

DACORUM BOROUGH GREEN INFRASTRUCTURE PLAN: APPENDICES

Prepared for Dacorum Borough Council
by
Land Use Consultants
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**1 Stakeholder consultation record: Stakeholder event, Dacorum Borough Council,
7th December 2010**

4993 Dacorum GI Plan: Stakeholder event, 7th December. Record of discussion and LUC responses (in bold)

Stakeholder Thoughts
Group 1: Visioning (LUC responses in bold)
<ul style="list-style-type: none"> • Strategic transport corridors – recognise issues of severance but also opps for wildlife. Yes • Vision for rural areas good – what about project for bulk of population? LUC to check. • Strategic tree planting for Hemel. Agree – idea of urban greening project for Hemel – link to Hemel’s Transition Towns initiative. • Positive use of land for recreation / learning, and better understanding of this. Yes. • Alternative visitor hubs – currently no focus for a country park visit. • Recognise value in Hemel (greenspace resource). • Value of land for agriculture / food production. Yes. • HLS surely key opportunity (Boxmoor in HLS). Yes, more for projects than visioning and subject to next point below, but agree. • HLS is now delivering less (access). • Weakness is <u>links</u> between green spaces (cf. Hemel). Yes. • Approaches / entrances (M1?) A41 – others v good. • Regen. Opps – Bovingdon Airfield and Brickworks? Yes, as general principle, more a focus for spatial proposals than over arching vision. • Recognise opportunities for funding (creative thinking) - biofuels? • Management of tree planting. • Localism: Future community involvement in visioning at finer grain level. Agree in principle, signpost to this as potential future work in delivering the GI Plan. • AONB. LEEDA Fund (Biofuel – John Morris) - a point for consideration of delivery rather than vision.
Group 2: Visioning
<ul style="list-style-type: none"> • Objective = right. • To protect better parts – natural landscape. Agree with principle. • Not enough strength given to chalk valleys. Can emphasise more.

- Protect farming. **Agree with principle.**
- Involve farmers, producers, suppliers. **Yes, a point for future implementation.**
- Maintain woodlands – sustainable. **Agree.**
- Biodiversity corridors. **Recognise their importance as key parts of the network.**
- Separate rural villages and market towns. **Agree.**
- Access – promote and encourage in general. **Agree.**
- Cycle networks and footpaths – to give greater access (Ashridge). **Agree.**
- Join up networks. **Agree.**
- Identify and protect wildlife and habitats.

Group 3: Visioning

1. Chalk Valleys – greater access. **Yes.**
2. Chalk valleys and historic parkland estates are linked to agriculture directly – agriculture is a key delivery mechanism. **Yes.**
3. Important to conserve areas for peoples' direct enjoyment and wider indirect biodiversity benefits. **Agree.**
4. 'Quiet' – better to refer to 'tranquillity' which alludes to noise and light pollution etc. Applies to more than just chalk valleys! **Ok, but this also relates to creating a picture of the landscape which makes up a key part of the GI network.**
5. Pick up on human needs as well as landscape needs. **Agree.**
6. Flooding and water level issues needs to be picked up. **Agree.**
7. 'Chalk valleys' – encompass wet and dry? **Yes, are linked. River valleys are recognised separately due to functional value and importance generally.**
8. Pick up issue of links between landscape mosaics. **Agree, re landscape and habitat connectivity.**
9. Need to refer to enhancements, improvements etc as well as conservation. **Agree.**
10. Need to cover issue of conservation management. **Agree.**
11. Need verbs in front of statements, i.e. protect, retain, recognise. **Yes, agree.**
12. Raise awareness of all locations – take pressure off 'honeypot sites'. – leaflets etc. **Yes, awareness raising also links to a key non spatial project in the GI Plan.**
13. Linkages between assets. **Yes, agree as key principle (conservation, enhancement, creation).**
14. Awareness raising in relation to GI assets.

15. 'Mosaics' – describe more/give more info and clarity – conservation/enhancement etc. **Agree.**

Group I: Proposals and Projects

- Food production. Food strategy (functionality of agric land). **Suggest this is proposed as non spatial project.**
- People connections and links – 'software' to get people to use. **Agree, good basis for non spatial/interpretative project.**
- Reflect changing rural economy but not at cost of adverse landscape / env change. **Agree with principle.**
- Local scale.
- Links to agri envt. More HLS. **Agree.**
- Orchards? **Agree, could be realised as part of Hemel urban greening project (new community gardens for green wedges) and general principle to restore and expand and link orchards on historic sites.**
- Urban greening and enhancement of Hemel greenspaces – **Agree.**
- Tring / Wilstone Reservoir complex. **Yes, signpost to this in GI Plan.**
- Sustainable farming. Boxmoor Trust (Rare breeds / woodland management). **Agree with principle.**
- HLS 20 year agreements to offer short term protection – sustainable conservation focus.
- CMS to help with practical problems (farming, cf above point) although DBC have now withdrawn CMS funding.
- GI for people – need interpretive / awareness raising project (e.g. Two Waters Green Gateway Eco Centre) and also something about skills development, training and lifelong learning (e.g. woodland management and economy – Ashridge), to underpin the GI functions, as well as rehabilitative value of GI. Help make conservation 'pay for itself'. **Agree.**
- Educational opportunities re: natural play. **Agree, could also relate to urban greening project for Hemel.**
- Is there also a project to deliver sports and recreation. **Probably more for open space planning and development management.**
- Nature conservation and enhancement. What does a farmer need for more animals for grazing?
- Better management + doing more with what is here. Promoted walks, e.g. pub routes. **Agree.**
- Strike the right balance between big hitters and low cost interventions. **Agree.**
- Network of promoted routes.
- Urban greening and green wedge project to improve functionality in H.H and approaches to the town. **Agree.**
- 'Get on and do it' delivery.
- Some more micro projects. **This is more a focus for later and more detailed work, given the strategic nature of this study.**

- Greenspace strategy (severances in urban areas).
- AONB commons project (grazing) – traditional / functional use of space.
- Massive opp for community engagement through Transition Towns – people led change. **Agree, signpost should be made to Transition Towns, in view of importance to the three Dacorum towns.**
- First phases of delivering Two Waters Green Gateway (£500k), also first phases of Eco Centre and surrounding environment for this project are to be delivered. **Ensure this is referenced in the GI Plan where appropriate.**
- Localised towpath access **Agree.**
- Boxmoor Trust delivering new Heritage Centre.
- Town Centre Masterplan – Jellicoe water gardens – Dacorum have longer term aspiration to ‘turn this around’ e.g. to stop town turning its back on water gardens. **Agree – consistent with messages in GI Plan.**
- Greening Hemel – to address deprivation. **Agree.** (Green roofs also mentioned in urban greening project although is recognised that these have limited functional/people benefits)
- Hemel east greenway and connection to Nicky Line should be specific project, as should GI improvements to the eastern edge of town. **Reference in Hemel urban greening project.**
- Look to address issues of severance e.g. Canal, A41. Strategic cycle connection to Bovingdon via Box Lane. **Yes.**
- Old lost ways and vestigial parklands/woodlands - potential biodiversity connectivity.
- Idea of potential AONB extension was mooted for comparable landscapes and provided there was stakeholder support.

Group 2: Proposals and projects

I. North West not involved enough – St Albans / Markyate – peripheral. **Ok. This will also be partly picked up in adjacent GI plan for St Albans.**

- South – Kings Langley / Chipperfield lack of focus. **Disagree, as we are proposing enhanced network of green links between villages and commons. Larger settlements and areas of change form natural focus for larger scale GI project proposals.**
- Black poplars. Anglo-Saxon settlements.
- More focus on chalk rivers – restoration strategies. **Signpost to this type of work.**
- Local food – farming / orchards. **Agree.**
- Cycle networks.
- Hedgerows – surveys – focussed – involvement.
- Add themes rather than site specific.

<ul style="list-style-type: none"> • Survey biodiversity.
<p>2. Tourism and Marketing</p> <ul style="list-style-type: none"> • Signposting. Agree, and links to wider and more general awareness raising project.
<p>3. Remember small scale features that provide local distinction. Yes but this is often a focus for more detailed/finer grain work.</p>
<p>4. Tring Park –</p> <ul style="list-style-type: none"> • involve other stakeholders. Who are they? • Promotion of site – how access and people are managed – to protect site. Agree that principles should be written into GI Plan .
<p>5. Aldbury-</p> <ul style="list-style-type: none"> • Same issues as Tring.
<p>6. Grand Union Canal –</p> <ul style="list-style-type: none"> • Continuous cycle route needed. Agree. • Footpaths. • Focus on canal not on transport – needs changing to incorporate access to towns / villages. Unsure of meaning.
<p>7. Ashridge –</p> <ul style="list-style-type: none"> • Already has a lot of focus. Agree, but still needs referencing as important GI asset and aspect of place of Dacorum. • Needs green travel plan. Interesting idea, can signpost to this as potential future project.
<p>8. River Valleys –</p> <ul style="list-style-type: none"> • Insufficient focus on wetlands. Disagree, what was presented at the workshop was initial exploration only. They will be considered, although this is a high level GI planning exercise. • Water back to aquifer. • Ver – Bulbourne / Gade – no focus. The river valleys project applies to all the river valleys. Will make reference to Ver as part of this. What was presented at the workshop was initial exploration only. They will be considered, although this is a high level GI planning exercise. • Biodiversity.

Sub-projects

- Jellicoe: Neighbourhoods, separation with adjacent green spaces and rest ok.
- Rural villages and common links: hedgerow surveys. **Signpost to more detailed future work that will be required.**
- Needs to be borough wide vision. **Agree.**
- Green transport to similar villages.
- Urban green links. **Already referenced.**

Group 3: Proposals and Projects

- Think of all these sites as 'gateway' to wider area.
 - Link projects to Living Landscape Areas. **Yes, we are considering this.**
1. Tring Park – v good project
 - Similar to stort canal project – use canal as a link to other areas via 'loops'.
 - Important cross-borough links to Bucks.
 - Links to Ridgeway and College Lakes. **Agree.**
 2. Aldbury Nowers
 - Pickup it's a Scheduled Ancient Monument, and recognise this in a sensitive way, i.e. above and below ground interest.
 - Historic landscape focus can help increase peoples' enjoyment of an area, i.e. via walking trails. **Agree with these points in general terms, refer to interpretative/heritage value of the Nowers, although SAMs relate less to GI given that they are buried, albeit important in other ways.**
 3. GU Canal – supported by British Waterways
 - Clarify areas covered by project **Canal corridor, plus indicate general enhancement zones along various stretches.**
 - Worst area is southern end at Kings Langley. **Agree.**
 - Link to Tring Reservoirs needs better signage.
 - Pick up links to new visitor centre College Lakes (as they are trying to attract visitors). **Agree.**
 - Good for circular routes when link to reservoirs.
 4. Ashridge
 - Recognise 'pinch points' exist. **Agree.**
 - Try to get people to walk / cycle there. **Agree.**
 - Pick up on Ashridge Cycle Strategy – see CAONB website for details of short walks and links. **LUC to check.**

- Look at links to / from station and signage. **Check.**
- Recognise problem of dealing with misuse of byways, rights of way etc. **Agree in principle but more detailed consideration than this GI Plan can explore.**

5. River Valleys

- Ref to Water Framework Directive and fact Bulbourne and Gade don't meet specified standards at the moment. **Agree, this has been referenced in the baseline evidence review undertaken for the GI Plan.**
- Include reference to the Ver Valley. **Ok.**
- Note it refers to river valleys – not just rivers.
- Recognise landscape context of the rivers themselves. **Ok.**
- Include ref to 'features' – built and natural – which need to be protected and enhanced.
- Recognise importance of watercress beds **Agree, picked up as rare historic landscape type.**
- Drainage is an issue that needs to be looked at. Culverts can be a problem to maintain. **More detailed consideration than the GI Plan can explore.**
- Need to be clear of extent of project, i.e. what areas of Hemel are included and excluded (take out ref to 'north' of Hemel and refer to town generally). **Whole valley is considered. Formal designed Jellicoe landscape considered as separate project due to different character.**
- Spend money where need is greatest – deficit areas - i.e. deprived areas of Hemel need some attention – Nickey Line should be a priority. **Agree.**

6. Jellicoe

- Important for town centre. **Agree.**
- Town turns its back on area at the moment.
- Issue = doesn't get recognised as river as does not look like one! Awareness = an issue. **Agree.**
- Ideally the EA would like it remodelled to recognise it's a chalk river but accept its historic importance. **Disagree with idea of remodelling, due to the considerable importance of the Water Gardens as a piece of mid 20th Century New Town GI/landscape design heritage. Still a multi functional landscape, with wider valley landscape/river valley system as focus for semi natural chalk rivers.**

Rural Villages and Commons Links

- Woodland also needs picking up in the vision and this project. **Ok.**
- Establishing links between small woodlands is v important to make larger areas (previously been Forestry Commission

Grants for this). **Ok.**

- Ref to Chilterns Commons Project submitted to Heritage Lottery Fund (via Chilterns AONB). **LUC to check.**
- Paths / bridleways = important link – pick up via LTP3 and ‘daughter’ documents. **LUC to check.**
- BOATs around Flamstead.
- Local distinctiveness.

Other points:

- Bedfordshire ‘History Trail’.
- Link to Luton south GI (Gt Gaddesden).
- Wildlife centre at Bulbourne.
- Chilterns cycle routes.
- Links to train and bus stations.
- Reference archaeology in projects. **Agree in principle. Signpost to further work needed as projects develop/are implemented.**
- Role of Forestry Commission for new woodlands.
- More awareness of deficit areas.
- ‘More with less’.

Group I: Delivery

- Third sector approaches. Boxmoor Trust “Big Society”. **Explore Boxmoor Trust model.**
- River Nene Regional Park model.
- Chilterns Conservation Board (voluntary sector).
- Boxmoor Trust more about management of spaces.
- Grass roots community engagement. **Agree, signpost to this, could be partly achieved through Transition Towns initiative.**
- Trust model – risk of competition rather than support?
- Developer contributions. Tariff for each dev for off site CIL.
- Haven Gateway community grant. **Check.**
- LSP “Hertfordshire Forward”?
- Need landowner / PCT sign up.
- Evt forum focus on wildspace.

