Environmental Character Area Profile for the Minerals Local Plan: 12. Bromsgrove – Redditch Corridor

1. Introduction

1.1. Minerals development usually takes place on previously undeveloped land and can therefore result in permanent change to the natural environment and green spaces in Worcestershire. The impacts of both the working and the restoration of mineral sites need to be considered in detail in the development of the Worcestershire Minerals Local Plan (the MLP).

1.2. The Council will take a 'green infrastructure' (GI) approach to considering these impacts. The GI approach is a different way of thinking about the green spaces in Worcestershire. It moves beyond solely considering the environmental benefits of green spaces and integrates the consideration of economic, health and social benefits in the planning and management of green spaces. Rather than considering each green space in isolation it looks at the ways in which individual sites and corridors of green space collectively form the distinctive character of Worcestershire that attracts both visitors and business to the County.

1.3. The components of GI include biodiversity, landscape, historic environment, access and recreation and water (also know as blue infrastructure). The GI approach requires thinking about the environment as an integrated system of stepping stones or nodes in a wider network[1].

Green infrastructure and mineral workings and restoration

1.4. There is significant potential for mineral workings to destroy existing networks of green infrastructure if the nature and character of these networks is not taken into account.

1.5. The GI approach extends beyond thinking about designated sites of biodiversity or historic interest. This means that the impact of a mineral working on the wider environment and the integrated system of stepping stones or nodes in a wider network[2] will need to be considered.

Environmental Character Areas[3] and the Minerals Local Plan

1.6. The Worcestershire Green Infrastructure Partnership has undertaken an analysis of the landscape character, biodiversity and the historic environment of Worcestershire to identify 30 distinct GI Environmental Character Areas (ECAs).

1.7. These underlie the distinctive character of Worcestershire and it is the Council's intention that the unique characteristics of each area will drive the restoration strategy for the Minerals Local Plan.

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[1] Green Infrastructure Guidance – Natural England.
[2] Green Infrastructure Guidance – Natural England.
[3] Worcestershire County Council (July 2012) *Planning for a Multifunctional Green Infrastructure Framework in Worcestershire: Green Infrastructure Framework 2*

1.8. This is one of 30 profile documents which set out the characteristics and priorities for the each ECA. It sets out the mineral resources in the ECA and the GI priorities identified by the Worcestershire GI Partnership. These priorities are structured around biodiversity, historic environment, landscape character, water environment (also known as blue infrastructure) access and recreation and transport. The document is also supplemented by other locally relevant information as appropriate.

1.9. Following consultation this information will be used to develop the spatial strategy and restoration priorities for each ECA.

1.10. Profiles for each of the following ECAs are available on our website www.worcestershire.gov.uk/mineralsbackground:

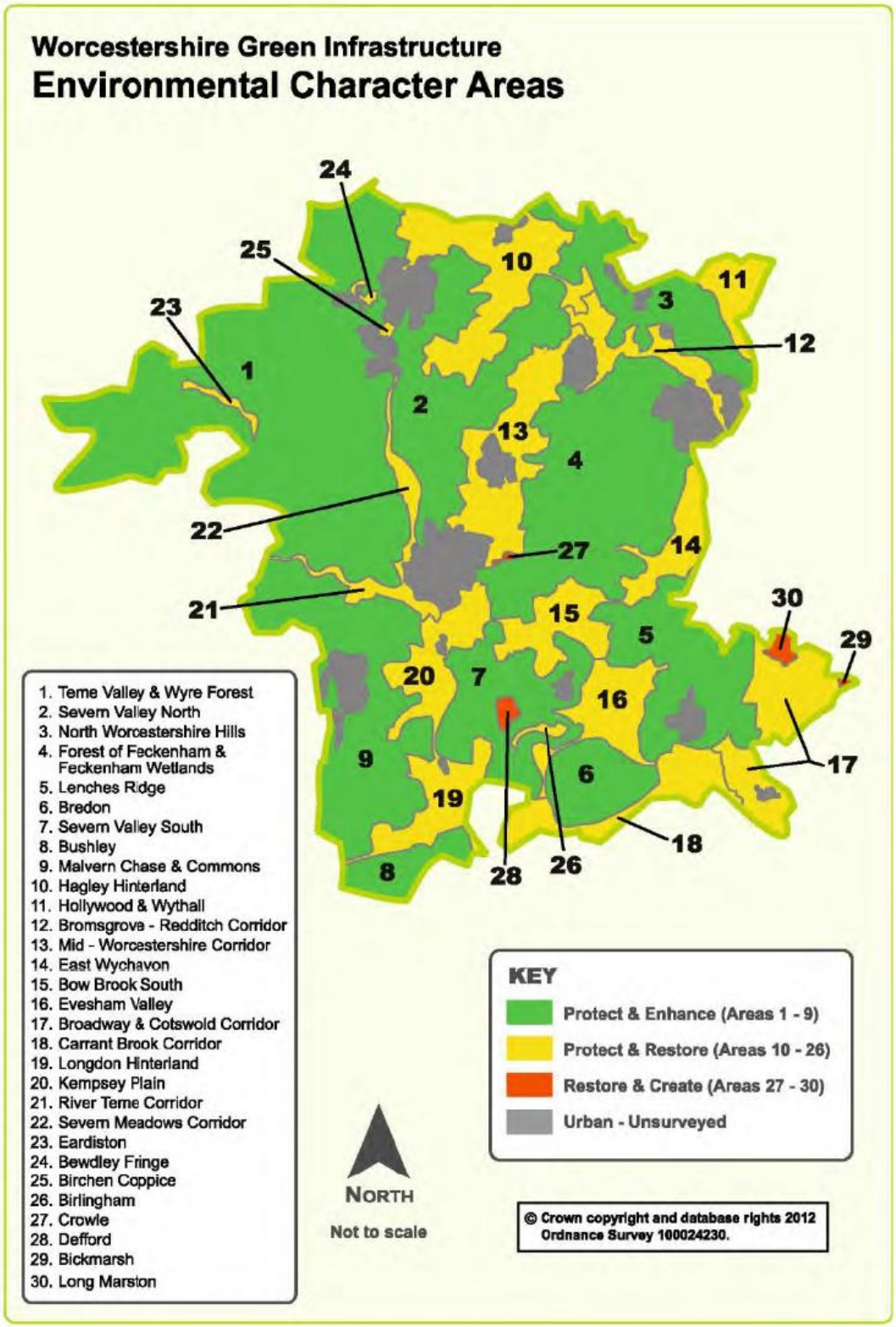
1.11. The Environmental Character Areas are:

1. Teme Valley & Wyre Forest
2. Severn Valley North
3. North Worcestershire Hills
4. Forest of Feckenham & Feckenham Wetlands
5. Lenches Ridge
6. Bredon
7. Severn Valley South
8. Bushley
9. Malvern Chase and Commons
10. Hagley Hinterland
11. Hollywood & Wythall
12. Bromsgrove – Redditch Corridor
13. Mid-Worcestershire Corridor
14. East Wychavon
15. Bow Brook South
16. Evesham Valley
17. Broadway & Cotswold Corridor
18. Carrant Brook Corridor
19. Longdon Hinterland
20. Kempsey Plain
21. River Teme Corridor
22. Severn Meadows Corridor
23. Eardiston
24. Bewdley Fringe
25. Birchen Coppice
26. Birlingham
27. Crowle
28. Defford
29. Bickmarsh
30. Long Marston

These are illustrated on

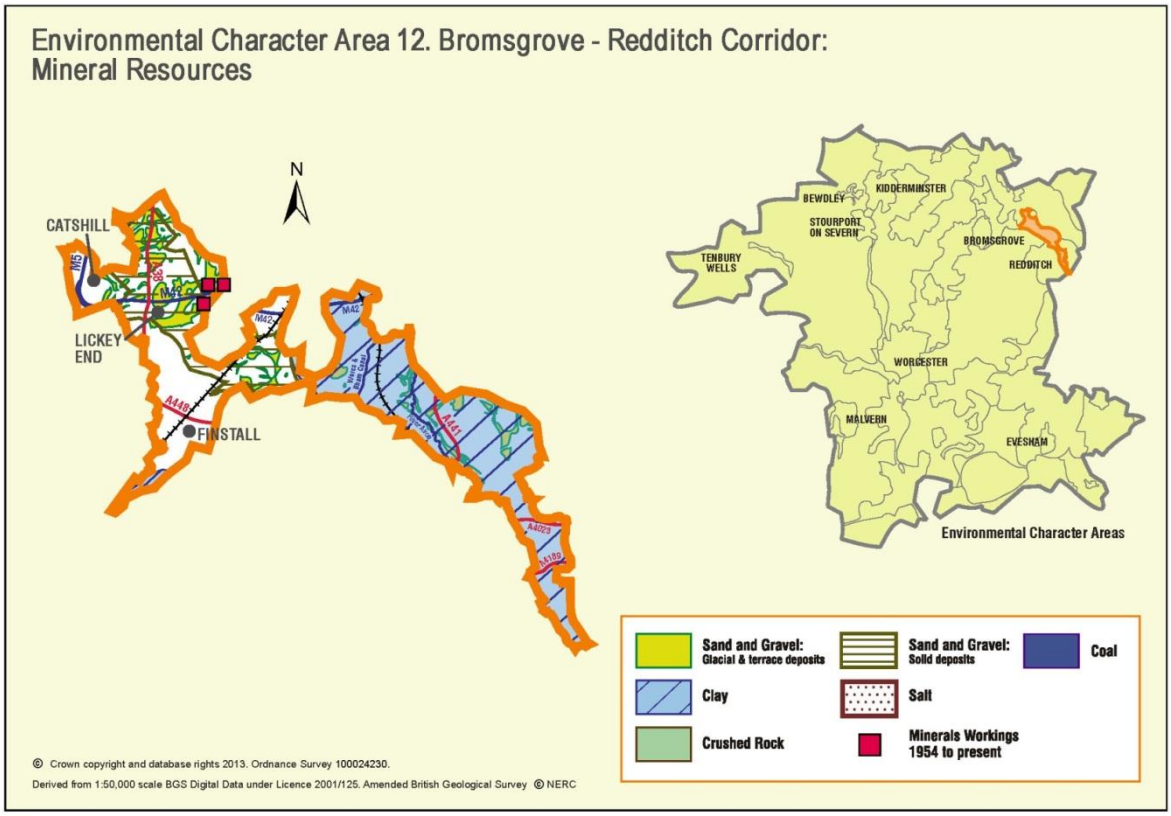
Figure 1. Environmental Character Areas.

