

Worcestershire Green Infrastructure Partnership

Worcestershire Sub-Regional Green Infrastructure Framework

Perryfields, Bromsgrove Concept Plan

Draft Version 1

WC C Internal Use Only

The Perryfields, Bromsgrove Concept Plan has been prepared by a working group of the Worcestershire Sub- Regional Green Infrastructure Steering Group.

The Concept Plan has benefited from scrutiny and input from stakeholders it is not a statutory document and holds the status of a guidance paper to provide a framework for the master planning of a comprehensive multifunctional green infrastructure.

Contents

1. Introduction	2
1.1 What is Green Infrastructure?	3
1.2 What is a Concept Plan?	3
1.3 Preparation of the statement and its status	5
1.4 Limitations	5
2. Perryfields, Bromsgrove Concept Plan	6
1.1 Strategic Objective	6
1.2 Guiding Principles for Development	6
Appendix 1. Supporting Evidence	13
Biodiversity	13
Landscape Character	15
Historic Environment	17
Access and Recreation	25
Movement Networks – Walking and Cycling	27
Blue Infrastructure	28
Appendix 2. Worcestershire GI Environmental Character Area Objectives	33

1. Introduction

1.1 What is Green Infrastructure?

The West Midlands Green Infrastructure Prospectus (2003) defines GI as:

"Green Infrastructure is the network of green spaces and natural elements that intersperse and connect our cities, towns and villages. It is the open spaces, waterways, gardens, woodlands, green corridors, wildlife habitats, street trees, natural heritage and open countryside. Green Infrastructure provides multiple benefits for the economy, the environment and people.

Green Infrastructure may also be seen as part of the life-support system of an area; providing functions and environmental services to a community, such as employment, recreation, physical health and mental well-being, social interaction, contact with nature, drainage and flood management, climate change adaptation and pollution control. It may be considered the essence of local character and sense of place, the very heart of a community, or dear to the hearts of many thousands some distance away.

It spans administrative and political boundaries; it is publicly and privately owned, and it may be semi-natural or man-made in its origins. It may be green, brown or blue - think of canals or derelict land, woodlands in winter or ploughed fields. It may be wrapped around by houses, schools, factories or commercial properties. In urban situations it complements and balances the built environment; in rural settings it provides a framework for sustainable economies and biodiversity; in-between it links town and country and interconnects wider environmental processes."

Natural Environment White Paper (2011) provides that green infrastructure is *"the living network of green spaces, water and other environmental features in both urban and rural areas"*. It is recognised as an important ecological link between town and country. The document emphasises multifunctional benefits of GI which are to:

- support economic growth
- improve public health, wellbeing and quality of life;
- drive biodiversity and the functioning of natural systems such as rivers and flood plains
- reduce the negative impacts of climate change

The partnership working (including the establishment of Local Nature Partnerships and a national Green Infrastructure Partnership) is encouraged in order to make sure that these GI benefits are evenly distributed throughout society.

National Planning Policy Framework (2012) states that Local Plans should address climate change, biodiversity and landscape issues through "*planning positively for the creation, protection, enhancement and management of networks of biodiversity and green infrastructure*".

1.2 What is a Concept Plan?

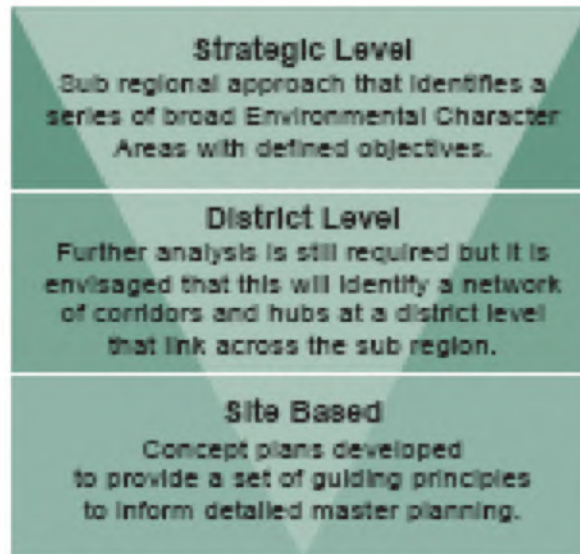
Concept plans and statements provide a framework for the development of master plans for areas of strategic growth.

This concept plan provides a statement of aims and objectives for green infrastructure that the partners to the concept plan would expect to see addressed in the masterplanning of development at Perryfields, Bromsgrove.

The concept plan is based on primary baseline data and the multifunctional characteristics of Perryfields. In so doing it identifies the green infrastructure assets, and spatial patterns that give rise to opportunities for a connected and multifunctional green infrastructure network.

1.3 Purpose and Aim

The concept plan for Perryfields is intended to provide a high level framework, consistent with the emerging Sub-Regional Green Infrastructure Framework. The long term vision is for the concept plan to form part of a suite of papers (see table below) that aim to inform the detailed masterplanning that will apply in these areas. It is not intended to be prescriptive, but does establish principles to demonstrate how best practice for the development and management of green and blue infrastructure can be applied on the ground.



The guiding principles of the concept plan have in part been guided by the vision for Perryfields in the Draft Core Strategy 2 for Bromsgrove and the proposed policy CP4(A) Bromsgrove Town Expansion Sites (BROM2 allocation).

Consideration will in future be given to the cost of provision and management of green infrastructure. To achieve this, the concept plan provides the following:

- an overview of the local landscape character, its history, function and physical make-up, including:
 - an understanding of the current structure and broad character of Perryfields and surrounding settlements
 - an overview of how settlements interact with the surrounding countryside, particularly at the location of the strategic growth area;
- summaries that outline the complexities of biodiversity and the historic environment present within Perryfields, in relation to its immediate setting and wider networks;
- an overview of the local access and recreation provision including walking and cycling networks;
- a view about the type, scale and provision of green infrastructure within development proposals and where relevant, beyond the site boundaries. This provides the basis for the place making principles to be embedded in the master planning of the site;
- broad commentary about the physical capacity of the site, and the implications for the built form and development density on the provision of green infrastructure

i.e. SUDS, sustainable transport provision and access to open space to support the new and existing communities.

1.4 Preparation of the statement and its status

Preparation of the concept plan has been led by the Strategic Planning & Environmental Policy team of the County Council and has been endorsed by Natural England, The Environment Agency, The Forestry Commission, Worcestershire Wildlife Trust, English Heritage (as initial standing advice) and supplements the with regard to green infrastructure.

Note: Preparation of this paper does not however imply any organisational support to any planning application for Perryfields, Bromsgrove.

1.5 Limitations

As noted previously the concept plan provides a strategic framework for the development of master plans and it is recognised that this strategic approach brings with it limitations. The concept plans does not take account of the location of other infrastructure i.e. piping for utilities and further surveying will be required to enable the development of realistic possibilities for implementation.

The concept plans statements identify the need for further investigation and analysis and as such a caveat to the information provided is included where appropriate.

2. Perryfields, Bromsgrove Concept Plan

Perryfields is an important strategic site for Bromsgrove and must set an example for future development proposals using best practise for green infrastructure as an exemplar development and contribute to both quality of life and quality of place for the residents of the development and the wider area.

