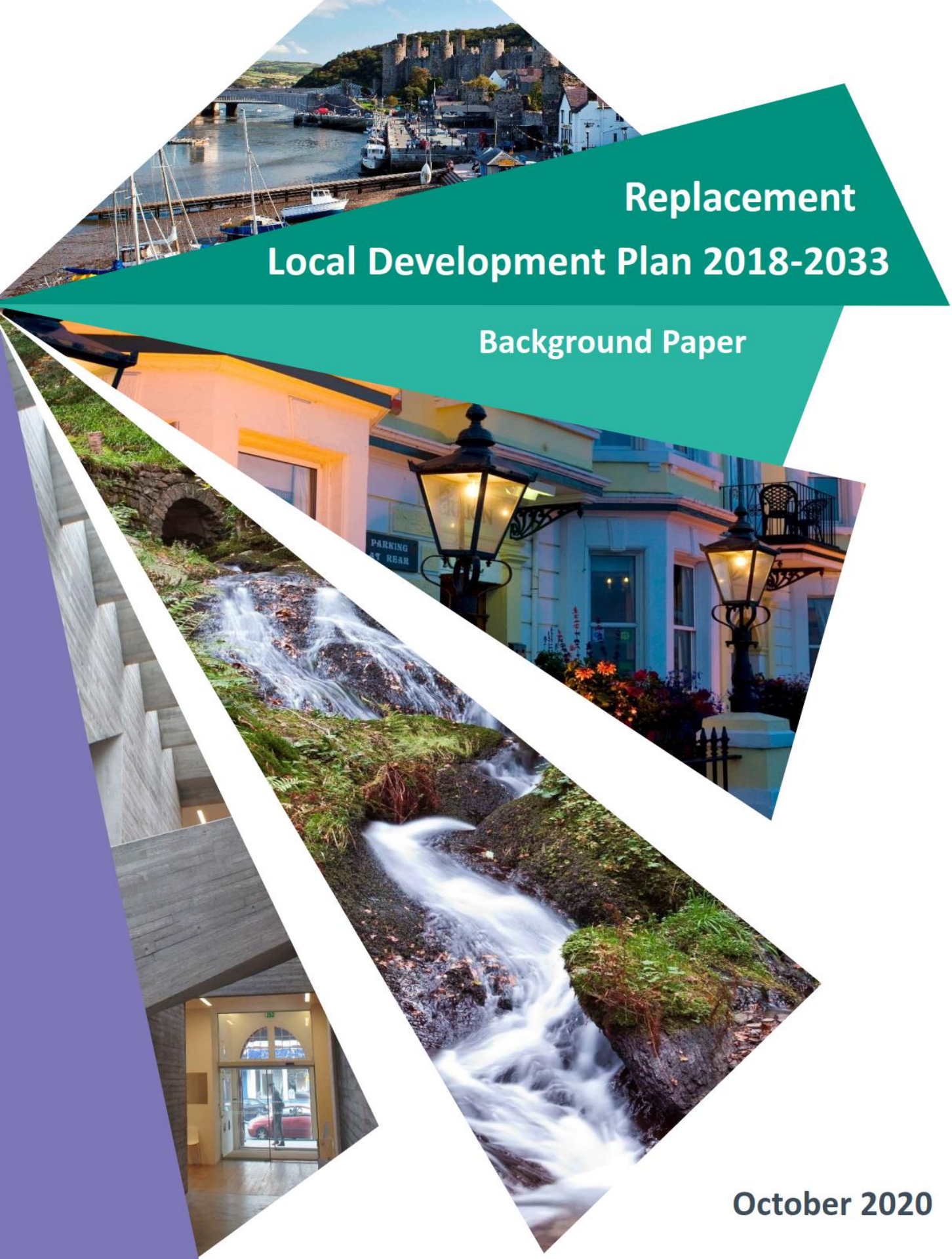

Replacement Local Development Plan 2018-2033

Background Paper

October 2020

BP 47: Green Infrastructure Assessment

CONWY
CYNGOR BWRDEISTREF SIROL
COUNTY BOROUGH COUNCIL

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This document has been researched and drafted by The Environment Partnership (TEP) Ltd in collaboration with Conwy County Borough Council**.**

Foreword

Green and Blue Infrastructure is vital infrastructure for the health of Conwy's residents, biodiversity and habitats. There is already a large amount of diversity within Conwy, but we now need to work with landowners, developers and community organisations on improving the quality, accessibility and multi-functionality of these assets and improving the linkages between them, especially within the urban areas.

Despite efforts to date, Conwy continues to face challenges including high levels of inactivity amongst residents, impacts of climate change especially flood risk, wildlife corridor severance, and the challenge of sustainably managing a growing visitor economy. These can all be improved by enhancing and expanding the Green and Blue Infrastructure network across Conwy which have seen increased and changes in use through the C-19 pandemic.

There are various existing projects, run by community groups and councils, NGOs and Conwy County Borough Council which protect and enhance the environment for local residents and we need to continue to support and encourage this excellent work.

The Assessment provides a guide to opportunities for a greener, healthier, more biodiverse and prosperous Conwy through Green Infrastructure integration in new development, through the Replacement Local Development Plan and community planning. It will hopefully lead to further GI integration and inter-departmental working to achieve enhancement through future projects across the County.

Signed

Cllr Charlie McCoubrey – Cabinet Member for Housing and Regulatory

Cllr Greg Robins – Cabinet Member for the Environment and Transportation

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Executive summary

Green Infrastructure (GI) is critical infrastructure for the health of Conwy's residents and wildlife. GI is the network of multi-functional green and blue spaces which provide ecosystems essential for people and nature to thrive. This GI Assessment, commissioned by Conwy County Borough Council (CCBC), will guide the delivery of a greener, healthier, more biodiverse and prosperous Conwy for the period to 2033.

Conwy's environment is already recognised internationally for its wildlife and there is great diversity and quality in the landscapes across the county borough. Busy coastal towns contrast with remote, rural inland areas, and sandy beaches and headlands are valued as much as the open moors and natural woodland bordering Snowdonia National Park. Conwy is rich in historic and environmental assets, with five designated sites of international importance.

There are a wealth of environmental projects, run by communities, landowners, businesses, NGO's, CCBC and Natural Resources Wales; all of which have GI at their centre and already go a long way towards increasing community engagement and environment enhancement.

But the county borough's ecosystems face the global challenge of rapid climate change and biodiversity decline which require concerted efforts at national and local level. Conwy itself continues to face its own local challenges including levels of inactivity amongst residents, concentrated pockets of deprivation, localised poor air quality, wildlife corridor severance, and the challenge of sustainably managing a growing visitor economy.

Wales is a leading nation in planning for sustainability – it is now five years since the Wellbeing of Future Generations (Wales) Act was implemented, aiming to guide all public decision-making towards seven wellbeing goals. High quality GI is essential to all the goals.

While most types of GI may have a primary purpose or function, by its nature GI is multi-functional, providing a range of benefits. This assessment has mapped the multi-functionality of Conwy's existing GI, giving a useful indication as to where investment in GI would be beneficial to result in maximum benefits for people and wildlife.

The need for creation, enhancement or protection of GI has been assessed through a range of forums including an evidence base review, stakeholder consultation, qualitative analysis and mapping. Typology mapping identifies where certain types of GI are lacking or abundant, and forms a basis for the rest of the GI Assessment. Local knowledge has formed a central role in the development of GI opportunities, in terms of sense checking spatial and qualitative analysis, and guiding the delivery of practical advice.

This assessment recommends a vision for Conwy's green infrastructure.

Vision

'By 2033, Conwy will be an even greener and more prosperous place to live, work, visit and invest. Green infrastructure will deliver benefits to health and well-being, support sustainable growth of the economy, underpin the county's response to climate change and provide connected and resilient ecological networks.'

To respond to Conwy's local context, help to realise environmental goals, and highlight areas where investment in GI can bring multiple benefits, the GI assessment identifies five priorities:

1. **Protect, enhance, create and restore habitats to create a resilient wildlife and biodiversity network;**
2. **Enable a thriving blue environment;**
3. **Promote sustainable growth and economic development through GI;**
4. **Encourage, enable and promote healthy lifestyles and enhance wellbeing;**
5. **Improve connectivity.**

For each of these priorities, the GI Assessment provides advice for the optimisation of Conwy's GI resources.

The GI Assessment also considers the specific challenges and opportunities for GI in five strategic sites and the potential Parc Hanes in Kinmel Bay. The latter is in public ownership and is an area of GI need in terms of open space quality, health deprivation and low tree canopy cover. A concept design has been prepared for the site demonstrating the opportunities for a multi-functional open space that would manage surface water flood risk, provide a wetland habitat network, maintain existing vegetation for biodiversity, create areas of play and enable a network of circulation routes for walking and cycling through a diverse environment near to the River Clwyd.

The report also provides guidance to assist the development and implementation of GI policies for the Conwy Replacement Local Development Plan (2018-2033). This includes:

- Strategic GI policy;
- GI in development planning;
- Recommendations for GI enhancement in terms of the five thematic priorities;
- Delivery of GI in the five strategic sites

1.0 Introduction

1.1 This Green Infrastructure Assessment (GIA) provides the guiding principles to support the creation of a multifunctional green infrastructure (GI) network, which supports and improves health and wellbeing, the economy, nature and biodiversity, contributes to tackling climate change and crucially, meets the needs of the local population. The GIA has been produced on behalf of Conwy County Borough Council (CCBC) and its preparation has involved the Council and a number of stakeholders.

1.2 Delivering and managing GI will need collaboration between CCBC, residents, landowners, partners and developers to maximise benefits for people and wildlife.

1.3 The GIA creates a bold vision for Conwy, by setting out a framework for high quality, accessible GI. The GIA is a strategic document but it also provides an evidence base for the delivery of projects and policy-making.

1.4 Well-connected and comprehensive multifunctional GI will enable Conwy County Borough to meet the aspirations of national legislation and policy. Planning Policy Wales (PPW) Edition 10 in 2018 notes that Welsh Government will prepare guidance on GI and its delivery within the planning system. This work is still in hand, but due to the need for CCBC to prepare its Replacement Local Development Plan (RLDP) 2018-2033, this GIA has been prepared using best available data sources. CCBC will continue to monitor any changes to legislation and policy in respect of GI.

What is Green Infrastructure*?*

Definition:

'Green infrastructure is the network of natural and semi-natural features, green spaces, rivers and lakes that intersperse and connect places' (PPW 10, 2018)

1.5 The GI features contributing to networks are wide-ranging, including but not limited to, parks and gardens, coast and beaches, woodlands, lakes, street trees, green roofs and walls, cemeteries and churchyards and allotments. Individually, these features are **GI assets**, though they each play one or multiple roles in the wider GI network, which are termed **GI functions**[1].

1.6 GI is multi-scalar, functioning at the landscape scale comprising whole ecosystems or broad environmental features such as mountain ranges, to the local scale where GI includes parks, watercourses and allotments. At street level, trees, hedgerows and roadside verges also contribute to the wider GI network. Work to improve the quality and multi-functionality of GI is just as important at all scales for a resilient and interconnected network of GI across the borough.

[1] Landscape Institute's GI Position Statement (2013)

Benefits of GI

1.7 GI is an important component of resilient, prosperous, healthy, equal, cohesive and vibrant communities due to the many 'ecosystem services' that GI features provide. Ecosystem services are the benefits that people derive from nature[2]. Figure 1 outlines the range of ecosystem services that GI can provide to communities and the environment. GI should be planned and restored to deliver the maximum number of benefits possible whilst meeting local need and being appropriate to the local environment.

Figure 1 – Public Benefits and Ecosystem Services provided by Green Infrastructure

Climate Change	Health and Wellbeing	Economic Growth and Investment	Biodiversity	Water Environment
Shading and Heat Amelioration	Improve Physical Health	Inward Investment	Increase Habitat Area	Improve water quality
Improve Air Quality	Improve Mental Health	Job Creation	Habitat Connectivity	Reduce Flood Risk
Carbon Storage	Sense of Place	Stimulate Tourism	Increase populations of protected species	Sustainable Urban Drainage
	Local, fresh food source	Increase Property Values	Healthy Soils	

1.8 In line with Planning Policy Wales (PPW) and the Wellbeing of Future Generations Act 2015, GI encourages a wider, sustainable and problem solving outlook which focuses on integrating and addressing multiple issues.

Multi-functionality

1.9 While most types of GI have a primary purpose or function, by its very nature GI is multi-functional, meaning that multiple functions co-exist. By promoting multi-functionality, GI allows the same area of land or water to perform several functions, offering a range of benefits for people and ecosystems.

[2] Ecosystem Services https://www.iucn.org/commissions/commission-ecosystem-management/our-work/cems-thematic-groups/ecosystem-services

1.10 Whereas the benefits of GI are experienced more broadly, GI functions refer to the specific use of parcels of land. For example, a scheme of street tree planting can add aesthetic quality to an urban area, provide shade along the street and support environmental health by reducing localised air pollution. These are GI functions. The benefits would be the wider, potentially less tangible contributions to people and nature, such as contribution to a strategic wildlife network, climate change adaptation and mitigation, sense of place, heritage and enhancing urban environments to attract inward investment. Across Conwy, baseline analysis has shown that GI can deliver up to 22 functions. This multi-functionality has been assessed and mapped, as described in Section 3.0.

1.11 GI functions, just like GI assets, operate at many spatial scales, and when working together can increase the resilience of the overall GI network.

Conwy County

1.12 Conwy County forms part of the North-West Wales landscape, characterised by a mix of extensive upland and coastal areas, as well as intervening lowlands and settlements. The county extends along the coast from Llanfairfechan in the west to Kinmel Bay in the east, and as far south as the small, rural villages of Cwm Penmachno and Cerrigydrudion in the south. There is great diversity in the landscapes across the borough. Busy coastal towns contrast with remote, rural inland areas, and sandy beaches and headlands are valued as much as the open moors and natural woodland bordering Snowdonia National Park. Conwy is rich in historic and environmental assets, with five designated sites of international importance.

A distinctive landscape

1.13 The Conwy valley is a distinctive landscape, forming a distinctive eastern edge to the Carneddau Mountains of Snowdonia, and the valley is followed by road and rail routes. The valley shows contrast between the meandering river through rolling lowland hills, woodlands and pasture, to Conwy town at the mouth of the river which is a ‘gateway’ town for Snowdonia. A number of locally important towns, main villages and smaller hamlets lie in the Conwy Valley, including Llanwrst, Tal-y-cafn, Dolgarrog and Tal-y-bont.

1.14 Conwy is home to many designated heritage features. Conwy Town Centre falls within a designated World Heritage Site, which is important in terms of its contribution to the tourism economy. The Great Orme at Llandudno is designated as Heritage Coast because its limestone cliffs and grassland are recognised as being among the nation’s finest coastal scenery. Cultural heritage is rightly celebrated for its role in providing distinct settings for Conwy’s towns. Integrating heritage assets into Conwy’s GI networks will stimulate cross-sectoral education and learning, and promote a sense of place.

1.15 Like the RLDP, this GIA covers the part of CCBC outside Snowdonia National Park, however the visual linkages and natural interactions between Conwy’s GI and the neighbouring National Park and its mountainous landscapes are important.

Settlements and Population

1.16 Planning for effective GI in Conwy must take into account Conwy's settlement patterns. 85% of Conwy's population is found along the narrow coastal belt. The remaining 15% are dispersed in rural settlements. The coastal town of Llandudno, a traditional Victorian seaside resort, is the largest populated area in the borough with approximately 20,000 inhabitants. The town lies on the Creuddyn Peninsula, protruding into the Irish Sea.

1.17 Conwy is the second largest settlement, with over 14,000 residents, followed by Abergele, Colwyn Bay and Towyn and Kinmel Bay. Other local important urban settlements include Llanfairfechan and Penmaenmawr to the west. All Conwy's coastal settlements are served by excellent road links and good public transport.

1.18 Llanwrst, an inland town settled along the River Conwy, 20km south of Conwy town, is also classed as an urban area as a result of its size. However it remains rural in character.

1.19 By 2036, Conwy will see a population increase of 1.7% predominantly in coastal areas, with the potential to increase pressure on existing GI resources. The greatest proportion of population growth will be in the 65+ age group, meaning that GI must be planned to suit the needs of older generations, being accessible and within walkable distances from homes.

1.20 High quality, joined up GI can also contribute to attracting a highly skilled workforce and the retention of the working age population which, in Conwy is predicted to continue to decline over the lifetime of the RLDP period up to 2033; hence the plan contains measures to attract jobs in various sectors appealing to family life. CCBC is progressing a number of Strategic Sites, and designing GI into these new housing and employment areas will add value, enhancing quality of place and quality of life.

Coastline and the River Conwy

1.21 Of the 56km of coastline for which CCBC is responsible, 37 km is protected by sea defences, though flood risk remains high. The Conwy Local Flood Risk Management Strategy (2013) notes the risk of tidally influenced flooding in several urban areas, such as Llanddulas, Llanfairfechan, Kinmel Bay, Llandudno, Old Colwyn (rail embankment) and the town of Conwy. Flooding is also an inland problem, with repeated flood events in towns along the River Conwy, including Llanwrst and Trefriw.

Stakeholder Consultation

1.22 Stakeholder consultation including workshops and focused interviews was a key component of the GIA and provided useful information in terms of existing GI initiatives within the area and a better understanding of key socio-economic and environmental priorities. Table 1 outlines a summary of the stakeholder consultation undertaken. The process of engagement has helped inform the vision, aims and objectives of the GIA, while stakeholders have also been able to share their excellent local knowledge and help identify whether existing GI is meeting local need.

Table 1: Outline of Stakeholder Consultation

Organisation	Respondent	Key comments
North Wales Wildlife Trust (NWWT)	People and Wildlife Officer	GIA needs to be informed by wildlife species and habitats records documented by NWWT and Cofnod.
North Wales Wildlife Trust	Living Landscapes Officer	More joined and connected habitats as recommended by the Lawton Report 'Making Space for Nature' (2010). Aspiration for more tree planting and land management measures to address need appropriate to the location.
Towyn and Kinmel Bay Town Council	Councillor	The Town Council is active in promoting multifunctional GI to support biodiversity, the health and wellbeing of residents and visitors and to mitigate the effects of climate change.
Conwy County Borough Council	Ecologist	Need for more consideration of strategic wildlife corridors. The GIA also to inform the emerging Natural Resources Action Plan for north and north east Wales.
Conwy County Borough Council	Community Engagement and Place Plans Officer	Each main settlement is developing its own 'Place Plan' and there is opportunity for GI to inform those plans. Intention for a 'Place Plan' to be developed for each of the five strategic sites.
Conwy County Borough Council	Environment and Open Spaces Officer	General comment - provision for open space meets local need. But lack of revenue funding available following initial capital investment. Definite need for more urban tree cover and SuDS features to mitigate surface water flooding.
Conwy County Borough Council	Tree Officer	Loss of street trees over time & lack of street tree planting programmes in recent years. Street trees initiative needed in urban areas; to include guidance as streetscapes can be heavily constrained.
Denbighshire County Council	Planning Officer	Need for the Conwy GIA to make policy recommendations. Important consider cross border links with reference to the open space assessment and active travel routes.

Organisation	Respondent	Key comments
North Wales River Trust (NWRT)	Representative	NWRT undertook a survey of Conwy catchment over summer 2020 with an action plan to follow. Current joint programme on Conwy catchment with National Trust & Snowdonia National Park.
Sustrans	Network Development and Partnerships Manager	Highlighted existing and potential coastal defence works. Opportunities for improved access facilities for walking and cycling along coast.

1.23 From stakeholder consultation, it became clear that stakeholders working in Conwy have a clear understanding of the multi-faceted nature of GI. Further collaboration among stakeholders working on GI was advocated to reap the most benefits for people and nature, so having one place to bring together opportunities and ideas for GI interventions was deemed necessary.

1.24 Consultation also provided a snapshot of the existing GI projects, initiatives and programmes underway as well as aspirations and goals going forward. For example, Cartrefi Cymru (a housing association) is already working on a range of planned environmentally focussed regeneration schemes including creating multi-functional natural play spaces within the Tre Cwm estate in Llandudno, and a diverse, communal green space at Glanrafon in Llanwrst which will function for play, biodiversity, sustainable drainage, flood resilience and a vital green-corridor.

1.25 The NWRT are undertaking a survey of the Conwy catchment in 2020 to inform their work going forward, and this may inform the work of other stakeholders too. Some town councils are already playing an active role in advocating for GI including Towyn and Kinmel Bay Town Council, where the Chester Avenue Woodland project was successful.

1.26 Internally to CCBC, actions and projects have been going ahead to develop the county borough's GI resource. The Place Plans Officer is working directly with local communities, addressing concerns on access to open space. There are coastal schemes in their infancy to improve accessibility, flood resilience and recreational amenity.

North West Area Statement – Natural Resources Wales

1.27 In 2020, NRW published the first version of their Area Statements which cover seven different, diverse parts of Wales. The Area Statements set out the key challenges and opportunities to strengthen ecological networks and ecosystem services at a local scale. They identify areas where taking action at the right scale can maximise benefits. Priority areas for action identified in Area Statements will be a material planning consideration.

1.28 NRW place a strong emphasis on community consultation, which can be built on through the Conwy GIA. By taking forward key actions at a local level, the GIA can be one of multiple locally responsive tools and actions which can tackle area-wide priorities.

1.29 The proposals set out in the North West Area Statement have informed the key themes and objectives of the Conwy GIA. Due to its breadth and influence, stakeholders identified the climate and environment emergency as the most important and overarching theme for the North West Area Statement. Other themes include:

- Encouraging a sustainable economy: identifying sustainable approaches to economic opportunities that enhance the natural resources unique to the North West;
- Reconnecting people with nature: enabling communities to reconnect, understand, engage and influence the creative use of the local natural environment;
- Opportunities for resilient ecosystems: working to reverse the decline, and act to enrich biodiversity; and
- Supporting sustainable land management: working with air, land and water managers across North West Wales to develop sustainable resource management.

1.30 The Area Statement will be updated regularly and improved year-on-year, and the opportunities identified in the GIA will be updated throughout the RLDP period (2033) to ensure a joined-up approach to overcome the complex challenges faced by the natural environment.

Climate Change and Environment Emergency

1.31 The climate and environment emergency encompasses all objectives, and therefore forms a central role within this GIA. For example, proposals to create a resilient wildlife network, though tree planting initiatives, connecting wildlife and habitats and better management of soils will contribute to carbon storage, decrease sealed surface cover and contribute to shading.

Vision for the Green Infrastructure Assessment

Vision

'By 2033, Conwy will be an even greener and more prosperous place to live, work, visit and invest. Green infrastructure will deliver benefits to health and well-being, support sustainable growth of the economy, underpin the county's response to climate change and provide connected and resilient ecological networks.'

1.32 Conwy's natural environment is unique and varied, and the economy and population rely on its valuable natural assets. The GIA recognises the GI assets that Conwy already has and the importance of managing them in the most effective way for people and nature. There is also a need for new GI to support population growth, combat the climate and ecological emergency, and respond to local needs for accessible green spaces.

Aims and Objectives

1.33 The aims and objectives for the Conwy GIA are broadly aligned with the themes of the NRW Area Statement for North West Wales, though have been shaped through county specific stakeholder consultation and baseline research to address the needs of Conwy County Borough.

1.34 The GIA has five priorities to deliver the vision of a resilient GI network across Conwy. The priority areas include biodiversity, the water environment, economic development, health and wellbeing and connectivity.

1.35 The five priorities are interconnected, with the ability to deliver multiple benefits. Each priority has a lead aim and several objectives:

- **Protect, enhance, create and restore habitats to create a resilient wildlife and biodiversity network**
    - *Protect and enhance designated sites of biodiversity value;*
    - *Increase the area and quality of land regarded as being of high biodiversity value;*
    - *Improve linkages and connectivity between habitats.*
- **Enable a thriving blue environment**
    - *Improve water quality by working with landowners to reduce pollutants and sediment entering watercourses;*
    - *Advocate for sustainable drainage systems (SuDS) and retrofit SuDS into the urban environment;*
    - *Influence the design of new development for sustainable water management.*
- **Promote sustainable growth and economic development through GI**
    - *Deliver attractive, investible environments through GI;*
    - *Enable the visitor economy to thrive by creating attractive, gateway environments;*
    - *Encourage 'green tourism' by improving access to visitor assets and the countryside.*
- **Encourage, enable and promote healthy lifestyles and enhance wellbeing**
    - *Improve air quality in urban areas;*

- *Improve the quality, availability and accessibility of recreational opportunities;*
- *Reduce health inequalities by improving greenspace access for all;*
- *Improve access to locally grown food.*

- **Improve Connectivity**
  - *Reconnect people with nature;*
  - *Enhance rights of way and cycle networks to encourage healthy lifestyles;*
  - *Make it possible, safe and simple to walk and cycle to work and school.*

1.36 These aims inform the Needs and Opportunities Analysis in Sections 4.0.

2.0 Policy Context

2.1 The GIA is part of a wider sustainability framework for Conwy, in particular the Replacement Local Development Plan (RLDP) 2018-2033. CCBC began a review of the LDP in October 2017 under their duty to ensure that the Plan remains fit for purpose. This GIA forms part of the evidence base for the RLDP. Conwy forms part of a Welsh jigsaw of landscapes and ecosystems where there are national commitments to sustain and restore the environment in the face of climate change.

2.2 This assessment demonstrates how multifunctional GI will enable the borough to meet the requirements of Welsh legislation and policy. Appendix 1 provides a full summary of the policy and legislation reviewed for the purposes of this GIA, with headline findings provided below.

National Planning Legislation and Policy

Climate Emergency

2.3 On 29 April 2019, the Welsh Government declared a Climate Emergency in Wales. The Minister for Environment, Energy and Rural Affairs Lesley Griffiths said:

"I believe we have the determination and ingenuity in Wales to deliver a low carbon economy at the same time as making our society fairer and healthier. Tackling climate change is not an issue which can be left to individuals or to the free market. It requires collective action."

Wellbeing of Future Generations Act (2015)

2.4 The Well-being of Future Generations Act places a duty on public bodies to carry out sustainable development, requiring an improvement in the delivery of all four aspects of well-being: social, economic, environmental and cultural.

2.5 The Well-being Act has established seven well-being goals which are intended to shape the work of all public bodies in Wales:

- A Resilient Wales
- A Healthier Wales
- A More Equal Wales
- A Wales of Cohesive Communities
- A Wales of Vibrant Culture and Thriving Welsh Language
- A Globally Responsive Wales
- A Prosperous Wales

Environment (Wales) Act (2016)

2.6 The Environment Act sets out principles for promoting a joined-up and sustainable approach to the management of natural resources and ecosystem services in Wales.

2.7 A duty is set out for Councils to protect and enhance biodiversity and maintain resilient ecosystems.

Climate Change Act (2008)

2.8 At the core of the Act, adopted by the UK Government in 2008, is the 2050 target to reduce UK greenhouse gas emissions by at least 80% relative to 1990, and the system of carbon budgets that provide five-year stepping stones to the 2050 target. They can be met through a combination of measures including natural solutions which encompass GI for carbon storage, food production and reducing the need to travel by car.

Planning Policy Wales (PPW) Edition 10 (2018)

2.9 PPW10 places new emphasis on delivering multi-functional benefits within development through the provision of integrated GI.

2.10 Placemaking now forms the core of PPW, which is a holistic approach to the planning and design of development and spaces. It considers the context, function and relationships between a development site and its wider surroundings, to promote people's prosperity, health, happiness, and well-being in the widest sense. Sustainable place making is an inclusive process, involving all of those with an interest in the built and natural environment. Planning for GI requires this multi-dimensional approach to planning, designing and managing areas which is the core of placemaking.

Draft National Development Framework (NDF)

2.11 The Draft NDF is an emerging development plan which will set the direction for development in Wales from 2020 to 2040. It sets a strategy for addressing key national priorities through the planning system, including sustaining and developing a vibrant economy, decarbonisation, developing resilient ecosystems and improving the health and well-being of our communities.

2.12 The Draft NDF outlines the importance of GI and biodiversity enhancement in urban areas for sustainable growth, whilst reducing the need to travel by car by embedding GI as integral to transport networks.

Policy 8 – Strategic Framework for Biodiversity Enhancement and Ecosystem Resilience

2.13 Supporting Strategic GI is the focus of Policy 8 for its role in reversing the decline of biodiversity and increasing the resilience of ecosystems. It is advised that existing designated sites are expanded and links between sites are enhanced for ecological networks. The NDF states that action may need to be taken to safeguard land to enlarge or connect designated sites for their long term resilience, and this should be set out through local authority GIAs.

2.14 Specific to urban GI, the NDF advises that local authorities must maximise the well-being benefits of GI in and around urban areas whilst restoring natural features and ecological networks in urban landscapes. Locally accessible, high quality green spaces and corridors are a priority under Policy 8.

Policy 9 – The National Forest

2.15 The Welsh Government has set a target to increase woodland cover in Wales by at least 2,000 hectares per annum from 2020. Policy 9 outlines the commitment to developing a National Forest to help achieve this target, which will be delivered through identifying appropriate delivery sites, mechanisms for delivery and action to safeguard land.

Local Policy

2.16 National legislation and policy is supported by CCBC strategy, policy and guidance.

2.17 The current Conwy Local Development Plan (LDP) was adopted in October 2013 and covers the period 2007 – 2022. CCBC are now in the process of preparing a Replacement LDP (RLDP) covering 2018-2033. The purpose of this GIA is to inform the RLDP.

Conwy's Priorities

Climate Change

2.18 In May 2019, CCBC publicly stated that they are committed to taking action to reduce greenhouse gas emissions. Similarly, '*the Council notes that the effects of climate change and extreme weather events have already had an impact on residents within the county, and those living in increasingly high flood risk areas*.' Developing a range of GI opportunities to inform the RLDP sits against the backdrop of climate change, meaning issues such as flooding, biodiversity and sustainable travel are now more important than ever within the planning process.

Sustainable Economic Growth

2.19 Conwy's Economic Growth Strategy 2017-2027 is set within the context of the single economic growth vision for the region developed by Conwy and other North Wales local authorities, the private sector, and further and higher education partners through the North Wales Economic Ambition Board. The vision is to see major infrastructure developments across the region.

2.20 The Strategy identifies strategic initiatives which can both create and improve jobs within the local economy, moving from seasonal to year-round employment. The strategy identifies the two cross-cutting themes which support growth and relate to GI, outlined in Table 2.

Table 2: The relationship between GI and themes within the Economic Growth Strategy

Theme	Description	How can GI contribute to meeting the theme?
Infrastructure that Enables Growth	Making the county a magnet for people who want to set up and grow dynamic, forward looking business	GI can be one of many factors which contributes to creating the conditions for sustainable growth, by providing attractive spaces and spurring inward investment. Prosperous towns must also be resilient towns in the face of climate change. The co-benefits of GI in urban infrastructure are numerous, including higher financial returns on property, and more efficient water supply and management. Many of these co-benefits can have an impact on the viability of future investment and business growth.
Transformational Tourism	Making Conwy a truly international, year-round destination	Conwy will need to operate as an international destination across all aspects of the visitor experience throughout the County, which requires sustainable destination management. Sense of place and perception are key aspects of visitor experience, and GI can contribute to improving both due to its ability to encourage interaction with nature. GI can also be utilised for 'gateways' to Conwy's key tourist assets where appropriate. Greenways and green corridors have the potential to better connect tourism assets and improve the overall visitor experience.

Natural Environment

2.21 RLDP Topic Paper 6 Natural Environment, published by CCBC in August 2018, states that the *'RLDP will work to protect and enhance sites of international, national, regional and local importance. This in turn has benefits on tourism, green infrastructure, and health and wellbeing opportunities*.'

2.22 The Topic Paper places a strong emphasis on safeguarding and enhancing the character and appearance of the undeveloped coast.

Tourism

2.23 The focus of RLDP Topic Paper 4 Tourism, published by CCBC in September 2018, is to protect and enhance coastal and rural based tourist attractions and accommodation, further exploiting the potential to develop, strengthen and encourage an all year round tourism industry.

2.24 Tourism is an important part of the Conwy economy, supporting 12,208 full-time equivalent jobs directly or indirectly, bringing £839m revenue to the County's economy annually. The Visitor Economy is stated to be far more wide reaching than the direct impact of just the tourism element alone, especially for rural communities. GI can create attractive, sustainable settings for tourism infrastructure and attract inward investment.

Transport

2.25 RLDP Topic Paper 8 (September 2018) raises the key issues in relation to transport that require change in the review of the LDP. Aligning with other key themes, the Transport Topic Paper states that the RLDP should include further objectives around how sustainable transport can be integrated into the plan area, including incorporating new guidance on GI and sustainable drainage. This will entail balancing the need for sustainable growth with the location of new allocated sites for development.

Recreational Spaces

2.26 Within Topic Paper 12, CCBC recognises that recreational spaces are valuable both for their ability to promote healthy physical activity and health and well-being, as well as their role in nature conservation and biodiversity. The open space requirements and distance parameters outlined in Topic Paper 12 are taken forward in this GIA.

2.27 Other key points set out in Topic Paper 12 of relevance to the Conwy GIA include:

- *'The Council should provide a framework for well-located, good quality sport, recreational and leisure facilities.*
- *The RLDP should set clear policies for the provision, protection and enhancement of sport, recreation and leisure facilities. These should set standards of provision so that local deficiencies are identified and met through the planning process*.'

Conwy Rights of Way Improvement Plan 2019-2029

2.28 The Plan includes a Statement of Action which comprises 5 main aims:

1. Ensure that the public rights of way network is open and available for users;
2. Provide an up-to-date and widely available Definitive Map and Statement;
3. Provide a more connected, safe and accessible network suitable for all users;
4. Improve the promotion, understanding and use of the network; and
5. Encourage greater community involvement in managing local rights of way.

2.29 Through the ROWIP, links to the Wales Coastal Path should be maintained to a high standard. The section which runs through Conwy follows the coastline as well as having a circular link across Conwy Mountain. The strategic management of the project is now undertaken by a Natural Resources Wales (NRW) funded post. The ROWIP is written in the context of reduced resources compared to past levels and hence greater reliance on landowner activity.

Conwy Council Borough Council Corporate Plan 2017-2022

2.30 CCBC's vision as outlined in the Corporate Plan is to be a 'progressive County creating opportunity.' The relevant themes of the Corporate Plan to the Conwy GIA are outlined in Appendix 1.

Evidence Base

Town Tree Cover in Conwy County Borough (2016)

2.31 This study[3] forms part of the wider NRW 'Tree Cover in Wales' which assesses urban tree canopy cover across the country using data from 2013. The aim of the work is to provide decision makers with the baseline information needed to strategically plan and manage the urban tree resource. It focusses on tree canopy cover rather than counting individual numbers of trees as it is mostly through crown spread that trees deliver benefits.

2.32 The mean canopy cover for urban areas in Conwy County Borough was estimated at 13.8% for 2013 as a percentage of the urban footprint, down from 14.6% in 2009.

2.33 The study compares canopy cover for the 11 urban in Conwy County Borough, with the highest canopy cover being: Llanfairfechan (23.7%), Penmaenmawr (22.6%) and Conwy (22.2%). The lowest canopy cover is found in: Towyn / Kinmel Bay (6.4%), Llandudno (7.7%) and Tywyn / Deganwy / Llandudno Junction (11.3%).

2.34 The study considers that adopting canopy cover targets helps to drive urban tree management and provide a useful benchmark for local planning authorities.

2.35 The study highlights the low levels of tree cover in Towyn / Kinmel Bay and Llandudno and the potential for a planned approach to improve canopy provision for the future socio-economic well-being of local communities as well as addressing needs of air quality and flooding.

2.36 The ward level analysis provides further insight where targeted tree planting might be needed.

Best Practice Guidance

CIEEM Guidance

2.37 Ahead of the forthcoming Welsh Government guidance on GI and its delivery within the planning system, following the publication of PPW10, CIEEM Welsh Policy Group published recommendations in 2019 for implementation of GI within development and decision-making. These included:

- Have a greater emphasis on multi-functionality and early engagement with stakeholders;
- Make reference to net gain;
- Ensure blue infrastructure is considered within masterplanning; and
- Have a greater emphasis on 'refurbishing' grey infrastructure e.g. railway tracks, roads.

[3] Natural Resources Wales (2016), Town Tree Cover in Conwy County Borough

Landscape Institute (LI) Position Statement: Green Infrastructure (2016)

2.38 The aim of the LI Position Statement is to give public and private sector bodies, clients and natural and built environment professionals fresh insights into the benefits GI can bring by creating multifunctional landscapes and show how people can collaborate to deliver it.

2.39 The Position Statement outlines seven steps for developing a strategic approach to GI, as well as an extensive list of recommendations for the production of GI Strategies and Plans. The recommendations have been reviewed and translated into the methodology for the production of this GIA. A sample of these recommendations are as follows:

- By its nature, GI often crosses administrative and operational boundaries, and we believe that this should be addressed through joint-working between national bodies and local authorities;
- An integrated approach should be adopted. GI offers a way not only of tackling specific challenges head on, but of realising multiple secondary benefits at the same time;
- Developers should be aware of an area's strategic GI goals and appreciate how those goals contribute to mitigating the environmental impacts of new development to create distinctive places.

3.0 Conwy's Green Infrastructure

3.1 Conwy has a unique natural environment, with varied landscapes and an extensive coastline. A strategy to maintain and improve existing valuable GI assets, as well as creating new GI in response to local need, starts from an understanding of the existing resource. Through GIS mapping, a baseline has been developed which outlines the existing 'typology' and 'multi-functionality' of Conwy's GI. The GIS mapping of typology and multi-functionality follows the widely-used method developed by the Mersey Forest since 2008. The mapping process uses a range of publically available datasets and datasets provided by the Council and is strategic in nature. There may be some minor anomalies between the mapping and actual detail 'on the ground' and this could be addressed by further detailed mapping work outside the scope of this study.

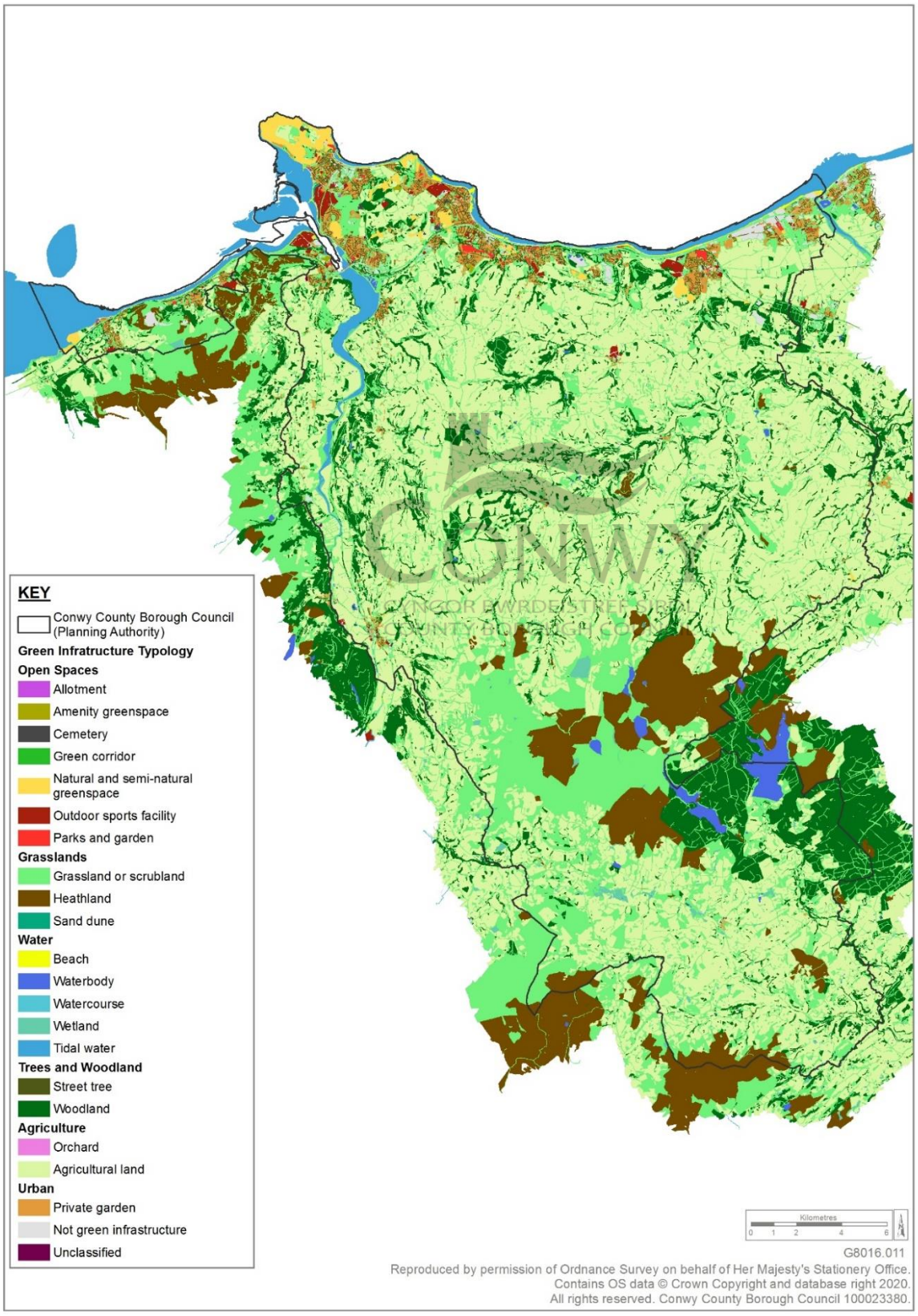
GI Typology

3.2 96% of Conwy is green. Table 3 summarises GI in terms of different typologies. Figure 2 illustrates this. As noted earlier, this excludes the Snowdonia National Park.

Table 3: GI in Conwy by typology

Typology	Area (Ha)	Proportion of Conwy (%)
Agriculture	41,627.76	57.55
Grassland Or Scrubland	9,873.18	13.65
Woodland	7,492.91	10.36
Heathland	4,031.81	5.57
Tidal Water	2,038.23	2.82
Private Garden	1,628.72	2.25
Natural Greenspace	587.38	0.81
Waterbody	533.83	0.74
Wetland	462.52	0.64
Outdoor Sports Facility	427.70	0.59
Watercourse	215.90	0.3
Street Tree	131.51	0.18
Beach	122.45	0.17
Parks And Gardens	88.38	0.12
Amenity	72.80	0.1
Cemetery	35.79	0.05
Sand Dune	16.53	0.02
Green Corridor	3.62	0.01
Allotments	6.33	0.01
Orchard	3.03	<0.01
Total GI	**69,400.39**	**95.94**

Figure 2: GI Typology across Conwy



3.3 As shown in Figure 2 and 3, almost 58% of Conwy County is agricultural land, comprising large areas of the borough away from the coastal belt. Agriculture and forestry are important industry and employment activities in the predominantly Welsh speaking rural areas.

