GREEN INFRASTRUCTURE

A Report to East Harptree Parish Council by the Climate & Nature Emergency Working Group (C&NEWG)

December 2020

Contents

Cover photo courtesy G Roberts (Aug 2017)

Non Technical Summary

This report to East Harptree Parish Council presents research and analysis of the role of green infrastructure (GI) in combatting the effects of the Climate and Nature Emergency (C&NE). The work was undertaken as part of the parish council Climate and Nature Emergency Working Group (C&NEWG) initiative.

The report explains how GI can deliver climate change and nature resilience and adaptation functions as part of the local response to the C&NE. It explains the ecological and technical principles that underpin effective GI, and describes increasing government policy ambition to support and encourage GI initiatives from national to parish level.

Setting the context of opportunity for action in East Harptree within the powers available to the Parish Council, it considers what additional efforts are now needed to protect, enhance and extend GI features across the parish, and how these might be achieved.

Adding to actions identified and/or outstanding since the Interim report of the C&NEWG in June 2020, the report recommends a realistic and deliverable approach to improving the potential for local green infrastructure benefits, highlighting specific actions that the Parish Council can take alone and in collaboration with others, to help to promote GI as an effective local response to the C&NE.

1.0 INTRODUCTION

Background

1.1 East Harptree Parish Council (EHPC) declared a Climate Emergency on 17 September 2019. The declaration was revised on 21 January 2020 to reflect B&NES Council's amended declaration of a Climate and Nature Emergency (C&NE). The Parish Council appointed a C&NE Working Group (C&NEWG) in October 2019 with a remit to explore and report on parish wide inclusive initiatives to combat the C&NE that could be supported by the parish council. The C&NEWG focussed first on initiatives that could be taken by the parish council itself, followed by those that might be better promoted or managed in collaboration with other groups.

1.2 An interim report, including draft recommendations for action, was submitted to the Parish Council in June 2020. In its response the Parish Council identified a number of priority themes which it asked the working group to develop, with the aim of presenting a full C&NEWG report to the Parish Council later in 2020.

1.3 This report is the final report of the C&NEWG on Green Infrastructure (GI).

2.0 What is Green Infrastructure (GI)?

2.1 Green Infrastructure is broadly defined as "...*an interconnected network of natural areas and other open spaces that conserves natural ecosystem values and functions, sustains clean air and water, and provides a wide array of benefits to people and wildlife."*[1]

GI components

2.2 In the parish of East Harptree the features that commonly form part of the GI network are: field boundaries, grasslands, woodlands/parklands, and water/wetlands, with the increasingly important addition of gardens and road verges.

2.3 Research to inform the Interim Report identified a series of existing key GI resources in the parish as follows:

- Blocks of semi-natural or ancient woodland such as The Combe, The Grove, The Dell and Buckley Wood;
- The hedgerow network, particularly those with species diversity, a robust and wide structure and multiple links with other features;
- The streams, watercourses (and associated wetlands) such as Molly Brook and the River Chew corridor[2];
- Permanent grassland and species-rich meadows;
- Roads/lanes with verges and hedge banks;

[1] Benedict, M. and McMahon. E. (2006): Green infrastructure. Linking Landscapes and Communities

[2] Bristol Avon Rivers Trust (BART) efforts include the catchment across the parish, with initiatives to address flooding, improve water quality and restore wildlife habitat; see: https://bristolavonriverstrust.org/projects/

- The garden network[3].

2.4 Together these habitat networks perform functions that are critical to dealing with the effects of the C&NE:

- they support biodiversity – providing habitat, shelter and foraging for a wide range of species of flora and fauna, including species that are nationally and locally endangered or vulnerable to extinction[4], such as pollinators, bat species, dormouse and hedgehog; and

- they improve resilience to climate change - by capturing and storing atmospheric carbon dioxide, reducing soil erosion and pollution of the water environment, providing natural flood management, and supporting food production through grazing of grassland; and,

- as has been made clear during the *Covid19* crisis, where public access is available GI networks provide important recreational spaces and benefit for community health and wellbeing[5].

GI characteristics

2.5 The effectiveness of GI in performing these services depends on three core characteristics: individual features are connected, they are multi-functional, and they form part of a coherent network across the landscape.

2.6 The ecological foundation of a GI network is functional connectivity, sometimes expressed in terms of developing corridors or stepping stones that link important habitat features together. Linking such habitats helps to reduce the ecological isolation of small fragmented populations which may be particularly vulnerable to extreme climatic events such as droughts or flooding. Different species have different requirements for movement across the landscape and different capacities for dispersal. Some with limited mobility, such as ancient woodland plant species, will not be able to move fast enough to track projected changes in climate and 'assisted migration' may be the only way to ensure they reach potential new locations. Others, such as microorganisms that can disperse on the wind, are less affected by dispersal constraints, provided the prevailing winds are in the right direction[6]. The ability of mobile fauna (birds, mammals, insects, amphibians and reptiles) to move freely may be limited by physical barriers, such as arable crops and roads. Their access to supporting habitats, and population success, can therefore depend on the [presence of GI features such as hedgerows and waterways.