The concept plan has been produced to provide a set of guiding principles in the design and masterplanning of a full multifunctional green infrastructure for Bromsgrove. The guiding principles are based on a preliminary analysis of the qualities, constraints and opportunities for the site. This includes biodiversity, historic environment, landscape character, watercourses, flood risk, access and recreation and sustainable transport.

2.1 Strategic Objective

To create a cohesive and sustainable community which is inspired by the landscape setting and which provides an attractive living environment for a wide range of household types. To protect and enhance the existing green infrastructure resource by designing a framework of green corridors, networks and open spaces which connect the development to the surrounding rural hinterland and to the urban fabric of Bromsgrove Town.

The development area is located within GI Environmental Character Area 13 (Mid Worcestershire Corridor) of the emerging green infrastructure framework and the primary objective of this character area is to protect and restore natural assets. Further details on the overarching strategic green infrastructure objectives can be found in the appendix 2.

2.2 Guiding Principles for Development

The landscape within, and surrounding the proposed site should inform the creation of a high quality and healthy living environment. Features such as existing hedgerows and footpaths should be used as a basis for a network of green corridors and open spaces throughout the site. These linkages should be based upon and reinforce the existing linkages within the location and be taken account of in masterplanning and detailed design.

The design requirements for the site can be broadly summarised below. Further technical analysis is provided in appendix 1.

Biodiversity

Opportunities to promote biodiversity should be integral to the design of the site. This should include the buffering and ecological improvement of existing water courses, the retention of field trees, hedgerow networks, woodlands and orchards and seek opportunities to link areas of greenspace to provide a network of corridors for species movement.

Landscape-scale connectivity is fundamental to the environmental sustainability of the development and should underpin all phases of the master-plan process.

Proposals should therefore make use of existing landscape features such as the hedgerows, woodlands, field trees, and the ponds to the south of the site as the basis for a network of linear routes and open spaces across the site. This should include the provision and maintenance of existing links from Bromsgrove town and out into the surrounding countryside where possible, rather than just those within the site.

The Battlefield Brook runs along the boundary of the Perryfields Road site. The Brook should be buffered as a part of the development, and its ecological interest enhanced, particularly to enhance the habitat for water voles and aquatic invertebrates. The Brook suffers from low dry weather flows. The diversion of clean surface water via SUDS to support the flow within the Brook is encouraged.

Perryfields Marsh is a potential Local Wildlife Site as water quality issues are improving. The possibility of an alternative unpolluted water source from the development site such as SUDS should be investigated to sustain site hydrology and enhance existing habitats including wet woodland and marsh.

Careful consideration should be given to the width of buffering zones in order to ensure that corridors meet all the necessary functions (including recreation, ecology and water management) without compromising their core biodiversity function.

Amenity and street trees provide opportunities for climate change adaptation but also contribute to biodiversity, historic and landscape character in line with the principals outlined in Trees in Towns. Locally native stock will be preferred and there will be a presumption for native species rather than exotic introductions in landscaping away from gardens.

A buffer of between 50m and 20m (as a minimum) for woodland sites (particularly ASNW / OSNW)¹, valuable hedgerows and all significant single trees (of good or reasonable health) should adopt good practice to maximise the number of node points for post construction green infrastructure. Buffering allows for a mature tree to 'fall' from the edge of the woodland and not strike any structural development, provides an undeveloped margin around the woodland to deter and prevent fly tipping, antisocial behaviour, garden waste tipping etc impacting on the very important woodland edge habitat.

Loss of mature/veteran trees should be avoided and applications will be required to demonstrate that their layout takes these features into account as far possible.

Habitat fragmentation caused by internal roads or other infrastructure should be avoided where possible. Applications will need to demonstrate how site layouts have considered existing features and overall outline and future detail design and should take account of these concerns.

¹ Ancient Semi Natural Woodland (ASNW) are woods that have been continuously wooded since at least 1600 and may be remnants of the ancient wildwood. Due to being long established they can hold a high diversity and abundance of woodland species. Other Semi Natural Woodlands (OSNW) is naturally regenerated native woodland or that planted with native species using a planting matrix that mimics naturally regenerated woodland habitat.

As a last resort any losses should be adequately mitigated and compensated for by the creation of connected sympathetic GI.

Landscape Character and Visual Amenity

Incorporate existing landscape features such as the hedgerow network, historic pathways, woodland and trees to reflect the historic landscape and develop a layout that responds to the character of the site.

Design in appropriate landscape features such as front garden hedges and prominent use of oaks in open space areas in order to relate to the inherent landscape character of the site and its setting

The provision of SUDS features and flood storage facilities should be sensitively designed to appear as natural as possible and to provide attractive features both when wet and dry.

Use the topography of the site to inform the spatial layout of the proposed development.

The development strategy should incorporate proposals to manage the transition between new development and the open countryside by establishing development edges which provide a sympathetic and appropriate transition between the urban edge and the rural hinterland.

Opportunities should be explored for landscape gain, which extend beyond the development site(s) itself, through agreements with adjacent land owners.

The relationship between the new development and urban edge should create views and vistas to the town as well as out to the surrounding open countryside.

Existing native trees and woodlands should be retained. New planting should provide a 3 dimensional perspective to the green structure and should include species that will attain sufficient size to achieve the necessary massing as well as the required level of screening.

Consider the use of orchard planting to reflect the historical land use of part of the site.

Historic Environment

Consider designing open space and amenity space where this can afford protection to high value / sensitive, below ground archaeology identified through field evaluation.

Promote the restoration and replanting of historic hedgerows to enhance the site historic landscape character setting. This will also provide corridors for wildlife and reference the wider landscape setting.

Seek opportunities to create traditional orchards (possible community orchards) to promote the historic link between the extensive orchards that were traditionally

a characteristic of the pre-1960's landscape, therefore referencing, historic landscape character and provide future habitat.

Create and promote access and enhancement of existing Public Rights of Way network to provide links into the wider landscape setting and also key historic environment assets (e.g. Dodford Priory Scheduled Monument and the highly distinctive historic Chartist settlement at Dodford).

Access and Recreation

Create a network of green spaces that includes formal playing fields, informal parks, recreational areas and allotments that help to deliver the aims of the Worcestershire Access and Informal Recreation Strategy (AIRS).

Provide for recreational demand that reduces the need for unsustainable car travel to existing provision in Bromsgrove or elsewhere. Such a facility should be provided in perpetuity, and be a high quality resource i.e. Green Flag status.

Movement Network

Create a pedestrian and cycle network that will provide a range of travel options for journeys within and beyond the site and which connect new and existing communities to on-site services and to the wider countryside in line with the Worcestershire Local Transport Plan (LTP).

Blue Infrastructure

A Flood Risk Assessment (FRA) that considers all sources of flooding, including fluvial flood risk from the Battlefield Brook, and climate change impacts, will need to be undertaken to inform development layouts and requisite buffer strips as part of the master-planning process.

Development will need to demonstrate that it will meet the necessary drainage requirements to avoid increasing flood risk elsewhere.