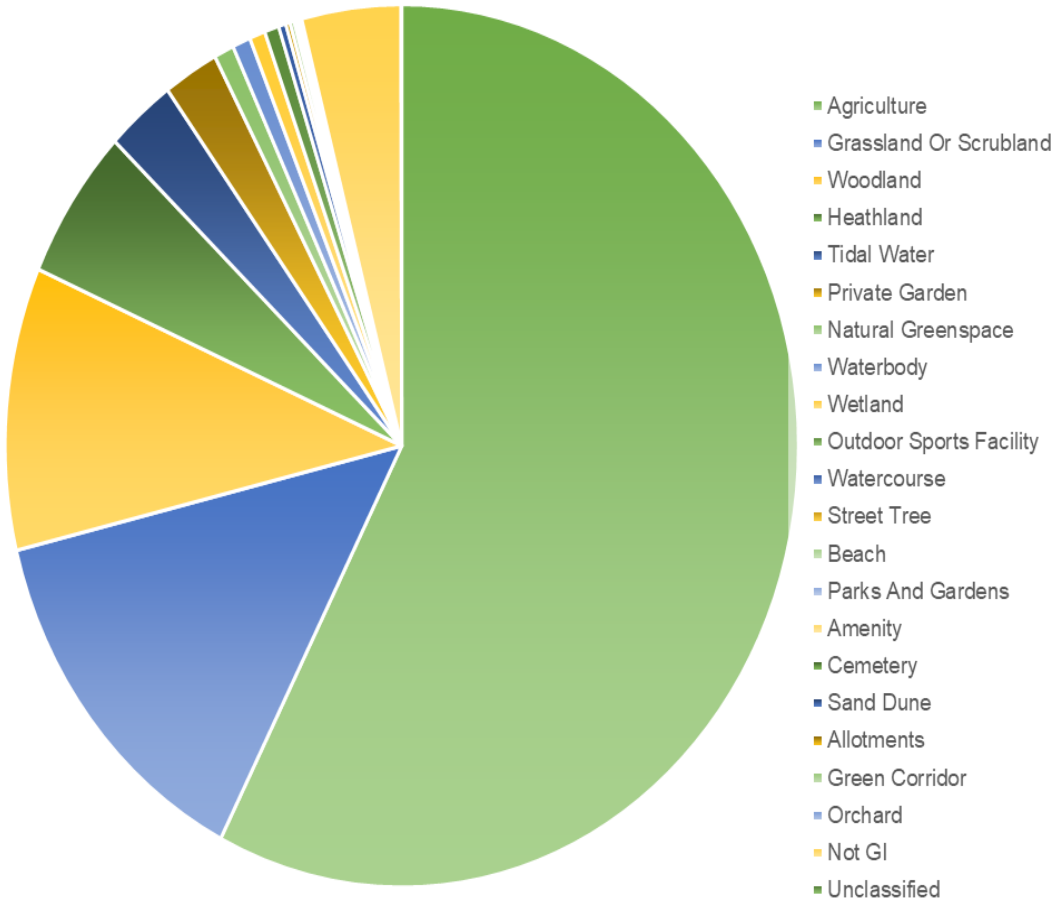


Figure 3: GI in Conwy by type

3.4 There are marked differences between the western and eastern parts of the County. The Conwy Valley forms a natural border between the more mountainous west and the gentler upland moors to the east. Grassland and scrubland, which covers almost 14% of the county, is predominantly focused around the upland Mynydd Hiraethog, the Denbigh Moors, which lies in the central and eastern sections of the county, stretching into neighbouring Denbighshire. This is a remote, open landscape, comprising large sections of Conwy's heather moorland. Its high scenic value is reflected in the Hiraethog Special Landscape Area (SLA) regional designation, as well as being a key area for tourism with walking trails.

3.5 Conwy's most significant area of woodland lies in the south east of the county, including forests around the large reservoirs Llyn Brenig and Alwen Reservoir and multiple smaller lakes. The reservoirs are surrounded by coniferous woodland, and the visitor centre on the lakeside of Llyn Brenig makes this a popular visitor attraction for water sports, walking, cycling and fishing. Part of the Clocaenog Forest also falls within the administrative area of CCBC, and is under the control of Natural Resources Wales (NRW), managed for its wildlife and recreational opportunities.

3.6 GI typologies which cover small areas of the county include orchards, allotments, sand dunes and green corridors. Although not widespread, these features add distinctiveness and local character. For example, Conwy Community Orchard Group have been working to restore an old orchard alongside the medieval town walls in Conwy, restoring a sense of community stewardship and contributing to locally grown produce.

3.7 There are 12 allotments sites of varying sizes across Conwy, found along the coastal belt to serve the population at Llanfairfechan, Penmaenmawr, Conwy, Deganwy, Penrhyn Bay, Rhos on Sea, Colwyn Bay, Old Colwyn and Towyn. Local needs analysis is used to determine whether rural, inland communities would benefit from allotments.

3.8 The whole county borough of Conwy falls within the Conwy Management Catchment as defined by NRW. The source of the River Conwy is in the uplands of the Migneint, an extensive area of blanket bog and part of a Special Area of Conservation (SAC). Migneint SAC is a major store of carbon. The River Conwy is tidal as far as Trefriw and the topography of the valley floor is relatively flat with the river following a meandering course. Agriculture and forestry dominate the Conwy catchment. The 17 rivers in Conwy catchment are of moderate or good water quality. The River Conwy is of moderate water quality. Key pressures on water quality include

- Diffuse pollution, both from agricultural and forestry sources affecting some rivers;
- Discharges from abandoned metal mines impact a number of rivers including the lower Conwy and the Crafnant;
- Physical modifications, mainly because of impoundments for hydropower, affect water bodies above Dolgarrog on the western edge of the Conwy management catchment;
- In the lower catchment, bacteria from waste water treatment pose a risk to shellfish beds.

3.9 Conwy's upland peatland habitats play an important role in water management. Healthy peatlands also act as an important carbon sink. Peatland restoration projects have been carried out in the upper Conwy catchment to date through the National Trust's Upper Conwy Catchment Project, with monitoring in place. Soils in the valley bottom are based on alluvium, which supports lowland pasture and hay meadows, with hill sheep grazing on the thinner soils of the steeper valley sides.

3.10 Large area of the county borough is recognised nationally and internationally for its nature conservation interests and for the quality of its wildlife and habitats. Sites of Special Scientific interest (SSSI) cover a good proportion of the land area of Conwy, and cover a huge range of habitats from sand dune and coastal shingle, through saltmarsh, reed bed, unimproved grasslands upland moorland habitat and a variety of woodland types. Conwy was once home to many natural sand dune landscapes and habitats which have been redeveloped for golf courses and tourism development. The re-naturalisation of sand dune habitats could occur as and when existing facilities closer or restructure.

3.11 In several areas, such as on the western flanks of the Conwy Valley, areas of high to moderate biodiversity value are coincident with areas of high historical and archaeological significance. Conwy County Borough currently hosts 25 designated conservation areas. The castle and town walls of Conwy are designated as a World Heritage Site, all contributing significantly to the character of the area.

3.12 Conwy has four historic landscape designations and 17 gardens on the Register of Historic Landscapes in Wales within its planning area, with notable examples being at Plas Maenan, Benarth Hall, Caer Rhun Hall and the ornamental Bodnant Gardens, all significant GI assets and visitor destinations. The Great Orme, not only designated for its nature conservation interests, is also a country park welcoming visitors throughout the year.

3.13 Conwy's tourism industry is largely aligned with the quality and beauty of the natural environment. Tourists visit the blue flag beaches, Conwy's extensive walking and cycling routes, golf courses and outdoor adventure opportunities situated within vast areas of GI such as Zip World, Adventure Parc Snowdonia and watersports along the River Conwy.

Existing GI - Key Messages

- 96% of Conwy is green; the county has many GI assets supported by community and volunteer projects;
- The majority of the county (almost 58%) is agricultural, presenting opportunities for GI enhancements delivered by farmers and landowners;
- Conwy is home to significant areas of woodland, such as the coniferous woodland at Llyn Brenig in the south east;
- Some GI typologies occupy very small areas, such as allotments and orchards, but their local, community value is vital;
- Conwy's watercourses are of moderate and good water quality – the River Conwy itself has moderate water quality, with scope for improvement;
- The flood plain to the River Conwy is characterised by silty, clayey soils, with peatland in the uplands, bordering the neighbouring Snowdonia National Park;
- A large area is recognised nationally and internationally for the quality of its wildlife and habitats;
- Conwy's tourism sector relies strongly on existing GI assets which attract many visitors.

Urban GI

3.14 This section describes the existing GI in Conwy's coastal towns, from Llanfairfechan in the west to Abergele in the east.

Llanfairfechan and Penmaenmawr

3.15 Llanfairfechan and Penmaenmawr are some of the urban smaller settlements along Conwy's coastal belt in the north western section of the county, situated between the Carneddau Mountains and the Menai Strait. The settlements lie on a coastal plain facing Conwy Bay and the Irish Sea. A large area including Pen-dinas and Graiglwyd Quarries separate Llanfairfechan and Penmaenmawr, and in this quarry area there are large areas of woodland planting, grassland and heathland.

Llanfairfechan

3.16 The promenade running along the coast forms part of the North Wales Path and passes a boating lake and other outdoor leisure facilities, running adjacent to the Blue Flag beach. The A55 which runs to the north of the town centre severs the town from the coastline. In the summer the town hosts many outdoor events including Llanfairfechan Carnival and a Sea to Summit Race.

3.17 Private gardens form a significant proportion of GI within the town itself. In the town centre along Village Road, Penmaenmawr Road and Llanerch Road there is a general absence of GI, though this absence is largely a result of built form.

3.18 The River Ddu runs through the town to the west of Valley Road and is bound by wooded areas as well as residential and retail land uses. The woodland corridor runs along the River mostly uninterrupted from the uplands of the Carneddau Mountains. The southern edge of Llanfairfechan provides a gateway to Snowdonia National Park, and Nant y Coed Nature Reserve lies on the administrative border. The River Ddu runs through the wooded nature reserve and provides a short signposted walk.

Penmaenmawr

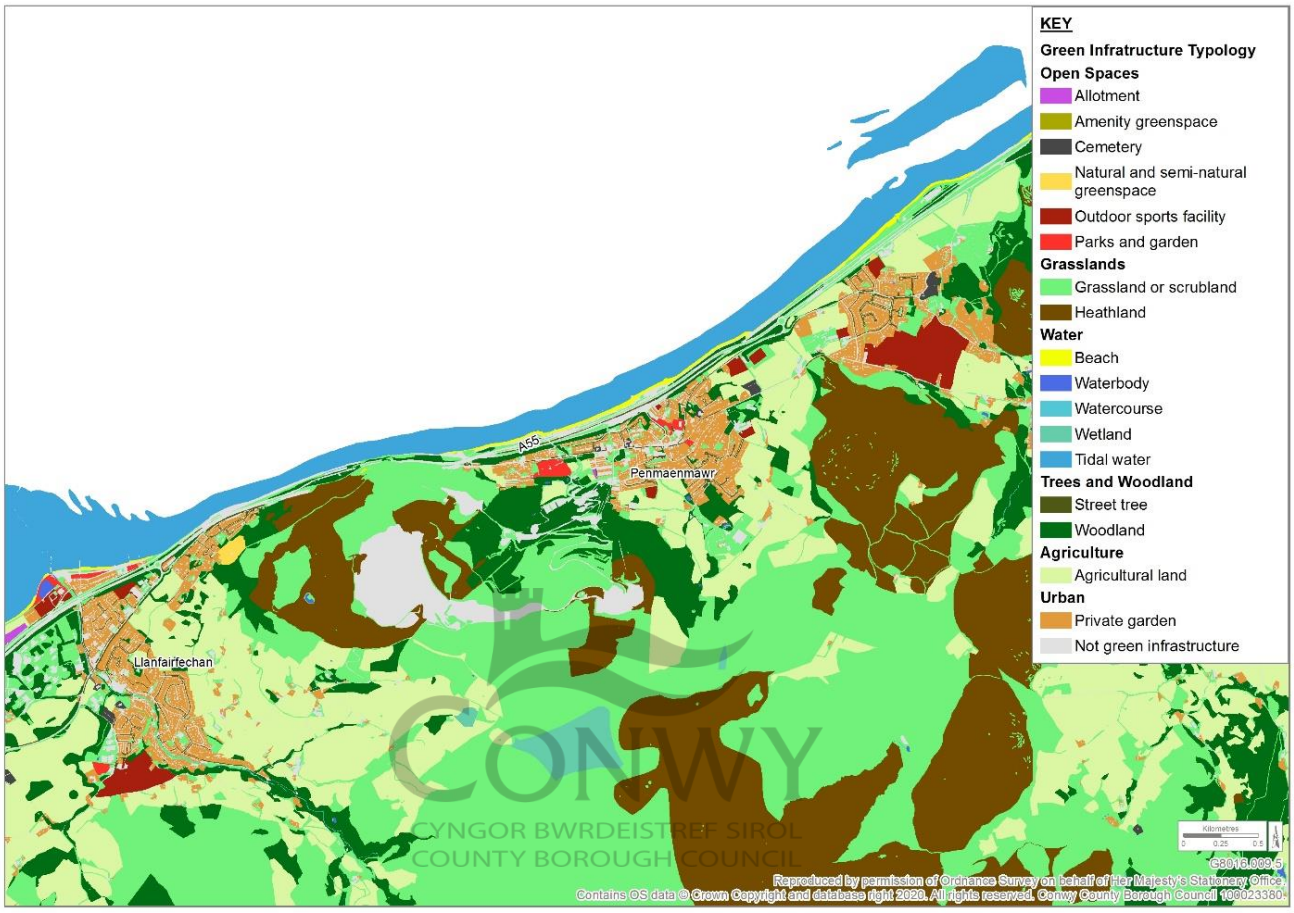
3.19 Penmaenmawr is formed by Penmaenan, Pant Yr Afon, Dwygyfylchi and Capelulo villages. In general, there is good GI coverage. There are few trees along Conway Old Road which runs east-west through the town.

3.20 To the north east of the town centre there are two large caravan and camping parks. There are several parks within the town including the Garden for the Blind off Conway Old Road. Plas Mawr Park lies to the east and south east of the town centre. This publically accessible park comprises woodland walks and a lake, and has heritage significance. The hillside Gwel Yr Ynys Garden is to the south east of Penmaenmawr, though is not publically accessible.

3.21 Penmaenmawr Beach is separated from the town by the A55 Expressway. The promenade includes grassed landscaped areas with an outdoor paddling pool and parking to the west end of the promenade.

3.22 To the east of the town, the rugged headland of Penmaen Bach, covered in large areas of heathland, divides Dwygyfylchi from Conwy Morfa. Penmaenbach is the most northerly tip of the Snowdonia National Park, which covers a large part of Dwygyfylchi and Capelulo. To the south of the town is an arc of hills and uplands which forms a dramatic landscape setting to the town, and a network of GI in close proximity to the southern edge of the town.

Figure 4: GI Typology - Penmaenmawr and Llanfairfechan



Conwy and Llandudno Junction

Conwy

3.23 Conwy town is a World Heritage Site, set within medieval castle walls, on the banks of the Conwy Estuary. The castle and town walls in the World Heritage Site are among the major attractions in North-West Wales, contributing substantially to the economy, whilst also supporting other attractions in developing a holiday experience. Conwy Quay, the small harbour on the river bank, is home to a number of amenities, providing access to the river for tours and recreation.

3.24 The town is characterised by varied terrain. The Conwy castle stands on a rocky outcrop at the eastern end of the town, close to where the River Conwy meets the Irish Sea. The area along the quay and to the south of St. Mary's Church generally lie on level ground, which then rises westwards up High Street. The changing levels are an important part of the appearance and character of the town.

3.25 The medieval core of the town has a general absence of GI other than private gardens, owing to the fine grained built form and narrow streets. However, running alongside the castle walls and in the castle ground there are large areas of grassland, which are used for informal recreation. From the harbour, there is direct access to the sandy foreshore at low tide, as well as the North Wales Coastal Path, providing pedestrian connections to Llandudno in the north east and onto Penmaenmawr in the south west.

3.26 Bodlondeb Park is the only park, and is large and well-used by the public. The park lies on the western side of the Conwy Estuary and just outside the castle walls of Conwy Town with impressive views over the Conwy estuary. Sports facilities within the park include tennis courts, a cricket field, football field and children's play area.

3.27 The presence of GI in the setting of the town is striking. Conwy Mountain rises to the north-west, Tal y Fan is visible to the west, the wooded hill of Benarth is to the south and in the distance to the south the Carneddau Mountains form a backdrop.

3.28 Within Conwy town centre, a balanced approach must be taken to ensure that the historic environment is protected and enhanced whilst meeting local need in terms of GI, and other sustainability objectives. Climate change threatens historical buildings and structures through unpredictable and severe weather including flooding, and changing extremes cause issues such as soil shrinkage and subsidence. Archaeological assets which were once preserved are now at risk of damage due to extremes in temperature. GI enhancements and interventions in Conwy town centre can not only enhance the quality of place and the setting of the existing heritage assets but also reduce flood risk and reduce temperature extremes. A high quality historic environment can help to create places where people want to visit, live and work.

Llandudno Junction

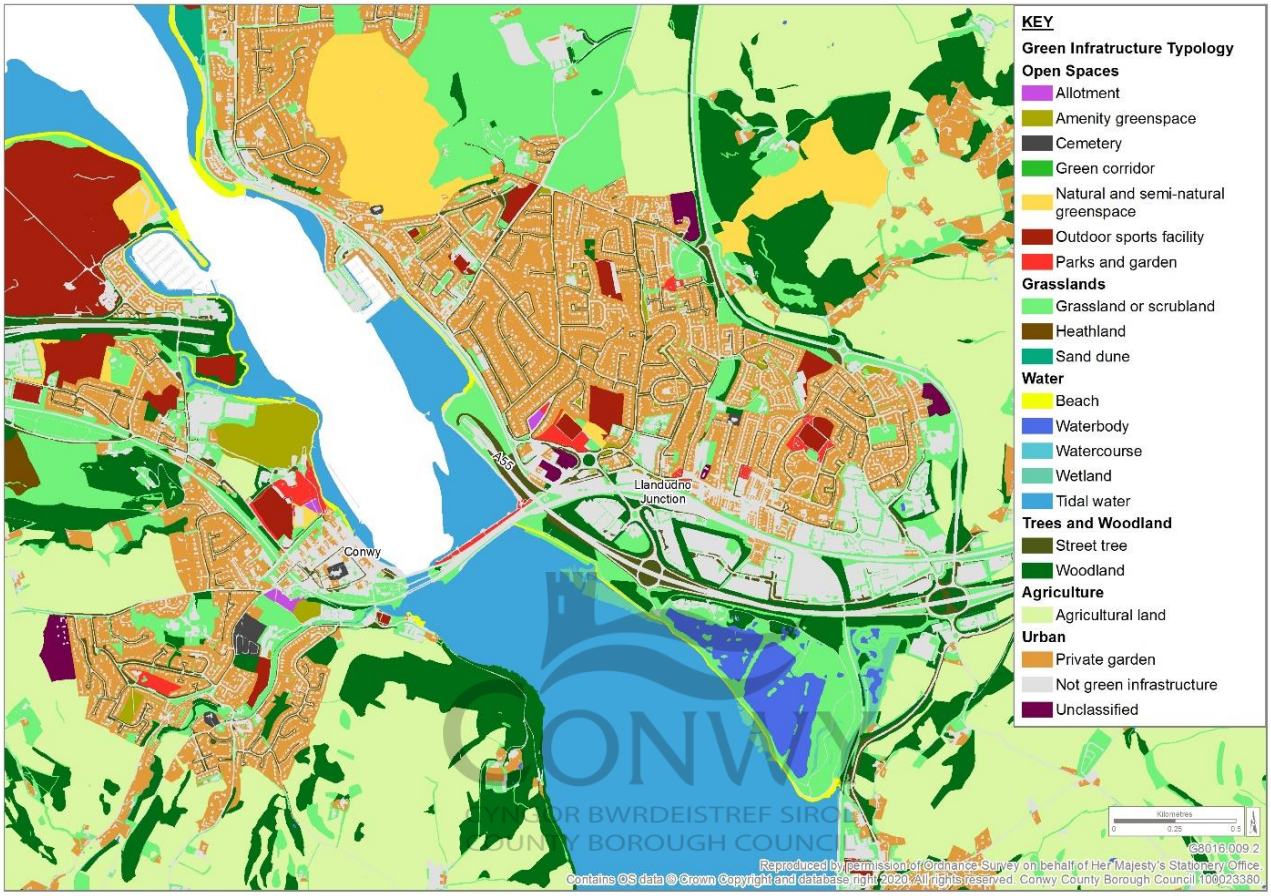
3.29 Llandudno Junction is a key commercial centre for Conwy County. It is around this commercial centre, located along either side of the A547 Conway Road, where there is a notable absence of GI, such as the Tre Mari Industrial Estate. However, there are some narrow areas of woodland connecting and separating employment sites.

3.30 Directly south east of this busy commercial area is the 50 hectare Conwy RSPB Nature Reserve. The reserve is a wetland on the east bank of the Conwy Estuary, home to a variety of wildlife and a frequent destination for many family activities. Access to the reserve is currently best served by road from junction 18 of the A55, with little opportunity for pedestrian access unless crossing busy roads.

3.31 Within the residential area to the north of the commercial area, the Green Flag awarded Cae Derw is a high quality urban park in the eastern section of the town, providing essential free recreation for the Llandudno Junction community. It has a sensory garden, dedicated dog walking zones and sports pitches. Other open spaces amidst the residential area include Victoria Park and Skate Park, the grounds of the Memorial Hall and the open space to the west of Victoria Drive.

3.32 Marl Hall Woods and Nature Reserve is to the north of the town, and is a significant GI asset close to the residential area. The 12 hectare ancient semi-natural woodland is managed by the Woodland Trust and is a prominent feature in the landscape. It is a significant site for a wide range of biodiversity, whilst also providing recreational opportunities with multiple woodland walks and great views across the Conwy valley.

Figure 5: GI Typology – Conwy and Llandudno Junction



Llandudno

3.33 Llandudno is the largest populated town in Conwy. Not only is the town a popular seaside tourist destination, but it also acts as a sub-regional shopping and commercial centre. Llandudno's North Shore (Ormes Bay or Llandudno Bay) is a curving bay extending about 2 miles between the Great Orme to the west and the Little Orme to the east. Most of Llandudno is built on the low lying level ground between the Great and Little Ormes. There are carboniferous limestone headlands at either end of the bay which form impressive landscape features, contributing to the setting of the town.

3.34 The proximity of the Great Orme, the sea and beaches provide a contrast to the densely built nature of the town. The Great Orme is a significant GI asset to the town, and is home to a country park, also designated as a Special Area of Conservation (SAC), Site of Special Scientific Interest (SSSI) and Heritage Coast. The Orme is valued for its biodiversity, supporting a range of habitats including rich heathlands and shear sea cliffs as well as rare species. Tourists can ride the cable car or tramway to reach the top, where they can find a visitor centre, the Ancient Mine, the Llandudno Ski Slope and Snowboard Centre and numerous walking routes with panoramic views over Llandudno and out to sea.

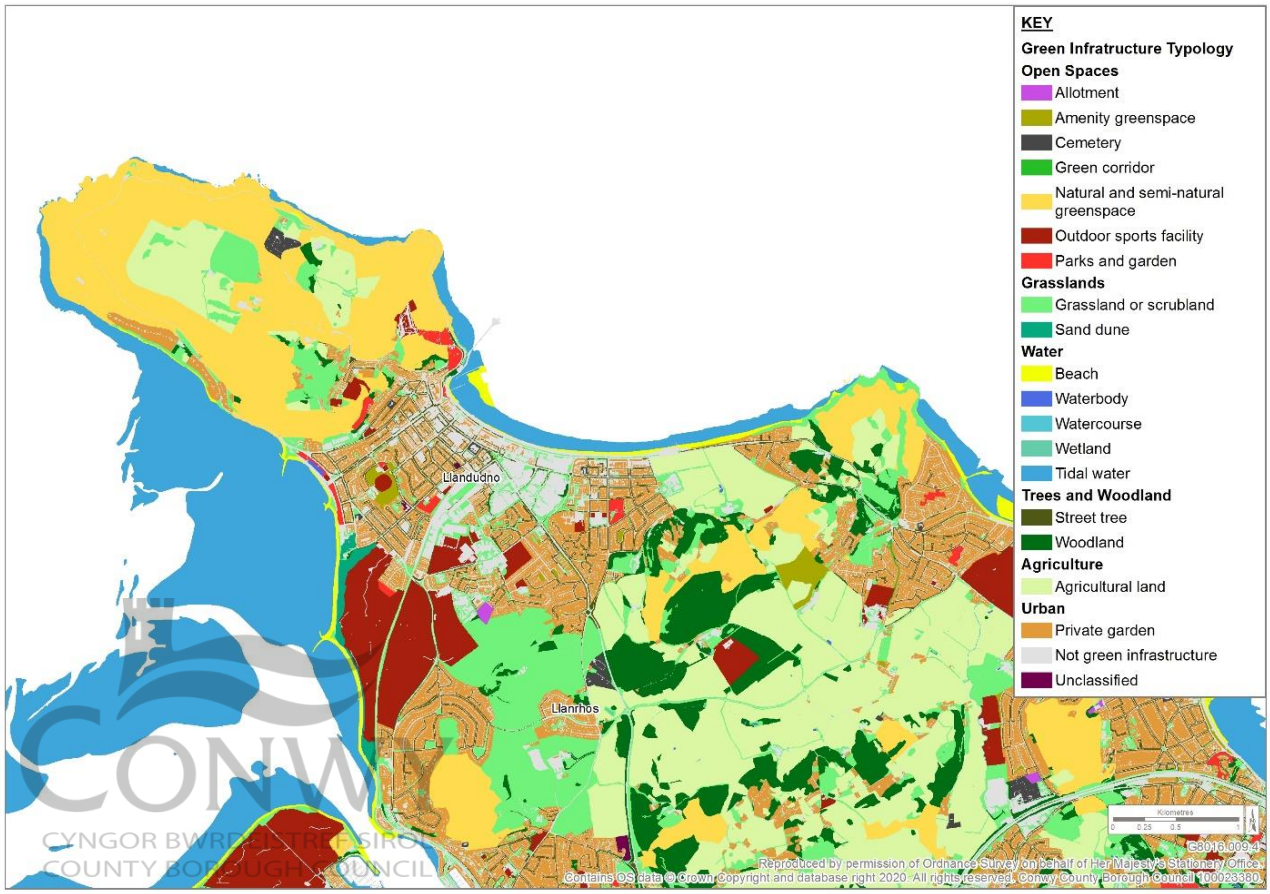
3.35 The wide promenade at Llandudno follows the line of the North Shore and is a valuable open space, which lies adjacent to the sea wall and beach. Planted areas and lawns along parts of the promenade provide greenery.

3.36 The town centre, as shown on Figure 6, is largely devoid of GI, particularly the retail and business areas along Conway Road including Llandudno Retail Park, Mostyn Champneys Shopping Park and multiple superstores. The grid pattern of Llandudno's streets, particularly those in the Conservation Area, contribute to the character and appearance of the town. Narrow streets are contrasted with Mostyn Broadway, Mostyn Street and Upper Mostyn Street which run parallel to the Promenade and have wide carriageways and pavements, though built form dominates. There is a general lack of street trees despite there being an example of well integrated street trees along the A546, one of the main routes into the town. Large crossroads also create feelings of openness, though are largely devoid of GI.

3.37 There are numerous small urban open spaces in the town centre including North Western Gardens, the area centred on the cenotaph and the churchyard of Holy Trinity Church, the public open space at West Shore. Craig-y-Don Park lies in the east of the town and is a community asset, home to large grassed areas and outdoor play equipment. The park hosts community events such as 'party in the park' and family fun days. There are large outdoor sports facilities within the built form including Llandudno Cricket Club and Llandudno Rugby Union Club.

3.38 Beyond the town centre to the south and east, there are large areas of GI including North Wales and Maesdu golf courses. Large areas of grassland separate the southern edge of Llandudno from Llanrhos to the south and to the east of the town there are the woodland areas of Coed y Gell, Coed Gaer and Coed Isaf, traversed by a number of public rights of way (PRoW).

Figure 6: GI Typology - Llandudno



Rhos-on-Sea, Colwyn Bay and Old Colwyn

Rhos-on-Sea

3.39 Rhos on Sea is a small seaside town located between Llandudno and Colwyn Bay. A seafront walk follows the breakwater, and provides views over the small harbour.

3.40 The town has a high percentage cover of GI. Where absence of GI does occur, this is visible along the main road corridors such as Abbey Road and Marine Drive. Small green spaces and sports facilities break up the built form such as Rhos Park, Rhos-on-Sea outdoor gym and amenity green spaces within residential areas.

3.41 In terms of recreational activities, the circular Rhos-on-Sea Heritage Trail takes in 25 historic sites in a three hour walk. Sailing, fishing and sea swimming are popular, and the coastal path is popular with cyclists. There are multiple pedestrian access points to the coastal path and Rhos-on-Sea beach, though Marine Drive does provide some severance. The interface between the town and the coast is more co-ordinated than the neighbouring towns of Colwyn Bay and Old Colwyn where the A55 provides some severance.

3.42 Bryn Euryn Nature Reserve is in the south west of the town and is a prominent limestone hill comprising grassland and woodland, part designated as an SSSI. The reserve is highly accessible with a waymarked circular walk, and there are spectacular views from the top of the hill, which is also designated as a Scheduled Monument. Rhos-on-Sea golf club lies to the north west of the town adjacent to the coast.

Colwyn Bay

3.43 Colwyn Bay has approximately 9,700 residents and is Conwy's second largest retail centre. The A55 passes through the north of the town, running parallel to the North Wales Coast railway line, and the A547 Conway Road runs through the town centre. The A55 causes some severance between the main town and the Blue Flag Colwyn Bay beach, with access via underpasses and roads and limited signposting to the North Wales Coastal Path which runs directly to the north of the town. A promenade runs adjacent to the beach, which is flanked directly to the south by on street parking.

3.44 The tightly woven town centre, centred on Abergele Road is the area with very limited GI. There is a particular absence of street trees in the town centre environment, though their presence increases along residential streets to the north and south. Similarly to Rhos-on-Sea, private gardens currently play a vital role in increasing GI cover across the town more broadly.

3.45 Colwyn Bay has faced extended periods of economic decline and multiple deprivation, meaning that improvements to socio-economic conditions are vital. In particular, Colwyn Bay has experienced a significant decline in the tourism industry. CCBC has developed a Colwyn Bay Masterplan – 'Bay Life Masterplan' – through local consultation and workshops. The Masterplan provides a framework for the physical regeneration of the town focussing on four key areas of change to establish Colwyn Bay as a regional centre for business and leisure.

3.46 A key GI asset to the town and Conwy more widely is Eirias Park, a 20 hectare public park to the north east of the town centre, home to outdoor tennis courts, boating lake, children's play area, picnic area, sports complex, Eirias Stadium and Colwyn Leisure Centre. Not only is the park valued as a local green space by residents, but it also hosts concerts and outdoor cinema screenings which attract visitors and residents from further afield.

3.47 Another asset to the south of the town centre is Pwllycrochan Woods, which are publically accessible from adjacent residential streets. Outdoor sports facilities are largely associated with school grounds, although Eirias Park provides a wide range of publically accessible facilities both indoor and outdoor.

3.48 The town has many existing community and volunteer groups. For example, Colwyn Bay has received a gold award eight times in the Wales in Bloom competition.

Old Colwyn

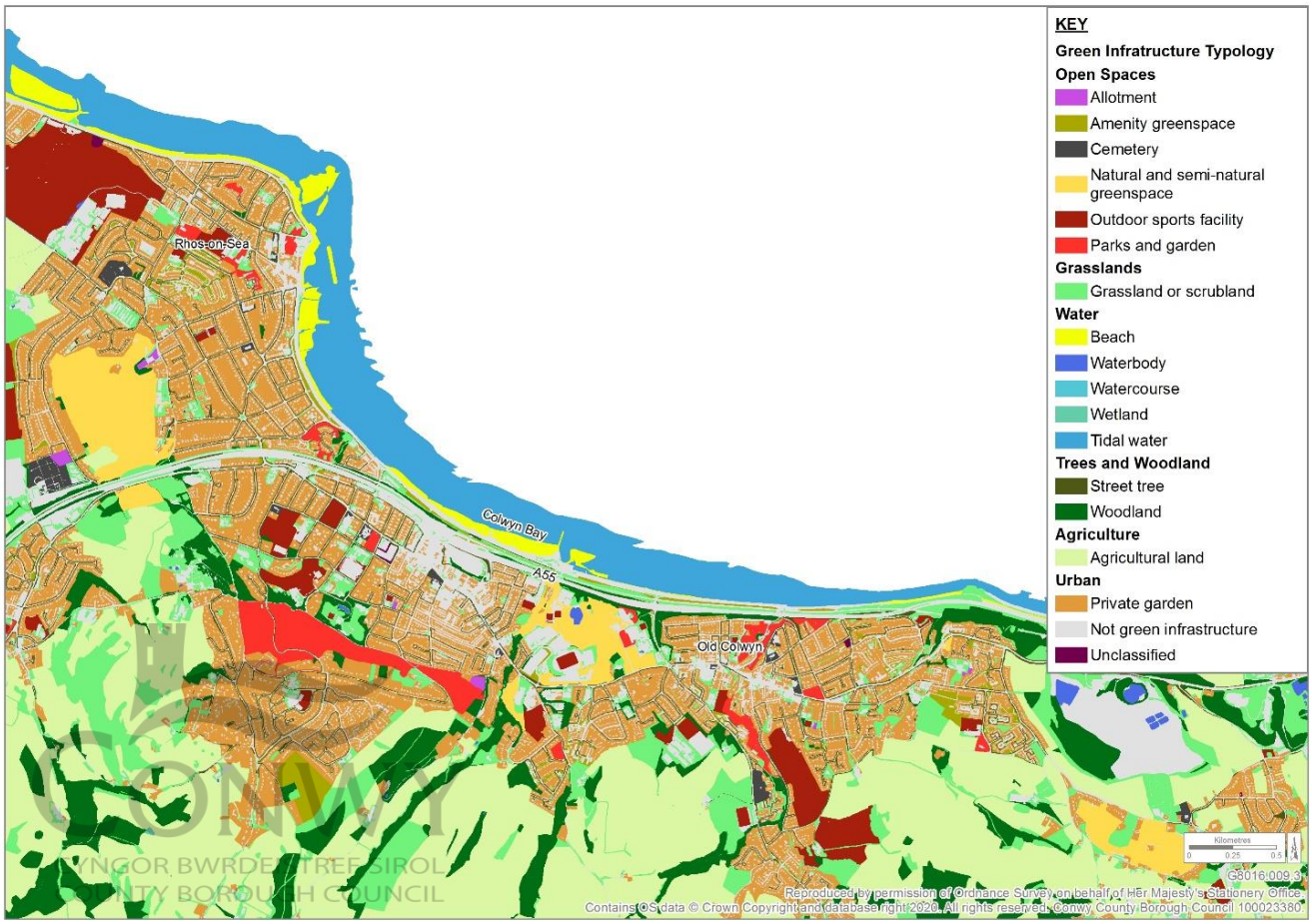
3.49 Old Colwyn is directly to the east of Colwyn Bay. Again, private gardens make up the majority of GI in the town as a whole, though the area most noticeably absent of GI is the town centre where the A547 dissects the town.

3.50 Wynn Gardens is a small urban park set within a largely residential area, and is centrally located within Old Colwyn. Wynn Gardens was the first of Conwy's urban parks to gain Green Flag status in 2009. The park is a well-used community asset which comprises sculptures, a fountain, a sensory garden, butterfly friendly garden and plentiful green space to relax.

3.51 The Fairy Glen Local Nature Reserve (LNR) encompasses a wooded dingle following the course of the River Colwyn. The Fairy Glen is valued by residents and visitors for its wildlife and recreational opportunities. The LNR has seen investment and improvements to make the area more accessible. The path network includes the North Wales Path which runs on a north-south axis to join the Wales Coast Path in the north.

3.52 Further north along the River Colwyn is the 12 acre Min-Y-Don Woodland, which not only serves recreational and wildlife functions but is also of heritage interest, as each tree was planted as a living memorial to the residents of Old Colwyn killed during the World Wars. West of the woodlands is the Min-Y-Don bowling green.

Figure 7: GI Typology – Rhos-on-Sea, Colwyn Bay and Old Colwyn



Aergele, Pensarn and Towyn and Kinmel Bay

3.53 Abergele is a small market town to the east of Colwyn Bay with approximately 10,000 inhabitants. It lies on the A55 and is surrounded by wooded hillsides to the south, home to many heritage assets such as iron age forts. The town is abundant in existing GI assets, with some areas without GI along the A547 through the town centre, where commercial units and retail dominate. However, the grounds of Gwrych Castle and Gele Park run through this area on a north-south axis and are accessible from the commercial area.

3.54 The town is particularly devoid of street trees. Stakeholder consultation highlighted the significant street tree removal at Craig-Y-Don which was not replaced, and that there is currently just one street tree within the town centre.

3.55 The town is known for Gwrych Castle and the 250 acre grounds which lies to the south west of Abergele. The castle is open daily and admission charges make the castle more of a visitor experience.

3.56 Pentre Mawr, is the largest park in the county, located in the north of the town which gained investment in 2012 for a new viewing platform and habitat islands in the large pond in 2012. The park is a valued GI asset, including perimeter footpath, biodiversity area, quiet walled garden and meadow.

3.57 Pensarn is Abergele's seaside arm, home to a traditional sandy beach with a prom, amusements and a café. Pensarn has the highest levels of deprivation in Conwy. The beach has a Seaside Award. The prom is compact but very well used, though mostly by local visitors. There is a hard flood defence wall and car parking, with a 30 mph speed limit though this is often exceeded. It is apparent from stakeholder consultation that the aim for the area is to become a visitor destination, attracting visitors from further afield.

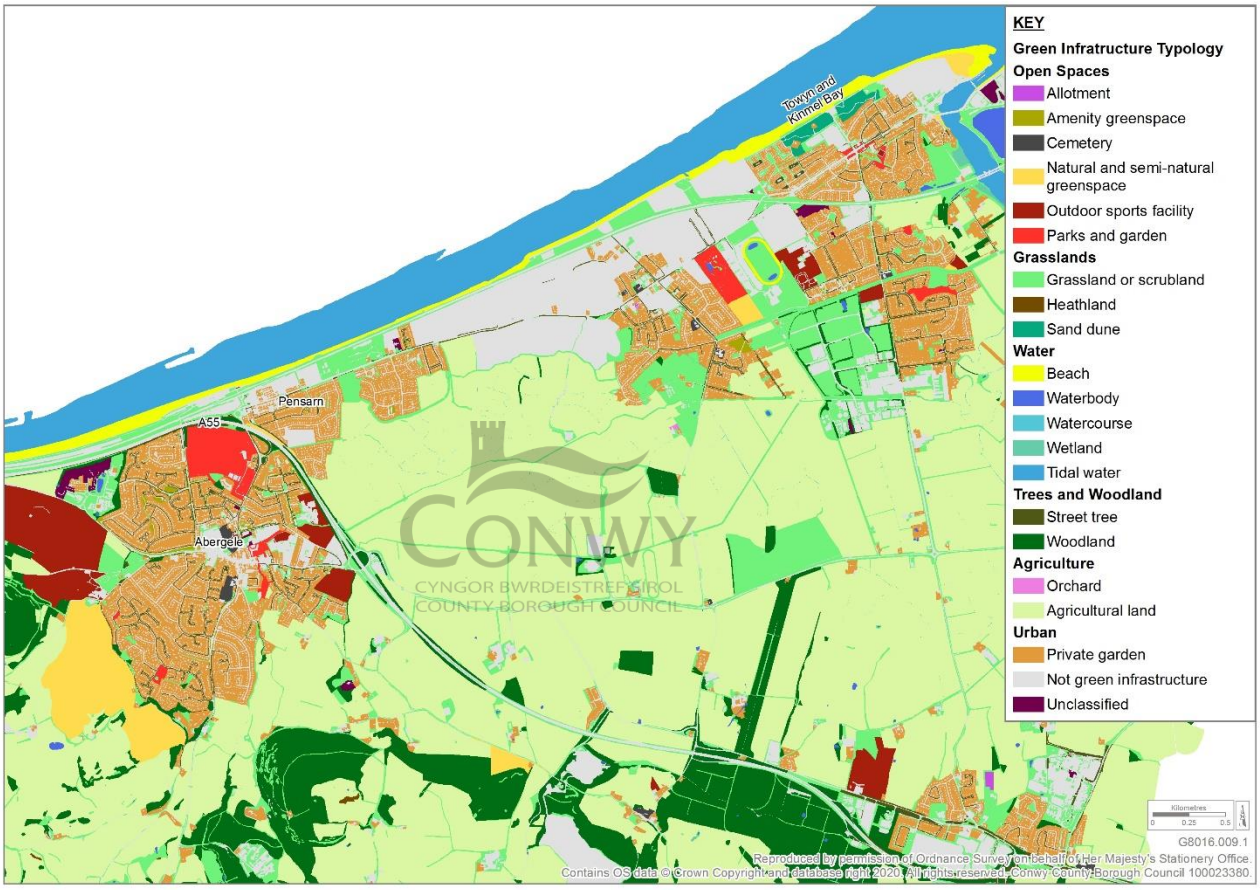
Towyn and Kinmel Bay

3.58 The small, coastal towns of Towyn and Kinmel Bay lie in the north eastern section of Conwy County Borough, adjacent to the border with Denbighshire, close to Rhyl. The North Wales Railway Line dissects the settlement, running in an east-west direction. Extensive areas are occupied by beachfront caravan parks, especially the area separating the settlements from Abergele. The River Clwyd runs to the east of Kinmel Bay and the Marine Lake at Rhyl sits on its banks. Grassland and scrubland, including residential development run to the river's edge.

3.59 The absence of GI in both towns is largely due to the arrangement of built form, with private gardens, agricultural areas and woodland forming the majority of GI. There is an orchard off Morfa Avenue in Kinmel Bay and several parks with outdoor play areas. Linear sand dunes run along the edge of Kinmel Bay, separating the town from the beach. Horton's Nose Nature Reserve forms the most north easterly point of Conwy Borough with a boardwalk path and scenic views. Towyn Park lies in the east of Towyn comprising a large pond, outdoor gym, open space and sports pitches.

3.60 Stakeholder consultation highlighted that flooding is a major issue in the town, having been flooded in 1990, 2012, 2013 and 2014. There are some existing GI related community projects which have had great local benefit to date. The Chester Avenue Community Woodland, created 15 years ago on saturated land. Despite the name 'Chester Avenue' the road is not home to any street trees, despite their historic significance in the naming of the avenue. St Asaph Avenue is home to a biodiverse and established hedge, which is a locally significant wildlife corridor

Figure 8: GI Typology – Abergele, Pensarn and Towyn and Kinmel Bay



Existing GI in the Urban Coastal areas - Key Messages

- There is a general absence of GI in parts of town centres along the coastal belt;
- The A55 creates some severance for pedestrians between coastal towns and the beaches;
- There are already many existing GI assets amidst the built form within Conwy's key towns which should be enhanced, and access improved;
- Existing town centre parks are important GI assets, and could be made more accessible;
- Heritage assets such as those in Conwy town centre are vulnerable to the effects of climate change;
- A lack of tree cover along major roads has resulted in urbanisation to a very scenic landscape;
- There is generally good access by car from coastal towns to their rural hinterlands to the south though more could be done to promote active travel; and
- GI has the potential to enhance Conwy's visitor economy and heritage assets.

GI Multi-functionality

3.61 Using GIS mapping software, multi-functionality of GI is mapped across Conwy. The approach is factual, objective, quantitative and uses nationally recognised criteria applicable to Conwy. As part of the GIA, each GI asset has been assessed for its ability to deliver up to 22 functions. The functions were selected on the basis that they were most relevant to the environmental, social and economic priorities of Conwy County and the North West area of Wales, and are shown in Figure 9 below. Figure 9 presents a summary of the judgements that are made in multi-functionality assessment. Further information on how or why a function is assessed can be found in Figure 10 and Table 4.

Figure 9: GI Functions and Descriptions

FUNCTION	DESCRIPTION
Recreation - Public	Publically accessible land available for recreational purposes
Recreation - Private	Privately owned land which enables recreation such as a private garden, or a site which may require an entrance fee such as Bodnant Gardens
Green Travel Route	Typically an off road route for cyclists and pedestrians within a green setting
Aesthetic	Provides a visually appealing or attractive setting or environment
Shading from the Sun	Provides areas of shade, such as tree planting
Evaporative Cooling	Reduced temperatures resulting in evaporation of water from leaves
Removal of Pollutants	Ability to remove or filter pollutants from the air
Noise Absorption	Capability to act as a noise barrier or absorb noise, and is within 250m from A Roads, Motorways or railways
Habitat for Wildlife	Provides a habitat for one or a range of species demonstrated by intersecting with an ecological designation
Corridor for Wildlife	Habitats which connect and provide passage for wildlife
Soil Stabilisation	Capability to reduce water and wind driven erosion, especially important on slopes to reduce the risk of unstable banks or landslides.
Heritage	A land parcel with a heritage designation or of local heritage significance
Culture	A land parcel which has cultural interest or significance
Carbon Storage	Enables the removal of carbon dioxide from the atmosphere and storage
Food Production	Produce such as fruit and vegetables is an output of the land, for example an allotment
Wind Shelter	GI which provides shelter from the wind. Trees can slow wind speeds in urban areas to reduce wind channels
Learning	Provides educational opportunities
Water Interception	Ability to intercept rainfall by leaves, branches, plants and the forest floor, reducing the rainfall that reaches the soil
Water Conveyance	Enables the transport or flow of water
Water Storage	Allows for the retention of water such as a pond
Water Infiltration	A surface which enables water to enter the soil
Flow Reduction through Surface Roughness	A rough surface texture such as a forest floor or scrubland reduces the rate of water flow

3.62 The multi-functionality plans (Figures 12-18) comprise 'heat' maps, providing a useful indication as to where the most multi-functional GI is located. The method uses open-source and council owned datasets to assess the number of functions that each area can provide, based on its GI typology and its location. Figure 10 and Table 4 below provide an example of the method in practice for a woodland parcel in Conwy.