- GI forum? Doubtful. Don't want to introduce more 'red tape' – work with existing mechanisms. **Agree.**
- Involve developers and those who can bring something to implementation.
- Sports and leisure – involvement in delivery.
- Connections with existing groups – SBE (Sustainable Built Env't East). **Check.**
- Natural England have role in delivery through HLS and will still buy into overarching messages of GI Plan.
- Groundwork as potential delivery partner – subject to resources / appropriateness of projects and landowner / liaison / delivery.
- In absence of CMS in Dacorum, possible potential role for Groundwork?
- Boxmoor Trust: Sharing of expertise, esp as case study. **Make reference to existing good practice.**
- Feedback GI plan to grass roots (Audit trail). **For Dacorum to consider how as potential future work.**
- Accessible language. **Agree.**
- Formal adoption as part of planning system. **Agree with principle – Dacorum to consider how this will be achieved when GI Plan is finalised.**
- GI as setting for everything else.
- LANTRA Funding streams as in Aylesbury Vale. **Check.**
- "Flying flocks" short term grazing regimes.
- Integrated Biodiversity Delivery Area (IBDA) for Thames: Does it cover Chilterns? **Check.**

Group 2: Delivery

- Core strategy – embed GI Plan within. **Dacorum to consider how this will work .**
- Lack of resource in DBC and outside.
- Needs to be someone's priority = who?
- Need an overall coordinator. **Agree with principle.**
 1. Tring – Woodland Trust
 2. Aldbury – Herts & Middx Wildlife Trust
 3. Grand Union – British Waterways
 4. Ashridge – National Trust
 5. River Valleys – Environmental Agency
 6. Rural Villages – County Right of Way
- S106 monies.

- Community infrastructure money.
- Build GI into Planning obligations – supplementary document – NOW. **Dacorum to consider approaches.**
- Grazing. Need more than policy.

Group 3: Delivery

Partnership working is key. **Agree.**

EA:

- River specific projects.
- Esp. Framework Directives.
- Work through partnership and provide expertise.
- May be specific areas they wish to prioritise.

CMS:

- High level stewardship – low take up in this area. Funding runs out soon (2013).
- Entry level scheme needs to be mentioned as picks up some of areas / projects referred to. **OK.**
- Schemes in Tring Rural, Gaddesden.
- Needs to be promoted by landowners to landowners as financially worthwhile.
- CMS try to promote – but need a local ‘champion’.
- Delivery can be ‘chunked up’ and doesn’t need to be developer-driven. Can access small scale funding.
- GI Plan = important coordinating document to help apply for funding.
- CMS can help deliver projects (but not fund).

Planning:

- A key delivery mechanism too.
- Can match SI06 / lottery funding with developer funding.

CIL / Developer Contributions SPD:

- But only a finite amount of money.
- But will have to do ‘more with less’.
- GI Plan = important to help justify projects.

Neighbourhood plans:

- Role?
- How fit with strategic level?

Timescales for delivery?

- Lots of projects are very long term due to scale. **Agree, reference in project write ups and broad consideration of phasing.**

Lottery spend:

- V important source of funding for both large and small projects.
- Match funding = often but not always required.
- Partnership approach to accessing funding Need to pool money + assets + contacts to make projects work – different skills and access to resources. **Agree with principle.**
- Landfill tax funding.
- New Homes Bonus? – via new development.
- Need to prioritise projects or all end up in competition with one another. **Agree.**
- Core strategy.

2 Summary findings from the document review

KEY MESSAGES FROM THE LITERATURE REVIEW, BY THEME

- 2.1 This section also includes messages useful for future, local level GI planning, and which go beyond the scope of this high level GI Plan. Where relevant, appropriate projects and proposals in the GI Plan (**section 3** and **Figure 3.1** in the main report) are also identified.

Access and recreation (open space)

- 2.2 *The following documents were reviewed: Dacorum Green Spaces Strategy, Dacorum Borough Council, August 2009, Dacorum Open Space Study, Dacorum Borough Council, March 2008, Hertfordshire Rights of Way Improvement Plan, 2008.*
- 2.3 There is relatively extensive provision of open space in Dacorum, but there is a need to improve functionality of provision, particularly at Hemel Hempstead. Dacorum has not developed standards for Borough-wide provision of open space, and national best practice should be applied in the interim. The paths and rights of way network, while extensive, is disjointed in parts, and there is a need to better link residential areas to this network. Berkhamsted, Bovington and Markyate are priorities for improving access to open space.

- 2.4 Potential to alleviate visitor pressure at the Ashridge Estate should be considered. GI opportunities in this context include Tring Park, the Two Waters Green Gateway, and the South West Herts Project Area promoted through the Hertfordshire Rights of Way Improvement Plan.

Landscape character, experience, settlement setting

- 2.5 *The following documents were reviewed: HCC, 2001: Hertfordshire Landscape Character Assessment, Landscape East/Natural England, 2009: East of England Regional Landscape Framework: Landscape Typology Final Report, Chilterns Conservation Board: Chilterns AONB Management Plan 2008-2013: A Framework for Action.*
- 2.6 The landscape context of Hemel Hempstead, Berkhamsted, Tring and outlying villages is chalk scarp slopes and woodlands, chalk valleys and wooded chalk valleys, lowland chalklands, and valley meadows associated with the main rivers (Gade, Bulbourne and Ver) and woodland plateaux. Other defining aspects of the landscape experience include ancient woodlands and commons, major transport corridors which intersect the valleys (West Coast Mainline Railway, Grand Union Canal, A41), the wetland environment associated with the canal, and historic remnants such as parklands and landed estates (Ashridge, Tring and numerous minor parklands).
- 2.7 The northern half of the Borough falls within the Chilterns Area of Outstanding Natural Beauty (AONB).

2.8 All of the main settlements have the opportunity for improved settlement edge relationships to their surrounding landscape and for enhanced green links to wider green infrastructure. These broad principles are shown on **Figure 3.1** in the GI Plan.

The historic environment

2.9 *The following documents were reviewed: Historic Landscape characterisation (HLC), HCC, 2001: Hertfordshire Landscape Character Assessment, Conservation Area Appraisals where available: Aldbury, Bovingdon and Chipperfield, The Hertfordshire Historic Environment Record: <http://www.heritagegateway.org.uk/Gateway/>.*

2.10 A strong presence of Roman routes is linked to Dacorum's close proximity to the Roman settlement of Verulamium. For example Watling Street and Akeman Street pass through Markyate and Tring respectively. Medieval market towns flourished in the river valleys which cut the landscape – Tring, Berkhamsted and Hemel Hempstead old town. Berkhamsted has particular historic prominence within Dacorum, with its setting provided both by one of Britain's best preserved remaining medieval motte and bailey castles (Berkhamsted Castle) and the designed landscape, planned estate and medieval deer park of Ashridge. Ashridge, within the Chilterns AONB, represents a significant historic GI resource, but is largely accessed by car, with potential for green travel enhancement (see **project 4** in the GI Plan).

2.11 The recent settlement pattern is significant in terms of green infrastructure, with the New Town at Hemel Hempstead, built within the broad landscape design vision of landscape architect Geoffrey Jellicoe. The bold modernist Water Gardens (now Grade II listed) are his work, providing a formal, urban treatment of the River Gade.

2.12 The wider river valleys of the Gade, Bulbourne and Ver are key to historic character, with the valley slopes of the Gade having a strong pattern formed from pre-18th Century co axial enclosures. The valley lowlands still have remnants of 19th Century watercress beds along the Bulbourne and Gade – the historic link between landscape and food production/industry. These rare historic landscape types form important foci for the Farmland Conservation and Wetland Habitat Zones in **Figure 3.1** of the GI Plan).

Health and deprivation

2.13 *The following documents were reviewed: Dacorum Green Spaces Strategy, Dacorum Borough Council, August 2009, Dacorum Open Space Study, Dacorum Borough Council, March 2008, Hertfordshire Rights of Way Improvement Plan, 2008.*

2.14 Whilst there is fairly extensive provision of accessible open space in Dacorum, parts of Hemel Hempstead currently experience both health deprivation issues and poor quality of open space provision. The Chilterns AONB is a key recreational asset which should be utilised to enhance

access to nature and healthy recreation in a managed way (**projects 2 and 4** in the GI Plan). There is an extensive network of rights of way in Dacorum, but off-road links from residential areas to the rights of way network should be enhanced (see **Figure 3.1** in the GI Plan for strategic links proposals).

- 2.15 Careful planning of integrated communities where transport links, public services and open space elements are combined could help alleviate existing and predicted growth pressures along the M1 corridor (e.g. East of Hemel Hempstead) and in major towns throughout Hertfordshire. Much of Dacorum has attractive and distinctive landscapes with over a third of the area falling within the Chilterns AONB, however there are areas of deprived land in the eastern part of the Borough. The AONB, together with the Green Belt, provides opportunities for enhancement of deprived areas by introducing a network of green infrastructure links between areas such as east and west Hemel and the AONB. Existing assets within the Borough include the beechwoods at Ashridge and the woodlands at Tring which are designated as Special Area's of Conservation (SAC) and protected under European Law. Areas of deprivation should provide opportunities for the creation of sustainable communities (e.g. Maylands on the eastern edge of Hemel H) where networks of open space link it to existing settlements.

Functional ecosystems and flood risk

- 2.16 *The following documents were reviewed: Water Cycle Scoping Study, Strategic Flood Risk Assessment Volume 1, August 2007, Water for Live and Livelihoods - River Basin Management Plan Thames River Basin District.*
- 2.17 A variety of landscape and habitat types make up the landscape in this Borough and watercourses and water bodies are one of the most important elements which make up this environment. Opportunities to create further green links and carbon sinks along infrastructure corridors will be important elements of green infrastructure proposals. UKBAP habitats require protection and enhancement throughout the Borough and the enhancement and reinforcement of these environmental assets will be important in guaranteeing the success of green infrastructure. Flood risk will pose problems to each of the settlements along the Borough's rivers and the management of culverts, pinch points and floodplains along their routes will need to incorporate more naturalistic solutions. The landscape quality of the Chilterns AONB could also potentially become affected due to rising abstraction levels in the lower reaches of its rivers tributaries. Relevant GI Plan Project: **Project 5**.

Productive landscapes

- 2.18 *The following documents were reviewed: Dacorum BC Open Space Study, March 2008, Natural England mapped data on traditional orchards, HLS Target Area mapping*

(www.natureonthemap.org.uk) and statements, *Woodland For Life: The Regional Woodland Strategy For The East Of England, November 2003*, *Dacorum's Local Development Framework Core Strategy Draft Recommended for Consultation, September 2010*.

- 2.19 There is an opportunity to bring poorly maintained allotments back into workable condition and, to a lesser extent, to create new ones where provision is below average and/or waiting lists for plots exist (potentially in new growth locations). This would take advantage of increasing public interest in and demand for food that is of good quality, known provenance and has low 'food miles'. Allotments can also help to bring communities together and provide a form of healthy outdoor exercise. Relevant GI Plan project: **Project 7**.
- 2.20 There is potential to provide new biomass fuel sources (e.g. woodland managed as short rotation coppice) to meet the energy needs of Borough Heating Opportunity Areas identified in the Core Strategy and Low and Zero Carbon Study and to be further detailed in a forthcoming Supplementary Planning Document (SPD). The Woodland Enhancement Zone on **Figure 3.1** in the GI Plan can be complementary to these objectives.
- 2.21 Most of the Borough to the north and west of Hemel Hempstead is part of the Chilterns and East Anglian Chalk HLS Target Area. HLS schemes which will be supported within this area include those which seek to maintain, restore or create wet woodland or ancient semi-natural

woodland. An opportunity therefore exists to benefit both biodiversity and the production of timber and/or biofuel by tree planting, support for natural woodland expansion or the bringing of existing woodland under management such as coppicing.

Land remediation

- 2.22 *The following documents were reviewed: Strategic Housing Land Availability Assessment (SHLAA), Minerals and Waste Development Framework for Hertfordshire – Waste Core Strategy, Dacorum LDF – Core Strategy, Indices of Multiple Deprivation (IMD), National Land Use Data (NLUD).*
- 2.23 Existing infrastructure barriers in the Borough such as the M1, A41 & A414 which can lead to the creation of poorer quality land used for industry and can be associated with deprivation issues.
- 2.24 In Dacorum, two sites have been identified as possible commercial and industrial waste management sites, these are: Maylands Industrial Estate and Swallowdale Industrial Estate.
- 2.25 Due to the economic importance of the Maylands area within and beyond the Borough it is important that its future development is managed in a sustainable manner to guarantee its successful integration with the wider community which can be achieved by enhancing green infrastructure elements.

2.26 Careful planning of integrated communities where transport links, public services and open space elements are combined could help alleviate existing and predicted growth pressures along the M1 corridor (e.g. East of Hemel Hempstead) and in major towns throughout Hertfordshire.

Nature conservation

2.27 *The following documents were reviewed: East of England Biodiversity Mapping Project 2005, Hertfordshire Biodiversity Action Plan 2006, Hertfordshire & Middlesex Wildlife Trust (H&MWT) Living Landscapes, Statutory designated sites (Natura 2000, SSSI, NNR, LNR), County Wildlife Sites, Dacorum Borough Council Urban Nature Conservation Study 2006, Natural England ANGSt Analysis for Hertfordshire 2010.*

2.28 The Borough enjoys 456ha of European SAC designated land and 612ha of national SSSI. Much of the Chilterns Beechwoods SAC lies within Dacorum (456ha) – largely at Ashridge but with a smaller unit near the county boundary south of Tring. 612ha of SSSI designated land lies within the Borough, including these beechwoods, the Tring Reservoirs SSSI, Oddy Hill and Tring Park SSSI and Aldbury Nowers SSSI. The Tring reservoirs, whilst man-made, show characteristics of shallow marl lakes, with marginal vegetation, tall fen communities, and associated bird assemblage. Oddy Hill, Tring Park and Aldbury Nowers support wildlife-rich chalk grassland, the latter being contiguous with Pitstone Hill in Buckinghamshire.