2.7 Improving the suitability of the agricultural environment for local wildlife can also help to protect existing sensitive and valuable features by providing a buffer, and in some cases, by linking adjacent features to effectively increase their size.

2.8 **Figure 1** shows an indicative representation of how such linkages function within a working and living landscape . The dependence of the way in which features are connected across

3 The Domestic Garden – Its Contribution to Urban Green Infrastructure, December 2012 Urban Forestry & Urban Greening
4 https://nbn.org.uk/wp-content/uploads/2019/09/State-of-Nature-2019-UK-full-report.pdf
5 Lovell, R., White, M.P., Wheeler, B., Taylor, T., Elliott, L. (2020) A rapid scoping review of health and wellbeing evidence for the Green Infrastructure Standards.
6 Natural England and RSPB, 2014. Climate Change Adaptation Manual

the wider countryside is significant to how the C&NE is tackled in a rural community, much of which is predominantly agricultural and managed by a number of different owners and tenants, with different business and personal perspectives on land use. The need for connectivity also demands a 'wider than parish' approach, founded on a local perspective but taking stock of and linking with GI networks across the wider neighbourhood and district.

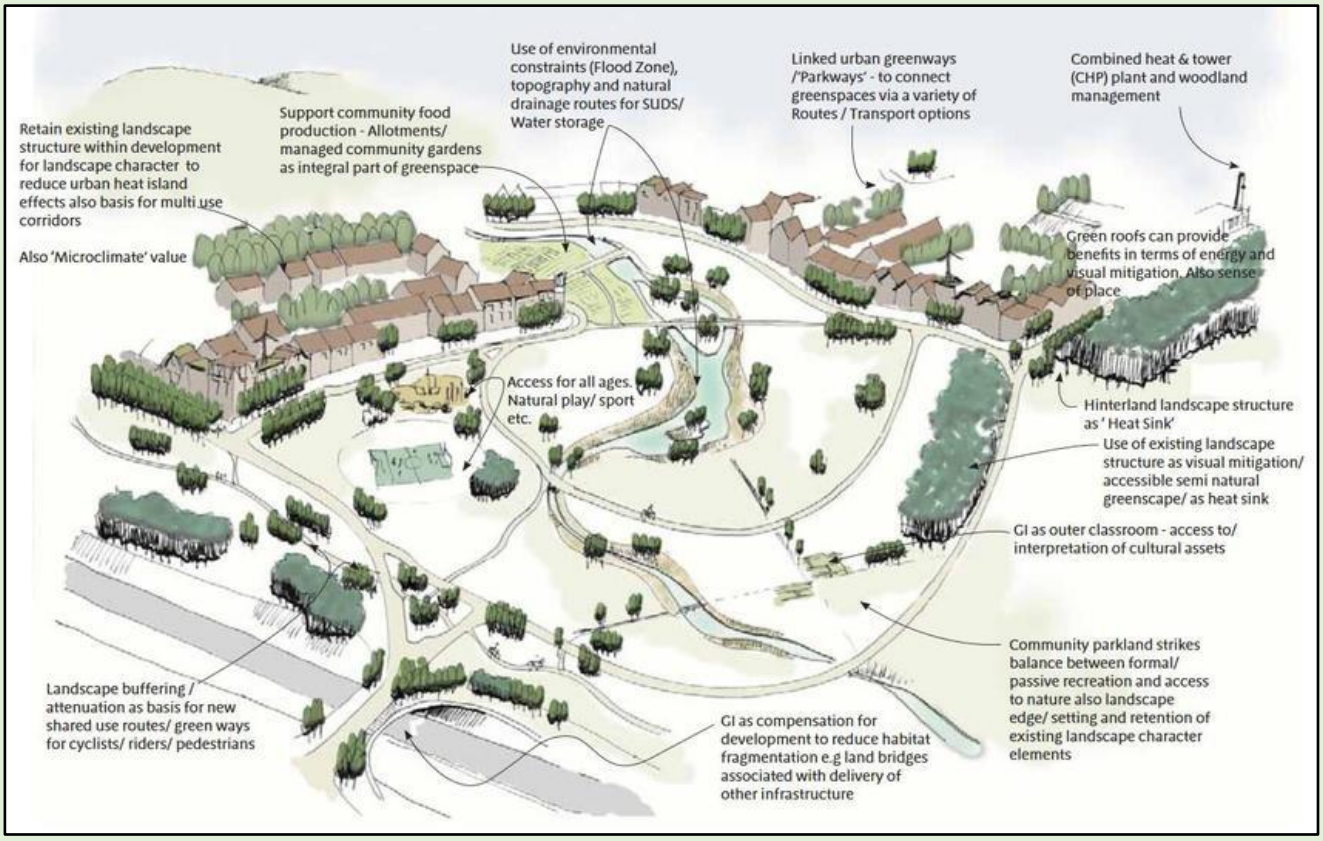


Figure 1 Green Infrastructure, Multifunctionality and Place-making – indicative[7]

3.0 POLICY CONTEXT

National and Regional Policy/Guidance

3.1 In its 2020 Reducing Emissions report to Government the UK Climate Change Committee stated that '*there are clear economic, social, and environmental benefits from immediate expansion of tree planting, peatland restoration, green spaces and other green infrastructure*'[8]. Prompted by such overwhelming evidence of the economic value of GI against costly impacts of climate change, government policy is now swinging firmly behind investment in GI.