Figure 10: Example woodland parcel analysed for its multi-functionality

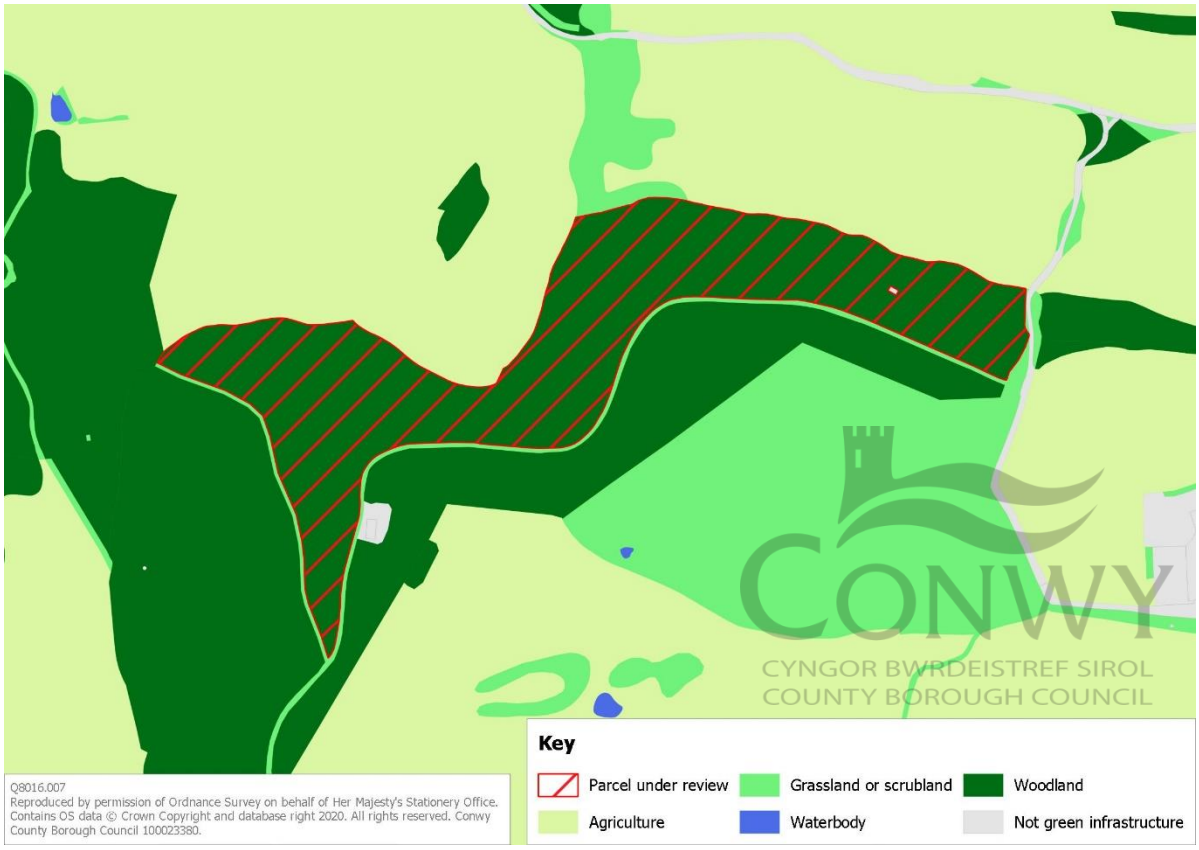


Table 4: Multi-Functionality Assessment Conducted for each land parcel

Function	Delivered by Land Parcel?	Explanation
Recreation - Public	Yes	If there are no restrictions to access
Recreation - Private	No	Does not intersect with private recreation opportunity
Green Travel Route	Yes	Within 20m of PRoW or cycle network
Aesthetic	Yes	GI contributes to visual amenity & scenic quality
Shading from the Sun	Yes	Parcel contains tree cover

Function	Delivered by Land Parcel?	Explanation
Evaporative Cooling	Yes	Vegetation transpires & contributes to evaporative cooling process
Removal of Pollutants	Yes	Contains tree cover
Noise Absorption	No	Not within 250m of A Roads, Motorways, Railways
Habitat for Wildlife	Yes	If it intersects an ecological designation (SSSI, SPA, SAC, Local Biodiversity Sites or Priority Habitat)
Corridor for Wildlife	Yes	50m from existing habitat for wildlife function, or within the habitats network dataset.
Soil Stabilisation	No	Does not intersect with sandy soil
Heritage	Yes	Within an area of historical importance
Culture	No	Does not have a cultural heritage designation
Carbon Storage	Yes	Contains tree cover
Food Production	No	Does not contribute to food production
Wind Shelter	Yes	Contains tree cover that modifies the force of the wind
Learning	No	Not within 500m of an education centre
Water Storage	No	Does not intersect with sandy soil
Water Interception	Yes	Contains tree cover which intercepts rainfall
Water Infiltration	Yes	Comprises a permeable surface
Water Conveyance	No	Not within 10m of a watercourse
Flow Reduction through Surface Roughness	Yes	High surface roughness
Total Functionality Score	**14**	

3.63 It is important to note that modest GI functionality does not necessarily mean that land is of low value or quality. Some GI assets may inherently be capable of delivering only a limited number of functions, and yet may be very important to their users, or to wildlife. The key factor is that GI meets local needs, hence the production of this GIA has been evidence based and involved extensive stakeholder engagement.

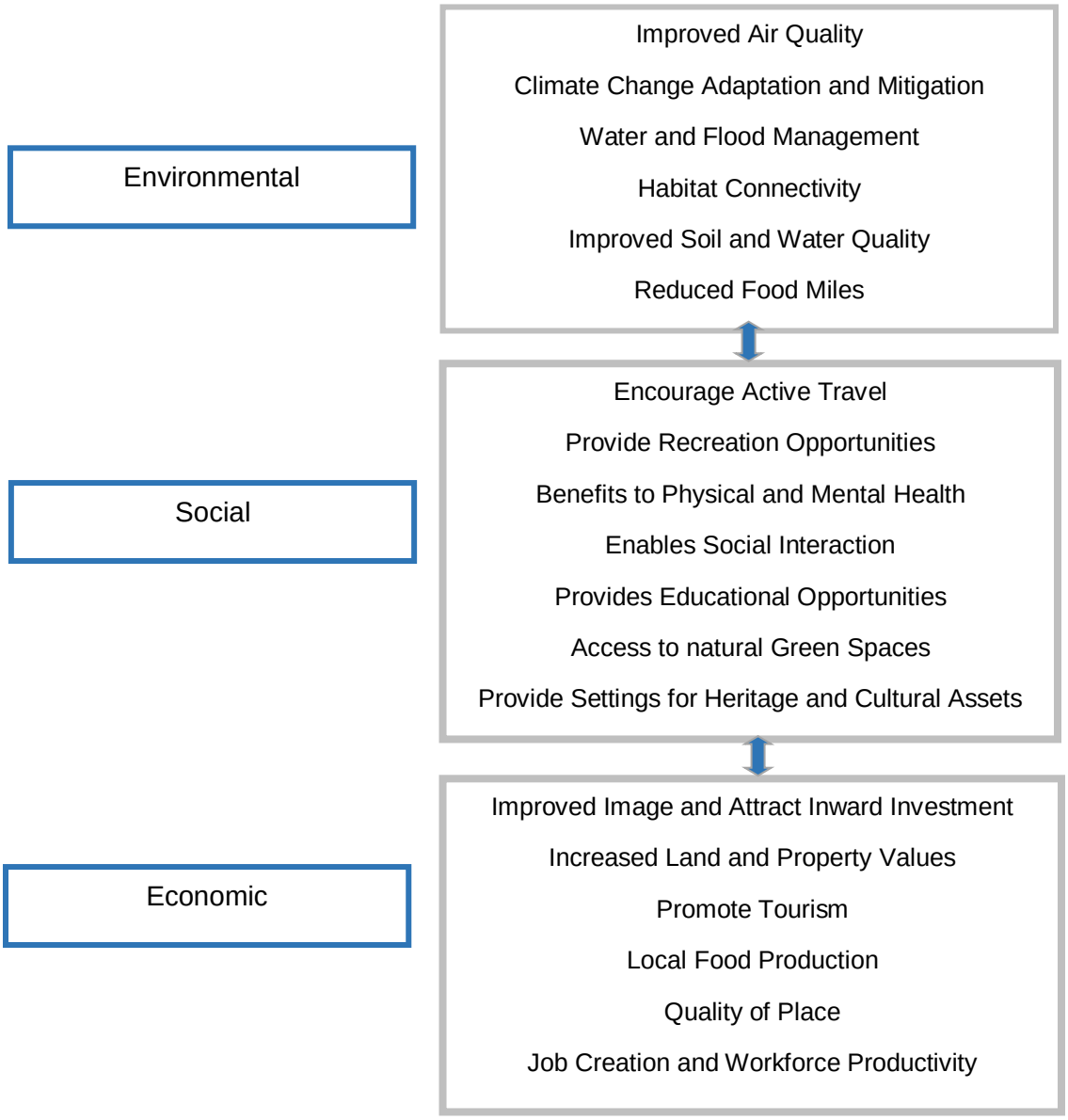
3.64 Planning for multi-functional GI will only be effective if undertaken in a sustainable way. Achieving sustainable development means that we must work towards the three pillars of sustainability, which comprise three overarching objectives[4]:

- **The economic objective** – helping to build a strong, responsive and competitive economy.
- **The social objective** – supporting strong, healthy communities in a well-designed and safe environment, with accessible open spaces for the whole population.
- **The environmental objective** – contributing to protecting and enhancing our natural, built and historic environment; making effective use of land, improving biodiversity, effectively using natural resources, minimising waste and pollution, mitigating and adapting to climate change and moving to a low carbon economy.

3.65 Figure 11 shows how the many functions and benefits of GI outlined above fall within each pillar. Mutually pursuing each pillar of sustainability can result in the creation of a wide range of interconnected benefits for whole communities.

[4] With reference to paragraph 8 of the National Planning Policy Framework

Figure 11: The link between the benefits of GI (refer to Figure 1) and the 3 pillars of sustainability



3.66 As demonstrated in Figure 12, the largest geographical area of high multi-functionality is the woodland area at Myndd Hiraethog and the Clocaenog Forest in the south east of the borough. Other wooded areas across the borough also show high multi-functionality, delivering removal of pollutants, wildlife corridors, noise absorption, water interception and shading from the sun to name just some of the functions delivered.

3.67 Along the coastal belt, GI functions tend to increase towards the periphery of the coastal towns, however there are notable exceptions such as the urban park areas and river corridors. Further information on the existing GI functionality along the coastal belt is addressed in Figures 13-18.

3.68 The area adjacent to Snowdonia National Park demonstrates high-functionality, such as Dolgarrog Wood.

Figure 12: GI Multi-functionality across Conwy

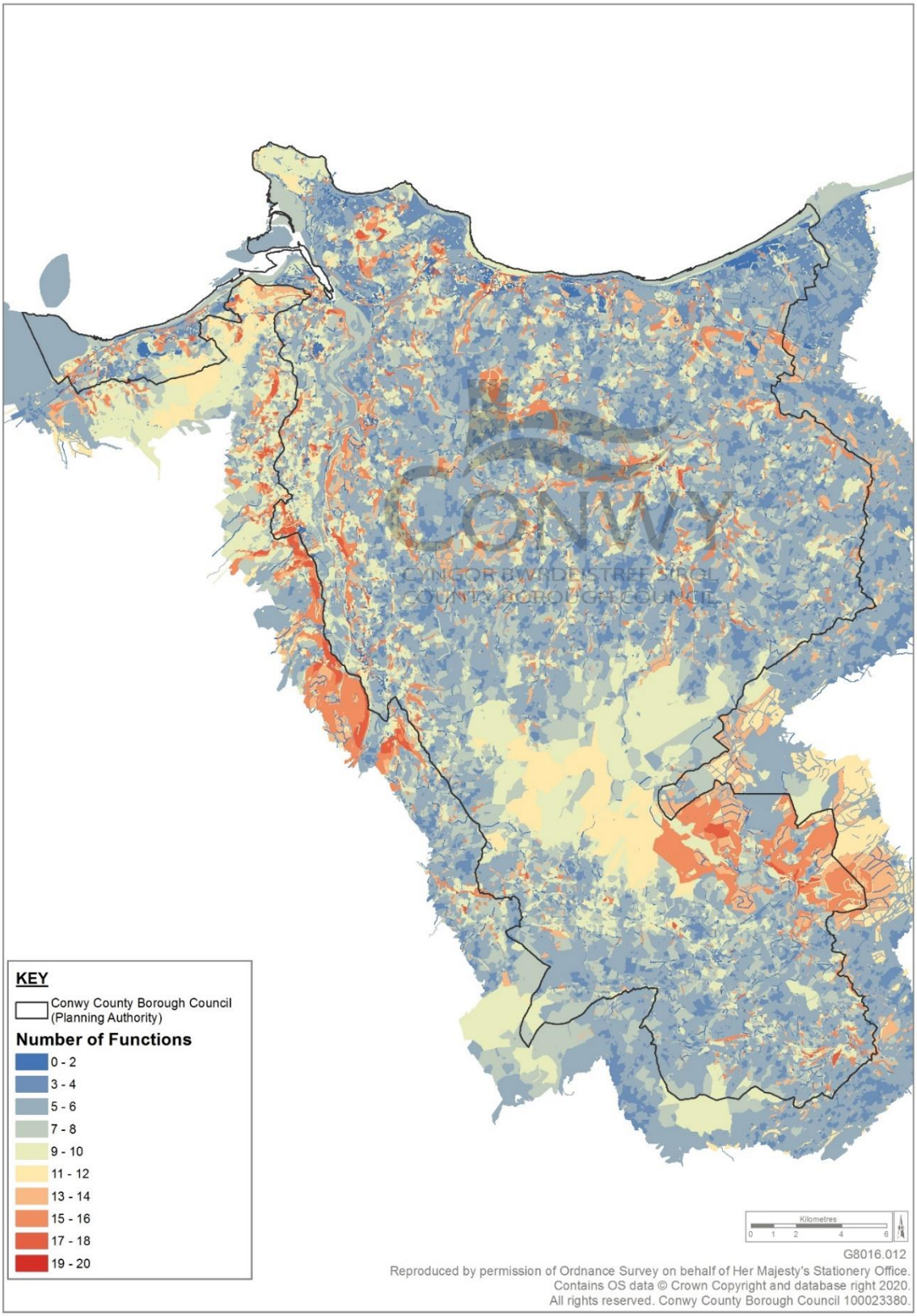
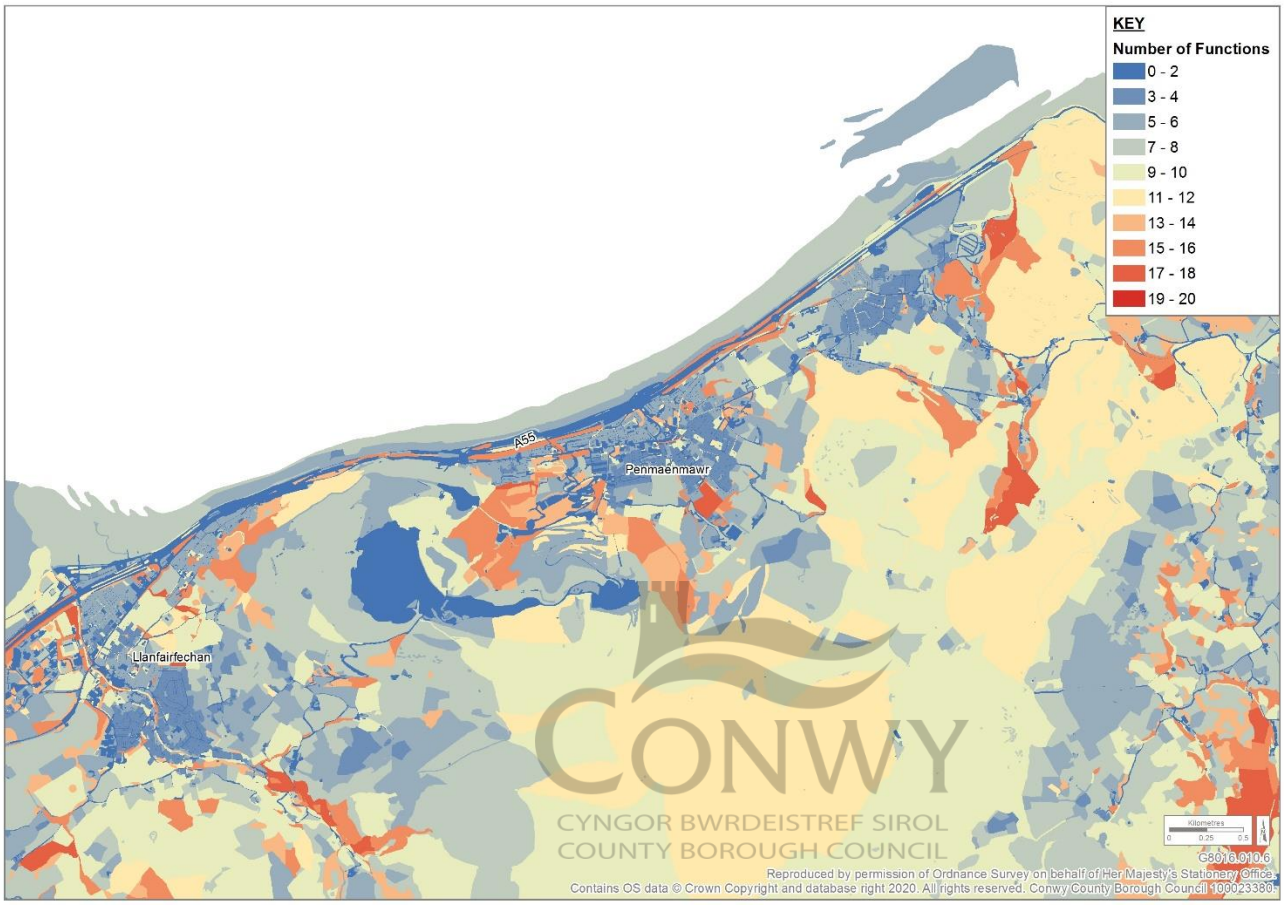


Figure 14: GI Multi-functionality- Llanfairfechan and Penmaenmawr



Llanfairfechan and Penmaenmawr – Key Messages

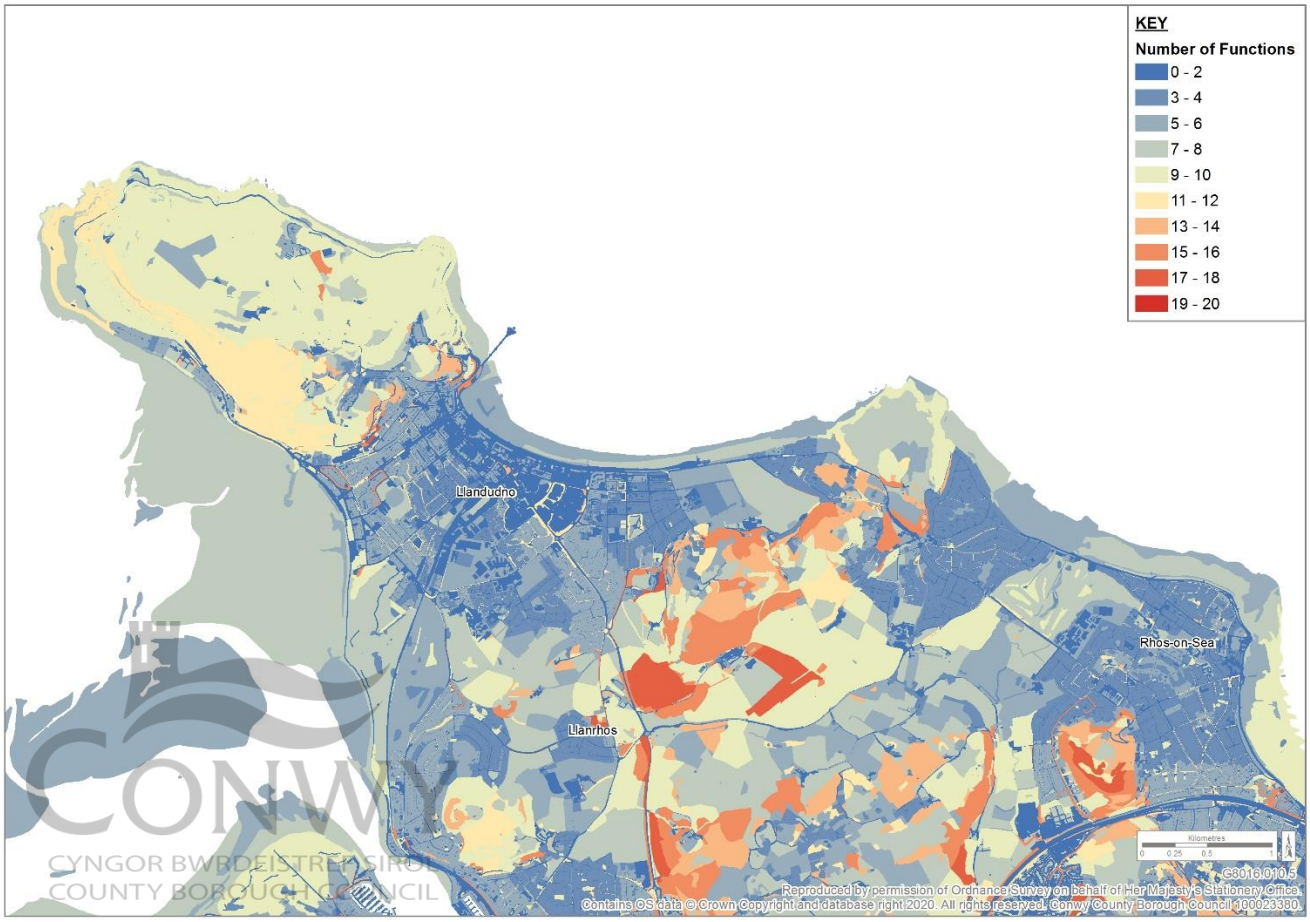
- In general, more multi-functional GI is on the outskirts of the towns and the lowest levels of multi-functionality are seen within the town centres and residential areas.
- Larger areas of higher multi-functionality are generally associated with woodland, on the outskirts of the settlement, particularly to the south west of Penmaenmawr.
- Some stretches of land alongside the River Ddu corridor are multi-functional, though multi-functionality decreases where the river is constrained by residential development.
- The agricultural land surrounding the settlements performs relatively few functions.
- Pen Dinas Quarry to the south west of Penmaenmawr is the large area which performs particularly poorly in terms of multi-functionality.

Figure 15: GI Multi-functionality- Conwy and Llandudno Junction

Conwy and Llandudno Junction – Key Messages

- Multi-functionality is poor within the historic core of Conwy, within the walled town, as well as the residential areas to the south and south west.
- The wooded area of Benarth Wood SSSI to the south east of Conwy town centre, along the River Conwy performs well in terms of multi-functionality.
- Bodlondeb Park and Local Nature Reserve is a highly multi-functional area to the north of the town centre, accessible from the coastal path, with features such as woodland footpaths, sports facilities and varied habitats.
- The agricultural land surrounding both towns performs limited functions.
- Tre-Marl Industrial Estate at Llandudno Junction and surrounding retail areas perform poorly in terms of multi-functionality, though woodland belts separating units, along the A55 and bordering the River Conwy add some interconnected areas of high multi-functionality.
- Residential streets at Llandudno Junction are poorly functioning in terms of GI, with street trees along some roads increasing functionality (such as St George's Drive).
- Marl Hall Woods and Nature Reserve is to the north east of the town, is a multi-functional asset, performing as many as 17 functions.

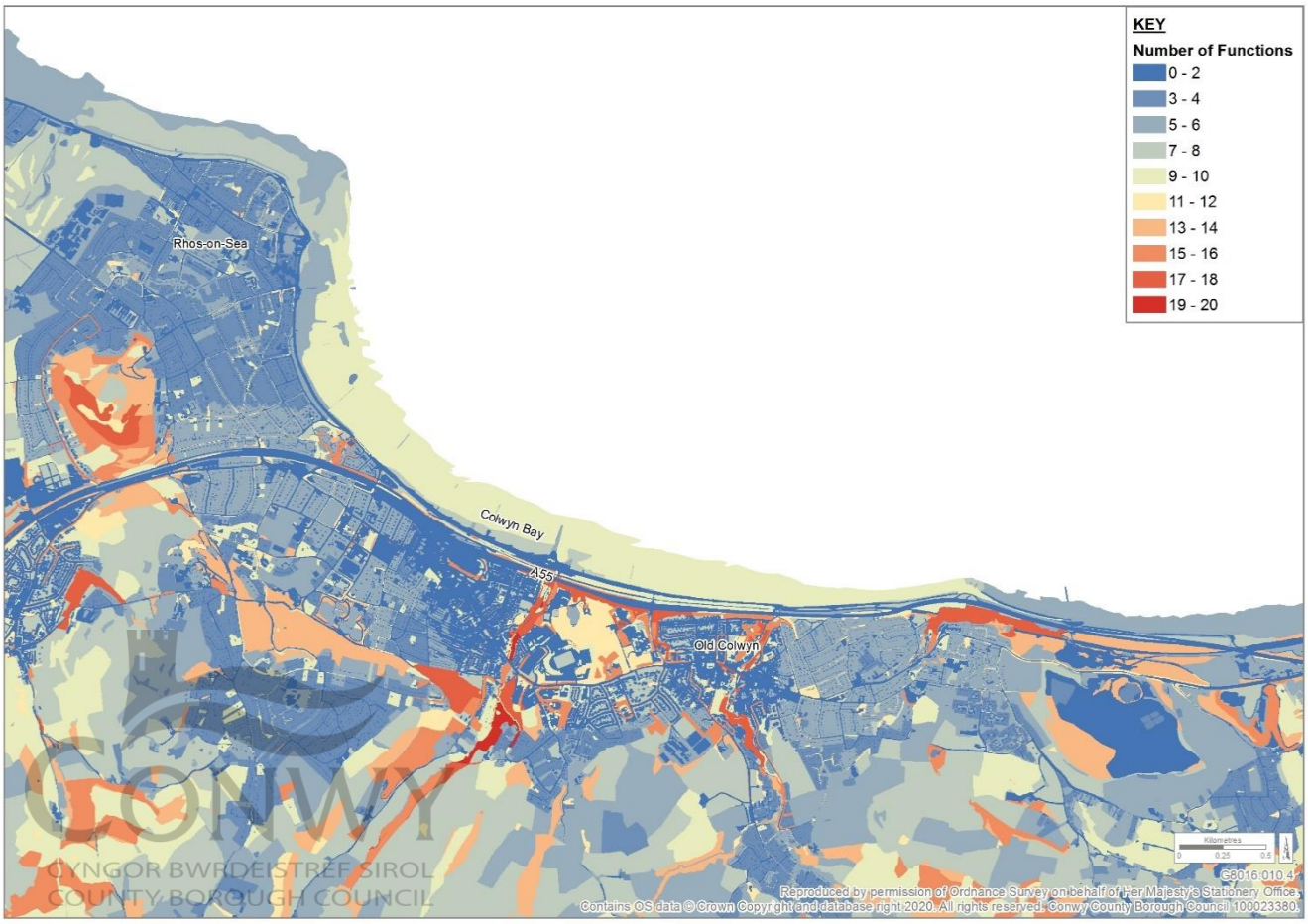
Figure 16: GI Multi-functionality- Llandudno



Llandudno – Key Messages

- Multi-functionality is limited within the town centres of Llandudno, Llanrhos and Rhos-on-Sea and surrounding residential areas.
- The Great Orme is an area performing a moderate number of functions.
- The agricultural land separating towns is generally low functioning with some interspersed woodland blocks which increase multi-functionality.
- The woodland area to the east of Llandudno including Coed Gaer and Coed Isaf are highly multi-functional, as well as Bryn Pydew Nature Reserve further south.

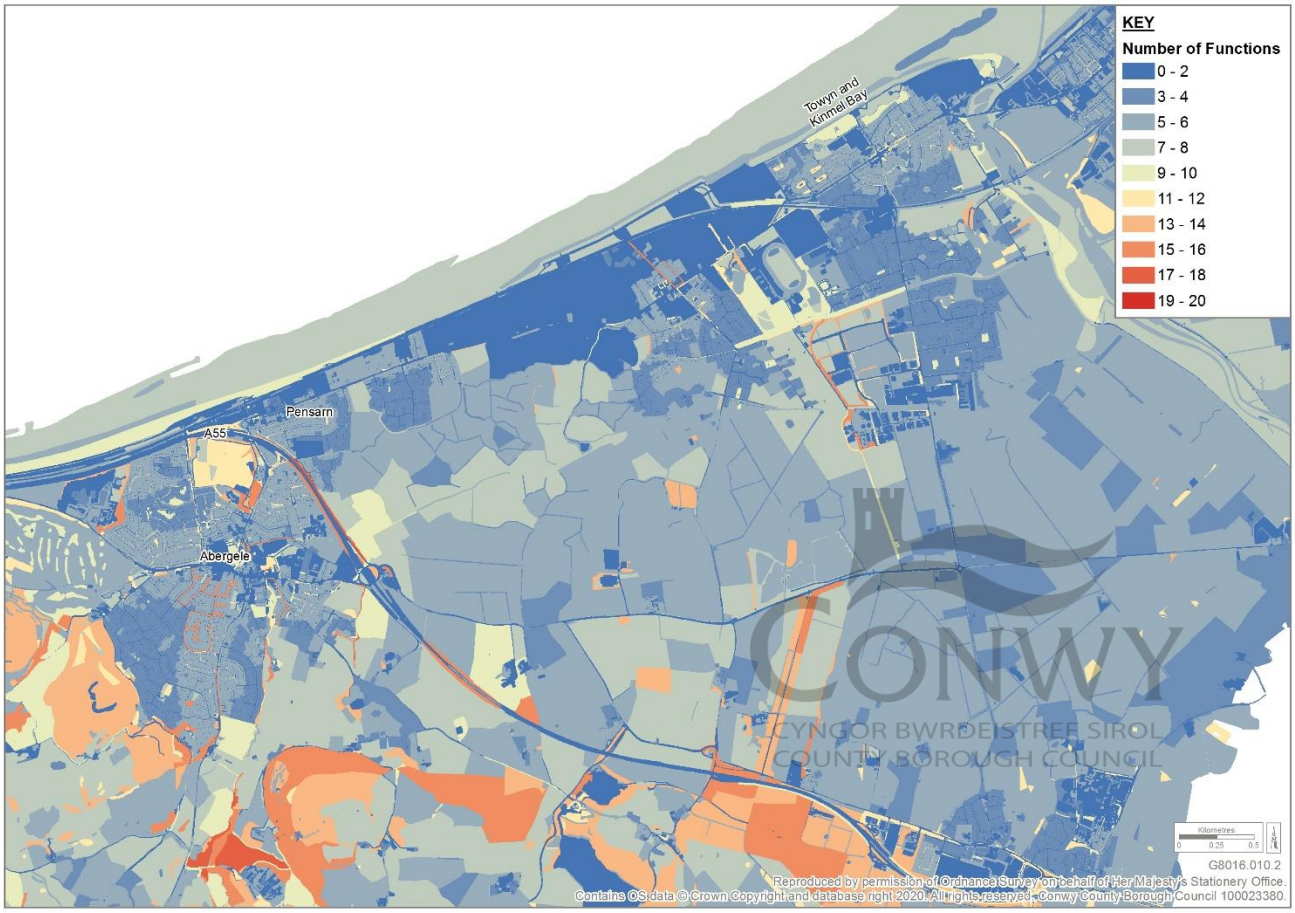
Figure 17: GI Multi-functionality- Rhos-on-Sea, Colwyn Bay and Old Colwyn



Rhos-on-Sea, Colwyn Bay and Old Colwyn – Key Messages

- The built up areas of Rhos-on-Sea are particularly devoid of multi-functional GI, especially along residential streets. Bryn Euryn Nature Reserve in the south west of Rhos-on-Sea provides a multi-functional area amidst the built form.
- In general, GI performs limited functions within the town centres of Colwyn Bay and Old Colwyn, with more multi-functional GI on the outskirts of the towns. Eirias Park is a large GI asset performing moderately to highly in terms of functionality between the two towns.
- The Nant y Groes and River Colwyn river corridors are multi-functional areas running north through the urban areas towards the coast, lined with woodland and accessible footpaths such as the Fairy Glen Local Nature Reserve in Old Colwyn.
- The woodland buffer planting separating the towns from the A55 performs many functions.
- Pwllycrochan Woods LNR is a large multi-functional asset dissecting Colwyn Bay on an east-west axis.

Figure 18: GI Multi-functionality- Abergele, Pensarn and Towyn and Kinmel Bay



Abergele, Pensarn and Towyn and Kinmel Bay– Key Messages

- In general, GI within the built up area of Abergele performs very limited functions, though street trees in the residential areas to the south of Market Street provide some areas of multi-functional GI.
- The woodland to the south west (Coed y Gopa) and south east (Coed Abergele) of the built up area at Abergele perform a higher number of functions.
- GI within Towyn and Kinmel Bay performs particularly limited functions in comparison to Conwy's other coastal towns, with some areas absent of GI around Tir Prince Fairground, Bay Trading Estate and along the coast.
- The River Clwyd Corridor has moderate multi-functionality.
- The agricultural land between settlements performs limited functions.
- Kinmel Park Woodland, to the south of the A55, is a large area of GI performing multiple functions.

Quality of GI

3.69 The multi-functionality maps show that high functionality is often associated with high environmental quality[5], for example the high functionality of areas including Mynydd Hiraethog and the woodlands surrounding Abergele. High functionality usually implies diversity and maturity of GI, and usually implies the site is valued by a range of users, but it would require site-specific assessment to judge whether a given area is managed well and is in good condition.

3.70 Low GI functionality does not directly correspond with land that is of low value or quality. A highly-functioning environment is more likely to be widely valued and hence well-managed, but site-based quality assessment would still be required to assess whether particular sites are managed as well as it could be, bearing in mind local needs.

3.71 Quality, and its relationship with delivering GI benefits, needs to be addressed at all stages, including design, planning conditions, delivery and long-term management. Even well designed GI will not deliver the full range of benefits unless its long-term management is fully addressed from the outset.

3.72 It is beyond the scope of this commission to carry out a borough-wide quality assessment for GI and identify specific quality targets or current shortfalls. Nevertheless stakeholder consultation has identified projects which tackle known GI quality deficiencies. Whilst multi-functionality is a useful tool, it is important that it is cross-checked with local knowledge and aligned with the needs of people and nature across the borough, and this process is outlined in Section 4.0.

[5] A measure of the condition of an environment relative to the requirements of one or more species, any human need or purpose. It includes measures such as pollution, aesthetic and habitat potential (Johnson et al (1997). "Meanings of environmental terms." *Journal of Environmental Quality.* 26: 581–89.)

4.0 Analysis of Needs and GI Functions

4.1 One of the principal aims of the GIA is to identify where need for GI is currently being met, or not met. Using objective spatial analysis, informed by stakeholder consultation, this section identifies where investment in multi-functional GI can have the most benefits to society and nature to meet local need effectively, and support the objectives of the GIA and the RLDP as well as NRW's North West Wales Area Statement.

4.2 Given that almost 96% of Conwy is GI, the focus of this stage is to build a picture of where GI interventions should be targeted to have the most effective outcomes. To understand where GI can have the most benefits, a range of tools are used such as national and local guidance and benchmarks, stakeholder knowledge and the multi-functionality mapping shown in Section 3.0.

4.3 Ideally, multi-functional GI should be aligned with need, which means that GI has the most benefits where a demand exists from people and nature. Figure 19 below is a matrix useful for strategy development. It highlights that where GI is high functioning, it should be safeguarded and enhanced to continue to meet local need. For example, the upland moorland at Mynydd Hiraethog at the border with Denbighshire, is a highly functioning area of GI. Effective management and protection can ensure that the many functions of this upland moorland, including recreational provision, carbon storage and provision of wildlife habitats, are maintained, managed and enhanced, in line with NRW Area Statement priorities for resilient ecosystems.

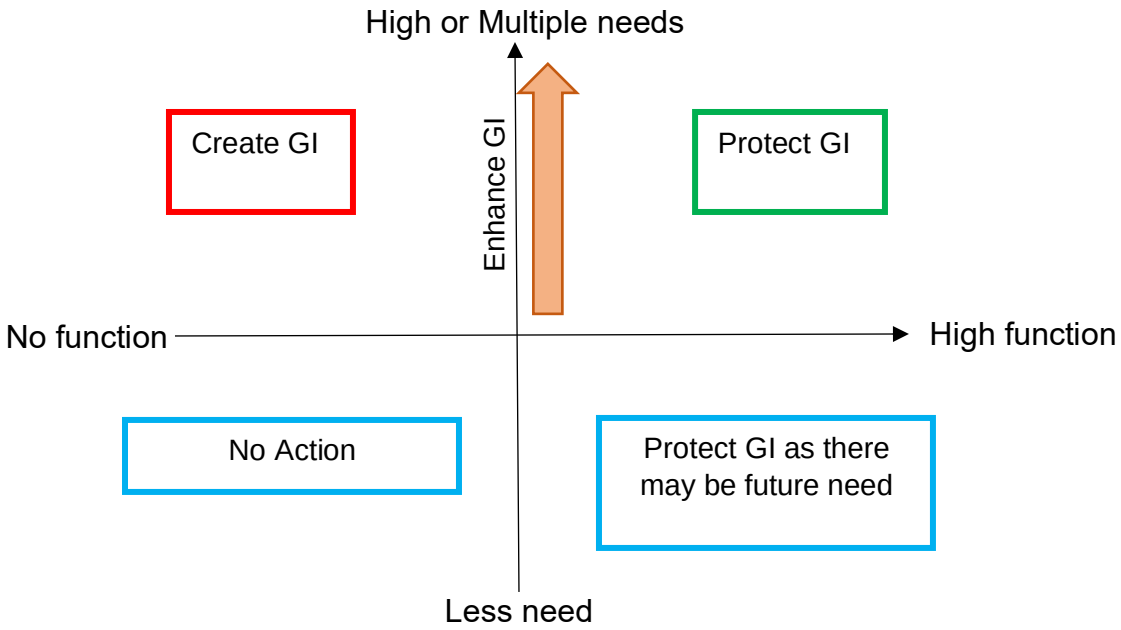
4.4 On the other hand, where needs are inadequately met by existing or absent GI, the creation and enhancement of GI is necessary. There are large areas of Conwy's coastal towns which are currently absent of GI or where GI is performing very few functions. Enhancing existing GI assets and creating new, multi-functional green spaces provide a range of social, environmental and economic benefits close to Conwy's highly populated towns.

4.5 In terms of GI multi-functionality for Abergele, Pensarn, Towyn and Kinmel Bay, the key messages (highlighted in Section 3) showed the low functioning GI in Towyn and Kinmel Bay. The case study for Parc Hanes in Kinmel Bay (see section 5) considers how several agricultural fields in Welsh Government ownership could be transformed into a multi-functional open space for people and nature, addressing needs such as health and wellbeing, flood risk and habitat for wildlife.

4.6 In some cases, areas of limited need are home to areas of highly multi-functional GI. In these instances, GI should be protected in case there are future pressures for site allocations.

4.7 As well as poorly functioning GI, areas of need may also arise as a result of potential future development or infrastructure which will place additional demands on existing GI or where statutory or locally-adopted environmental objectives will not be met unless there is investment in GI. The later section on Conwy's strategic sites considers the opportunity to address some local needs through recommendations for multi-functional GI for those sites.

Figure 19: Need and Functionality Matrix



4.8 The analysis of needs in this section is guided by the priority areas introduced in Section 1.0:

- Resilient Wildlife and Biodiversity Network
- Thriving Blue Environment
- Sustainable Growth and Economic Development
- Healthy Lifestyles and Wellbeing
- Improve Connectivity

4.9 This section brings together analysis plans confirming:

- Area of GI to protect (areas of need with GI present and functioning)
- Area of GI to enhance (areas of need with GI present but not fully meeting need)
- Area of potential to create GI (areas of need with limited or no GI resource)

4.10 The analysis of 'need' under each priority area is set out below. As GI is inherently multifunctional, evidence has been drawn from a wide range of data sources; using Geographic Information Systems (GIS) to spatially analyse and map assets and areas of need. The GIS analysis has been refined by local knowledge, community needs and values.

Priority 1: Resilient Wildlife and Biodiversity Networks

4.11 A range of metrics relating to biodiversity and wildlife have been mapped to gain a spatial understanding of need and opportunity in relation to GI. There are two current limitations on the mapping, as described below.

4.12 Mapping ecological networks requires the identification of habitat/site-based information which is available for each land parcel. By contrast, species-based information is generally only available on a "grid-square" basis. This GIA presents these types of information separately in order to reduce confusion and to aid policy development.

4.13 Another practical problem which will need future resolution is that spatial information about the location of s7 biodiversity priority habitats is not yet available digitally. It would also be useful to obtain information on areas of land under positive conservation management (e.g. NRW's Glastir agreements), in order to target GI policy towards areas where such agreements would bring the widest range of GI benefits.

Habitat and Site-based GI priorities

4.14 Using available mapping, the following priorities are shown:

Habitat Areas of GI to Protect

- Statutorily-protected sites such as Sites of Special Scientific Interest (SSSI), Local Nature Reserves and also Conwy Wildlife Sites and ancient woodland which are subject to policy protection.
- Urban areas with relatively high tree canopy cover (>18%)
- In the future, it would be useful to map areas where there is a high coverage of s7 habitats already under positive conservation management

Habitat Areas of GI to Enhance

- Suitable land parcels that intersect a 250m buffer of designated sites, on the basis that enlargement and buffering of already-protected sites will deliver the "bigger, better and more joined-up" benefits highlighted in the Lawton report.
- Floodplains where re-naturalisation and/or reconnection is of greatest potential, as assessed by "Working With Natural Processes" datasets on floodplain woodland planting potential, riparian woodland potential and floodplain reconnection potential
- In the future it would be useful to map areas of high coverage of important habitats which are not currently under positive management nor within an ecological designation, on the basis that relatively simple changes in management are likely to result in habitat improvement.

Habitat Areas of potential to create GI

- Urban areas with low tree canopy cover (<18%)

- In future, it would be useful to map areas where there is currently very low coverage of s7 habitats of biodiversity priority, say below 10%.

Habitat Areas of GI to Protect

4.15 The analysis map highlights Conwy's core biodiversity resources including Special Protection Areas (SPA), Special Areas of Conservation (SAC), Sites of Special Scientific Interest (SSSI), National Nature Reserves, Local Nature Reserves, Conwy Wildlife Sites and ancient woodland. These resources enjoy statutory and policy protection but it is critical to ensure they are managed to maintain (or recover) their favourable conservation status. Landowners should be supported in efforts to ensure continued protection. Grant funding from government could be targeted towards the protection and where appropriate expansion of such biodiversity assets.

4.16 Urban areas of high tree canopy cover (lower super output areas (LSOAs) above 18%) are included in this category, though some of these areas may have more limited current policy protection.

4.17 Areas of GI to protect are partly located along the coast from Llanfairfechan to the east of Abergele, although built up areas interrupt connectivity. A corridor extends south along the River Conwy towards Dolgarrog. There is a large area of GI to protect in the central part of the county borough around Moel Derwydd. Other pockets of habitat area of GI to protect include ancient woodland and Conwy Wildlife Sites throughout the study area.

4.18 Landowners involved in the various Glastir schemes (sustainable land management) across the county borough could be included in areas of GI to protect. The schemes cover a five year period and farmers and landowners should be encouraged to extend their agreements with WG both in terms of timescales and land coverage. These areas are not currently mapped.

Habitat Areas of GI to Enhance

4.19 Reconnecting habitats is a key driver of a county borough wide ecological network. Wildlife needs connectivity between habitats to ensure continued survival in the face of climate, land use and development pressures. The analysis map highlights a number of gaps in the core biodiversity network. Some of the larger gaps where GI could be enhanced are:

- Watercourses associated with the River Dulas catchment – linking higher ground in the northern part of the county borough to Llanddulas and the coast
- Watercourses associated with the River Elwy catchment – linking higher ground in the central part of the county borough towards St Asaph and the River Clwyd
- Watercourses associated with the upper River Dee catchment – linking higher ground in the southern part of the county borough east towards Llangollen and the lower River Dee

- Watercourses associated with the upper River Conwy catchment - linking higher ground in the southern part of the county borough towards the lower River Conwy

4.20 The supporting map 'Habitat Networks' highlights the same core biodiversity network along with suitable land parcels that intersect a 250m buffer of the core sites. The map shows opportunities for a network particularly the peri-urban areas to the coast and the central area of the county borough. Suitable habitat for enhancement is most likely to be agricultural land that would require land management practices supportive of wildlife.