2.29 The principal focus of woodland habitat in the Borough is at the Ashridge and Gaddesden Place estates, with a majority of other scattered small woods and copses south of the A41. Two small lowland meadow sites lie at Great Gaddesden and Roughdown Common between the A41 and the railway. A relatively expansive network of lowland heathland sites occur across the Ashridge estate at Berkhamsted Common, Northchurch Common and Ivinghoe Common.

2.30 Key wetland features within the Borough include the Upper Gade Valley and Tring Reservoirs. The Bulbourne and Gade form Landscape Opportunity Areas, as identified by the Environment Agency.

2.31 Four Key Biodiversity Areas occur within the Borough: i) Ashridge / Berkhamsted Common / Aldbury mosaic of beech woodland, heath and chalk grassland; ii) Tring Park / High Scrubbs beech woodland and chalk grassland mosaic; iii) The wetlands of Tring Reservoirs; iv) The Upper Gade Valley, which comprises wetlands, grasslands and woodland.

2.32 Key nature conservation opportunities for the GI Plan relate to strategic woodland planting to connect habitats, expansion of wetland habitats associated with the river valleys, canal and the Tring reservoirs (see woodland and wetland zones on **Figure 3.1**, also **projects 1, 2, 3 and 5** at section 3 of the GI Plan). Also chalk and neutral grassland creation around Tring and heathland restoration and re connection (heathland site and commons around Berkhamsted). Opportunities for education and community

involvement outlined in the 2006 borough study (Nature Conservation Study) include site management (e.g. 'Friends of' groups, wardens, community tasks such as hedgelaying), establishing community wildlife areas (both in and outside of schools), environmental events and awareness campaigns (ranging from community surveys to wildlife gardening), and business opportunities (sponsorship, wildlife on landholdings, corporate training events etc).

3 Summary findings from the functional analysis

- 3.1 In addition to highlighting issues which have fed into the GI Plan, cross referenced to relevant proposals and projects, this section also includes pointers for future, more detailed GI planning, drawn from the functional analysis.

THE FUNCTIONS – SUMMARY OF NEED, SUPPLY AND OPPORTUNITY IN DACORUM

- 3.2 For each function the methodology behind the GIS spatial analysis is summarised in italics, with summary findings and pointers presented afterwards. This appendix cross references to the mapping shown in section 2 of the GI Plan (main report). For each function, consideration was also given to broad situations where functional need and supply mismatch may be exacerbated (potential longer term growth using initial options considered in the emerging Core Strategy).

Access to recreation

- 3.3 *The analysis considered the 2.5 km envelope around the main settlements in Dacorum (Tring, Berkhamsted, Hemel Hempstead, Kings Langley, Bovingdon and Markyate). Accessible open space was mapped using open space datasets in the Open Space Study, together with other datasets such as*

Local Nature Reserves. Access links (paths and rights of way, promoted routes and cycleways) were mapped, as was point data for ROWIP priority projects. A number of open space provision standards were also applied, mainly in the form of Natural England Accessible Natural Greenspace (ANG) and Woodland Trust Accessible Woodland Buffers. GIS spatial and visual map analysis was then used to identify gaps in provision and barriers to access, to identify potential foci for proposals.

- 3.4 In Tring, provision of local open space in the urban area is adequate, and there are some significant GI assets surrounding the town, including Grand Union Canal, reservoirs, Tring Park and Wendover Woods. There are few off-road links between the urban area and the surrounding countryside, and this is particularly true to the south of Tring, which is severed from the countryside by the A41 (Refer to **Project I** in the GI Plan). Cycle provision is also limited to one route which runs north-south through the town. Planned growth to the east and west of Tring increases the need to provide cycle routes to promote healthy transport and increase accessibility to green spaces.
- 3.5 Berkhamsted has adequate open space provision within the urban area, although the quality of some sites needs to be enhanced. There are also some significant GI assets within close proximity to the town, notably the Ashridge Estate. However, this asset is being adversely affected by visitor pressure and access by car to popular sites within the estate. Ashridge, and access routes to the south of the town should be enhanced to ensure more balanced use

(**Project 4** in the GI Plan, also general links enhancements identified at **Figure 3.1** of the GI Plan). There is relatively good cycle route provision, but there appears to be a lack of off-road pedestrian routes linking the urban to rural areas. Berkhamsted should be seen as a priority within Dacorum in terms of improving access to open space, particularly if planned growth occurs to the west of the town.

- 3.6 Whilst open space provision in Hemel Hempstead is generally good, there are some poor quality sites within the town (limited functionality). There are also some residential areas which do not meet the Accessible Natural Greenspace 300 metre standard at present (eastern and southern parts of the town). The path network is fragmented and there are few links from the urban area to the countryside to the east and west. There are two strategic cycle routes running along the east and west perimeters of the town, as well as a network of local cycle routes. The A41 and the M1 are major barriers to movement and access to the countryside to the east and west. The need for greenspace and links is likely to be reinforced by potential growth at Hemel Hempstead east.
- 3.7 Bovingdon appears to have adequate quantitative provision of open space, although there may be potential to increase the functions provided by these sites. The Chilterns Way runs through the settlement, and there is also a cycle network which links the town with the countryside to the south, but limited access to the west of the settlement. As growth may occur to the west of the settlement, there is a

need to improve green links on this side of the village (see **project 6** in the GI Plan).

- 3.8 At Kings Langley, GI enhancements should focus on increasing use and access to the existing green corridors including the Grand Union Canal and the Hertfordshire Way. As growth will be confined to infill at both Kings Langley and Markyate, this is not expected to lead to marked increased in need for GI (see **project 6** and **Figure 3.1** within the GI Plan).
- 3.9 Within Markyate, there is deficiency in provision of local open space at present, and this should be addressed through improving access to surrounding countryside by creating a better access network.
- 3.10 Within the wider landscape although larger parts of the area do not reach the Woodland Trust's 300m accessible woodland standard, the Borough performs well in terms of the 4km standard, due to Ashridge and Tring Park, with main areas of deficiency in the northern and eastern most extremities of the Borough.

Prestige on Settlement Approach Corridors

- 3.11 *The analysis considered the 2.5 km envelope around the main settlements in Dacorum. Using data developed for the earlier Hertfordshire V4C project, a series of assets and detractors were mapped around settlement fringes. Assets included open space and areas of woodland planting, as well as water bodies and main rivers. Detractors included degraded land such as mineral workings and industrial sites. These were mapped*

within a 500m buffer of main road and rail corridors on settlement gateways, to understand where experience of GI assets may be impaired currently and to inform the spatial direction of proposals. Detractors were also considered with landscape character areas of lower quality as identified in the Landscape Character Assessment, to target areas where landscape enhancement could contribute to GI proposals development.

- 3.12 **Tring:** A key asset is Tring Park (former Rothschild Estate), although this is severed by the A41 bypass. There is an opportunity to improve approaches to Tring Park and to improve links to this site from the Grand Union Canal, as well as to link to Buckinghamshire green infrastructure assets such as Wendover Woods via the scarp slope woodland within Tring Park (**Project 1** in the GI Plan). To the north of the railway is an opportunity to create new habitat landscapes in the disused Pitstone Quarries such as calcareous / scrubland, as well as new woodland buffering. Enhanced green links to the Grand Union Canal from Pitstone and College Lakes, and to the reservoirs, are another opportunity (**Project 3** in the GI Plan).
- 3.13 **Berkhamsted:** Key opportunity to link woodlands, enhance historic parkland remnants and improve detractors (by woodland planting) along the A41 transport corridor. Buffer Aldbury and Northchurch Common from the West Coast Main Line train corridor, and enhance the presence of assets along London Road through a

programme of street tree planting and improvements where possible.

- 3.14 **Hemel Hempstead:** Opportunity to improve links between Boxmoor Fields and Roughdown Common. The Two Waters Green Gateway Project is a key opportunity to restore and enhance the wetland environment where the Bulbourne, Canal and Gade merge, and to make links eastwards towards Apsley, improving the poor quality landscape to this part of the canal corridor. The large industrial estate to the north east of the settlement (Maylands) has the opportunity to be improved through street trees and enhancement of existing assets (i.e. verge improvement and upgrading the Nickey Line green link into the town centre), and creation of a softer, more porous landscape edge as part of the gateway to the town at this point (Relevant project is **Project 7** in the GI Plan).
- 3.15 **Bovingdon:** Opportunities are to link assets such as Bovingdon Green and Chipperfield Common via Woodman's Wood in neighbouring Three Rivers District. The western settlement edge has GI enhancement potential (brickworks, airfield, potential woodland creation). Another key opportunity is to secure improved links to the wider GI network (Bulbourne Valley and Boxmoor Fields) via Sheethanger Common. See **Figure 3.1** in the GI Plan for enhanced green links.
- 3.16 **Kings Langley:** A linear pattern is created by barriers such as the Gade and Grand Union Canal, with detractors including industrial estates in the valley floor. A key

opportunity is therefore to use wetland enhancement to mitigate and soften these development edges. Also to improve large arable fields, with restoration of hedgerows and introduction of small scale farm woodlands, and to enhance links to the strategic canal corridor from the western part of the village and the Common.

- 3.17 **Markyate:** A key issue is severance of the settlement by the A5 corridor, especially with regard to the River Ver. The few woodlands to the south and west of the settlement could have greater connectivity. Detracting elements such as the sewage works and in-town industrial estate have an opportunity to be buffered more appropriately, through wet woodland near the River Ver floodplain (**Wetland zone** and **project 5** within the GI Plan).
- 3.18 In terms of growth to settlement edges, main issues relate to need to enhance and reinforce the landscape and settlement interface e.g. if growth was pursued west of Hemel Hempstead, the sense of separation between Hemel and Ashridge and outlying villages such as Potten End is a key consideration. This should be conserved as part of the GI network.

Health

- 3.19 *The analysis considered the 2.5 km envelope around the main settlements in Dacorum. In addition to paths and rights of way and other access routes such as cycle routes, the Indices of Multiple Deprivation (IMD) were mapped, considering the 40%*

most deprived wards in the settlements within the Borough. Taking this with mapped information on barriers such as arterial transport corridors, enabled the analysis to target areas where green infrastructure could potentially address deprivation issues through enhanced linkage.

- 3.20 **Tring:** Poor health is not a significant problem in Tring, but it is affected by noise disturbance which open spaces and tree planting could help to alleviate. Planned growth to the east and west of Tring could exacerbate noise levels, and tree/woodland planting should be employed to minimise impacts on existing and new residents.
- 3.21 **Berkhamsted:** Poor health is not a significant problem in Berkhamsted, but it is affected by noise disturbance which open spaces and tree planting could help to alleviate. Planned growth to the west of Berkhamsted could exacerbate noise levels, and tree/woodland planting should be employed to minimise impacts on existing and new residents. These should also protect new communities from the noise from the nearby motorway.
- 3.22 **Hemel Hempstead:** There is moderate health deprivation in a number of wards in the northern and eastern parts of the town (Grove Hill, Highfield and St Pauls and Adeyfield East), and GI access and provision should be enhanced as part of a programme to alleviate this. Noise disturbance could be alleviated in part through using open spaces and tree planting to buffer public spaces from roads and other noise sources. Planned growth to

the east and west of Hemel could exacerbate noise levels, and tree/woodland planting should be employed to minimise impacts on existing and new residents. These should also protect new communities from the noise from the nearby motorway. See **woodland enhancement zone** and improved links on **Figure 3.1** in the GI Plan).

- 3.23 **Bovingdon:** Poor health is not a significant problem in Bovingdon, but it is affected by noise disturbance which open spaces and tree planting could help to alleviate. The picture and issues are similar at **Kings Langley** and **Markyate**.

Sound ecosystems

- 3.24 *The analysis considered the whole Borough. Environment Agency Water Framework Directive (WFD) GIS data was used for the main rivers and their catchments, to understand issues of ecological quality, low flows and abstraction pressures. High intensity traffic flows and main roads were also mapped to provide a broad picture of air quality issues. These two datasets enabled targeting of strategic GI proposals and zones in terms of wetland enhancement and large scale tree and woodland planting.*
- 3.25 Interpreting the Water Framework Directive (WFD) data produced by the Environment Agency for river catchments, the riverine environment of the Gade is of poor quality in terms of ecological status, and is also subject to abstraction/low flow pressures, as with the Ver. Low flows are also common place in the upper Bulbourne

due to abstraction, although the lower river is stable due to being fed by the canal rather than by groundwater. Invasive species are also an issue in all the rivers and there is therefore a need for positive management of the river valleys and watercourses as key GI assets. These issues have formed the focus for a river valleys project in the GI Plan.

- 3.26 There is also a need for additional wetland creation in the Gade to reinforce it in light of flow fluctuation and abstraction pressures. Whilst large parts of the principal transport corridors are in cutting (A41), or partly wooded (M25) there is a need for additional woodland and hedgerows belts to re connect existing and ameliorate air quality (e.g. south east of Tring, along the A41 and west of Berkhamsted, near Rossway). The M25 widening project means that woodland reinforcement is likely to be critical to reinforce existing woodland blocks (also providing an improved settlement approach to Kings Langley).
- 3.27 Development in Hemel Hempstead could place further abstraction pressures on the Gade, further heightening the need for positive management and wetland **expansion (Wetland Habitat zone and Project 5** within the GI Plan).

Productive green environments

- 3.28 *This analysis considered the whole Borough, mapping provision of allotments, traditionally managed orchards and farmlands covered by higher level stewardship agreements, as well as land*

in organic stewardship. Patterns were noted in terms of distribution and opportunities for new provision noted. Performance against recommended provision standards (e.g. for allotments) was also considered.