[7] Natural England 2009, Making Plans for Green Infrastructure in England: Review of National Planning and Environmental Policies and Project Partners' Plans.

[8] Committee on Climate Change June 2020; Reducing UK emissions Progress Report to Parliament

BOX 1 Policy areas that are relevant to local investment in GI

The National Planning Policy Framework (NPPF) directs planning authorities to '*set a framework for the conservation and enhancement of the natural, built and historic environment, including landscapes and green infrastructure, and planning measures to address climate change mitigation and adaptation'*, and to plan new development *'in ways that: a) avoid increased vulnerability to the range of impacts arising from climate change. When new development is brought forward in areas which are vulnerable, care should be taken to ensure that risks can be managed through suitable adaptation measures, including through the planning of green infrastructure'*.

The 25 Year Environment Plan commits to '*draw up a national framework of green infrastructure standards, ensuring that new developments include accessible green spaces and that any area with little or no green space can be improved for the benefit of the community',* and to *'supporting Local Authorities to assess green infrastructure provision against these new standards'* and *'bring local groups together to improve both rural and urban environments, creating new habitat for wildlife to thrive*'.

The Agriculture Act, which received Royal Assent in November 2020, establishes a fundamental change in approach to agricultural management with the principle that land managers should be paid primarily to steward the land and deliver public goods, primary among which are activities which help to alleviate the C&NE. Environmental Land Management (ELM) schemes will in future pay farmers to invest in measures that rebuild essential nature capital assets such as pollinators and GI habitats, to mitigate or adapt to climate change, to restore soil, increase access to the countryside, or conserve the natural and cultural heritage. All of this represents a considerable challenge for farmers, to tackle climate change and restoring nature, while feeding a growing population, in the short Agricultural Transition Plan period of the next 7 years.

The Environment Bill, anticipated to be enacted early in 2021, lays the foundation for the Nature Recovery Network, and includes draft provisions requiring "biodiversity net gain", of at least a 10 per cent improvement in "biodiversity value" from all new development. Biodiversity improvements could include, for example, a green roof on a building, or an investment in GI as part of a new housing development, or it could comprise an offsite biodiversity gain site, away from the development site, at which habitat enhancement works must be carried out under a conservation covenant or planning obligation imposed on the development site. The enhancement must be maintained for at least 30 years after the completion of work on the development site.[1]

3.2 Common to all of the above policy and legal frameworks is recognition that delivery of climate and nature recovery cannot be achieved without collaborative action at all levels, and an expectation that local communities will be closely involved in delivery of new nature and GI networks in their areas.

Building with Nature

3.3 Notwithstanding the emerging government commitment to tackle the C&N, the announcement of a policy to 'Build, Build, Build', set out in the Planning White paper[9], caused considerable concern amongst communities, planning authorities and built environment professionals. Principle among concerns is that that quality and good environmental standards, including embedding of effective green infrastructure in new development, should not be diminished in the rush to accelerate the delivery of new homes and associated infrastructure.

3.4 This concern, together with the drive for investors and developers to gain market advantage in bringing forward sites with planning permission, mobilized the launch of the UK's first green infrastructure benchmark, Building with Nature[10]. The standards are free to use and are increasingly being applied across the UK by developers to support their applications for planning permission.

3.5 The scheme provides a framework of quality Building with Nature Standards for the design and maintenance of green infrastructure in housing and commercial development. It runs an assessment and accreditation service, and national awards and a certification mark recognise the design and delivery of high-quality green infrastructure, including wildlife, water and wellbeing. An example of how the scheme translates into GI on the ground is provided in Appendix C, which, although an urban scheme, illustrates how a developer can incorporate GI features into new development that tie into existing local GI networks.

Local Policy

3.6 The B&NES Placemaking Plan includes policies (CP7 Green Infrastructure and CP13 Infrastructure) that aim to protect and enhance the GI network and to ensure that all new developments are supported by necessary infrastructure, including green infrastructure. The Council also commits to working in partnership with key public and private bodies, local communities and the voluntary sector, and to ensure that GI is planned, delivered and managed as an integral part of creating sustainable communities[11].

3.7 The April 2020 Local Plan Partial Update Commencement document identified Policy CP7, together with a suite of nature conservation policies, to be updated in line with the Council's Climate and Nature emergency, the Environment Bill and sub-regional and local evidence. Further information about the revised policies is anticipated in January 2021.

3.8 As the C&NEWG began developing the parish-wide GI strategy the West of England Combined Authority (WECA) published The Joint Green Infrastructure Strategy (JGIS)2020-2030[12] which sits alongside and helps facilitate the delivery of other regional and local plans and strategies, including, the local Development Plan, GI strategies and supplementary planning documents and the Local Cycling and Walking Infrastructure Plan. The JGIS is aimed at multiple authorities and stakeholders, particularly strategic and policy planners, developers, managers of land and natural capital, communities and businesses.

