

Environmental Character Area Profile for the Minerals Local Plan: 23. Eardiston

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 known as blue infrastructure). The GI approach requires thinking about the environment as an integrated system of stepping stones or nodes in a wider network¹.

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. However there is also significant potential to contribute positively to green infrastructure through the restoration of mineral workings.
- 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 network² will need to be considered.

Environmental Character Areas³ 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). Details about how these were developed is set out in *Planning for a Multifunctional Green Infrastructure Framework in*

¹ Green Infrastructure Guidance – Natural England.

² Green Infrastructure Guidance – Natural England.

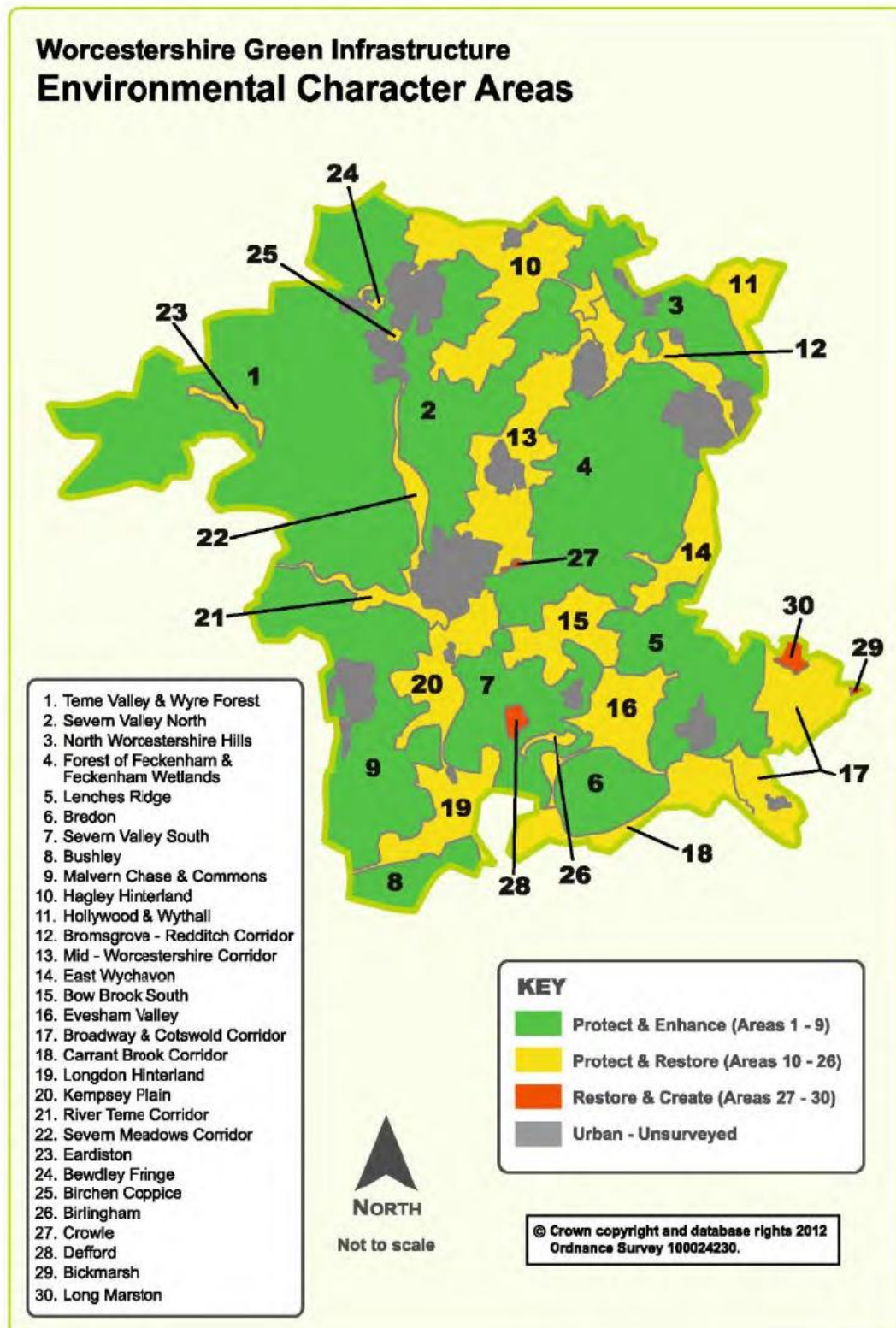
³ Worcestershire County Council (July 2012) *Planning for a Multifunctional Green Infrastructure Framework in Worcestershire: Green Infrastructure Framework 2*

