty	1	-
Area of search in or partially within the Abberley and Malvern Hills Geopark	1	✓
Area of search contains a geological SSSI or local geological site	2	-
Area of Search within 1km of geological SSSI or 500m of local geological site	3	-
Area of Search not in the Abberley and Malvern Hills Geopark and further than 1km from geological SSSI or 500m of local geological site	-	-

Key messages

A2.260. This area of search is within the Abberley and Malvern Hills Geopark and contains the geological SSSI of the River Stour Floodplan. There are also a number of Local Geological Sites within the area of search: Hartlebury Common, Redstone Rock near Astley Cross, Blackstone Rock near Ribbesford, Worcester Road Cutting near Hoobrook, with Shavers End Quarry and Shewards Quarry in the Abberley Hills nearby.

A2.261. The way in which geodiversity can be considered in a restoration approach will vary significantly depending on the nature and location of the features to be incorporated, but it may be possible to protect certain geological features which are uncovered during extraction and incorporate them into the restoration scheme.

Horticulture and food production

Horticulture and food production: Significant component

Table 6. Determining the level of priority to be given to horticulture and food production

Agricultural land	Priority level	Performance of Area of Search
More than ½ of the area of search classified as grade 1 or 2	1	
½ - ¼ of the area of search classified as grade 1 or 2	2	✓
Less than ¼ grade of the area of search classified as grade 1 or 2	3	
None of the area of search classified as grade 1 or 2	-	

Key messages

A2.262. Minerals site development and restoration could contribute to conserving high quality soil resources and safeguarding the long term potential of best and most versatile agricultural land by:

- stripping and storing soils in line with best practice guidance,
- reinstating the original soil asset where possible,
- concentrating high quality soil resources in restoring some parts of the site to high grade agricultural land and delivering low intensity grazing or wetland habitats in parts of the site with lower soil quality or where the lowered land level following mineral extraction does not allow for restoration of the entire area to high quality agricultural land.

Historic Environment

Historic Environment: Determining factor

Table 7. Determining the level of priority to be given to the historic environment

Potential for the presence of heritage assets	Priority level	Performance of Area of Search
More than ½ of the area of search identified as high potential	1	
½ to ¼ of the area of search identified as high potential	2	
Less than ¼ of the area of search identified as high potential	3	
Potential not known (Wyre Forest only)	1	✓

Key messages

A2.263. This area is poorly understood and has had little archaeological investigation, with the majority of records relating to post medieval industrial sites. The

sandstone hills have a high potential for Mesolithic activity, but to date have had little significant investigation.

A2.264. At a wider level, the Teme Valley and Wyre Forest character area contains two Iron Age Hill forts, a medieval castle motte, moated manors and the formal planned house and park at Great Witley. The Severn Valley's Historic Landscape Character reflects a dispersed early medieval settlement pattern, possibly founded on earlier Roman estates. The field pattern has been affected by reorganisation and amalgamation, but is, nonetheless, diverse and multi-period in origin, derived from mixed historic land use: medieval and later mixed farming and the piecemeal enclosure of former woodland and unenclosed lowland heath. In the Birchen Coppice area, Historic landscape character has been affected by the construction of a golf course and 20th century industrial activity. However, some internal field boundaries are derived from the phase of 19th century enclosure of former open heath.

Access and recreation

Access and Recreation: Significant component

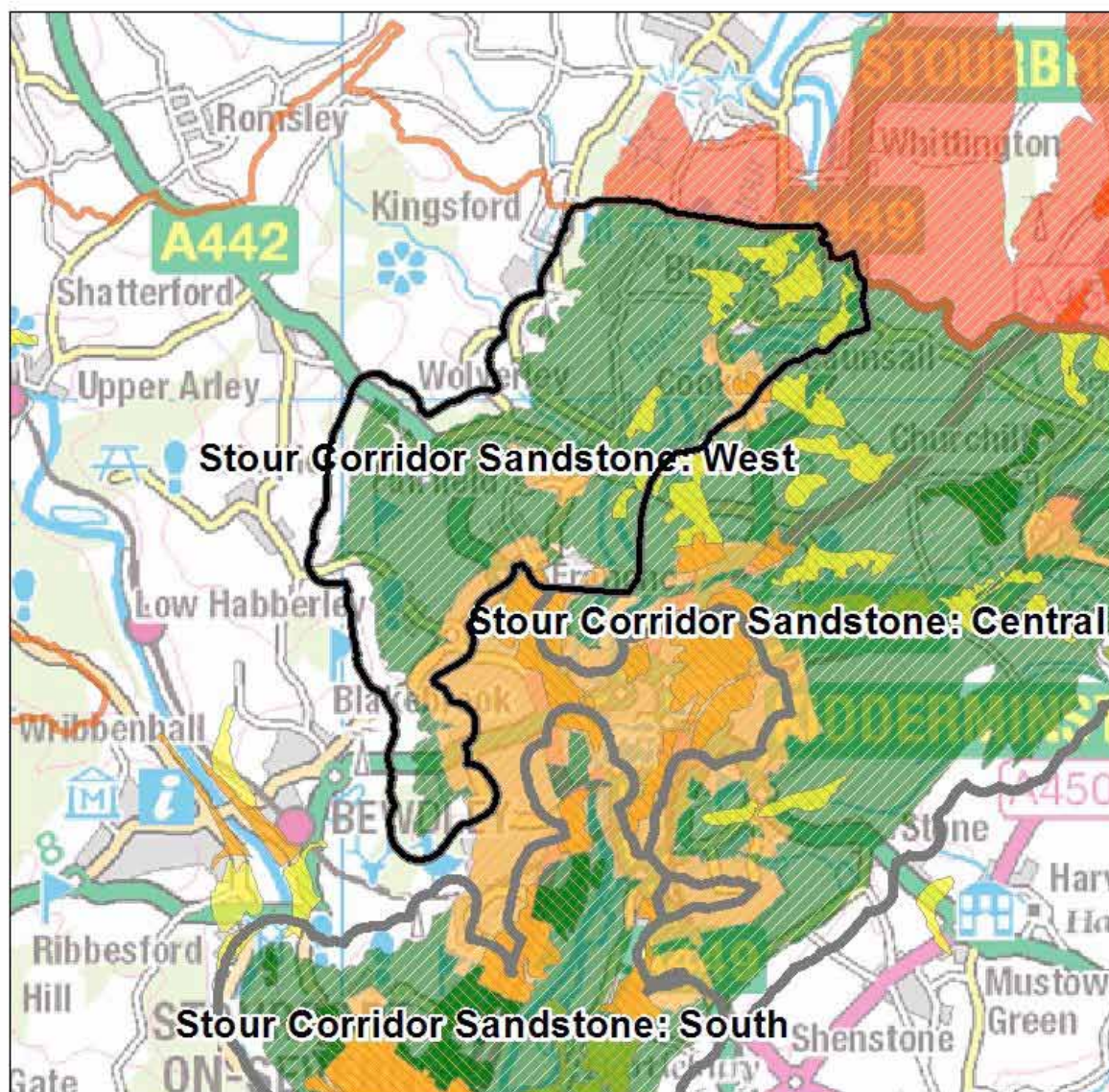
Table 8. Determining the level of priority to be given to the historic environment

	Priority level	Performance of Area of Search
Part of the minerals area of search identified as area of search for recreation in adopted or emerging local plan	1	
Part of the minerals area of search identified as area of search for recreation in Worcestershire GI Strategy	1	
Minerals area of search is in an area where less than 75% of households meet ANGSt standards for district scale provision (sites or habitats over 20ha within 2km)	2	
In area where more than 75% of households meet ANGSt standards for district scale provision and no areas of search for recreation have been identified.		

Key messages

A2.265. In Wyre Forest 98% of households are within 2km of a 20ha+ access and recreation site. There is however still potential to integrate access and recreation into broader restoration schemes.

Restoration profile for the area of search "Stour Corridor Sandstone: West"



Legend

Worcestershire County Boundary

Areas of Search

Terrace and glacial sand and gravel resources

Key resource

Significant resource

Not significant

Compromised

Out of county

Solid sand resources

Key resource

Significant resource

Not significant

Compromised

Out of county

Crushed rock resources

Key resource

Significant resource

Out of county

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Overall approach

Landscape character

A2.266. The landscape character of this area is predominantly Sandstone Estatelands. There are strips of Principal Wooded Hills on the western boundary and Riverside Meadows alongside the River Stour:

- **Sandstone Estatelands:** These are open, rolling landscapes characterised by an ordered pattern of large, arable fields, straight roads and estate plantations. Fields are typically defined by straight thorn hedges, reflecting the late enclosure of much of this landscape from woodland and waste. This historic land use pattern is also reflected in the occurrence of isolated brick farmsteads and clusters of wayside dwellings, interspersed with occasional small villages. Despite the fact that this is a functional landscape, the consistent geometric pattern can convey a strong sense of visual unity.

The landscape guidelines in this landscape character type are to:

- Conserve and restore the distinctive hedgerow pattern with priority given to primary hedgerows.
 - Identify opportunities for further large scale planting of woodlands and tree belts to strengthen the regular patterns of the landscape.
 - Conserve and restore parklands.
 - Conserve and enhance tree cover along watercourses.
 - Conserve the integrity of estate villages.
 - Promote the creation and appropriate management of natural vegetation communities along highways and other non-farmed areas.
 - Promote the development of wide field margins for wildlife benefit.
- **Principal Wooded Hills:** These are upstanding, wooded landscapes with a sloping, in places steeply undulating topography, often on the edge of higher ground. These are landscapes of large, irregularly shaped ancient woodlands and wooded streamlines, typically forming an interlocking pattern with surrounding hedged fields. The flowing woodland cover is a key visual element within the landscape, resulting in a strong sense of unity and visual integration.

The landscape guidelines in this landscape character type are to:

- Conserve and restore the ancient broadleaved character of all woodlands.
- Seek to restore the wooded character of the area through large scale woodland planting in areas where the interlocking pattern has become diluted.
- Conserve and restore the irregular pattern of assarted fields.
- Strengthen the wooded character of hedgelines and streamlines through replanting or natural regeneration.
- New woodland planting and felling coupes should be carefully designed to take particular account of their visual impact.

- **Riverside Meadows:** These are linear riverine landscapes associated with a flat, generally well-defined alluvial floodplain, in places framed by steeply rising ground. These are secluded pastoral landscapes, characterised by meandering, tree-lined rivers, flanked by alluvial meadows which are defined by hedge and ditch boundaries. Settlement is typically absent.

The landscape guidelines in this landscape character type are to:

- Seek to retain the unity of the linear form of these landscapes.
- Conserve all existing areas of permanent pasture.
- Seek opportunities to encourage the conversion of arable land back to pasture.
- Conserve and enhance continuous tree cover along hedgelines, ditches and watercourses.
- Conserve existing wetland habitats and seek opportunities for further wetland habitat creation.
- Avoid building or road construction works.
- Avoid further drainage of waterside meadows.
- Explore opportunities to return to patterns and processes of natural flooding cycles.

Summary of priority levels

Table 1. Restoration priorities in Stour Corridor Sandstone: West.

Determining Factors					
Flood alleviation	Habitat quality and fragmentation	Water quality	Geodiversity	Historic environment	Access and recreation
Integrate wherever possible					
Horticulture and food production					

Detail

Flood alleviation

Flood alleviation: Determining factor

Table 2. Determining the level of priority to be given to flood alleviation

Category	Priority level	Performance of Area of Search
The River Severn Catchment Flood Management Plan Policy 4 or 5 area	1	✓
The River Severn Catchment Flood Management Plan Policy 3 area	2	
The River Severn Catchment Flood Management Plan Policy 2 area	3	
The River Severn Catchment Flood Management Plan Policy 1 area	-	

Key messages

A2.267. This area of search is in two sub-areas of The River Severn Catchment Flood Management Plan (RSCFMP): the western part is in sub-area 4 of The River Severn Catchment Flood Management Plan (RSCFMP): "Middle Severn Corridor". This is a Policy 5 area: "Areas of low, moderate or high flood risk where we [the Environment Agency] are already managing the flood risk effectively but where we may need to take further actions to keep pace with climate change".

A2.268. The RSCFMP considers that the risks are currently managed appropriately in this sub-area but the risk of flooding is expected to significantly rise in the future.

A2.269. The key messages in this sub-area which are relevant to mineral extraction and/or restoration are:

- to reduce dependence on raised flood defences as this is not sustainable in the long term, by taking opportunities to restore sustainable natural storage of floodwater on undeveloped floodplains.
- Surface water flooding is a growing problem. Local authorities are mainly responsible for managing this, but it often has to be integrated with other organisations' assets, for example their sewers or rivers.
- Development/redevelopment must be managed to minimise flood risks. Methods must be sustainable over the long-term. For example, making more space for rivers through urban areas via 'blue corridors' (i.e. restoring access for floodwater onto key strips of floodplain. This requires redevelopment to be limited to flood-compatible land-uses e.g. parkland.)

A2.270. The eastern part of the area of search is in sub-area 8 of The River Severn Catchment Flood Management Plan (RSCFMP): "Middle Severn Corridor" This is a policy 4 area, "Areas of low, moderate or high flood risk where we [the Environment Agency] are already managing the flood risk effectively but where we may need to take further actions to keep pace with climate change".

A2.271. The RSCFMP considers that the risks are currently managed appropriately in this sub-area but the risk of flooding is expected to significantly rise in the future.

A2.272. The key messages in this sub-area which are relevant to mineral extraction and/or restoration are:

- to reduce dependence on raised flood defences as this is not sustainable in the long term, by taking opportunities to restore sustainable natural storage of floodwater on undeveloped floodplains.
- Surface water flooding is a growing problem. Local authorities are mainly responsible for managing this, but it often has to be integrated with other organisations' assets, for example their sewers or rivers.
- Development/redevelopment must be managed to minimise flood risks. Methods must be sustainable over the long-term. For example, making more space for rivers through urban areas via 'blue corridors' (i.e. restoring access for floodwater onto key strips of floodplain. This requires redevelopment to be limited to flood-compatible land-uses e.g. parkland.)

A2.273. The proposed actions to implement the policy in these sub-areas which are most relevant to mineral restoration are:

- Ensure floodplains are not inappropriately developed.
- Encourage compatibility between urban open spaces, and their ability to make space for rivers to expand as flood flows occur. One example of a flood-compatible use is playing fields. Develop strategies to create 'blue corridors' by developing/redeveloping to link these flood-compatible spaces.
- Encourage rural and urban best practices in land-use and in land-management to restore more sustainable natural floodplains and to reduce run-off.
- Review how effective and sustainable each flood defence is. Review maintenance operations to ensure they are proportionate to flood risk. Focus efforts on protecting communities and making them more resilient to flooding. It should be noted that protecting large areas of agricultural land in the floodplain tends to increase flood risk for downstream communities.
- Seek ecological improvements.