Surface water flow rates must be restricted so that they are no greater than existing greenfield rates through the use of appropriate SUDS schemes with a good potential to enhance water treatment, ecology and where appropriate, maintenance of dry weather flow in surface waters.

Infiltration SUDs may be appropriate on parts of this site due to the freely draining soil. However, further detailed assessment is required to ensure that this would not have any negative impacts on groundwater. A SUDS scheme that diverts clean surface water to support water levels in the Battlefield Brook is encouraged.

Adequate land take should ensure that any SUDS features appear natural without steep bank gradients (unless this enhances water vole habitat) and should include opportunities for biodiversity gain.

Ideal drainage solution is likely to comprise of a number of components rather than relying on just one SUDS technique linked together to form a 'SUDS management train'

Design of the Built Environment

Opportunities for the inclusion of green roofs should be explored to provide multiple benefits including sustainable drainage, biodiversity, thermal insulation and reducing the visual impact of development.

Use timber in infrastructure construction rather than other 'high carbon cost' materials.

The supporting evidence (Appendix 1) identifies local pressures on water resources and environmental constraints. Development should look to include water efficiency techniques within the design of new buildings as part of sustainable development.

New build should reflect the local vernacular architecture in form, scale and materials.

Planting of street trees should be used to maximise solar shading and to soften the visual impact of the development from rural vantage points and from the town.

Community Benefits of Green Infrastructure

In delivering best practice in green infrastructure it is expected that consideration is given to the options listed below:

Master plans should identify and implement measures that can deliver climate change, health and economic benefits for new and existing communities by planning for a multifunctional green infrastructure.

Incorporating green roofs into community and employment infrastructure to increase energy efficiency, reduce rainwater run-off and provide biodiversity benefits.

Planting of street trees to create shade and cooling in external areas during summer months and to reduce rainwater run-off and provide carbon sinks.

Provision of allotments to provide opportunities for social interaction whilst providing opportunities for health and well-being improvements.

Creation of a cooler and more comfortable urban environment during hot summer months and improvements to air quality through a reduction in particulates.

The creation and provision of footpath and cycle network can provide recreational opportunities to improve health and wellbeing of residents while reducing car journeys and reducing emissions.





 <p>worcestershire county council</p> <p>County Hall Spetchley Road Worcester WR5 2NP</p>	<p>0250100150200</p>  Meters <p>Perryfields - Site Boundary and Aerial Photographs</p>	<p>© Crown copyright. All rights reserved. Worcestershire County Council 100015914. For reference purposes only. No further copies may be made.</p>
---	---	---

Figure 1 - Site Boundary and Aerial Photograph

Appendix 1 - Supporting Evidence

Biodiversity

The Battlefield Brook runs through this site. Water Vole have been recorded further downstream on the brook at Sanders Park.

There are a number of linear plantation woodlands on and adjacent to the sites, most of which appear to have been planted to screen the motorway.

To the south east of the site is the former Perryfields Marsh, now within the grounds of Perryfields School. A former special wildlife site, the designation was removed due to declining biodiversity. The site is currently recovering its biodiversity interest.

Principles for development

- Protect and enhance features of interest
- Enhance and create links between them

Opportunities

- Opportunities to promote biodiversity should be integrated into the design of the site. This should include buffering of the existing water courses, retention of field trees, hedgerow networks, and plantation woodland and seek opportunities to link areas of greenspace to provide a network of corridors allowing for improved species movement.
- Landscape-scale connectivity is fundamental to the environmental sustainability of the development and should underpin all phases of the master planning process.
- The Battlefield Brook runs through the Perryfields site. The brook should be buffered as a part of the development, and its ecological interest enhanced, particularly to enable the nearby water vole population to colonise and move freely through the site.
- Perryfields Marsh has potential to regain its Local Wildlife Site status as water quality issues are improving. The possibility of augmenting this or providing an alternative unpolluted water source from the development site, such as through SUDS, should be investigated.
- Plantation woodlands have been planted to provide screening from the motorway. These should be buffered and extended along the line of the motorway to both enhance the biodiversity interest and to screen the development site and to act as a noise buffer. Opportunities should be taken as a part of this development to diversify existing woodland planting, increasing the proportion of native woodland species, and through management increasing the structural diversity of existing woodland planting.
- Careful consideration should be given to the width of all buffering zones in order to ensure that the corridors meet all the necessary functions (including recreation, ecology and water management) without compromising their core ecological function.

- Loss of veteran / mature trees should be avoided and applications will be required to demonstrate that their layout takes account of these features wherever possible.
- Orchards are a BAP priority habitat in Worcestershire and proposals should consider and enhance the ecological function of the orchards on this site.
- Amenity and street trees provide opportunities for climate change adaptation but also contribute to biodiversity, historic and landscape character in line with the principles outlined in Trees in Towns. Locally native stock will be preferred and there is a presumption for native species rather than exotic introductions in landscaping away from gardens.
- Habitat fragmentation caused by internal roads or other infrastructure should be avoided where possible and instead these features should enhance connectivity. Applications will need to demonstrate how site layouts have considered existing features and overall outline and future detailed design should take account of these concerns.
- As a last resort any losses should be adequately mitigated and compensated for by the creation of connected sympathetic GI.