Worcestershire: Green Infrastructure Framework 2 (2012) available at www.worcestershire.gov.uk/GI

- 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.
- 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. 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

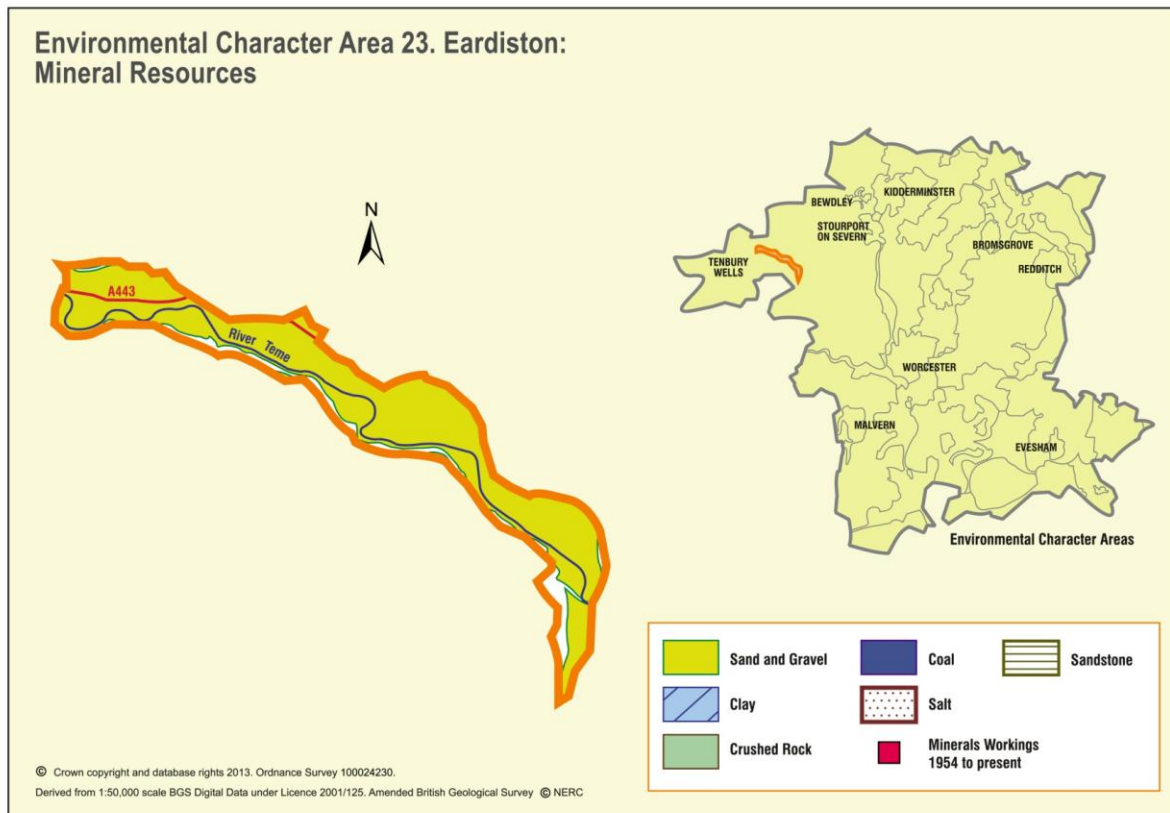
These are illustrated on Figure 1. Environmental Character Areas.

Figure 1. Environmental Character Areas



2. Characteristics and priorities of the Eardiston ECA

Figure 2. Environmental Character Area 23 Eardiston: Mineral Resources



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 23 may have potential sand and gravel deposits along the length of the Teme Valley. The geological mapping of the valley is however very poor. Deposits are shown along the length of the river Teme and the geological memoir for the area records terrace deposits within this ECA but exposures are scarce. There are no active or recorded historic planning permissions for mineral working along the Teme valley. The memoir records that "The limited gravels along the Teme valley have been used locally for roads." There is no evidence that the sand and gravel deposits in this part of the valley are likely to be of any commercial interest.