4.21 Areas where there is a high coverage (say >33%) of s7 habitats that are not currently under positive management nor within a designation could be included in this category, although not currently capable of being mapped as Glastir agreement information is not publicly digitally available.

Habitat Areas with potential to create GI

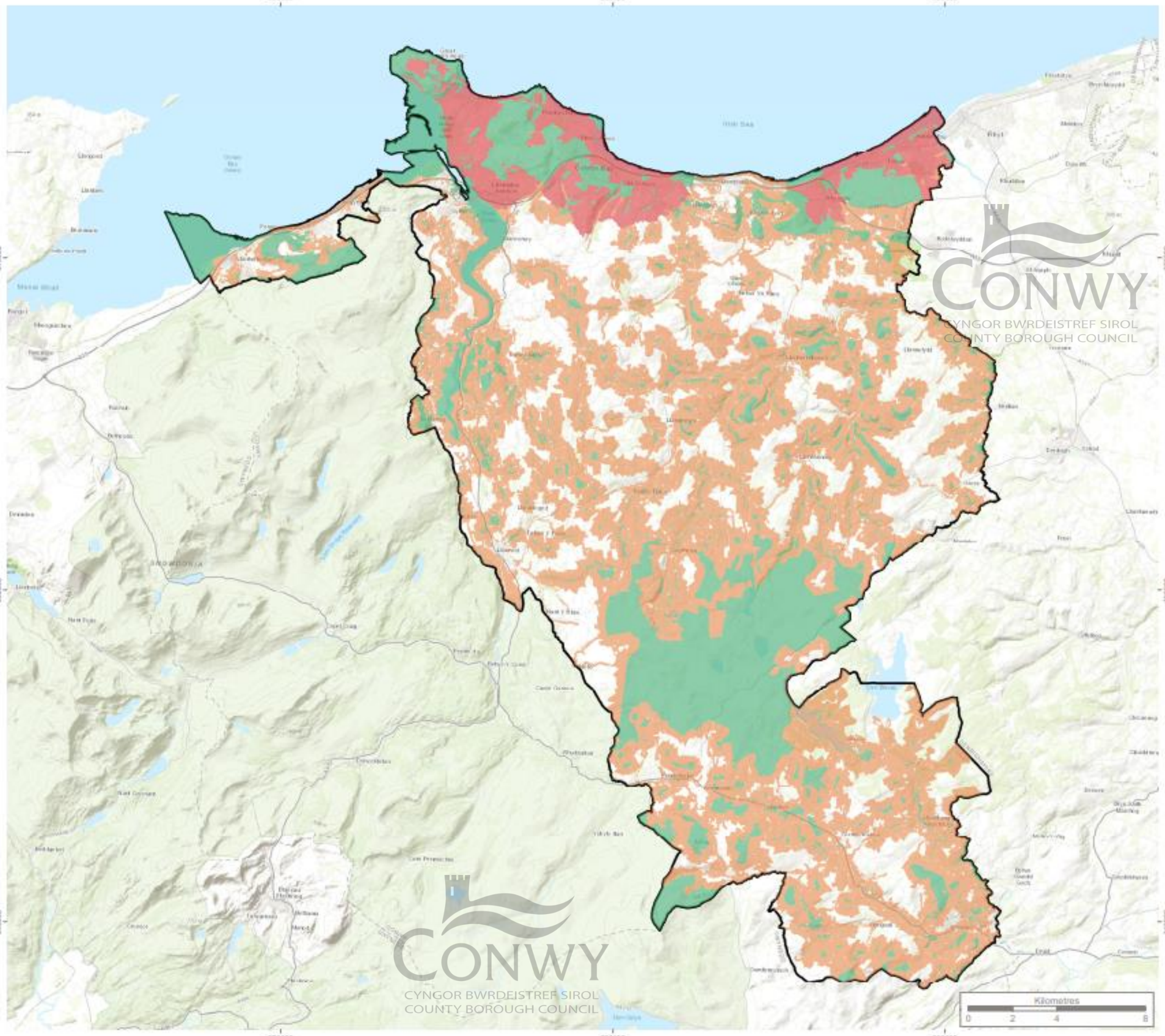
4.22 The analysis map highlights areas of low tree canopy cover in the urban areas (mapped according to lower super output area (LSOA). The analysis is supplemented by the Town Tree Cover in Conwy Study (2016). Based on data from 2013, the coastal urban areas with the lowest tree canopy cover are Towyn/Kinmel Bay (6.4%), Llandudno (7.7%), Tywyn/Deganwy/Llandudno Junction (11.3%), Abergele (11.6%) and Penrhyn Bay (11.9%). These urban areas cover relatively large areas of the central and eastern parts of the coast.

4.23 The Town Tree Cover in Conwy Study (2016) (to be referred to as the Study) recommends that for areas of low tree canopy cover, local trees strategies should be adopted along with the setting of canopy cover targets. The Study provides ward-level analysis as to canopy cover per land use type and spatial distribution of trees by ward.

4.24 Canopy cover objectives set for local areas will be greatly facilitated if existing funding streams supporting the delivery of a high quality environment and infrastructure across urban Wales integrate tree-related measures as an eligible expenditure, including funding from Welsh Government and NRW.

4.25 Any local tree strategy and canopy cover target will also contribute to Green Infrastructure Assessment's other four objectives, covering needs such as health deprivation, air quality and flooding.

4.26 Outside the urban areas, in the wider countryside, any areas where the coverage of s7 habitat is less than 10% could be classed as nature-deprived, meriting improved habitat management and restoration in order to generally uplift the quality and resilience of Conwy's environment. This information is not yet available digitally.



KEY

- Conwy County Borough Council (Planning Authority)
- Area to Protect Existing Green Infrastructure
- Area to Enhance Existing Green Infrastructure
- Area of Potential to Create Green Infrastructure

Rev	Description	Drawn	Approved	Date

THE ENVIRONMENT PARTNERSHIP

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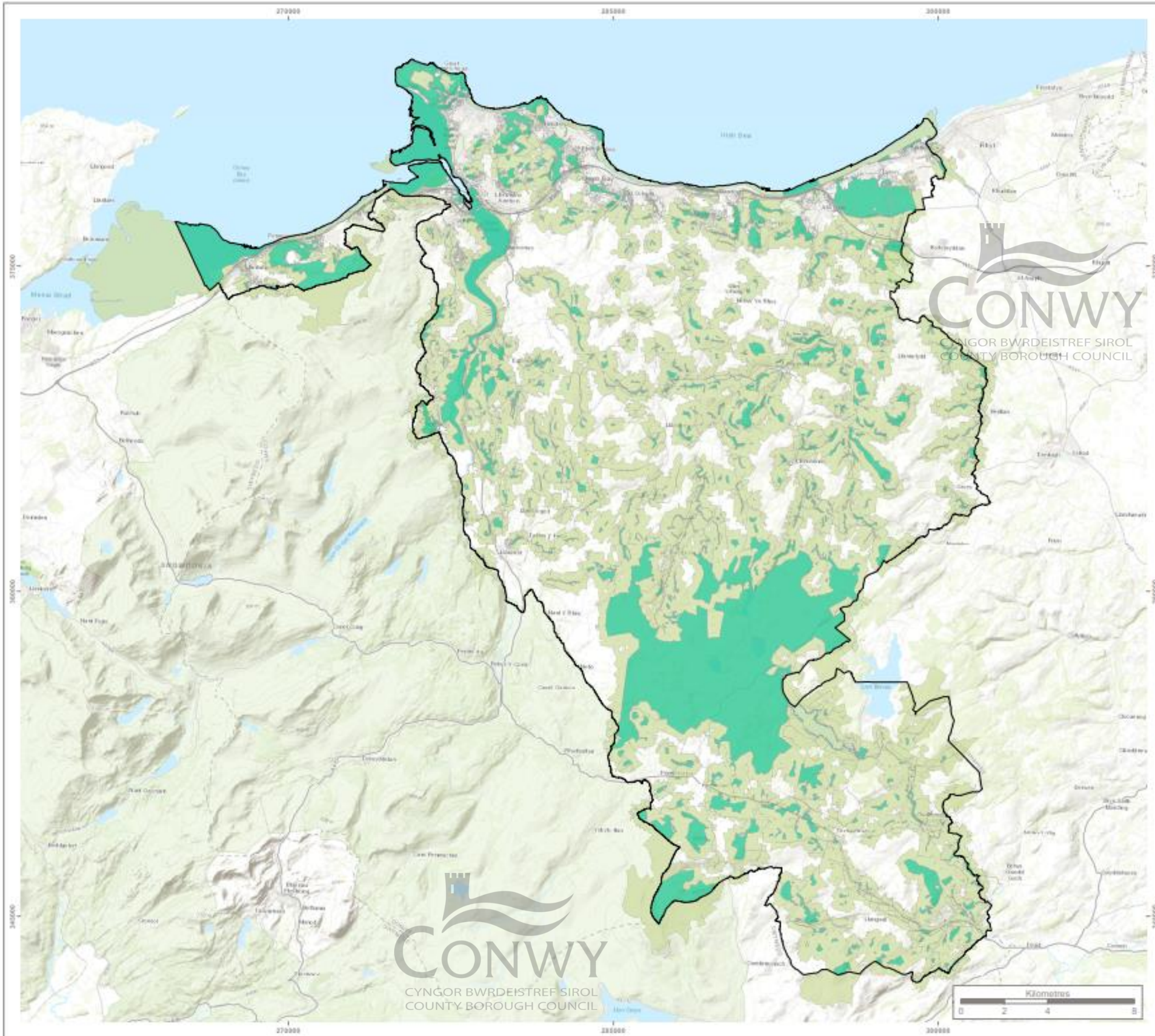
Project
Conwy Green Infrastructure Assessment

Title
Analysis of Needs and GI Functions – Biodiversity

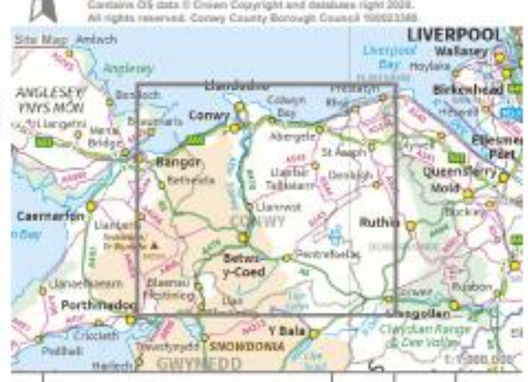
Drawing Number
G8016.014

Drawn	Checked	Approved	Scale	Date
SA	JO	TJ	1:175,000 @ A3	01/10/2020



KEY

- Conwy County Borough Council (Planning Authority)
- Ecological designations
- Suitable habitats within 250m of ecological designations



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THE ENVIRONMENT PARTNERSHIP

Genesis Centre, Birchwood Science Park, Warrington WA3 7BH
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Project
Conwy Green Infrastructure Assessment

Title
Habitat Networks

Drawing Number
G8016.017

Drawn	Checked	Approved	Scale	Date
SA	JO	TJ	1:175,000 @ A3	01/10/2020

Species-oriented GI Priorities

4.27 In order to identify areas of Conwy that are, or could be, important for species networks, an analysis of Keystone Bird Assemblages and Important Bat Foraging Areas was carried out. Cofnod, the local records centre, supplied the data and local insights to assist with the analysis.

4.28 The purpose of the analysis was to identify landscapes in need of habitat conservation, enhancement or restoration for assemblages of locally distinctive priority species. It provides a breakdown of three key bird assemblages associated with farmland, upland and wetland habitats. Each bird is listed under Section 7 of the Environment (Wales) Act 2016 and may also be a Schedule 1 species. All need a combination of ecological niches to thrive within their given habitat type.

4.29 The analysis also examines bat assemblages.

4.30 Appendix 2 provides the method for the analysis with an outline provided below. In terms of farmland birds up to eleven species are considered including Skylark, Common Linnet and Yellow Wagtail. Three species are considered for upland birds and these are Ring Ouzel, Eurasian Curlew and Golden Plover, all in their breeding phase. In terms of wetland birds up to ten species are considered including Reed Bunting, Snipe and Eurasian Curlew, all in their non-breeding phase.

4.31 Conwy supports nine species of bat including the lesser horseshoe bat, which has a restricted range in the UK, with Wales being a stronghold.

4.32 The analysis identified hotspots (strongholds) for the conservation-priority species, in order to promote conservation land management, including corridors and stepping-stone habitats in and around the hotspot.

4.33 'Hotspot' Maps show the frequency of records for the period 2014-2019 for the three bird assemblages and the bat assemblage. Hotspots are grid squares where:

- 6 or more of 11 possible farmland bird species are recently recorded;
- 3 species of upland birds are recorded;
- 7 or more of 10 possible wetland bird species are recently recorded;
- 7 or more bat species are recently recorded.

4.34 Table 5 below shows how the species records are used to indicate areas for GI protection, enhancement and creation, respectively.

Table 5 - Criteria for Conservation Priority Assemblages and link to GI Assessment

Species Assemblage	Hotspots (GI Protection)	Moderate Presence (GI Enhancement)	Some Presence (GI Creation)
Farmland Birds	6,7,8,9,10,11 species	3, 4 or 5 species	1 or 2 species
Upland Birds	3 species	N/A	N/A

Wetland Birds	7,8,9 or 10 species	4 or 5 species	3,2 or 1 species
Bat Assemblage	7,8 or 9 species	4,5 or 6 species	1,2 or 3 species

Species Hotspots for GI Protection

4.35 The hotspot squares indicate a high species-richness, and open habitats within these squares merit a broadly protective approach when considering new development or land management changes. This approach is not an absolute protection, rather it is an "Alert" for land managers and decision-makers to identify the features of the landscape that contribute to the sustenance of the species and ensure that such features are maintained, recognising that species are mobile and some features are replaceable.

GI Enhancement for Species

4.36 A moderate presence of priority species indicates that the landscape possesses a good range of features needed for the species to thrive, albeit perhaps affected by fragmentation, intensification or urbanisation. Development or changes in land management should aim for a net increase in the presence and connectivity of such features.

GI Creation for Species

4.37 Some squares have recorded low numbers of s7 or protected species, indicating that the area is within the normal breeding or foraging range of such species (as opposed to squares with no records). These areas would benefit from habitat creation to boost the number of features that sustain important species. Along with enhancement squares, if development occurs in or near these areas, a net gain approach could boost species presence.

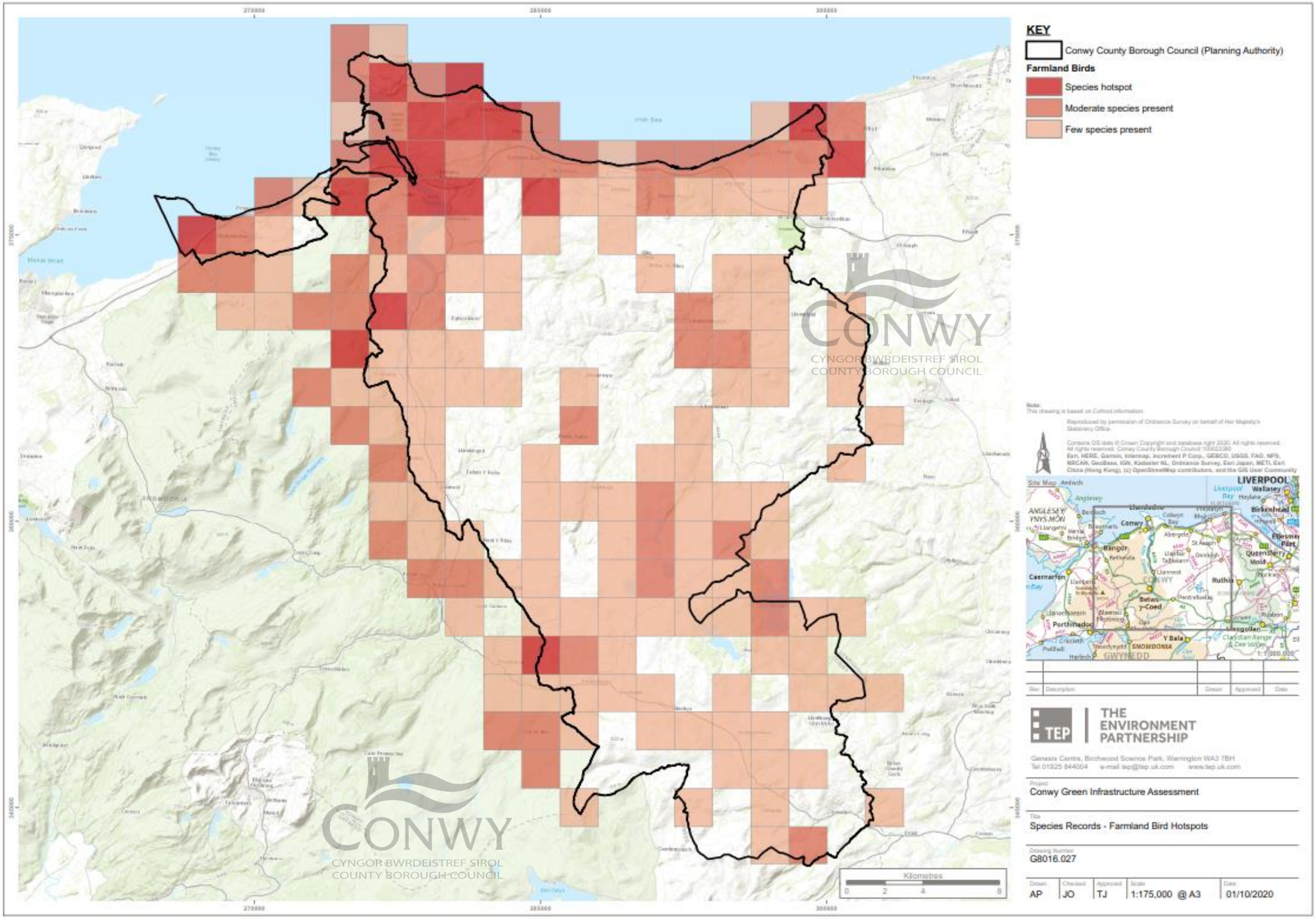
Limitation

4.38 The analysis relies on biological records, which is influenced by the number of local recorders and access to carry out surveys. Thus the absence of data does not imply the absence of the species, and any development proposal will need to comply with survey requirements imposed by statute or policy, rather than relying on the hotspot maps, which are for the purpose of guiding GI investment.

Farmland Birds

4.39 The 'hotspot' map shows strongholds along the coast, particularly around Llanfairfechan, the Conwy estuary, the Great Orme, the Little Orme, Penrhyn Bay and the Clwyd estuary. Other 'hotspots' are to the lower River Conwy around Tal-y-bont and the upper River Conwy catchment near Padog.

4.40 Areas of moderate species presence include the River Conwy corridor, the coast between Colwyn Bay and Kinmel Bay, parts of the River Elwy catchment and the heathland at Moel Llyn.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300000
370000
360000
350000
340000
KEY
Conwy County Borough Council (Planning Authority)
Farmland Birds
Species hotspot
Moderate species present
Few species present
CONWY
CYNGOR BWRDEISTREF SIROL
COUNTY BOROUGH COUNCIL
Kilometres
0 2 4 8
Note:
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Site Map
Anglesey
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Conwy
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Caernarfon
Ruthin
Denbigh
Llandudno
Colwyn Bay
Abergele
St Asaph
Mold
Queensferry
Flint
Wrexham
Birkenhead
Wallasey
LIVERPOOL
Liverpool Bay
Haylake
Bethesda
Llanberis
Betws-y-Coed
Porthmadog
Criccieth
Pwllheli
Harlech
Y Bala
SNOWDONIA
GWYNEDD
Llangollen
Ruabon
Clwydian Range & Dee Valley
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Rev
Description
Drawn
Approved
Date
THE ENVIRONMENT PARTNERSHIP
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Project
Conwy Green Infrastructure Assessment
Title
Species Records - Farmland Bird Hotspots
Drawing Number
GB016.027
Drawn
AP
Checked
JO
Approved
TJ
Scale
1:175,000 @ A3
Date
01/10/2020

270000
285000
300000
375000
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KEY

Conwy County Borough Council (Planning Authority)

Upland Birds

Species hotspot

Note:
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Project
Conwy Green Infrastructure Assessment

Title
Species Records - Upland Bird Hotspots

Drawing Number
G8016.026

Drawn	Checked	Approved	Scale	Date
AP	JO	TJ	1:175,000 @ A3	01/10/2020

Kilometres
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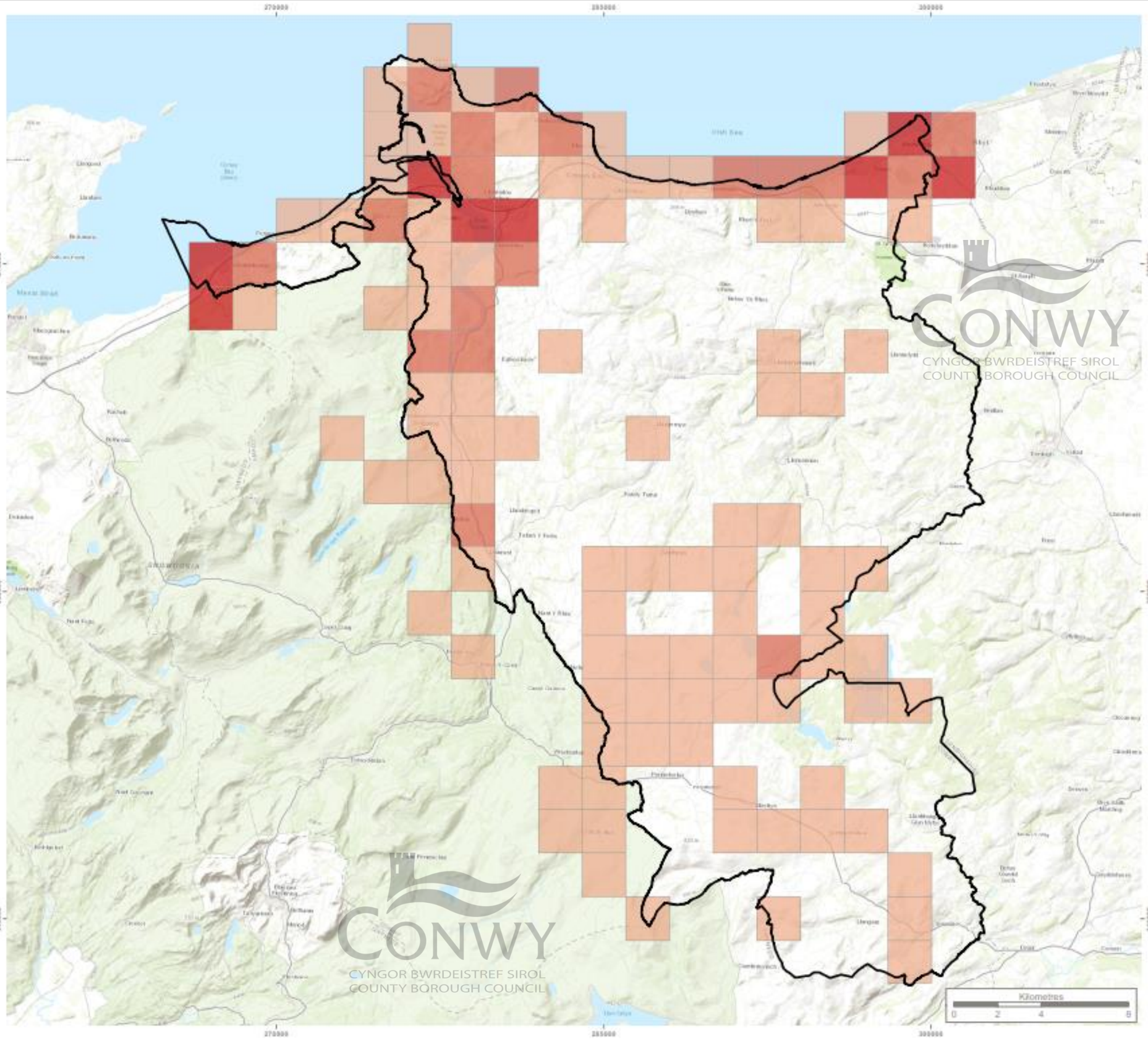

KEY

Conwy County Borough Council (Planning Authority)

Wetland Birds

- Species hotspot
- Moderate species present
- Few species present

Note:
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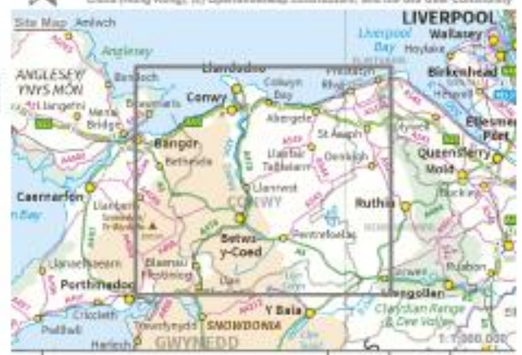

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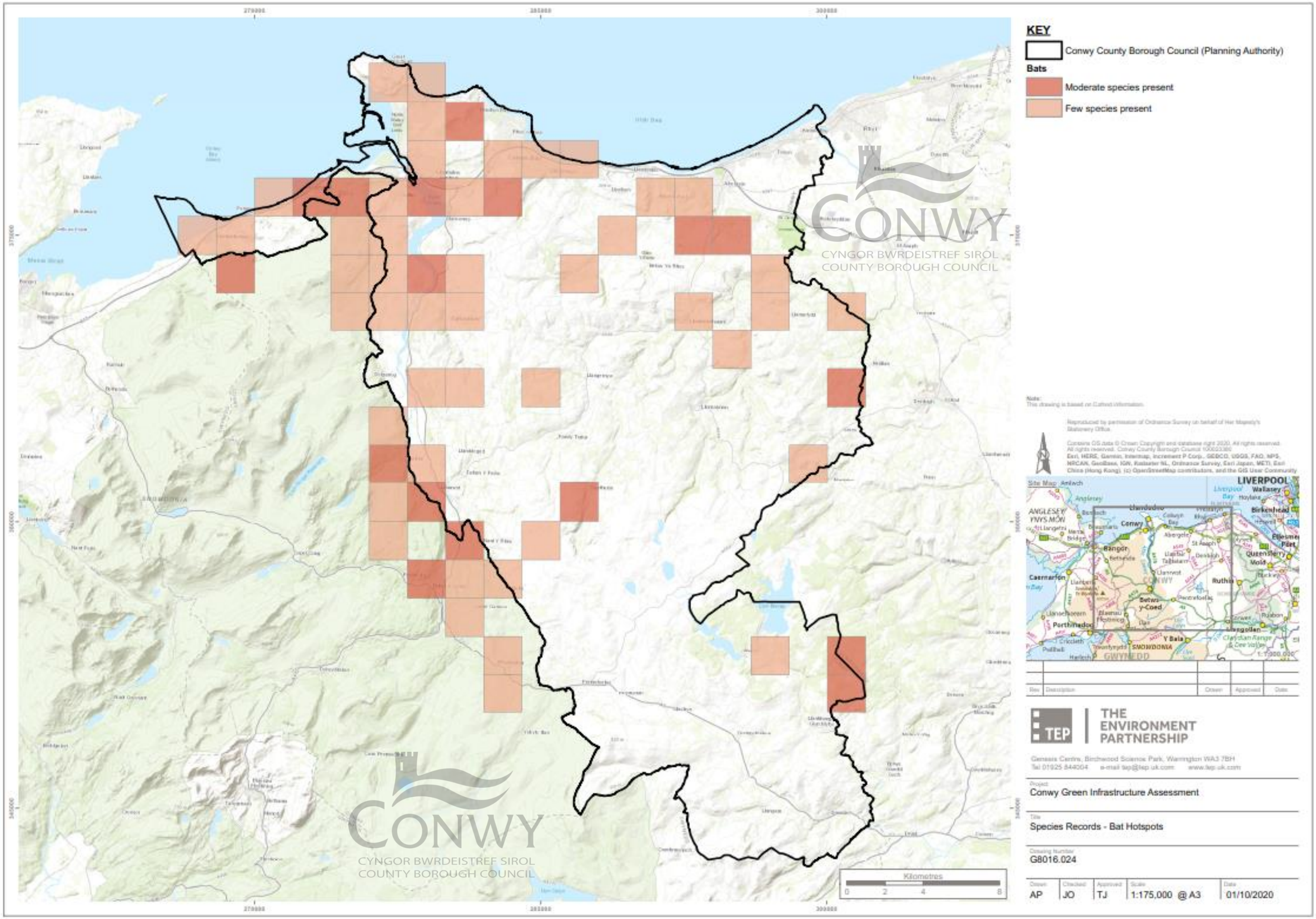
Project:
Conwy Green Infrastructure Assessment

Title:
Species Records - Wetland Bird Hotspots

Drawing Number:
G8016.025

Drawn	Checked	Approved	Scale	Date
AP	JO	TJ	1:175,000 @ A3	01/10/2020


KEY
Conwy County Borough Council (Planning Authority)
Bats
Moderate species present
Few species present
Note:
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Site Map
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Betws-y-Coed
Porthmadog
Y Bala
SNOWDONIA
GWYNEDD
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Tel 01925 844004 e-mail tep@tep.uk.com www.tep.uk.com
Project
Conwy Green Infrastructure Assessment
Title
Species Records - Bat Hotspots
Drawing Number
G8016.024
Drawn AP | Checked JO | Approved TJ | Scale 1:175,000 @ A3 | Date 01/10/2020
Kilometres
0 2 4 8
279000
289000
299000
375000
365000
355000
345000
CONWY
CYNGOR BWRDEISTREF SIROL
COUNTY BOROUGH COUNCIL

Upland Birds

4.41 The 'hotspot' map shows species presence around the Great Orme, Coed Gear (south east of Llandudno) and around the Little Orme. It is perhaps of concern that the terrestrial uplands do not appear to support assemblages.

Wetland Birds

4.42 The 'hotspot' map shows strongholds along the coast, particularly around Llanfairfechan, the Conwy estuary and the Clwyd estuary.

4.43 Areas of moderate species presence include the Great Orme, the Little Orme, Penrhyn Bay, the coast around Abergele, lower River Conwy and at Llyn Aled in the southern part of the county borough.

Bat Assemblage

4.44 Moderate species presence is found around Penmaenmawr, the lower section of the River Conwy, around Llanrwst, Penrhyn Bay, higher ground south of Abergele and around Clocaenog Forest in the southern part of the county borough.

Priority 2: A Thriving Blue Environment

4.45 The range of metrics relating to the blue environment have been mapped to gain a spatial understanding of need in relation to GI and these include:

Areas of GI to Protect

- Waterbody catchments in 'good' condition from the Water Framework Directive (WFD)
- Woodland area

Areas of GI to Enhance

- Waterbody catchments in 'moderate' condition from the WFD

Areas of potential to create GI

- Waterbody catchments in 'poor' condition from the WFD
- Areas of high sealed surface
- Fluvial flooding (flood zone 3)

<u>Areas of GI to Protect</u>

4.46 The analysis map highlights waterbody catchments in 'good' condition where it assumed that GI is contributing to water quality. The waterbody catchments identified include:

- Upper River Dulas catchment in the northern part of the county borough;
- River Elwy catchment in the central part of the county borough (excluding parts of upper catchment);

- Part of the upper River Dee catchment in the south of the county borough;
- Upper River Conwy catchment in the south of the county borough.

4.47 Woodland areas in other catchments are also highlighted for protection due to their contribution to good water quality and flood mitigation.

Areas of GI to Enhance

4.48 Waterbody catchments in 'moderate' condition are highlighted for the opportunity to improve water quality and mitigate flood risk through GI interventions such as establishing woodland and scrub on poorer quality soil and steeper slopes where agricultural productivity is lower. Woodland planting and scrub regeneration reduce soil erosion and subsequent sediment movement towards watercourses. They also "roughen" the land, slowing the flow of surface water and improving infiltration; thereby reducing flood risk.

4.49 Where land is required for ongoing agricultural operations, hedgerow planting to field boundaries can also improve water quality, mitigate flood risk and reduction of agricultural runoff into watercourses.

4.50 The waterbody catchments for enhancement include:

- Northern fringes of the county borough;
- Upper River Elwy catchment in the central part of the county borough;
- River Dee.

Areas of potential to create GI

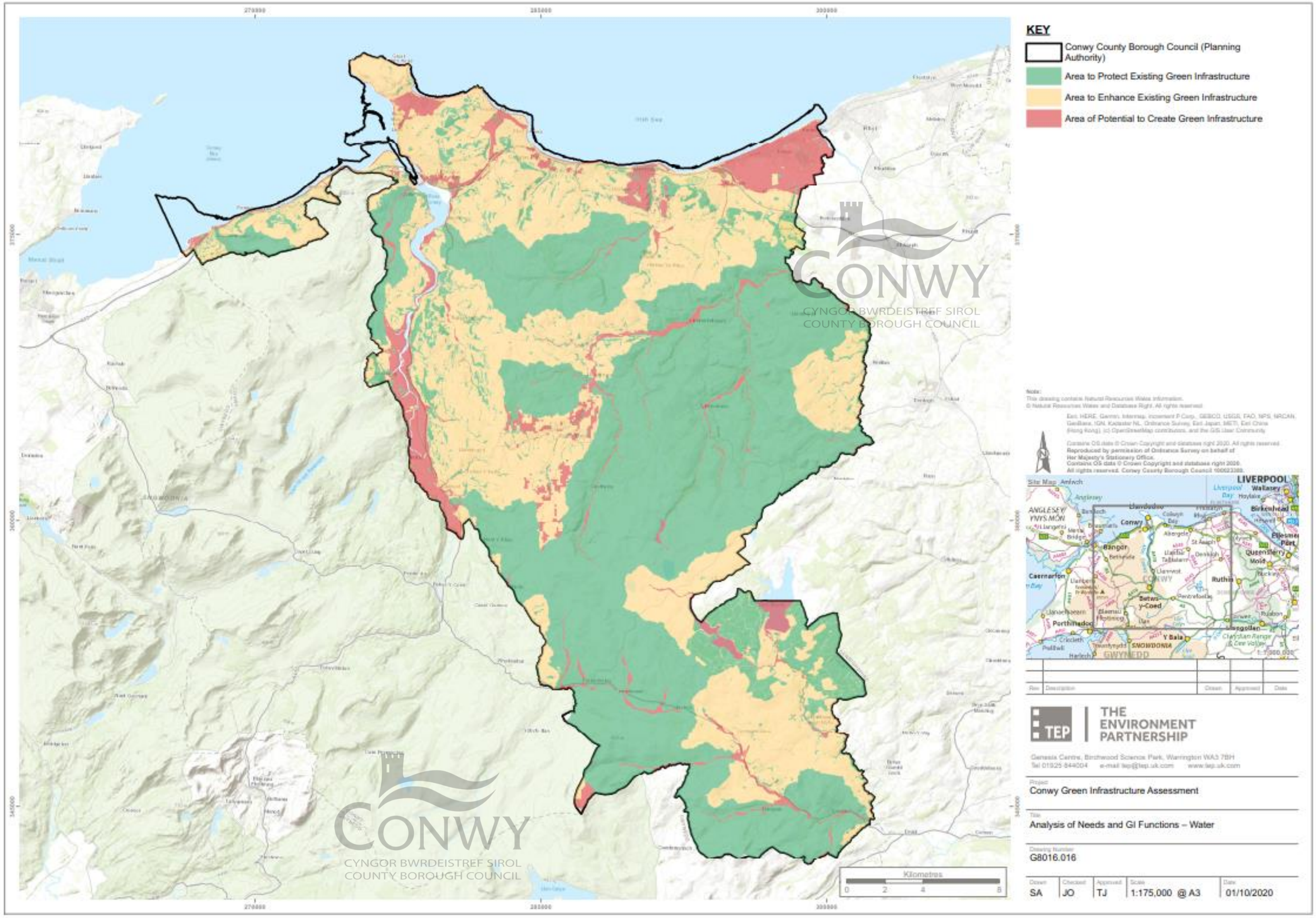
4.51 Waterbody catchments in "Poor" or "Bad" condition are:

- Upper catchment of River Elwy near Pandy Tudur and A548
- Lower section of River Dulas around Rhyd y Foel and Llanddulas

4.52 These areas should be prioritised and any interventions should follow the approach for 'Areas of GI to Enhance' (above).

4.53 The analysis map highlights lower super output areas (LSOAs) with over 50% sealed surface coverage, including:

- Llandudno;
- Llandudno Junction and A55 corridor to Colwyn Bay;
- Llanddulas;
- Towyn and Kinmel Bay.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Conwy County Borough Council (Planning Authority)
Area to Protect Existing Green Infrastructure
Area to Enhance Existing Green Infrastructure
Area of Potential to Create Green Infrastructure
CONWY
CYNGOR BWRDEISTREF SIROL
COUNTY BOROUGH COUNCIL
Kilometres
0 2 4 8
Site Map
LIVERPOOL
Conwy
Bangor
Caernarfon
Ruthin
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Project
Conwy Green Infrastructure Assessment
Title
Analysis of Needs and GI Functions – Water
Drawing Number
G8016.016
Drawn SA
Checked JO
Approved TJ
Scale 1:175,000 @ A3
Date 01/10/2020

4.54 Areas of high sealed surface are likely to contribute to surface water and fluvial flood risk and this can partly be addressed through increased tree canopy coverage, and encouragement of GI-oriented SuDS measures in public and private greenspaces. This might include the use of porous paving and raingardens in new development and in retrofit situations, along with measures to resist further hard surfacing. The public estate includes schools, health clinics and car parks, so at times of renewal, there may be opportunities to enhance soft landscape coverage and install SuDS. This might be undertaken in conjunction with water companies to reduce surface water sewerage charges.

4.55 There is also a close correlation between the areas of high concentrations of sealed surface and low tree canopy coverage (see paragraph 4.22).

4.56 Also highlighted on the analysis map are areas most at risk of fluvial flooding (flood zone 3), including:

- Lower sections of the River Conwy from Llanrwst to Tal-y-bont;
- Watercourses within catchments to the River Conwy, River Dulas, River Elwyn and River Dee catchments.

4.57 In such areas, there are various field-scale interventions that can be deployed, working with landowners as much as possible. These measures fall under the broad heading of “natural flood management” and include washland creation, leaky dams, river restoration, floodplain woodland establishment etc.

Priority 3: Sustainable Growth and Economic Development

4.58 Tourism is vital to the local economy, and many visitor enterprises rely on the quality of the natural environment for visitor retention and visitor experience. Good quality GI is also important in contributing to the approach and setting of tourism assets. Opportunities for GI to contribute to approaches (main road infrastructure (and land adjacent to roads to be referred to as a ‘buffer’) and arrival points to public transport hubs) to the county borough, along with greenways and green corridors linking tourism assets should also be promoted. The county borough is also promoted as place to stay for visitors using the tourism assets in the Snowdonia National Park.

4.59 GI can also have an important bearing on the quality of the environment for areas of business, employment and housing and this is also considered below.

4.60 The range of metrics relating to sustainable growth and economic development have been mapped to gain an understanding of need.

Areas of GI to Protect

- Tourist related sites and infrastructure with existing functioning GI contributing to the setting of the asset, including; recreation and exploration; interest in nature; cultural heritage;
- Land forming part of road corridor (100m buffer) approaches with existing functioning GI;

- Areas of high business and commercial density (highest 10% in the County Borough) with existing functioning GI.

Areas of GI to Enhance

- Tourist related sites and infrastructure with opportunities for GI enhancement

Areas of potential to create GI

- Areas of high business and commercial density (highest 10% in the County Borough) with limited GI;
- Land forming part of road corridor approaches (100m buffer), arrival spaces to railway stations and seafront promenades with limited GI;
- Proposals for Strategic sites

Areas of GI to Protect

4.61 The Tourism Assets map highlights the many tourism assets in Conwy where GI plays an important part in the quality and popularity of the asset. Some of the assets are in the Snowdonia National Park and they have been included as the policy review noted that visitors travel through the study area and use it for accommodation and subsistence and therefore bring income to the economy. The following have functioning GI that will require protecting:

- Adventure Tourism Destinations and corridor approaches (see below)
- Great Orme Country Park
- Llandudno Pier
- Marinas
- Beaches

4.62 Corridor approaches by road and rail are important as they convey the image of an area to visitors, investors and residents. The following corridor approaches have functioning GI that will require protecting:

- A55;
- A470 Llandudno to Betws-y-Coed;
- A547 Mochdre
- A5 Betws-y-Coed to Corwen;
- A543 Pentrefoelas to Denbigh;
- A548 Llanrwst to Abergele.

4.63 The approach and setting to areas of high business and commercial density are also important to investors as they convey the image of the area. Higher quality environments benefit employers by attracting new employees and enabling higher staff retention rates. A number of high business density areas have existing mature GI settings and these will require protection. These areas include:

- Morfa Conwy Business Park;
- Commercial area between Llandudno Junction Station and A55;
- Commercial area fronting A548 at Mochdre;
- North Wales Business Park, Abergele.

Areas of GI to Enhance

4.64 The Wales Coastal Path and Sustrans (National Route 5) provide tourism infrastructure that broadly follows the 40km length of coast and allow visitors and residents to experience the natural beauty of the coastline. Although already established as a high quality traffic-free route there are many grassed verges, spaces and embankments that could be enhanced with appropriate planting including wildflowers, grasses, shrubs and trees. Native and ornamental hedgerow planting is particularly effective in defining routes and spaces and greatly contribute to visual amenity and biodiversity. These interventions would benefit not only users of the linear routes but also those accessing the county borough's numerous beaches.

4.65 There are several areas of high business and commercial density with some GI present but with opportunities for enhancement and these include:

- Business and commercial area to eastern edge of Llandudno Junction fronting A547;
- Tir Llwyd Industrial Estate, Kinmel Bay

Areas of potential to create GI

4.66 Llandudno and Colwyn Bay town centres are identified as having the highest 10% business density per square kilometre but with limited GI as described in Section 3.0. Both town centres are characterised by Victorian and Edwardian built form that is relatively dense and some more recent development and a network of streets and public realm with limited street trees and other types of GI. Using some of the findings from the Tree Canopy Cover Study (2016) there would be opportunity for comprehensive street tree planting, hedgerow and shrub planting as part of integrated public realm improvements. Any improvements could also include sustainable drainage measures to mitigate the effects of surface water runoff. Both town centres include some pedestrianised streets, wide footways, grassed areas next to recent development and on street parking that could be reconfigured to include retrofitted GI.

4.67 The spaces fronting Llandudno, Llandudno Junction and Colwyn Bay railway stations are car dominated and provide poor first impressions for train passengers arriving at the respective town centres. There would be similar opportunities for GI integrated with public realm improvements, while reconfiguring vehicular access and parking.