Figure 1. Environmental Character Areas



2. Characteristics and priorities of the Bromsgrove – Redditch corridor ECA 12

Figure 2. Mineral resources in the Bromsgrove-Redditch corridor ECA



Mineral Resources

Aggregates

2.1. Details about the aggregate resources in this ECA are given in the background report "Analysis of Mineral Resources in Worcestershire" available on www.worcestershire.gov.uk/mineralsbackground. The following is therefore only a simple summary.

Sand and gravel

2.2. ECA 12 includes large areas of potential mineral resource, mostly in the Marlbrook/Barnt Green area, much of which is compromised by development. The surface deposits are a mixture of mostly narrow glacial deposits and boulder clay but the underlying Kidderminster formation may be deeper and was worked commercially under old planning permissions. There is little detailed data however about the deposits in this area.

Hard rock

2.3. There is no evidence that suitable strata exist.

Industrial minerals

Clay

2.4. The area contains large clay deposits but there is no evidence of significant past working.

Silica sand

2.5. There is no evidence that suitable strata exist.

Brine

2.6. There is no evidence of brine working in this area or that Halite deposits might exist at depth.

Future Growth

2.7. The key driver for mineral extraction is to provide the raw materials required for the economy to function properly and for homes and infrastructure to be built. Minerals are unevenly distributed. Some of the minerals that we need are not found in Worcestershire and will need to be imported from outside the County. Many minerals are expensive to transport, particularly aggregates as they are a relatively low value and bulky material, and they are likely to be used close to their source, meaning that some local mineral extraction will be needed to support local growth in housing and the associated infrastructure that is required, or to provide raw materials for local industry. On average, about 80 per cent of mineral products are used within 30 miles of the quarry.

2.8. This ECA links Bromsgrove Districts and Redditch Borough. Bromsgrove anticipates 4,559 homes, 46.4 ha of employment land and replacement of a retail park, Redditch anticipates 3,259 homes, 51 ha of employment land and significant retail development in the next 14-18 years[4]. It runs through the centre of Redditch and incorporates the "large settlement"[5] of Catshill and the "small settlement"[6] of Finstall which are proposed for some development in the Bromsgrove District Council Draft Core Strategy 2.

2.9. These and other areas beyond the boundary of the ECA could create demand for minerals in this Environmental Character Area. Particularly the urban areas surrounding the ECA of the West Midlands conurbation, Droitwich, Bromsgrove and Redditch, Stratford upon Avon and to a lesser extent Studley, which are anticipated to experience significant development over the life of the Minerals Local Plan.

[4] Information gathered by Worcestershire County Council in early 2013. This gives a good indication of the likely levels of development which can be expected, but for the latest figures please refer to the relevant City, District or Borough Council.

[5] Large settlements are second in the three tier settlement hierarchy set out in the Bromsgrove District Council Draft Core Strategy 2. Suitable development for large settlements is likely to include convenience A1 retail to meet local needs, local services, residential or small scale business/office development.

[6] Small settlements are third in the three tier settlement hierarchy set out in the Bromsgrove District Council Draft Core Strategy 2. Suitable development for small settlements is likely to include housing to meet local needs, local services, or small scale rural employment.

Green Infrastructure priorities[7]

2.10. All Environmental Character Areas (ECA's) have been placed into one of three categories based on their overall score for Green Infrastructure. These are:

1. Protect and enhance
2. Protect and restore
3. Restore and create

2.11. The category is based an assessment of the ECAs landscape character, biodiversity and the historic environment characteristics. These characteristics were each attributed a score, with biodiversity being given a greater weighting than landscape and the historic environment, each of which were given equal but lower weightings.

2.12. The strategic GI approach for the Bromsgrove-Redditch corridor ECA is to *protect and restore.* The overarching principle identified by the GI partnership is to protect and restore the ancient countryside character.

Landscape and biodiversity

2.13. The landscape of the Bromsgrove to Redditch Corridor neatly divides into two differing characters at Cobley Hill. The western sections are lower lying land where the Landscape Types of Principal Settled Farmlands and Settled Farmlands with Pastoral Land Use reflect the greater suitability of the flatter land for agriculture. Here the farmland is more intensively managed and also dominated by golf courses. To the east the topography is more undulating and the landscape is still influenced by its historical development from the medieval Forest of Arden and reflects this ancient wooded character within its Landscape Types of Principal Timbered Farmlands and Wooded Estatelands.

2.14. The Worcester and Birmingham canal flows through the area, with the feeder reservoirs and other ponds providing habitat for wintering birds.

GI Priorities:

2.15. The landscape and biodiversity priorities identified for the Bromsgrove-Redditch Corridor ECA are[8]:

- Protect and enhance the ancient wooded character through management and/or re-planting to address composition and age structure, as appropriate to the characteristic (and contrasting) tree cover patterns of the different Landscape Types of this area: large, discrete woodland blocks of the Wooded Estate lands; scattered hedgerow and streamside trees of the Settled and Timbered Farmlands.