[9] https://www.gov.uk/government/consultations/planning-for-the-future, August 2020
[10] https://www.buildingwithnature.org.uk/how-it-works
[11] B&NES Core Strategy and Placemaking Plan, District-wide Strategy and Policies, Adopted 2014 & 2017, pp119 – 124. Accessed at: https://beta.bathnes.gov.uk/sites/default/files/2020-02/cs_pmp_vol_1_district-wide_compressed.pdf
[12] https://www.bathnes.gov.uk/sites/default/files/joint-green-infrastructure-strategy-june-2020.pdf

3.9 Both the B&NES Green Infrastructure Strategy (2013)[13] and the B&NES Green Space Strategy2015-2029[14]are under review to respond to the WoE JGIS and set out how the Council will assist delivery of the JGIS Action Plan.

3.10 **Common to all of these documents is an aspiration for the Council(s) to work with partners and specifically, local communities, to make the most of green infrastructure features.** The plans are presented at a very broad strategic scale (the Green infrastructure network Core Strategy plan identifies the parish of East Harptree simply as largely within a 'Strategic Nature Area') but contain no detail. Strategic Nature Areas were identified as the best areas to maintain and expand terrestrial wildlife habitats by a desktop review and analysis of data held by Bristol Regional Environmental Records Centre (BRERC) and other agencies. To be effective at building GI capacity at parish scale, considerably more detailed local data is needed. Collection of such data is very unlikely to be resourced in the short to medium term by the plan making authorities.

Parish Council

3.11 Parish Councils are not land managers nor, unless they own or manage land, do they have specific powers in relation to the maintenance or establishment of new GI components. The National Association of Local Councils has, however, recently reviewed existing powers available to local councils and these include initiatives which relate to GI as a driver to tackling the climate and nature emergency[15] (Table 1, below, refers).

3.12 Parish councils already have a statutory right to be notified of any planning applications and other development in the parish, including by statutory providers[16]. This right can be used to ensure that relevant local information is given to the determining authority before applications for development consents are decided. Local councils can use their representation powers to question and hold the local planning authority to account to ensure that development is permitted only if it is fully consistent with adopted GI and nature conservation policies in the Local Development Plan, including the Neighbourhood Plan.

[13] https://www.bathnes.gov.uk/sites/default/files/gi_strategy_final_web_interactive_version.pdf
[14]https://www.bathnes.gov.uk/sites/default/files/banes_green_space_strategy_v10_0.pdf
[15] For the full list of powers available to local councils to tackle climate change and NALC recommendations for changes in policies and services to enable local councils to be more effective in tackling the climate and nature emergency, accessed at https://www.nalc.gov.uk/library/our-work/climate-change/3341-climate-change-lc-powers-sept-20/file.
[16] Including of water, sewerage, telecommunications and highways

TABLE 1: Local councils' existing powers to address or reduce climate change through initiatives relating to GI (source: NALC)	
Allotments and markets: (Small Holdings and Allotments Act 1908, ss 23, 26 and 42] (Food Act 1984, s. 50)	This allows the promotion of local produce and healthy eating, help to reduce food-miles &enable the provision of communal food-growing sites and initiatives, run by associations and cooperatives.
Burials etc: (Open Spaces Act 1906, ss 9 &10; Local Government Act 197, s.214; Parish Councils & Burial Authorities (Miscellaneous Provisions) Act 1970 s.1)	This can allow practices such as green burials, eco-friendly management etc
Commons, ponds, open spaces, recreation etc: (Open Spaces Act 1906, s.15; Highways Act 1980, ss 47)	Scope to plant trees on, and maintain, highway verges
Neighbourhood planning (Localism Act, 2011; Neighbourhood Planning Act, 2017 and National Planning Policy Framework)	Scope to include environmentally-friendly planning policies re design, routes, landscaping etc
Newsletters and websites (Local Government Act 1972, s.142)	Scope to use to promote good environmental practices, resource-sharing etc.
Community support and engagement (Local Government Act 1972 ss. 111, 140 etc)	Scope to encourage and support volunteers and the wider community with grants, loans, insurance protection, publicity, surveys, good-practice advice etc
General powers (Local Government Act 1972, s 137; Localism Act 2011, ss 1–8)	Scope to spend money and/or undertake work on a wide range of beneficial activities which are not prescribed in other legislation
Permitted development rights (Town and Country Planning (General Permitted Development) (England) Order 2015, part 12)	Councils may erect and operate, without the need to seek planning permission, a wide variety of small buildings, equipment and other structures on their land, for the purposes of any of their functions or public services. This can include a range of small 'green' developments

4.0 PROGRESS SINCE THE C&NEWG INTERIM REPORT

4.1 The Interim Report identified potential actions to be taken forward and/or investigated further. These, together with the Parish Council's response to the draft recommendations, are set out at **Appendix A**, which also summarises the work achieved up to date.