Draft

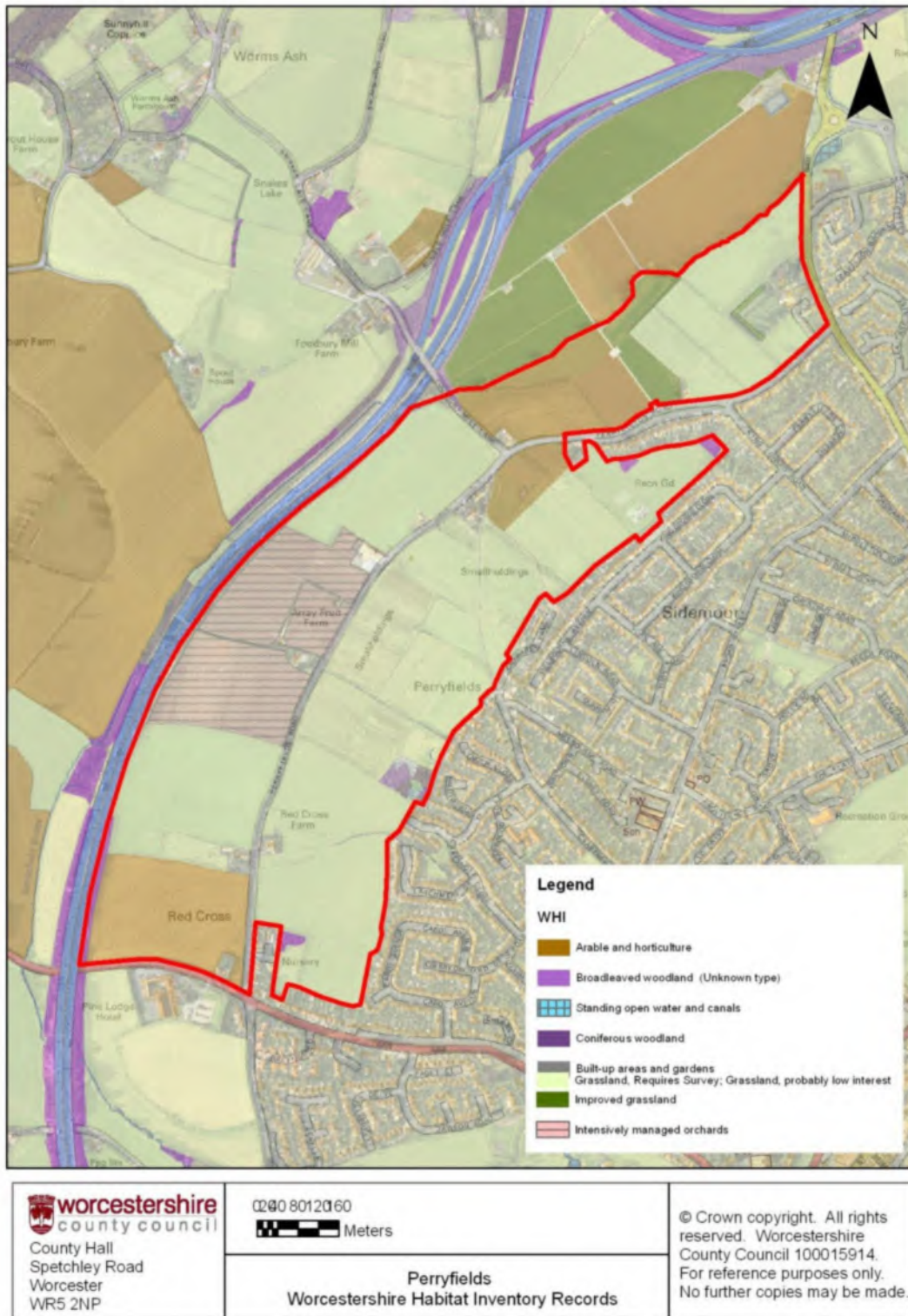


Figure 2 - Bromsgrove Habitat Inventory Records

Landscape Character and Visual Amenity

Landscape Type and Landscape Description Unit

Perryfields Road site is located within the Principal Settled Farmlands Landscape Type, the Landscape Description Unit (LDU) MW128 and, within that unit, the Land Cover Parcel (LCP) MW128a.

The *generic* key characteristics of the Principal Settled Farmlands Landscape Type are:

- Hedgerow boundaries to fields with an irregular enclosure pattern of small- and medium-sized fields
- Scattered hedgerow trees
- Moderate-to-high density settlement pattern of farmsteads and rural dwellings dispersed throughout the area
- Mixed farming land use

The *specific* description of LDU MW128 picks out the local features of areas of market gardening and elm prominent in the hedgerows. However, tree cover is generally poorly represented and there is localised impact of the motorway.

The *generic* key characteristics of the Principal Timbered Farmlands Landscape Type are:

- Hedgerow boundaries to fields with an organic enclosure pattern
- Ancient wooded character with a notable pattern of hedgerow trees, predominantly oak
- Small-scale landscape, hedgerow trees creating filtered views
- Dispersed settlement pattern with brick and timber building style of older properties
- Mixed farming land use

Condition and Sensitivity

Within the LCP MW128a the landscape is in *good* condition, with *medium* sensitivity.

The condition can be further broken down as follows:

Field boundaries (hedgerows) – MODERATE

Enclosure pattern (sub-regular – i.e. an interlocking pattern of lanes and rectilinear fields with curving boundaries) – GOOD

Tree cover pattern (scattered) – MODERATE

Tree cover character (trees i.e. landscapes in which trees rather than woodland comprise the dominant visual element of cover) – GOOD

Settlement pattern (dispersed) – MODERATE

Land use (mixed – balance of pastoral and arable) – GOOD

NB It is important to note here that this assessment of condition and sensitivity relates purely to the landscape *character* – a landscape visual impact assessment has not been undertaken for this site.

Principles for Development

In this Landscape Type, the hedgerow field boundaries, hedgerow trees and enclosure pattern (sub-regular in the Settled Farmlands) are key characteristics which should be retained and strengthened where possible.

Otherwise the general principles for development should include

- Retention and strengthening of any key characteristics of this Landscape Type that may be affected by the development in all aspects of the site design
- Protection and enhancement of the hedgerow network and hedgerow trees, maintaining and improving the integrity of this network and the habitat network more generally
- Encouraging opportunities for landscape gain (focusing on key characteristics of these landscapes as detailed above) which extend beyond the development site(s) itself, perhaps through agreements with adjacent land owners

Draft

Historic Environment

Historic Environment Assessment and Setting

The evidence base underpinning this statement is comprised of three sources:

- The Historic Environment Assessment for Bromsgrove District Council (provides broad landscape setting and assessments of survival, potential and sensitivity).
- Worcestershire Historic Landscape Characterisation Project (provides detailed historic landscape assessment).
- Worcestershire Historic Environment Record (provides details and locations of known historic environment sites and features).

Site specific background

The following summary has been drawn from The Bromsgrove District Historic Environment Assessment report, which has assessed the historic environment using seven themes (below). This document should be used in conjunction with the report (see Sources for Planning section) and particular reference should be made to Historic Environment Character Zone (HECZ) **171**.

- **Survival** – based on current historic environment records, surviving assets, land-use and the impact of existing development
- **Potential** – an assessment of the likelihood for the presence of additional historic environment assets
- **Documentation** – record of previous research and related sources
- **Diversity** – assesses the range of multi-period, or multi-evidence type historic environment assets (structural, below/above ground, landscape) and landscape attributes
- **Group value** – identifies where there is a strong historic environment coherence by period or evidence type
- **Amenity value** – identifies historic environment attributes within the zone with potential to be conserved and promoted as part of Green Infrastructure or amenity provision.
- **Sensitivity to change** – identifies sensitivity to change based on the impact of medium to large-scale development

The Perryfields site is situated in a landscape defined by a field pattern of post-medieval, piecemeal and small to medium scale fields with mostly regular, straight boundaries. There is evidence of extensive field amalgamation and reorganisation during the 20th century, although several historic boundaries survive. The site is bounded by the M5 and large area of 20th century housing and industrial development that has expanded out from around the medieval and post-medieval urban centre of Bromsgrove.

Historic environment survival and potential (see also figures 3 and 4)

The survival of historic landscape features across Perryfields, has been compromised to some extent by changes in land-use (notably the intensification of farming during the 20th century) and construction of the M5. Despite this, however, there remains a high potential for the presence of below ground archaeology, particularly in those areas of higher ground beyond the original construction corridor of the M5. The wider historic environment context suggests that periods of below ground archaeology most likely to encountered are Romano-British, medieval and post-medieval. That is not to say that archaeology from other periods (such as prehistoric) will not be present just that evidence for this is currently limited. The assessment of potential taken from the Historic Environment Assessment clearly indicates that the site will require detailed evaluation in order to fully understand and map the presence or absence of historic environment survival and potential.