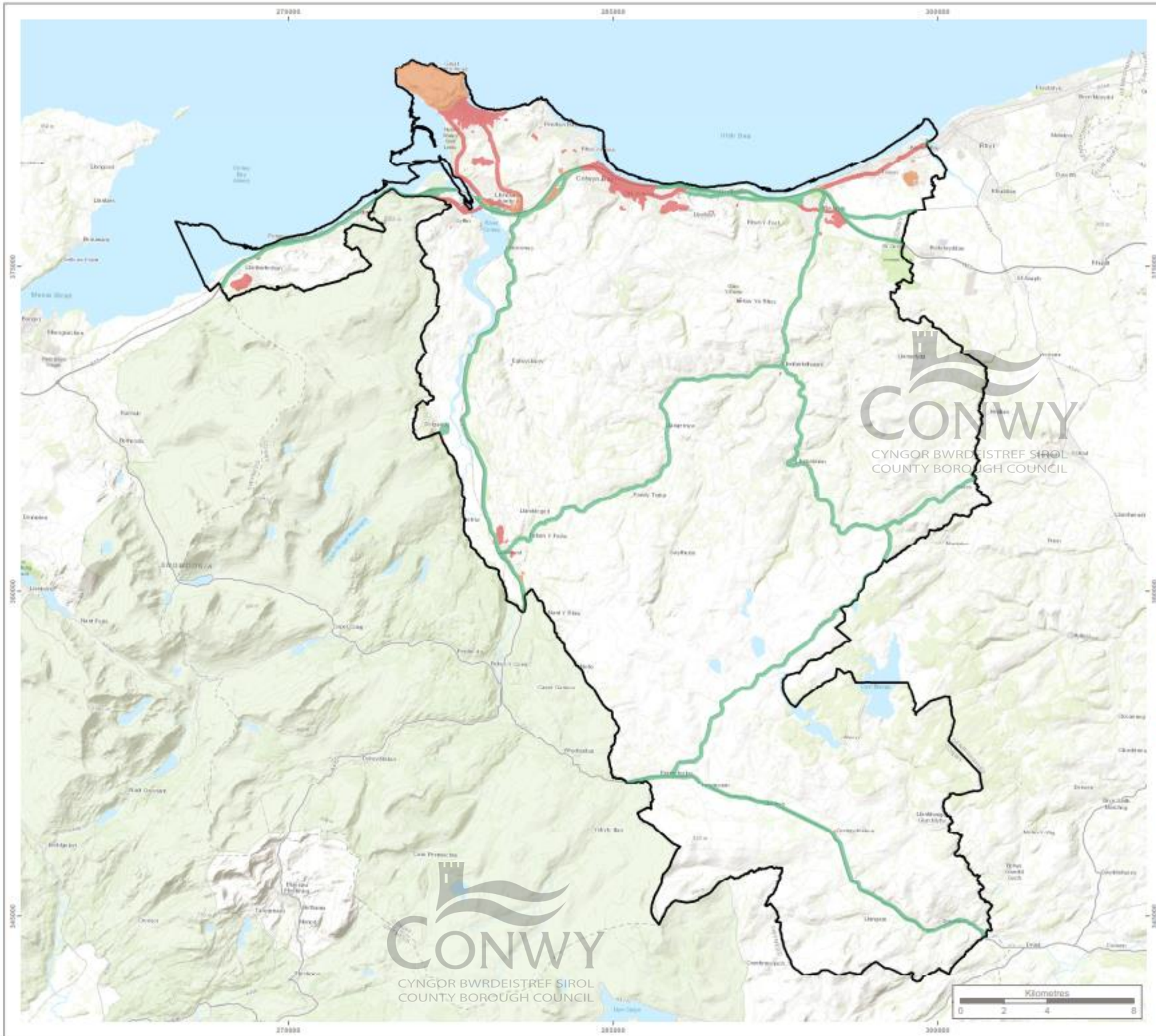
4.68 There are a number of seafront promenades including extensive areas of 'hardscape' at West Shore Beach, Llandudno and Colwyn Bay without any GI. Subject to the necessary approvals, these spaces could be enhanced with planters (with ornamental shrubs and grasses), while low hedgerows and suitable climbing shrubs planted alongside walls could contribute to visual amenity and biodiversity.

4.69 There are several corridor approaches that would benefit from GI intervention to include street trees, hedgerows and shrub planting. These would include:

- A546 Llandudno Junction to Llandudno;
- A547 Llandudno Junction; from Colwyn Bay to Old Colwyn; Abergele;
- A548 Abergele to Kinmel Bay and Rhyl.

4.70 There is very limited existing GI at the commercial area to the eastern end of Abergele next to junction 24 of the A55. There would be opportunity for some high quality GI boundary and frontage treatments that would improve conditions for existing employees and employers and could attract new investors. The site's prominent position also forms a gateway to Abergele from the A55 and any improvements would enhance first impressions.

4.71 CCBC is progressing five Strategic Sites as part of the RLDP process and these have potential for creating a network of multifunctional GI as part of any development proposals. GI recommendations for these sites are considered in more detail in Section 6.0.



KEY

- Conwy County Borough Council (Planning Authority)
- Area to Protect Existing Green Infrastructure
- Area to Enhance Existing Green Infrastructure
- Area of Potential to Create Green Infrastructure

Note:
This drawing contains Natural Resources Wales information.

Rev	Description	Drawn	Approved	Date

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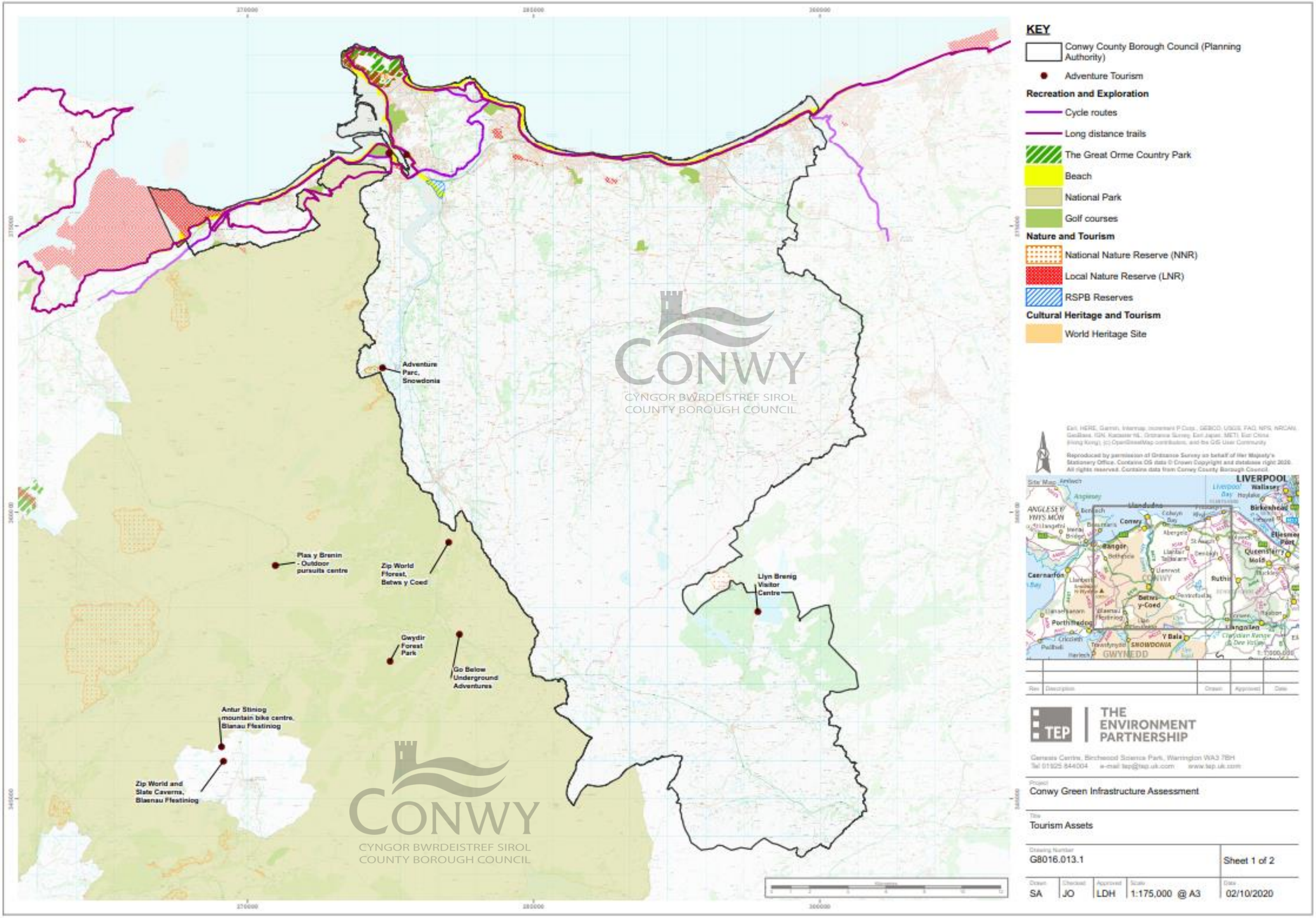
Project
Conwy Green Infrastructure Assessment

Title
Analysis of Needs and GI Functions – Economy

Drawing Number
G8016.015

Drawn	Checked	Approved	Scale	Date
SA/AP	JO	TJ	1:175,000 @ A3	01/10/2020



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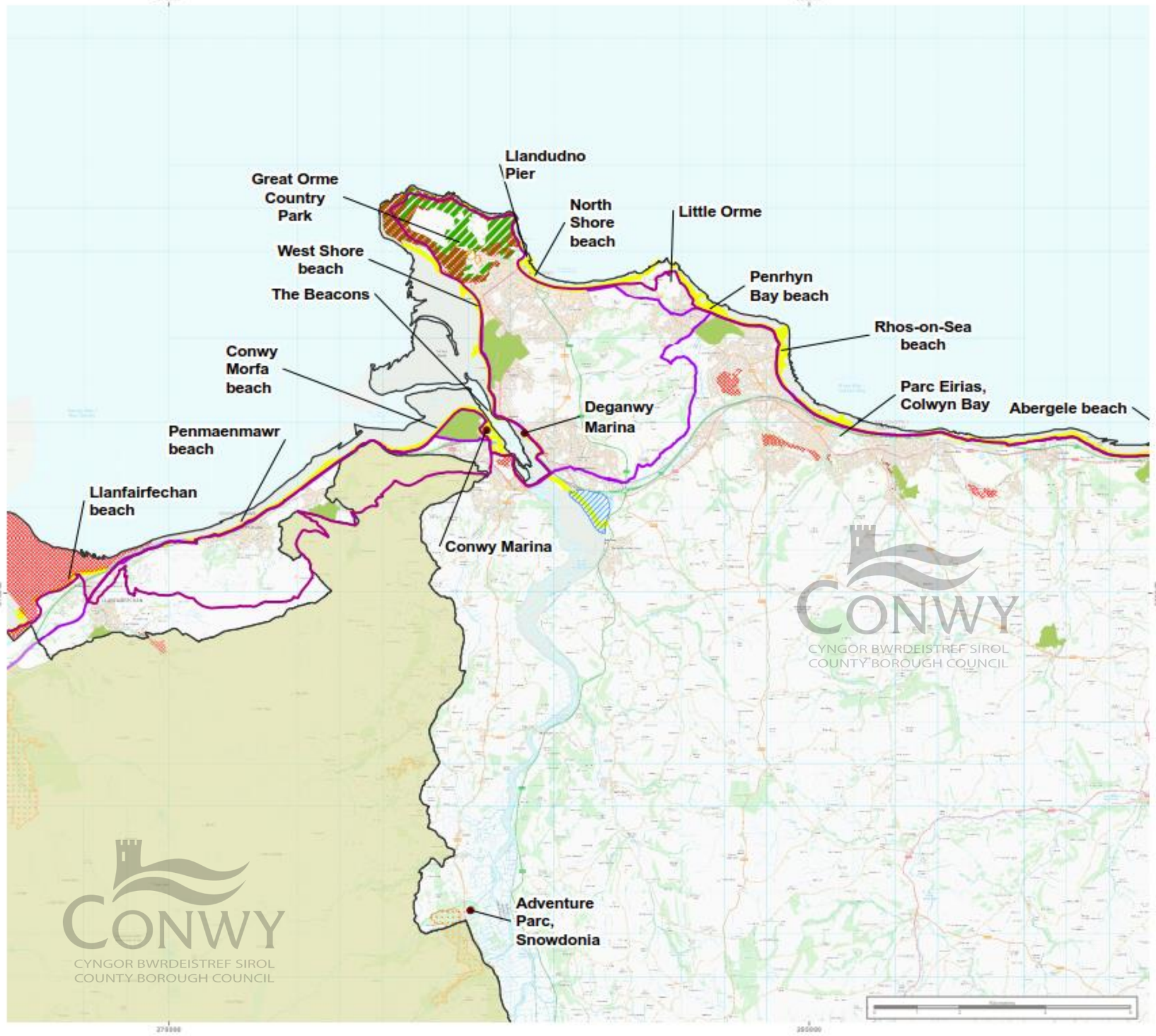
Project
Conwy Green Infrastructure Assessment

Title
Tourism Assets

Drawing Number
G8016.013.1

Sheet 1 of 2

Drawn	Checked	Approved	Scale	Date
SA	JO	LDH	1:175,000 @ A3	02/10/2020



KEY

- Conwy County Borough Council (Planning Authority)
- Adventure Tourism

Recreation and Exploration

- Cycle routes
- Long distance trails
- The Great Orme Country Park
- Beach
- National Park
- Golf courses

Nature and Tourism

- National Nature Reserve (NNR)
- Local Nature Reserve (LNR)
- RSPB Reserves

Cultural Heritage and Tourism

- World Heritage Site

Rev	Description	Drawn	Approved	Date

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Project: Conwy Green Infrastructure Assessment

Title: Tourism Assets

Drawing Number				Sheet 2 of 2
G8016.013.2				
Drawn	Checked	Approved	Scale	Date
SA	JO	LDH	1:90,000 @ A3	02/10/2020

Priority 4: Healthy Lifestyles and Wellbeing

4.72 The policy review in Section 2.0 of this document highlighted the importance of reducing health inequalities by improving access to greenspace for all residents. The Indices of Multiple Deprivation Mapping, which includes the health domain, highlights a number of lower super output areas (LSOAs) that are some of the most deprived in Wales. These include LSOAs in Llandudno, Colwyn Bay, Abergele and Kinmel Bay.

4.73 An increasingly effective way of addressing poor health is through social prescribing and has shown to have benefits for general wellbeing, mental health and reducing isolation. Social prescribing involves enabling GPs, nurses and other healthcare professionals to refer patients to a range of non-clinical services, which may include health walks, Forest Schools, Green Gyms and volunteer groups. The social prescribing approach would benefit from the county borough's close proximity to the seafront and surrounding countryside. Referring people to these activities can increase outdoor activity, engagement with nature and decrease the prevalence of social isolation.

4.74 The Abbey Physic Community Garden in Faversham, Kent is a large walled garden connected to a local church and is an exemplar for social prescribing and uses a relatively small but well managed space. Central to the running of the garden is community involvement. Volunteers, who are all members of the Abbey Physic Community Garden organisation, are referred by mental health services, charities concerned with homelessness and drug addiction, and increasingly by GPs and self-referral.

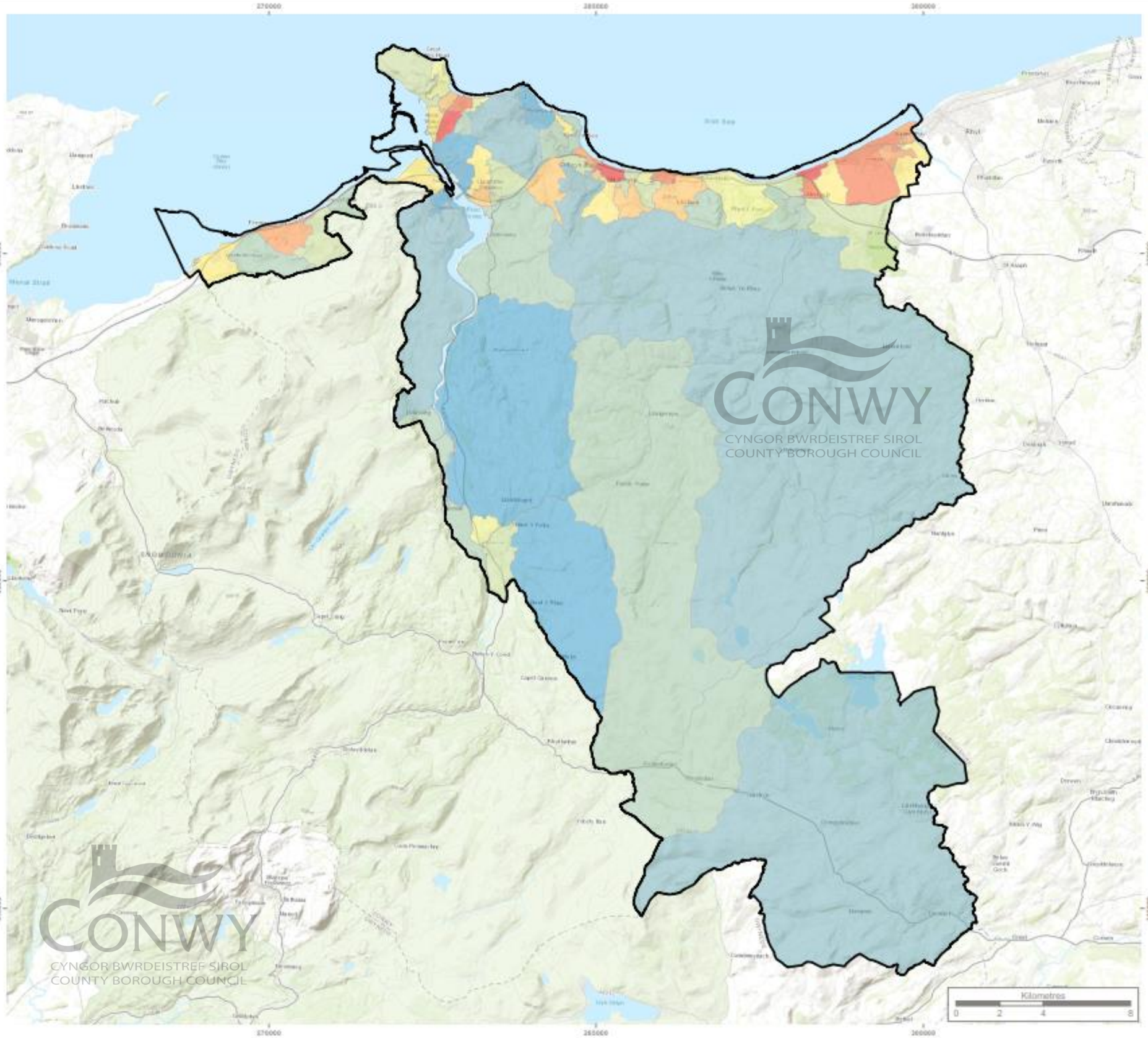
4.75 The summary for stakeholder consultation in Section 1.0 highlighted the initiatives that Cartrefi Cymru are leading with local residents in terms of creating multi-functional greenspace in Llandudno and Llanrwst. Other examples from England show the very positive effect of engaging local people in physical exercise and conservation activities as a means of providing better access and interaction with greenspace.

4.76 In the denser urban environments, the priority would be to enable safer walking and cycling routes to existing greenspace. Stakeholder consultation also revealed the lack of funding for management of greenspace, often meaning lower usage of these spaces.

4.77 The potential for a new accessible multi-functional greenspace in an area of deprivation in Kinmel Bay is provided by the Parc Hanes case study, described in Section 5.

4.78 Other needs identified in the policy review include the importance of air quality in urban areas, with the most densely populated LSOAs and areas of highest health deprivation within 100m of the main road network most sensitive to air pollution.

4.79 Trapping of air pollutants can be enhanced by the presence of foliage to trees and shrubs near to the main road network. The GI priority areas highlighted under Priority 3: Sustainable Growth and Economic Development would also contribute to improving air quality. Some of the corridor approaches also intersect the most deprived LSOAs:



KEY

- Conwy County Borough Council (Planning Authority)

Welsh Indices of Multiple Deprivation 2019

Health Domain (Welsh Threshold by LSOA)

- 1st decile (most deprived)
- 2nd decile
- 3rd decile
- 4th decile
- 5th decile
- 6th decile
- 7th decile
- 8th decile
- 9th decile
- 10th decile (least deprived)

DRAFT

Rev	Description	Drawn	Approved	Date

THE ENVIRONMENT PARTNERSHIP

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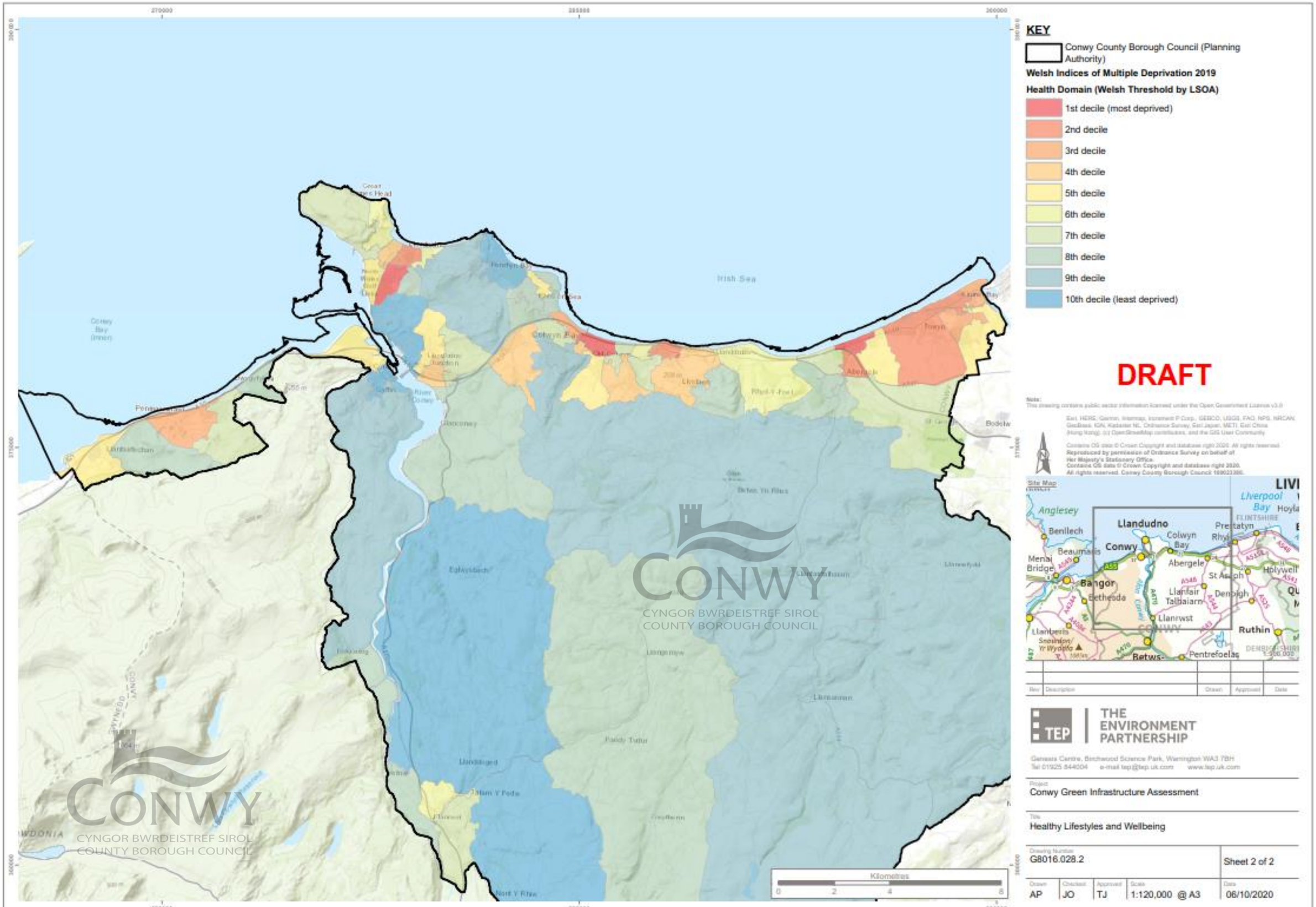
Project
Conwy Green Infrastructure Assessment

Title
Healthy Lifestyles and Wellbeing

Drawing Number	Sheet
G8016.028.1	Sheet 1 of 2

Drawn	Checked	Approved	Scale	Date
AP	JO	TJ	1:175,000 @ A3	06/10/2020



- Llandudno - A546 Llandudno Junction to Llandudno (areas of potential to create GI);
- Colwyn Bay – A55 (area of GI to protect);
- Abergele - A548 Rhyl to Kinmel Bay and Abergele (area of GI to protect);
- Kinmel Bay – A548 Rhyl to Kinmel Bay and Abergele (area of GI to protect).

Priority 5: Improve Connectivity

Public Rights of Way

4.80 The policy review for the GI Assessment highlighted the outputs of the Conwy Rights of Way Improvement Plan (the ROWIP) (2019-2029) and the five main aims of the Statement of Action. The third and fourth aims have particular relevance to this study:

- *'Provide a more connected, safe and accessible network suitable for all users;'*
- *'Improve the promotion, understanding and use of the network'*

4.81 With reference to the third aim, the county borough has a higher proportion of people aged over 65 years when compared with the Welsh average. The ROWIP acknowledges this and plans to encourage more access for older people and those with a disability.

4.82 In terms of connectivity, the ROWIP includes the mapping of the public rights of way (PRoW) network across the county borough and there is currently 1600km of footpath, 98km of bridleway, 21km restricted byways and 16km byways. These routes are recorded on the Definitive Map and Statement. The PRoW network brings free access to the countryside, connection with nature and many benefits for physical and mental health.

4.83 The mapping of the PRoW network indicates a more comprehensive network around the border with the Snowdonia National Park and open land around Llandudno, Penrhyn Bay and Llandudno Junction.

4.84 Areas of more moderate coverage of the PRoW network include the remaining peri-urban areas along the coast, the central part of the county borough around Llangernyw and Pandy Tudur and the southern part around Glasfryn and Cerrigydrudion.

4.85 Areas with more limited coverage of the PRoW network appear around the Conwy valley between Iolyn Park, the Surf Snowdonia site and Trefriw, although some this land is in floodplain. There is also more limited coverage on higher ground around the National Trust's Bodnant Garden and Eglwysbach. There is very limited coverage around the grassland and heathland around Moel Derwydd, although much of this land is designated as SSSI.

4.86 There would be potential to consider a more comprehensive footpath network along the identified sections of the Conwy valley, providing more accessible routes on relatively level ground. It would also provide users of Surf Snowdonia with additional opportunities to experience the locality.

4.87 Providing more connected footpaths around Bodnant Garden towards Eglwysbach would also provide visitors with the opportunity to explore the area with its particularly diverse landscape character and views along the Conwy valley.

4.88 In terms of the potential to create GI there would be opportunity for hedgerow tree planting along many sections of the PRoW network. This type of linear GI has a limited land take and is relatively low cost but can deliver many functions including; aesthetic, removal of pollutants, noise absorption, habitat for wildlife, corridor for wildlife, soil stabilisation, wind shelter, water interception and infiltration. With limited training and supervision, hedge laying can also be undertaken by community groups and can connect people to nature and bring many other social benefits such as improved physical and mental health.

4.89 The ROWIP refers to the presence and continuity of the Wales Coastal Path and the need for coastal communities to enjoy better linkages to the coast so they can experience the distinctive seafront environment.

4.90 Other opportunities for connectivity are being considered by the ROWIP and these include circular routes in urban areas for recreational use by local residents and making routes to schools, parks and beaches more suitable for families with young children.

4.91 The Traffic Section at the Council is also preparing an Active Travel Plan, including safer routes to school, that will provide more opportunities for people to engage with active travel modes. Any proposals should be integrated with opportunities to create GI to include street trees, shrubs and hedgerow planting that would deliver many functions for public benefit.

4.92 Other areas of need highlighted in the ROWIP include the disconnected network of bridleways, byways and restricted byways. Different interest groups such as cyclists and horse riders make particular use of these types of PRoW and the provision of more circular routes would offer more recreational benefit. The ROWIP also makes recommendations for physical infrastructure such as surface improvements & bridge improvements to ensure safe and accessible use.

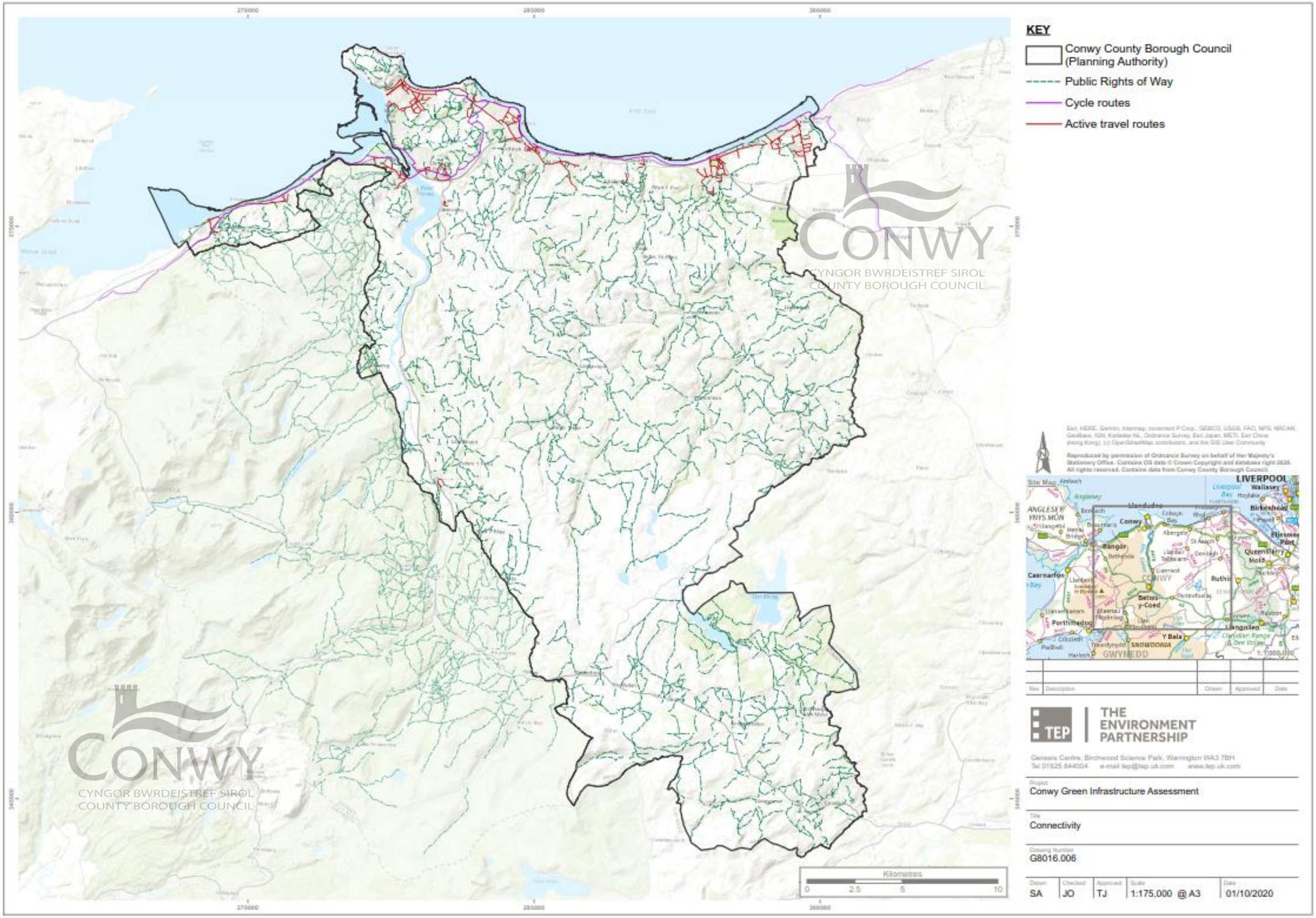
4.93 In terms of the fourth aim *'Improve the promotion, understanding and use of the network'*, the ROWIP highlights the active role the Council takes in encouraging this with advertised Fun Walks lead by an experienced walks leader. These walks take less than one hour to complete and are available to people of all levels of fitness.

4.94 The community walking group Cerdded Conwy Walks (supported by the Council) offer volunteer leaders training to facilitate monthly walks programmes available to all. The physical and mental health benefits of walking for the leaders and walkers is evidenced by the popularity of the walks. The group is looking into developing links with mental health groups such as Mind for more people to enjoy the benefits of walking.

Outdoor Education

4.95 GI can offer spaces to play and interact with nature, with proven mental and physical health benefits as well as improved child development. Outdoor education within the setting of GI, through Forest Schools, outdoor play and Citizen Science initiatives all provide opportunities for place-based education and ability to learn more about the local environment.

4.96 Working with schools in the county borough, there is also potential to create school allotments. By encouraging pupils to participate in growing local food, the stewardship approach can be adopted, with a sense of ownership and can be a hub for wider community engagement. Using appropriate native planting, allotment boundaries can also contribute to biodiversity.


KEY
Conwy County Borough Council (Planning Authority)
Public Rights of Way
Cycle routes
Active travel routes
Kilometres
0
2.5
5
10
CONWY
CYNGOR BWRDEISTREF SIROL
COUNTY BOROUGH COUNCIL
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Project
Conwy Green Infrastructure Assessment
Title
Connectivity
Drawing Number
G8016.006
Drawn SA
Checked JO
Approved TJ
Scale 1:175,000 @ A3
Date 01/10/2020

5.0 Case Study – Parc Hanes

5.1 During the process of research and consultation for this study, a site in Kinmel Bay was identified with potential as an accessible multi-functional greenspace. The site is presented below as a case study setting out:

- Site description;
- Context, including reference to the Ward Profile (2019), Open Space Assessment (2012), Town Tree Canopy Study (2016) and Green Infrastructure Action Plan for Rhyl (2013);
- Findings from the GIS generated typology and multi-functionality mapping;
- Opportunities and constraints, with supporting plan;
- Landscape diagram, showing potential spaces and circulation routes; and
- Landscape precedent plan showing the intended character of the different types of space.

Site Description

5.2 The site is approximately 8 hectares, on the eastern edge of Kinmel Bay, near the River Clwyd. The site is owned by Welsh Government, and is mostly grazed, with small wooded areas. It has an irregular configuration and its eastern part is linear following a short section of the dismantled railway towards St Asaph.

5.3 The northern boundary of the site is defined by the main railway linking the North Wales coastal towns and Holyhead. Land to the north, south and west is mostly in residential use, while to the east there are detached properties and pastoral land next to the River Clwyd corridor.

Context

<u>Kinmel Bay Ward Profile</u>

5.4 In terms of population characteristics, compared with the figure for Wales, Kinmel Bay has an above average population for children under 15 years and adults over 45 years. The Kinmel Bay under 15 years figures are higher than the Conwy County Borough average but similar for adults over 45 years. The cohort for 16-44 years for Kinmel Bay is below the Welsh average but similar to the Conwy County Borough average.

5.5 The number of people with limiting long term illnesses (29.5%) is considerably above the Conwy County Borough average (24.2%) and the Welsh average (22.7%).

5.6 The four lower super output areas (LSOAs) in Kinmel Bay ward feature in the 25% most deprived in Wales for the majority of domains considered in the analysis of deprivation.

Conwy County Borough Open Space Assessment (2012)

5.7 The 2012 study shows deficits of 5.42ha for playing fields, 0.68ha for outdoor sports, 2.28ha for play and 0.26ha for formal major amenity. The open space assessment is being updated (2020, in preparation).

Demographic Summary

5.8 This evidence from population characteristics, limiting long term illness, multiple deprivation and shortfalls of open space points towards the additional need for GI in the Kinmel Bay area.

Town Tree Canopy Study for Conwy County Borough (2016), NRW

5.9 Of the 11 urban areas assessed in Conwy County Borough, Towyn/Kinmel Bay was confirmed to have the lowest canopy cover at 6.4% of the overall urban footprint.

Green Infrastructure Action Plan for Rhyl (2013)

5.10 The Green Infrastructure Action Plan for Rhyl was prepared as an advisory document for Denbighshire County Council in partnership with Rhyl Town Council and Natural Resources Wales. The framework diagram for the Action Plan sets out, amongst other themes, to *'Connect People and Places'* and *'Manage Spaces for People and Wildlife'* along the River Clwyd corridor. It identifies a pedestrian and cycle route over the redundant southern section of the railway bridge over the River Clwyd, linking Rhyl to Kinmel Bay and that would facilitate a circuit of routes along the river corridor from the estuary towards Rhuddlan.

Typology and Multi-functionality Mapping

Typology Mapping

5.11 The typology mapping confirms the types of GI on the site: agriculture (grazing land) and smaller wooded areas. In the wider area the GI typologies are private gardens, street trees, parks and green spaces in residential areas. Agricultural land and inter-tidal areas extend along the River Clwyd corridor.

GI Functions

5.12 Through computer generated GIS analysis, the GIA study also assesses the number of functions each land parcel currently delivers. The GIS analysis considers up to 22 functions and these include: recreation, green travel routes, shading from the sun, evaporative cooling, habitat for wildlife and water storage. In many cases a low or moderate number of functions delivered by land parcel is an indicator of where interventions or improvements to land management can be made.

5.13 The large western part of the site (grazing land) currently delivers seven functions including: evaporative cooling, corridor for wildlife, food production and water infiltration. By contrast, the wooded nature of the eastern part of the site delivers up to 14 functions. These include most of the functions delivered in the west, plus additional functions such as shading from the sun, habitat for wildlife, carbon storage and water interception.

5.14 More generally, GI in the Towyn and Kinmel Bay area delivers particularly limited functions in comparison to Conwy's other coastal towns, with some areas absent of GI around Tir Prince Fairground, Bay Trading Estate and along the coast. There is particularly low tree cover in the area. The analysis highlights the moderate functionality of the River Clwyd Corridor and the limited functionality of agricultural land to the south of Towyn and Kinmel Bay.

Opportunities and Constraints Plan

5.15 The plan illustrates the disposition of key features including the main water bodies, built form, railway, tree and scrub and public rights of way.

5.16 In terms of opportunities, the plan recognises the aspiration of Conwy and Denbighshire Councils for an active travel and recreational route over the redundant southern section of the railway bridge over the River Clwyd, linking Rhyl to Kinmel Bay. This proposal would greatly enhance Sustrans' traffic-free route 84 (National Cycle Network), facilitating cycling from the coast along the river corridor to Rhuddlan and St Asaph. More local walking and cycling routes would connect to the aspirational route linking Parc Hanes and Kinmel Bay neighbourhoods.

5.17 Several entrance points to Parc Hanes have been identified, with a focal point (convergence point) in the centre of the space at the intersection of several routes.

5.18 The online NRW mapping indicates that the risk of flooding from rivers and sea is low risk (between 0.1% - 1%) although this takes into account the effect of any flood defences in the area. The mapping highlights the extent of surface water and small watercourse across western part of the site. Most is low risk, although some smaller areas are medium risk. The plan identifies the risk for surface water and the small watercourses and sees this location as an opportunity for an enhanced wetland area.

5.19 In terms of the character of Parc Hanes, the plan recognises the semi natural character of the eastern part of the site and recommends that it is enhanced as a wildlife habitat and forming part of a wider corridor.

5.20 Other issues identified include the severance caused by the railway embankment, while the overlooking residential properties along the southern edge provide natural surveillance.

Landscape Diagram

5.21 The diagram shows progression from the opportunities and constraints plan with proposals for different types of space with open parkland, informal play, tree planting, management of existing features and wetland area enhancement. A network of circulation routes would provide access for people and in some cases those routes would provide boundaries between the different types of space. The intention would be to increase GI functionality across the site.

Landscape Precedent

5.22 The landscape precedent plan shows the intended character of the different types of space from open parkland, informal play, tree planting, management of existing features and wetland area enhancement.


Key
Site Boundary
Areas excluded from site boundary
Existing
Waterbodies
Built Form
Trees and Scrub
Public Rights of Way
Opportunities and Constraints
Long term active travel/ recreation route
Potential linkages
Entrance points
Focal points
Existing wetland feature opportunities
Potential Wetland links
Existing ecological features
Severance from railway
Residential frontages
Maines Lake
River Dwyrd
Harrison Drive
St Asaph Avenue
Rowallan Road
Ormskirk Close
CONWY
CYNGOR BWRDEISTREF SIROL
COUNTY BOROUGH COUNCIL
THE ENVIRONMENT PARTNERSHIP
Conwy Green Infrastructure Assessment
Parc Hanes - Opportunities and Constraints
PS6016.001A
1:2000 @ A1
15/07/2020
AJG
TJ
TJ

Railway line

St Asaph Avenue

Elwy Circle

Key

- Open parkland
- More formal open space
- Informal play elements
- Tree and meadow planting
- Management of existing features
- Existing area subject to flooding enhanced to create wetland
- Ecological features
- Routes

0m 25m 50m 200m

No.	Description	Drawn	Approved	Date
A	Graphics update	AJG	TJ	12/08/20

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Project
Conwy Green Infrastructure Assessment

Title
Parc Hanes - Landscape Precedent

Drawing Number
Ai8016.003A

Scale
1:1250 @ A1

Date
28/07/2020

Drawn	Checked	Approved
AJG	TJ	TJ

6.0 Strategic Sites

6.1 CCBC are promoting five strategic sites for sustainable growth, as part of the RLDP process. These sites have been considered in terms of identifying specific needs and opportunities for GI.

6.2 The strategic sites are:

- Land off Aber Road, Llanfairfechan
- Land to the East of the A470, Llanrwst
- Land off Bryn Lupus Road, Llanrhos, Llandudno
- Peulwys Farm, Peulwys Lane, Old Colwyn
- Roundabout field, Abergele

6.3 The GI Assessment for these sites is presented below setting out:

- Site description;
- Context, including reference to the Ward Profile (2019), Open Space Assessment (2012) and Town Tree Canopy Study (2016);
- Findings from the GI typology and multi-functionality mapping; and
- Opportunities and constraints, with supporting plan.

Land off Aber Road, Llanfairfechan

Site Description

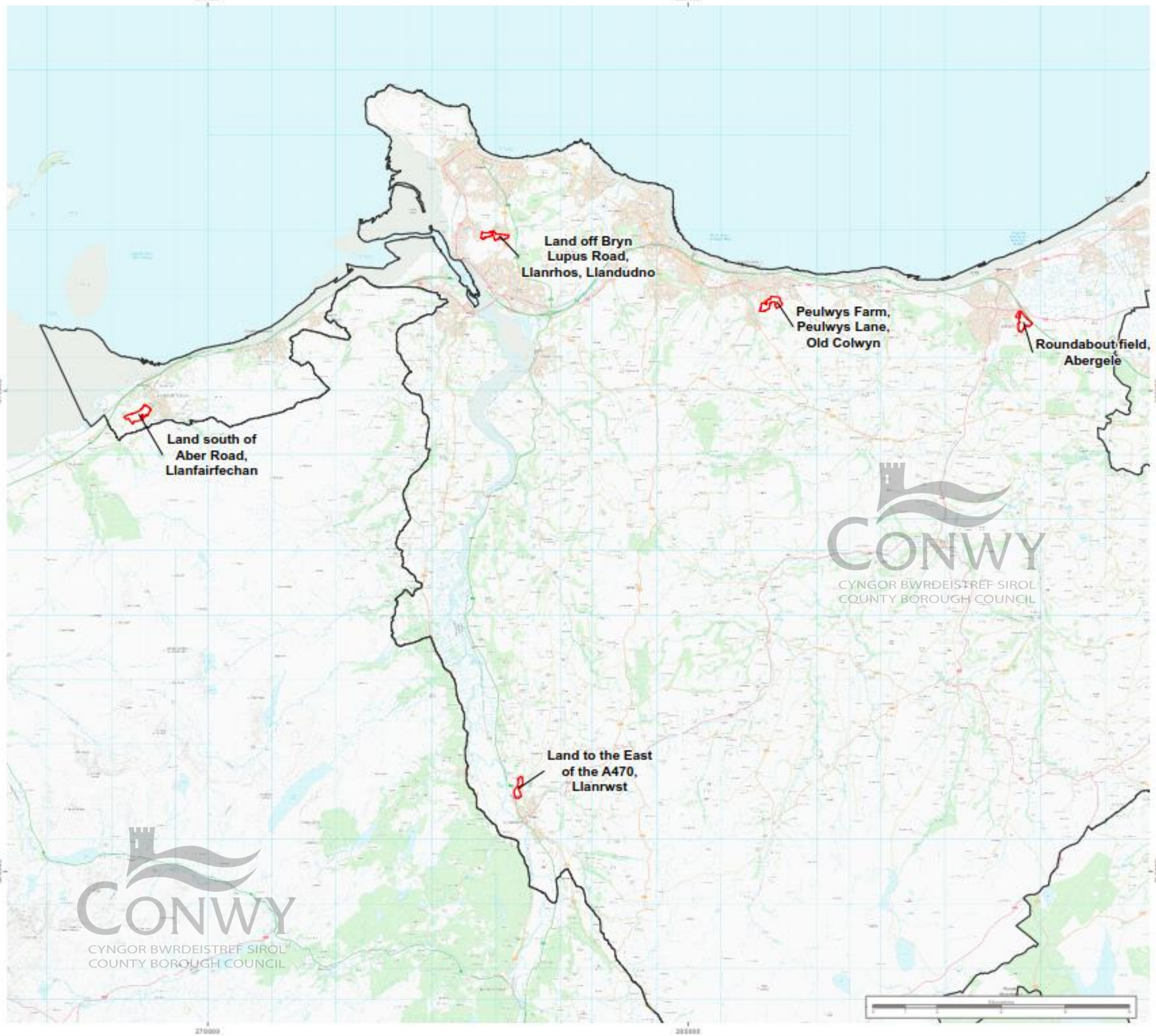
6.4 The site is approximately 19 hectares and located to the western edge of Llanfairfechan. Most of the site is grazed and includes some areas of mature deciduous woodland on the southern and eastern boundaries. There are also some wooded belts along the northern boundary with Aber Road, with a hedgerow extending between the trees. In the wider area there are woodland blocks outside the site to the north, south and east, including some ancient woodland. The site slopes down in a north westerly direction from 50m AOD to 30m AOD.