Hard rock

2.3. There is no evidence of hard rock resources in the ECA.

Industrial minerals

Clay

2.4. There is no evidence of significant clay resources in the ECA.

Silica sand

2.5. There is no evidence of silica sand in the ECA.

Building Stone

2.6. Building stone was produced in the past from a variety of local strata and many of the local churches and historic buildings are constructed from local stone. The Abberley Clock Tower is constructed from a small, local Inlier of the Upper Ludlow beds. One of the largest outcrops of calcareous tufa in the country is at Southstone Rock and has been used in the construction of the church at St Andrew's church Shelsley Walsh and for the vaulting of Worcester Cathedral.

Brine

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

Future Growth

2.8. 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.

2.9. This ECA is a rural area within Wyre Forest District. The district anticipates the development of 2,946 homes and 35.17 ha of employment land in the between 2006 and 2026 years. No development is proposed in this ECA in the Wyre Forest District Council Core Strategy.

2.10. These and other areas beyond the boundary of the ECA could create demand for minerals in this Environmental Character Area.

Green Infrastructure priorities⁴

2.11. 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

2.12. The category is based on 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.

2.13. The strategic GI approach for the Eardiston ECA is to *protect and restore*. The overarching principle identified by the GI partnership is to protect and restore networks and connectivity to the wider Teme Valley landscape.

Landscape and biodiversity

2.14. The River Teme runs through the centre of this narrow, linear ECA which marks its boundary to both sides of the river. Eardiston ECA lies within the Teme Valley Regional Character Area as identified by the County Landscape Character Assessment (LCA). The LCA also describes the whole area of the ECA as lying within the Landscape Type Riverside Meadows.

2.15. These are typically flat, low lying areas of seasonally flooded alluvial grassland, used predominantly for pasture. However, in this case, much of the ECA has now been put under cultivation. The area is unsettled, except for Stanford Bridge and has few road crossings. The tree cover is characterised by lines of pollarded trees along the river banks, scattered hedgerow trees and small scraps of wet woodland.⁵

2.16. Natural England is working with CCW, the Environment Agency and the Severn Rivers Trust to develop a river restoration plan for the River Teme. The plan aims to return the river to a more natural condition and ecological health by restoring the river's more natural form and function over the next 50 years to create:

- A dynamic and diverse river bed which is suitable for fish and invertebrates.
- Variable channel features with a variety of river depths and flow speeds.
- Varied bankside plant structure, including areas of shading and occasional open stretches of floodplain meadow.

⁴ Worcestershire County Council (July 2012) *Planning for a Multifunctional Green Infrastructure Framework in Worcestershire: Green Infrastructure Framework 2*

⁵ Worcestershire County Council (October 2011) *Landscape Character Assessment: Supplementary Guidance*

- Diverse plant, invertebrate and breeding bird communities that are able to use the river corridor with minimal disturbance.
- Lowered levels of river engineering allowing natural movement of the channel within a riparian corridor.
- Increased connection with the floodplain where wet grassland and meadows, fen, carr and wooded areas may develop.

2.17. The River Teme is one of the best sandstone and mudstone rivers in Britain, supporting a diverse range of plants, fish, insects and mammals. Species of interest found in the River Teme SSSI include salmon, twaite shad, otter, native crayfish, lampreys, bullhead and pearl mussels.

GI Priorities:

- 2.18. The biodiversity and landscape priorities identified for the Eardiston ECA are⁶:
- Priority to protect and enhance existing site and biodiversity interest. Implementation and Delivery to be directed to existing site management and buffering as a first principle.
 - Linking of networks to be applied where practicable.
 - Opportunities should be sought to retain pastoral land use and management regimens that support natural river and flood plain function.
 - Protect and enhance the hedgerow field boundaries in a planned enclosure pattern of medium-to-large fields.
 - Seek opportunities to address density and age structure in linear tree belts along hedgerows, ditches and watercourses.

Geodiversity

2.19. There are no Local Geological Sites in this ECA.

Historic Environment⁷

2.20. This small and tightly defined character area encompasses a small length of the river Teme and its narrow floodplain. There has been no archaeological investigation with this area and few sites are recorded, though a possible earthen castle site is suggested at the Eastham Bridge. The area is however of high archaeological potential with well preserved and waterlogged deposits likely, sealed beneath the alluvial flood plain.