[7] Worcestershire County Council (July 2012) *Planning for a Multifunctional Green Infrastructure Framework in Worcestershire: Green Infrastructure Framework 2*
[8] Worcestershire County Council (July 2012) *Planning for a Multifunctional Green Infrastructure Framework in Worcestershire: Green Infrastructure Framework 2*

- Seek opportunities to strengthen the hedgerow network, respecting the characteristic patterns of field enclosure, predominantly irregular in the Settled Farmlands and semi-regular in the Wooded Estates, but organic in the Timbered Farmlands.
- Seek opportunities to improve comnnectivity between discrete woodlands through hedgerow networks.
- Protect and enhance smaller areas of biodiversity interest

Geodiversity

2.16. There is one Local Geological Site in the ECA, the "Shepley Sandpit and Knoll".

Historic Environment[9]

2.17. The character area has a diverse range of assets, including important palaeoenvironmental deposits within the Arrow Valley. Where sandstone hills occur there is potential for Mesolithic activity, and there is also sparse evidence for later prehistoric remains in the area. Much of visible archaeological evidence comes from relic medieval landscapes. The Scheduled remains of Bordesley Abbey are some of the most obvious however other landscape features from moats to field systems occur throughout the area.

2.18. The historic landscape character is relatively diverse in common with the wider former Feckenham Forest area. There is a mixture of intact, small-scale post-medieval fields; larger riverside meadows and areas of small, irregular-shaped woodlands creating a mosaic of fine-grained character.

GI Priorities:

2.19. The historic environment priorities identified for the Bromsgrove-Redditch corridor ECA are[10]:

- Buffer historic landscape features, such as earthwork boundaries, ridge and furrow, abandoned medieval settlement remains.
- Protect and enhance the setting of Bordesley Abbey.
- Protect historic water features and buffer key sites, such as moats, fishponds and millponds.
- Protect below ground deposits of high palaeoenvironmental potential associated with alluvial deposits in the River Arrow corridor.

Blue Infrastructure

2.20. This ECA contains the following watercourses: River Arrow and Spadesbourne and Battlefield Brooks, (subsidiaries of the river Salwarpe) and the Worcester to Birmingham canal.

[9] Historic Environment and Archaeology Service, Worcestershire County Council and Cotswold Archaeology (R Jackson and H Dalwood et al) (November 2007) *"Archaeology and aggregates in Worcestershire: A resource assessment and research agenda"* Supported by English Heritage through the Aggregates Levy Sustainability Fund.

[10] Worcestershire County Council (July 2012) *Planning for a Multifunctional Green Infrastructure Framework in Worcestershire: Green Infrastructure Framework 2*

Flooding

2.21. In Redditch flood risk is not seen as a significant factor for strategic planning in the district. Although the enmained River Arrow passes through this ECA and bisects the town of Redditch, it is located sufficiently high in the catchment to avoid extensive fluvial flooding. The main sources of fluvial flooding within Redditch Borough, and most notably Redditch town, have originated from the ordinary watercourses draining through the developed areas to the River Arrow. Many of these originate in the rural areas of the Birmingham Plateau and therefore flow down fairly steep topography before entering the flatter urban areas where the watercourses become restricted by development, struggle to carry the volume of water received and overtop their banks.

2.22. There are relatively few Main Rivers in Bromsgrove District, but a high density of ordinary watercourses. As a result the District does not tend to experience extensive fluvial flooding. As the District includes the sources and headwaters of the watercourses they are, for much of the year, small in size with fairly low flows. However, due to the topography, geology and the effect of development, the catchments have a rapid rainfall-runoff response and thus during rain storms the water levels within the watercourses increase rapidly. This increase in flow causes many of the watercourses to overtop during severe storms and cause rapid localised flooding.

2.23. The majority of flooding from watercourses within Bromsgrove town has occurred along the Spadesbourne Brook, part of which flows through this ECA. Flooding has occurred down much of its length, although most notably on its easterly upstream fork in Catshill and Marlbrook. This was especially notable in 1998-1999 when the catchment experienced a series of heavy storms, a situation which was repeated in July 2007. The Bromsgrove Council Drainage Engineer attributes much of this to runoff problems associated with development of the catchment and has noted that it is the Catshill area which warrants urgent attention to control localised flooding.

2.24. There are multiple occurrences of sewer flooding within Bromsgrove District with reports located in Bromsgrove town and nearly all of the larger villages.

2.25. Flooding has also occurred in Alvechuch due to the combination of high level river flows with mill leets and in the Parish Fields.

2.26. Groundwater flooding is not a particular cause for concern within this ECA. In the Bromsgrove section 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. Although the substrata beneath and surrounding the River Arrow have naturally high groundwater levels in the Redditch section of this ECA there are no reports of groundwater flooding or issues that the Environment Agency is aware of within the Borough.

2.27. The Worcester and Birmingham canal passes through this ECA. The canal system is effectively self-regulating, with water levels controlled through a system of sluices and weirs, aiming to maintain a freeboard of 300mm. In isolation, the canal system operates effectively, and is able to accommodate the flows that enter it from feeder streams and its own small catchment areas.

2.28. The River Severn Catchment Flood Management Plan makes this a Policy 3 and policy 5 area, where in the east of the ECA it will "Continue with existing or alternative actions to manage risk at the current level" and in the west "Take further action to reduce flood risk".

Water Quality

2.29. Although the majority of rivers sections within the Bromsgrove part of this ECA are compliant with their assigned RQO, the entire length of the Worcester and Birmingham canal significantly fails the targets. It has 'Poor' chemistry quality along its entire length through the District and in its northern section, also scores a 'Poor' biology score, although this improves slightly to 'Fair' along its southern extent. To a certain degree however the pollution within the canal system originates outside the District boundary, most notably within the urban Birmingham conurbation to the north.