A2.274. The consideration of surface and ground water flooding issues in the RSCFMP is limited due to a lack of available information but historically, the key source of flooding within this area of search was from the Stour in Kidderminster, particularly where it combines with flooding from the canal. However, the flooding that occurred as a result of the June and July 2007 events was attributable to drainage problems and flash flooding from the smaller tributaries, a number of which have not been enmained. Surface water run-off management in the entire Wyre Forest District remains an important issue.

A2.275. The Environment Agency is not aware of any specific incidences of groundwater flooding within the Wyre Forest District.

Habitat quality and fragmentation

Habitat quality and fragmentation: Significant component

Table 3. Determining the level of priority to be given to habitat quality and fragmentation

		Biodiversity quality		
		High	Medium	Low
Landscape fragmentation	Low	1✓	2	3
	Medium	2	2	3
	High	2	3	3

Key messages

A2.276. Biodiversity priorities identified for this area of search¹ in the Worcestershire Green Infrastructure Strategy (WGIS) focus on appropriate management of heathlands and strengthening the woodland character, pattern and cover through planned, discrete plantations and tree belts.

Water Quality**Water Quality: Determining Factor****Table 4. Determining the level of priority to be given to water quality**

		Chemical Status of water bodies within area of search		
		Fail	Good	Not required
Ecological Status of water bodies within area of search	Bad or Poor	1 ✓	1	1
	Moderate	1	2	2
	Good	2	3	3
	High	3	-	-
	No WFD water bodies in area of search	-	-	-

Key messages

A2.277. There are three Water Framework Directive Water Courses in this Area of Search:

- **River Stour (Worcestershire) to confluence with Smethstow Brook to confluence with River Severn:**
Chemical Status: Fail
Ecological Status: Poor
- **Staffordshire and Worcester Canal, Stourbridge Canal to River Severn**
Chemical Status: Not Required
Ecological Status: Moderate Potential
- **Drakelow Brook – Source to confluence with River Severn**
Chemical Status: Not Required
Ecological Status: Good Potential

A2.278. Where this method results in water quality being identified as a relevant consideration for the area of search we would like to give some high-level guidance. We are aware that the Environment Agency is working on Water Improvement Plans and Water Action Plans to implement the objectives of the WFD and hope that this will be useful in helping us develop this guidance.

A2.279. However these are not currently available. If they are completed during the preparation of the Minerals Local Plan we will consider opportunities to take

¹ See ECA profiles 1: Teme Valley and 10: Hagley Hinterland.

them into account in this methodology and the area of search restoration priority profiles.

Geodiversity

Geodiversity: Determining Factor

Table 5. Determining the level of priority to be given to geodiversity

	Priority level	Performance of Area of Search
Area of search in or partially within the Cotswolds or Malvern Hills Area of Outstanding Natural Beauty	1	-
Area of search in or partially within the Abberley and Malvern Hills Geopark	1	✓
Area of search contains a geological SSSI or local geological site	2	-
Area of Search within 1km of geological SSSI or 500m of local geological site	3	-
Area of Search not in the Abberley and Malvern Hills Geopark and further than 1km from geological SSSI or 500m of local geological site	-	-

Key messages

A2.280. This area forms part of the Abberley and Malvern Hills geopark and is rich in geodiversity. There are 36 identified local geological sites. Many of these are the result of historic mineral workings with 3 associated with coal working and more than a third associated with previous mineral workings in the area. Many of these workings took place before mineral extraction was regulated by the planning regime, however there are also local geological sites at Penny Hill Quarry, Woodbury Quarry and Shavers End Quarry.

A2.281. The way in which geodiversity can be considered in a restoration approach will vary significantly depending on the nature and location of the features to be incorporated, but it may be possible to protect certain geological features which are uncovered during extraction and incorporate them into the restoration scheme.

*Horticulture and food production***Horticulture and food production: Integrate wherever possible****Table 6. Determining the level of priority to be given to horticulture and food production**

Agricultural land	Priority level	Performance of Area of Search
More than ½ of the area of search classified as grade 1 or 2	1	
½ - ¼ of the area of search classified as grade 1 or 2	2	
Less than 1/4 grade of the area of search classified as grade 1 or 2	3	✓
None of the area of search classified as grade 1 or 2	-	

Key messages

A2.282. Minerals site development and restoration could contribute to conserving high quality soil resources and safeguarding the long term potential of best and most versatile agricultural land by:

- stripping and storing soils in line with best practice guidance,
- reinstating the original soil asset where possible,
- concentrating high quality soil resources in restoring some parts of the site to high grade agricultural land and delivering low intensity grazing or wetland habitats in parts of the site with lower soil quality or where the lowered land level following mineral extraction does not allow for restoration of the entire area to high quality agricultural land.

*Historic Environment***Historic Environment: Determining factor****Table 7. Determining the level of priority to be given to the historic environment**

Potential for the presence of heritage assets	Priority level	Performance of Area of Search
More than ½ of the area of search identified as high potential	1	
½ to ¼ of the area of search identified as high potential	2	
Less than ¼ of the area of search identified as high potential	3	
Potential not known (Wyre Forest only)	1	✓

Key messages²

A2.283. Archaeologically this area is one of the most poorly understood areas in the county but the potential of the area covered by the sand and gravel reserves is likely to be similar to other principle river corridors, with prehistoric and Romano British settlements and funerary sites. The extensive Wyre Forest area nearby is known to overlay earlier prehistoric and medieval landscapes.

Access and Recreation: Significant component**Table 8. Determining the level of priority to be given to the historic environment**

	Priority level	Performance of Area of Search
Part of the minerals area of search identified as area of search for recreation in adopted or emerging local plan	1	
Part of the minerals area of search identified as area of search for recreation in Worcestershire GI Strategy	1	✓
Minerals area of search is in an area where less than 75% of households meet ANGSt standards for district scale provision (sites or habitats over 20ha within 2km)	2	
In area where more than 75% of households meet ANGSt standards for district scale provision and no areas of search for recreation have been identified.	3	

Key messages

A2.284. In Wyre Forest 98% of households are within 2km of a 20ha+ access and recreation site. There is however still potential to integrate access and recreation into broader restoration schemes.

A2.285. In addition GI Framework Document 3 identifies four "area of search" for strategic recreation facilities. The Wyre Forest extension opportunity area extends through part of this minerals area of search.

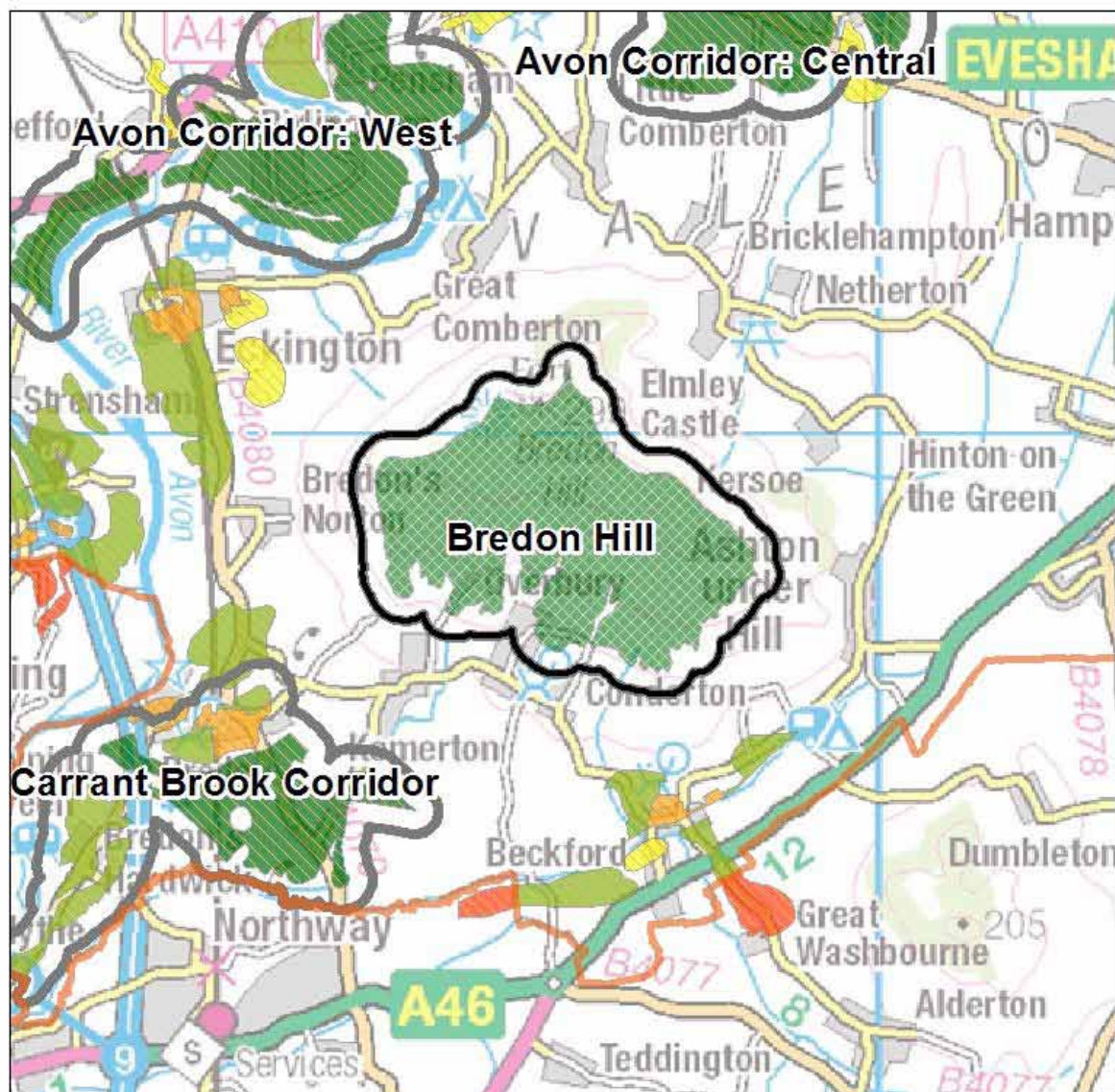
A2.286. The location of the Wyre Forest close to the conurbations of Kidderminster, Stourport-on-Severn and Birmingham means that it is currently heavily used, and the additional population growth in these settlements is likely to result in increased pressure in the future. Creating a new publically accessible area and extending the forest cover to the east around Holbeach towards Kidderminster will not only help provide additional recreation resources taking the pressure off other areas of the Wyre Forest but it will also help to meet other landscape objectives. The recent Worcestershire County Council and Forestry Commission Report *"Trees and Woodlands in Worcestershire: Biodiversity and Landscape Guidelines for their Planting and Management"* (November 2010) identifies that

² See ECA profiles 1: Teme Valley and 10: Hagley Hinterland, available on www.worcestershire.gov.uk/mineralsbackground.

the area characterised as Principal Timber Farmland which is at the centre of the area proposed for the extension, has significant potential for new woodland planting especially adjacent to existing woodland as well as the need to halt the decline of hedgerow trees and streamside cover. Moving east and south towards Kidderminster the character changes and is defined as Sandstone Estatelands and Enclosed commons which has significant potential for larger scale woodland planting of a more mixed nature and the restoration and creation of new tree belts along hedgerows and water courses.

- A2.287. In order to provide visitor interest and ensure the area does provide a viable alternative to the existing areas of the Wyre Forest, significant public access and facilities will need to be provided including walking and cycling routes and may be provision for some of the activities such as mountain biking that are causing user conflict in the existing Wyre Forest.

Restoration profile for the area of search "Bredon Hill"



Legend

Worcestershire County Boundary

Areas of Search

Terrace and glacial sand and gravel resources

- Key resource
- Significant resource
- Not significant
- Compromised
- Out of county

Solid sand resources

- Key resource
- Significant resource
- Not significant
- Compromised
- Out of county

Crushed rock resources

- Key resource
- Significant resource
- Out of county

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Overall approach

Landscape character

A2.288. The landscape character of this area is predominantly Limestone Estatelands, with Principal Wooded Hills in the north and Wooded Hills and Farmlands in the south:

- **Limestone Estatelands:** This is a sparsely populated "upland" landscape characterised by thin limestone soils, estate plantations and large rectilinear fields defined by drystone walls. Although still retaining a remote character, the stone walls convey a sense of human presence and the reddish soils a sense of warmth to this landscape. Closely associated with the higher parts of the Cotswold escarpment, this is a well ordered landscape of large open spaces framed for the most part by woodland edges and belts of trees.

The landscape guidelines in this landscape character type are to:

- Maintain the large scale estateland character of the farmed land by conserving the strong rectilinear field pattern.
 - Enhance the structure of the landscape by encouraging new woodland planting whilst retaining the long distance views and open character of the plateau.
 - Conserve and restore field boundary walls especially along roadsides, using locally sourced stone.
 - New, or replacement, tree planting should be predominantly broadleaved, favouring beech, together with oak and ash, as the major species.
 - Strengthen and expand the linear pattern of tree belts.
- **Principal Wooded Hills:** These are upstanding, wooded landscapes with a sloping, in places steeply undulating topography, often on the edge of higher ground. These are landscapes of large, irregularly shaped ancient woodlands and wooded streamlines, typically forming an interlocking pattern with surrounding hedged fields. The flowing woodland cover is a key visual element within the landscape, resulting in a strong sense of unity and visual integration.

The landscape guidelines in this landscape character type are to:

- Conserve and restore the ancient broadleaved character of all woodlands.
 - Seek to restore the wooded character of the area through large scale woodland planting in areas where the interlocking pattern has become diluted.
 - Conserve and restore the irregular pattern of assorted fields.
 - Strengthen the wooded character of hedgelines and streamlines through replanting or natural regeneration.
 - New woodland planting and felling coupes should be carefully designed to take particular account of their visual impact.
- **Wooded Hills and Farmlands:** These are medium to large scale upstanding, wooded landscapes with a sloping topography and well defined character. They are similar to the Principal Wooded Hills, but with more of an emphasis on farmland. The woods tend to occur as discrete blocks framing

larger areas of enclosed fields. The latter are often associated with a small village or hamlet. There is a sense of balance, with a character that is less extreme than the Principal Wooded Hills.

The landscape guidelines in this landscape character type are to:

- Conserve existing blocks of woodland.
- Seek opportunities to restore the balance of woodland cover throughout these landscapes.
- Conserve and restore the ancient woodland character of all woodlands.
- Conserve the historic pattern of large hedged fields, with priority being given to strengthening and restoring primary hedge lines.
- Enhance tree cover along watercourses and dingles.
- Conserve all remaining areas of permanent pasture.

Summary of priority levels

Table 1. Restoration priorities in Bredon Hill.