4.2 One of the key findings of the Interim Report was that objectives of the East Harptree Environment Group (EHEG) already closely reflected the C&NEWG research findings about how the parish council and wider community might tackle the effects of the nature emergency. The Parish Council's responses to the interim report were largely advisory, and offered support as appropriate to take forward initiatives led by EHEG. Appendix A shows that this relationship has been fruitful, and that EHEG has already progressed a number of the tasks. At the time of writing, an EHEG application to the parish council for CIL funding for a GI creation project at East Harptree Playing Field is awaiting decision.

4.3 This experience suggests that, given the existing workload for which the parish council is responsible, and the expertise and enthusiasm within EHEG and the wider community to engage with projects in the natural environment, a realistic and effective way forward is for

the parish council to be work with and advised by EHEG, as needed and appropriate, on C&NE GI matters in the parish.

4.4 Section 5, below, lists recommendations for action by the parish council to use its powers to promote and support a parish GI initiative. The recommendations are drawn from this report, and those carried forward but not progressed from the C&NEWG's Interim Report. The parish council is invited to consider and respond to the recommendations. Members of the C&NEWG and EHEG are available to discuss and answer questions if required.

5.0 RECOMMENDATIONS

The Parish Council to:

1. **use its planning consultation function to press for appropriate GI elements in all new development in the parish and, where possible, ask B&NES Council (and other consenting authorities) to seek *Building with Nature* GI certification to support the grant of development consents;**

2. **work with EHEG to develop a parish GI strategy – purpose of the strategy to (i) identify priorities for potential community action on GI and (ii) provide the parish council with details of an application site's local GI context to inform its response to planning applications;**

3. **seek contributions (via CIL and/or in kind) from housing and commercial developers to ensure that (i) existing GI habitats are protected from damage and (ii) are reinforced by any new development in the parish;**

4. **as appropriate to its statutory powers and functions, seek technical guidance from EHEG on detailed matters of local biodiversity and GI planning;**

5. **monitor its own activities, and proposals for changes in land management that fall within parish council powers (eg. tree planting schemes, roads and site maintenance, award of CIL monies) and ensure that impacts on baseline carbon sequestration and GI network integrity is fully understood before any action is taken;**

6. **encourage involvement and participation in activities that promote and support local GI investment by landowners, householders and community groups within the parish;**

7. **with EHEG, identify sources of grant-aid and sponsorship for community and landowner GI projects eg from B&NES Council, Mendip Hills AONB, national tree planting initiatives, charities eg The Woodland Trust;**

8. **work with adjacent parishes and EHEG to record, map and promote GI links between the parish and the wider area;**

9. **consider the feasibility of acquiring land to be managed as GI in trust for and by the community.**

APPENDIX A: PROGRESS SINCE INTERIM REPORT – TO DEC 2020

EAST HARPTREE PARISH COUNCIL CLIMATE & NATURE EMERGENCY WORKING GROUP
East Harptree Parish Council Response (in mauve text) to Interim Report recommendations (July 2020)

See Appendix B for full details of numbered tasks identified by EHPC for action in response to Interim Report

TOPIC	*GREEN INFRASTRUCTURE (GI)*
KEY TOPIC ISSUES	Need to safeguard the existing and add to EH parish GI network. Extend and manage the existing GI network to increase the volume of woody biomass. Encourage involvement by householders, landowners and developers.
SUMMARY	Investing in GI, nature and biodiversity offers opportunity to; restore existing and create new interlinked habitats, eg. woodland and hedgerows, reinforce existing GI and carbon sink function, and opportunity for cooperative effort with landowners. Short term and small gains can be made on public land and with willing landowners. Essential to clearly communicate the importance of GI to tackling C&NE and wildlife recovery.

SUGGESTED ACTION

Timescale	Action	By whom	Progress to 12/2020
Short term (0 – 6 months)	1. Identify existing GI features	*EHEG*	Ongoing (using GIS platform and fieldwork)
	2. Identify public/community land suitable for priority tree/shrub planting- EHEG to identify, PC can then help	*EHEG*	Completed (Churchyard and Playing Field) as TASK 1[17]
	3. Engage the community in planting to give early "feel good "factor and a foundation for a parish GI project	*PC and EHEG*	Ongoing with (2) above)
	4. Pressure B&NES to correct poor management of roadside hedgerows as key part of parish GI network Can we find a solution for this within the community rather than have BANES impose (restrictions). Ask David Wood to move forward with this after hedgerow survey	*PC and EHEG*	In hand - EHEG in correspondence with B&NES Council (TASK 2)
	5. Identify landowners sympathetic to GI initiative EHEG page on new website, reinforce the benefits of proper procedure	*PC and EHEG*	Tentative contacts made by EHEG
	6. Map and promote restored/new GI network	*EHEG*	Baseplan awaited from Wildlife Trusts
Medium term (within 1 year)	7. Begin implementation of new GI features	*EHEG*	Playing Field GI project planned – funding awaited. To be reviewed as pilot before further progress
	8. Publish written guidance to assist homeowners and landowners	*PC and EHEG*	Not yet started