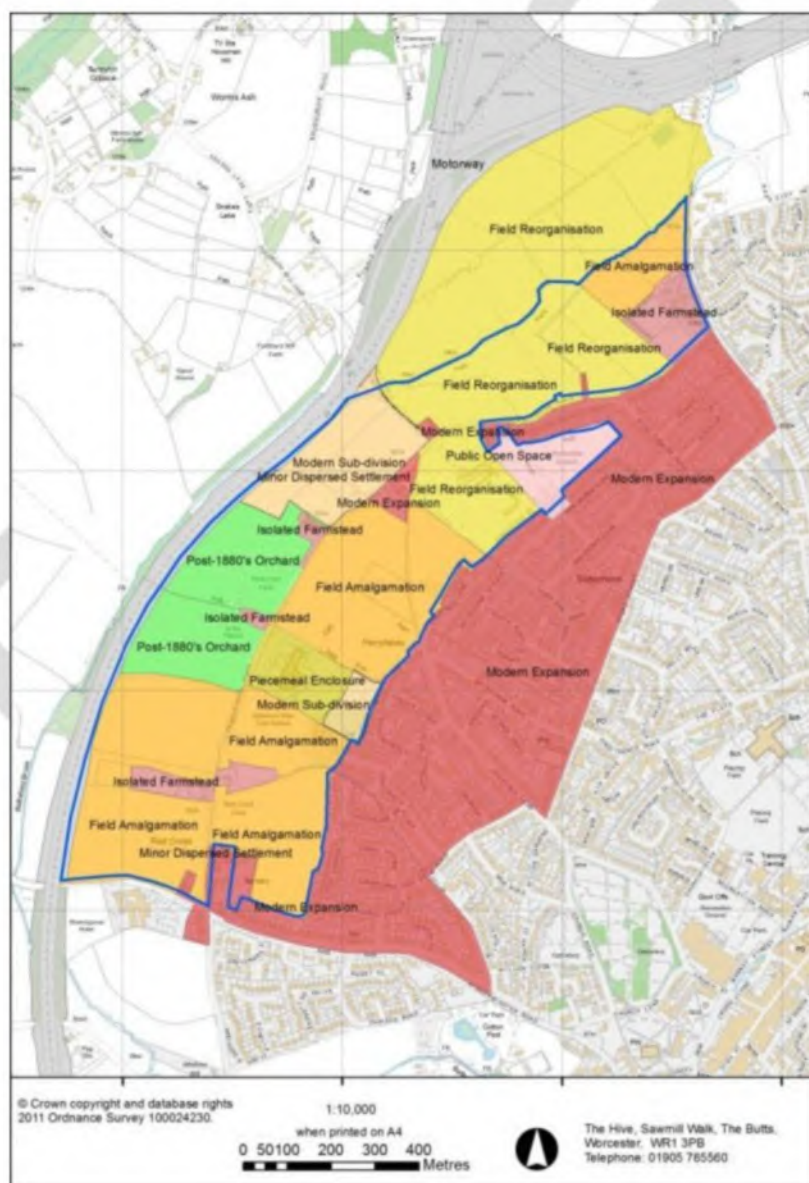


Figure 3 - Historic Landscape Character interpretation

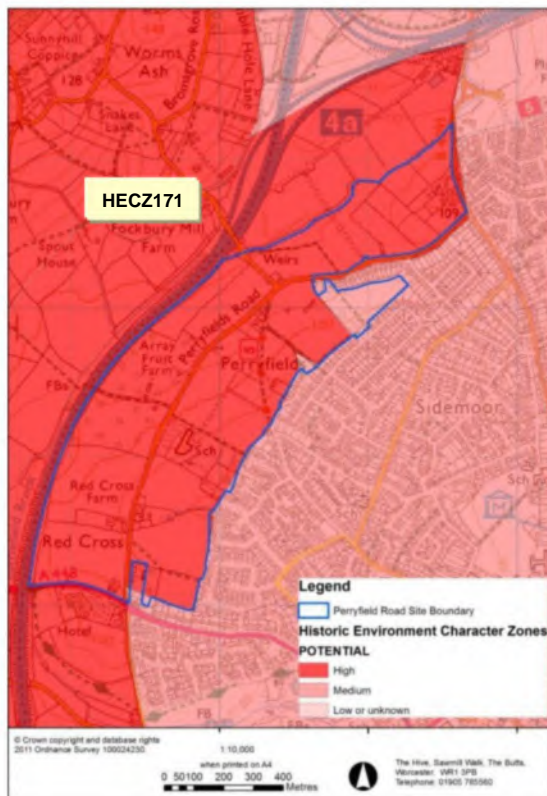


Figure 4 - Historic Environment Assessment of Potential

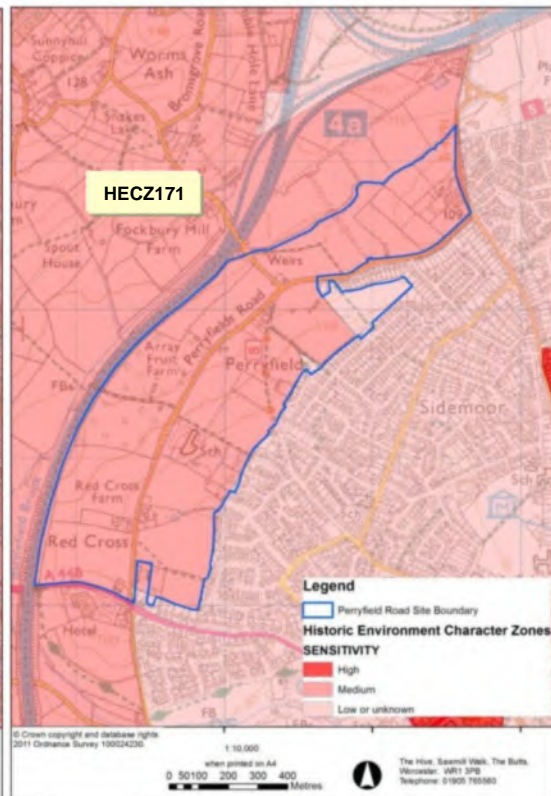


Figure 5 - Historic Environment Assessment of Sensitivity to Change

Sensitivity to change (see also figure 5)

Understanding sensitivity to change in detail can only be effectively achieved through a programme of site-based investigations. Nonetheless, it is possible to outline some general sensitivity at this strategic level.

Further loss of historic field patterns and hedgerows is a key area of sensitivity. Historic field boundaries contribute towards local distinctiveness and offer opportunities for delivering multi-functional objectives in Green Infrastructure design (such as providing wildlife corridors with historic landscape conservation). The extent of below ground archaeology is currently unknown; however, all below ground structures, deposits and any preserved environmental remains will be sensitive to development. As discussed above, there is a likelihood that multi-period below ground archaeology may be present. The nature and true extent of this can only be established through detailed field evaluation

Policy background

Section 12 of the National Planning Policy Framework (NPPF) establishes a framework for investigations of the historic environment in the context of development.

While at the time of writing this document, no specific guidance on implementing the NPPF is available, it is widely understood that the guidance produced for PPS5 (Historic Environment Planning Practice Guide) remains current where policy is sufficiently similar.