Determining Factors		
Habitat quality and fragmentation	Geodiversity	Historic Environment

Significant components	
Flood alleviation	Access and recreation

Detail

Flood alleviation

Flood alleviation: Significant component

Table 2. Determining the level of priority to be given to flood alleviation

Category	Priority level	Performance of Area of Search
The River Severn Catchment Flood Management Plan Policy 4 or 5 area	1	
The River Severn Catchment Flood Management Plan Policy 3 area	2	✓
The River Severn Catchment Flood Management Plan Policy 2 area	3	
The River Severn Catchment Flood Management Plan Policy 1 area	-	

Key messages

A2.289. This area of search is in sub-area 8 of The River Severn Catchment Flood Management Plan (RSCFMP): "Middle Avon, Tributaries, Arrow and Alne, Redditch, Rugby and Teme". This is a Policy 3 area: "Areas of low to moderate flood risk where we [the Environment Agency] are generally managing existing flood risk effectively."

A2.290. The RSCFMP considers that the risks are currently managed appropriately in this sub-area and that the risk of flooding is not expected to increase significantly in the long-term.

A2.291. The consideration of surface and ground water flooding issues in the RSCFMP is limited due to a lack of available information. It is therefore worth noting that there is a general risk in Wychavon District from surface water flooding from sewers and overland flow. Groundwater flooding is not considered to be a major issue.

A2.292. The key messages in this sub-area which are relevant to mineral extraction and/or restoration are:

- to reduce dependence on raised flood defences, as this is unsustainable in the long term, by taking opportunities to restore sustainable natural storage of floodwater on undeveloped floodplains.
- Surface water flooding is a growing problem. Local authorities are mainly responsible for managing this, but it often has to be integrated with other organisations' assets, for example their sewers or rivers.
- Development/redevelopment must be managed to minimise flood risks. Methods must be sustainable over the long-term. For example, making more space for rivers through urban areas via 'blue corridors' (i.e. Restoring access for floodwater onto key strips of floodplain. This requires redevelopment to be limited to flood-compatible land-uses e.g. parkland).
- Some designated 'aquatic conservation' sites are in unfavourable condition (for example Teme SSSI). Activities that affect these sites must be changed to improve their condition.

A2.293. The proposed actions to implement the policy in this sub-area which are most relevant to mineral restoration are:

- Encourage rural and urban best practices in land-use and in land-management to restore more sustainable natural floodplains and to reduce run-off.
- Ensure that the run-off from all proposed development is minimised.
- Encourage compatibility between urban open spaces and their ability to make space for rivers to expand as flood flows occur and appraise strategies to create 'blue corridors' by developing/ redeveloping to link these flood-compatible spaces.
- Support ecological improvements. Examples of this include Severn & Avon Wetlands Project; Natural England's three fluvial SSSIs; Cotswold AONB.

Habitat quality and fragmentation

Habitat quality and fragmentation: Determining Factor

Table 3. Determining the level of priority to be given to habitat quality and fragmentation

		Biodiversity quality		
		High	Medium	Low
Landscape fragmentation	Low	1✓	2	3
	Medium	2	2	3
	High	2	3	3

Key messages

A2.294. The area of search contains a European designated SAC. It is not in the resource area but is included in the 200m buffer which forms part of the area of search.

A2.295. Biodiversity priorities identified for this area of search¹ focus on protecting, buffering and enhancing existing sites to create linked networks of habitat where possible. This includes calcareous grassland and scrub habitat. Maintain traditional field boundaries including hedges to aid habitat connectivity is also identified as a priority.

Water Quality

Water Quality: Not likely to be a significant consideration in this area of search

Table 4. Determining the level of priority to be given to water quality

		Chemical Status of water bodies within area of search		
		Fail	Good	Not required
Ecological Status of water bodies within area of search	Bad or Poor	1	1	1
	Moderate	1	2	2
	Good	2	3	3
	High	3	-	-
	No WFD water bodies in area of search	-	-	✓

¹ See ECA profile 6: Bredon Hill.

Key messages

A2.296. There are no Water Framework Directive watercourses in this Area of Search, however this area of search is in close proximity to a SAC. All watercourses in this area of search also drain into the Avon and then the River Severn so the consideration of broader impacts maybe relevant.

Geodiversity**Geodiversity: Determining factor****Table 5. Determining the level of priority to be given to geodiversity**

	Priority level	Performance of Area of Search
Area of search in or partially within the Cotswolds or Malvern Hills Area of Outstanding Natural Beauty	1	✓
Area of search in or partially within the Abberley and Malvern Hills Geopark	1	-
Area of search contains a geological SSSI or local geological site	2	-
Area of Search within 1km of geological SSSI or 500m of local geological site	3	-
Area of Search not in the Abberley and Malvern Hills Geopark and further than 1km from geological SSSI or 500m of local geological site	-	-

Key messages

A2.297. The way in which geodiversity can be considered in a restoration approach will vary significantly depending on the nature and location of the features to be incorporated, but it may be possible to protect certain geological features which are uncovered during extraction and incorporate them into the restoration scheme.

A2.298. Bredon Hill is effectively an outlying part of the Cotswold escarpment, which lies close to the east, and is formed of the same Jurassic (205-142 million years ago) rocks. The main mass of Bredon Hill is formed by clays and silts deposited in shallow sea, which are overlain by the iron-rich sandy limestone of the Marlstone Rock. The top of the hill is formed by the shallow marine sands and limestones of the Middle Jurassic Inferior Oolite. A zone of large, fossil landslips can be seen on the southern slope of Bredon Hill, north of Kemerton. These have occurred at the junction between the Inferior Oolite and the underlying clays of the Lias. The clays form an impenetrable barrier to water, which seeps naturally through the porous limestone above, forming a natural spring-line around the southern flanks of Bredon Hill.

A2.299. There is one geological SSSI in this area of search. This is Bredon Hill.

*Horticulture and food production***Horticulture and food production: Not likely to be significant component****Table 6. Determining the level of priority to be given to horticulture and food production**

Agricultural land	Priority level	Performance of Area of Search
More than ½ of the area of search classified as grade 1 or 2	1	
½ - ¼ of the area of search classified as grade 1 or 2	2	
Less than 1/4 grade of the area of search classified as grade 1 or 2	3	
None of the area of search classified as grade 1 or 2	-	✓

Key messages

- A2.300. Minerals site development and restoration could contribute to conserving high quality soil resources and safeguarding the long term potential of best and most versatile agricultural land by:
- stripping and storing soils in line with best practice guidance,
 - reinstating the original soil asset where possible,
 - concentrating high quality soil resources in restoring some parts of the site to high grade agricultural land and delivering low intensity grazing or wetland habitats in parts of the site with lower soil quality or where the lowered land level following mineral extraction does not allow for restoration of the entire area to high quality agricultural land.

*Historic Environment***Historic Environment: Determining factor/significant component****Table 7. Determining the level of priority to be given to the historic environment**

Potential for the presence of heritage assets	Priority level	Performance of Area of Search
More than ½ of the area of search identified as high potential	1	✓
½ to ¼ of the area of search identified as high potential	2	
Less than ¼ of the area of search identified as high potential	3	

Key messages²

- A2.301. The lower slopes, especially the gentler southern slopes are extremely rich in archaeological site, ranging from prehistoric, through Romano British, Anglo Saxon and medieval. There are 10 Scheduled ancient monuments in this Environmental Character Area, making it the highest density of designated sites in Worcestershire. Palaeolithic artefacts have been recovered making this area

² See ECA profile 6: Bredon Hill, available on www.worcestershire.gov.uk/mineralsbackground.

important for remains of this date. While much of the southern gravels have been worked, where undisturbed deposits occur there is a high potential for significant remains. The upper slopes of Bredon hill contain two Iron Age Hill Forts, while on the north-eastern slopes stands the remains of Elmley Castle.

Access and recreation

Access and Recreation: Significant component

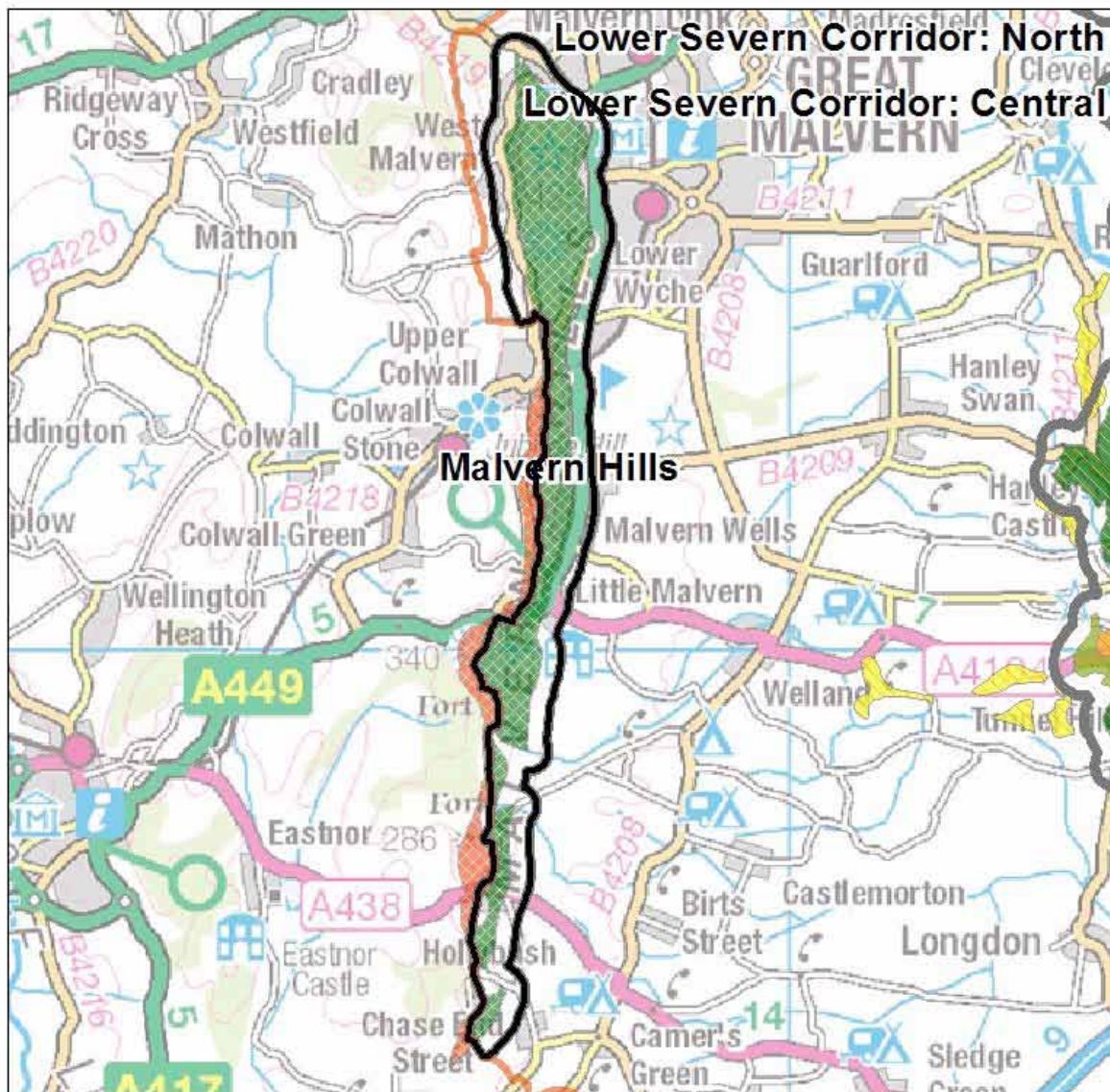
Table 8. Determining the level of priority to be given to the historic environment

	Priority level	Performance of Area of Search
Part of the minerals area of search identified as area of search for recreation in adopted or emerging local plan	1	
Part of the minerals area of search identified as area of search for recreation in Worcestershire GI Strategy	1	
Minerals area of search is in an area where less than 75% of households meet ANGSt standards for district scale provision (sites or habitats over 20ha within 2km)	2	✓
In area where more than 75% of households meet ANGSt standards for district scale provision and no areas of search for recreation have been identified.	3	

Key messages

A2.302. In Wychavon District only 44.2% of households are within 2km of a 20ha+ access and recreation site. There is potential to integrate access and recreation into broader restoration schemes.

Restoration profile for the area of search "Malvern Hills"



Legend

Worcestershire County Boundary

Areas of Search

Terrace and glacial sand and gravel resources

Key resource

Significant resource

Not significant

Compromised

Out of county

Solid sand resources

Key resource

Significant resource

Not significant

Compromised

Out of county

Crushed rock resources

Key resource

Significant resource

Out of county

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Overall approach

Landscape character

A2.303. The landscape character of this area is predominantly High Hills and Slopes, with areas of enclosed commons, unenclosed commons, principal timbered farmlands, sandstone estatelands and principal wooded hills:

- **High Hills and Slopes:** This is an unenclosed "highland" landscape characterised by its steeply sloping topography, shallow mineral soils and extensive tracts of rough grassland and heath. The large scale and open, exposed character is heightened by the dramatic form of the topography creating a wild and invigorating quality of place. This is a simple, yet visually distinctive landscape, not least for the contrast which it provides with the surrounding, less dramatic, enclosed agricultural landscapes.

The landscape guidelines in this landscape character type are to:

- Conserve all remaining areas of semi-natural grassland.
 - Restore areas of former grassland whilst acknowledging the need to retain other habitats of importance for endangered species.
 - Enhance the nature conservation interest of the whole area through appropriate sustainable management, with particular emphasis placed on restoring grazing at the necessary stocking densities.
 - Conserve the simple unity of the area, avoiding enclosure, built development and urban influences.
- **Unenclosed commons:** This is a category of landscape that offers tremendous variety of scale and size, the overriding characteristics being the lack of enclosure and, usually, a land use of rough grazing. The smaller unenclosed commons are ranked as features within other Landscape Types but a few are considered to be of sufficient extent to warrant separate classification. Settlement, where present, is usually restricted to wayside dwellings situated around the perimeter of the common.

The landscape guidelines in this landscape character type are to:

- Conserve and enhance the visual distinctiveness of open common areas.
 - Conserve and enhance the spatial pattern, scale and specific character of wayside dwellings associated with commons.
 - Recognising that each common will have a different historical profile, seek to define management objectives to integrate wildlife benefit, current recreational interests and other uses, together with the historical interest.
 - Seek to avoid municipal/tidy approaches to management.
- **Enclosed commons:** This is a category of landscape that offers tremendous variety of scale and size, the overriding characteristics being the lack of enclosure and, usually, a land use of rough grazing. The smaller unenclosed commons are ranked as features within other Landscape Types but a few are considered to be of sufficient extent to warrant separate classification. Settlement, where present, is usually

restricted to wayside dwellings situated around the perimeter of the common.