2.30. Phosphate and Nitrate levels are concerning across much of the ECA, with levels of both tending to increase on the downstream extents of all watercourses. With the exception of the Worcester and Birmingham Canal, levels of phosphates are high across Redditch District, with quality scores of Fair to Bad. On every assessed watercourse, it is classified as 'Poor' or 'Bad', indicating high levels of pollution and has a tendency to worsen further downstream. The River Arrow is one of the worst affected watercourses. Redditch Council reports that eutrophication problems exist within the Borough boundaries due to high phosphate, and in some areas, high nitrate levels within the watercourses.

2.31. In terms of Chemical and Biological Quality, all the watercourses in the Bromsgrove section score 'Fairly Good' or higher. The eastern part of the ECA around J2 of the M42 is nonetheless categorised as having both water company and other point source pollution pressures.

Water supply

2.32. The main water supply resource within the Bromsgrove and Redditch Area is the Sherwood Sandstone Aquifer, located under the northwest and central area of Bromsgrove District. This groundwater supply provides most of the potable water supply for District and Borough, but besides its primary water supply function, the aquifer has significant environmental value and is vulnerable to over abstraction and pollution. Triassic sandstone has large water storage capacity within the structure of the strata and it does not tend to react rapidly to periods of low rainfall.

Therefore, it gives a relatively reliable and constant supply of water. WFD Groundwater status is good in the eastern and western parts of this ECA but Poor in the central section. The whole of Bromsgrove District is under pressure with regards to water availability and almost all of this area suffers from flow pressure problems. Due to its location in the headwaters of catchments and containing the large aquifer, problems with water availability within Bromsgrove District extent far beyond its borders and can have negative impacts on sites much further downstream. It is therefore essential that appropriate measures are taken not to over abstract the sources groundwater and surface water sources within its administrative area.

2.33. The River Arrow through Redditch is identified as having Water Available, but this has been overridden by the status 'No Water Available' to maintain current flow levels in the River Severn and the Estuary.

GI Priorities:

2.34. The blue infrastructure priorities identified for the Bromsgrove-Redditch corridor ECA are[11]:

- 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.
- Make 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.
- Ensure that the run-off from all proposed development is minimised. For example, SUDS must be encouraged and targeted within planning approvals.
- Encourage the retro-fitting of SUDS where surface water flooding is already a problem.
- Support ecological improvements. Examples of this include Severn & Avon Wetlands Project; Natural England's three fluvial SSSIs.

Access, informal recreation and tourism

2.35. There is a relatively dense Rights of Way Network and a good provision of accessible greenspace in the form of larger sites adjacent to areas of population, such as Clent Hills, Waseley Hills Country Park, Lickey Hills Country Park and Arrow Valley Country Park. There are a good number of nature reserves and formal parks in all three district/borough areas of Wyre Forest, Bromsgrove and Redditch.

2.36. Tourist attractions in this ECA include the Forge Mill Needle Museum.

[11] Worcestershire County Council (July 2012) *Planning for a Multifunctional Green Infrastructure Framework in Worcestershire: Green Infrastructure Framework 2*

GI Priorities:

2.37. The access and recreation priorities identified for the Bromsgrove-Redditch corridor ECA are[12]:

- Consider the proximity to and ability to integrate with the rights of way network, recreational way-marked routes and the cycle network;
- Accommodate associated facilities necessary for the use and enjoyment of the site in a manner that is appropriate and able to integrate with the landscape character, wildlife and cultural interests.
- Act as a greenway from town into the countryside and utilise existing canal, former railway lines, river corridors and wherever possible link with public transport routes.
- Adopt minimum quality standards, (commensurate with its location and scale) that sites and routes should be expected to achieve will be those from the Green Flag Award Programme, and the Country Parks Accreditation Scheme, as appropriate.

Transport

Road

2.38. The M5 motorway runs along the north western edge of the ECA between Junction 4 for Birmingham and Bromsgrove and the M42 at Junction 4a. The M42 runs eastwards across the northern edge of the ECA from its junction with the M5, with Junction 1 for the A38 and Bromsgrove within the ECA. These motorway junctions suffer from some peak time congestion.

2.39. The A38 crosses the western end of the ECA to connect these motorway junctions with Birmingham to the north east and Bromsgrove to the south west. The A448 crosses the south western corner of the ECA to connect Brosmgrove in the south west with Redditch to the south east. The A441 crosses the eastern end of the ECA to connect Junction 2 of the M42 and Birmingham in the north with Redditch to the south. The A4198 crosses the south western tip of the ECA where it forms the Warwick Highway across Redditch. Other roads in this Environmental Character Area are more minor.

2.40. The Worcestershire Advisory Lorry Route Map does not show any low bridges which would restrict the movement of vehicles over 16'3" (4.95m) on the lorry route network. Local roads may have further restrictions and will need further assessment if they are to be used for accessing mineral resources.

Rail

2.41. The Cross-Country line from Birmingham to Bristol runs across the western side of this ECA, with Bromsgrove station just outside the boundary of the ECA. The line branches at Barnt Green for Redditch and

[12] Worcestershire County Council (July 2012) *Planning for a Multifunctional Green Infrastructure Framework in Worcestershire: Green Infrastructure Framework 2*

this branchline runs across the centre of the ECA with a station at Alvechurch.