Section 12 of the Historic Environment Planning Practice Guide that accompanied PPS5 set out guidance for historic environment assessment that developer should follow to commission investigations that must assess all historic assets and their setting, as defined, both within the development site and its wider landscape setting. The requirements for conservation, mitigation and interpretation will be subject to the outcomes and analysis of those investigations. The results will support detailed planning advice and any requirement for detailed conditions, which is typically a phased programme of works. A key objective in Green Infrastructure design should be the development of opportunities to conserve historic environment features and landscapes, and to promote their contribution towards defining local identity and 'sense of place'. These objectives will best be met as part of multi-functional objectives that conserve, promote and enhance historic assets in partnership with other environmental features, such as local habitat and landscape.

Principles of development

The historic environment is a fundamental and integrated part of the landscape. There will inevitably be an impact on the historic environment from development, however, this can be managed through an approach that aims to:

- Establish the priorities and level of investigation necessary through early consultation with local government historic environment and conservation officers, and where appropriate, English Heritage
- Carry out an investigation of the historic environment (of the site and its setting), particularly below ground archaeology, through an appropriate programme of works as set out in NPPF
- Minimise impact to the historic environment and manage change through informed design
- Promote interpretation and access to strengthen an appreciation of sense of place
- Design multi-functional Green Infrastructure objectives that deliver conservation of historic assets in partnership with other environmental objectives

Key Green Infrastructure objectives include:

- Consider designing open space and amenity space where this can afford protection to high value / sensitive, below ground archaeology identified through field evaluation.
- Promote the restoration and replanting of historic hedgerows to enhance the site historic landscape character setting. This will also provide corridors for wildlife and reference the wider landscape setting.
- Seek opportunities to create traditional orchards (possible community orchards) to promote the historic link between the extensive orchards that were traditionally a characteristic of the pre-1960's landscape, therefore referencing, historic landscape character and provide future habitat.
- Create and promote access and enhancement of existing Public Rights of Way network to provide links into the wider landscape setting and also key historic environment assets (e.g. Dodford Priory Scheduled Monument and the highly distinctive historic Chartist settlement at Dodford).

Sources for planning

Specialist advice:

- Mike Glyde, Historic Environment Planning Officer, Worcestershire County Council Archive and Archaeology Service mglyde@worcestershire.gov.uk 01905 765869
- District Conservation Officer m.worsfold@bromsgroveandredditch.gov.uk
- District landscape Officers
- English Heritage

Documents:

- National Planning Policy Framework
- <http://www.communities.gov.uk/publications/planningandbuilding/nppf>
- PPS5 *Historic Environment Planning Practice Guide* <http://www.english-heritage.org.uk/publications/pps-practice-guide/pps5practiceguide.pdf>
- The Historic Environment Assessment for Bromsgrove District Council, Worcestershire Historic Environment and Archaeology Service <http://sharepoint.whub.org.uk:8086/sites/archaeology/Reports/WR12361.pdf>
- Planning for Landscape, Biodiversity and the Historic Environment in the development of Green Infrastructure Strategies in Worcestershire, Technical Research Paper: Version 2, Worcestershire County Council

Sources:

- Worcestershire Historic Environment Record ehancox@worcestershire.gov.uk 01905 765654

Access and Recreation

Summary of Existing Provision

- Access Land – none.
- Public rights of way – a number of footpaths and a bridleway run through the proposed development sites either side of Perryfields Road. Two of the series of three Royal Hunters Walks, which are recreational circular routes of between 5 and 12 miles, meander around the wider countryside to the west of Bromsgrove and start and finish at Sanders Park.
- National cycle route – Number 5
- Regional cycle route – None
- Local cycle route and links – Route 1 & 2
- Traffic free cycle route – Connecting Perryfields Road to Melbourne Road, Stourbridge Road
- Village/doorstep/millennium green – none
- Conservation walk – none
- Walking the way to health initiative – Bromsgrove Walks for Health operate from Sanders Park
- Country Park – none.
- Transport requirements – tbc
- Tourism – none.

Proposals/Principles for Development

There are no public access greenspace sites within the proposed development area. There is a need to create some accessible greenspace within or adjacent to the site.

Due to the scale of the proposed development and existing residential areas to the south of the site, a small scale public greenspace such as a Picnic Area with adequate facilities (to include visitor information, play facilities, picnic facilities and managed wildlife habitats) would be desirable. Such a greenspace should be managed to Green Flag standards even if it is not a Green Flag Award site itself.

Existing semi-natural habitats such as grasslands, hedgerows, mature trees and ponds across the site could be incorporated into such as area for recreation and the design of the development area as a whole for protection and enhancement of biodiversity and recreational use by local people.

The location of any new recreational sites needs to consider:

- Proximity to centres of population
- Public transport provision
- Proximity to integrate to the Rights of Way network, cycle network and recreational way marked routes.
- Ability to accommodate appropriate facilities necessary for the use and enjoyment of the site.

A network of footpaths and cycle ways could be created to provide a sustainable network that links all parts of the community and areas of greenspace as well as linking into external routes. Using existing rights of way, circular walks could be

created from the development area to encourage people to venture into the wider countryside.