[17] TASKS refer to the numbered Tasks identified in the Interim Report (see Appendix B)

	9. Source grant-aid/financial assistance	*PC and EHEG*	CIL funding sought for Playing Field GI project (TASK 3)
	10. Use Planning consultation powers to seek appropriate GI in all new development in the parish	*EHPC*	Status unknown? (TASK 4)
	11. Prepare material for EHEG page on new PC website	*EHEG/PC*	Draft 1 version provided – to be refined (TASK 5)
Long term (over a year)	12. Consider creating offsetting fund to support projects	*PC*	Not yet started
	13. Consider buying land	*PC*	Not yet started
	14. Extend/manage GI network	*Landowners/EHEG/ PC*	Status unknown?
FURTHER WORK REQUIRED			
• Monitor ash die back and its impact on woody resources		EHEG	EHEG started in conjunction with hedgerow survey
• Assess links with GI network (existing & proposed) adjacent to parish boundary		EHEG	Start once Action 6 is in place
• Collaboration with other emerging GI groups in area		EHEG	Start once Action 6 is in hand

APPENDIX B TASK & FINISH GROUP REPORT: GREEN INFRASTRUCTURE PROGRESS AGAINST TASKS: DECEMBER 2020

Tasks identified for action by EHPC response to WG Interim Report	REPORT	OUTCOME	TIMESCALE		OWNER
TASK 1: Explore opportunities and potential sites for parish/community tree/shrub planting scheme. Purpose: to extend tree and woodland cover & add CO2 sequestration resource.	Location identified for initial trial planting scheme at Playing Field. Planting plan currently being drawn up in consultation with key stakeholders (PFC and Cricket Club) for new tree/shrub wildlife corridor along western boundary.	Once detailed scheme/planting specification is agreed, EHEG to prepare and submit application for CIL funding.	Subject to approval of costs, planting work to be undertaken this planting season, i.e Jan -March 2021		EHEG
TASK 2: Promote improved hedgerow management practice via B&NES, landowners and agricultural contractors. Purpose: to strengthen/reinforce contribution of parish hedgerows to GI network	EHEG has written to B&NES asking for details of instructions to contractors. EHEG hedgerow survey group preparing reports to landowners on hedges already surveyed.	Plan showing hedgerow condition across parish, identifying priority areas for improvement and hedgerow tree planting	2021/2022		EHEG
TASK 3: Explore sources of grant-aid/financial assistance and use of CIL monies to support GI projects in the parish. Purpose: to fund projects which support biodiversity resilience to CE.	See TASK 1		2020/21		EHEG
TASK 4: Use Planning consultation powers to seek appropriate GI in all new development in the parish. Purpose: to deliver high quality landscape schemes/tree planting that adds to parish GI network	No action yet, pending discussion with EHPC on preferred approach	Potentially a Parish Councillors' guide on the best types of GI to seek from applicant to add to parish GI network.	Not known		PC
TASK 5: Prepare material for EHEG page on to EHPC website. Purpose: to provide helpful hints and publicise examples of good management practice to promote ecological gain.	Draft material supplied by EHEG to WG	Information source about good ideas to promote nature recovery	In hand		EHEG

Appendix C: Example of GI investment in new housing development

The Elderberry Walk HAB Housing development is located on a former school site in Bristol. It includes 161 homes in a mix of tenures, including social and ethical rent. The green infrastructure of the development has been designed to fit with the local area, retaining existing trees along the boundary and integrating with the surrounding neighbourhood by providing connectivity through a spine of green space. The design has been informed by local stakeholders and communities.

A detailed management plan has been provided to ensure that benefits are secured over time. The landscaping has been designed to be low maintenance, with options for management company or community involvement. The GI has been designed to provide a high level of connectivity between the individual features, providing multiple functions for people and wildlife.

