

Environmental Character Area Profile for the Minerals Local Plan: 19. Longdon Hinterland

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.

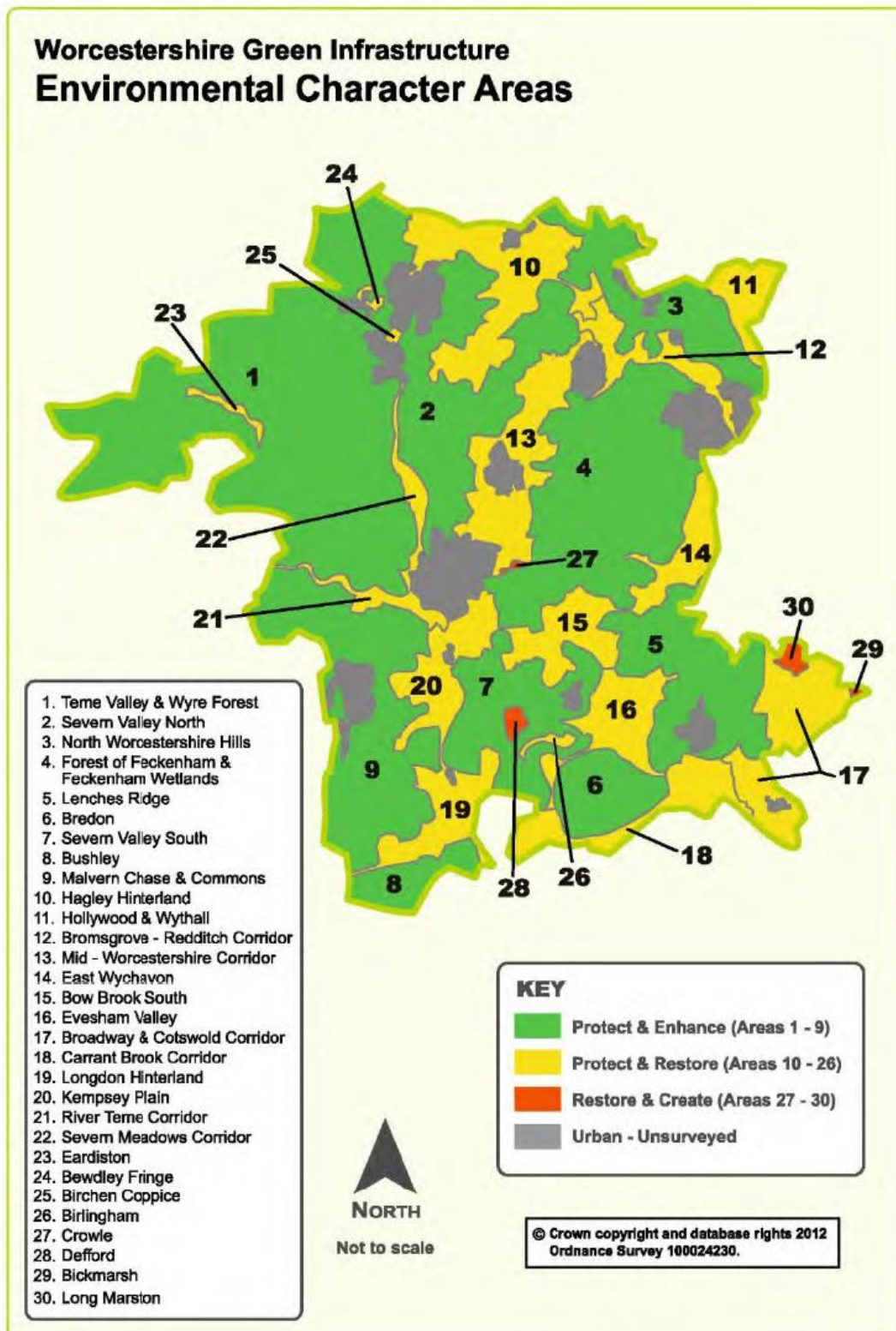
³ Worcestershire County Council (July 2012) *Planning for a Multifunctional Green Infrastructure Framework in Worcestershire: Green Infrastructure Framework 2*