The landscape guidelines in this landscape character type are to:

- Conserve and enhance the visual distinctiveness of open common areas.
 - Conserve and enhance the spatial pattern, scale and specific character of wayside dwellings associated with commons.
 - Recognising that each common will have a different historical profile, seek to define management objectives to integrate wildlife benefit, current recreational interests and other uses, together with the historical interest.
 - Seek to avoid municipal/tidy approaches to management.
- **Principal Timbered Farmlands:** Principal Timbered Farmlands are rolling lowland landscapes with occasional steep sided hills and low escarpments. They have a small scale, wooded, agricultural appearance characterised by filtered views through densely scattered hedgerow trees. These are complex, in places intimate, landscapes of irregularly shaped woodlands, winding lanes and frequent wayside dwellings and farmsteads. The Principal Timbered Farmlands are characterised by a mosaic of agricultural land cleared directly from woodland, on a piecemeal basis, together with land enclosed from former localised areas of open fields, resulting in their dispersed pattern of farmsteads and wayside cottages and lack of strong settlement nuclei.

The landscape guidelines in this landscape character type are to:

- Maintain the tree cover character of hedgerow oaks, and enhance the age structure of the hedgerow oak population.
 - Conserve all ancient woodland sites and restock with locally occurring native species.
 - Seek to bring about coalescence of fragmented relic ancient woodlands.
 - Encourage the planting of new woodlands, reflecting the scale, shape and composition of the existing ancient woodland character, favouring oak as the major species.
 - Conserve and restore tree cover along water courses and streamlines.
 - Seek opportunities to enhance tree cover along highways and other non-farmed locations.
 - Conserve and restore the pattern and composition of the hedgerow structure through appropriate management, and replanting.
 - Conserve the organic pattern and character of the lane networks.
 - Maintain the historic dispersed settlement pattern.
- **Sandstone Estatelands:** These are open, rolling landscapes characterised by an ordered pattern of large, arable fields, straight roads and estate plantations. Fields are typically defined by straight thorn hedges, reflecting the late enclosure of much of this landscape from woodland and waste. This historic land use pattern is also reflected in the occurrence of isolated brick farmsteads and clusters of wayside dwellings, interspersed with occasional

small villages. Despite the fact that this is a functional landscape, the consistent geometric pattern can convey a strong sense of visual unity.

- Conserve and restore the distinctive hedgerow pattern with priority given to primary hedgerows.
 - Identify opportunities for further large scale planting of woodlands and tree belts to strengthen the regular patterns of the landscape.
 - Conserve and restore parklands.
 - Conserve and enhance tree cover along watercourses.
 - Conserve the integrity of estate villages.
 - Promote the creation and appropriate management of natural vegetation communities along highways and other non-farmed areas.
 - Promote the development of wide field margins for wildlife benefit.
- **Principal Wooded Hills:** These are upstanding, wooded landscapes with a sloping, in places steeply undulating topography, often on the edge of higher ground. These are landscapes of large, irregularly shaped ancient woodlands and wooded streamlines, typically forming an interlocking pattern with surrounding hedged fields. The flowing woodland cover is a key visual element within the landscape, resulting in a strong sense of unity and visual integration.

The landscape guidelines in this landscape character type are to:

- Conserve and restore the ancient broadleaved character of all woodlands.
- Seek to restore the wooded character of the area through large scale woodland planting in areas where the interlocking pattern has become diluted.
- Conserve and restore the irregular pattern of assarted fields.
- Strengthen the wooded character of hedgelines and streamlines through replanting or natural regeneration.
- New woodland planting and felling coupes should be carefully designed to take particular account of their visual impact.

Summary of priority levels

Table 1. Restoration priorities in Malvern Hills.

Determining Factors		
Habitat quality and fragmentation	Geodiversity	Historic Environment
Significant components		
Flood alleviation		
Integrate where possible		
Access and recreation		

Detail**Flood alleviation****Flood alleviation: Significant component****Table 2. Determining the level of priority to be given to flood alleviation**

Category	Priority level	Performance of Area of Search
The River Severn Catchment Flood Management Plan Policy 4 or 5 area	1	
The River Severn Catchment Flood Management Plan Policy 3 area	2	✓
The River Severn Catchment Flood Management Plan Policy 2 area	3	
The River Severn Catchment Flood Management Plan Policy 1 area	-	

Key messages

A2.304. This area of search spans the boundaries between sub-areas 6 and 8 of the River Severn Catchment Flood Management Plan (RSCFMP). These sub-areas have been allocated different flood risk management policies:

- Policy 2: "Areas of low to moderate flood risk where we [the Environment Agency] can generally reduce existing flood risk management actions" (sub-area 6);
- Policy 3: "Areas of low to moderate flood risk where we [the Environment Agency] are generally managing existing flood risk effectively" (sub-area 8); and

A2.305. Although the RSCFMP considers that for part of this area of search the risks are currently managed appropriately (sub-area 8) or that current and future risks to not warrant as much intervention such as maintaining existing defences (sub-area 6), part of the area of search requires action to be taken in the short term to reduce the level of existing flood risk.

A2.306. Over the next 50-100 years, the risk of flooding in all three sub-areas is expected to increase as a direct result of climate change and urbanisation and different methods of land management and land use will be needed to reverse these trends.

A2.307. The consideration of surface and ground water flooding issues in the RSCFMP is limited due to a lack of available information. The main cause of flooding in Malvern Hills District is from local watercourses and surface water sewers. In particular, rapid response catchments are of concern, and as many of the watercourses at risk are less than 3km² in area there are no flood risk maps covering these areas.

A2.308. The key messages in these sub-areas which are relevant to mineral extraction and/or restoration are:

- To take opportunities to restore sustainable natural storage of floodwater on undeveloped floodplains and to reduce dependence on raised flood defences, as this is unsustainable in the long term, and to offset increasing flood risk from trends including climate change.
- Surface water flooding is a growing problem. Local authorities are mainly responsible for managing this, but it often has to be integrated with other organisations' assets, for example their sewers or rivers.
- Development/redevelopment must be managed to minimise flood risks. Methods must be sustainable over the long-term. For example, making more space for rivers through urban areas via 'blue corridors' (i.e. Restoring access for floodwater onto key strips of floodplain. This requires redevelopment to be limited to flood-compatible land-uses e.g. parkland).
- Some designated 'aquatic conservation' sites are in unfavourable condition. Activities that affect these sites must be changed to improve their condition.

A2.309. The proposed actions to implement the policies in this sub-area which are most relevant to mineral restoration are:

- Encourage rural and urban best practices in land-use and in land-management to restore more sustainable natural floodplains and to reduce run-off.
- Encourage developers to increase the resilience and resistance of vulnerable buildings, infrastructure and businesses.
- Ensure floodplains are not inappropriately developed, following the sequential approach.
- Seek opportunities to improve watercourses where it would benefit fisheries (especially salmon).
- Ensure that the run-off from all proposed development is minimised.
- Encourage compatibility between urban open spaces and their ability to make space for rivers to expand as flood flows occur and appraise strategies to create 'blue corridors' by developing/ redeveloping to link these flood-compatible spaces.
- Support ecological improvements. Examples of this include Severn & Avon Wetlands Project; Natural England's three fluvial SSSIs; Cotswold AONB.
- Review how effective and sustainable each flood defence is, and review maintenance operations to ensure they are proportionate to flood risk.
- Manage the undeveloped floodplain for targeted storage of floodwater.

Habitat quality and fragmentation

Habitat quality and fragmentation: Determining factor

Table 3. Determining the level of priority to be given to habitat quality and fragmentation

		Biodiversity quality		
		High	Medium	Low
Landscape fragmentation	Low	1✓	2	3
	Medium	2	2	3
	High	2	3	3

Key messages

A2.310. The majority of this area of search is covered by SSSI designations.

A2.311. Biodiversity priorities identified for this area of search¹ focus on protecting, buffering and enhancing existing sites to create linked networks of habitat where possible. This includes grasslands and the wooded landscape. Maintain traditional field boundaries including hedges to aid habitat connectivity is also identified as a priority.

Water Quality

Water Quality: Not likely to be a significant consideration in this area of search

Table 4. Determining the level of priority to be given to water quality

		Chemical Status of water bodies within area of search		
		Fail	Good	Not required
Ecological Status of water bodies within area of search	Bad or Poor	1	1	1
	Moderate	1	2	2
	Good	2	3	3
	High	3	-	-
	No WFD water bodies in area of search	-	-	✓

Key messages

A2.312. There are no Water Framework Directive watercourses in this Area of Search.

¹ See ECA profile 9: Malvern Chase and Commons, available on www.worcestershire.gov.uk/mineralsbackground.

Geodiversity

Geodiversity: Determining factor

Table 5. Determining the level of priority to be given to geodiversity

	Priority level	Performance of Area of Search
Area of search in or partially within the Cotswolds or Malvern Hills Area of Outstanding Natural Beauty	1	✓
Area of search in or partially within the Abberley and Malvern Hills Geopark	1	-
Area of search contains a geological SSSI or local geological site	2	-
Area of Search within 1km of geological SSSI or 500m of local geological site	3	-
Area of Search not in the Abberley and Malvern Hills Geopark and further than 1km from geological SSSI or 500m of local geological site	-	-

Key messages

A2.313. Much of the Malvern Hills is designated as a geological SSSI.

A2.314. There are also 15 local geological sites in this ECA. Eleven of these are associated with historic quarrying activities at Gullet Quarry, Swinyard Hill Quarry, Broad Down Quarry, Gorse Bank Pit, Dingle Quarry, Earnslaw Quarry, Park Wood Quarries, Scar Quarry, Tank Quarry, Upper Wyche Quarry, Westminster Bank Quarry and Little Malvern Quarry. The remaining 4 local geological sites are Highwood Sports Field, Rushy Valley, Wide Valley and Ivy Scar Rock.

A2.315. The way in which geodiversity can be considered in a restoration approach will vary significantly depending on the nature and location of the features to be incorporated, but it may be possible to protect certain geological features which are uncovered during extraction and incorporate them into the restoration scheme.

Horticulture and food production

Horticulture and food production: Not likely to be a significant consideration in this area of search

Table 6. Determining the level of priority to be given to horticulture and food production

Agricultural land	Priority level	Performance of Area of Search
More than ½ of the area of search classified as grade 1 or 2	1	
½ - ¼ of the area of search classified as grade 1 or 2	2	
Less than 1/4 grade of the area of search classified as grade 1 or 2	3	
None of the area of search classified as grade 1 or 2	-	✓

Key messages

A2.316. Minerals site development and restoration could contribute to conserving high quality soil resources and safeguarding the long term potential of best and most versatile agricultural land by:

- stripping and storing soils in line with best practice guidance,
- reinstating the original soil asset where possible,
- concentrating high quality soil resources in restoring some parts of the site to high grade agricultural land and delivering low intensity grazing or wetland habitats in parts of the site with lower soil quality or where the lowered land level following mineral extraction does not allow for restoration of the entire area to high quality agricultural land.

Historic Environment

Historic Environment: Determining factor

Table 7. Determining the level of priority to be given to the historic environment

Potential for the presence of heritage assets	Priority level	Performance of Area of Search
More than ½ of the area of search identified as high potential	1	✓
½ to ¼ of the area of search identified as high potential	2	
Less than ¼ of the area of search identified as high potential	3	

Key messages

A2.317. This large area of search contains a diverse landscape, with the dominant Malvern Hills having impressive Iron Age Hill Fort, earlier landscape boundaries, and industrial heritage.

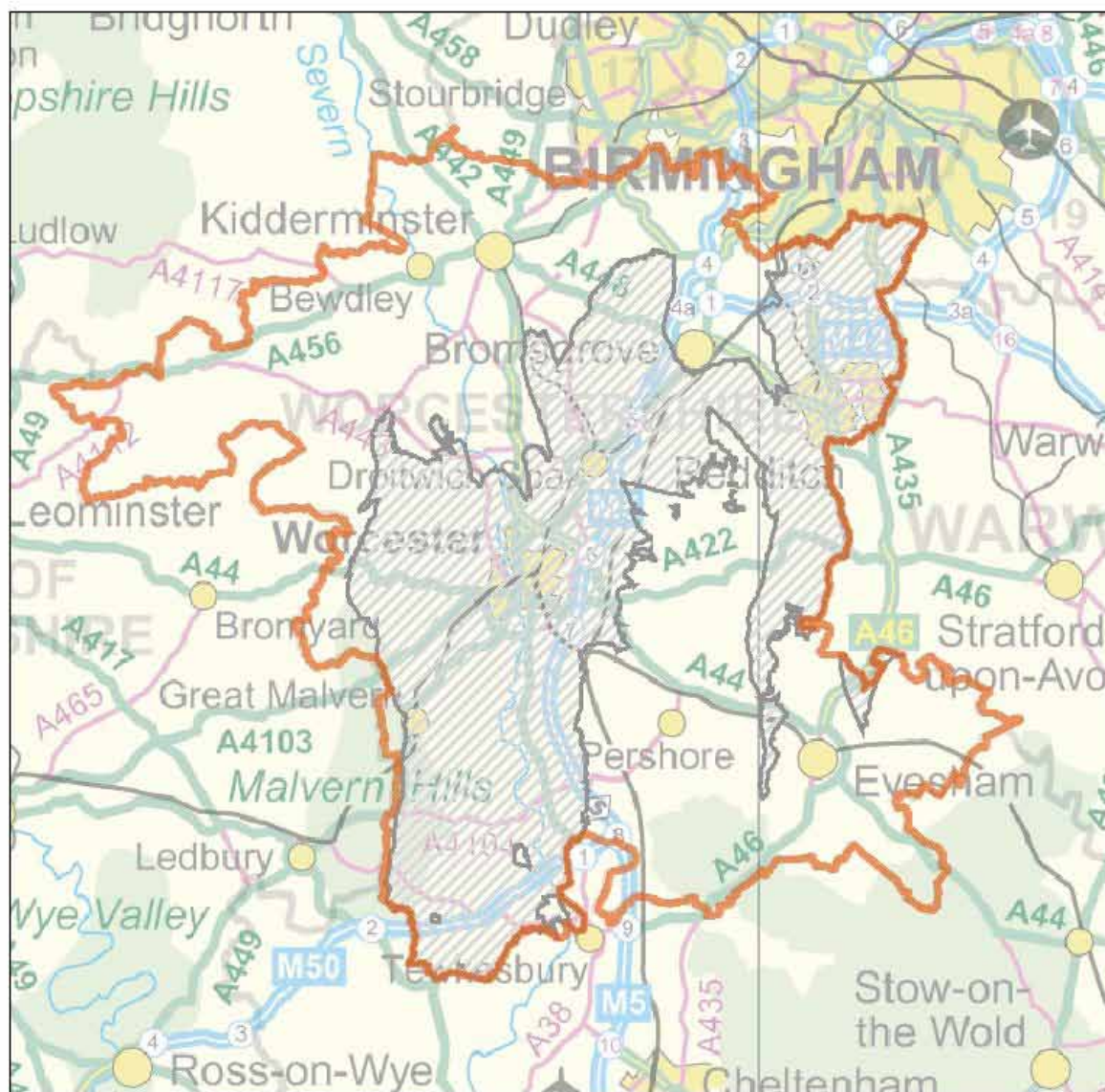
*Access and recreation***Access and Recreation: Significant component****Table 8. Determining the level of priority to be given to the historic environment**

	Priority level	Performance of Area of Search
Part of the minerals area of search identified as area of search for recreation in adopted or emerging local plan	1	
Part of the minerals area of search identified as area of search for recreation in Worcestershire GI Strategy	1	
Minerals area of search is in an area where less than 75% of households meet ANGSt standards for district scale provision (sites or habitats over 20ha within 2km)	2	
In area where more than 75% of households meet ANGSt standards for district scale provision and no areas of search for recreation have been identified.	3	✓



Key messages

A2.318. In Malvern Hills District 88% of households are within 2km of a 20ha+ access and recreation site. There is however potential to integrate access and recreation into broader restoration schemes.