2.42. A rail enhancement scheme to create capacity along the single track to Redditch is currently being considered by the Planning Inspectorate as a nationally significant infrastructure project. The proposal is for the construction of a 'dynamic loop', consisting of approximately 3km of double track and 2 connections to the original track, allowing trains to pass one another.

Water

2.43. The Worcester and Birmingham Canal runs through the ECA near Alvechurch from Bromsgrove in south to Birmingham in north. The River Arrow runs through the ECA into Redditch, but there is no evidence available that it is navigable.

GI Priorities:

2.44. The GI transport priorities identified for the Bromsgrove-Redditch Corridor ECA are[13]:

- Opportunities should be sought to protect, enhance and create green infrastructure that promotes sustainable movement by walking and cycling, reducing the need to travel by car by providing pleasant environments that promote sustainable transport as a means to minimise the impact of transport on the natural environment and mitigate the impacts of climate change

LTP Priorities:

2.45. The LTP 3 transport priorities identified for the Bromsgrove – Redditch Corridor ECA are:

- **A38 Wychbold-Bromsgrove-Cofton Hackett interurban corridor maintenance and improvement scheme** – a programme of improvements to transport infrastructure on this route, which is likely to be progressed in the short term and will include junction enhancements, street furniture decluttering, replacement and enhancement.
- **Barnt Green to Redditch rail line enhancement** - development of a passing loop and associated signalling improvements to enhance capacity on the line, likely to be progressed in the short to medium term.
- **A441 Redditch to Hopwood interurban corridor maintenance and improvement scheme** - a programme of improvements to transport infrastructure on this route, which is likely to be progressed in the medium term and will include junction and pavement enhancements, street furniture decluttering, replacement and enhancement.
- **Redditch inner ring road scheme** – this scheme, which is likely to be progressed in the medium term, would involve changes to the functionality of the Redditch Inner Ring Road, to enhance the

[13] Worcestershire County Council (July 2012) *Planning for a Multifunctional Green Infrastructure Framework in Worcestershire: Green Infrastructure Framework 2*

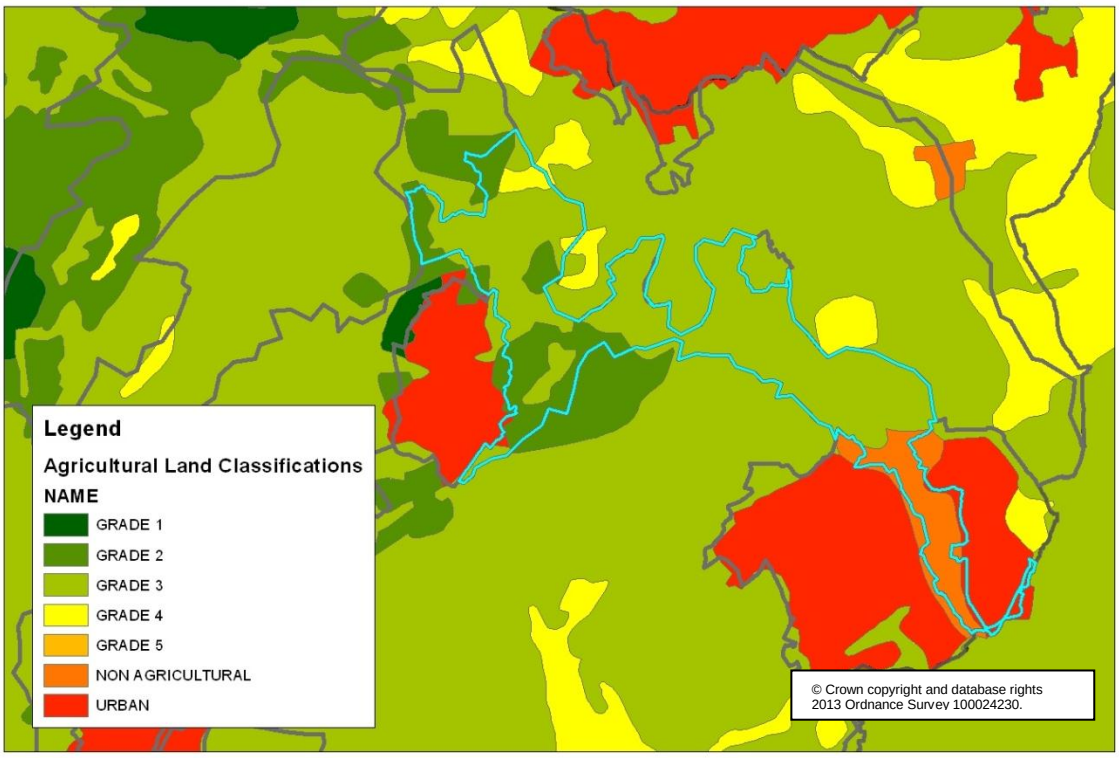
attractiveness of Redditch Town Centre and improve accessibility from the surrounding residential areas.