2.21. Historic landscape character is dominated by reorganised post-medieval riverside, enclosed meadows.

GI Priorities:

2.22. The historic environment priorities identified for the Eardiston ECA are⁸:

⁶ Worcestershire County Council (July 2012) *Planning for a Multifunctional Green Infrastructure Framework in Worcestershire: Green Infrastructure Framework 2*

⁷ 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.

- Protect and create linkages with wider historic environment green networks (hedgerows, woodland, parkland and river meadows) and protect the setting of Castle Tump near Eastham Bridge.

Blue Infrastructure

- 2.23. This ECA is dominated by the river Teme, the main cause of flooding in Tenbury but surface water flooding from sewers and overland flow and blocked culverts are also important in the town. Flooding usually occurs first from the Kyre Brook west of this ECA before flooding from the River Teme starts. Obstructions or restrictions to flow in this ECA could therefore adversely affect upstream flooding.
- 2.24. The River Severn Catchment Flood Management Plan makes the greater part of this ECA a Policy 4 area where it will "Take further action to sustain the current level of flood risk into the future (responding to the potential increase in risk from urban development, land use change and climate change)".
- 2.25. **Water Quality:** The whole of the River Teme has been designated a SSSI as a representative of near natural and biologically rich river type associated with mudstones and sandstones and has good ecological status. It is however currently failing to meet the requirements to pass the chemical quality assessment as designated under the WFD due to unacceptable levels of Tributyltin Compounds. Release of Tributyltin Compounds is primarily from their use in wood preservatives and in marine antifouling paints on for example ships. Groundwater status is good throughout the ECA.
- 2.26. **Water Quantity:** Overall no water is available in this ECA. Both the river Severn and the aquifer are susceptible to over abstraction and pollution. There is no further water available for abstraction and licences due for renewal are likely to be reduced as far as possible.

GI Priorities:

- 2.27. The blue infrastructure priorities identified for the Eardiston ECA are⁹:
- Manage areas of low, moderate or high flood risk and take action where necessary to keep pace with climate change.
 - Explore 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 by limiting redevelopment to flood-compatible land-uses e.g. parkland). Seek ecological improvements.

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

⁹ Worcestershire County Council (July 2012) *Planning for a Multifunctional Green Infrastructure Framework in Worcestershire: Green Infrastructure Framework 2*

Access, informal recreation and tourism

- 2.28. Although the Rights of Way network in West and North West Worcestershire is very dense, there are fewer sites for public access such as Registered Commons and Country Parks than elsewhere in the county. Sites tend to be of a smaller size and are mainly community sites such as Village Greens, Millennium Greens or Doorstep Greens. There are several nature reserves and picnic places. There is a need to create significant accessible greenspace directly to the west of Worcester City where there is currently little provision either inside the city boundary or into Malvern Hills district, particularly as this is one of the identified growth areas for housing.
- 2.29. This ECA is part of the Abberley and Malvern Hills Geopark which covers 1250 square kilometres of Gloucestershire, Herefordshire, Shropshire and Worcestershire.

GI Priorities:

- 2.30. The access and recreation priorities identified for the Eardiston ECA are¹⁰:
- 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

- 2.31. The A433 crosses the north western edge of the ECA to connect to the A456 and Tenbury Wells in the west and through Great Witley to Stourport on Severn, Droitwich Spa and Worcester in the east. Other roads in this Environmental Character Area are more minor.
- 2.32. 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 within the ECA, although there are some steep gradients which could affect lorry movements on the A443. Local roads may have further restrictions and will need further assessment if they are to be used for accessing mineral resources.

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

Rail

2.33. There are no network railways in this Environmental Character Area.

Water

2.34. The River Teme runs through the Environmental Character Area from Tenbury Wells upstream to Worcester downstream but there is no evidence available that it is navigable.