6.5 The Snowdonia National Park boundary is 250m to the south of the site, while the historic park forming the grounds to the Bryn-y-Neuadd Hospital is north of Aber Road.

Context

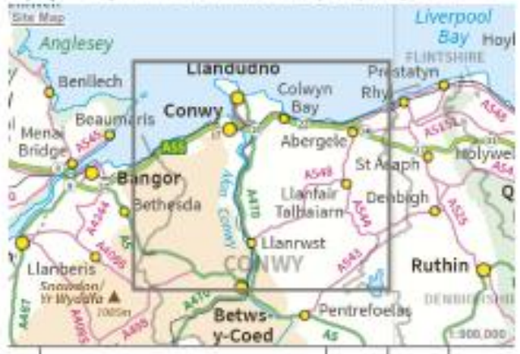
Bryn Ward Profile – 2019 (Western part of Llanfairfechan)

6.6 In terms of population characteristics, compared with the figure for Wales, Bryn has an average population for children under 15 years. It is below the Welsh average for the 16-44 years cohort, above the average for 45-64 years and similar for over 65 years. Compared with Conwy County Borough, Bryn is slightly above the average figures for the under 15 years and 16-64 years cohort but well below the average for the over 65 years.



KEY

- Conwy County Borough Council (Planning Authority)
- Strategic Sites



Rev	Description	Drawn	Approved	Date

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Project: Conwy Green Infrastructure Assessment

Title: Strategic Sites

Drawing Number: G8016.023

Drawn	Checked	Approved	Scale	Date
AP	JO	TJ	1:120,000 @ A3	01/10/2020

6.7 The proportion of people with limiting long term illness (24.9%) is slightly above the Conwy County Borough average (24.2%) and Welsh average (22.7%).

Open Space Assessment (2012)

6.8 The current open space assessment (2020) is under preparation, while the 2012 study shows deficits for Llanfairfechan of 3.43ha for playing fields, 0.49ha for outdoor sports, 1.37ha for play and a surplus of 1.70ha for formal major amenity.

Town Tree Canopy Study for Conwy County Borough (2016), NRW

6.9 Of the 11 urban areas assessed in Conwy County Borough, Llanfairfechan has the highest canopy cover at 23.7% of the overall urban footprint.

Typology and Multi-functionality Mapping

Typology Mapping

6.10 The types of GI on the site are agriculture (grazing land) and wooded areas. In the wider area the GI typologies are the private gardens, street trees and parks and garden spaces to the residential areas.

Site GI Functions

6.11 The grazing land currently delivers approximately seven functions including: evaporative cooling, corridor for wildlife, food production and water infiltration. The wooded southern and eastern parts of the site deliver additional functions: shading from the sun, habitat for wildlife, carbon storage and water interception amounting to approximately 15 functions.

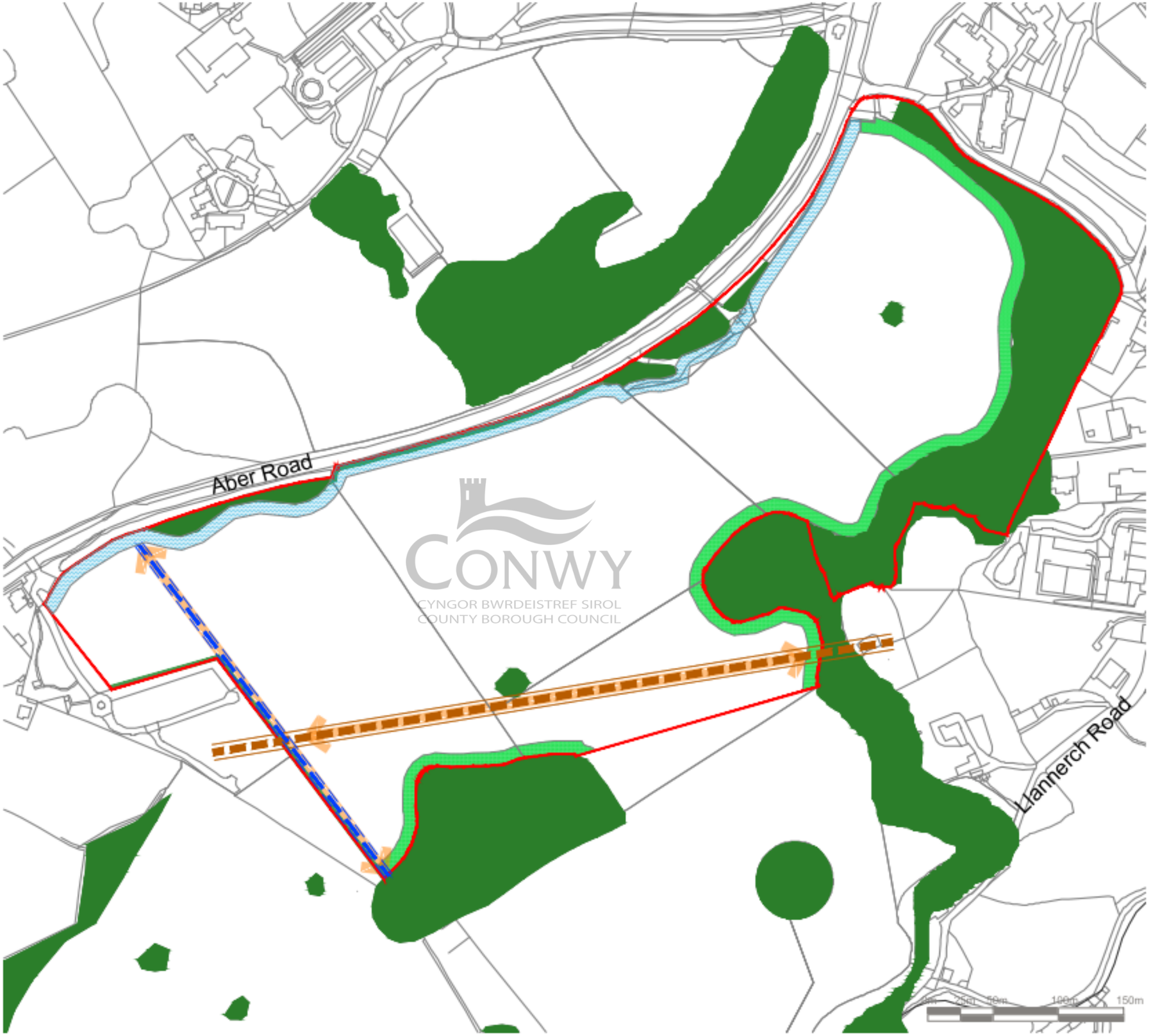
Opportunities and Constraints Plan

6.12 The plan illustrates the disposition of existing features on site, including the wooded areas and hedgerows. A gas main follows an east to west alignment, requiring an approximate easement of 12m and forming a constraint to development, but which could provide an opportunity for a multi-functional GI corridor.

6.13 A culverted watercourse runs along the western boundary and there would be opportunity to remove the engineered structure and 'open up' the stream creating another corridor for the benefit of wildlife and the general amenity of the site.

6.14 NRW mapping highlights a small area of surface water flood risk and small watercourse next to the northern boundary of the site. Most of the area described is low risk, although a smaller area is medium risk. This would be subject to change with the potential development of the site. Land near to the northern boundary forms the lowest part of the site and a corridor could be maintained as a swale, as part of a sustainable drainage (SuDS) system to help manage surface water run-off, with secondary swales connecting from higher ground.

6.15 All wooded areas should be retained and to maintain their functionality there would be opportunity to maintain an offset from the edge of any wooded area as a landscaped buffer that should remain undeveloped. This would maintain the woodland's scale and presence on the site and enhance GI functions such as habitat and connectivity for wildlife.



Key

Existing

- Site boundary
- Trees and Woodland
- Hedgerows
- Gas main, with easement (approx. location)
- Culvert (approx. location)

Potential

- Buffer to Woodland and Hedgerow
- Buffer for Sustainable Drainage
- Green Infrastructure Corridors

Rev	Description	Drawn	Approved	Date
C	Minor updates	AJG	TJ	01/10/20
B	Graphics updated	AJG	TJ	22/09/20
A	Culvert added, graphics updated	AJG	TJ	18/08/20

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Project
Conwy Green Infrastructure

Title
Strategic Site - Llanfairfechan

Drawing Number
D8016.002C

Drawn	Checked	Approved	Scale	Date
AJG	TJ	TJ	1:3000 @ A3	07/08/2020

6.16 Overall, the potential GI corridors across parts of the site, identified above, would bring benefits for wildlife, enhance the setting of any proposed development and encourage active travel routes. The SuDS system would assist with helping to control the quantity of surface water run-off; managing the quality of run-off to prevent pollution; and contribute to amenity and biodiversity.

Land to the East of the A470, Llanrwst

Site Description

6.17 The site approximately 9.5 hectares and located to the north western edge of Llanrwst. Land is grazed and slopes down gently from east to west and there is a small watercourse along the western boundary. There are two parts to the site, both are mostly enclosed by hedgerow. The northern part has a mature tree near to the western boundary and the southern boundary has a hedgerow and several mature trees that separates it from the southern part of the site. The southern part includes three fields and there is a wooded belt along its eastern site boundary, with rear gardens to residential properties beyond the woodland.

6.18 In the wider area, with the exception of the south which includes Llanrwst, land is largely pastoral with some woodland blocks and individual trees.

Context

Crwst Ward Profile - 2019

6.19 In terms of population characteristics, compared with the figures for Wales, Crwst has a below average population for the cohort 0-64 years but above average for the 65+ years cohort. Compared with Conwy County Borough, Crwst has a similar average population for the cohort 0-44 years. It has below average figures for the 45-64 years cohort and has an above average population for the 65+ years' cohort.

6.20 The proportion of people with limiting long term illness (26.3%) is above the Conwy County Borough average (24.2%) and Welsh average (22.7%).

Open Space Assessment (2012)

6.21 The current open space assessment (2020) is under preparation, while the 2012 study shows deficits for Llanrwst of 1.61ha for playing fields, 0.31ha for outdoor sports, 0.89ha for play and a surplus of 0.09ha for formal major amenity.

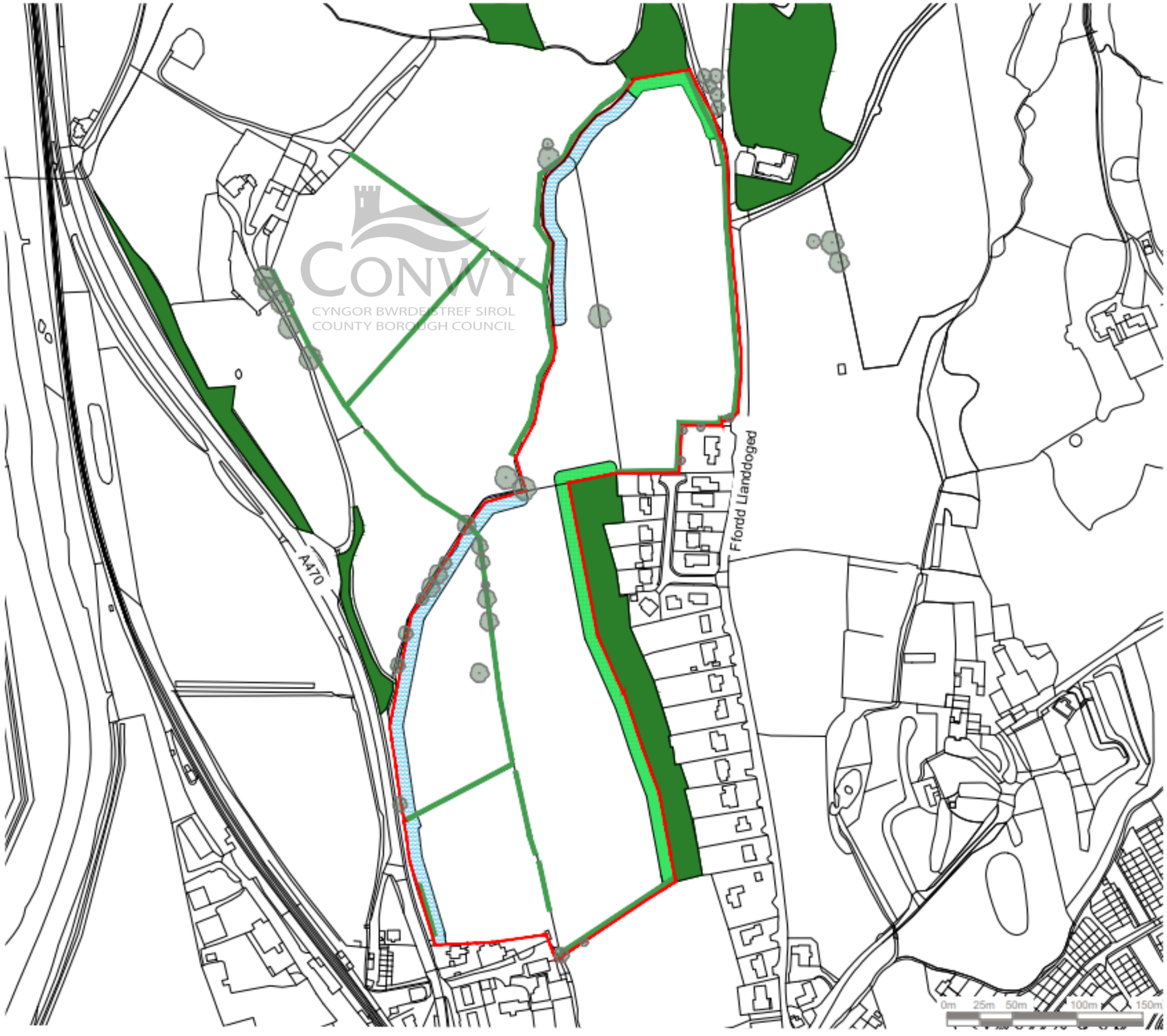
Town Tree Canopy Study for Conwy County Borough (2016), NRW

6.22 Compared with the 11 urban areas assessed in the county borough, Llanrwst has a lower canopy coverage at 11.6% of the overall urban footprint.

Typology and Multi-functionality Mapping

Typology Mapping

6.23 The types of GI in the site are agriculture (grazing land) and hedgerows, with some hedgerow trees. In the wider area the GI typologies are agriculture, woodland and private gardens.



Key

Existing

- Site boundary
- Trees
- Woodland
- Hedgerows

Potential

- Buffer for Sustainable Drainage
- Buffer for Woodland

Rev	Description	Drawn	Approved	Date

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Project
Conwy Green Infrastructure Assessment

Title
Strategic Site - Land to the East of A470, Llanrwst

Drawing Number
D8016.005

Drawn	Checked	Approved	Scale	Date
AJG	TJ	TJ	1:3000 @ A3	01/10/2020

Site GI Functions

6.24 The grazing land currently delivers approximately seven functions including: evaporative cooling, corridor for wildlife, food production and water infiltration. The wooded belt next to the eastern boundary delivers additional functions: shading from the sun, habitat for wildlife, carbon storage and water interception amounting to approximately 15 functions.

Opportunities and Constraints Plan

6.25 The plan illustrates the disposition of existing hedgerows and trees and these should be retained as part of any development proposals.

6.26 NRW mapping confirms the high surface water flood risk from the watercourse running along the western boundary, although the risk does not extend into the neighbouring fields. Increased surface water flooding could result from the potential development of the site and so a network of swales on land near to the western boundary, forming the lowest part of the site, should be considered as part of a sustainable drainage (SuDS) system.

6.27 The Open Space Assessment and Town Tree Canopy Study identified a shortfall of open space and below average tree canopy cover respectively. Any development proposals should include appropriate open space to include potential for tree canopy cover.

6.28 All hedgerows and trees should be retained wherever feasible and to maintain GI functionality a landscaped buffer should be offset from the edge of these elements and this would include the wooded area on the eastern edge of the site. Maintaining a landscaped buffer would sustain these features' scale and presence on the site and enhance GI functions such as habitat and connectivity for wildlife.

6.29 Overall, the potential GI corridors across parts of the site, identified above, would bring benefits for wildlife and enhance the setting of any proposed development. The SuDS system would assist with helping to control the quantity of surface water run-off; managing the quality of run-off to prevent pollution; and contribute to amenity and biodiversity.

Land off Bryn Lupus Road, Llanrhos, Llandudno

Site Description

6.30 The site is approximately 12 hectares to the south and west of Llanrhos and south of Llandudno. There are two parts to the site; the southern part comprises of two arable fields and a grassed plot to the north west with groupings of mature trees. The fields and grassed plot are partly enclosed by hedgerows and partly by trees. The western part of the site is a single pastoral field separated from the grassed plot by an access track (also PRoW) towards a caravan site to the south. The boundary to the field is partly wooded and partly enclosed by hedgerow.

6.31 Housing borders the western part of the site from the north, with the B5115 to the east and agricultural field beyond. To the south is a school site and caravan park to the west. Land slopes gently down from west to east.

6.32 Bryn Lupus Road runs next to the northern boundary of the western part of the site, with pastoral land to the north. To the east is the grassed plot and caravan park to the south, with pastoral land beyond. Housing borders the western site boundary. Land is level.

Context

Deganwy Ward Profile – 2019

6.33 In terms of population characteristics, compared with the figures for Wales, Deganwy has a below average population for the cohort 0-44 years but above average for the 45-65+ years cohort. Compared with Conwy County Borough, Deganwy has a below average population for the cohort 0-44 years. It has similar figures for the 45-64 years cohort and has an above average population for the 65+ years' cohort.

6.34 The proportion of people with limiting long term illness (24.7%) is slightly above the Conwy County Borough average (24.2%) and Welsh average (22.7%).

Open Space Assessment (2012)

6.35 The current open space assessment (2020) is under preparation, while the 2012 study shows deficits for nearby Deganwy of 4.50ha for playing fields, 1.16ha for outdoor sports, 1.45ha for play and 1.13ha for formal major amenity.

Town Tree Canopy Study for Conwy County Borough (2016), NRW

6.36 Of the 11 urban areas assessed in Conwy County Borough, Tywyn/ Deganwy/ Llandudno Junction has below average canopy cover at 11.3% of the overall urban footprint.

Typology Mapping

6.37 The types of GI in the site are agriculture (grazing land), hedgerows and hedgerow trees. In the wider area the GI typologies are the private gardens, outdoor sports facilities, woodland and scrubland.

Site GI Functions

6.38 The agricultural land delivers approximately six functions including aesthetic, evaporative cooling, corridor for wildlife, food production and water infiltration.

Opportunities and Constraints Plan

6.39 The plan illustrates the disposition of existing hedgerows and trees and these should be retained, where feasible, as part of any development proposals.

6.40 No watercourses are recorded, although NRW mapping highlights surface water flood risk near to Bryn Lupus Road in the western part of the site and near to the northern boundary of the eastern part of the site. Some of this is identified as high risk. Increased surface water flooding could result from the potential development of the site and so a network of swales, as part of a sustainable drainage (SuDS) system, should be considered in the areas of greatest risk.

Rev	Description	Drawn	Approved	Date

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Project
Conwy Green Infrastructure Assessment

Title
Strategic Site - Land off Bryn Lupus Road, Llanros, Llandudno

Drawing Number
D8016.003

Drawn	Checked	Approved	Scale	Date
AJG	TJ	TJ	1:2500 @ A3	22/09/2020

6.41 The Open Space Assessment and Town Tree Canopy Study identified a shortfall of open space and below average tree canopy cover respectively. Any development proposals should include appropriate open space to include potential for tree canopy cover.

Peulwys Farm, Old Colwyn

Site Description

6.42 The site is approximately 15 hectares on the southern edge of Old Colwyn. It is divided into a number of fields which are enclosed by hedgerows. The hedgerows vary in condition with some closely clipped, others overgrown, with occasional hedgerow trees. Most of the site is arable land, with some grazing pasture. Housing overlooks the site from the north, and to the east is a detached property set in a small area of woodland, with scrubland extending from the wooded area and agriculture beyond.

6.43 Land to the south is agricultural with pockets of scrub on steeper land and then a golf course to the south east and east. Peulwys Lane runs along the eastern and northern site boundary. Land slopes steeply down from the east (150m AOD) to the west (66m AOD) and the central part of the site is particularly steeply sloping.

Context

Colwyn Ward Profile - 2019

6.44 In terms of population characteristics, compared with the figures for Wales, Colwyn has an above average population for the cohort 0-15 years and 45-65+ years. It has a below average population for the cohort 16-44 years. Compared with Conwy County Borough, Colwyn has an above average population for the cohort 0-44 years. It has similar figures for the 45-64 years cohort and below average population for the 65+ years' cohort.

6.45 The proportion of people with limiting long term illness (22.8%) is slightly below the Conwy County Borough average (24.2%) and similar to the Welsh average (22.7%).

Open Space Assessment (2012)

6.46 The current open space assessment (2020) is under preparation, while the 2012 study shows deficits for Old Colwyn of 7.38ha for playing fields, 2.28ha for outdoor sports, 2.81ha for play and a surplus of 1.71ha for formal major amenity.

Town Tree Canopy Study for Conwy County Borough (2016), NRW

6.47 Of the 11 urban areas assessed in Conwy County Borough, Colwyn Bay has above average canopy cover at 17.9% of the overall urban footprint.

Typology Mapping

6.48 The types of GI in the site are agriculture (arable and grazing land) and hedgerows with occasional hedgerow trees. In the wider area the GI typologies are the private gardens, outdoor sports facilities, woodland and scrubland.

0m 25m 50m 100m 150m

CONWY
CYNGOR BWRDEISTREF SIROL
COUNTY BOROUGH COUNCIL

Key

Existing

- Site boundary
- Trees
- Woodland
- Hedgerows
- Steeper Slopes

Potential

- Buffer for Sustainable Drainage
- Green Infrastructure Corridors

Rev	Description	Drawn	Approved	Date

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Project
Conwy Green Infrastructure Assessment

Title
Strategic Site - Peulwys Farm, Peulwys Lane, Old Colwyn

Drawing Number
D8016.004

Drawn	Checked	Approved	Scale	Date
AJG	TJ	TJ	1:2500 @ A3	23/09/2020

Site GI Functions

6.49 The agricultural land delivers approximately six functions including: aesthetic, evaporative cooling, corridor for wildlife, food production and water infiltration. The hedgerow delivers the same as agricultural land and additional functions including: removal of pollutants, habitats for wildlife, carbon storage, wind shelter and water interception amounting to approximately 12 functions.

Opportunities and Constraints Plan

6.50 The plan illustrates the disposition of existing agricultural fields, hedgerows and hedgerow trees and these should be retained, where feasible, as part of any development proposals.

6.51 No watercourses are recorded on site, although NRW mapping highlights surface water flood risk on Peulwys Lane beyond the western site boundary. Some of this is identified as high risk and this risk could be increased by the potential development of the site. Land near to the western boundary forms the lowest part of the site and a corridor could be maintained as a swale, as part of a sustainable drainage (SuDS) system to help manage surface water run-off, with secondary swales connecting from higher ground.

6.52 The steepest land in the central part of the site would be a constraint to development, however this could be retained as a potential GI corridor, partly by extending the scrubland habitat from the south, with proposals for tree planting to increase the functionality of the site and longer term canopy cover.

6.53 Overall, the potential GI corridors across parts of the site, identified above, would bring benefits for wildlife, enhance the setting of any proposed development and encourage active travel routes. They should also accommodate areas for play which was identified as an area of need in the Open Space Assessment. The SuDS system would assist with; helping to control the quantity of surface water run-off; managing the quality of run-off to prevent pollution; and contribute to amenity and biodiversity.

Abergele South East

Site Description

6.54 The site is approximately 15 hectares, located to the south east of Abergele and next to junction 24 of the A55. The site is partitioned into four spaces partly enclosed by hedgerows, with the western most space operating as an outdoor sports facility. The remaining spaces are under agricultural use and currently under management for arable.

6.55 There is an intermittent hedgerow along the eastern site boundary towards a small wooded area (outside the site) where the site borders with the neighbouring Kinmel Manor Hotel. The short southern boundary is partly defined by a hedgerow with hedgerow trees. The western boundary is defined by a mature double hedgerow, although the northern section of the hedgerow becomes an internal boundary. A public right of way (PRoW) and drainage ditch passes between the two hedgerows. There is a hedgerow to the short northern boundary with the junction to the A55.

6.56 The western field has no physical delineation to its western side, but the mature double hedgerow (referred to above) forms the eastern edge. There is a small wooded area along its southern edge.

6.57 Land falls very gradually from the southern to the northern boundary.

Context

Gele Ward Profile - 2019 (Southern part of Abergele)

6.58 In terms of population characteristics, compared with the figures for Wales, Gele has below average population for the cohort 0-44 years. It is above the Welsh average for the 45-64 years cohort and well above the average for the over 65 years cohort. Compared with Conwy County Borough, Gele has below average population for the cohort 0-64 years. However, Gele is well above the average for the over 65 years cohort.

6.59 The proportion of people with limiting long term illness (28.8%) is above the Conwy County Borough average (24.2%) and Welsh average (22.7%).

Open Space Assessment (2012)

6.60 The current open space assessment (2020) is under preparation, while the 2012 study shows deficits for Abergele (total) of 6.86ha for playing fields, 2.34ha for outdoor sports, 6.33ha for play and a surplus of 9.58ha for formal major amenity.

Town Tree Canopy Study for Conwy County Borough (2016), NRW

6.61 Of the 11 urban areas assessed in Conwy County Borough, Abergele has a lower canopy cover at 11.6% of the overall urban footprint.

Typology and Multi-functionality Mapping

Typology Mapping

6.62 The types of GI on the site are agriculture (arable), hedgerow and outdoor sports facility. In the wider area the GI typologies are private gardens, agriculture, grassland and woodland.

Site GI Functions

6.63 The arable land currently delivers approximately 5-9 functions including: evaporative cooling, corridor for wildlife, food production and water infiltration. The fields next to the public right of way deliver a greater number of functions due their proximity to the footpath and the additional functions delivered are public recreation, green travel route and aesthetic.

Opportunities and Constraints Plan

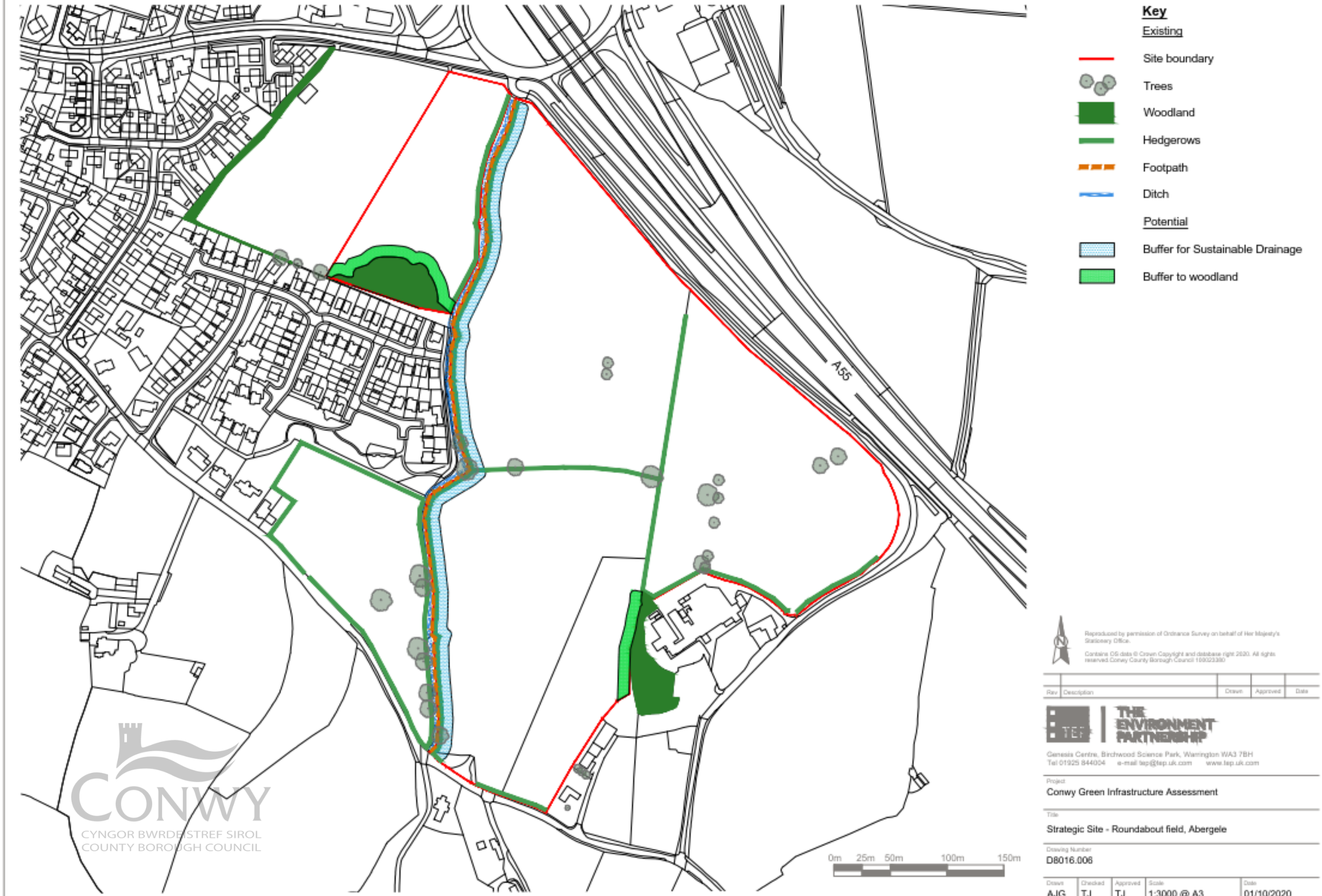
6.64 The plan illustrates the disposition of existing features on site, including the wooded areas, hedgerows and individual trees within the fields.

6.65 NRW mapping confirms the high surface water flood risk from the ditch running next to the public right of way along the western site boundary, although the risk does not extend into the neighbouring fields it feeds a larger area near to the A55 junction. Increased surface water flooding could result from the potential development of the site and so a network of swales on land near to the western boundary extending to the lowest part of the site should be considered as part of a sustainable drainage (SuDS) system.

6.66 All wooded areas should be retained, where feasible and to maintain their functionality and an offset from the edge of any wooded area should be maintained as a landscaped buffer. This would maintain the woodland's scale and presence on the site and enhance GI functions such as habitat and connectivity for wildlife.

6.67 The PRoW running along the western boundary of the site (in part), should from a 'spine' for other active travel routes in the site linking to Abergele town centre and the wider countryside. Suitable open space, associated with the active travel routes should be provided in terms of typology and would form part of any potential GI corridors.

6.68 Overall, the potential GI corridors (landscaped buffers) across parts of the site, identified above, would bring benefits for wildlife and enhance the setting of any proposed development. The SuDS system would assist with helping to control the quantity of surface water run-off; managing the quality of run-off to prevent pollution; and contribute to amenity and biodiversity.


Key
Existing
Site boundary
Trees
Woodland
Hedgerows
Footpath
Ditch
Potential
Buffer for Sustainable Drainage
Buffer to woodland
A55
0m 25m 50m 100m 150m
CONWY
CYNGOR BWRDEISTREF SIROL
COUNTY BOROUGH COUNCIL
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Rev Description Drawn Approved Date
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Project
Conwy Green Infrastructure Assessment
Title
Strategic Site - Roundabout field, Abergele
Drawing Number
D8016.006
Drawn AJG
Checked TJ
Approved TJ
Scale 1:3000 @ A3
Date 01/10/2020

7.0 Planning Policy Recommendations

7.1 This section sets out guidance to assist in the development and implementation of GI policies in the Conwy RLDP.

Green Infrastructure Policies

7.2 Taking into account the key needs and opportunities identified by this GIA, recommendations for GI policies in the RLDP are set out below.

Strategic GI Policy

7.3 In line with Chapter 6 of Planning Policy Wales (PPW 10), the RLDP should require the incorporation and maintenance of GI as key components of distinctive and natural places, whilst identifying strategic opportunities where the restoration, maintenance, creation or connection of green features and functions would deliver the most significant benefits.

7.4 In line with Welsh Planning Policy and NRW guidance, this GIA provides an evidence base and proposed strategic framework for GI planning in Conwy County Borough to support the emerging RLDP. The GIA identifies GI needs and opportunities for the creation of a multifunctional network of green and blue corridors, having regard to factors such as accessibility, existing open spaces, natural and semi-natural habitats, protection of the water environment, landscape and geodiversity, and contribution to ecological networks. These opportunities are outlined in Section 4.0 at a strategic level for the whole of the borough, as well as at a local scale for coastal communities where most of the population of Conwy is concentrated.

7.5 An overarching policy should be included in the RLDP to provide the strategic policy direction for the provision of GI to support the delivery of sustainable development.

7.6 In line with the vision of the Conwy GIA and the national declaration of a climate emergency, planning policy within the RLDP must advocate for the development of a resilient and multi-functional GI network so that by 2033, Conwy will be an even greener and more prosperous place to live, work, visit and invest. It is recommended that the strategic GI policy for Conwy should reflect the following elements:

- Development proposals must consider opportunities for the following benefits through GI creation, enhancement and protection; health and well-being, support sustainable growth of the economy, underpin the county's response to climate change and carbon reduction, and provide connected and resilient ecological networks;
- GI should be viewed as critical infrastructure and planned for alongside transport, flood alleviation and utilities to ensure maximum benefit;
- Development should have regard to this GI Assessment, including:
    - the assessment of GI functions, needs and opportunities
    - the 5 priority themes (biodiversity, the water environment, economic development, health and wellbeing, connectivity)

- Development must avoid the loss of existing GI assets or compromising the integrity of the GI network wherever possible, unless replacement provision or suitable alternative provision can be made that enhances the GI network;
- Where the scale of development would be too small to accommodate on-site GI provision, the Council will, where reasonable, seek developer contributions either towards the improvement of existing green spaces or towards the provision of new GI in an area of need;
- Where compensation is required for the loss of existing GI, then the provision of new or enhanced GI as required by the scale of the development should be in addition to the requirement for compensation;
- Development that will cause significant harm to the functioning of the GI Network, particularly in relation to GI's ability to reduce the impacts of, and adapt to, climate change, will be discouraged;
- The Council will also seek developer contributions for the future management and maintenance of green infrastructure;
- Development should incorporate measures for adapting to and mitigating against the effects of climate change through innovative GI design solutions, including sustainable water management/drainage systems and urban cooling measures;
- Where signage is used, development must include appropriate and bilingual signage.

Spatial Planning Recommendations

7.7 In line with PPW, this document provides an up to date GIA, using existing data-sets and the best information to develop and integrated map-based resource (paragraph 6.2.6 of PPW).

7.8 The spatial data sets produced within this GIA, which highlight opportunity areas aligned to local need can be used to guide development decisions, where appropriate.

7.9 This may be particularly relevant for any site allocations that are included within the RLDP. Policy relevant to sites identified as suitable for development should be guided by spatial data sets and opportunity mapping produced as part of this GIA. Certain areas may also be less appropriate for development from a GI perspective, as depicted through areas recommended for protection in Section 4.0.

Strategic Sites

7.10 The GI policies in the RLDP should be supported by GI policies for the delivery of the five Strategic Sites allocated for residential and/or mixed use development.

7.11 It is recommended that overarching GI policies for the Strategic Sites reflect the following elements:

- New development should be required to make an appropriate contribution to addressing local needs and opportunities for GI provision in and around the growth area by retaining, enhancing and creating green spaces and corridors.

- Development will be required to contribute to:
  - Retaining existing trees and hedgerows wherever possible;
  - Providing a network of well-connected multi-functional GI corridors in and around the strategic site, particularly near to existing vegetation in or adjacent the site;
  - Enhancing the landscape setting of the strategic site by improving the character, appearance and condition of access corridors, gateways, settlement edges and landscape features, including historic environment assets;
  - The production of food (e.g. allotments and community gardens) where possible;
  - Incorporating sustainable drainage systems into development proposals;
  - Enhancing pedestrian and cycle connectivity between residential areas, town centres, schools and workplaces, outdoor sports, tourism and recreational facilities, public transport services and the countryside around the strategic site as appropriate.

GI in Development

7.12 GI can be delivered as a co-product of investment in new or refurbished infrastructure. Development creates opportunities in the form of new or improved assets as well as the potential loss and alteration of environmental features. This justifies seeking contributions from developers to assist in both the continuing management of existing GI assets and in the creation of new assets – particularly where deficiencies have been identified.

7.13 Planning conditions allow the Council to enhance the quality of developments and mitigate potential adverse impacts of the development, which will be in accordance with the RLDP.

7.14 Planning obligations traditionally take the form of Section 106 (s106) agreements. These are legal agreements negotiated between the local planning authority and person(s) with an interest in a piece of land (usually in the context of planning applications), and are intended to make development acceptable which would otherwise be unacceptable in planning terms.

7.15 Section 106 agreements can provide land and long-term funding for the implementation of new greenspace assets and improvements

7.16 Planning policy recommendations for development proposals should be supported where they fulfil the following criteria:

- The layout and design respects the location of existing GI assets and supports and enhances the functions and benefits they provide;

- The development protects and improves the GI network on and around the site through the provision or enhancement of functional links or corridors between different GI assets;
- The development provides new GI and/or introduces multi-functional use of existing green spaces or links/corridors; in response to a site-specific assessment of need and GI opportunity;
- Tree canopy cover within the site is at least as great as the Conwy County Borough average for trees in towns, taking account of the retention of existing trees and the future canopy growth of trees to be planted as part of the landscape for the site;
- The development uses green infrastructure assets to enhance flood resilience in line with the SuDS Manual (CIRIA C753F, or updates thereto);
- A significant net gain in biodiversity is demonstrated on site and/or the wider landscape, using the "mitigation hierarchy" approach;
- A long-term resourcing plan for the management and cyclical renewal of GI assets is provided.

Policy relating to GI Priority Areas

7.17 This section recommends more targeted policy recommendations relating to each of the GIA priority areas and associated aims. The priority areas include biodiversity, the water environment, economic development, health and wellbeing and connectivity. The more detailed recommendations for each priority area are provided in Section 4.0.

7.18 The five priority areas are interconnected, so policy recommendations for one priority area may benefits other priorities.

Priority 1: Protect, enhance, create and restore habitats to create a resilient wildlife and biodiversity network

The following policy recommendations relate to the biodiversity priority:

- Retain and enhance existing habitat corridors, whilst improving linkages between existing habitats;
- Protect and enhance designated sites and sites and habitats of biodiversity value;
- Secure a net increase in biodiversity and incorporate opportunities to enhance biodiversity and improve ecological connectivity;
- Include ecological building design measures that enhance biodiversity – e.g. green roofs, green walls, and planting or habitat creation within green spaces, including nesting and roosting spaces for birds, bats, insects and amphibians where this is feasible;
- Avoid or mitigate disturbance of sites of biodiversity value, arising from recreational use e.g. sports use and dog-walking.

Priority 2: Enable a thriving blue environment

7.19 The following policy recommendations relate to the water environment priority:

- Encourage proposals which will contribute to improved water quality;
- Safeguard water quality from potential negative impacts associated with drainage and waste from development;
- Retain and enhance existing watercourse corridors and consider opportunities for diversification of habitats, such as wetland, grassland, scrub and trees;
- Advocate for sustainable drainage systems (SuDS) and retrofit SuDS into the urban environment, in line with the SuDS Manual (CIRIA C753F).

Priority 3: Promote sustainable growth and economic development through GI

7.20 The following policy recommendations relate to the sustainable economic growth priority area:

- Promote the green economy through associated business opportunities resulting from GI and development that results in GI enhancement and carbon reduction;
- Support business development and buildings that incorporate multifunctional GI;
- Ensure the resourcing of management and cyclical renewal of GI assets is secured prior to commencement of development.

Priority 4: Encourage, enable and promote healthy lifestyles and enhance wellbeing

7.21 The following policy recommendations relate to the health and wellbeing priority:

- Provide opportunities to use green spaces and other GI assets as an outdoor classroom by providing access to and interpretation of natural and cultural assets;
- Recreational and play spaces should be designed to provide an enjoyable environment, to encourage social interaction and interaction with nature by drawing on natural materials;
- Promote local sustainable food production and facilities to enable such enterprises to operate and expand, e.g. community co-ops and stores.

Priority 5: Improve Connectivity

7.22 The following policy recommendations relate to the connectivity priority:

- Ensure inclusive GI design from the outset of site identification stage through constraints and opportunities mapping within and around the site;

- Connect housing, retail and employment areas to wider greenways network and public transport network to contribute to healthy communities and carbon reduction;

GI Co-Ordinator

7.23 Given the multi-functional nature of GI, decisions and actions relating to GI policy development and delivery span many departments within CCBC including green space management, ecology, highways, tourism, SuDS, education, public health, culture and places and environment and landscapes. Consideration of GI is also a statutory duty of all Welsh public bodies under the Wellbeing of Future Generations Act, with particular responsibilities and benefits for NRW, the NHS and Welsh Government. Many landowners have corporate or charitable objectives relating to the quality of environment under their stewardship and would have access to funding programmes such as Glastir.

7.24 To assist in co-ordinating the approach to implementing proposals within the GIA, there is opportunity to create the role of GI Co-ordinator to support the delivery of the strategy, allocate responsibilities and develop new GI programmes.

7.25 A GI Co-ordinator would be aware of all that GI has to offer, and co-ordinate between different local authority departments and partners such as NRW, North Wales Wildlife Trust and Welsh Water. They would act as a first point of contact for other delivery partners, engaging with stakeholders, planners and seek funding for future GI projects.

THE ENVIRONMENT PARTNERSHIP

CONWY GREEN INFRASTRUCTURE ASSESSMENT

CONWY COUNTY BOROUGH

APPENDIX 1 - POLICY AND DOCUMENT REVIEW

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Document Title	Policy and Document Review
Prepared for	Conwy County Borough Council
Prepared by	TEP - Warrington
Document Ref	8016.004

Author	Laura D'Henin
Date	February 2020
Checked	Sarah Grady and Tim Johns
Approved	Tim Johns

Amendment History					
Version	Date	Modified by	Check / Approved by	Reason(s) issue	Status

CONTENTS PAGE

TABLES PAGE

FIGURES PAGE

1.0 Introduction

1.1 The Environment Partnership (TEP) Ltd has been commissioned by Conwy County Borough Council (CCBC) to complete a Green Infrastructure Assessment (GIA) to form part of the evidence base for the Replacement Local Development Plan (RLDP). This policy and best practice review forms Stage 2 of a mulit-staged project, and will be used to inform later stages and key themes of the GIA.

1.2 The content of the policy and document review has been informed by input from CCBC and Natural Resources Wales (NRW). Section 2 analyses the following policy documents:

- Welsh Government (2018). Planning Policy Wales (PPW) Edition 10
- Welsh Government (2009). Technical Advice Note 5: Nature Conservation and Planning
- Welsh Government (2004). Technical Advice Note 15: Development and Flood Risk
- Welsh Government (2009). Technical Advice Note 16: Sport, Recreation and Open Space
- Welsh Government (2007). Technical Advice Note 18: Transport
- Welsh Government (2014). Technical Advice Note 23: Economic Development
- The Environment (Wales) Act 2016
- Welsh Government (2017). Natural Resources Policy
- Well-being of Future Generations Act (2015)
- Welsh Government Partnership for Growth Strategy for Tourism 2013-2020
- Conwy County Borough Council (2013). Conwy Local Development Plan 2007-2022

1.3 Section 3 analyses the following best practice documents:

- CIEEM Wales Policy Group (2019). Welsh Government's Green Infrastructure Guidance: Position Statement
- Landscape Institute (2016). An Integrated Approach to Green Infrastructure Position Statement
- HOSANNA Project (2013). Novel Solutions for Quieter and Greener Cities

1.4 Section 4 analyses the other relevant plans and strategies from CCBC:

- Conwy Economic Growth Strategy 'Perfectly Placed for Business and Growth' (2017-2027)
- CCBC (2018). RLDP Topic Paper 4 – Tourism
- CCBC (2018). RLDP Topic Paper 6 – Natural Environment
- CCBC (2018). RLDP Topic Paper 8 – Transport
- CCBC (2019). RLDP Topic Paper 12 – Recreational Spaces
- CCBC Conwy County Borough Council Corporate Plan 2017-2022
- CCBC Conwy Rights of Way Improvement Plan 2019-2029

Terminology

1.5 Sections 2 and 3 analyse policy and best practice documents, referring to the 'Green Infrastructure approach' as well as the 'approach.' This terminology refers to the well-established approach to undertaking Green Infrastructure (GI) assessments developed by TEP's multi-disciplinary team over the past decade, which is informed by policy and best practice from the international to the local level.