Appendix 3: Restoration profile for the opportunity area for clay



Legend

-  Worcestershire County Boundary
-  Clay opportunity area

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Overall approach

Landscape character

A3.1. The opportunity area for clay lies within two regional character areas, Arden and Mid Worcestershire Forests, and within these includes 11 local landscape character types. The largest area of these landscape types is Principal Timbered Farmlands but in the north east of the county significant parts of the opportunity area lie within Timbered Pastures, Principal Wooded Hills and Wooded Estate land, in the south east parts of the opportunity area lie within Settled Farmlands with Pastoral Land use, Unenclosed and Enclosed Commons. Alongside the River Severn and other watercourses the opportunity area includes Estate Farmlands, Settled Farmlands on River Terraces, Wet Pasture Meadows and Riverside Meadows. Clay strata have important effects on the land uses possible on them and the landscapes they create and there are common elements to many of these landscape types, notably, significant tree cover, pasture rather than arable farming and wetland features. These are reflected in the detailed summaries of the character types below.

- **Principal Timbered Farmlands:** Principal Timbered Farmlands are rolling lowland landscapes with occasional steep sided hills and low escarpments. They have a small scale, wooded, agricultural appearance characterised by filtered views through densely scattered hedgerow trees. These are complex, in places intimate, landscapes of irregularly shaped woodlands, winding lanes and frequent wayside dwellings and farmsteads.

The Principal Timbered Farmlands are characterised by a mosaic of agricultural land cleared directly from woodland, on a piecemeal basis, together with land enclosed from former localised areas of open fields, resulting in their dispersed pattern of farmsteads and wayside cottages and lack of strong settlement nuclei.

The landscape guidelines in this landscape character type are to:

- Maintain the tree cover character of hedgerow oaks, and enhance the age structure of the hedgerow oak population.
- Conserve all ancient woodland sites and restock with locally occurring native species.
- Seek to bring about coalescence of fragmented relic ancient woodlands.
- Encourage the planting of new woodlands, reflecting the scale, shape and composition of the existing ancient woodland character, favouring oak as the major species.
- Conserve and restore tree cover along water courses and streamlines.
- Seek opportunities to enhance tree cover along highways and other non-farmed locations.
- Conserve and restore the pattern and composition of the hedgerow structure through appropriate management, and replanting.
- Conserve the organic pattern and character of the lane networks.
- Maintain the historic dispersed settlement pattern.

- **Timbered Pastures** are small-scale, settled, pastoral landscapes characterised by filtered views through densely scattered hedgerow trees. The oak trees convey a sense of scale and stature combined with a feeling of maturity and history. This is a complex landscape of relic commons and former wood pasture, reflected today by an intermixed pattern of irregular fields and scattered farms occurring next to areas of geometric enclosure, straight roads and strings of wayside dwellings.

The landscape guidelines in this landscape character type are to:

- Conserve the dominant presence and density of hedgerow oak trees.
 - Conserve and restore the small-scale pattern of hedged fields, through appropriate management.
 - Conserve the pastoral land use character.
 - Conserve the distinctive pattern and character of wayside dwellings.
 - Maintain the distinctive density of ponds.
 - Seek opportunities to reintroduce the character of unenclosed commons through creative design.
 - Conserve the distinctive pattern and character of narrow, winding lanes.
 - Seek opportunities to enhance tree cover along highways and other non-farmed locations.
- **Principal Wooded Hills:** These are upstanding, wooded landscapes with a sloping, in places steeply undulating topography, often on the edge of higher ground. These are landscapes of large, irregularly shaped ancient woodlands and wooded streamlines, typically forming an interlocking pattern with surrounding hedged fields. The flowing woodland cover is a key visual element within the landscape, resulting in a strong sense of unity and visual integration.

The landscape guidelines in this landscape character type are to:

- Conserve and restore the ancient broadleaved character of all woodlands.
 - Seek to restore the wooded character of the area through large scale woodland planting in areas where the interlocking pattern has become diluted.
 - Conserve and restore the irregular pattern of assarted fields.
 - Strengthen the wooded character of hedgelines and streamlines through replanting or natural regeneration.
 - New woodland planting and felling coupes should be carefully designed to take particular account of their visual impact.
- **Wooded Estatelands:** This is a large scale, wooded agricultural landscape of isolated brick farmsteads, clusters of wayside dwellings and occasional small estate villages. The key visual element in this landscape is the frequent large, irregularly shaped ancient woodlands, often prominently situated on low crests. It is a landscape that, due to its scale, lacks intimacy and can appear rather functional.

The landscape guidelines in this landscape character type are to:

- Conserve all ancient woodland sites and restock with locally occurring native species.
 - Promote new large scale woodland planting.
 - New woodland planting should be of native broadleaved species, favouring oak as the dominant species and relate to the scale and spatial pattern of the Landscape Type.
 - Conserve and restore the hedgerow pattern, particularly primary hedgerows and hedgerow tree cover.
 - Seek to ensure hedgerow linkage to all woodland blocks, for visual cohesion and wildlife benefit.
 - Conserve and restore parkland including historically correct ornamental planting and with an emphasis on arable reversion.
 - Conserve the integrity of estate villages and their associated tree cover.
- **Settled Farmlands with Pastoral Land Use:** These are small-scale rolling lowland, settled agricultural landscapes with a dominant pastoral land use, defined by their hedged fields. Hedgerow and streamside trees, together with those associated with settlement provide tree cover in a landscape with a notable network of winding lanes, scattered farms and clusters of wayside settlements.

The landscape guidelines in this landscape character type are to:

- Conserve and enhance the pattern of hedgerows.
 - Maintain overall pastoral land use.
 - Seek opportunities to conserve all remaining areas of permanent pasture.
 - Conserve and enhance tree cover along watercourses.
 - Conserve hedgerow tree populations and promote new hedgerow tree planting.
 - Retain the integrity of the dispersed pattern of settlement.
- **Unenclosed commons:** This is a category of landscape that offers tremendous variety of scale and size, the overriding characteristics being the lack of enclosure and, usually, a land use of rough grazing. The smaller unenclosed commons are ranked as features within other Landscape Types but a few are considered to be of sufficient extent to warrant separate classification. Settlement, where present, is usually restricted to wayside dwellings situated around the perimeter of the common.

The landscape guidelines in this landscape character type are to:

- Conserve and enhance the visual distinctiveness of open common areas.
- Conserve and enhance the spatial pattern, scale and specific character of wayside dwellings associated with commons.
- Recognising that each common will have a different historical profile, seek to define management objectives to integrate wildlife

benefit, current recreational interests and other uses, together with the historical interest.

- Seek to avoid municipal/tidy approaches to management.
- **Enclosed commons:** This is a category of landscape that offers tremendous variety of scale and size, the overriding characteristics being the lack of enclosure and, usually, a land use of rough grazing. The smaller unenclosed commons are ranked as features within other Landscape Types but a few are considered to be of sufficient extent to warrant separate classification. Settlement, where present, is usually restricted to wayside dwellings situated around the perimeter of the common.

The landscape guidelines in this landscape character type are to:

- Conserve and enhance the visual distinctiveness of open common areas.
- Conserve and enhance the spatial pattern, scale and specific character of wayside dwellings associated with commons.
- Recognising that each common will have a different historical profile, seek to define management objectives to integrate wildlife benefit, current recreational interests and other uses, together with the historical interest.
- Seek to avoid municipal/tidy approaches to management.
- **Estate Farmlands:** This is an ordered agricultural landscape characterised by a sub-regular pattern of medium to large sized fields, small geometric plantations and groups of ornamental trees associated with large country houses. Settlement is largely restricted to discrete clusters of dwellings and occasional small estate villages.

The landscape guidelines in this landscape character type are to:

- Enhance tree cover through further planting of small scale plantations and tree belts.
- Conserve the pattern of hedged fields, with priority given to primary hedgelines.
- Conserve and restore parkland and the tree cover associated with large ornamental grounds.
- Conserve and enhance the tree cover along water courses.
- Promote the development of wide field margins for wildlife benefit.
- Conserve the integrity of estate villages.
- **Settled Farmlands on River Terraces:** This is a medium scale, settled agricultural landscape where horticulture and cropping is the dominant land use, reflecting the fertile free draining soils. The settlement pattern is represented by scattered farms and clusters of wayside dwellings, linked by a matrix of winding lanes. Fields are bounded by hedgerows, with tree cover largely concentrated in groups associated with dwellings.

The landscape guidelines in this landscape character type are to:

- Retain the integrity of the dispersed settlement pattern.
- Conserve and enhance tree cover along watercourses.

- Seek to maintain cropping/horticultural land uses.
 - Enhance patterns of tree cover associated with settlement.
 - Conserve and enhance patterns of hedgerows.
- **Wet Pasture Meadows:** A flat, low-lying, largely uninhabited landscape associated with irregularly shaped, poorly draining basins fringed by low hills or scarps. This is a secluded pastoral landscape characterised by a regular pattern of hedged fields and ditches fringed by lines of willow and alder. Pollarded willows are often a distinctive feature.

The landscape guidelines in this landscape character type are to:

- Conserve all permanent pasture.
 - Conserve and restore linear tree cover along watercourses, ditches and hedgelines.
 - Seek opportunities to encourage the conversion of arable land back to pasture.
 - Encourage the retention and appropriate management of existing wetland habitats.
 - Encourage the creation of new wetland habitats.
 - Discourage activities likely to increase the drainage, or lower the water table of these areas.
 - Discourage any building or construction works in these landscapes.
- **Riverside Meadows:** Riverside meadows are linear riverine landscapes associated with a flat, generally well-defined alluvial floodplain, in places framed by steeply rising ground. These are secluded pastoral landscapes, characterised by meandering, tree-lined rivers, flanked by alluvial meadows which are defined by hedge and ditch boundaries. Settlement is typically absent.

The landscape guidelines in this landscape character type are to:

- Seek to retain the unity of the linear form of these landscapes.
- Conserve all existing areas of permanent pasture.
- Seek opportunities to encourage the conversion of arable land back to pasture.
- Conserve and enhance continuous tree cover along hedgelines, ditches and watercourses.
- Conserve existing wetland habitats and seek opportunities for further wetland habitat creation.
- Avoid building or road construction works.
- Avoid further drainage of waterside meadows.
- Explore opportunities to return to patterns and processes of natural flooding cycles.

Summary of priority levels

Table 1. Restoration priorities in the opportunity area for clay.

Determining Factors				
Flood alleviation	Water quality	Geodiversity	Historic environment	Access and recreation
Significant components				
Habitat quality and fragmentation				
Integrate where possible				
Horticulture and food production				

Detail

Flood alleviation

Flood alleviation: Determining Factor

Table 2. Determining the level of priority to be given to flood alleviation

Category	Priority level	Performance of opportunity area
The River Severn Catchment Flood Management Plan Policy 4 or 5 area	1	✓
The River Severn Catchment Flood Management Plan Policy 3 area	2	
The River Severn Catchment Flood Management Plan Policy 2 area	3	
The River Severn Catchment Flood Management Plan Policy 1 area	-	

Key messages

- A3.2. The opportunity area for clay lies within 4 sub-areas of the River Severn Catchment Flood Management Plan (RSCFMP). Although none of the sub-areas dominates the opportunity area, significant parts are within Environment Agency RSCFMP policy option 4 and 5 areas where the Environment Agency considers further action to manage flood risk is important.
- A3.3. The north western part of the opportunity area is in sub-area 4 "Middle Severn Corridor". This is a policy option 4 area: "Areas of low, moderate or high flood risk where we [the Environment Agency] are already managing the flood risk effectively but where we may need to take further actions to keep pace with climate change".
- A3.4. The RSCFMP considers that the risks are currently managed appropriately in this sub-area but the risk of flooding is expected to significantly rise in the future.

A3.5. The key messages in this sub-area which are relevant to mineral extraction and/or restoration are:

- to reduce dependence on raised flood defences as this is not sustainable in the long term, by taking opportunities to restore sustainable natural storage of floodwater on undeveloped floodplains.
- Surface water flooding is a growing problem. Local authorities are mainly responsible for managing this, but it often has to be integrated with other organisations' assets, for example their sewers or rivers.
- Development/redevelopment must be managed to minimise flood risks. Methods must be sustainable over the long-term. For example, making more space for rivers through urban areas via 'blue corridors' (i.e. Restoring access for floodwater onto key strips of floodplain. This requires redevelopment to be limited to flood-compatible land-uses e.g. parkland.)

A3.6. The proposed actions to implement the policy in this sub-area which are most relevant to mineral restoration are:

- Ensure floodplains are not inappropriately developed. Follow the 'sequential approach' of PPS 25, and consider land swapping opportunities.
- Encourage compatibility between urban open spaces, and their ability to make space for rivers to expand as flood flows occur. One example of a flood-compatible use is playing fields. Develop strategies to create 'blue corridors' by developing/redeveloping to link these flood-compatible spaces.
- Encourage rural and urban best practices in land-use and in land-management to restore more sustainable natural floodplains and to reduce run-off.
- Review how effective and sustainable each flood defence is. Review maintenance operations to ensure they are proportionate to flood risk. Focus efforts on protecting communities and making them more resilient to flooding. It should be noted that protecting large areas of agricultural land in the floodplain tends to increase flood risk for downstream communities.
- Seek ecological improvements.

A3.7. Only a small part of the opportunity area is in Wyre Forest District but drainage problems and flash flooding from smaller watercourses, a number of which have not been enained has caused significant local flooding in recent times. Surface water run-off remains an important issue in this area.

A3.8. The Environment Agency is not aware of any specific incidences of groundwater flooding within the Wyre Forest District.

A3.9. The eastern part is in sub-area 5 "Telford, Black country, Bromsgrove, Kidderminster and Severn cluster", this is a policy option 5 area in the RSCFMP.

A3.10. The RSCFMP consider that these are "areas of moderate to high flood risk where we [the Environment Agency] can generally take further action to reduce flood risk".