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

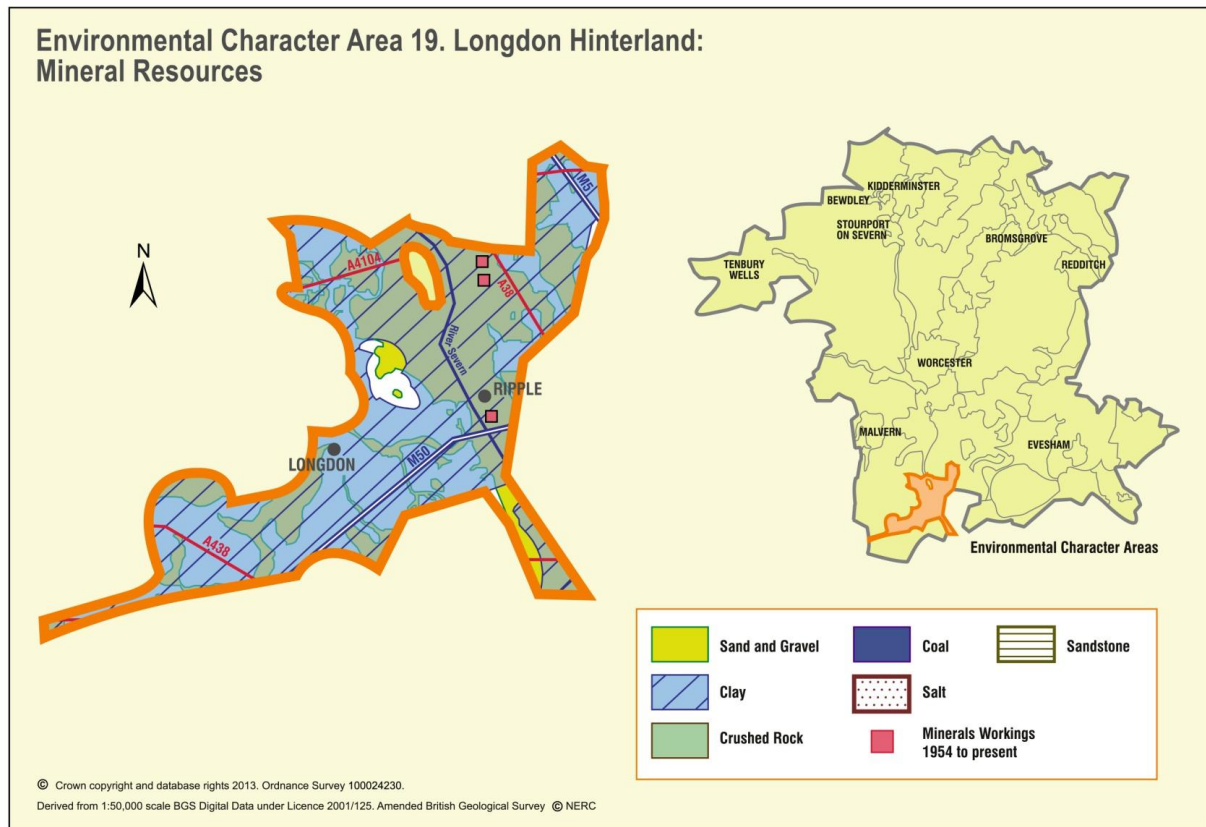
These are illustrated on Figure 1. Environmental Character Areas.