- 3.29 Consideration of the wider farmland landscape in Dacorum reveals some 264.49 hectares of farmland to be in Organic Stewardship agreements, with land under Higher Level Stewardship covering 292.38ha. This indicates potential for increased HLS uptake across the Borough, to enhance functionality of farmland landscapes.
- 3.30 Most of the settlements in Dacorum perform relatively well against the National Society of Allotment and Leisure Gardeners (NSALG) standards for allotment provision, with main deficiencies in Hemel Hempstead, Bovington, Flaunden and Little Gaddesden/Ashridge. Allotment usage is indicated to be relatively low with reference to the Open Space Study, and it is therefore unlikely to be a focus for additional provision.
- 3.31 The Borough has a fairly wide distribution of orchards in rural areas, around half of the sites being actively managed. Opportunities relate to increasing orchard provision in areas of land subject to HLS agreements and in best and most versatile agricultural land (such as around river valleys, provided orchard provision was traditionally managed and satisfied Environment Agency criteria re: watercourses).
- 3.32 Key opportunities relate to enhancing the functionality and value of open space (e.g. in Hemel Hempstead), to provide

for community gardens/orchards/local food production (linked to Transition Towns). Development to settlement fringes such as Hemel Hempstead is likely to place greater demand on provision and as such local productive landscapes should be considered as an integral part of future green infrastructure masterplans for these sites. See **project 7** in the GI Plan.

Conserving historic landscape character

- 3.33 *This analysis considered the whole Borough. Designated historic assets such as registered parks and gardens and Conservation Areas were mapped and the qualifying features of designation relevant to green infrastructure noted. Consideration was also given to non designated assets important to urban green infrastructure heritage in general (e.g. the Jellicoe landscapes of Hemel Hempstead, in addition to the registered historic landscape of the Water Gardens). Ancient woodlands were mapped, and the proportion of both these and registered parks and gardens actively protected through schemes such as environmental stewardship identified. As much of this function is about understanding and conserving historic legacy, the Historic Landscape Character types identified as regionally rare by Hertfordshire County Council, were mapped. The aim was to understand distribution of historic landscape elements and boundary networks which could contribute to the green infrastructure network.*
- 3.34 Through the five Registered Parks and Gardens, AONB and the Conservation Areas, much of the significant

historic landscape character is protected. However, few sites are managed through Higher Level Stewardship agri environment schemes. Key opportunities in relation to historic landscape are to secure protection and enhancement of ancient woodlands and strengthen connection between adjacent woodland sites (e.g. from Tring Park to Wendover Woods in Buckinghamshire – GI Plan **Project I**). Also potential woodland links between Ashridge and Markyate Cell Park, linking existing ancient woodland fragments through new hedgerows/restoring landscape structure.

- 3.35 Principal rare historic landscape character types in Dacorum are co axial field systems. Significantly, these cover over 24% of the rural landscapes of the Borough. There is also a small distribution of watercress beds in river valleys such as the Bulbourne, also representing a regionally rare historic landscape type. Relevant zone in the GI Plan: **Farmland Conservation and Enhancement Zone** (see **section 3** of the GI Plan).
- 3.36 Potential growth areas around Tring, Hemel Hempstead (West) and Berkhamsted could create increased pressures on key historic landscape assets such as Ashridge and Tring Park – need to protect and enhance landscape settings as part of the green infrastructure network, as well as providing alternative greenspace to buffer parklands and ancient woodlands and create alternative greenspace resources. Creation of stronger green links between historic parks, ancient woodland and nearby historic wetland features (e.g. Tring reservoirs and the Grand

Union Canal) would provide a network which could disperse an increased user base across the Borough – providing links to alternative greenspaces for exploration.

Climate change adaptation

- 3.37 *Within the 2.5km envelope of the main settlements, accessible woodlands were mapped using National Woodland Inventory data. Visual analysis of aerial photography was also undertaken, to understand distribution of street trees and urban greening. Gaps were noted as possible opportunity areas for green infrastructure.*
- 3.38 Generally the Dacorum settlements display a relative density of tree cover in terms of relict woodland blocks and tree corridors and in principal open spaces. However tree cover within the public realm is generally limited to these areas and there are few areas of street tree planting except in lower density leafy suburbs. Issues and opportunities relate mainly to conserving what exists and managing this appropriately/planning for succession planting and ensuring new tree planting in relation to redevelopment sites – use of the Town and Country Planning Association (TCPA) standards for enhanced urban tree planting of 80 street trees (of an appropriately robust grade) per linear km. Whilst settlements such as Hemel Hempstead New Town display a relatively high density of tree cover, this could be enhanced in the green wedges which divide the town and in broad grass verges associated with main road corridors and post war suburbs. See **project 7** in the GI Plan.

- 3.39 Any future growth and redevelopment should plan for street tree planting as an integral part of the masterplan to ensure climate change adaptation.

Land remediation

- 3.40 This analysis considered the whole Borough. Dacorum has been mapped and analysed for this exercise in order to identify where former waste, restored minerals and contaminated land sites could be restored and aid the development of the GI network. Any disused mineral sites (re restoration sites) within the Borough were identified and their current use and surface condition were noted. Also considered in the analysis were the IMD (Indices of Multiple Deprivation) and the quality of the Landscape Character Areas in which the sites were located.
- 3.41 However, in Dacorum, no former mineral or land fill sites have been identified and as a result there are no opportunities for remediation or restoration of these within the District. Existing sites, such as the former brick clay pits at Bovingdon (now in the ownership of the Box Moor Trust), present clear opportunities to provide enhanced green infrastructure. Other former sites which may present green infrastructure opportunities are Pitstone Quarry 2 and the old HCC Playing Field site at Tollpit End, to the northern edge of Hemel Hempstead.
- 3.42 The analysis identified an area of lower landscape quality east of Markyate (covered within the **Farmland Conservation and Enhancement Zone** on **Figure 3.1** of the GI Plan).

Nature conservation

- 3.43 Consideration was given to the whole Borough, noting distribution of internationally, nationally and locally designated assets. Cross referring to the earlier document review, main issues and vulnerabilities were noted. Hertfordshire Biodiversity Action Plan Key Biodiversity Areas and Living Landscape areas were mapped, to understand where there may be potential for enhanced landscape and habitat linkages through green infrastructure.
- 3.44 Visitor pressure (particularly associated with car use) is apparent at Ashridge SAC SSSI, Tring Park, Tring Reservoirs and Grand Union Canal. Whilst Ashridge is promoted in ANGSt assessments as a highly valued site (500ha+), accordingly, this faces absorption of high visitor numbers.
- 3.45 Existing pinch points are: Grand Union Canal / Colne corridor through built up areas, particularly Hemel Hempstead.
- 3.46 Key threats associated with urban foci: The ANGSt appraisal of Dacorum, completed as part of the 2006 Dacorum Urban Nature Conservation Study identified the following key deficits - accessible biodiversity is less available to Hemel Hempstead and Kings Langley, e.g. ROW absent from Prae Wood and Dunstable and Whipsnade Downs lie less than 5km north west of Markyate. Areas of deficiency also occur south and west of Berkhamsted and Bovingdon, and in a large zone north of Hemel Hempstead towards and beyond Markyate.

Kings Langley has small, limited biodiversity resources close by.

- 3.47 Aspects which could exacerbate provision and increase need (growth and distribution): Settlement growth areas – Hemel Hempstead (west and south), Bovington (west), Berkhamsted (south and west) and Tring (east and west).
- 3.48 Regional Key Biodiversity Areas (KBA)/Living Landscapes include Ashridge / Berkhamsted Common / Aldbury, Tring Scarp and Dip Slope and Tring Reservoirs, and Chess Valley (bordering with Three Rivers District).
- 3.49 In addition the Urban Nature Conservation Study identifies areas of wildspace (that is, areas of general biodiversity interest in addition to wildlife corridors and designated sites). These areas are principally in relation to the main settlements and form a focus for positive green infrastructure planning to achieve a multifunctional GI network. Key areas include Gadebridge Park, Hemel Hempstead, and land around Longdean Meadows Nature Reserve, as well as land in the Bulbourne Valley, south of Chaulden. Also land to the northern and southern settlement fringes of Bovington, the northern part of Tring Park around the mansion and southern edge of Tring inside of the A41. Other areas include the Wendover Arm of the Grand Union Canal and the gravel lakes and Priory site allotments at Kings Langley. At Berkhamsted, the woodlands to the southern edge of the town are identified as important, although the severance created by the A41 is an issue. In addition, the Urban Nature Conservation

Study identifies areas of wildspace deficiency, including part of the green wedge at Hammerfield, Hemel Hempstead.

- 3.50 Key locations for GI identified in the map analysis include:
- Gade Valley KBA (extending GI down into Hemel and bringing non-car access north;
 - Link south end of Gade Valley KBA, south of Potten End, to south end of Berkhamsted Commons KBA/Living Landscape to alleviate visitor pressure (Farmland Conservation and Enhancement and Wetland Habitat Zones on **Figure 3.1** of the GI Plan, also GI Plan **Project 4**);
 - Link north end Gade Valley KBA to south end of Berkhamsted Commons KBA/ Living Landscape;
 - Extend GI from Berkhamsted Commons KBA/ Living Landscape across A41/rail division e.g. at Cow Roast (existing footpath). This may continue west to south Tring KBA/ Living Landscape (at Wigginton, along the ridgeway to Hastoe, and beyond along the wooded scarp to Wendover Woods (link to GI Plan **Project 1**);
 - Extend GI across the A41/rail division e.g. at Tring Station. This may continue north west to link to the Tringford Key Biodiversity Area/Living Landscape;
 - Extend GI along Grand Union Canal / Bulbourne corridor, north of Berkhamsted (see **Wetland Habitat Zone on Figure 3.1 of the GI Plan and GI Plan Project 5**).

Experience

- 3.51 *The analysis considered the whole Borough. Using the Regional Landscape Typology as a starting point, the 27 rural landscape types of the region were assigned rarity based on percentage distribution. The three rarest landscape types were considered for analysis as these often form a potential focus for place and conservation orientated green infrastructure proposals (e.g. chalk landscapes). Their distribution was noted as was the percentage distribution as a proportion of the total regional distribution of the landscape type. Tranquillity, intrusion and night skies mapping were also used to build a broader picture of landscape experience and quality.*
- 3.52 *The main regionally rare landscape typeⁱⁱ in Dacorum is the Wooded Chalk Valleys, mainly related to the dry valleys and seasonal winterbournes (such as the Bourne Gutter), associated with Gade, Bulbourne and Ver Valley systems. This landscape type covers 22.37% of the district area (significantly this also represents 23.92% of the total regional distribution of the landscape type). This is therefore one of the primary green infrastructure resources in the Borough. The other regionally rare landscape type, the Settled Chalk Valleys, are much more limited in their occurrence within Dacorum.*
- 3.53 *Much of the Wooded Chalk Valleys in Dacorum are covered under the Chilterns AONB designation, and will therefore be key for conservation, enhancement and understanding as part of a green infrastructure network within the area, as well as providing enhanced links to*

deflect pressures on the AONB. Woodland planting and mitigation of transport corridors which fall within valleys could be used to enhance the tranquillity and experience of the landscape type (e.g. in the Gade Valley). Relevant GI zones on **Figure 3.1** of the GI Plan are the **Chalk Valley Conservation Zone, Wetland Habitat Zone and Woodland Enhancement Zone**).

- 3.54 *The wetland and riverine environment is a key part of the experiential landscape of the Borough, witnessed not only in the distinctive lowland vale landscapes north of Tring, but also in historic man made and engineered elements such as the various arms of the Grand Union Canal and the associated balancing reservoirs north of Tring. The lowland vale landscape has formed the focus for a specific conservation zone shown on **Figure 3.1** of the GI Plan, whilst the canal and reservoirs are referenced in a specific project at **section 3** of the GI Plan.*
- 3.55 *Potential growth to the west of Hemel Hempstead could affect the character of parts of the Bulbourne Valley. Whilst none of the development proposed will directly affect the AONB, increased visitor pressure upon the landscape could become a problem.*

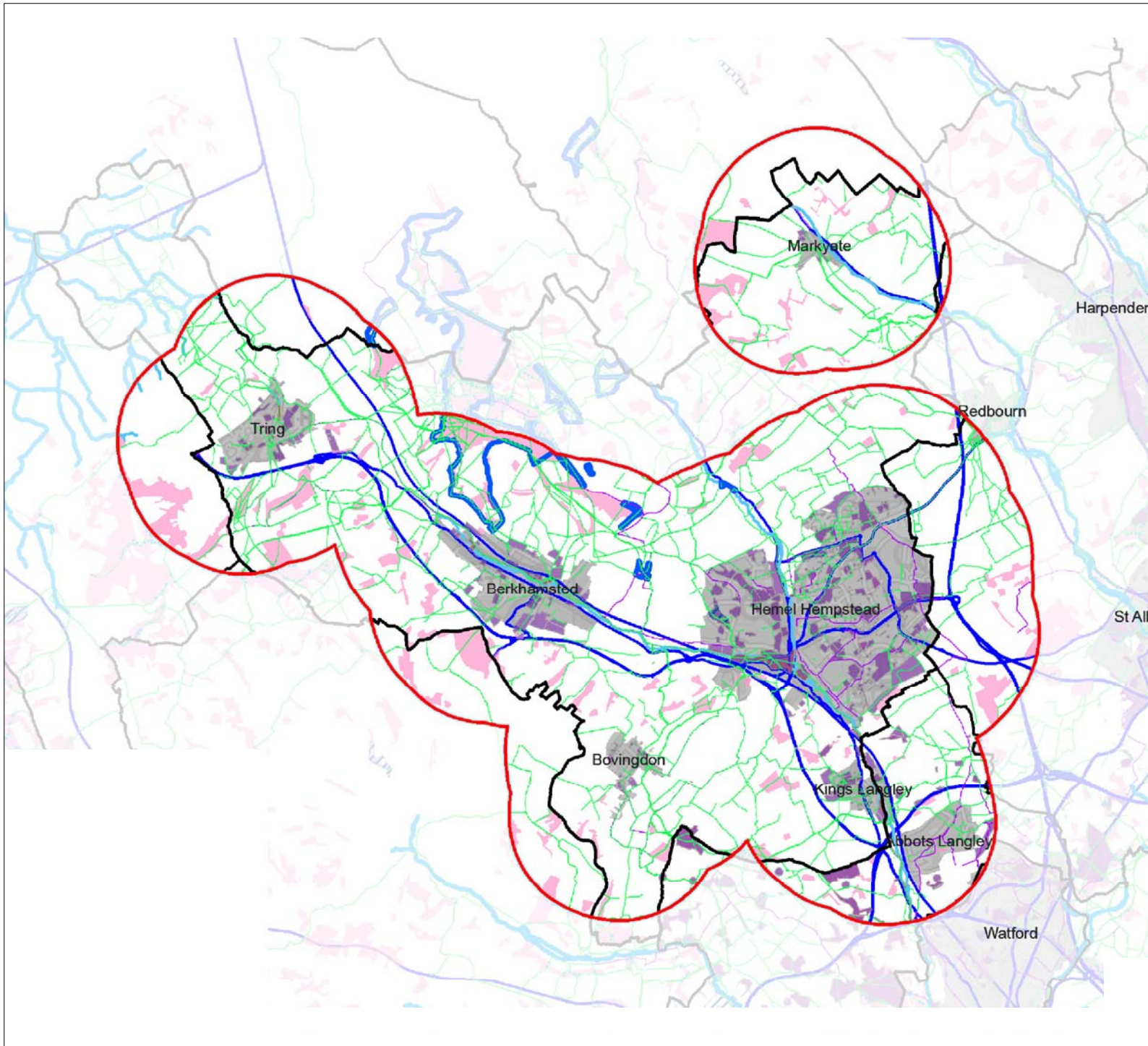
Flood attenuation and water management

- 3.56 *This considered the flood zones in the 2.5km envelope of the main settlements, and proximity to designated nature conservation sites, to understand vulnerabilities in the context of water level fluctuation.*