A3.11. The key messages in this sub-area which are relevant to mineral extraction and/or restoration are:

- Ensure floodplains are not inappropriately developed.
- Encourage compatibility between urban open spaces and their ability to make space for rivers to expand as flood flows occur.
- Develop strategies to create 'blue corridors' by developing/redeveloping to link these flood-compatible spaces.
- Manage fly-tipping [on floodplains and in channels.] Avoid excessive silt accumulation in artificial channels [Either by channel modifications or by de-silting.] Focus on bottlenecks

A3.12. Groundwater flooding is not a particular cause for concern within this sub-area; the underlying aquifer tends to drain when water levels within it become too high. Groundwater flooding has never been a problem in the western, Malvern Hills district, part of the opportunity area and the Environment Agency has also stated that due to the high levels of abstraction from this aquifer for water supply, the groundwater levels have never reached the surface in the west of the area.

A3.13. The central, and western, parts of the opportunity area are in sub-area 8, "Middle Avon, Tributaries, Arrow and Alne, Redditch, Rugby and Teme". This is a Policy 3 area: "Areas of low to moderate flood risk where we [the Environment Agency] are generally managing existing flood risk effectively."

A3.14. The RSCFMP considers that the risks are currently managed appropriately in this sub-area and that the risk of flooding is not expected to increase significantly in the long-term.

A3.15. The consideration of surface and ground water flooding issues in the RSCFMP is limited due to a lack of available information. It is therefore worth noting that there is a general risk in Wychavon District from surface water flooding from sewers and overland flow. Groundwater flooding is not considered to be a major issue in the parts of the resource in Wychavon.

A3.16. Neither fluvial or groundwater flooding are a significant problem in either Bromsgrove or Redditch Districts. As commented above surface water run-off is an important issue in Wyre Forest District.

A3.17. The key messages in this sub-area which are relevant to mineral extraction and/or restoration are:

- to reduce dependence on raised flood defences, as this is unsustainable in the long term, by taking opportunities to restore sustainable natural storage of floodwater on undeveloped floodplains.
- Surface water flooding is a growing problem. Local authorities are mainly responsible for managing this, but it often has to be integrated with other organisations' assets, for example their sewers or rivers.
- Development/redevelopment must be managed to minimise flood risks. Methods must be sustainable over the long-term. For example, making more space for rivers through urban areas via 'blue corridors' (i.e. Restoring access for floodwater onto key strips of floodplain. This requires redevelopment to be limited to flood-compatible land-uses e.g. parkland).

- Some designated 'aquatic conservation' sites are in unfavourable condition (for example Teme SSSI). Activities that affect these sites must be changed to improve their condition.

A3.18. The proposed actions to implement the policy in this sub-area which are most relevant to mineral restoration are:

- Encourage rural and urban best practices in land-use and in land-management to restore more sustainable natural floodplains and to reduce run-off.
- Ensure that the run-off from all proposed development is minimised.
- Encourage compatibility between urban open spaces and their ability to make space for rivers to expand as flood flows occur and appraise strategies to create 'blue corridors' by developing/ redeveloping to link these flood-compatible spaces.
- Support ecological improvements. Examples of this include Severn & Avon Wetlands Project; Natural England's three fluvial SSSIs; Cotswold AONB.

A3.19. The south western part of the opportunity area is in sub area 6 "Lower Severn Corridor", this is a policy option 2 area: "Areas of low to moderate flood risk where we [the Environment Agency] can generally reduce existing flood risk management actions".

A3.20. The proposed actions to implement the policy in this sub-area which are most relevant to mineral restoration are:

- Encourage rural and urban best practices in land-use and in land-management to restore more sustainable natural floodplains and to reduce run-off.
- Ensure floodplains are not inappropriately developed. Follow the 'sequential approach' of PPS 25, and consider land swapping opportunities.
- Review how effective and sustainable flood defences are. Ensure that maintenance operations are proportionate to flood risk
- Seek opportunities to improve watercourses where it would benefit fisheries (especially salmon.)

A3.21. Two matters particularly need attention in this part of the opportunity area:

- the main cause of flooding in Malvern Hills District is from local watercourses and surface water sewers. In particular, rapid response catchments are of concern, and as many of the watercourses at risk are less than 3km² in area there are no flood risk maps covering these areas. Where proposed minerals sites are located in such catchments, further assessment may be needed to determine the level of risk and
- the area of the Severn Internal Drainage Board within the South Worcestershire Joint Core Strategy area is limited to the Longdon Marshes in the south of this area. The main flood risk issue for the Severn IDB is the condition of the Longdon Brook which will affect the IDB drains that drain to it. Only 1 or 2 flooding reports were received in 2007 but these could increase if the Longdon Brook is not maintained. Any development proposals affecting the Longdon Marshes or Longdon Brook

will need to be discussed with the Severn IDB to agree strategies for surface water disposal and flood protection.

Habitat quality and fragmentation

Habitat quality and fragmentation: Significant component

Table 3. Determining the level of priority to be given to habitat quality and fragmentation

		Biodiversity quality		
		High	Medium	Low
Landscape fragmentation	Low	1	2✓	3
	Medium	2	2	3
	High	2	3	3

Key messages

A3.22. The clay opportunity area includes parts of at least 9 non-urban Environmental Character Areas (in order of roughly decreasing size of the area covered by each ECA, these are ECAs 9, 20, 19, 14, 2, 13, 12, 5 and 21). The Biodiversity priorities identified are accordingly wide ranging, there are however significant common elements. In many of these ECAs managing and buffering of existing habitats is a first principle, with an emphasis on newly created Green Infrastructure augmenting the existing resource together with linking field boundaries and priority habitats. BAP grasslands, tree cover and broadleaved woodland in particular are important in many locations and biodiversity value in places is quite high where semi-natural habitats remain unimproved, although they are highly variable in quality. Restoration should focus on maintaining the river corridors as key green infrastructure links, with the floodplains being critical for a number of GI aspirations.

A3.23. All but the westernmost part of the Malvern Chase Laughern Valley Biodiversity Delivery Area is within the deposit. Malvern Chase occupies the land between the Malvern Hills and the River Severn in Worcestershire and extends to Herefordshire from the River Teme. The Malvern Chase and the Laugherne Valley together contain a rich mosaic of acid grassland and species-rich neutral meadows, traditional orchard, wooded hills and valleys, parkland and scrub. Hedgerows and veteran oak pollards are a characteristic feature and around the commons black poplars are frequent as roadside and streamside trees.

A3.24. Minerals development and restoration could contribute towards the delivery of biodiversity priorities in this BDA by:

- Restoring connectivity of habitats by restoring hedgerows, hedgerow tree networks, pond networks and connections between blocks of ancient woodland
- Restoring land to lowland meadows, acid grassland and traditional orchard sites and making provision for their long-term management.

- Restoring wood pasture and parkland and protecting veteran trees.

A3.25. The Severn and Avon Vales and Bow Brook Biodiversity Delivery Areas (BDAs) cover parts of this opportunity area.

A3.26. Minerals development and restoration could contribute towards the delivery of biodiversity priorities in both of these BDAs by:

- Restoring the functionality and biodiversity value of the wetland/floodplain ecosystem
- Contributing to the delivery of Water Framework Directive targets through reversion of arable land to wet grassland
- Creating new wetland habitat including reedbed, fen, marsh and ditch networks
- Creating ecological networks that are resilient to climate change.

A3.27. The Forest of Feckenham Biodiversity Delivery Area (BDA) covers part of the south east of the opportunity area. Minerals development and restoration could contribute towards the delivery of biodiversity priorities in this BDA through the creation, restoration and management of lowland meadows, traditional orchards, native woodland, veteran trees and hedgerows, with small meadow and orchard sites.

Water Quality

Water Quality: Determining factor

Table 4. Determining the level of priority to be given to water quality

		Chemical Status of water bodies within area of search		
		Fail	Good	Not required
Ecological Status of water bodies within area of search	Bad or Poor	1 ✓	1	1
	Moderate	1	2	2
	Good	2	3	3
	High	3	-	-
	No WFD water bodies in area of search	-	-	-

Key messages

A3.28. There are 32 Water Framework Directive Water Courses in this Area of Search:

River Cole - source to Springfield

Chemical Status: Does not require assessment

Ecological Status: **Moderate**

River Alne - source to confluence with Preston Bagot Brook

Chemical Status: Does not require assessment

Ecological Status: **Good**

River Arrow - source to Sperrall Hall Farm, Studley

Chemical Status: **Fail**

Ecological Status: **Moderate**

Bow Brook - source to Lett's Mill

Chemical Status: **Good**

Ecological Status: **Moderate**

Piddle Brook - source to confluence with Whitsunn Brook

Chemical Status: Does not require assessment

Ecological Status: **Good**

Whitsunn Brook - source to confluence with Piddle Brook

Chemical Status: Does not require assessment

Ecological Status: **Moderate**

Harvington Brook - source to confluence with River Avon

Chemical Status: Does not require assessment

Ecological Status: **Poor**

River Avon- Tramway Bridge Stratford to Workman Bridge Evesham

Chemical Status: **Good**

Ecological Status: **Moderate**

Elmley Castle - source to confluence with River Avon

Chemical Status: Does not require assessment

Ecological Status: **Moderate**

Worcester & Birmingham Canal - Kings Norton Junction to Tardebigge Top Lock

Chemical Status: Does not require assessment

Ecological Status: **Good**

Worcester & Birmingham Canal - Tardebigge Top Lock to River Severn

Chemical Status: Does not require assessment

Ecological Status: **Good**

River Salwarpe - to confluence with Elmbridge Brook

Chemical Status: **Good**

Ecological Status: **Moderate**

Hadley Brook - source to confluence with River Salwarpe

Chemical Status: Does not require assessment

Ecological Status: **Moderate**

Elmbridge Brook - source to confluence with River Salwarpe

Chemical Status: Does not require assessment

Ecological Status: **Moderate**

Droitwich canal

Chemical Status: Does not require assessment

Ecological Status: **Moderate Potential**

River Severn – confluence with River Stour to confluence with River Teme

Chemical Status: Does Not Require Assessment

Ecological Status: **Moderate Potential**

Shrawley Brook - source to confluence with River Severn

Chemical Status: Does not require assessment

Ecological Status: **Bad**

Grimley Brook - source to confluence with River Severn

Chemical Status: Does not require assessment

Ecological Status: **Moderate**

Laughern Brook - source to confluence with River Teme

Chemical Status: Does not require assessment

Ecological Status: **Moderate**

River Teme – confluence with River Onny to confluence with River Severn

Chemical Status: **Fail**

Ecological Status: **Good**

Leigh-Cradley Brook – confluence with unnamed tributary to confluence River Teme

Chemical Status: Does not require assessment

Ecological Status: **Moderate**

Careys Brook - source to confluence with River Severn

Chemical Status: Does not require assessment

Ecological Status: **Moderate**

River Severn – confluence with River Teme to confluence with River Avon

Chemical Status: **Good**

Ecological Status: **Moderate Potential**

Madresfield Brook - source to confluence with River Severn

Chemical Status: **Good**

Ecological Status: **Moderate**

Pool Brook - source to confluence with Mere Brook

Chemical Status: Does not require assessment

Ecological Status: **Moderate**

Mere rook - source to confluence with Pool Brook

Chemical Status: Does not require assessment

Ecological Status: **Moderate**

MarlBank Brook - source to confluence with Bushley Brook

Chemical Status: Does not require assessment

Ecological Status: **Bad**

Pool Brook - confluence with Mere Brook to confluence with River Severn

Chemical Status: Does not require assessment

Ecological Status: **Poor**

Unnamed tributary - source to confluence with Longdon Brook

Chemical Status: Does not require assessment

Ecological Status: **Moderate**

Bushley Brook – confluence with MarlBank Brook to confluence with River Severn

Chemical Status: Does not require assessment

Ecological Status: **Moderate**

Ripple Brook - source to confluence with River Severn

Chemical Status: Does not require assessment

Ecological Status: **Moderate**

Longdon Brook - source to confluence with unnamed tributary

Chemical Status: Does not require assessment

Ecological Status: **Moderate**

A3.29. The opportunity area for clay covers a very large part of the county and it would be surprising therefore if it did not include watercourses of every quality. It is noteworthy however that the 2 watercourses that fail on chemical status, the Rivers Teme and Arrow, are both significant rivers. In contrast, the 4 watercourses that are designated bad or poor ecological quality are all short in length, and 2 of them are linked.

A3.30. Clay particles tend to remain in suspension for a significant length of time which means that water within the worked area could worsen water quality problems if not managed properly. Although there may be some opportunities to contribute to water quality improvements, it is difficult to identify specific actions which could be implemented across the whole opportunity area, and this will need to be considered on a site-by-site basis in relation to nearby watercourses.

A3.31. Water quality is nonetheless important and 6 watercourses, of the 32 in this resource area, do not achieve a satisfactory standard. For these reasons, we have categorised water quality as **determining factor** for the opportunity area for clay at this stage.

A3.32. If, as a result of consultation responses, we are able to refine the opportunity area, we would like to give some high-level guidance on how it could be addressed. We are aware that the Environment Agency is working on Water Improvement Plans and Water Action Plans to implement the objectives of the WFD and hope that this will be useful in helping us develop this guidance.

A3.33. However these are not currently available. If they are completed during the preparation of the Minerals Local Plan we will consider opportunities to take them into account in this methodology and the area of search restoration priority profiles.

Geodiversity

Geodiversity: Determining Factor

Table 5. Determining the level of priority to be given to geodiversity

	Priority level	Performance of opportunity area
Area of search in or partially within the Cotswolds or Malvern Hills Area of Outstanding Natural Beauty	1	-
Area of search in or partially within the Abberley and Malvern Hills Geopark	1	✓
Area of search contains a geological SSSI or local geological site	2	-
Area of Search within 1km of geological SSSI or 500m of local geological site	3	-
Area of Search not in the Abberley and Malvern Hills Geopark and further than 1km from geological SSSI or 500m of local geological site	-	-

Key messages

A3.34. The way in which geodiversity can be considered in a restoration approach will vary significantly depending on the nature and location of the features to be incorporated, but it may be possible to protect certain geological features which are uncovered during extraction and incorporate them into the restoration scheme.

Horticulture and food production

Horticulture and food production: Integrate wherever possible

Table 6. Determining the level of priority to be given to horticulture and food production

Agricultural land	Priority level	Performance of opportunity area
More than ½ of the area of search classified as grade 1 or 2	1	
½ - ¼ of the area of search classified as grade 1 or 2	2	
Less than 1/4 grade of the area of search classified as grade 1 or 2	3	✓
None of the area of search classified as grade 1 or 2	-	

Key messages

A3.35. Clay soils do not tend to be of the highest quality. Almost all of this opportunity area is classified as grade 3 land but minerals site development and restoration could contribute to conserving any high quality soil resources and safeguarding the long term potential of best and most versatile agricultural land by:

- stripping and storing soils in line with best practice guidance,
- reinstating the original soil asset where possible,

- concentrating high quality soil resources in restoring some parts of the site to high grade agricultural land and delivering low intensity grazing or wetland habitats in parts of the site with lower soil quality or where the lowered land level following mineral extraction does not allow for restoration of the entire area to high quality agricultural land.