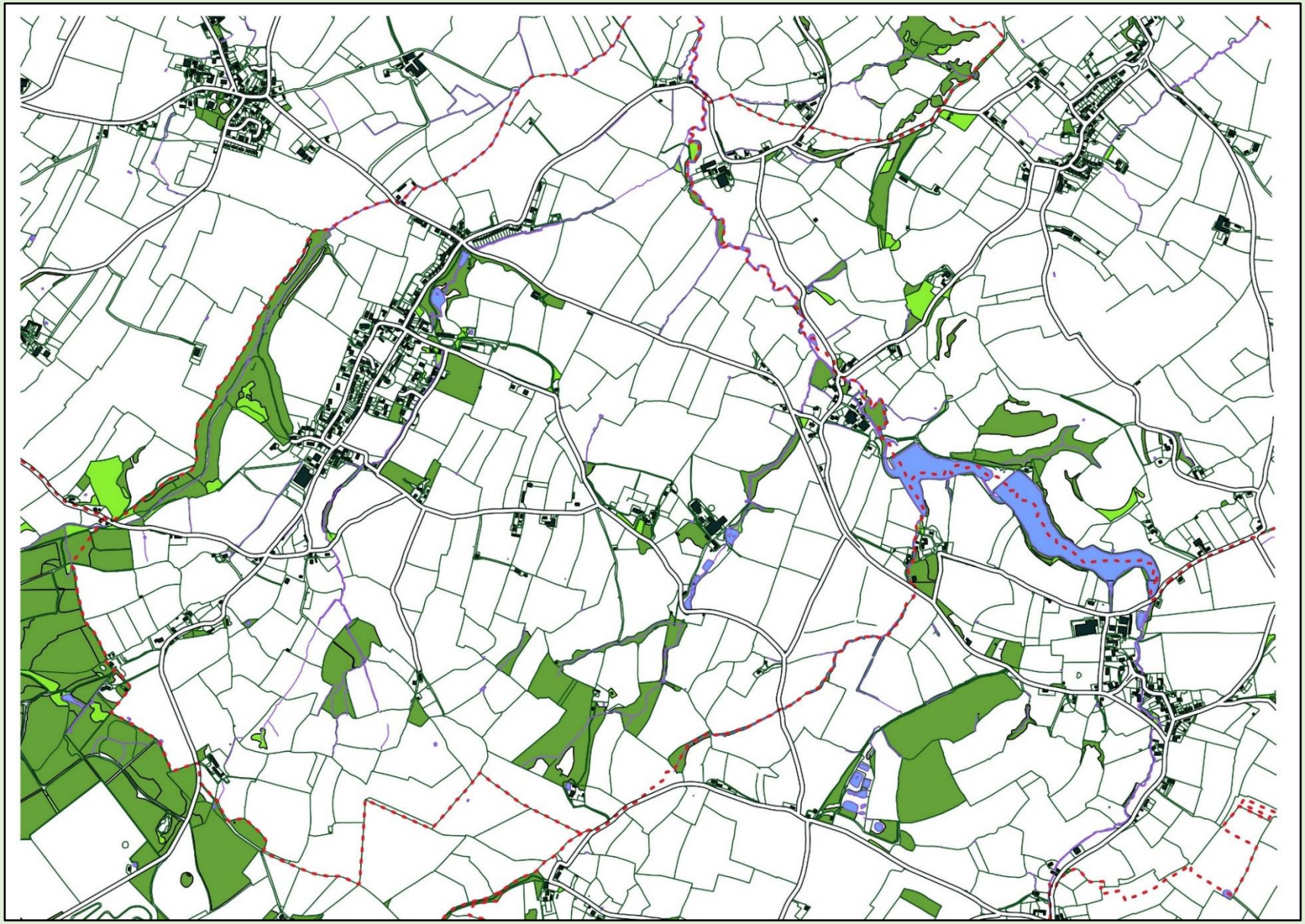
The development includes a SuDS system, with rain gardens, a swale combined with wildlife garden, and wildflower green roofs on bin and bikes stores. A mosaic of habitats is being provided: grassland habitats; trees, shrubs and hedges (with over 200 new trees); climbing plants on front elevations; edible planting in communal areas; and spaces for informal play. To deliver on the principles for nature, lighting has been designed to be sensitive to bats and to avoid light spill into woodland areas, and gaps in fences allow hedgehog movement through the site.

The design incorporates habitat creation, including for species that reflect the local context, and foraging opportunities for wildlife, and the provision of bat boxes and hedgehog shelters, along with guidance for householders. In addition, stepping stones of habitat are created with a mix of native species to increase resilience to climate change.

Appendix D: Illustrations showing existing parish GI with examples of simple measures to restore GI connectivity and develop/extend habitat networks

Note: These illustrations and photographs are personal or have been sourced from the web solely for the purposes of this report. We believe they are not subject to licence or copyright but it is recommended that, to respect the integrity of the photographer/owner, this report is not published in any form.

FIGURE 1 Map showing the existing landscape of East Harptree. The parish boundary is delineated with a red line. Blocks of woodland are shown in green, and field boundaries are shown. Note the fragmented and unconnected nature of the solid green areas. Some of the field boundaries are strong and robust hedgerows with links to other natural (green) features. Others are simple fences which provide no GI function. Overall, the East Harptree parish GI network is not functioning coherently and needs significant restoration.



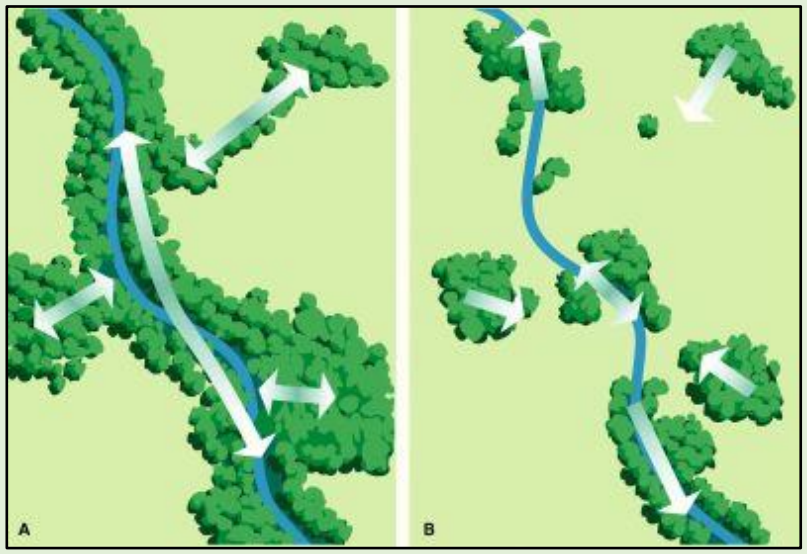


Figure 2 A simplified graphic comparing connected (A) and unconnected GI features (B), with B offering very little potential for wildlife movement between habitats.