- 3.57 **Tring:** The flood zone runs through Tring where much of it is developed. Potential problems include the density of residential development, and hard surfacing within the flood zone where housing has encroached on the floodplain.
- 3.58 In the wider landscape around Tring, the Wilstone Reservoirs, built to provide water balancing for the Grand Union Canal, provide a notable water management function. Creation of new flood storage areas to the north of Tring at Little Tring Lake may help alleviate potential flood problems before they reach Tring and may also enhance the area with increased open space provision.
- 3.59 Any proposed growth locations in Tring to the east and south of the settlement could be located in areas of open space where there are no functional flood zones. The main issues are likely to relate to increased run-off and the need for integrated Sustainable Drainage Systems (SuDS).
- 3.60 **Berkhamsted:** Large areas of open space at the Moor Recreation Ground, New Lodge, Watercress Beds and Dudswell help alleviate much of the pressure during high flows and are important GI assets. Pinch points are formed by the various locks and weirs along the Grand Union Canal and where the River Bulbourne meets the Grand Union Canal.
- 3.61 Culverts, river walls, weirs, sluices, and embankments should aim to alleviate high flow pressures. An example of an area to restore the river corridor and de-culvert is at Stag Lane in Berkhamsted.
- 3.62 Any future development in the flood plain will increase pressures during periods of high flows and will inevitably lead to flooding on existing developed land. However, the proposed growth locations in Berkhamsted are located to the west of the settlement and are unlikely to impact on the flood zone. Surface water flood management from the proposed growth areas could potentially be managed by the creation of integrated SuDS within the development that also deal with run off from the A4251.
- 3.63 **Hemel Hempstead:** A large floodplain exists within Hemel Hempstead at the confluence of the Rivers Gade and Bulbourne (Bulbourne Meadow/Heath Park) and there is also a flood defence mechanism in place here. Other areas of open space which help alleviate pressures are the Watercress Beds and Gadebridge Park which should be conserved and enhanced as important GI assets.
- 3.64 Areas at risk of flooding include developed land within Flood Zone 2 & 3 which are primarily industrial and residential properties along both the Gade and Bulbourne Rivers.
- 3.65 The proposed growth locations and urban extensions should incorporate SuDS as part of their management plans where these areas can be utilised as GI elements. None of the proposed growth locations surrounding Hemel Hempstead are within the flood zone. Much of the surface water and run off from local roads in these areas can be dealt with on site by means of water attenuation measures such as SuDS.

- 3.66 **Bovingdon:** Frogmore Meadows (SSSI) south of Bovingdon is at risk of being affected by a change in flow levels due to extension of development in Bovingdon.
- 3.67 Potential development to the north west of Bovingdon: Issues related to surface water from the development and the existing airstrip can also be dealt with by SUDs.
- 3.68 **Kings Langley:** Flood Zone 2 & 3 within the settlement cover a large area of developed land. The River Gade has been heavily modified.
- 3.69 Areas of open space within Kings Langley which help alleviate flooding are the allotment gardens and associated water body and also the large water body (gravel lake) to the north of Kings Langley adjacent to the railway. Pinch points include bridges and weirs along the route of the Gade and the Canal through the village.
- 3.70 Due to the width of the flood zone within developed land, opportunities exist to extend the flood plain south of Kings Langley where the creation of a flood storage area would alleviate pressures within the settlement. Any future development within the flood zone would increase pressures so should be avoided and where possible surfaces on developed land should be permeable allowing run off to percolate and reduce the levels of surface water.
- 3.71 **Markyate:** Flood defences are in place on the northern edge of the settlement and Markyate Flood Storage Area is located to the south of the settlement. The flood zone is partially located in the industrial area and also in residential areas on the eastern edge. The flood zone is bound by the High St. and the A5 which poses a significant threat to the properties within this area.
- 3.72 At the GI Plan level, main issues relate to making space for water and avoiding pinch points – focus for a Wetland Habitat Zone on **Figure 3.1** of the GI Plan and also GI Plan **Project 5**.









ⁱ Dacorum Borough Council/Hertfordshire Biological Records Centre 2006 **Urban Nature Conservation Study**

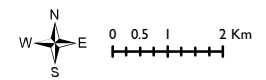


Hertfordshire Green Infrastructure Plans - Dacorum

Access to Recreation

Key

-  Study area boundary
-  Local Authority boundaries
-  Access routes
-  Local Nature Reserves (LNR)
-  Accessible open space
-  Woodland
-  Main rivers
-  Barriers (major roads and rail)









Date: 28/03/2011

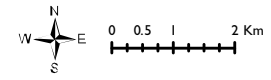
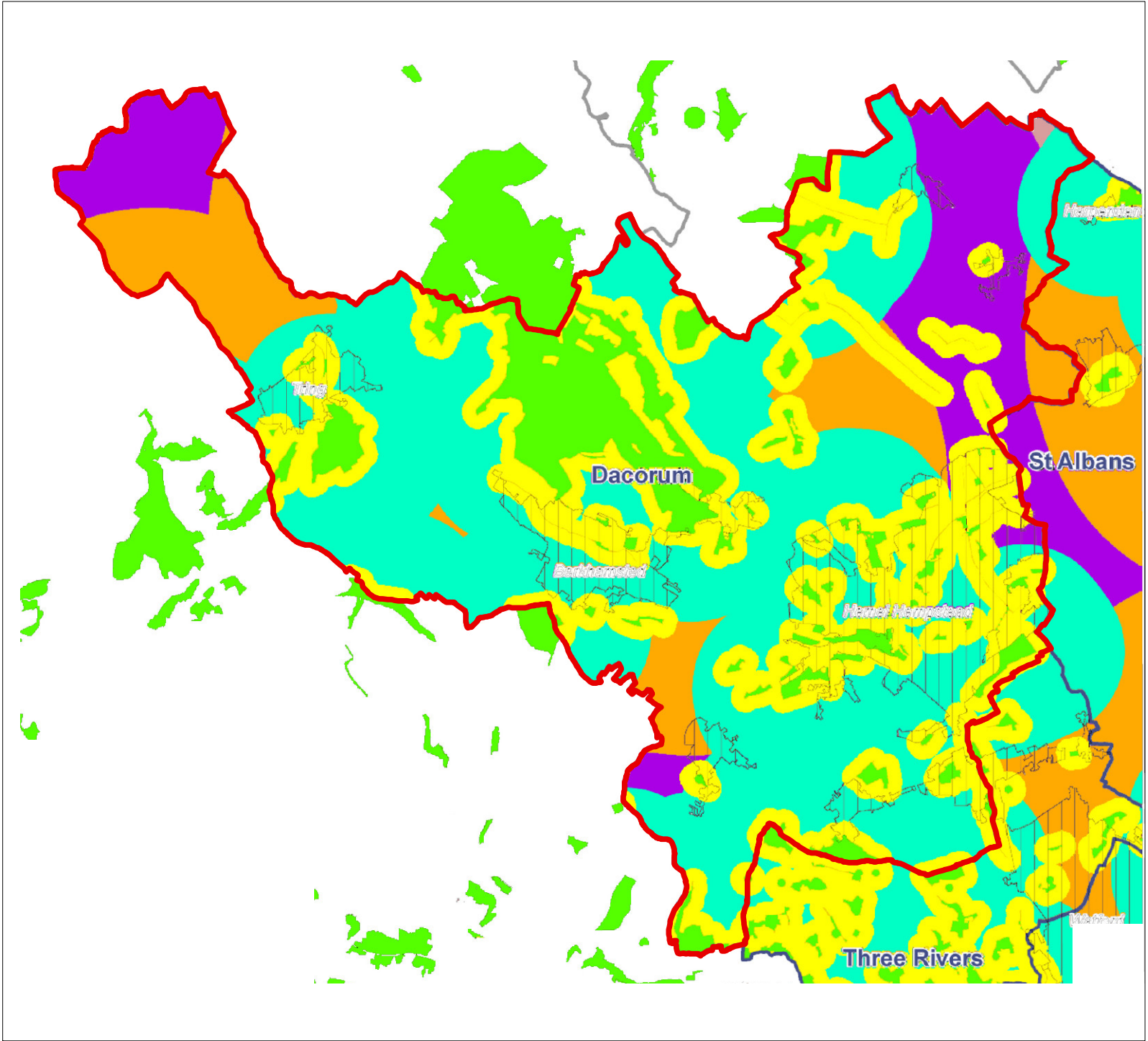


Hertfordshire Green Infrastructure Plans - Dacorum

Accessible Natural Greenspace (ANG) Provision (Natural England ANGSt Standard)

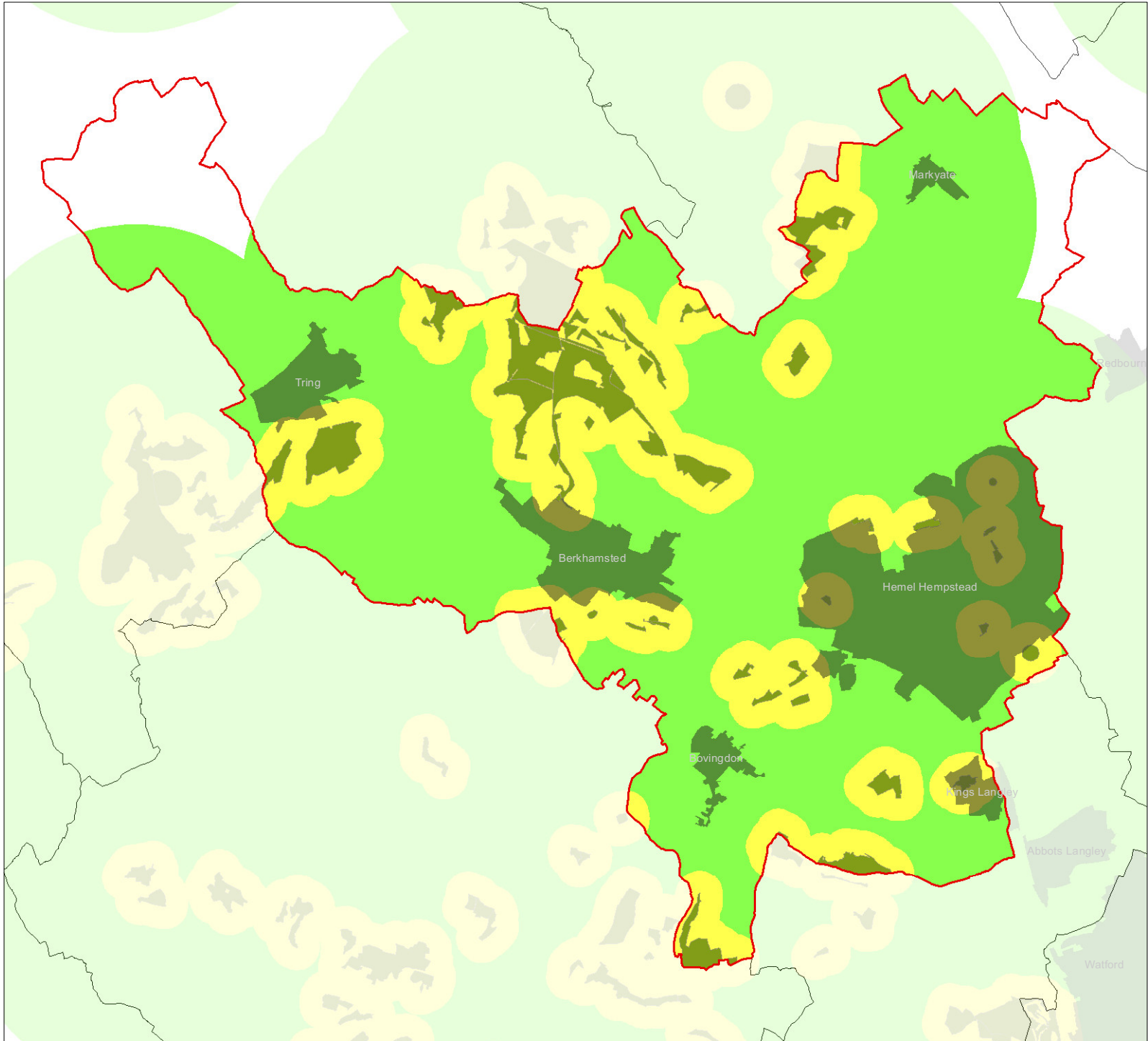
Key

-  Study area boundary
-  Strategic ANG
-  Within 300m of 2ha site
-  Within 2km of 20ha site
-  Within 5km of 100ha site
-  Within 10km of 500ha site