Ongoing Review

1.6 PPW10 places new emphasis on delivering multi-functional benefits within development through the provision of integrated green infrastructure. Following publication of PPW 10, Welsh Government intends to prepare guidance on Green Infrastructure Assessments (GIA) and its delivery within the planning system. However, preparation of guidance on GIAs is still underway. PPW 10 also states that the outcomes of the Green Infrastructure Assessment should draw from the evidence base provided by Area Statements, which are still in production by Natural Resources Wales (NRW). We will review any emerging findings and present these to the client group for discussion.

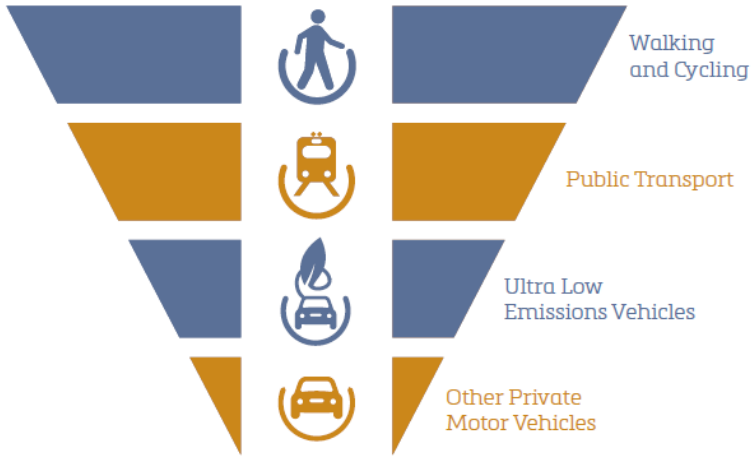
2.0 Policy Review

Table 1: Policy Review

Policy Reference	Policy	Assessment of Policy
Planning Policy Wales (PPW) Edition 10 (2018)		
Chapter 2 People and Places: Achieving Well-being through Placemaking	Chapter 2 introduces the key concept within PPW of 'Sustainable Placemaking' which aims to create places which are attractive, sociable, accessible, active, secure, welcoming, healthy and friendly. Placemaking considers the context, function and relationships between a development site and its wider surroundings. Chapter 2 states that placemaking requires 'smart, multi-dimensional and innovative thinking to implement and should be considered at the earliest possible stage. Placemaking adds social, economic, environmental and cultural value to development proposals resulting in benefits which go beyond a physical development boundary and embed wider resilience into planning decisions.' In addition, some key planning principles are outlined in Figure 3: • Growing our economy in a sustainable manner • Making best use of resources • Facilitating accessible and healthy environments • Creating and sustaining communities • Maximising environmental protection and limiting environmental impact	Much like the concept of placemaking, the Green Infrastructure (GI) approach recognises the value in considering GI interventions at the earliest stages of development, to ensure that it is integrated effectively into Conwy's urban and rural fabric. Retrofitting GI into existing town centres is also acknowledged as an effective solution to reducing the effects of flooding and the urban heat island (UHI) effect, as well as being a method for increasing the potential for inward investment and creating habitats for wildlife. In Conwy, 80% of the population live in the larger towns along the coastal strip including Colwyn Bay, Abergele and Llandudno. Therefore, to reach a large proportion of the population, interventions in existing urban areas can have many benefits in terms of resilience to climate change, increased access to nature for healthier lives, as well as providing a number of environmental benefits such as habitat connectivity and improving air quality. The GI approach recognises that placemaking is a collaborative process, and requires the insight, innovation and implementation from a range of stakeholders. Fostering community ownership over schemes in towns and villages can create a sense of stewardship, to encourage the longevity of schemes in creating sustainable places. The development of Conwy's Green Infrastructure Assessment (GIA) will explore how GI can best contribute to PPW's placemaking objective, in satisfying all dimensions of sustainable development, embedding resilience into Conwy's towns, villages and communities and neighbouring authorities.

Policy Reference	Policy	Assessment of Policy
Chapter 3 Strategic and Spatial Choices	Chapter 3 highlights the importance of good design for sustainable places. Design is described as the 'relationship between all elements of the natural and built environment and between people and places.' The inclusivity of the design process is outlined as being a priority, in order to raise public aspirations, reinforce civic pride and create a sense of place. The link between the built and natural environment and health and well-being is recognised within Chapter 3. Paragraph 3.23 states that 'Green infrastructure can be an effective means of enhancing health and well-being, through linking dwellings, workplaces and community facilities and providing high quality, accessible green spaces.' The landscape and natural resources in rural areas must be conserved and enhanced, whilst being balanced against the economic, social and recreational needs of the local community. The role of Green Wedges in safeguarding statutory designations and important views is highlighted.	The approach provides guidance to ensure that new developers receive the necessary information to incorporate locally relevant GI into new developments whilst retaining existing GI, satisfying the requirements for good design in Chapter 3 of PPW 10. The approach aims to provide relevant development related advice to ensure that developments are of sustainable design and construction in relation to GI. Further to this, the advice provided by the GIA will include distinct guides, specific to the five strategic sites identified within the Replacement Local Development Plan (RLDP) to give guidance to developers on how GI can be incorporated into proposed developments. Building on existing information provided by CCBC, the approach enables us to assemble the typology, functionality, constraints and opportunities mapping already completed for the borough, and collate this for each strategic site. For most rural areas the opportunities for reducing car use and increasing walking, cycling and use of public transport are more limited than in urban areas. Where there are clusters of local service centres in rural Conwy, the approach will seek to deliver a well-connected GI network to enable active travel between areas for health and economic benefits, whilst providing wildlife corridors.

Chapter 4 Active and Social Places	Chapter 4 states that 'active and social places are those which promote our social, economic, environmental and cultural well-being by providing well-connected cohesive communities.' Chapter 4 outlines how policies must achieve the following which relate to GI: • enable sustainable access to housing, employment, shopping, education, health, community, leisure and sports facilities and green infrastructure, maximising opportunities for community development and social welfare; • develop sustainable transportation infrastructure to keep Wales moving and connect people with jobs, housing and leisure. Ensure that the chosen locations and resulting design of new developments reduces reliance on the private car for daily travel, supports sustainable modes of travel and assists in improving the environment, public health and community life; • require developments to encourage modal shift and be easily accessible by walking, cycling and public transport, by virtue of their location, design and provision of on and off site sustainable transport infrastructure; • realise the potential of new sustainable transportation infrastructure to create new or renewed hubs of activity to support sustainable communities which capitalise on their location and the opportunities these present; • encourage and improve social well-being and health by offering opportunities for social interaction, cultural experiences and physical activity. Chapter 4 also states that 'recreational spaces are vital for our health, well-being, amenity and can contribute to an	Conwy already has a number of cycling and walking routes across the borough, from those with national significance such as the Welsh Coastal Path to the local routes which provide connections for local residents to their key services. The approach will draw on Conwy's Draft Rights of Way Improvement Plan 2019-2029, to understand where recent changes and additions to the network have had benefits, and align with Conwy's vision for active travel going forward. Planning for well-connected and comprehensive GI networks, with active travel in mind, can contribute to better connected, cohesive and healthier communities. The GI approach aims to make cycling or walking the natural choice for daily journeys where possible, by providing attractive choices for commuting, recreation or daily trips. The development of Conwy's GIA will follow the Sustainable Transport Hierarchy for Planning as set out by Welsh Government, in order to support the delivery of schemes which prioritise access and movement by sustainable modes of transport. The GI approach recognises that GI connections such as 'Green Cycle Routes' must be planned for in a way to connect up key destinations, linking communities with employment and leisure zones. The GI approach recognises the need for combining attractiveness and practical functionality, and can make recommendations based off the above.

Policy Reference	Policy	Assessment of Policy
	area's green infrastructure.' Paragraph 4.5.2 sets out the responsibility on local authorities: 'Planning authorities should provide a framework for well-located, good quality sport, recreational and leisure facilities, and develop clear policies for the provision, protection and enhancement of sport, recreation and leisure facilities. These policies should set standards of provision, so that local deficiencies can be identified and met through the planning process, and set out policies to avoid or resolve conflict between different activities.' 'Planning authorities should provide a framework for well-located, good quality sport, recreational and leisure facilities, and develop clear policies for the provision, protection and enhancement of sport, recreation and leisure facilities. These policies should set standards of provision, so that local deficiencies can be identified and met through the planning process, and set out policies to avoid or resolve conflict between different activities.'	

Policy Reference	Policy	Assessment of Policy
Chapter 5 Productive and Enterprising Places	The Productive and Enterprising theme covers the economic components of placemaking. 'Productive and Enterprising Places are those which promote our economic, social, environmental and cultural well-being by providing well-connected employment and sustainable economic development. These places are designed and sited to promote healthy lifestyles and tackle climate change. This is done by making them: easy to walk and cycle to and around; accessible by public transport; minimising the use of non-renewable resources; and using renewable and low carbon energy sources.' Tourism is one aspect of Chapter 5. Paragraph 5.5.2 states that 'the planning system encourages tourism where it contributes to economic development, conservation, rural diversification, urban regeneration and social inclusion, while recognising the needs of visitors and those of local communities.' 'Long-distance routes, rights of way, disused railways, waterways and other green infrastructure are important tourism and recreation facilities, both in their own right and as a means of linking attractions' (paragraph 5.5.5).	Figure 8 from PPW 10: The Sustainable Transport Hierarchy for Planning Given the link between tourism, employment zones and homes and the need for active travel routes, the GI approach recognises the need for making green links and cycle ways an easy choice for commuters, tourists and recreational users alike. A key aspect of planning for active travel is understanding the needs of the local community, which will be identified through consultation with local stakeholders and organisations. The team can also draw on a range of best practice examples from the UK and beyond to ensure that local needs and lessons learned elsewhere result in a joined-up and comprehensive approach to encouraging walking and cycling.

Policy Reference	Policy	Assessment of Policy
Chapter 6 Distinctive and Natural Places	Chapter 6 of PPW sets out Welsh Government's planning policy on maintaining and/or incorporating GI as key components of distinctive and natural places to maximise health and well-being of communities and the environment. Chapter 6 requires the integration of GI into the built environment. Landscaping, green roofs, grass verges, sustainable urban drainage and gardens are provided as examples of localised measures which can have wider cumulative benefits (para 6.2.5). PPW requires planning authorities to adopt a strategic and proactive approach to GI and biodiversity by producing up to date Green Infrastructure Assessments (GIA) (para 6.2.6). GIA should use existing datasets and the best available information to develop an integrated map-based resource. GIA should be used to develop a robust approach to enhancing biodiversity, increasing ecological resilience and improving wellbeing outcomes; and should identify key strategic opportunities where the restoration, maintenance, creation or connection of green features and functions would deliver the most significant benefits (6.2.7).	A GI approach is clearly advocated by national policy, as outlined in Chapter 6 of PPW 10. The GI approach at a strategic level provides borough wide guidance to identify mechanisms and opportunity areas across Conwy for biodiversity improvements and net-gain, to guide a more robust ecological and landscape structure across the borough. Through GIS mapping and stakeholder engagement, the approach pinpoints spatial areas where GI interventions have the potential to increase biodiversity through multi-functional interventions. Following publication of PPW 10, Welsh Government intends to prepare guidance on GIA and its delivery within the planning system. However, preparation of guidance on GIAs is still underway. PPW 10 also states that the outcomes of the GIA should draw from the evidence base provided by Area Statements, which are still in production by Natural Resources Wales (NRW). As part of the project, we will review any emerging findings and present these to the client group for discussion. In reference to paragraph 6.2.7 of PPW, the approach uses a range of datasets to best capture the GI baseline in Conwy, as well as identify areas performing well in terms of multi-functionality.
Technical Advice Note 5: Nature Conservation and Planning (Welsh Government, 2009)		

Policy Reference	Policy	Assessment of Policy
Supplements Planning Policy Wales and should be read in conjunction with it.	TAN 5 provides advice about how the land use planning system should contribute to protecting and enhancing biodiversity and geological conservation. TAN 5 requires that local authorities achieve the following in relation to GI: Develop an ambitious but achievable vision of the environment of the plan area, including healthy, functioning ecosystems, a wealth of native wildlife and natural features and the habitats and natural processes on which they will depend; Safeguard nationally and locally designated sites; Protect ancient woodlands, veteran trees and other trees of nature conservation value; Encourage the conservation and management of features of the landscape of major importance for wild flora and fauna; Provide for the conservation, enhancement, sustainable management and, where appropriate, the restoration of networks of natural habitats including wildlife corridors and other green space, and networks and chains of open space; Address the local implications of climate change, including potential effects of habitat change, the risks of coastal flooding and erosion and river basin flood management issues; and Provide for the conservation, enhancement, sustainable management and, where appropriate, the restoration of locally distinctive natural habitats	The GIA development process involves GIS mapping and stakeholder engagement to pinpoint spatially where GI interventions have the potential to improve biodiversity through multi-functional interventions. Along with stakeholder consultation, the spatial mapping of needs can begin to identify the following, which will inform the recommendations in the GIA and align with the objectives of TAN 5: • Where biodiversity may need to evolve and/or mitigate as a result of future climate change • Where habitats and landscapes are lost as a result of development that may need to be mitigated or compensated for in other locations • Where there are obvious gaps that can be filled to make a more comprehensive and cohesive network of habitats Overall, the approach seeks to safeguard and enhance the existing network for its future expansion, in line with the requirements set out in TAN 5.

Policy Reference	Policy	Assessment of Policy
Supplements Planning Policy Wales and should be read in conjunction with it.	TAN 15 provides advice in relation to development and flooding, advising on development and flood risk as this relates to sustainability principles. The aim of the TAN is to direct new development away from those areas which are at high risk of flooding.	As stated in the Conwy Local Flood Risk Management Strategy (2013)[1] 'it is likely that changes in our climate, such as increased severity of storms and wetter winters, will increase the risk and impact of flooding. Flooding already poses a serious risk to the people, economy and environment of Conwy and climate change is expected to increase this risk, as well as the rate of coastal erosion, in the coming decades.' Given that 80% of Conwy's population are settled along the coast, and Conwy's principal inland towns lie along the Conwy River, the GI approach recognises the need to plan for reducing flood risk and making communities more resilient to the effects of climate change. The approach will balance the needs of the environment, communities and the environment, to recommend flood risk solutions which reduce risk whilst resulting in further benefits.
Technical Advice Note 16: Sport, Recreation and Open Space (Welsh Government, 2009)		

[1] https://www.conwy.gov.uk/en/Resident/Crime-and-emergencies/Preparing-for-Emergencies/Flooding/documents/Conwy-Local-Flood-Risk-Management.pdf

Policy Reference	Policy	Assessment of Policy
Supplements Planning Policy Wales and should be read in conjunction with it.	TAN 16 advises on the role of the planning system in making provision for sport and recreational facilities and informal open spaces, as well as protecting existing facilities and open spaces in urban and rural areas in Wales. TAN 16 requires local authorities to implement 'clear, effective and well implemented planning policies for sport, recreation and open space should give developers and the public certainty about the type of development that will be permitted at a given location' (para 3.1). In addition, local authorities should set out a 'strategic vision for the authority with regard to providing, protecting and enhancing facilities for sport, physical activity, open space and recreation, and provide clear area-based or criteria-based policies'.	Appropriate and well-planned recreational space is integral to the health and quality of life of sustainable communities. The GI approach seeks to integrate interconnected recreational spaces into existing communities to offer opportunities for recreation and healthy activities. Policies CFS/11, CFS/12 and CFS/13 of Conwy's Local Development Plan provide further guidance on open space allocations, and open space within development, and are analysed later in this document.
Technical Advice Note 18: Transport (Welsh Government, 2007)		

Policy Reference	Policy	Assessment of Policy
Supplements Planning Policy Wales and should be read in conjunction with it.	TAN 18 promotes the 'integration of land use planning and development of transport infrastructure to address the environmental aspects of sustainable development, in particular climate change and the outcomes identified in the Assembly Government's Environment Strategy' (para 2.3). Section 6 of TAN 18 addresses cycling and walking, stating that it is imperative that policies protect and enhance green spaces and safeguard routes in urban and rural areas for walkers, cyclists and horse-riders. Paragraph 6.2 outlines that local authorities should: • Ensure new development encourages walking as a prime means for local journeys • Provide safe and a fully inclusive pedestrian environment, particularly routes for primary schools • Support the use of PRoW for local journeys • Identify and protect existing and proposed routes suitable for the use of cyclists and walkers	Green active travel routes can contribute to healthier lifestyles, encouraging walking and cycling as the natural choice for daily journeys. This is embedded in the approach. The approach will draw on Conwy's Draft Rights of Way Improvement Plan 2019-2029, to understand where recent changes and additions to the network have had benefits, and align with Conwy's vision for active travel going forward.
Technical Advice Note 23: Economic Development (Welsh Government, 2014)		

Policy Reference	Policy	Assessment of Policy
Supplements Planning Policy Wales and should be read in conjunction with it.	TAN 23 recognises the whole-economy contribution to economic growth, stating that employment land use classes must be planned for in a sustainable way. Paragraph 2.1.1 recognises that local authorities should consider social and environmental objectives to work in cohesion with the economic objectives, to secure 'win-win' outcomes, where development contributes to all dimensions of sustainability.	There is a wealth of evidence to support the local economic development opportunities associated with GI interventions, which include[2]: • Attracting and retaining a quality workforce • Reducing environmental costs such as those associated with a reduction in flood risk • Improving the image of a place • Boosting property values • Supporting a reduction in healthcare costs • Attracting inward investment • Saving energy and money for building owners The approach draws on the above benefits to determine where are the most appropriate areas for GI interventions for economic benefits, whilst balancing the social and environmental aspects of sustainable development. GI can also be massively cheaper to maintain than grey infrastructure, so retrofitting of GI into urban environments will be considered as recommendations where appropriate.
The Environment (Wales) Act 2016		

[2] Adapted from: https://www.gov.scot/publications/green-infrastructure-design-placemaking/

Policy Reference	Policy	Assessment of Policy
Section 4	Section 2 sets a 2050 emissions target, which is for Welsh emissions to be at least 80% lower than the baseline by 2050. Section 4 of the Act sets out principles for promoting a joined-up and sustainable approach to the management of natural resources and ecosystem services in Wales. The Act places a duty (Section 6) on public bodies to prepare a Biodiversity and Ecosystem Resilience Forward Plan, demonstrating how they intend to deliver the plan in collaboration with other partners, taking into consideration the Nature Recovery Plan for Wales and the Well-being of Future Generations Act. Section 7 of the Act requires Welsh Government, in consultation with NRW, to publish a list of the organisms and habitats of principal importance (priority habitats), and take all reasonable steps to maintain and enhance this list, including encouraging others to do the same.	As mentioned, GI can help to increase resilience of Conwy's towns, villages and communities to climate change. Soils and trees in particular can act as carbon sinks, with the potential to contribute to the 80% emission reduction target set by the Environment Act. Conwy's soils hold potential for expanded carbon sequestration, through better management of agricultural land. Other ways in which GI can respond to climate change include[3]: • Reducing CO2 emissions by providing sustainable transport routes for walking and cycling • Managing flood risk through SuDS and nature based solutions • Saving energy through natural rather than engineered solutions • Saving energy from heating and cooling through green walls and roofs to insulate buildings, and trees to provide shade
Natural Resources Policy (Welsh Government, 2017)		

[3] Adapted from: https://www.gov.scot/publications/green-infrastructure-design-placemaking/

Policy Reference	Policy	Assessment of Policy
	A statutory requirement of the Environment (Wales) Act, this sets out Welsh Government's policy for the sustainable management of Wales' natural resources to maximise their contribution to the goals of the Well-being of Future Generations Act. The Policy outlines three national priorities: • delivering nature-based solutions • increasing renewable energy and resource efficiency; and • taking a place-based approach.	Nature based solutions (NBS) are designed to bring more nature and associated processes to cities, in a cost-effective and multi-purpose way. The idea is to work with nature rather than against it, for a more resource efficient and greener economy[4]. The approach values the benefits of NBS in meeting the needs of Conwy now and in the future. Where appropriate, recommendations will be made for the inclusion of natural solutions for combatting flood risk and re-maturing towns and villages. A place-based approach is also central to the development of the Conwy GIA. GIS analysis supported by stakeholder consultation will provide an assessment of local need to ensure that the most appropriate solutions are recommended.
Well-being of Future Generations Act (2015)		
The Well-being of Future Generations Act places a duty on public bodies to carry out sustainable development. This is not a new concept for the planning system as the principles of sustainable development have been at the heart of planning policy since PPW was first published in 2002. However, the concept has been expanded under the Well-being Act and it requires an improvement in the delivery of all four aspects of well-being: social, economic, environmental and cultural. The Well-being Act has established seven well-being goals which are intended to shape the work of all public bodies in Wales.		

[4] https://ec.europa.eu/research/environment/index.cfm?pg=nbs

Policy Reference	Policy	Assessment of Policy
A Resilient Wales	A nation which maintains and enhances a biodiverse natural environment with healthy functioning ecosystems that support social, economic and ecological resilience and the capacity to adapt to change.	GI can support a Resilient Wales by protecting and enhancing existing environmental assets, whilst improving connectivity of, and between, landscapes and habitats to enable them to withstand pressures of change. The approach recognises GI as a widely applicable, economically viable and effective tool to combat the impacts of climate change. The European Commission[5] outlines ways in which GI can help to adapt or mitigate to the adverse effects of climate change. Wildlife corridors both at the landscape scale and local scale can help reduce the negative effects of fragmentation, and can allow for species migration as habitats are altered in the face of climate change. GI also has a role to play in terms of increasing resilience to flood risk and coastal erosion. Conwy has been affected by significant flood events including in the Conwy Valley at Llanwrst, Trefriw, as well as the coastal town of Towyn. GI measures can contribute to the following to reduce the risk of flooding, which may be identified as suitable, cost-effective solutions through the GI approach: • Floodplain restoration and management • Wetland restoration and management • Streambed re-naturalisation • Coastal realignment The approach, aligning with the Wellbeing Act, views GI as a measure to increase resilience of Conwy to climate change and habitat fragmentation. Methods to achieve this include using GI to combat the UHI effect and restoring floodplains to reduce the risk of flooding.

[5] http://ec.europa.eu/environment/nature/ecosystems/pdf/Green%20Infrastructure/GI_climate_adaptation.pdf

Policy Reference	Policy	Assessment of Policy
A Healthier Wales	A society in which people's physical and mental well-being is maximised and in which choices and behaviours that benefit future health are understood	Enabling healthy lifestyles is a key feature of the GI approach. Providing mechanisms to increase the provision of spaces such as allotments, accessible green space, and encouraging cycling and walking will all contribute to the Healthier Wales principles. A Healthier Wales can be achieved through the reduction in emissions and air pollution by maximising provision of sustainable forms of transport, including greenways and improvements to cycling and walking connectivity. Due to ever tightening public sector budgets, the GI approach recognises the cost benefit of GI interventions for health care providers. Due to the growing concern over the costs of treating ill health, resulting from pressures on public money, ageing populations and widening health inequalities, the GI approach aligns with the growing body of evidence that suggests public engagement with GI is a way of preventing health issues and reducing the costs on health care.
A More Equal Wales	A society that enables people to fulfil their potential no matter what their background or circumstances (including their socio economic circumstances)	A more Equal Wales can be achieved through facilitating equal access to the natural environment, especially where inequalities exist. Through GIS mapping, inequalities across Conwy can be mapped to highlight where improving access to good quality GI can have maximum physical and social benefits. Use for all demographics of significant tourism generators such as the Wales Coastal Path can be promoted, protected and made more accessible through planning for a comprehensive GI network. GI can also contribute to securing socially inclusive development so that new developments become desirable places in which to live and work for all members of society.

Policy Reference	Policy	Assessment of Policy
A Wales of Cohesive Communities	• People active in their communities: Creating the conditions where people and communities can do the things that matter to them • Connected communities: Supporting communities to be well connected and safe • Access to key well-being services: Supporting vibrant foundational economies • Community anchor organisations: Valuing the role and potential that community anchor organisations can play in building cohesive communities	To foster Cohesive Communities, GI will need to be well connected, emphasising accessible spaces whilst providing spaces for people to interact and undertake community activities. As mentioned, projects such as Forest Schools and Green Gyms which encourage interaction with nature as well as other community members, will be incorporated into the GIA where deemed appropriate to provide a range of social and environmental benefits. Allotments will be mapped via GIS typology mapping. In recognising their value for health, sustainable food supplies and social interaction, the approach improves green links to and from these spaces.
A wales of Vibrant Culture and Thriving Welsh Language	• Supporting people: Supporting people to engage with culture in their daily working and recreational lives, and bringing out the best in our cultural professionals • Addressing wider societal issues: Using cultural and linguistic interventions to address wider societal issues • Engaging with culture: Enabling our citizens to access and engage with their own and other cultures.	Fostering a vibrant culture will require building on the unique characteristics which give Conwy's landscapes and places their identity, whilst maintaining a sense of place. Protecting and enhancing community GI assets, can encourage a sense of place through social interaction and memory associated with outdoor spaces. The approach recognises that GI can encourage creativity and cultural experiences through providing opportunities for outdoor play, outdoor activities and social interaction. Outdoor play spaces and Forest Schools can encourage interaction with nature, whilst incorporating culture. The GIA will consider options for interaction and association between GI and Welsh culture, which can also foster a more entrenched sense of identity for visitors to the area.

Policy Reference	Policy	Assessment of Policy
A Globally Responsive Wales	A nation which, when doing anything to improve the economic, social, environmental and cultural well-being of Wales, takes account of whether doing such a thing may make a positive contribution to global well-being	Globally Responsible Wales promotes the reduction of carbon emissions, addressing air quality issues and managing environmental risks. The approach recognises the role of GI in preventing environmental problems from getting worse, and the reversal of biodiversity loss. The GIA will look to the long term and consider how they can be flexible to adapt to future issues and needs, ensuring longevity of natural assets in the face of change. Neighbouring authorities will form part of the wider stakeholder group who are consulted on the project. This ensures that the approach links to existing GI corridors and initiatives across administrative boundaries, to ensure that Conwy provides maximum benefits for populations residing close to and across its boundaries.
A Prosperous Wales	An innovative, productive and low carbon society which recognises the limits of the global environment and therefore uses resources efficiently and proportionately (including acting on climate change); and which develops a skilled and well-educated population in an economy which generates wealth and provides employment opportunities, allowing people to take advantage of the wealth generated through securing decent work.	The GI approach recognises the intrinsic value of Conwy's existing landscapes and historic environment, for their value in supporting tourism, businesses, employment and attracting inward investment. PPW 10 states that by protecting and enhancing biodiversity and natural environment assets, we can future-proof economic assets in response to the challenges faced by climate change. GI can contribute to more efficient ecosystem services such as clean air and water by filtering pollutants. In response to climate change, GI can have multiple benefits such as sequestering carbon in soils and woodlands, and reducing the need for energy usage in Conwy's towns by improving energy efficiency of buildings.GI is recognised for its value in contributing to quality of life and therefore a prosperous community. For example, connected GI is one aspect of a modern and connected infrastructure network more generally, allowing access to jobs.
Welsh Government Partnership for Growth Strategy for Tourism 2013-2020 (Welsh Government)		

Policy Reference	Policy	Assessment of Policy
	The strategy is for tourism overall in Wales, and sets a direction for tourism that will support sustainable growth. The goal is for 'tourism to grow in a sustainable way and to make an increasing contribution to the economic, social and environmental well-being of Wales.' The ambition is to 'grow tourism earnings in Wales by 10% or more by 2020'. The Strategy outlines key areas of focus for achieving the above ambition. The place-building focus are is where GI plays a key role. • developing destinations that people want to visit and recommend; • providing opportunities for local communities to deliver memorable visitor experiences; • promoting improved transport links	The Conwy Local Development Plan (CLDP) states that tourism makes a vital contribution to the economy of the Plan Area, and recognises the importance of promoting and supporting a diverse year-round tourism offer whilst safeguarding environmental qualities. The approach seeks to integrate and maximise the tourism potential of GI sites and connections, in a sustainable and inclusive way, responding to the key issues and needs of Conwy's key towns. Conwy's GIA will consider how GI interventions can form key gateways into key towns to signal arrival points, and increase visual amenity. Gateways can be multi-functional in nature and signal a key point on wildlife corridors through urban areas such as wildflower verges. Transport and accessibility is factor considered within the GI planning process. Providing opportunities for tourists to walk and cycle between tourism assets can be a priority, and more interactive routes such as historic walks in urban centres can be promoted.
Conwy Local Development Plan 2007-2022 (Adopted October 2013)		

Strategic Policy DP/1 – Sustainable Development Principles	1. Development will only be permitted where it is demonstrated that it is consistent with the principles of sustainable development. All developments are required to: • Conserve or enhance the quality of buildings, sites and places of historic, archaeological or architectural importance in line with Strategic Policy CTH/1 - 'Cultural Heritage'; • Conserve or enhance the quality of biodiversity and wildlife habitats, and safeguard protected species in line with Strategic Policy NTE/1 – 'The Natural Environment'; • Take account of and address the risk of flooding and pollution in the form of noise, lighting, vibration, odour, emissions or dust in line with Policies DP/2 and DP/3 -'Promoting Design Quality and Reducing Crime' 2.Development proposals should also where appropriate: • Provide safe and convenient access by public transport, bicycle and on foot minimising the need to travel by car in line with Policy DP/2 and Strategic Policy STR/1 - 'Sustainable Transport, Devlopment and Accessibility' • Be designed to a high standard, being attractive, adaptable, accessible, safe and secure as set out in Policy DP/3 • Promote sustainable economic development in line with Strategic Policy EMP/1 • Conserve or enhance the quality of valued open spaces, the character and quality of local landscapes and the wider countryside in line with Strategic Policies NTE/1 and CFS/1 - 'Community Facilities and Services' • Take account and address the potential impact of climate change in line with Strategic Policy NTE/1	The principle of sustainable development is key factor in the GI approach, in order to align with both national and local planning policy. The three strands of sustainable development – economic, social and environmental –inform the themes identified within the approach, to ensure that all aspects are met through the proposed strategic actions, projects and interventions. Policy ST1 makes specific reference to the proposed Conwy GIA. The approach will incorporate the following stages and methods, in order to align with Policy ST1: • Open spaces will be mapped and their current functionality will be explored, to understand whether action is required to improve access or encourage their use • Planning for Blue Infrastructure will form a central part of the GIA, and will be explored ensure GI plays an effective role in flood management, coastal change and responding to climate change where necessary • The Area Statement for the North West Wales Landscape (2018) and the Clwyd Landscape Assessment (1995) will form part of the evidence base for the GIA, to ensure that the influence of landscapes on GI interventions are understood from the outset • The approach will identify mechanisms across Conwy to improve biodiversity and a biodiversity net-gain

Policy Reference	Policy	Assessment of Policy
	• Protect the quality of natural resources including water, air and soil in line with Strategic Policy NTE1	
Policy DP/3 – Promoting Design Quality and Reducing Crime	2. The Council will also seek, where appropriate, to: • Enhance the local character of buildings, heritage and open spaces; • Provide for a compatible mix of uses, particularly in town and village centres; • Incorporate landscaping within and around the development appropriate to the scale and impact of the development; • Integrate with existing routes to provide linked up places connecting with the wider area, in particular public facilities and green transport routes; • Provide developments that offer transport alternatives and promote walking, cycling and use of public transport; • Create safe places through the adoption of 'designing-out-crime' principles to provide natural surveillance, visibility, and well-lit environments and areas of public movement; and • Secure the retention and enhancement of features of biodiversity	The approach provides guidance to ensure that new developers receive the necessary information to incorporate locally relevant GI into new developments whilst retaining existing GI. GI can contribute to attractive and connected town centres, as well as enhancing workforce productivity, increasing inward investment and improving biodiversity and storm water retention in urban environments. For example, vegetation in building design can drastically reduce the need for energy in heating and cooling of the building, provides water management benefits and provides visual amenity benefits. In order to ensure connectivity between new and existing communities, as well as the surrounding area, the approach provides a locally distinct guide for developers on how GI can be incorporated into developments, especially major housing and employment allocations and potential new settlements.

Policy Reference	Policy	Assessment of Policy
Policy DP/4 – Development Criteria	1.Development proposals, where appropriate and in accordance with the policies of the Plan and the Council's Standards should provide the following: • Safe access from the highway network and enhancement of public transport, cycling and pedestrian infrastructure; • Safe and secure cycle parking; • Open Space; • Safe and convenient access for all to public buildings and spaces, including those with limited mobility or those with other impairments such as of sight or hearing;	The approach aims to provide relevant development related advice to ensure that developments are of sustainable design and construction in relation to GI. In the context of the Conwy GIA, this advice will include the following: • Provide guidance for use by Development Management colleagues in order to allow them to effectively assess GI in planning applications, especially major housing and employment allocations and potential new settlements; and • Provide site-specific GI opportunity mapping to inform developments on five strategic sites identified through the RLDP process. Commentary accompanying the opportunity mapping can give strategic guidance on how GI can be incorporated into developments, especially major housing and employment • The approach aims to ensure that GI is considered from the outset of development design rather than being a last minute consideration. Through encouraging this process, GI can be integrated into active travel routes, open spaces and ensure a permeable and safe site for its end users.

Policy Reference	Policy	Assessment of Policy
Policy DP/8 – Colwyn Bay Urban Regeneration Masterplan	Regeneration proposals in Colwyn Bay will be concentrated within the Colwyn Bay Masterplan (CBMP) area as shown on the proposals map. Key Proposals and interventions will be supported which assist the following Colwyn Bay urban regeneration objectives: • Increases connectivity to the waterfront, east-west links between the town centre, East Colwyn and Eirias Park and along Abergele Road; • Contributes to buildings and structures with local or national heritage importance through sympathetic enhancement or conservation proposals; • Provides for improved development of the waterfront to include coastal defence works and the enhancement of the area as a tourism and leisure facility/attraction; • Creates a new focus for the town centre	The Conwy Local Development Plan states that 'the Council will seek to implement new footbridge links in Colwyn Bay between the town centre and seafront.' Through incorporating greenways and green links with proposed links, the approach prioritises the connectivity of habitats as well as pedestrian connections. GI can contribute to improving the setting of existing buildings and heritage assets by creating an attractive visual environment. The Landscape Institute (2013) recognises that attractive settings encourage inward investment. GI has the potential to contribute to attractive and distinctive workplaces, contributing to a vibrant local economy, reducing flood risk and the impact of climate change, as well as creating space for nature in business environments. The approach for Conwy's GIA, links GI with enabling healthy, productive workforces. Alongside this, tourism plays a role in Policy DP/8. The approach seeks to integrate and maximise the tourism potential of GI sites and connections.

Policy Reference	Policy	Assessment of Policy
Strategic Policy EMP/1 – Meeting B1, B2 & B8 Office and Industrial Employment Needs	Policy EMP/1 advises that over the Plan period the Council will plan, monitor and review the delivery of approximately 20.5 hectares employment land, with a further contingency level of up to 22.5 hectares in employment land, to meet the population predictions over the Plan period. One aim is to reduce out-commuting levels by supporting additional economic development. Specifically to Colwyn Bay, Policy EMP/1 aims to tackle problems of deprivation and economic decline through the retention and development of employment generating uses. Policy EMP/1 states that it will 'encourage infrastructure that sustains and promotes the local economy in line with the Development Principles'.	As stated above, research shows that attractive settings encourage inward investment, contributing to a vibrant local economy, in the long term reducing out-commuting levels. A report by Natural England (2008)[6] reports that environmental attractiveness, including GI, enhances the value of property, further boosting the local economy. The approach also recognises that workers with access to GI are healthier and more productive. Therefore, it is important that the GIA for Conwy identifies areas for GI enhancement around key employment sites, and well as providing opportunities for employees to travel to and from work via green links and active travel routes.

[6] http://www.greeninfrastructurenw.co.uk/resources/The_Economic_Value_of_Green_Infrastructure.pdf

Policy Reference	Policy	Assessment of Policy
Strategic Policy TOU/1 – Sustainable Tourism	The Council will promote a sustainable tourism economy by: • Supporting, in principle, proposals for new high quality all-year round sustainable tourism development that diversifies the economy and encourages cross-boundary links with neighbouring authorities, in line with Policy TOU/2 – 'New Sustainable Tourism and Recreational Development'; • Support, in principle, proposals to extend the holiday season in off-peak periods for existing chalets, static and touring caravans and camping sites whilst sustaining environmental and heritage qualities as set out in Policy TOU/4; • Improve connectivity by supporting the delivery of improved links at Foryd Harbour, improvements to the Wales Coastal Path and through the Public Rights of Way Improvement Plan in line with Strategic Policy STR/1 – 'Sustainable Transport, Development and Accessibility' and Policy TOU/2	Conwy's Local Development Plan (CLDP) recognises that 'tourism makes a vital contribution to the Plan Area' and the Community Strategy – 'One Conwy' recognises that year round tourist attractions are essential to the prosperity and wellbeing of the area and the local economy (para 4.4.2.1 of the Conwy Local Development Plan). The GI approach recognises that the principal attractions comprise the existing natural environment assets and Conwy's proximity to Snowdonia's National Park. It is therefore important that the GIA presents opportunities for preservation and enhancement of existing assets, whilst providing sustainable access for enjoyment of both Conwy's residents and tourists. The importance of marine activities (para 4.2.2.2 of CLDP) emphasises the need to recognises the value of the blue environment within the GIA, enabling sustainable connectivity between inland and coastal areas. For future tourism development, the GI approach can identify need for GI in tourism hotspots, whilst encouraging well-designed schemes which conserve and improve biodiversity and landscape quality for the benefit of Conwy's tourism economy.

Policy Reference	Policy	Assessment of Policy
Policy TOU/2 – New Sustainable Tourism and Recreational Development	1.New high quality sustainable tourism and recreational development within the Urban and Rural Development Strategy Areas will only be supported provided all the following criteria are met: • The proposal represents an all year-round high quality tourism offer which provides a range of tourism facilities and leisure activities; • The proposal is appropriate in scale and nature to its location and demonstrates resource efficient design; • The proposal is supported by evidence to demonstrate that there would be local employment benefits in terms of the number and range of jobs; • The proposal is sustainably accessible and encourages the use of non-car based transport; • The proposal would support and extend the range of facilities on offer within the County; • The proposal would assist the Council's regeneration objectives of Conwy; • The proposal meets other related policies in the Plan; • The proposal would not appear obtrusive in the landscape	The GI approach seeks to integrate and maximise the tourism potential of GI sites and connections, in a sustainable and inclusive way.

Policy Reference	Policy	Assessment of Policy
Strategic Policy CFS/1 – Community Facilities and Services	The Council will protect and, where possible, enhance community facilities and services by: • Protecting and enhancing the vitality, attractiveness and viability of the retail centres in the Plan Area • Protecting and enhancing the attractiveness of shopping centres • Meeting the community's need for allotments by safeguarding existing allotments and allocating land for new allotments in Abergele, Llandudno Junction, Llanrwst and Dwygyfylchi • Ensuring that new housing development makes adequate provision for the open space needs of its residents and safeguarding existing areas of open space • Allocating replacement playing fields and new areas of land for open space at Abergele, and Glan Conwy	Allotments will be mapped via GIS typology mapping. The GIA methodology including an assessment of need will identify whether the existing allotments in the borough are meeting local need, and will address whether they can be better connected to the surrounding population through green links for example.
Policy CFS/9 – Safeguarding Allotments	Planning Permission will not be granted for development which results in the loss of land used for allotments, except: • Where suitable, alternative provision is made that is at least equivalent in size and quality to that which will be lost, or; • Where it can be demonstrated that there is no longer a community need for the allotments.	Allotments will be mapped via GIS typology mapping. In recognising their value for health food supply and social interaction, the approach improves green links to and from these spaces. Allotments provide the setting for many benefits including health benefits, reduced stress, improved air quality and facilitating social capital. Through assessing need within the GIA, it will become apparent whether more or better

Policy Reference	Policy	Assessment of Policy
Policy CFS/10 – New Allotments	1.Land is allocated to meet the demand for new allotments at the following locations: • Off Rhuddlan Road, Abergele • Esgyryn, Llandudno Junction • North of Llanrwst • North of Groesffordd, Dwygyfylchi • West of Gwrych Lodge, Abergele 2. Additional land may be identified during the Plan period in accordance with the Development Principles.	connected allotments are required, or whether the quality of existing allotments must be improved. The GI approach also recognises the social value of allotments, in creating a space for interaction and skills development. In this way, they can become a community asset. Research by the University of Newcastle[7] highlights the way that allotments can address inequalities, being activity that is accessible regardless of income, education, ethnic background and (largely) age and supports social interaction with family, friends and neighbours.
Policy CFS/11 – Development and Open Space	New housing development of 30 or more dwellings shall make on site provision for the recreational needs of its residents, in line with the Council's standards for open space of 3 hectares per 1000 population.	Open spaces will be mapped by GIS, through typology mapping. When assessed against multifunctionality and need as well as stakeholder engagement, this will foster an understanding of whether the existing open space provision satisfies local need, and whether existing open space allocations go far enough in meeting this. Poorly functioning existing open spaces can be identified through this process, and responses for better management practices and more multi-functional spaces can be recommended through the GIA. The approach aims to provide five indicative opportunity maps for each of the strategic sites identified through the RLDP process. The opportunity maps will be developed through assembling typology and multi-functionality for each site, and
Policy CFS/12 – Safeguarding Existing Open Space	Policy CFS/12 advises that development must not result in the loss of open space except where there is an over-provision of open space in the particular community, and the proposal demonstrates significant community benefits arising from the development, or where it will be replaced by acceptable alternative provision within the vicinity of the development or within the same community.	

[7] https://www.ncl.ac.uk/media/wwwnclacuk/globalurbanresearchunit/files/electronicworkingpapers/ewp47.pdf

Policy Reference	Policy	Assessment of Policy
Policy CFS/13 – New Open Space Allocations	Land is allocated to meet the demand for open space at the following locations: • Off St.George Road, South of Abergele Playing Fields • Top Llan Road / Llanrwst Road, Glan Conwy 2. Additional land may be identified during the Plan period in accordance with the Development Principles.	opportunity areas for landscape buffers, wildlife corridors and green travel routes will be informed by CCBC and stakeholder input. The clarity of this approach will assist both development management planners and developers to bring forward GI options on the proposed strategic sites which respond to local need. Provide guidance for use by Development Management colleagues in order to allow them to effectively assess GI in planning applications, especially major housing and employment allocations and potential new settlements; and Provide a locally distinct guide for developers to give guidance on how GI can be incorporated into developments, especially major housing and employment allocations and potential new settlements.