Historic Environment

Historic Environment: Determining factor

Table 7. Determining the level of priority to be given to the historic environment

Potential for the presence of heritage assets	Priority level	Performance of opportunity area
More than ½ of the area of search identified as high potential	1	✓
½ to ¼ of the area of search identified as high potential	2	
Less than ¼ of the area of search identified as high potential	3	

Key messages

A3.36. The opportunity area for clay is associated with a diverse assemblage of multi-period historic assets dating from the post-glacial period onwards. Modern rural settlements across this area are dispersed reflecting a medieval pattern of dispersed wayside settlement often, although not exclusively, associated with ancient-enclosed, woodland and unenclosed lowland heathland landscapes. There is therefore extensive medieval archaeology and given the area generally has a higher proportion of smaller pasture fields, the potential for survival of archaeological earthworks. Medieval settlement, to some extent, reflects earlier Romano-British land use and settlement, particularly in the river corridors.

Access and recreation**Access and Recreation: Determining factor****Table 8. Determining the level of priority to be given to the historic environment**

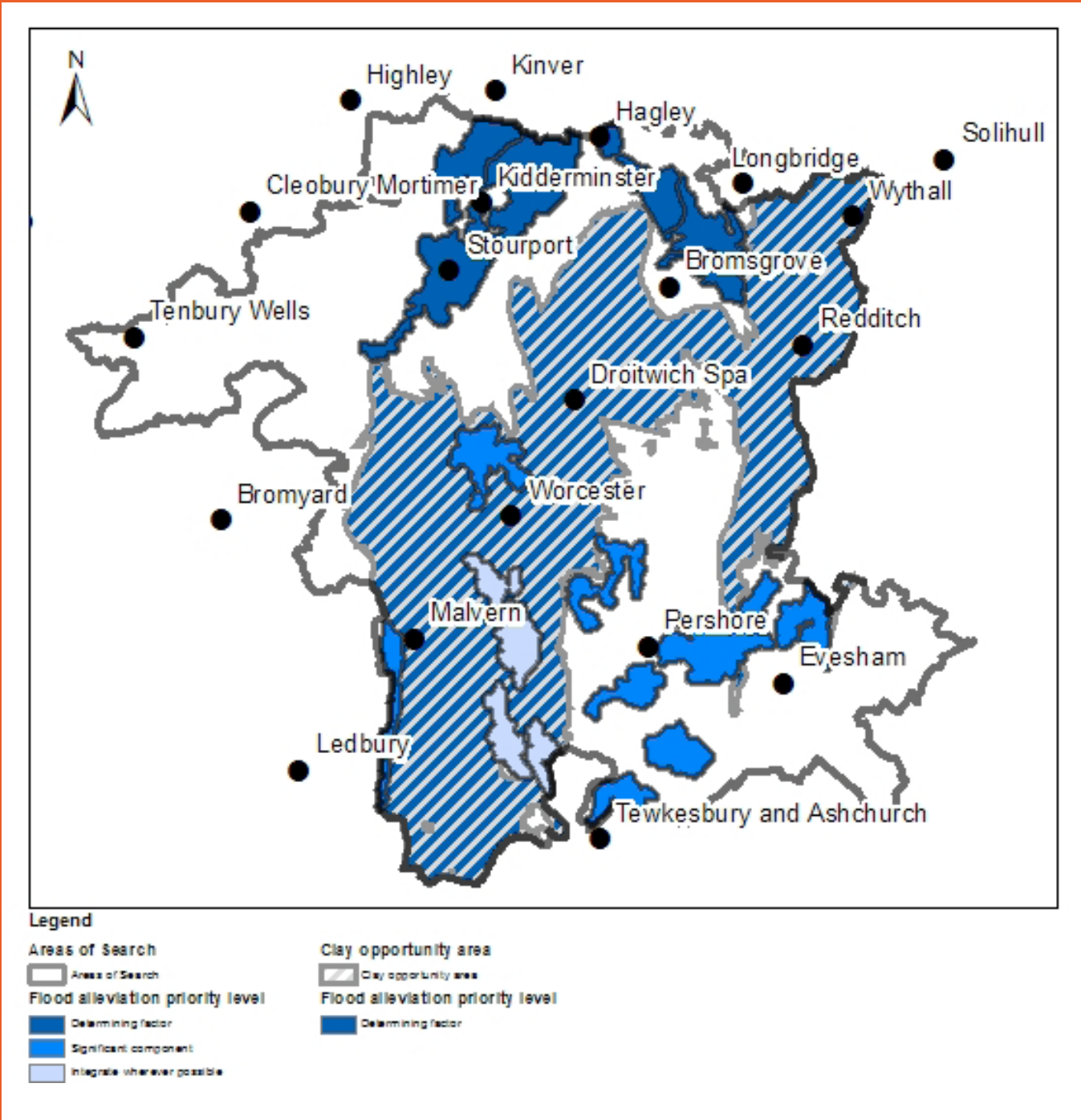
	Priority level	Performance of opportunity area
Part of the minerals area of search identified as area of search for recreation in adopted or emerging local plan	1	✓
Part of the minerals area of search identified as area of search for recreation in Worcestershire GI Strategy	1	✓
Minerals area of search is in an area where less than 75% of households meet ANGSt standards for district scale provision (sites or habitats over 20ha within 2km)	2	
In area where more than 75% of households meet ANGSt standards for district scale provision and no areas of search for recreation have been identified.		

Key messages

A3.37. The opportunity area for clay covers parts of every District in the county, with large parts of the area in Wychavon, and the greatest part in Malvern Hills. There is therefore potential to integrate access and recreation into broader restoration schemes in every District. The opportunity area includes the Lickey Hills extension area, Hallow Riverside, Droitwich Park and Clifton Waterpark "areas of search" for informal recreation which are identified in the Worcestershire GI Strategy and the latter 3 of which are also listed as Critical Infrastructure in the emerging South Worcestershire Local Plan. Even given the size of the opportunity area these make access and recreation a determining factor.

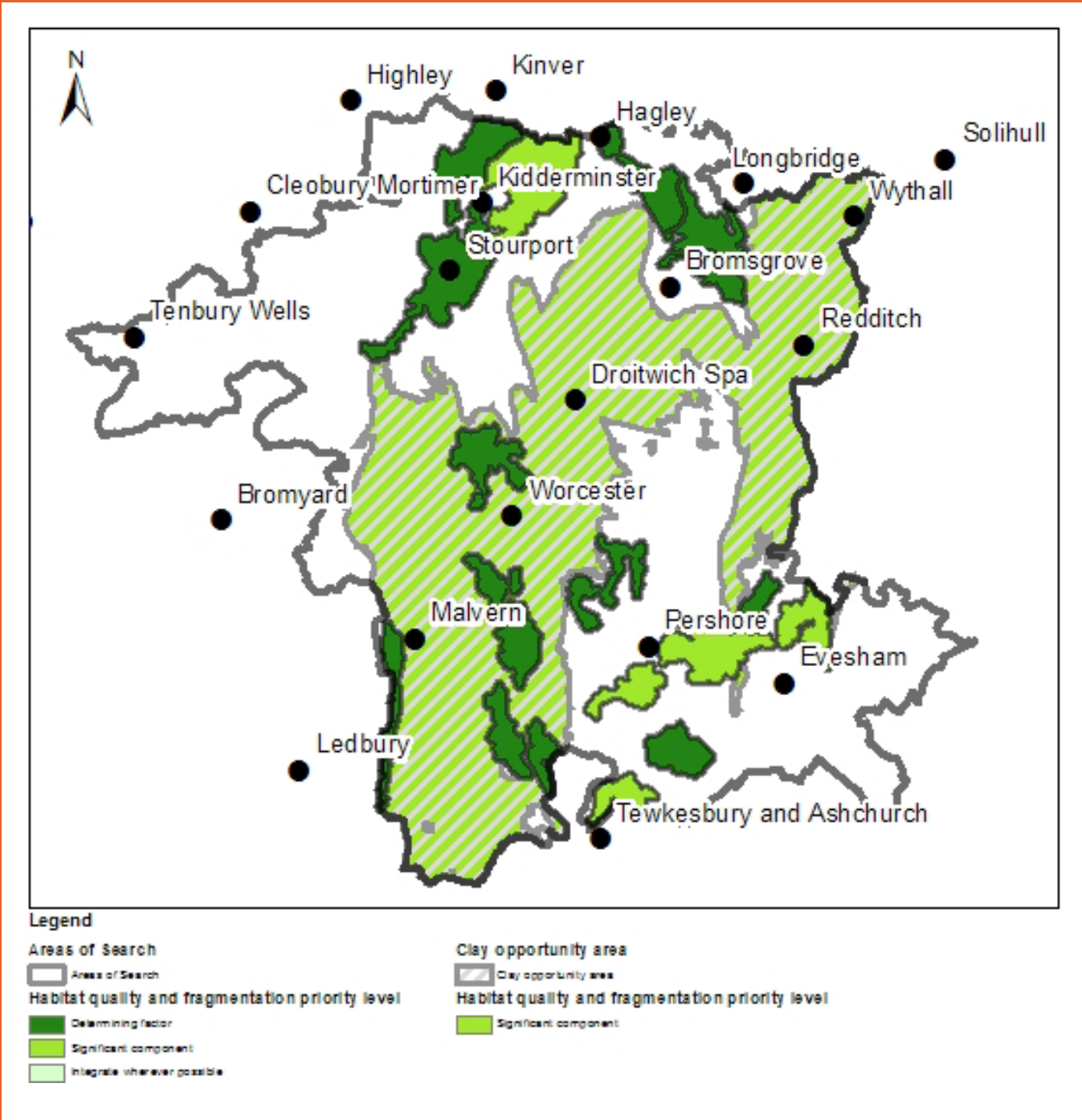
Appendix 4: Maps showing the distribution of restoration priorities

Restoration priorities for flood alleviation



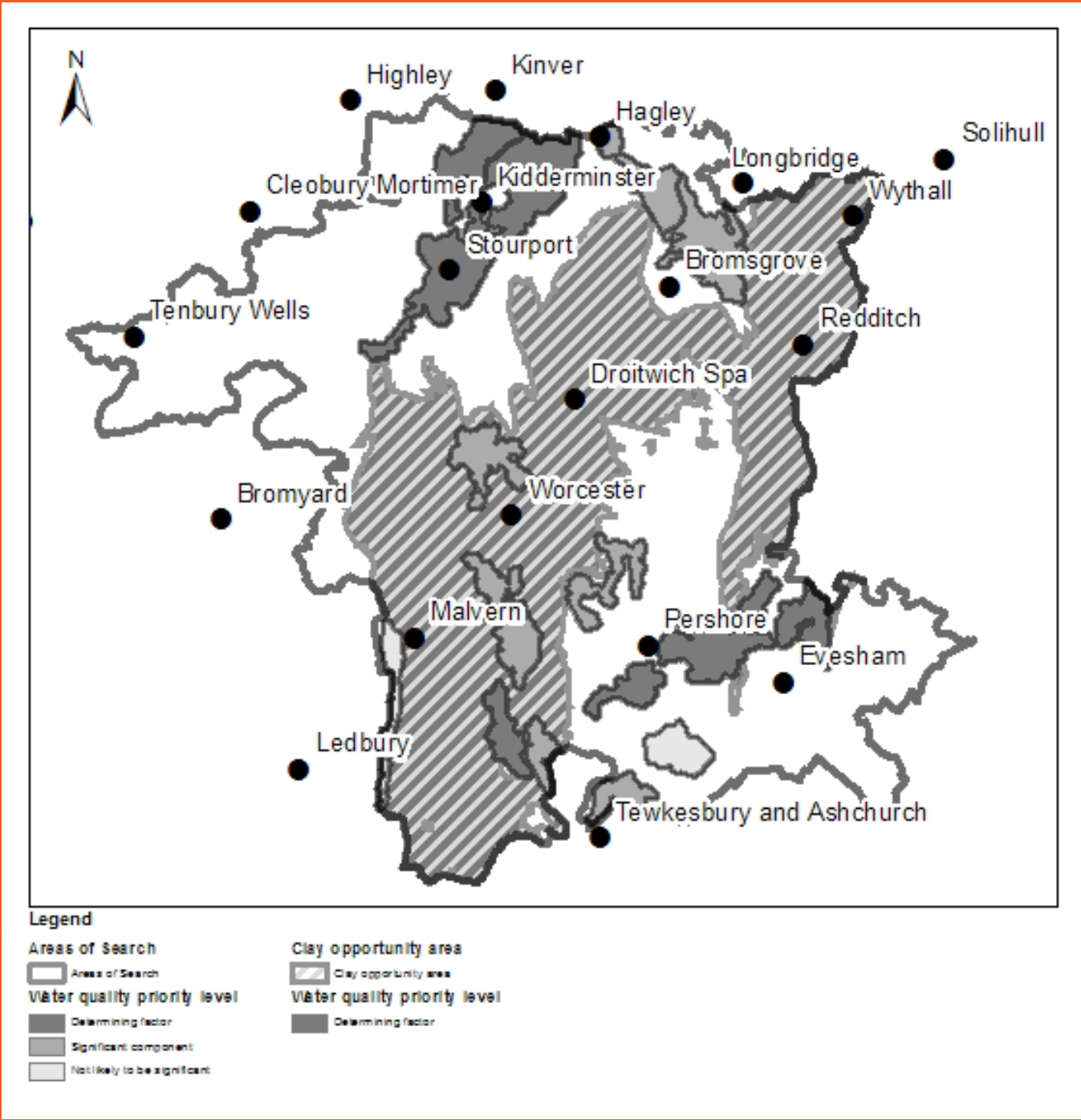
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Restoration priorities for habitat quality and fragmentation