Date: 28/03/2011







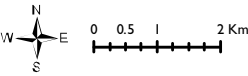


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Accessible Woodland Provision (Woodland Trust Standard)

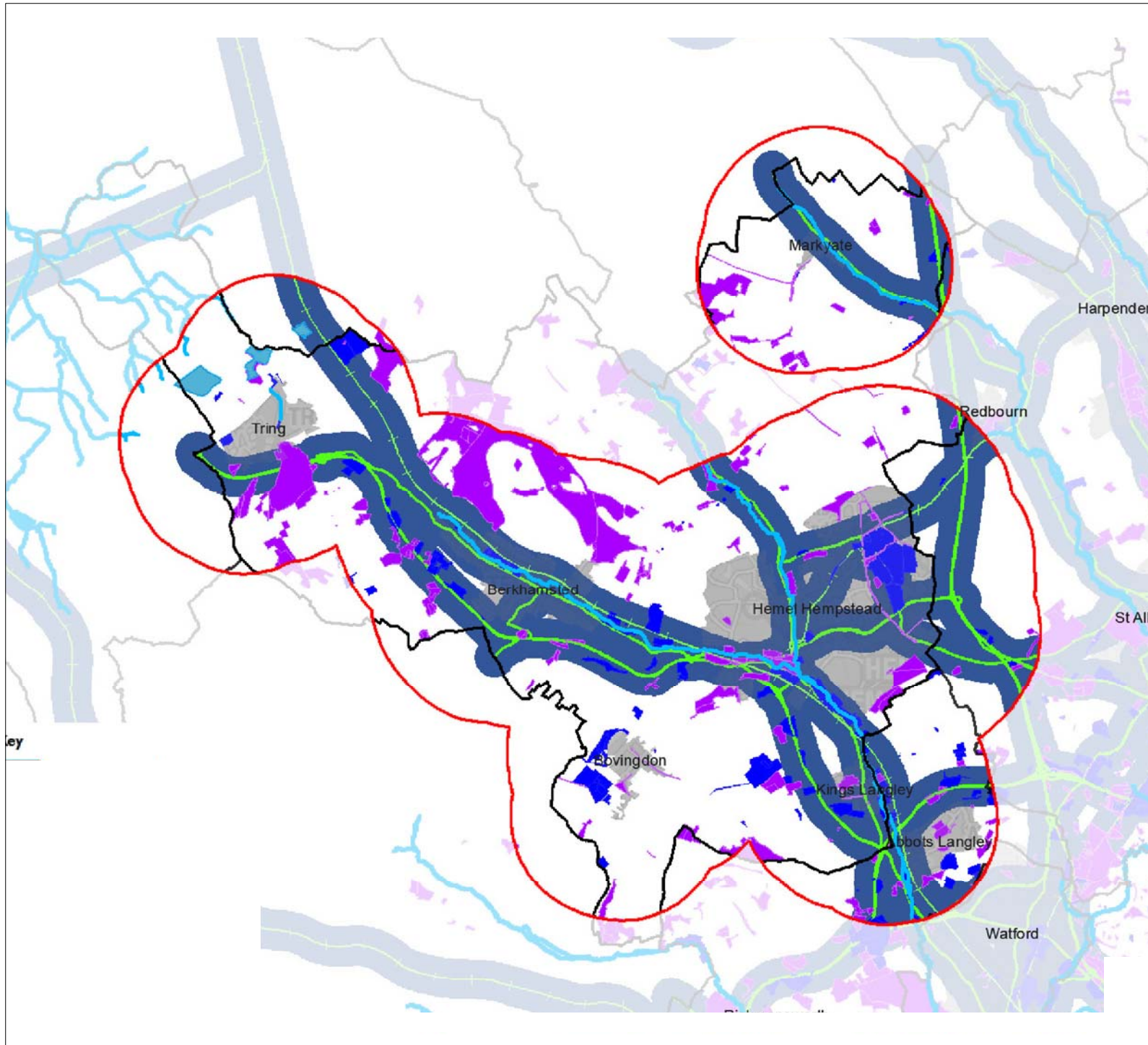
Key

-  Study area boundary
-  Accessible woodland
-  Within 500m of at least 2ha accessible woodland
-  Within 4km of at least 20ha accessible woodland



Date: 28/03/2011



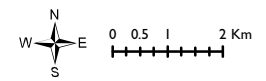


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Prestige on Settlement Approach Corridors

Key

- Study area boundary
- Local Authority boundaries
- Assets
- Detractors
- Main rivers
- Lakes
- Railways
- Major road network
- 500m from major roads and rail










Date: 28/03/2011

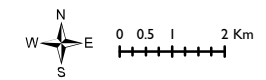
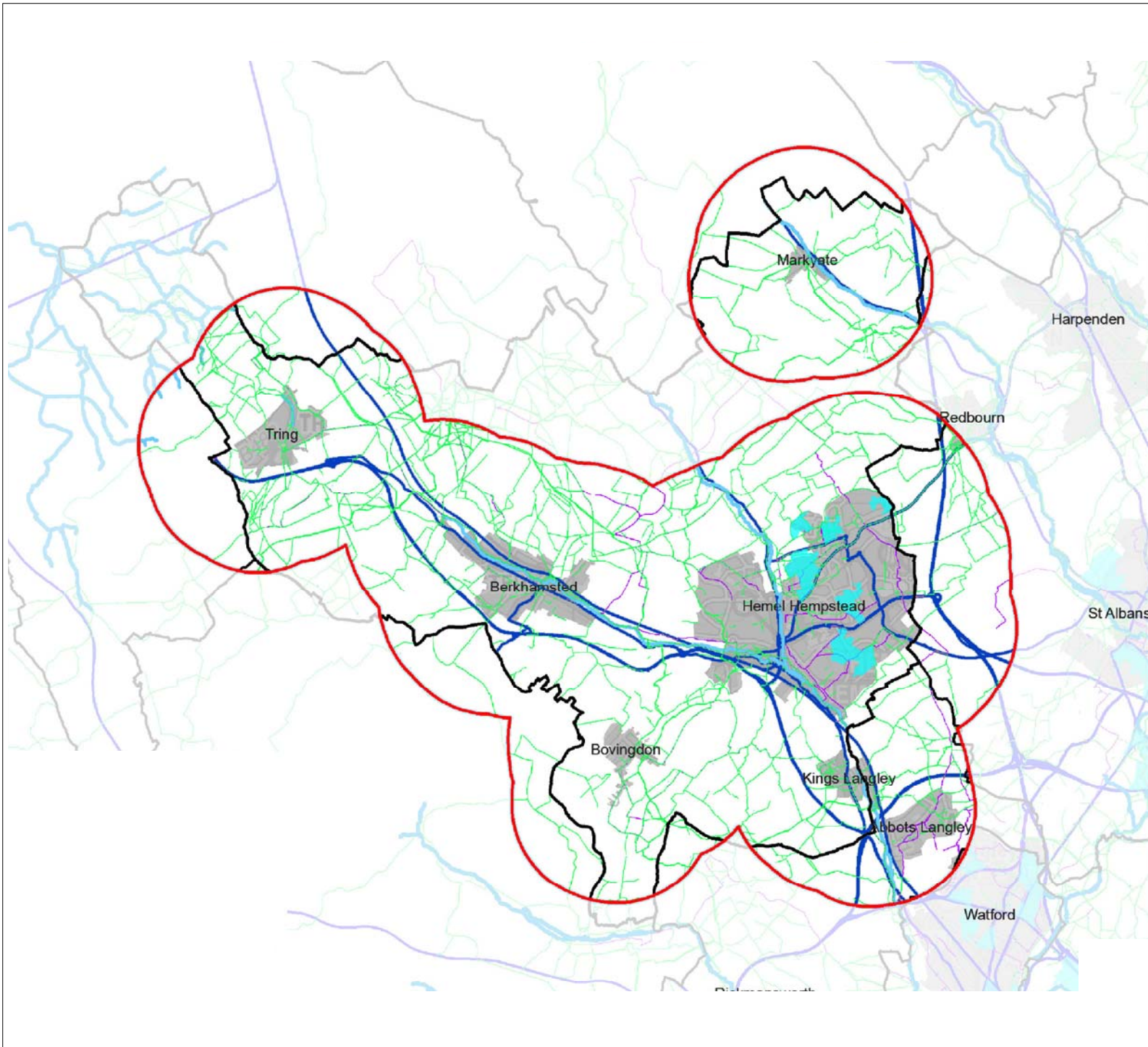


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Health

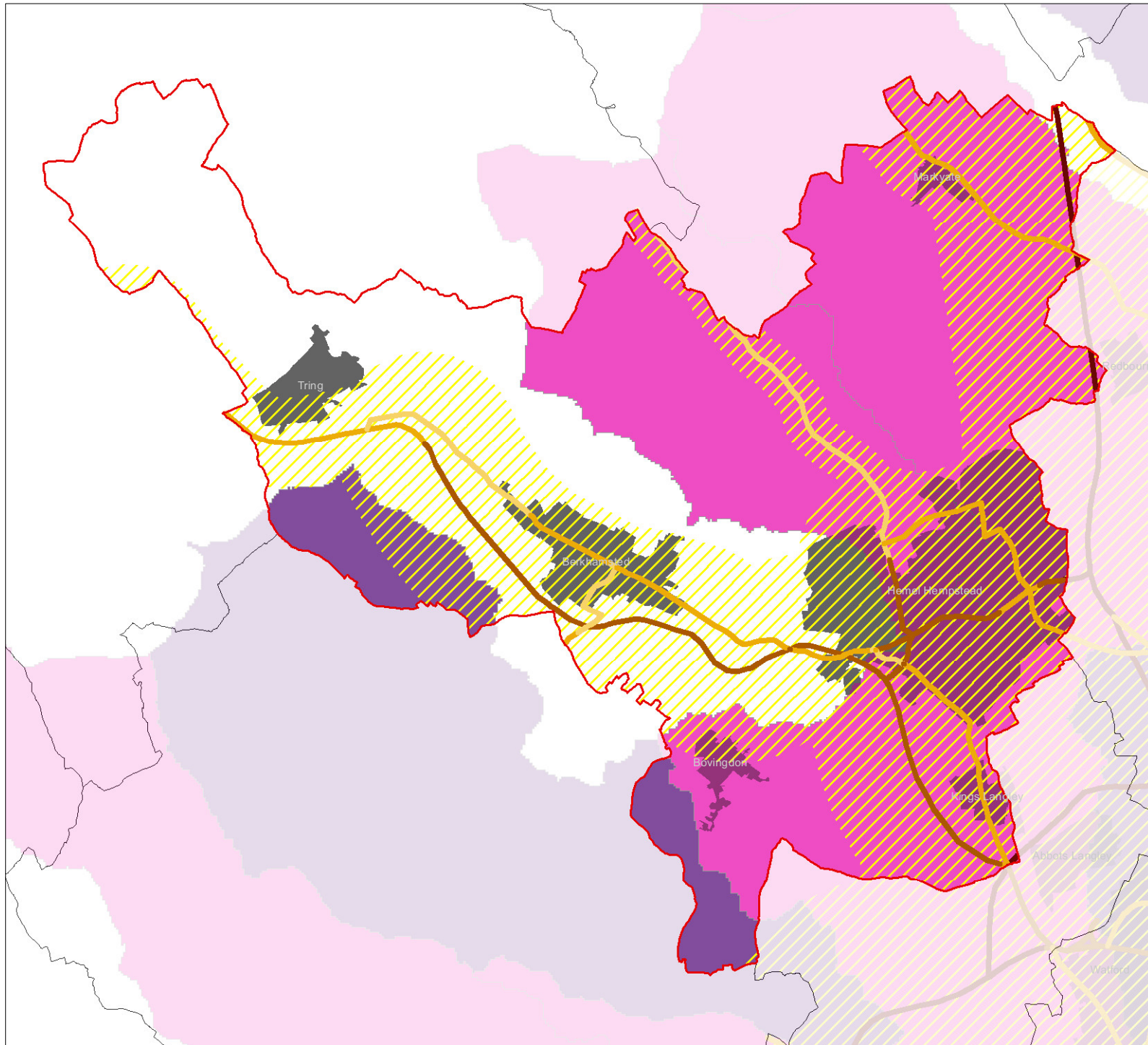
Key

-  Study area boundary
-  Local Authority boundaries
-  IMD (lowest 40%)
-  Access routes
-  Cycle routes
-  Barriers (major roads and rail)
-  Main rivers