- **A448 Bromsgrove to Redditch interurban corridor maintenance and improvement scheme** – a programme of improvements to transport infrastructure on this route, which is likely to be progressed in the medium term and will include junction enhancements, street furniture decluttering, replacement and enhancement.
- **A441 Redditch to Hopwood interurban corridor maintenance and improvement scheme** – a programme of improvements to transport infrastructure on this route, which is likely to be progressed in the medium term and will include junction enhancements, street furniture decluttering, replacement and enhancement.
- **Alvechurch Station Enhancement Scheme -** this scheme which is likely to be progressed in the medium term would involve the resurfacing of the car park facility at Alvechurch Station, including the provision of secure cycle and motorcycle parking.
- **Redditch Bordesley Bypass scheme** - This proposed scheme would involve the construction of a bypass around the hamlet of Bordesley, from south of Alvechurch to Redditch, completing the dual carriageway road (A441) between Redditch and M42 Junction 2. This is only likely to be progressed in the long term if significant justification and funding is identified by developers.
- **Bromsgrove eastern bypass enhancement scheme** – this corridor experiences congestion, particularly at peak times and two Air Quality Management Areas (AQMAs) have been declared at Stoke Heath and at Junction 1 of the M42. This scheme is likely to be progressed in the long term and would involve enhancement measures including major junction improvements and measures to improve accessibility to the railway station.

Agriculture/Forestry

2.46. The agricultural land use in this ECA is dominated by pastoral and mixed farming. Agricultural land quality varies across the area, with the majority of the ECA classified as grade 3 land with some areas of lower quality grade 4 land and a large area of non-agricultural land where the ECA follows the River Arrow through Redditch, as shown in Figure 3.

Figure 3. Agricultural land quality



2.47. The forestry commission's woodland opportunity maps show that this ECA outside of the Redditch urban area is listed as priority 1 for woodland creation which could benefit landscape character, biodiversity, cultural heritage and/or public access (**Error! Reference source not found.**). They also show that an area to the south-west of Alvechurch is prioritised for woodland restoration to benefit an ancient woodland landscape (Figure 5).

Figure 4. Woodland creation for landscape, biodiversity, heritage and public access

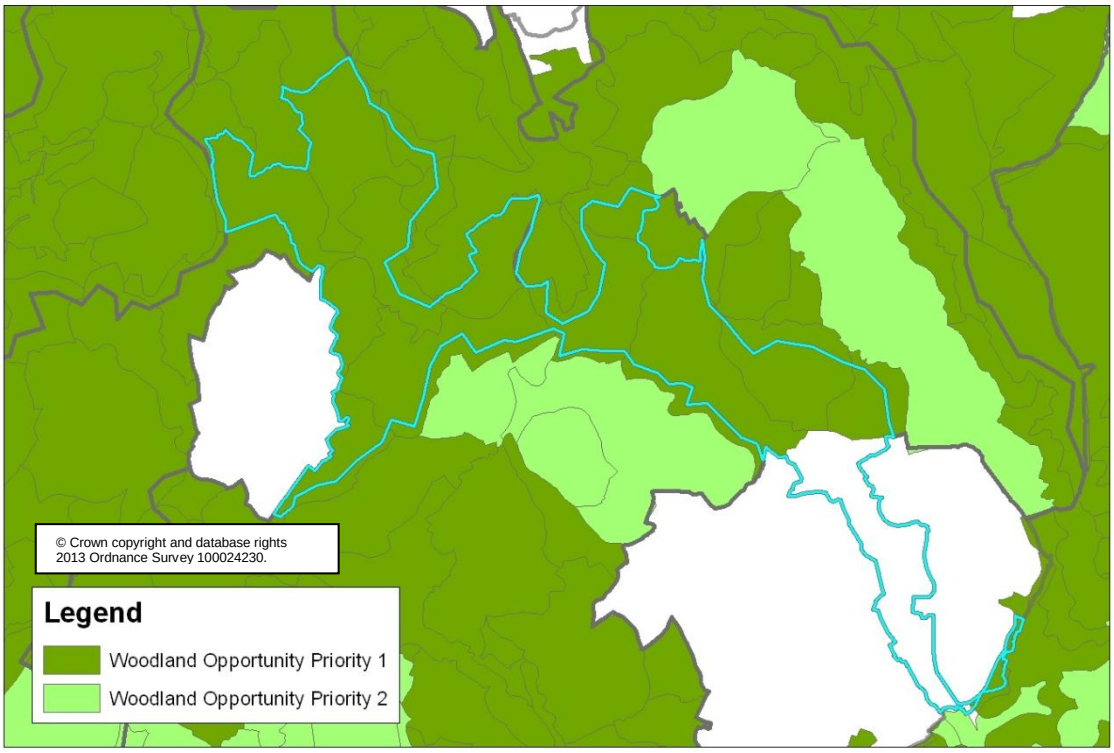
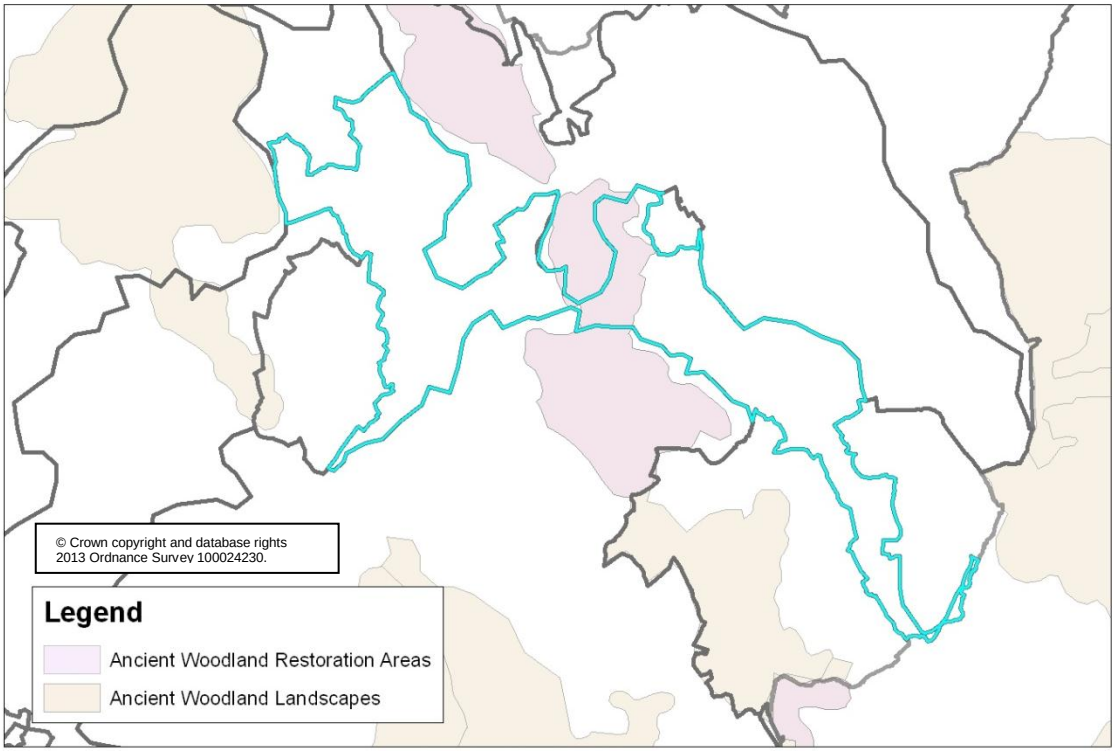