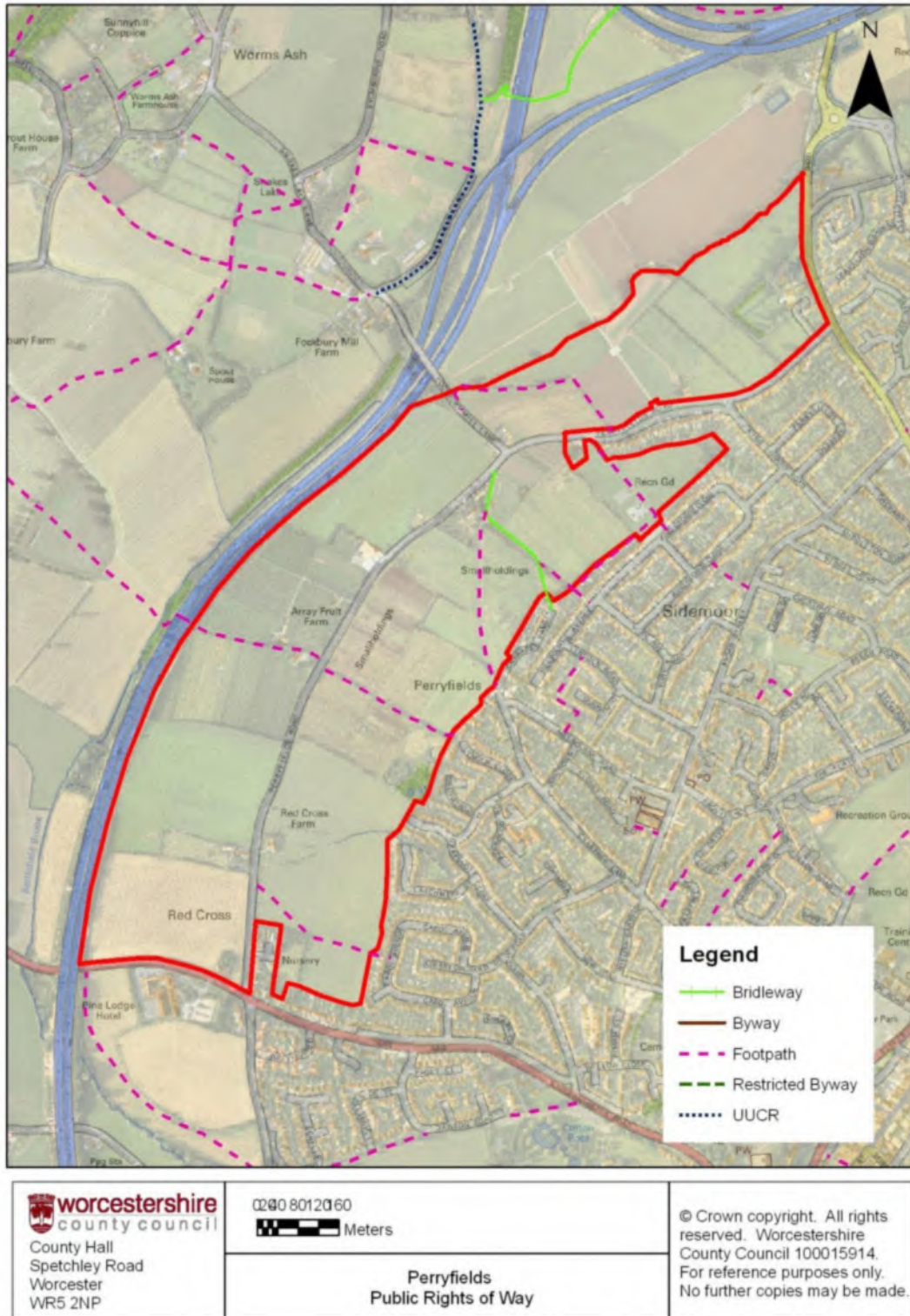


Figure 6 - Public Rights of Way

Movement Networks – Walking and Cycling

All new development provides an ideal opportunity to incorporate sustainable transport planning as a fundamental element of its design to encourage greater use and improve the perception of sustainable travel modes including walking and cycling (also passenger transport).

Master planning should take account of the aspirations of the Worcestershire Access and Informal Recreation Strategy (AIRS), Rights of Way Improvement Plan (ROWIP) and the Draft Local Transport Plan 3 (LTP).

It is expected that development at the strategic sites will be related to the character and function and scale of Bromsgrove and as such the development should be fully integrated into the fabric of the town and should not be regarded as a separate and isolated settlement that merely abuts the existing settlement boundary.

The development should provide safe, secure, direct, convenient and attractive networks and associated infrastructure, giving priority to pedestrians and cyclists.

The design of the development needs to consider in full the needs of pedestrians and cyclists and that the infrastructure provided supports the delivery of levels of accessibility that enables these modes to offer a realistic alternative to the car, particularly for shorter length journeys within the site and to adjacent areas.

Opportunities should be explored to incorporate cycle ways and footpaths via green corridors in order to provide attractive and direct links to/from the surrounding areas and Bromsgrove town. These should connect into existing walking and cycling routes where possible.

Residents should be able to access a bus stop within 200 metres walking distance of their home address. The accessibility standards for the new development are:

- Average walking distance from majority of dwellings 200m*
- Maximum distance for elderly and mobility impaired 100m*

* = With gradients - reduce distances by 10m for every 1m rise or fall.

An absolute maximum of 400 metres safe walking distance from any new development on the site to the nearest passenger transport stop should be applied.

Blue Infrastructure

The Perryfields Road site lies on an area of soft-rock sandstone with free-draining sandy brown soils.

The District of Bromsgrove contains the headwaters of three Main Rivers²:

- The Perryfields site includes the Battlefield brook which flows to the southeast through Bromsgrove (as Spadesbourne Brook) before turning to the southwest (Sugar Brook) and flowing out of the District past Stoke Prior and towards Droitwich (River Salwarpe);

Flood Risk³

The site falls under the Kidderminster and Bromsgrove Policy Unit for the Severn Catchment Flood Management Plan, Policy Choice 5 'Take further actions to reduce risk (now and/or in the future)'¹.

Bromsgrove district has a headwater location and lack of Main Rivers and small watercourses and as a result it did not suffer from the severe fluvial flooding episodes in June and July of 2007. The district has in the past suffered from smaller-scale flooding; most notably flash flooding from rapid catchment response, which has led to an overwhelming of the road, rail and canal networks and their associated drains and outflows. Flooding along many of the ordinary watercourses is attributable to a lack of maintenance resulting in blockages and reduced flow capacity. Spadesbourne and Battlefield Brooks have been the watercourses that has caused the majority of flooding incidents in the town of Bromsgrove.

The Battlefield Brook is categorised as an 'Ordinary watercourse' upstream and along the boundary of the Perryfields site. It adjoins the land on the Northwest boundary of Perryfields running in an east to west direction, until it reaches the road that intersects the site and flows under the M5. The northern boundary of the Perryfields site is located within Flood Zone 3 of the Battlefield Brook.

Water Resources & Quality

Current Status of the Water Resources for Perryfields

The 'soft rock sandstone' under this area is the Permo Triassic sandstone aquifer, which is of strategic importance for public water supply in the West Midlands.

However, the groundwater resource for Bromsgrove is 'over abstracted', which means abstraction is causing unacceptable environmental impact at low flows. The unsustainable abstraction has resulted in the water table being lowered. As a result, instead of groundwater flowing into the rivers (which normally act as

² Unless otherwise specified information with regards to flooding has been taken from the Bromsgrove and Redditch level 1 Strategic Flood Risk Assessment (SFRA).

³ Unless otherwise specified information with regards to flooding has been taken from the Bromsgrove and Redditch level 1 Strategic Flood Risk Assessment (SFRA).

groundwater drains), the rivers in the area are leaking to the water table. This has created low flow problems within the Battlefield Brook which can impact on the stream ecology and water voles. The Battlefield Brook is included in the Environment Agency's Restoring Sustainable Abstraction programme which was set up in 1999. A scheme has been in operation since 2006 between Catshill and Sanders Park, whereby Severn Trent Water and the Environment Agency abstract water from groundwater and discharge it to the Battlefield Brook to support low flows. The scheme is currently being reviewed and other options may be considered in the longer term.

Water Quality

The Perryfield site falls within the Worcestershire Middle Severn Groundwater Zone, which has been assessed as 'Poor' under the Water Framework Directive. Areas that are failing or require improvement are; Poor Water Balance, Poor Surface Water Impact, Poor Water Level Impact, Poor Diffuse Water Pollution from Agriculture. Chemical Test Results: Poor

The Perryfields Road site is located within Source Protection Zone (SPZ) 2 'Outer Source Protection' and 3 'Total Source Catchment' of a public supply borehole, situated to the south on land between the Perryfields Road and Whitford Road sites 6. There is a need to protect water quality, not just in terms of surface water bodies but also the underlying aquifer. Careful consideration will need to be given to the use of infiltration SUDS, given the sensitive hydrogeological setting of the area.

The Battlefield Brook which runs close to and adjoining parts of Perryfields has a Water body current status of 'Moderate' due to unsatisfactory invertebrate populations caused by high phosphate levels and low flows. There are also concerns about the impact of run-off from the M42 and M5 motorways that flows in to the brook in several locations.