New planting between isolated features restores connection and creates an intact network (A). Molly Brook, the River Chew and other streams which flow through East Harptree parish offer excellent opportunities as natural 'spines' upon which to enhance and develop habitats that strengthen parish GI.

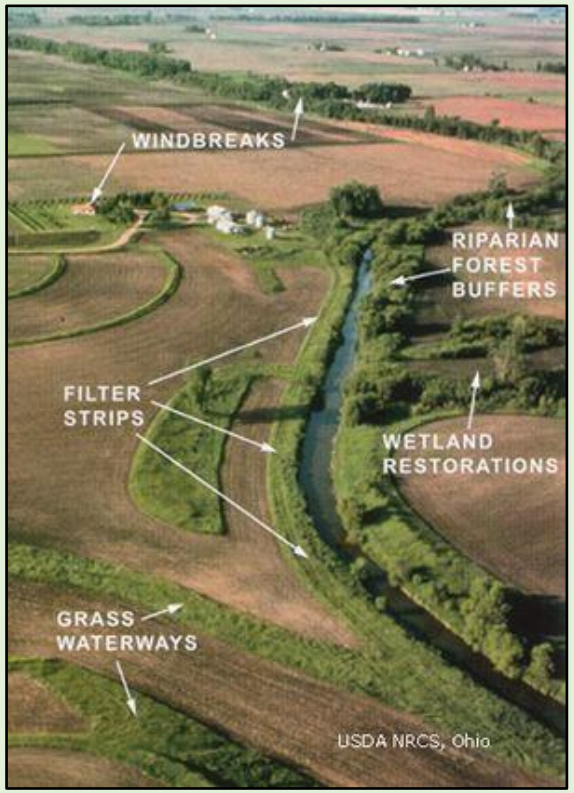


Figure 3 shows an aerial view along a watercourse where opportunities have been created for landscape and wildlife habitat improvement that link with existing 'green' features.

Figure 4. Ponds are easy to create, often take up little space and, in the right location, can become exceptionally rich habitat links in the GI network.

Figure 5. An aerial view of a typical section of the parish's landscape. Of note are the blocks of mature woodland and the linking wide hedgerows with mature trees. In contrast the hedgerows surrounding the larger fields (top right) have become narrow and have limited GI function. In such locations measures including supplementary hedgerow and field corner planting would strengthen the framework with little or no economic impact on agricultural production. (source: Google Earth)

Figure 6. Another aerial view of part of the parish, with the playing field seen in centre left. The ash-dieback infected trees on the northern boundary have now been removed and replanting as a GI restoration project is planned along the boundary.

Adjacent to the 'Molly Brook' a strip of recent planting undertaken by the landowner demonstrates an excellent example of habitat creation which strengthens the local GI network.

Figure 7. An example of a rural landscape with a rich GI, hedgerow connectivity to other habitats and areas of woodland. The scene is complemented with a mix of field uses which include semi-improved pasture and hay meadows (flower-rich meadows) similar to the agricultural context of the parish of East Harptree.

Figure 8. Roadside hedgerows and their associated banks are very important GI components. Recent years of heavy and unnecessary/unseasonal flailing has significantly damaged many such parish hedgerows and hedgerow trees.

Simple, low cost GI enhancement measures

Figures 9, 10 & 11. leaving field margins to develop naturally, and allowing the hedgerows to grow wider and taller by replacing annual cuts with a 2 – 4 year rotational cutting regime. May incur modest loss of productive land – from 2021 to be addressed via ELMS.

Figure 12 &13. Intense and unsympathetic flailing is taking its toll on many of our hedges Improved hedgerow management is critical to maintaining the parish GI network. Defra offers Good Practice Guidance to cutting methods, including flailing and laying, to maintain stock proofing and support biodiversity. Improved hedgerow management is included in ELMS.

Figures 14 & 15. New hedgerow planting should be encouraged wherever possible, from small sections to ‘infill’ planting where earlier hedgerows have been removed or allowed to degenerate.

Figures 16, 17 & 18. Whilst ambitious, creation of new woodland as part of a more effective parish GI plan should be considered. These examples require both investment and supportive landowners but with very significant long-term C&NE resilience benefits.

New woodland planting in East Harptree as part of a GI parish strategy could be of more modest scale.

Figure 19. Woodlands, both existing and newly planted, offer enormous benefits for wildlife, carbon sequestration and passive recreation.