Date: 28/03/2011



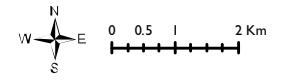


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Sound Ecosystems

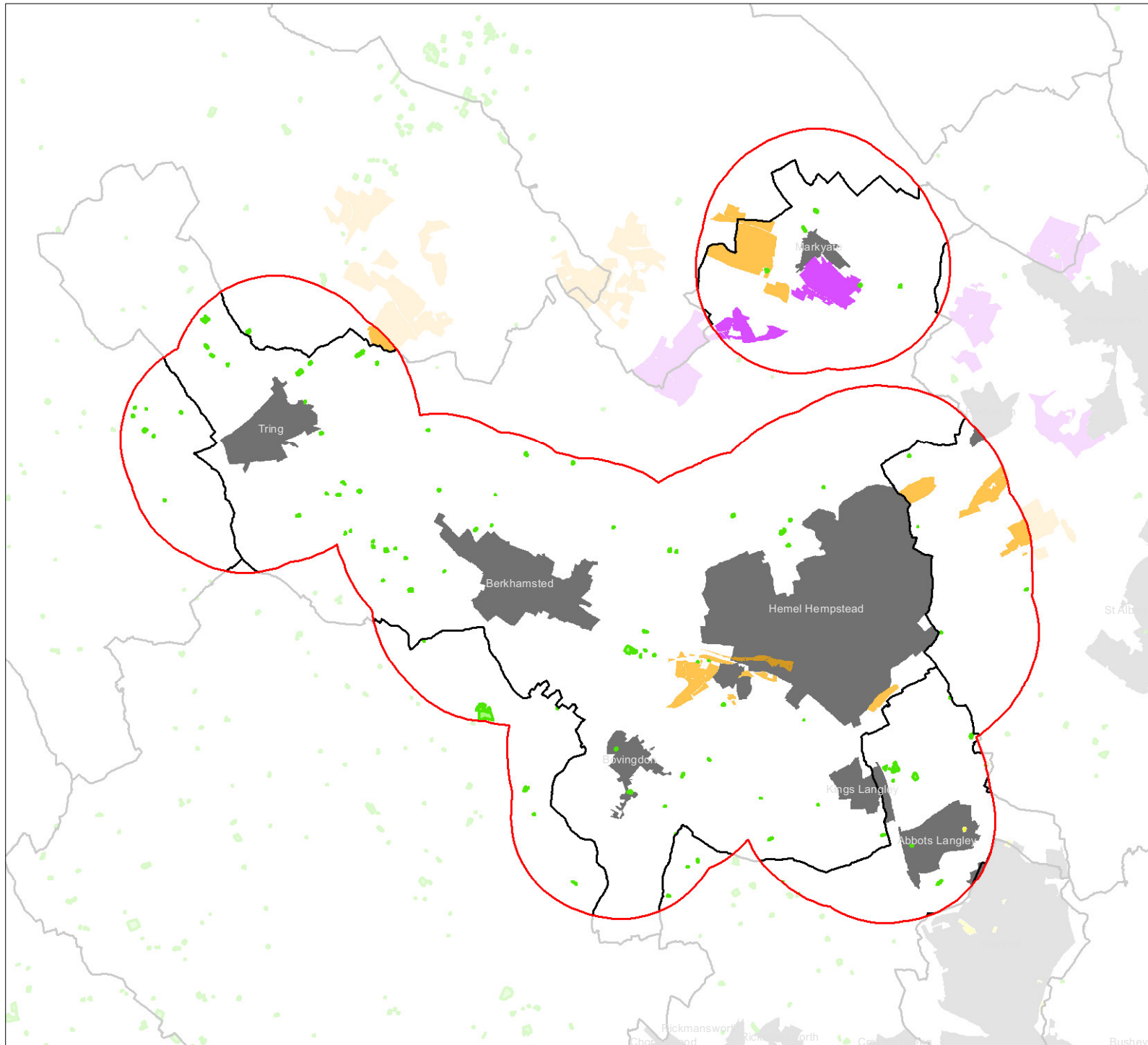
Key

- Study area boundary
- Daily traffic flows
 - Less than 5,000
 - 5,000 – 10,000
 - 10,000 – 25,000
 - 25,000 – 75,000
 - Over 75,000
- Road Intrusion buffers - Daily traffic flows
- Water Framework Directive - Low Flow
 - At Risk
 - Probably At Risk



Date: 28/03/2011



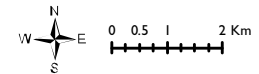


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Productive Green Environments

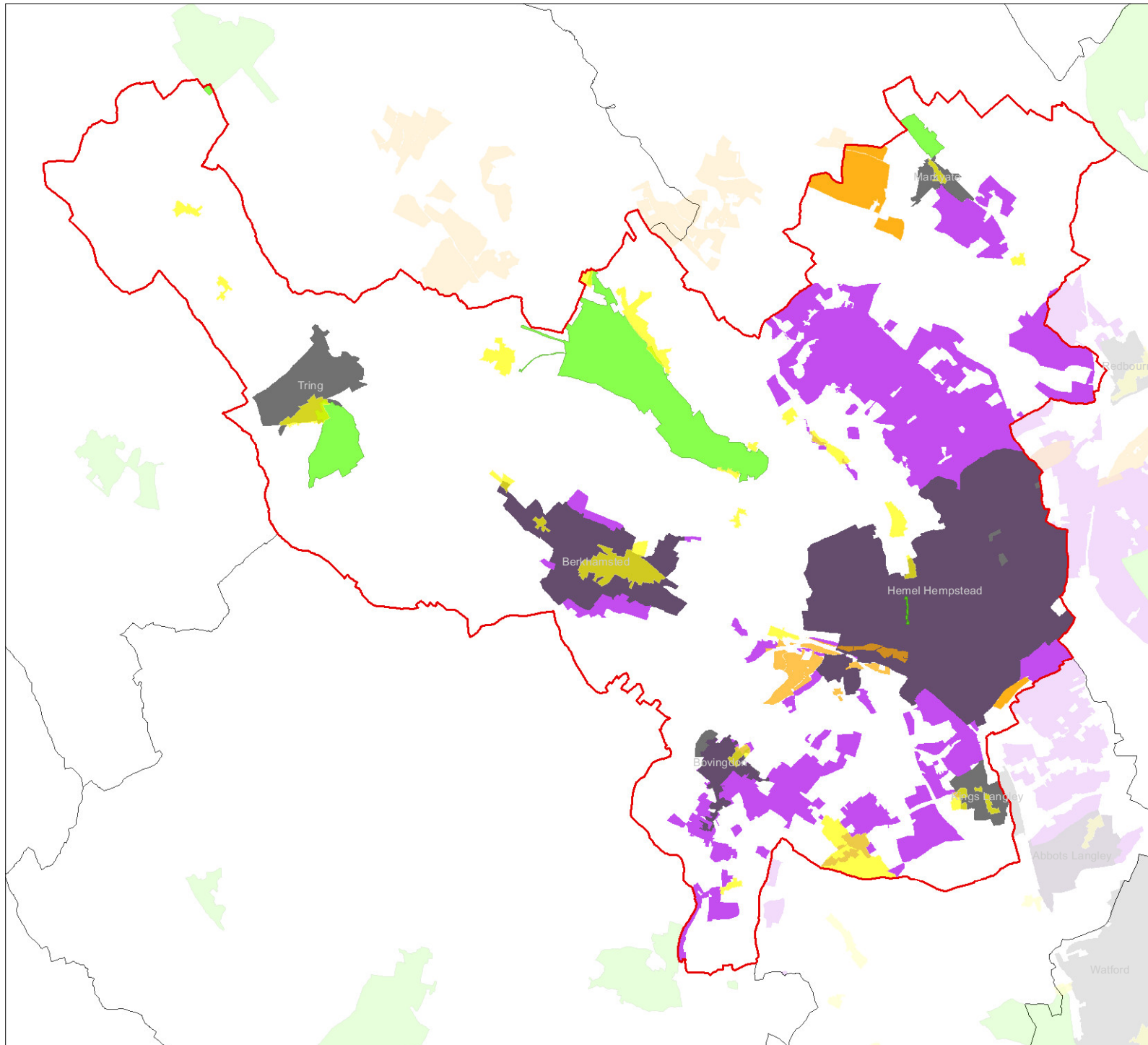
Key

-  Study area boundary
-  Local Authority boundaries
-  Traditional Orchards
-  Allotments
-  Higher Level Stewardship
-  Organic Entry Level Stewardship



Date: 28/03/2011








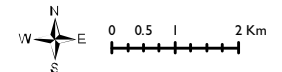


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Conserving Historic Landscape Character

Key

-  Study area boundary
-  Conservation areas
-  Higher Level Stewardship
-  Registered Parks and Gardens
-  Rare HLC






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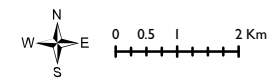
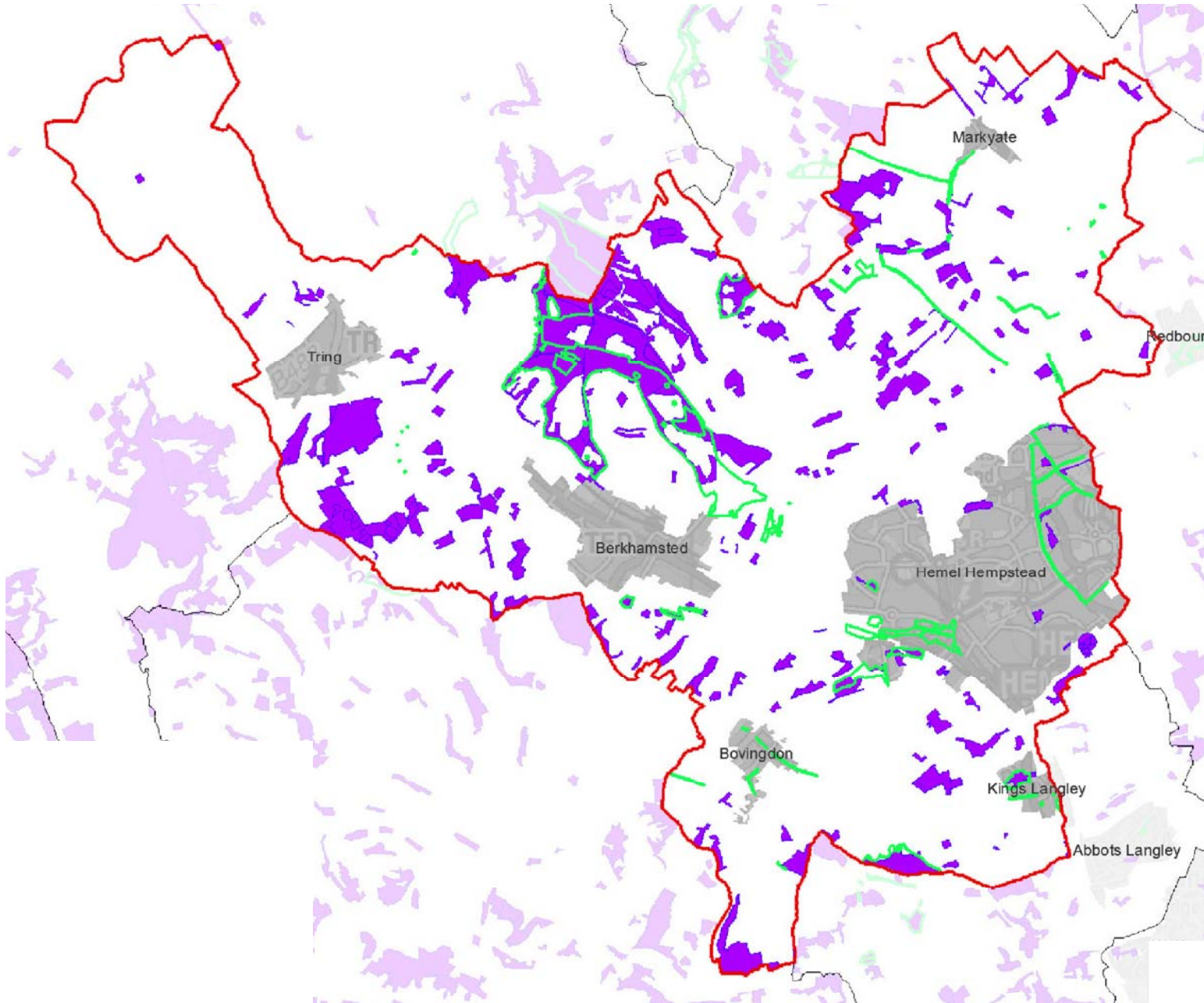


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Sustainability and Responding to Climate Change

Key

-  Study area boundary
-  Accessible woodland
-  Open Access Land (RCL & OC)





Date: 28/03/2011

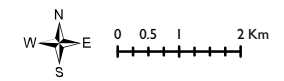
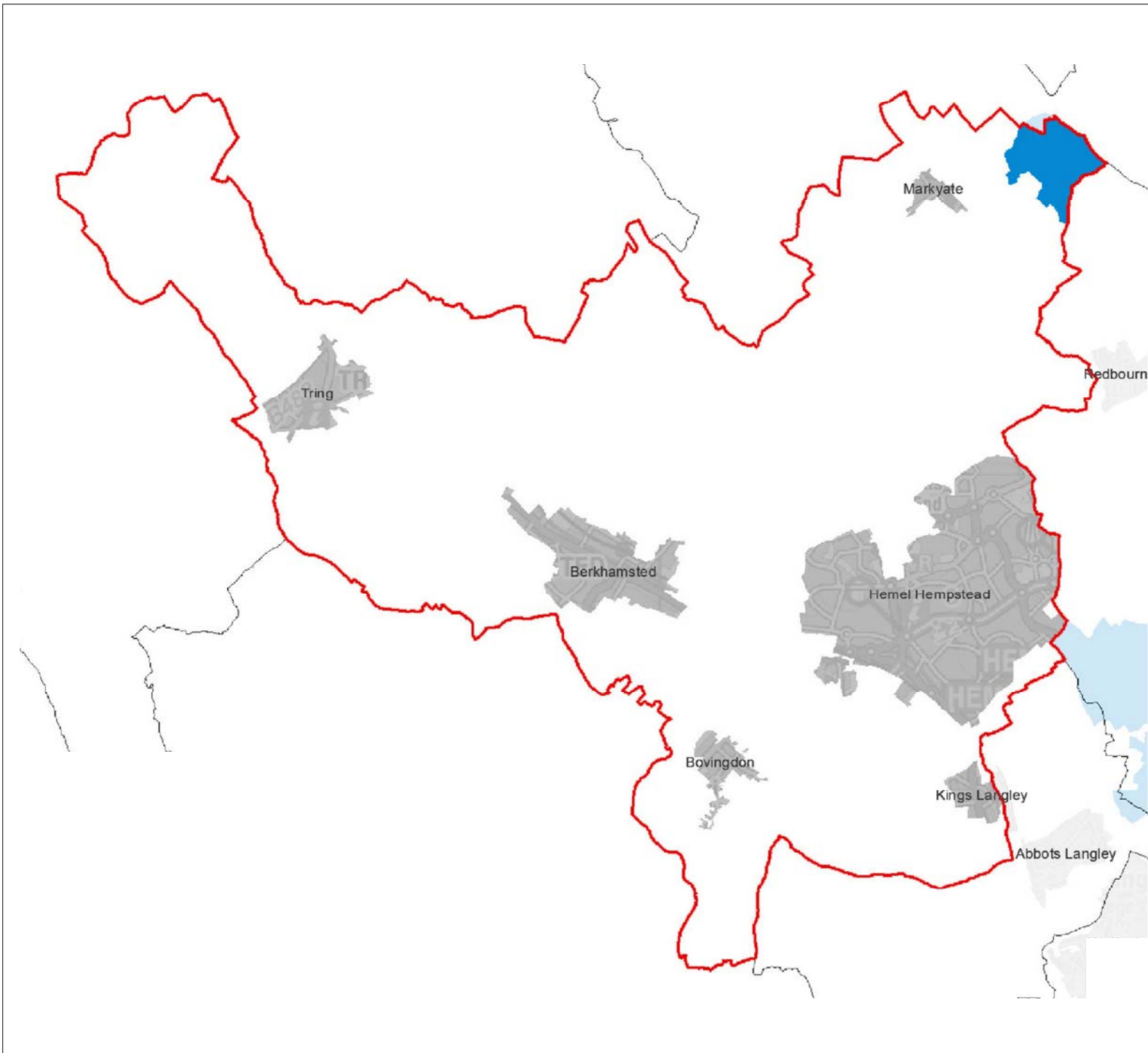