Figure 1. Environmental Character Areas



2. Characteristics and priorities of the Longdon Hinterland ECA 19

Figure 2 Environmental Character Area 19: Longdon Hinterland



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 19 has substantial sand and gravel resources, notably in second, third and fourth river terrace deposits at Ryall, Ripple and around Upton upon Severn. These deposits have been and continue to be, worked at Ripple, where the material is moved by barge along the Severn to be processed at the former gravel pit at Ryall. There are considerable tracts of alluvium in Longdon Marsh and flanking the Severn which may overlie further sand and gravel deposits, borehole evidence is poor but suggests that the depth of sand and gravel may be very variable. It is difficult therefore to estimate the extent of the potential resource. It is not possible to guess how much, if any, might be available from Longdon Marsh.

Hard rock

- 2.3. There are no deposits of hard rock in this ECA. There is scant evidence of any building stone production.

Industrial minerals

Clay

- 2.4. There are extensive clay (Mercia Mudstone, Grey mudstone and Lias clays) in ECA 19 and there was a significant working at Upton at "the Brickhole" now the Marina. Lower Lias deposits have been worked in the past for brick and tile production elsewhere in the county.

Silica sand

- 2.5. There is no evidence that suitable material could be found in this ECA.

Brine

- 2.6. There is no evidence of brine working in this area but the memoir for Worcester suggests that strong seismic reflections within the Eldersfield Mudstone may be halite beds.

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 is a largely rural area within Malvern Hills District on the boundary with Wychavon District and Tewkesbury Borough. The district anticipates the development of 2,592 homes and 29.76 ha of employment land in the next 14-18 years⁴. The ECA is adjacent to the "other town"⁵ of Upton Upon Severn which is proposed for some development in the South Worcestershire Development Plan proposed submission document, although it does not contain any towns or Category 1, 2 or 3 villages.

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 Other towns are third in the five tier settlement hierarchy set out in the South Worcestershire Development Plan proposed submission document. They are less than a third of the size of the Main Towns, but provide a range of services and employment opportunities and act as local service centres. Due to the extent of floodplains around Upton upon Severn, new development will be limited.

- 2.9. Areas beyond the boundary of the ECA could create demand for minerals in this Environmental Character Area. Particularly Worcester City to the north of the ECA, which is anticipated to experience significant development over the life of the Minerals Local Plan, Upton upon Severn and Malvern which are proposed for some development in the South Worcestershire Development Plan proposed submission document, and Tewkesbury and Ashchurch adjacent to the southern boundary of the ECA which are proposed as strategic or housing allocations in the Gloucester, Cheltenham and Tewkesbury Joint Core Strategy "Developing the Preferred Option" consultation document.

Green Infrastructure priorities⁶

- 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 Longdon Hinterland ECA is to *protect and restore*. The overarching principle identified by the GI partnership is to protect and restore the Longdon and Bushley Brook corridors.

Landscape and biodiversity

- 2.13. The Longdon Hinterland ECA stretches from Baughton, just north-west of the M5 Strensham Service Station, across the River Severn in a south-westerly direction to Birtsmorton, at the southern end of the Malvern Hills. It is generally characterised by fairly flat, low lying land, including the former marsh at Sledge Green and the southern part of Longdon Marsh. The three substantial areas of low lying, generally poorly drained land around Longdon, Strensham and Upton upon Severn have been described by the county Landscape Character Assessment as the Landscape Type 'Wet Pasture Meadows'. Here, the impacts of agricultural intensification and especially drainage have been considerable. As such, the area offers considerable restoration potential, particularly for wetland habitats such as reedbeds, wet grassland and ponds along the Longdon and Bushley Brook corridor. Water vole (a protected species) is known to be present within the area. These Wet Pasture Meadows are characterised by linear tree lines along watercourses and wet ditches. Woodland is not characteristic, neither, unsurprisingly given the history of flooding, is settlement.

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

- 2.14. Elsewhere, there are the Estate Farmlands on higher ground on either side of the River Severn where large country houses set in mature grounds are characteristic. Adjoining the river, the unsettled, flat, Riverside Meadows create an open linear landscape with trees lining the river banks. Woodland is not usually a feature. On the eastern side of the river, the slightly raised land around Ripple is classified as Settled Farmlands on River Terrace where the fertile, free draining soils have encouraged intensive farming and where gravel extraction is prominently featured.