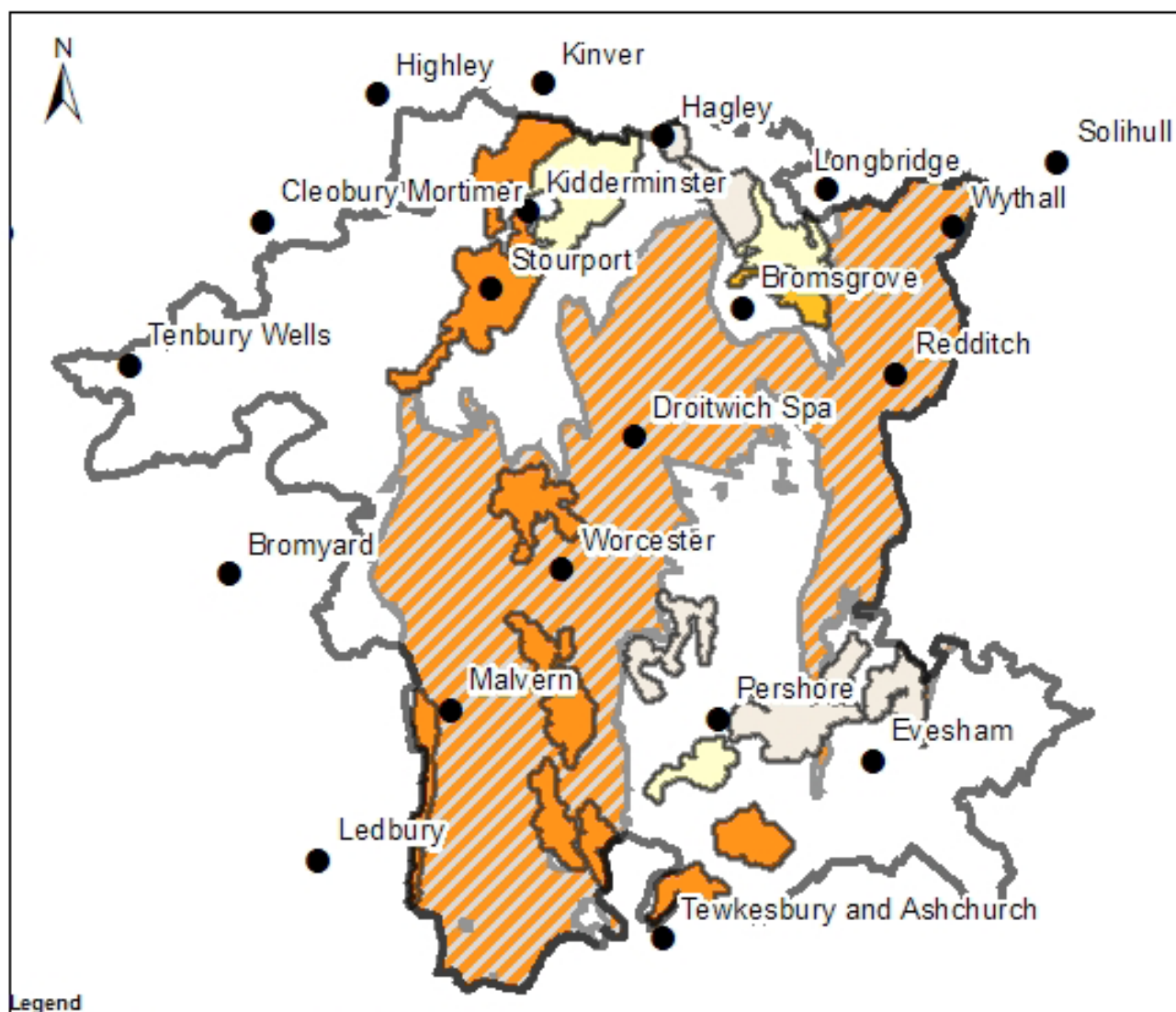
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Restoration priorities for water quality



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Restoration priorities for geodiversity



Legend

Areas of Search

Area of Search

Geodiversity priority level

- Determining factor
- Significant component
- Integrate wherever possible
- Not likely to be significant

Clay opportunity area

Clay opportunity area

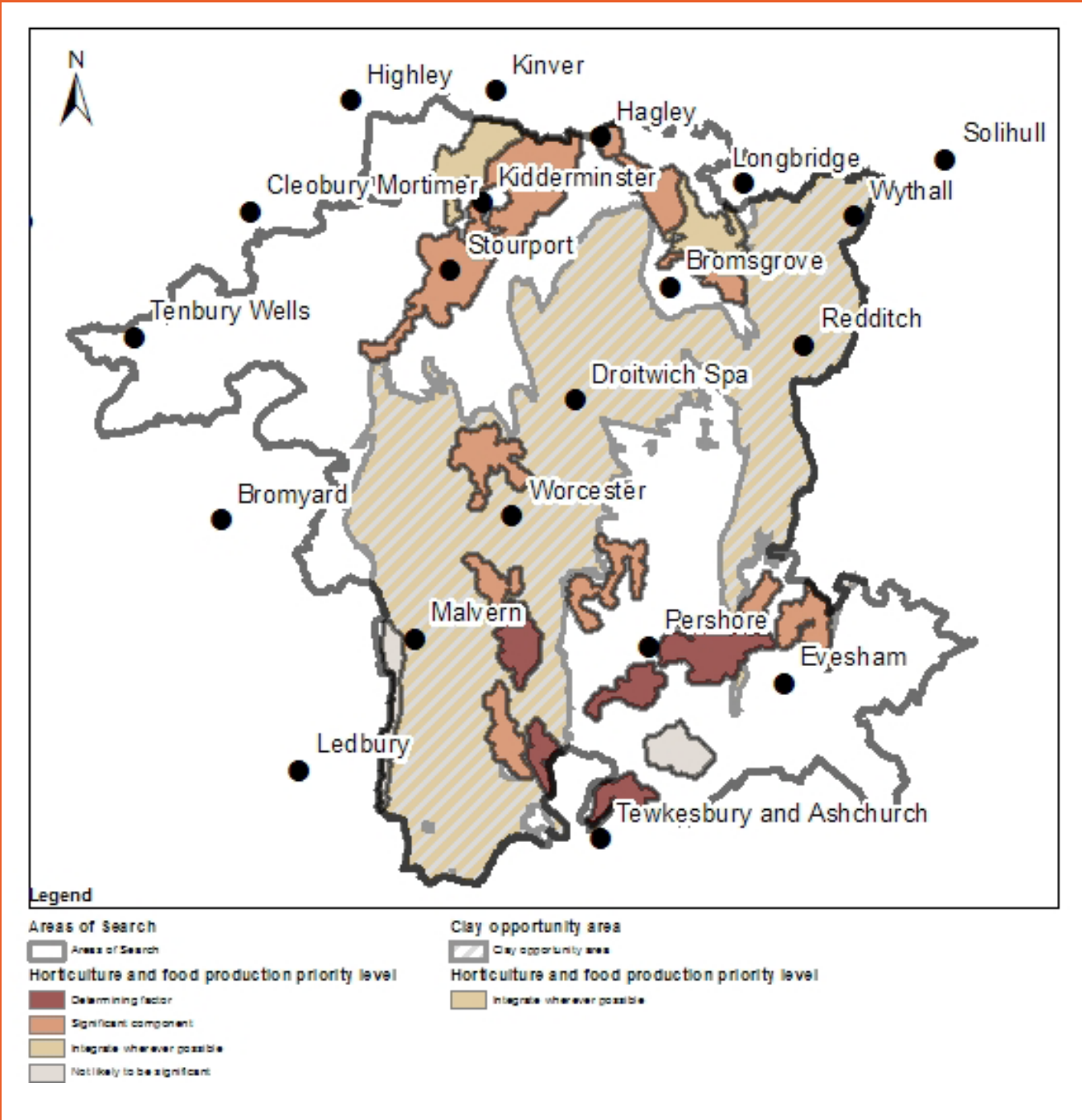
Geodiversity priority level

- Determining factor

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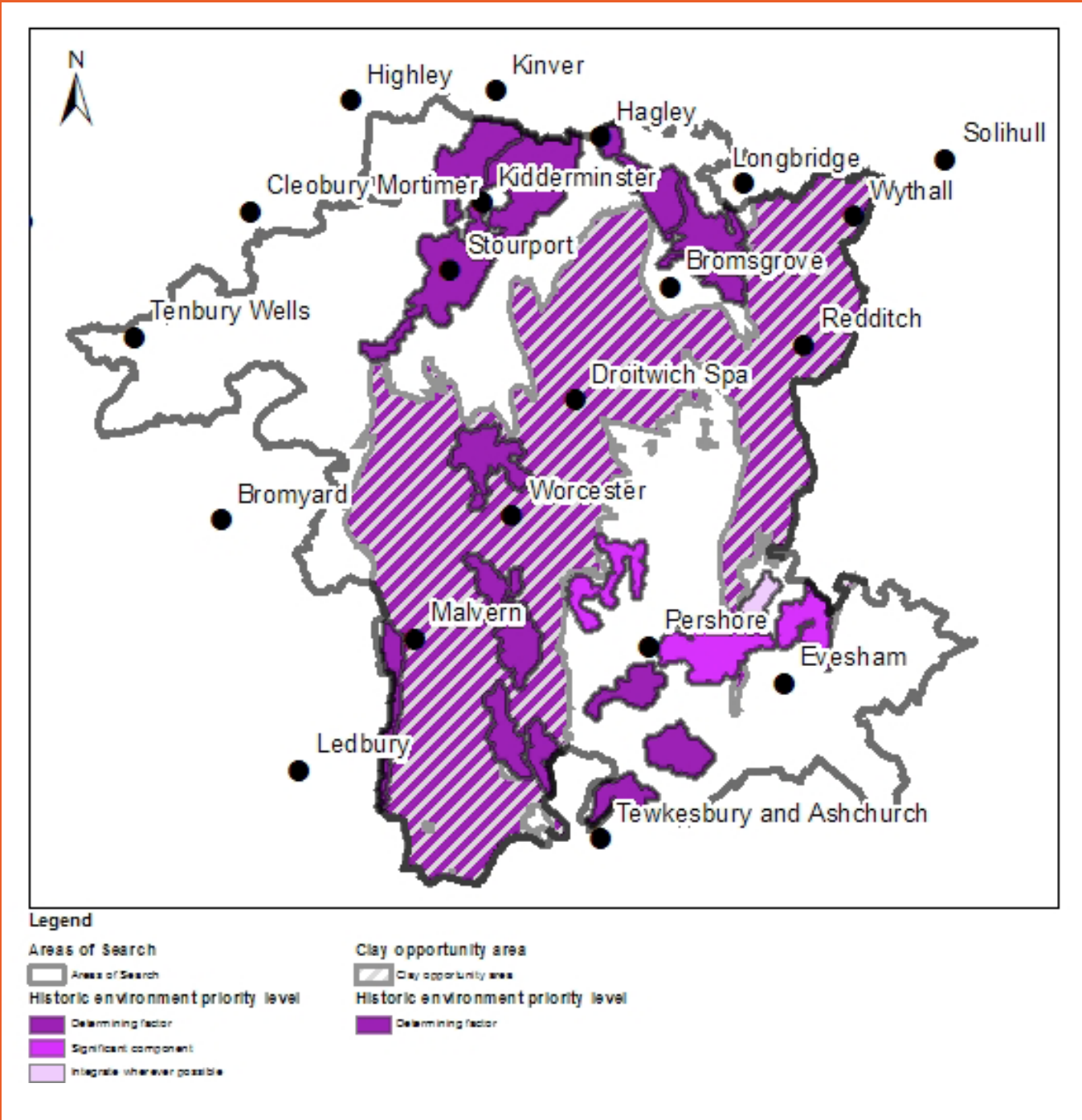
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Restoration priorities for horticulture and food production



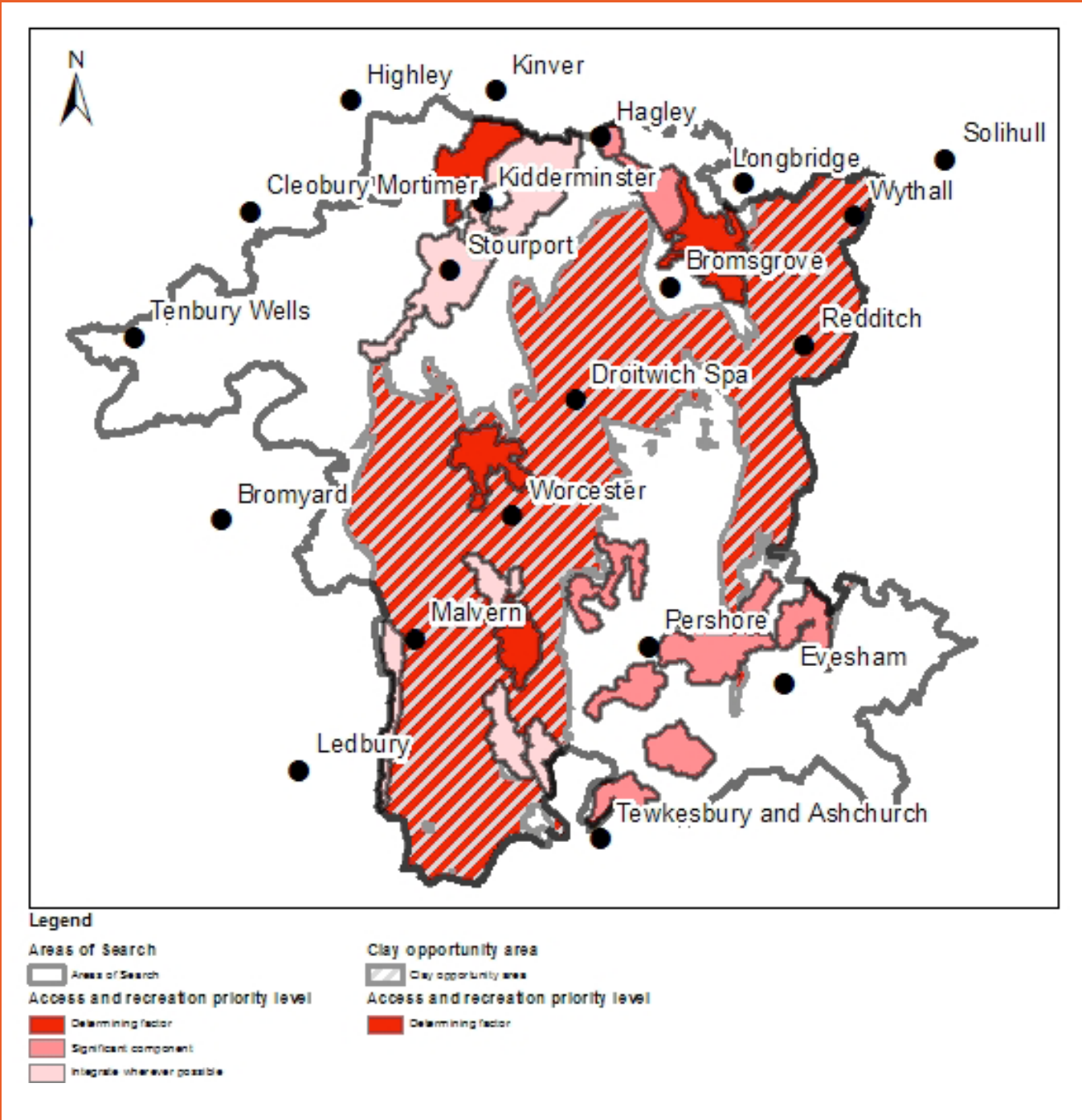
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Restoration priorities for historic environment



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Restoration priorities for access and recreation



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