Figure 5. Ancient woodland landscape and restoration



Climate Change

2.48. Some effects of climate change will be similar across the whole county and many of the issues which can be addressed are likely to be common to all ECAs, such as:

- Improving air quality
- Providing flood risk management solutions
- Preventing water and soils pollution as a result of climate change related extreme weather conditions
- Promoting energy efficient and low carbon solutions
- Contributing to renewable energy production

Opportunities and issues

2.49. Green Infrastructure features such as buffering of watercourses provide a way of minimising fluvial flooding. Planned landscaping incorporating flood defences could provide both and short term benefits and sustainable drainage schemes (SUDS) are a mechanism for managing both fluvial and pluvial flood risk.

2.50. Agricultural and horticultural businesses could face damaging water shortages in the coming decades as a result of climate change. In many parts of Worcestershire, water resources are under severe pressure. The majority of catchments in which horticultural production is concentrated have been defined by the Environment Agency as being either over-licensed and/or over-abstracted. Well executed water storage facilities could not only provide water supply for the business in the dry periods but a wide range of green infrastructure benefits such as biodiversity or landscape and opportunities for increased physical activity and exposure to nature.

2.51. The soil types in a small part of the west of this ECA are inherently at risk of subsidence and heave. It is possible that changes in weather patterns as a result of climate change may worsen these tendencies.

2.52. Locally significant areas of heathland, bracken and conifer woodland in this ECA are amongst the habitats most at risk from fire as a result of climate change.

Socio-economic considerations

2.53. The analysis of the socio-economic situation in Worcestershire in this strategy considers the economy and health & well-being at a high level. It is not intended to draw a full picture of the economy or health and well-being in the county, instead it focuses only on the indicators which are of most relevance to green infrastructure:

- **Economy**: unemployment, household income and deprivation levels.
- **Health and well-being**: health deprivation, heart diseases, obesity, mental health problems and respiratory conditions.
- **Access to sites for informal recreation**: considers links between informal recreation opportunities and mental and physical well-being.

2.54. There is thought to be a link between green infrastructure and some aspects of health. The issues of obesity, respiratory conditions, mental

health, heart disease and health deprivation have been considered in this context.

2.55. 26% (120,000) of the Worcestershire's adult population is obese and another 40% is overweight. The adult obesity levels in Worcestershire are higher than the national average. The level of childhood obesity is around the national average, at 10% of five year olds and 18% of eleven year olds. In terms of land cover, most of the Worcestershire area has some problems with obesity. The northern and western parts of this ECA are however amongst the better performing areas in the county.

2.56. Obesity and respiratory problems in this county generally follow the same geographical pattern.

2.57. Mental health problems, by contrast, tend to be found in the and around major settlements. In Worcestershire one in eight (around 56,000) adults have some form of mental health issue. The most common disorder is mixed anxiety depression, followed by generalised anxiety disorder. Additionally, 10% of children have a clinically significant mental health problem. In spatial terms, mental health problems are found in and around major settlements but there are also some pockets in the eastern part of Bromsgrove District adjacent to Redditch (and in the Vale of Evesham.)

2.58. Although mortality rates from cardiovascular diseases are significantly lower than the national rate, patterns of heart diseases are more dispersed than the other health indicators assessed and poor performance is found across the county. Contrary to other health indicators, heart diseases are least prevalent in some of the urban areas.

2.59. The overarching principles identified by the GI partnership regarding socio-economic matters for this ECA are:

- Primary focus on overall health related improvements.