GI Priorities:

- 3.9 The landscape and biodiversity priorities identified for the Longdon Hinterland ECA are⁷:
- Enhance and protect the hedgerow field boundaries with 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.
 - In the unsettled Riverside Meadows opportunities should be sought to retain pastoral land use and management regimes that support natural river and flood plain function.
 - Seek opportunities to re-create or restore wetland habitats in the Wet Pasture Meadows, including sustainable water management systems.
 - Encourage the re-planting and restoration of distinctive specimen tree planting associated with Estate Farmlands..
 - Maintain the River Severn corridor as a key green infrastructure link and augmentation: the floodplain will be critical for a number of GI aspirations.

Geodiversity

- 2.15. There are no geological SSSIs or local geological sites in this ECA.

Historic Environment

- 2.16. This 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 palaeochannel's sealed beneath later alluvial deposits, which have been shown by excavation to be a focus of activity during the Neolithic period onwards.
- 2.17. Where clays dominate over the lighter sands and gravels there is greater survival of medieval landscape and settlement earthworks.
- 2.18. 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.

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

GI Priorities:

- 2.19. The historic environment priorities identified for the Longdon Hinterland ECA are⁸:
- Explore opportunities to protect below ground archaeology associated with extensive multi-period settlement on the terraces and higher land surrounding Longdon Marsh.
 - Protect historic water features and water courses and buffer key sites, such as moats and fishponds.
 - Protect and buffer features associated with above the extensive historic water meadow and irrigation system surrounding Upton upon Severn.
 - Protect below ground deposits of high palaeoenvironmental potential associated with Longdon Brook, Bushley Brook and their tributaries.
 - Protect and enhance the diverse historic field pattern and hedgerow network.

Blue Infrastructure

Flooding

- 2.20. The geology can have an effect on the runoff, and the flooding, within a catchment as a result of the permeability of the strata. The geology within South Worcestershire is variable. According to the River Severn Catchment Flood Management Plan¹¹ (CFMP), the lower reaches of the River Severn flow over Non Aquifer Triassic Mercia Mudstone Group strata and Jurassic Lower Lias Clays. The drift gravels at this point allow groundwater to flow from the drift deposits to the river and vice versa.
- 2.21. 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 the Malverns Hills DC 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.
- 2.22. Groundwater flooding is not considered to be a major issue in the South Worcestershire Joint Core Strategy area,
- 2.23. The River Severn Catchment Flood Management Plan makes this a Policy 2 area where it will "Reduce existing flood risk management actions (accepting that flood risk will increase over time)".

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

Water quality

- 2.24. Surface water quality is moderate, the whole ECA is categorised as a water body with agricultural/rural diffuse pollution pressure and water company point source pollution pressure and the area south of Ripple as having additional "other" point source pollution pressure. The groundwater quality is good.

Water Supply

- 2.25. No water available

GI Priorities:

- 2.26. The blue infrastructure priorities identified for the Longdon Hinterland ECA are⁹:
- 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.

Access, informal recreation and tourism

- 2.27. This ECA is in the Malvern Hills District, which has 4,212ha of accessible natural greenspace. This is 7.3% of the total area of the District. There is a good spread of different sizes of accessible natural greenspaces assets across the District and the presence of the Malvern Hills AONB along the western edge of the District means that access to larger assets is good with 84% of households in the Malvern Hills being within 10km of 500ha+ sites and 66% of households being within 5km of 100ha+ sites.
- 2.28. The District has three sub-regional GI assets:
- The Malvern Hills
 - Shrawley Wood
 - Kempsey Common
- Malvern Hills district also enjoys a dense rights of way network, linking a network of small sites and commons which fall outside of the regional assets but combined together offer significant recreational opportunity.
- 2.29. There are no sub-regional recreation assets in the Longdon Hinterland ECA, however the River Severn runs through the ECA and forms a significant GI asset. The Severn Way also runs through this ECA.
- 2.30. The main tourist attraction in this ECA is boat trips on the River Severn from Upton upon Severn.