GI Priorities:

- 2.35. The GI transport priorities identified for the Eardiston ECA are¹¹:
- 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:

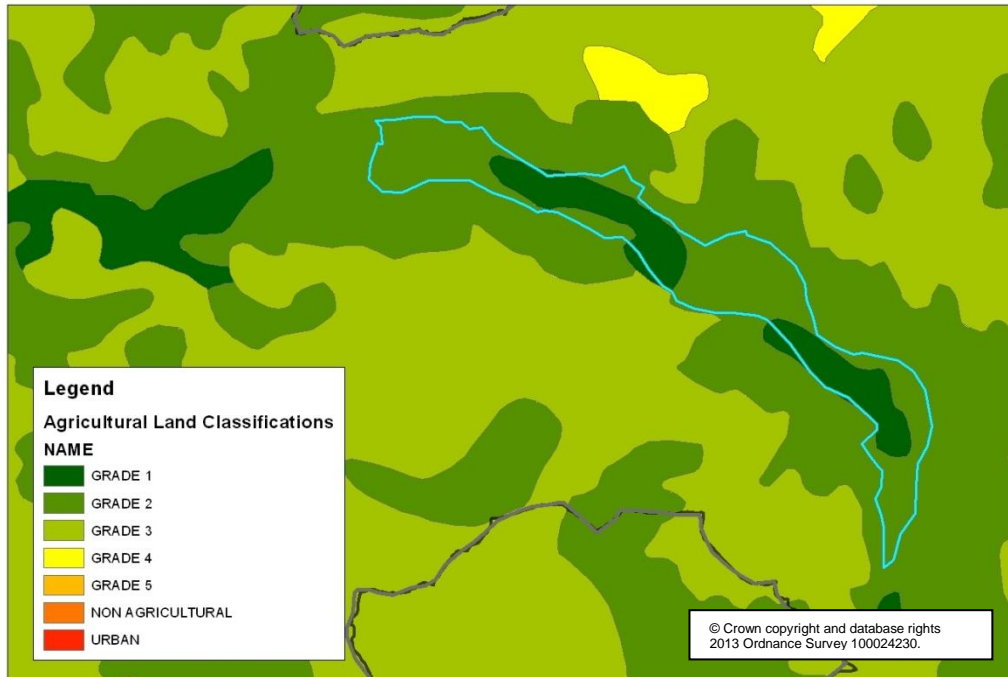
- 2.36. The LTP 3 transport priorities identified for the Eardiston ECA are:
- **A443/A4133 Tenbury Wells-Worcester (M5) interurban corridor maintenance and improvement scheme** - a programme of improvements to transport infrastructure on this route, which is likely to be progressed in the medium term and will include junction enhancements, street furniture decluttering, replacement and enhancement.

Agriculture/Forestry

2.37. The agricultural land use in this ECA is dominated by pastoral farming along the river valley. Agricultural land quality is high across the area, with some grade 1 land and the majority of the ECA classified as grade 2 land, as shown in Figure 3. The whole of this ECA is part of the Environment Agency's Catchment Sensitive Farming Priority Catchment for the River Teme.

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

Figure 3. Agricultural land quality



2.38. The forestry commission's woodland opportunity maps show that although it is surrounded by priority areas for woodland creation which could benefit landscape character, biodiversity, cultural heritage and/or public access, only a small part of this ECA is a priority 1 area (Figure 4). They also show that the ECA is surrounded by ancient woodland landscapes but is not one itself (Figure 5).