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Land Remediation

Key

-  Study area boundary
-  Moderate / poor quality








Date: 28/03/2011

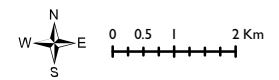
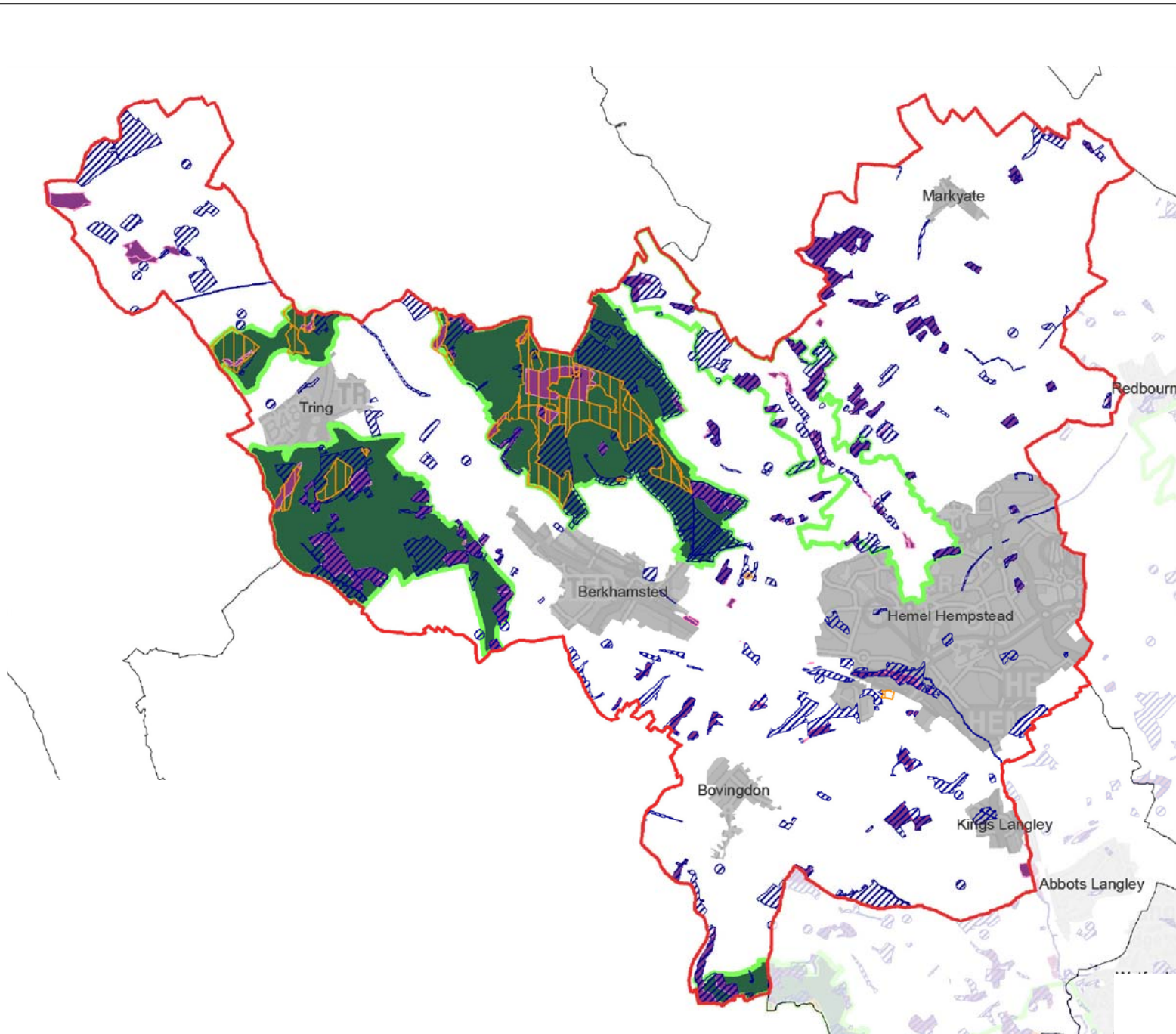


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Nature Conservation

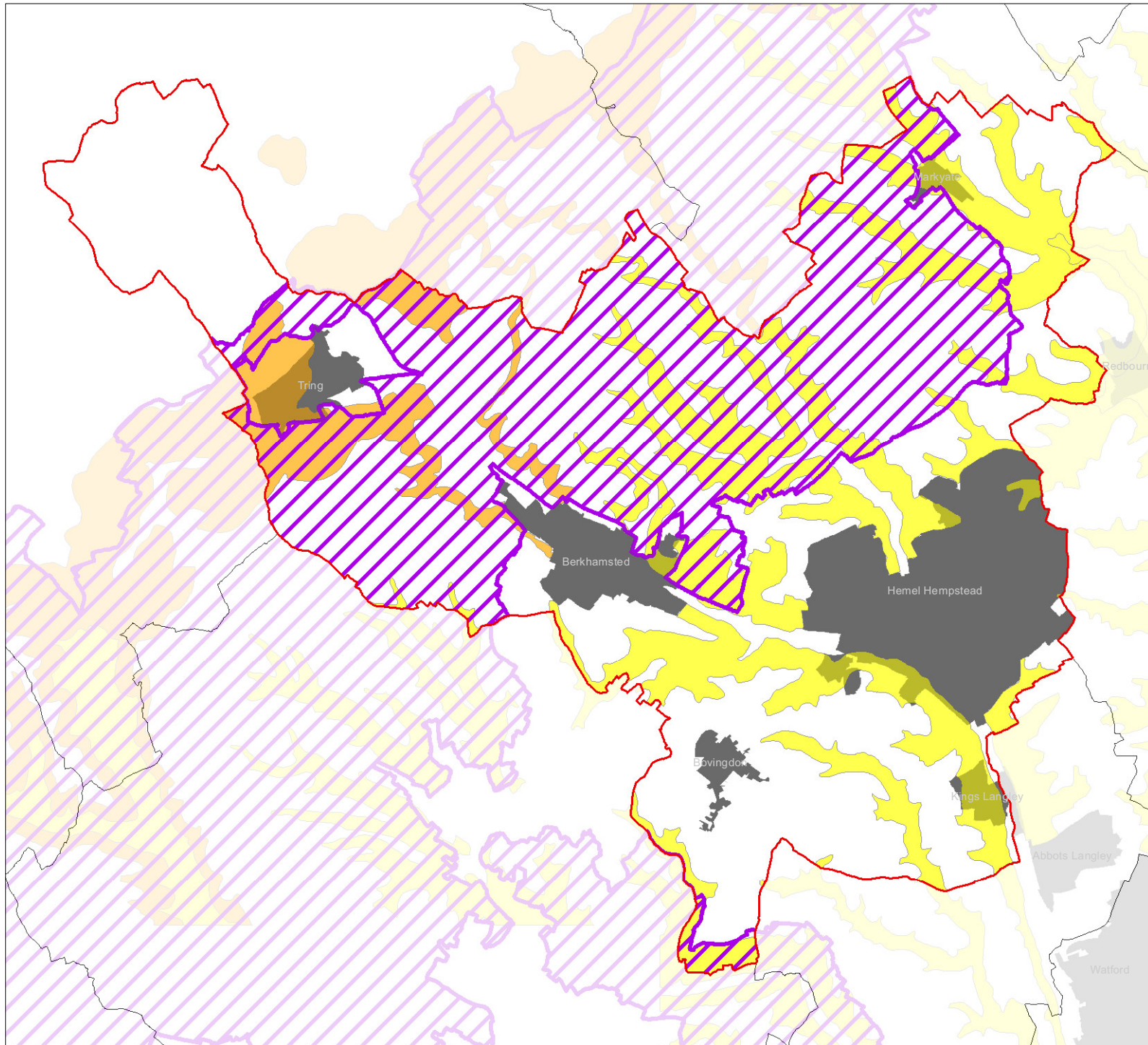
Key

-  Study area boundary
-  Habitats of ecological value
-  National / international protection
-  Local protection
-  Key Biodiversity Areas



Date: 28/03/2011







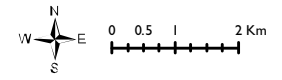


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Experience

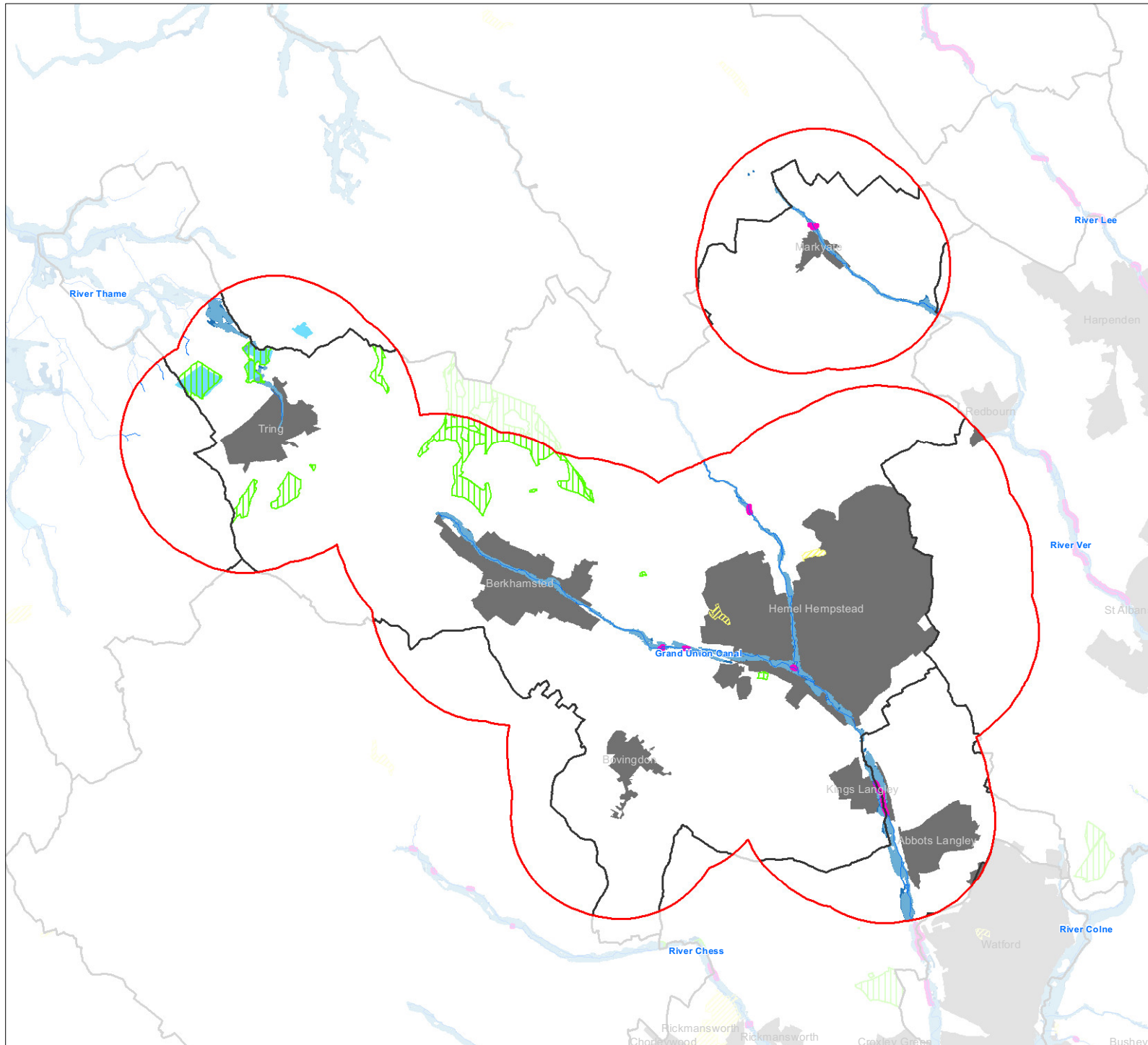
Key

-  Study area boundary
-  Area of Outstanding Natural Beauty (AONB)
- Landscape Rarity
 -  Class 2
 -  Class 3



Date: 28/03/2011













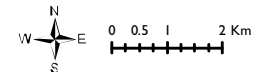


Hertfordshire Green Infrastructure Plans - Dacorum

Flood Attenuation and Water Management

Key

-  Study area boundary
-  Local Authority boundaries
-  National / International protection
-  Local Nature Reserves (LNR)
-  Main rivers
-  Flood Defences
-  Floodzone3
-  Floodzone2
-  Areas of benefit from flood defences
-  Lakes



Date: 28/03/2011





www.landuse.co.uk