Note: Under the Water Framework Directive and River Basin Management Plans, all non modified watercourses should aim to reach good status by 2015. Where this is not possible, and subject to the criteria set out in the Directive, aim to achieve good status by 2021 or 2027. RBMPS work on a basis of the worst results drives the overall result. More work is required to assess what is causing the results.

Development Principles

Given the size of the Perryfields development, a FRA will need to be undertaken to assess the risk of flooding to the site and elsewhere as a result of the development. The assessment will need to include all sources of flooding and take account of the impacts of climate change.

As part of the above, an assessment of flooding from the Battlefield Brook will need to be undertaken to establish the floodplain extents, particularly for the 1% (Flood Zone 3) plus climate change (20% allowance on flows) and 0.1% (Flood Zone 2) flood events. This will inform the siting of the proposed development, within areas at lowest risk of flooding (i.e. within Flood Zone 1), ensuring that the proposed development is safe, does not increase flood risk elsewhere and ideally

reduces flood risk overall i.e. in identifying opportunities to provide additional flood attenuation and overall flood risk betterment.

As a minimum an 8 metre easement must be maintained alongside watercourses for maintenance access and flood risk purposes. However, watercourse buffer requirements will be further informed by the floodplain extents and requirements to protect and enhance the Battlefield Brook and its corridor (i.e. biodiversity and water quality measures).

The site specific FRA is likely to be a key study to inform the master-planning stage. It will also serve to identify how best to protect, and where possible enhance, the integrity of Blue Infrastructure for the Perryfields site.

The watercourse and its corridor could be improved with sensitive native planting, seed mixes and with appropriate management to safeguard and further its ecological interest. This will require adequate buffer strips and habitats that are suited to any specialist protected species that may be present or which may colonise the site i.e. increasing the suitable habitat for water voles and for aquatic macro invertebrates.

Surface water run-off must be restricted so that it is no greater than existing Greenfield rates. Any drainage strategy for the site will need to show that the attenuation storage is of an adequate size for the 100 year event including climate change impacts (i.e. a 30% increase in peak rainfall intensity), and provide details on maintenance and adoption of the proposed drainage systems. A maintenance plan will need to be in place to ensure that the systems remain efficient over the lifetime of the proposed development. The site layout should take into account the risk of overland flow from impermeable surfaces and residual flooding by directing it away from vulnerable properties.

In meeting attenuation requirements, development should incorporate SUDS that are designed to provide multifunctional benefits for biodiversity, water quality and amenity.

Due to the Groundwater SPZs and the freely draining soils, Infiltration SUDs may not be appropriate on these sites. Further assessment is required ascertain which type or types of SUDS would be suitable, so as to not risk polluting the groundwater under the site. In addition, as stretches of the watercourses 'leak' to groundwater any drainage will need to have undergone some form of 'treatment' (unless it is solely 'clean rainfall'). This is particularly important given that the Battlefield Brook passes through SPZs for a public supply borehole, but is also necessary to protect the surface water quality.

The status of the groundwater is impacting on the dry weather flow within the Battlefield Brook. This has had a significant measurable detrimental impact on the populations of invertebrates in the brook. Invertebrates form a vital part of the food chain that supports fish and bird populations. The proposed development of Perryfields provides an opportunity through SUDS to divert clean surface water to support water levels in the Battlefield Brook. Therefore any drainage strategy should look at proposals to discharge clean surface water to the Brook. In light of the desire to support dry weather flows within the Battlefield Brook, yet not compromise the water quality within the Brook, wherever practicable, clean

surface water run-off should be directed into the Battlefield Brook via flow balancing ponds. These ponds and associated open drainage ditches (permanently wetted channels) should be designed and located to provide both flow balancing and good ecological habitat suited to water voles.

Surface water attenuation options should look to include measures to separate surface drainage from low risk areas (roofs and green areas) and drainage from higher risk areas such as roadways and drives. Areas within the developments that handle a high level of traffic flow pose a higher risk to water quality. In these areas preference should be given to SUDS options that maximise surface water quality. Careful consideration would need to be given to the design of these SUDS i.e. infiltration SUDS may not be appropriate in protecting the groundwater.

Adequate land take should ensure that any SUDS features appear natural without steep bank gradients (unless this enhances water vole habitat) and should include opportunities for biodiversity gain. The ideal drainage solution is likely to comprise of a number of components rather than relying on just one SUDS technique linked together to form a 'SUDS management train'. The SUDS techniques used should ensure that flood risk is not increased elsewhere.

Sources of information: Bromsgrove and Redditch level 1 Strategic Flood Risk Assessment (SFRA), Severn Catchment Flood Management Plan, Severn River Basin Management Plan and the CIRA SUD Manual. Planning for Water in Worcestershire Technical Research Paper.

The Bromsgrove and Redditch Level 2 SFRA is currently being finalised. Once published this document will contain a site factsheet for each allocation including the Perryfields site. Any supporting FRA for this site must build on the work carried out in the Level 2 SFRA.



Figure 7 - Blue Infrastructure.

Appendix 2 – Worcestershire Green Infrastructure Environmental Character Area Objectives

Environmental Character Area: Thirteen	Mid Worcestershire Corridor
Strategic GI Approach	Protect and restore
Primary Objectives:	
Overarching principles	Protect and restore neutral grasslands, orchards and semi-natural ancient woodland, wet woodland and stream corridors.
Biodiversity	Protect and enhance existing site and biodiversity interest. Implementation and delivery to be directed to existing site management to achieve site expansion merge and buffer sites and features of existing importance for biodiversity, particularly around Worcester Technology Corridor. Restore and enhance neutral grasslands, orchards and semi-natural ancient woodland, wet woodland and stream corridors. Enhance and create traditional field boundaries.
Historic Environment	Buffer historic landscape features, such as earthwork boundaries, ridge and furrow, abandoned medieval settlement remains. Explore opportunities to protect below ground archaeology associated with extensive Romano-British settlement in the Droitwich hinterland. Protect historic water features and buffer key sites, such as moats, fishponds and millponds. Protect below ground deposits of high palaeoenvironmental potential associated with the River Salwarpe corridor. Protect and enhance historic field boundary patterns and hedgerow network. Enhance and create linkages with wider historic environment green networks (hedgerows, woodland, parkland and common).
Landscape Character	Seek opportunities to enhance and restore the ancient woodland cover, including replanting with mixed, native species where appropriate, respecting the characteristic tree cover pattern: discrete blocks in the Estatelands, scattered hedgerow and watercourse trees – which should be safeguarded or replanted to address age structure and density – in the Timbered and Settled Farmlands. Alongside this, seek opportunities to enhance the composition and pattern of hedgerows through management and replanting, respecting the characteristic pattern of each Landscape Type (organic in the dominating Timbered Farmlands; sub/semi-regular in the Settled Farmlands and Wooded Estates). Seek opportunities to protect and create areas of permanent pasture, particularly in the Settled Farmlands and Pasture Meadows landscapes.
Blue Infrastructure	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. Develop Surface Water Management Plans for the Bromsgrove, Droitwich and Kidderminster areas.
Access and Recreation	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	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

Draft