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

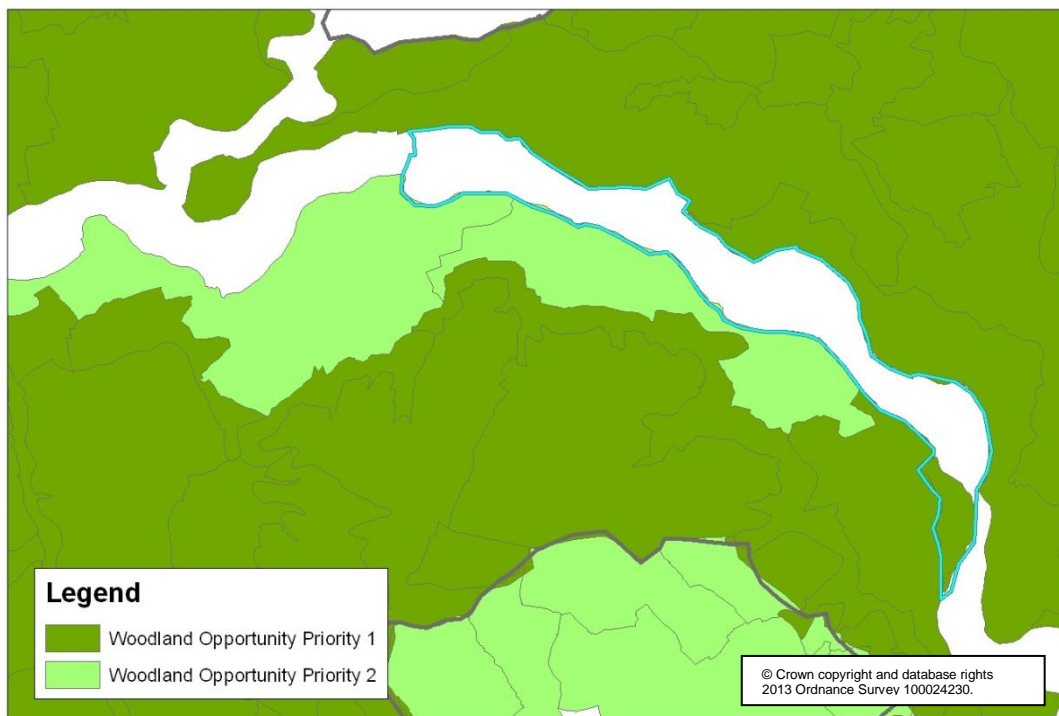
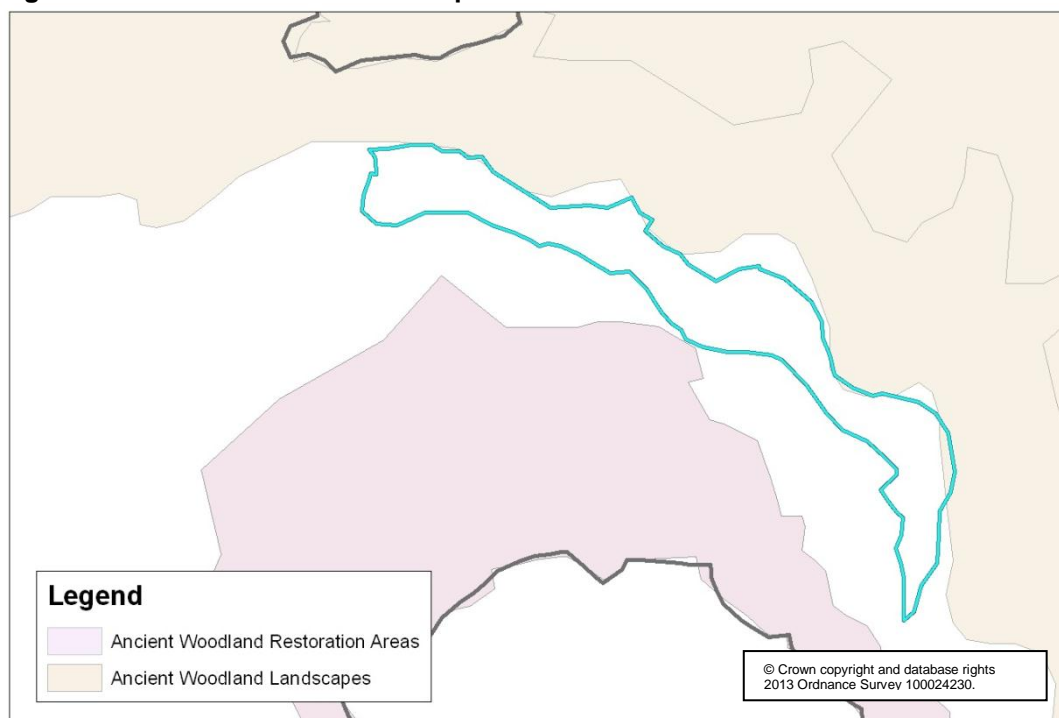


Figure 5. Ancient woodland landscape and restoration



Climate Change

2.39. 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

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

2.41. 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.

Socio-economic considerations

- 2.42. 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.
- 2.43. 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.
- 2.44. 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.
- 2.45. Obesity and respiratory problems in this county generally follow the same geographical pattern. Mental health problems, by contrast, tend to be found in the and around major settlements. 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.