GI Priorities:

- 2.31. The access and recreation priorities identified for the Longdon Hinterland ECA are¹⁰:

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

- 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

- 2.32. M50 runs north east to south west across the centre of the ECA connecting to the M5 and south Wales, with Junction 1 just outside the eastern boundary of the ECA and Junction 2 just beyond the western boundary of the ECA in Gloucestershire.
- 2.33. The A38 crosses the eastern corner of the ECA connecting Upton upon Severn to the north with Junction 1 of the M50 to the south. The A4104 crosses the northern edge of the ECA connecting Malvern Wells in the west, through Upton upon Severn to Pershore in the north east. The A438 crosses the south western tip of the ECA as well as the south eastern outcrop of the ECA near Tewkesbury, connecting Tewkesbury to the south east with Ledbury in the west. Other roads in this Environmental Character Area are more minor.
- 2.34. The Worcestershire Advisory Lorry Route Map shows that the bridge over the River Severn on the A438 near Tewkesbury has a 17T maximum gross weight limit and a width restriction of 3m (9'6"). Local roads may have further restrictions and will need further assessment if they are to be used for accessing mineral resources.

Rail

- 2.35. There are no rail lines in this Environmental Character Area.

Water

- 2.36. The River Severn flows through the ECA, joining Upton upon Severn upstream in the north to Tewkesbury downstream in the south. It is an operational river navigation, capable of carrying commercial traffic and is navigable up to Stourport on Severn.

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

GI Priorities:

- 2.37. The GI transport priorities identified for the Longdon Hinterland 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:

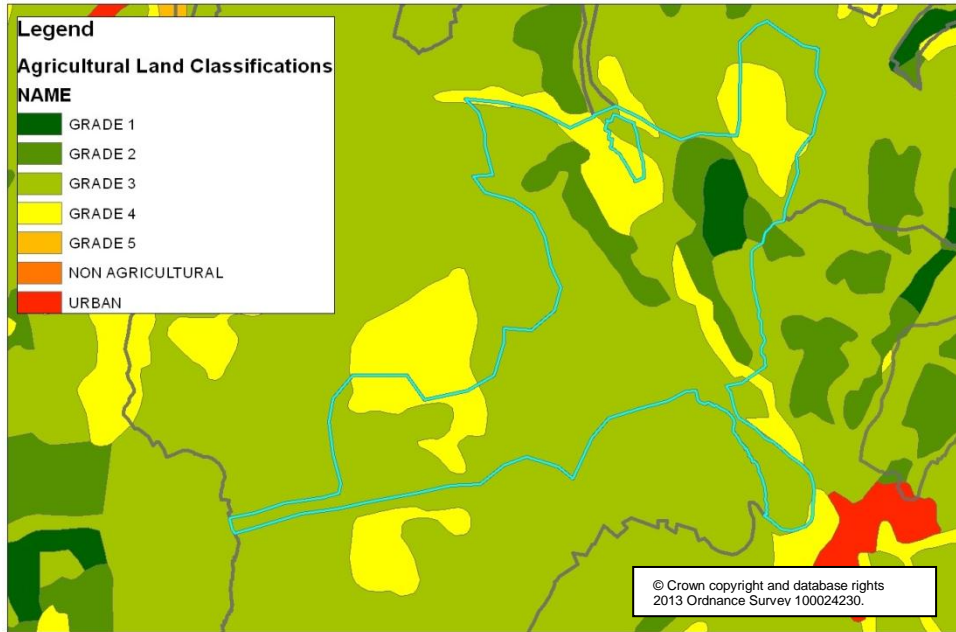
- 2.38. The LTP 3 transport priorities identified for the Longdon Hinterland ECA are:
- **Upton-upon-Severn to Malvern cycle route** - this scheme involves the development of a direct off-road walking and cycling route along former railway line between Upton-upon-Severn and Malvern to link a number of trip attractors and provide a short, attractive route for cyclists and pedestrians between Malvern and Upton-upon-Severn, likely to be progressed in the medium term.
 - **Upton-upon-Severn to Uckinghall walk/cycle bridge and connecting links** - this scheme would involve the development of a walking and cycling link between Upton-upon-Severn and Tewkesbury, a new walking and cycling bridge over the River Severn to the south of Upton, making use of the former rail line alignment. However this scheme is only likely to be progressed in the long term if developments are approved in the local area that would be likely to benefit from the scheme, or provide funding (via developer contributions) to enable progression.

Agriculture/Forestry

- 2.39. The majority of the land use in this ECA is pastoral or mixed farming.
- 2.40. Agricultural land quality varies across the area, but is dominated by grade 3 land. There are some areas of higher quality grade 1 and 2 land either side of the River Severn to the south of Upton but with some areas of lower grade 4 land along the river corridor and in both the eastern and western ends of the ECA as shown in Figure 3.

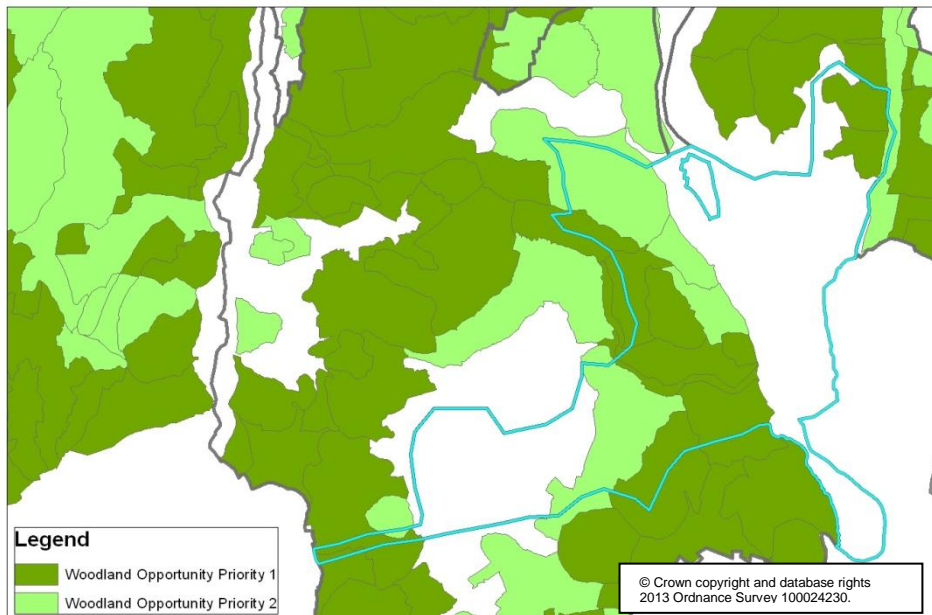
¹¹ Worcestershire County Council (July 2012) *Planning for a Multifunctional Green Infrastructure Framework in Worcestershire: Green Infrastructure Framework 2*

Figure 3. Agricultural land quality



2.41. The forestry commission's woodland opportunity maps (Figure 4) show the centre and the eastern and western edges of the ECA as priority 1 and 2 for woodland creation which could benefit landscape character, biodiversity, cultural heritage and/or public access. However, they also show that none of this ECA is an ancient woodland landscape and therefore woodland restoration across this part of the ECA would not benefit the ancient woodland landscape.

Figure 4. Woodland opportunity maps



Climate Change

2.42. 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

2.43. 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.

2.44. 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.

2.45. The soil types in parts 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.

Socio-economic considerations

2.46. 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.

- 2.47. 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.
- 2.48. 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.
- 2.49. 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.
- 2.50. The overarching principles identified by the GI partnership regarding socio-economic matters for this ECA are:
- Enhancements across both health and economic GI related issues.