Strategic Policy NTE/1 – The Natural Environment	In seeking to support the wider economic and social needs of the Plan Area, the Council will seek to regulate development so as to conserve and, where possible, enhance the Plan Area's natural environment, countryside and coastline. This will be achieved by: • Safeguarding the Plan Area's biodiversity, geology, habitats, history and landscapes through the protection and enhancement of sites of international, national, regional and local importance • Using Green Wedges and settlement boundaries to control the identity of individual settlements, to prevent coalescence and to protect the immediate landscape surrounding urban areas • Where appropriate and necessary, improving the quality of statutory and non-statutory landscapes and areas of biodiversity value affected by development, through management agreements, habitat connectivity, improved planting, landscape and maintenance specifications • Working with developers to safeguard protected species and enhance their habitats • Seeking to minimise the loss of Grade 2 and 3a agricultural land to new development, in particular, in the east of the Urban Development Strategy Area • Respecting, retaining or enhancing the local character and distinctiveness of the individual Special Landscape Areas • Protecting the Coastal Zone • Promoting energy efficiency and renewable technologies in development • Preventing, reducing or remedying all forms of pollution including air, light, noise, soil and water	Initial GIS mapping of environmental constraints and existing designations including Special Landscape Areas (SLAs) will assist in identifying key assets for protection. Stakeholder consultation and further analysis will inform where enhancement and protection measures are required, and where there may be need to manage recreational pressure for example. The approach recognises the ability of planning for GI to safeguard and enhance trees, woodlands, orchard trees and hedgerows as features, habitats and areas to ensure that they continue to be an essential part of the environment. In accordance with Policy NTE/1, the approach provides mechanisms to ensure that proposals are considered in relation to the extent to which they would protect the local landscape character, and its nature conservation interest where relevant. The GIA must ensure that agricultural land is performing as many functions as possible, where it is safeguarded under Policy NTE/1. For example, the inclusion of buffer strips where agricultural land falls on the river bank can mitigate field runoff and linear wetland features can increase local biodiversity whilst 'slowing the flow'. CCBC is responsible for 56km of coastline, meaning that protecting the coastal zone as advised in Policy NTE/1 is integral to the sustainability of the borough given that 80% of the population are settled along the coastal strip. The Conwy Management Catchment Summary[8] looked at the current risk of flooding across the borough which identified that Conwy County is exposed to the combined potential risk from river, tidal and coastal flooding. Urban drainage and surface water problems have also contributed to the counties long history of flooding. This flooding likely to be exacerbated in the future as sea levels rise and there are increases in rainfall. In identifying this need, the approach for GI in Conwy can target a range of interventions such as coastal realignment, Sustainable

Policy Reference	Policy	Assessment of Policy
		Drainage Systems (SuDS) and providing healthy wetlands and floodplains to target this risk.
Policy NTE/ 3 - Biodiversity	New development should aim to conserve and, where possible, enhance biodiversity through: • Sensitive siting; avoiding European protected sites or those of national or local importance; • Sensitive layout and design • Creating, enhancing and managing wildlife habitats and natural landscapes including connectivity; • Integrating biodiversity measures into the built environment; • Contributing to achieving targets in the Conwy Local Biodiversity Action Plan (LBAP)	The approach at a strategic level provides borough wide guidance to identify mechanisms and opportunity areas in Conwy for biodiversity improvements and net-gain. As well as responding to the target areas for the natural environment outlined in the Conwy Local Development Plan, the approach also guides the approach to create a more robust ecological and landscape structure across the borough. Through GIS mapping and stakeholder consultation, the GI approach identifies gaps in the existing GI network, and where strategic scale enhancements for biodiversity and landscape could take place. Through GIS mapping and stakeholder consultation, the approach identifies areas where a net-gain in biodiversity can be targeted, as well as the extension of existing GI assets. Ecosystem services form a key concept of the approach; multi-functionality of GI plays a large role in identifying where GI assets can be improved or implemented to provide a wide range of benefits for both the population of Conwy and the wider ecosystems.

[8] https://www.conwy.gov.uk/en/Resident/Crime-and-emergencies/Preparing-for-Emergencies/Flooding/documents/Conwy-Local-Flood-Risk-Management.pdf

Policy Reference	Policy	Assessment of Policy
Policy NTE/4 – The Landscape and Protecting Special Landscape Areas	Policy NTE/4 designates six Special Landscape Areas (SLAs). In order to conserve the attributes of the Special Landscape Areas development proposals will have to show particular regard to the character of each locality in order to minimise their impact. Development must be satisfactorily integrated into the landscape.	In accordance with Policy NTE/4, the approach provides mechanisms to ensure that proposals are considered in relation to the extent to which they would protect the local landscape character, and its nature conservation interest where relevant. Planning for GI at the landscape scale has the potential to link large ecologically significant natural areas with green corridors that provide habitats for resident and migratory species, improve water quality at the catchment scale, and increase resilience of the landscape to storms and flooding. There are multiple partnerships across the UK which are having benefits at the landscape scale. By joining knowledge and resources at the strategic level, the GI approach can advocate for joint working and encourage more joined-up approaches to environmental protection and enhancement. For example, the Weaver-Gowy catchment partnership in the north west of England is formed of the local authority, the Wildlife Trust, United Utilities, local businesses and environmental groups who all drive forward agendas with a shared pool of resources to draw upon.

Policy Reference	Policy	Assessment of Policy
Policy NTE/5 – The Coastal Zone	A Coastal Zone is defined on the Proposals Map. Development in the Coastal Zone, outside settlement boundaries, will only be permitted where the development: • Specifically requires a coastal location; • Does not adversely affect the open character of the zone; • Does not adversely affect the nature conservation value of the zone with any effects identified • mitigated for; • Does not detract from the tourism value or facilities; • Does not interfere with natural coastal processes; • Does not impede the function of any existing coastal defence structures; • Accords with the Development Principles of the Plan.	As mentioned, CCBC is responsible for 56 km of coastline, 37 km of which is artificially protected. 80% of CCBC's population are settled along the coast in the larger towns of Abergele, Colwyn Bay and Llandudno. As tourism is a key economic sector in the larger coastal towns, the importance of GI in enhancing the setting of towns will not be overlooked in the GIA. As stated in the Conwy Local Flood Risk Management Strategy (2013), there is risk of tidally influenced flooding along the whole of Conwy frontage especially in the urban areas, the main areas of concern are; Llanddulas, Llanfairfechan, Kinmel Bay, Llandudno, Old Colwyn (rail embankment) and the town of Conwy. As advocated by the Environment Act (2016), nature-based solutions can increase coastal resilience to flooding. A green infrastructure approach to coastal improvement—a "living shoreline"—can be created using plants, reefs, sand, and natural barriers to reduce erosion and flooding.
Policy NTE/8 Sustainable Drainage Systems	The use of Sustainable Drainage Systems will be required wherever reasonably practicable with preference for on site disposal and where satisfactory arrangements can be put in place for the long term maintenance of those systems.	It is widely recognised that Sustainable Drainage Systems (SuDS) such as green roofs can aid interception of rainfall, reducing surface water runoff and therefore reducing the chance of flooding. In turn, populations are less vulnerable to major storm events, likely to be exacerbated by climate change. The GIA approach recognises that SuDS form an effective solution to reducing flood risk, and can provide multi-functional benefits such as wildlife corridors and reducing the urban heat island effect.

Policy Reference	Policy	Assessment of Policy
Strategic Policy STR/1 – Sustainable Transport, Development and Accessibility	Convenient access via footways, cycle infrastructure and public transport should exist or be provided where appropriate, thereby encouraging the use of these modes of travel for local journeys and reducing the need to travel by private car and improving the accessibility of services to those with poor availability of transport. The Council will endeavour to improve accessibility and seek to change travel behaviour. This will involve: • Focusing future development in highly accessible locations • Promote accessible communities that encourage integrated sustainable modes of travel • Promote walking and cycling as an integral and highly sustainable means of transport	Through GIS, with accompanying text, the approach identifies opportunities to improve permeability for pedestrians and cyclists in a green context (off road) within Conwy. This comprises identifying areas which can accommodate new greenways and cycle routes to increase connectivity, whilst providing an attractive and safe alternative to the car for residents and tourists alike. In order to ensure connectivity between new and existing communities, as well as the surrounding area, the approach provides a locally distinct guide for developers on how GI can be incorporated into developments, especially major housing and employment allocations and potential new settlements. If sustainable transport corridors and green connectivity initiatives are identified, the approach will also consider connections to neighbouring authorities. The approach will draw on Conwy's Draft Rights of Way Improvement Plan 2019-2029, to understand where recent changes and additions to the network have had benefits, and align with Conwy's vision for active travel going forward.

3.0 Best Practice Review

3.1 TEP has undertaken a review of involve the review of existing advocacy documents that convey GI messages effectively. This has included the review of the following documents which are considered to have transferable elements of good practice:

- CIEEM Wales Policy Group (August 2018). Welsh Government Green Infrastructure Guidance: Position Statement;
- The Landscape Institute (2016). Position Statement: Green Infrastructure - an Integrated Approach to Land Use

CIEEM (2019) Welsh Government GI Guidance Position Statement

3.2 The guidance, produced by the CIEEM Welsh Policy Group, is written in the context of the forthcoming Welsh Government guidance on GI and its delivery within the planning system, following the publication of PPW10. CIEEM's Wales Policy Working Group states that they welcome the proposals for further guidance aimed at developers and local planning authorities with regards to the implementation of GI within development and decision-making processes, and sees this as an opportunity to refine the principles adopted within the revised PPW.

3.3 Table 2 outlines the recommendations made within the position statement, and reflects on how these relate to the Conwy GIA.

Table 2: The relationship between CIEEM's recommendations for GI planning and delivery and the Conwy GIA

Recommendation by CIEEM	Relationship to Conwy GIA
Detailed definition of the term 'green infrastructure'. 'Green infrastructure' can be perceived as an ambiguous term, open to interpretation by different bodies and/or individuals. Any guidance should, therefore, provide detailed definitions of the term and meaning to ensure consistent understanding and interpretation within the planning system, and thus a consistent approach to implementation across administrative boundaries.	For the purposes of the Conwy GIA, the GI approach will take the definition of GI provided by PPW 10 which is 'the network of natural and semi-natural features, green spaces, rivers and lakes that intersperse and connect places.' The use of this definition within the Conwy GIA has been approved by CCBC and NRW as a key stakeholder group.

Recommendation by CIEEM	Relationship to Conwy GIA
Greater emphasis on the multi-functional benefits that can be delivered through green infrastructure within a development, including the positive impacts on health and well-being of a community. This may include reference to specific features and habitats not typically considered within a masterplan design. For example, allotments and orchards provide benefits for the health and well-being of a community, whilst also providing a positive contribution to biodiversity.	GI typology will be mapped at the borough level, as well as within key urban settlements and the five strategic sites identified through the RLDP. Using open source data sets, supplemented by additional council-owned data sets, the GI approach is able to map habitats including allotments and orchards, which will be displayed spatially. The GI approach also incorporates council-owned and open-source datasets to assess the quality of the GI in Conwy. Multi-functionality mapping builds upon the initial typology mapping, and assesses the number of functions that each GI typology can provide, such as carbon storage, recreation, shading from the sun, corridor for wildlife, water interception and removal of pollutants.
Greater emphasis should be placed on the benefits of early engagement with qualified practitioners to identify environmental opportunities and constraints on-site, thus allowing appropriate green infrastructure proposals to be built into an emerging masterplan at the onset of the development design process.	Stakeholder engagement and involvement from an early stage in the GI approach is recognised as an integral role to identifying needs and opportunities at the borough and site level. For Conwy's five identified strategic sites, the approach encourages engagement to draw out local knowledge and determine how GI interventions at the site level can best respond to local need. For example, a Strategic Site in a more deprived area of Conwy may benefit from increased access to open space for health benefits.
Make reference to the Mitigation Hierarchy and CIEEM's Biodiversity Net Gain Good Practice Principles for Development.	The GI approach recognises that GI interventions not only provide ecological benefit and environmental gains on a project basis but also on a wider scale by providing connectivity. In terms of Biodiversity Net Gain (BNG), the approach can provide a framework for GI site interventions across Conwy's five strategic sites within the RLDP. These can help to guide developers in siting their net gain proposals for the benefit of the environment and community. At a borough-wide scale, by mapping existing GI typologies across the borough, the GI approach can identify where there is potential to connect existing habitats through wildlife corridors and green links.

Recommendation by CIEEM	Relationship to Conwy GIA
Increased emphasis on the responsibilities of developers and Local Planning Authorities (LPAs) ensuring that 'blue infrastructure' (i.e. rivers, lakes and ponds) is also a key consideration within the masterplanning process, since such features may also provide opportunities for biodiversity and ecosystem services.	Conwy has 76km of coastline and is home to multiple watercourses such as the River Conwy. Blue infrastructure is therefore a key aspect of the GI approach for the Conwy GIA. For the purposes of the Conwy GIA, the GI approach will take the definition of GI provided by PPW 10, which recognises that blue infrastructure forms a part of GI, which is 'the network of natural and semi-natural features, green spaces, rivers and lakes that intersperse and connect places.' The use of this definition within the Conwy GIA has been approved by CCBC and NRW as a key stakeholder group. The spatial data for the GI approach incorporates blue infrastructure including wetlands, watercourses and tidal water which provides a robust baseline of blue infrastructure resources and allows subsequent analysis for multi-functionality for example.
Greater emphasis on the benefits of combining green and blue infrastructure strategies as part of a holistic masterplan. This requires the implementation of Sustainable Drainage Systems (SuDS) within all new developments of more than one dwelling or where the construction footprint exceeds 100m^2.	As stated above, the GI approach considers both blue and green infrastructure as synonymous within the definition of GI. The GI approach will enable the development of GI opportunities for Conwy's five strategic sites identified through the RLDP. As well as opportunities for connectivity, landscape buffers and recreation, opportunities will also be identified for SuDS, where appropriate.
Opportunities arising from new and refurbished 'grey infrastructure' (i.e. landscaping associated with roads and railways) should also be considered in terms of how they can further enhance local green and blue infrastructure, for example, this will be important when refurbishing disused railway tracks, which may have developed locally important habitats.	The A547 Conway Road runs through the core of Conwy's largest settlements and highly populated urban centres, including Abergele and Colwyn Bay. As part of the GI approach, stakeholder consultation, including with the Traffic and Network Manager with CCBC, will feed ideas into potential opportunities for GI in association with roads and infrastructure. For example, GI buffers alongside roads including low hedges and trees are proven to filter roadside air pollutants and buffer noise from traffic for nearby residents, as well as acting as wildlife corridors. There are some well integrated examples of street trees already implemented in some parts of Conwy which can influence proposals elsewhere.

Recommendation by CIEEM	Relationship to Conwy GIA
Details of the mechanism for screening and scoping when a Green Infrastructure Statement is required for a specific development site, recognising that minor developments may have a limited impact upon green infrastructure. In this instance, a Green Infrastructure Statement should be prepared only where considered appropriate, and any green infrastructure provision should be proportionate to the scale of development and associated impacts.	Out of the scope of the Conwy GIA commission. This can be considered by CCBC following the production of the GIA.
Consideration of potential conflicting uses or needs within a masterplan design, particularly where a development is constrained by size and, therefore, opportunities for inclusion of a holistic green infrastructure strategy. It must be recognised that there will be occasions where it is not appropriate or possible to deliver all benefits of green infrastructure. For example, in cases when the statutory requirement for provision of SuDS may conflict with a requirement to provide mitigation or habitat compensation for protected habitats and species. In this instance, guidance should allow for a pragmatic solution to environmental constraints.	During the development of opportunity maps for Conwy's five strategic development sites, the GI approach will take on board CIEEM's recommendation to consider potential conflicting uses. In response to CIEEM's statement that 'there will be occasions where it is not appropriate or possible to deliver all benefits of green infrastructure' the GI approach recognises that in some instances, areas can perform one function well and others aren't necessary. For example, international wildlife designations may meet the needs of the environment, but provide little in the way of recreational and economic resource as they would conflict with habitat management and protection.

Recommendation by CIEEM	Relationship to Conwy GIA
Any guidance must be consistent with existing development plan policies and national policy guidance, and also be adaptable to evolving planning policy and legislation. This should allow green infrastructure to deliver long-term benefits to development design rather than being a hindrance to conflicting policy and legislation. Greater clarification on how this will be achieved is required.	TEP have undertaken a review of CCBC's adopted Development Plan, as well as evidence base documents from the RLDP.
The delivery of an integrated system delivering multi-functional benefits requires a planning team with a multi-disciplinary skill set and sufficient understanding and expertise of all the various facets of sustainable development. We would, therefore, consider it beneficial to roll-out future guidance in tandem with further training, for example through workshops with LPAs, master planners and developers, to support implementation of key concepts.	TEP are a multi-disciplinary consultancy, and the GI approach has been developed in tandem with ecologists, urban designers, town planners, arborists, heritage consultants and GIS consultants. Each discipline is consulted at necessary timeframes throughout the GI approach, and are engaged in TEP's internal challenge and review sessions. TEP conduct CPD training sessions on GI for external clients on request.

The Landscape Institute Position Statement: Green Infrastructure (2016)

3.4 This edition of the Landscape Institute (LI) Position Statement is drawn out of an opportunity to showcase a range of successful strategic GI work and completed projects. The aim is to give public and private sector bodies, clients and natural and built environment professionals fresh insights into the benefits GI can bring by creating multifunctional landscapes and show how people can collaborate to deliver it.

3.5 The Position Statement outlines seven steps for developing a strategic approach to GI. Table 4 states how the agreed methodology for the Conwy GIA achieves these steps.

Table 3 The LI's recommended steps for delivering Strategic GI in comparison to TEP's method

Steps for Delivering Strategic GI	Comparison to TEP's Method
1. Partnering and Vision	In identifying the geo-spatial extent of the project, the GI approach recognises that GI does not stop at administrative boundaries, and therefore consultation and partnering with the neighbouring authorities of Gwynedd, Denbighshire and Snowdonia National Park are important aspects of the approach. The GI approach incorporates stakeholder consultation at intervals throughout the GIA. The stakeholder group has been agreed with CCBC. Natural Resources Wales (NRW) are a key stakeholder, working with TEP in method development, and providing existing datasets.
2. Contextual Review	TEP have conducted a review of national and local policy in relation to GI to provide a sound baseline and inform later stages of the GIA such as the development of themes. Some of the LANDMAP datasets will form part of the baseline data to align with the LI's recommendation to develop a 'sense of place.' Key characteristics of other landscape designations such as Special Landscape Areas (SLAs) will form part of the baseline.
3. Data Audit and Resource Mapping	Stages of mapping which form part of the GI approach include mapping existing GI typology's across the borough including woodland, grassland, tidal water and watercourses to name a few. Multi-functionality mapping builds upon the initial typology mapping, and assesses the number of functions that each GI typology can provide, such as carbon storage, recreation, shading from the sun, corridor for wildlife, water interception and removal of pollutants. A list of functions will be agreed with the client and will be dependent on data availability and data quality.

Steps for Delivering Strategic GI	Comparison to TEP's Method
4. Needs and Opportunities Assessment	*Need* The GI approach recognises that the GIA must target resources effectively where need is greatest. Therefore, a key part of the GI approach is to identify areas of need, i.e. areas facing existing pressures and would benefit from the creation or enhancement of GI. A combination of the contextual and policy, multi-functionality mapping, and stakeholder consultation enable the identification of evidenced pressure points. Needs can be categorised into topics such as biodiversity and environment; water environment; connectivity; health and wellbeing and economy. *Opportunities* Using the areas of need identified, the GI approach can go a step further to identify opportunities, informed by typology and functionality mapping. The GI approach, guided by stakeholder input, can identify where there is an area of potential to: • Create GI • Enhance GI • Protect GI
5. Design the Planned Interventions'	Stages 5-7 of the LI method recommendations relate to the later stages of strategic planning. The GI approach can make recommendations for design, implementation and management/maintenance of GI, and provide strategic guides and frameworks for delivery.
6. Implementation	
7. Management and Maintenance	

3.6 Table 5 picks out the key recommendations from this position statement, and makes a brief analysis in relation to the Conwy GIA.

Table 4: The Relationship between Recommendations in the LI Position Statement and the Conwy GIA

	Recommendation	**How can GI contribute to meeting this recommendation?**
Strategic GI	We recommend that developers be aware of an area's strategic GI goals and appreciate how those goals contribute to mitigating the environmental impacts of new development and creating beautiful places.	A thorough contextual and policy review of CCBC policy has outlined strategic goals for the county borough.
	By its nature, GI often crosses administrative and operational boundaries, and we believe that this should be addressed through joint-working between national bodies and local authorities.	The GI approach allows for thorough engagement with Gwynedd, Denbighshire and Snowdonia National Park local authorities. The Welsh Government and NRW are also key stakeholders, along with CCBC.
	Consideration must be given to the complex interactions between housing, flood management, food growing and biodiversity for example. This approach allows us to adopt more dynamic, integrated and forward-thinking solutions. GI offers a way not only of tackling specific challenges head on, but of realising multiple secondary benefits at the same time. It is this integrated approach that will unlock the potential of our landscape.	The GI approach recognises that although most types of GI may have a primary purpose or function, by its very nature, GI is multi-functional, providing a range of functions for both the environment and communities. Whichever primary outcome is sought, it will deliver a wider range of complementary benefits.

	Recommendation	How can GI contribute to meeting this recommendation?
GI Terminology	Green Infrastructure Assets: GI assets range from country parks, lakes and woodlands to urban interventions such as green roofs and street trees. They can be specific sites at the local level or broader environmental features at the landscape scale within and between rural and urban areas such as wetlands, moors and mountain ranges.	The GI approach takes on board the definitions provided by the LI for GI assets, functions and ecosystem services.
	Green Infrastructure Functions: GI functions are the roles that assets can play if planned, designed and managed in a way that is sensitive to, and includes provision for, natural features and ecosystem services. They may have obvious primary functions, but each asset can perform different functions simultaneously – a concept known as multifunctionality. For example, street trees add aesthetic quality to an urban area, but will also reduce airborne pollution, provide shade, reduce urban heat island effects, mitigate wind chill and turbulence and increase biodiversity	

	Recommendation	How can GI contribute to meeting this recommendation?
	Ecosystem Services: Underpinning the multiple functions that GI assets perform is the concept of ecosystem services. Between 2009 and 2011, the UK National Ecosystem Assessment (UK NEA) analysed the natural environment in terms of the benefits it provides for society and economic prosperity. The UK NEA found that health, wellbeing and economic productivity depend on the range of services provided by ecosystems and their constituent parts, such as water, soil, nutrients and organisms.	
Mechanisms for Delivering GI	Funding: Green infrastructure can and should be funded through developer contributions, in order to reflect the additional pressures that development of all kinds places on the natural environment and existing infrastructure. By demonstrating GI's ability to deliver on wider policy objectives, it may also be funded by sources that will benefit from its wider application, such as the EU, UK or national agencies and health bodies, water companies, energy providers and highways authorities.	The GI approach recognises that in order to achieve a high level of ambition for GI across the borough despite the limitations of public funding, additional funding approaches need to be developed for implementation, operation, ongoing management and maintenance. Supported by stakeholder engagement, the GI approach recognises the value in ensuring that sufficient investment is available, without an over-reliance on one funding source.
	Even where initial capital for GI has been secured, it is critical that a funding plan for ongoing management and maintenance is factored in from the start, and GI aspirations designed accordingly.	

	Recommendation	How can GI contribute to meeting this recommendation?
	Sources of revenue funding can include opportunities to generate income from GI assets through franchising, licensing and entry fees, endowments, community trusts, commercial investment and traditional local authority funding. Alternatively, revenue could include direct income from renewable energy, food production, agricultural grazing, silage or events, or indirect savings from reducing flood risk.	

HOSANNA Project (2013). Novel Solutions for Quieter and Greener Cities

3.7 HOSANNA (HOlistic and Sustainable Abatement of Noise by optimized combinations of Natural and Artificial means) is a European funded, collaborative project, co-ordinated by the Chalmers University of Technology in Sweden. Other partners include industry experts in construction and a range of universities including the University of Sheffield and the University of Bradford. The project aims to develop a toolbox for reducing traffic noise in outdoor environments by the optimal use of vegetation.

3.8 The aim of the HOSANNA was to find better ways of using vegetated surfaces and recycled materials to reduce road and rail traffic noise and improve the perceived sound environment. The green abatement strategies highlighted can achieve cost-effective improvements using new barrier designs, planting of trees, shrubs, or bushes, ground and road surface treatments, and greening of building facades and roofs. Although the report relates predominantly to noise reduction, the interventions have cross-cutting benefits for biodiversity, climate change and health and wellbeing. The document presents a 'toolbox' including a large variety of measures - those most appropriate to Conwy have been picked out and described below.

Noise Barriers

Low-height noise barriers

3.9 Low-height noise barriers are small barriers whose width and height do not exceed 1 m, erected to reduce rolling noise from cars or trams. Such barriers can be used in dense urban areas to protect pavements and benches near roads or rails from noise. This is possible in situations with limited traffic speed, such as in city centres.

Figure 1: Low-height Noise Barrier (HOSANNA)

Lightweight vegetated barriers at bridges

3.10 Traffic travelling over bridges in urban areas may expose pedestrians and cyclists in areas below the bridges to noise. Thin rigid 1-m-high noise barriers along the edges of such bridges may reduce noise levels in the receiving areas by up to 4 dB(A) in the case of a four-lane motorway. This type of installation can promote walking and bicycling by ensuring acceptable soundscape quality along the travelling path.

Figure 2: Lightweight Vegetated Barriers at Bridges (HOSANNA)

Trees, shrubs and bushes

Trees in street canyons

3.11 Along urban roads flanked by buildings there are multiple reflections between building facades and these greatly increase street noise levels, for example, during the passage of a car. Planting trees near the road might contribute to multiple scattering of sound by branches, twigs, and leaves in tree canopies.

Multiple rows of trees in open fields

3.12 A single row of trees along a road beside an open field will not significantly affect traffic noise levels, though positive effects can be expected when there are multiple rows.

Shrubs, bushes and hedges

3.13 Significant noise reduction by planting shrubs, bushes, and hedges, requires high above-ground biomass densities. Hedges yield road traffic noise shielding between 1 dB(A) up to a maximum of 2–3 dB(A). Hedges should be sufficiently thick and very dense.

Ground Treatments

Ground and ground cover

3.14 Softening the ground between a source and a receiver, for example, replacing asphalt with grass, can substantially reduce the noise from a road.

Combining Solutions

3.15 When applied individually, the interventions proposed by the HOSANNA project may perform less well than traditional ones but, when combined, offer alternatives that are cheaper, easier to integrate, and less subject to site-specific constraints and conflicts. As illustrated, the project offers a large menu of solutions that can be combined into a balanced design.

Figure 3: Combining Solutions in areas exposed to road traffic and railway noise (HOSANNA)

4.0 Review of CCBC Strategies

4.1 TEP have conducted a review of CCBC Local Development Plan evidence base documents. The purpose of the review is to ensure that the methodology and key themes referenced in the Conwy GIA links and contributes to their key aims and outcomes. The documents which have been reviewed include:

- CCBC (2017) Conwy Economic Growth Strategy 'Perfectly Placed for Business and Growth' (2017-2027)
- CCBC (2018). RLDP Topic Paper 4 – Tourism
- CCBC (2018). RLDP Topic Paper 6 – Natural Environment
- CCBC (2018). RLDP Topic Paper 8 – Transport
- CCBC (2019). RLDP Topic Paper 12 – Recreational Spaces
- CCBC Conwy County Borough Council Corporate Plan 2017-2022
- CCBC Conwy Rights of Way Improvement Plan 2019-2029
- Destination Conwy Management Plan (2015-2018)

Conwy Economic Growth Strategy

4.2 Conwy's Economic Growth Strategy is set within the context of the single economic growth vision for the region developed by the six local authorities, the private sector, and further and higher education partners through the North Wales Economic Ambition Board. The vision is set to see major infrastructure developments across the region.

4.3 The Strategy identifies strategic initiatives which can both create and improve jobs within the local economy, moving from seasonal to year-round employment. The strategy identifies the two cross-cutting themes which support growth and relate to GI, analysed in Table 3.

Table 4 Themes within Conwy's Economic Growth Strategy

Theme	Description	How can GI contribute to meeting the theme?
Infrastructure that Enables Growth	Making the county a magnet for people who want to set up and grow dynamic, forward looking	GI can be one of multiple factors which contributes to creating the conditions for sustainable growth, by providing attractive spaces and spurring inward investment. Prosperous towns must also be resilient towns in the face of climate change. The co-benefits of GI in urban infrastructure are numerous, including higher financial returns on property, and more efficient water supply and management. Many of these co-benefits can have an impact on the viability of future investment and business growth. GI interventions can also send a positive message, highlighting a commitment to sustainability.

Theme	Description	How can GI contribute to meeting the theme?
Transformational Tourism	Making Conwy a truly international, year-round destination	Conwy will need to operate as an international destination across all aspects of the visitor experience throughout the County, which requires sustainable destination management. Sense of place and perception are key aspects of visitor experience, and GI can contribute to improving both due to its ability to create nature within urban areas. GI can also be utilised for 'gateways' to Conwy's key tourist assets where appropriate. Currently, many of Conwy's adventure tourism assets are accessible from the A470 Llanwrst Road, which means modes of private transport are the primary choice for reaching each place. Greenways and green corridors have the potential to better connect tourism assets and improve the overall visitor experience.

4.4 Section 3.3 of the Strategy outlines the economic challenges within Conwy. Table 4 outlines the challenges which are relevant to the Conwy GIA, and outlines examples of how GI can combat this, which will be taken forward to later stages of the GIA.

Table 5: The relationship between GI and economic challenges faced by Conwy

Economic Challenge	Summary of Challenge Faced	How can GI contribute to combatting this challenge?
Outward Migration	A fundamental challenge is to address the migration of young talent away from the county, on leaving university.	GI interventions can foster civic pride in the natural attributes of communities, and attract and retain residents who increasingly value a higher quality environment. Well-designed green infrastructure and creatively designed greenspaces offer lots of benefits and can support multiple agendas by helping to develop communities and places that are sustainable, retaining residents who are attracted to the healthier, more social lifestyle that well-planned GI offers.

Economic Challenge	Summary of Challenge Faced	How can GI contribute to combatting this challenge?
Regeneration	The historic legacy of tourism has resulted in concentrated pockets of deprivation close to town centres.	GI has the potential to make neighbourhoods more attractive and healthy. Many town centres lack adequate access to green space, and often are home to older grey infrastructure such as storm water management systems.
Rural Sustainability	Conwy's farmers are facing challenges in economic viability.	GI can benefit rural communities as much as it does urban settings. For example, trees and shrubs can protect soils from drying up in the warmer seasons, and can provide important shelter from wind, both influencing the agricultural productivity in the area. Many of Conwy's rural settings are also crossed by watercourses, which present localised flooding as an issue to rural communities. GI can play a role in reducing flood risk, creating sustainable access to river banks, and returning rivers to their floodplains where hard engineering has occurred.
Funding	Local authority and Welsh Government funding has been reduced.	GI can be designed and planned for a wide range of ecosystem services which include the provision of food, water, minerals, regulation of air quality and waters, erosion protection and enabling amenities important for human well-being.

RLDP Topic Paper 4 - Tourism

4.5 The focus of Topic Paper 4 is to protect and enhance coastal and rural based tourist attractions and accommodation, further exploiting the potential to develop, strengthen and encourage an all year round tourism industry.

4.6 Tourism is an important part of the Conwy economy, supporting 12,208 full-time equivalent jobs directly or indirectly, bringing £839m revenue to the County's economy annually. The Visitor Economy is stated to be far more wide reaching than the direct impact of just the tourism element alone, especially for rural communities.

4.7 Adventure and cultural tourism are growing sectors within Conwy and North Wales and Topic Paper 4 states that CCBC will aim to further develop the region as a place for such tourism businesses to thrive.

4.8 The Welsh Government Partnership for Growth Strategy for Tourism 2013-2020 (Welsh Government) was reviewed in Section 2.0 of this report; the analysis highlights how GI can create attractive, sustainable settings for tourism infrastructure and attract inward investment.

RLDP Topic Paper 6 - Natural Environment

4.9 Topic Paper 6 states that the 'RLDP will work to protect and enhance sites of international, national, regional and local importance. This in turn has benefits on tourism, green infrastructure, and health and wellbeing opportunities.'

4.10 The Topic Paper places a strong emphasis on safeguarding and enhancing the character and appearance of the undeveloped coast.

RLDP Topic Paper 8 - Transport

4.11 Topic Paper 8 raises the key issues in relation to transport that require change in the review of the LDP. Aligning with other key themes, the Transport Topic Paper states that the RLDP should include further objectives around how sustainable transport can be integrated into the plan area, including incorporating new guidance on GI and sustainable drainage. This will entail balancing the need for sustainable growth with the location of new allocated sites for development.

RLDP Topic Paper 12 - Recreational Spaces

4.12 Within Topic Paper 12, CCBC recognises that recreational spaces are valuable both for their ability to promote healthy physical activity and recreation, as well as their role in nature conservation and biodiversity.

4.13 The TAN makes reference to Fields in Trust (FIT) recommended standards. Standards set by the then Countryside Council for Wales for accessible, natural green spaces are also referred to. The benchmark guidelines for open space as given by FiT are provided in Table 6.

Table 6: Fields in Trust (FIT) recommended standards for open space

Open Space Typologies		Quantity Guideline	Walking Distance (m)
Formal Outdoor Space	Playing pitches	1.20	1,200
	All outdoor sports	1.60	1,200
	Equipped/designated play areas	0.25	LAPs 100 LEAPs 400 NEAPs 1,000
	Other outdoor provision (MUGAs and skate parks)	0.30	700
Informal Outdoor Space	Parks and gardens	0.80	710
	Amenity greenspace	0.60	480
	Natural and semi-natural	2.00	720

4.14 Other key points set out in RLDP 12 of relevance to the Conwy GIA include:

- 'The Council should provide a framework for well-located, good quality sport, recreational and leisure facilities;
- The RLDP should set clear policies for the provision, protection and enhancement of sport, recreation and leisure facilities. These should set standards of provision so that local deficiencies are identified and met through the planning process; and
- Formal and informal open spaces should be protected. All playing fields, including those owned by private and voluntary organisations should be protected, unless there is an excess in the area.'

Conwy County Borough Council Corporate Plan 2017-2022

4.15 CCBC's vision as outlined in the Corporate Plan is to be a 'progressive County creating opportunity.' The relevant themes of the Corporate Plan to the Conwy GIA are outlined in Table 7.

Table 7: The relationship between GI and the aims of the Corporate Plan

Aim of the Corporate Plan	Relationship to GI
Safety - People are safe and feel safe	Green routes and corridors must be designed in a way to encourage safe, secure access, incorporating lighting and signposting where necessary. Way-marking on PRoW is important to create navigable routes.
Housing - People have good quality homes they can afford and makes their lives better	GI can create attractive recreational spaces within residential developments, and retrofitting GI interventions such as SuDS and street trees into existing residential streets can improve health and wellbeing whilst providing benefits for biodiversity, climate change and air quality.
Health - People are healthy and active	GI interventions such as providing recreational spaces, active travel routes and improved PRoW, can promote healthy life choices. The GI approach encourages making walking and cycling the natural choice by ensuring people have access to green and blue spaces within acceptable radius from their homes.
Growth - People live in a county which has a prosperous economy	GI can create attractive, flourishing environments for business, and in turn attract further inward investment. The GI approach acknowledges that tourism is the largest industry in Conwy and values the role of GI in the enhancement of the industry.
Environment - People value and look after their environment	There are numerous benefits to biodiversity of the GI approach. One objective of the environment aim is that communities are resilient to climate change. By connecting habitats, species can become more resilient as they are able to migrate responding to changing environments. Flooding also falls under the environment aim, specifically improving coastal flood defences and protecting homes. The GI approach embodies reducing flood risk within its analysis, as blue infrastructure is considered throughout the approach.
Voice - People are informed, included, listened to, and can add to their community	GI interventions, when designed with community needs in mind, can create a sense of stewardship and community ownership. For example, community allotments and gardens can be run by the local community, using volunteer groups, and can provide educational tools. Initiatives like Forest Schools, Green Gyms and Health Walks can encourage social interaction and give a sense of community involvement.

Conwy Rights of Way Improvement Plan 2019-2029

4.16 Conwy has a network of 16,000km of footpath, 98km of bridleway, 21km restricted byways and 16km byways. There are more opportunities for walkers in comparison to other forms of recreation such as horse riders and cyclists.

4.17 CCBC has undertaken a review of their 2008-2017 Rights of Way Improvement Plan (ROWIP) as required by Welsh Government. CCBC's new Rights of Way Improvement Plan (ROWIP) is written in the context of reduced resources and the withdrawal of financial assistance from Welsh Government. The Plan includes a Statement of Action which comprises 5 main aims:

1. Ensure that the public rights of way network is open and available for users;
2. Provide an up-to-date and widely available Definitive Map and Statement;
3. Provide a more connected, safe and accessible network suitable for all users;
4. Improve the promotion, understanding and use of the network; and
5. Encourage greater community involvement in managing local rights of way

4.18 Under Aim 3, all new or improved routes should be logical and follow desire lines, be well-maintained and clearly marked. Links to the Wales Coast Path should be maintained to a high standard. The Wales Coastal Path was officially opened on 5 May 2012 between Chepstow and Queensferry. The section which runs through Conwy follows the coastline as well as having a circular link across Conwy Mountain. The strategic management of the project is now undertaken by a Natural Resources Wales (NRW) funded post.

4.19 The focus of Aim 4 is to improve community understanding, which includes the promotion of Walking Week and Cerdedd Conwy Walks, supporting voluntary walking organisations. Route specific information will be made more available on the internet via Aim 4 to increase awareness of walking routes close to settlements.

4.20 Similarly, Aim 5 aims to increase community involvement. The stewardship approach, involving community maintenance schemes and volunteer groups for path upkeep, can have multiple social benefits other than PRoW maintenance, including reducing social isolation and improving local skillsets.

4.21 The ROWIP highlights that 24.4% of the population in Conwy are aged 65 and over, highlighting the importance of the GI approach considering access for all demographics. There is a growing research body on the link between GI and dementia for example, which may be appropriate to certain locations in Conwy.

5.0 Conclusion

5.1 This policy and document review has been prepared to guide the next stages of the Conwy GIA, and provide a baseline assessment of Conwy's policy context.

5.2 Key themes have been identified through this policy review, and include:

- Place-making now forms the core of PPW and must be embraced throughout decisions to achieve the creation of sustainable places in line with the Well-being of Future Generations Act objectives. Much like the concept of placemaking, the Green Infrastructure (GI) approach recognises the value in considering GI interventions at the earliest stages of development;
- According to the Conwy Local Flood Risk Management Strategy (2013), 'flooding already poses a serious risk to the people, economy and environment of Conwy and climate change is expected to increase this risk, as well as the rate of coastal erosion, in the coming decades.' The GI approach balances the needs of the environment, communities and the environment, to recommend flood risk solutions which reduce risk whilst resulting in further benefits;
- The approach will draw on Conwy's Draft Rights of Way Improvement Plan 2019-2029, to understand where recent changes and additions to the network have had benefits, and align with Conwy's vision for active travel going forward;
- The Conwy Local Development Plan (CLDP) states that tourism makes a vital contribution to the economy of the Plan Area, and recognises the importance of promoting and supporting a diverse year-round tourism offer whilst safeguarding environmental qualities. It is important that the GIA presents opportunities for preservation and enhancement of existing tourism assets, whilst providing sustainable access for enjoyment of both Conwy's residents and tourists;
- The approach recognises the ability of GI to safeguard and enhance the natural environment and biodiversity, in line with the CLDP and national policy including the Environment Act; and
- In line with Conwy's Economic Growth Strategy and the CLDP, the GI approach understands that prosperous towns must also be resilient towns in the face of climate change. GI has the potential to make neighbourhoods more attractive and healthy, attract inward investment, and create higher financial returns on property. Similarly, GI can create attractive, flourishing environments for business, and in turn attract further inward investment.

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Appendix 2 – Analysis of Keystone Bird Assemblages & Important Bat Foraging Areas

Conwy Borough Green Infrastructure Assessment - Keystone Bird Assemblages & Important Bat Foraging Areas.

This document provides a breakdown of three key bird assemblages associated with the following habitats of Farmland, Upland and Wetland. Each bird stated is listed with Section 7 of the Environment (Wales) Act 2016 and may also be a Schedule 1 species, and all need a combination of ecological niches to thrive within their given habitat type.

It also examines bat assemblages.

It makes recommendations about how hotspot mapping might take place within budgetary constraints. It is for discussion with Cofnod and the ideas presented below are not fixed.

The purpose of the analysis is to identify landscapes in need of habitat conservation, enhancement or restoration for assemblages of locally distinctive fauna. This analysis will sit alongside other evidence on distribution of sites, habitats and corridors of value. If the methods prove to be easily replicable, they could be used in future iterations to include other species assemblages such as priority invertebrates or plants associated with particular geologies and landscapes.

Choice of Priority Bird and Bat Species

1. **Farmland Birds – Breeding and Wintering phases**
   Key bird species found within the Conwy/ North Wales area, with Section 7 criteria.
   Skylark (*Alauda arvensis*)
   Common Linnet (*Linaria cannabina*)
   Yellow Wagtail (*Motacilla flava*)
   Swift (*Apus apus*)
   Lapwing (*Vanellus vanellus*)
   Curlew (*Numenius arquata*)
   Hawfinch (Coccothraustes coccothraustes)
   Tree Sparrow (Passer montanus)
   Song Thrush (Turus philomelos)
   Bullfinch (Pyrrhula pyrrhula)
   Cuckoo (Cuculus canorus

2. **Upland Birds – Breeding phase**
   Key breeding bird species found within the Conwy/ North Wales area, with Section 7 criteria and/or Schedule 1.
   Ring Ouzel (*Turdus torquatus*)
   Eurasian Curlew (*Numenius arquata*) B/W
   Golden Plover (*Pluvialis apricaria*) B/W

   Hen Harrier (*Circus cyaneus*) (also Schedule 1 species) IS EXCLUDED FROM THE ANALYSIS DUE TO PERSECUTION RISKS

3. **Wetland Birds – primarily non-breeding phase**
   Key bird species found within the Conwy/ North Wales area, with Section 7 criteria and/or Schedule 1.
   Pale Bellied Brent Goose (*Branta bernicla*)
   Black-tailed Godwit (*Limosa limosa*)
   Reed Bunting (*Emberiza schoeniclus*)
   Snipe (*Gallinago gallinago*); Schedule 1

Eurasian Curlew (*Numenius arquata*)
Golden Plover (*Pluvialis apricaria*)
Eurasian Teal (*Anas* crecca); Schedule 1
Northern Shoveler (*Anas clypeata*); Schedule 1
Gadwall (*Mareca strepera*); Schedule 1
Shelduck (*Tadorna tadorna*); Schedule 1

4. **Important Bat Foraging Areas –** Conwy supports nine species of bat, including the lesser horseshoe bat, which has a restricted range in the UK, with Wales being a stronghold. All species of bat have different foraging strategies and the distance they forage from a communal roost varies between species. This distance is termed the Core Sustenance Zone (CSZ) for the species found in Conwy are listed below:
    - Brown long-eared bat (*Plecotus auritus)* – CSZ for this species is 3km.
    - Common pipistrelle (*Pipistrellus pipistrellus)* – CSZ for this species is 2km.
    - Daubenton's bat (*Myotis daubentonii*) – CSZ for this species is 2km.
    - Lesser horseshoe bat (*Rhinolophus hipposideros*) – CSZ for this species is 2km.
    - Long-eared bat species *(Plecotus sp.)* – CSZ for this species 3km*.
    - Myotis bat species (*Myotis sp.)* – CSZ for these species can range from 1-4km.
    - Natterer's bat (*Rhinolophus hipposideros)* – CSZ for this species is 4km.
    - Noctule bat (*Nyctalus noctula)* – CSZ for this species is 4km.
    - Soprano pipistrelle (Pipistrellus pygmaeus) – CSZ for this species is 3km.

    Typical bat foraging areas are habitats such as hedgerows, unimproved/ semi-improved pasture, and field margins with bodies of water. These foraging areas boast high fauna/ flora biodiversity, which in turn exhibit high invertebrate numbers of moth and fly species. Bat foraging behaviour follows a linear path of commuting between roosts and feeding grounds via consecutive paths of the aforementioned hedgerows, fence lines, watercourses and woodland edges.

<u>Suggested Hotspot Mapping Criteria for Green Infrastructure Strategy</u>

In respect of priority species, the aim of the study is to identify hotspots (strongholds) for the priority species in order to promote conservation land management in and around the hotspot. In the field of conservation land management, there are various approaches to hotspot mapping and identification of habitat corridors and stepping-stones. Given the budget and programme constraints, a simple method is proposed, but Cofnod's input is welcomed as holders of the records.

Farmland Birds

Step 1: Map all recent (2014-2019) records of species on the priority list. No discrimination between breeding or winter records, but "fly-over" records can be filtered out if practical

Step 2: Map frequency of records using grid (resolution to be advised by Cofnod, but 2km x 2km tetrads are often used in bird censuses):

- Grid squares where 6 or more species have been recorded in time frame – "Hotspot squares"
- Grid squares where 3, 4 or 5 species have been recorded in time frame – "Enhancement squares"
- Grid squares where 2 or 1 species have been recorded in time frame

Step 3: Further GIS analysis of output can be considered if necessary, but the above information may be adequate to inform priorities.

Note: if budget is restricted, the analysis could be confined to any tetrads that intersect with a 2km settlement edge buffer zone; the reason being that these areas are more likely to come under the influence of development management.

Upland Birds – Breeding Phase

There are relatively low number of species on the priority list (4) and there are persecution risks with disclosing or inferring records of hen harriers, so these should be excluded.

Step 1: Map all breeding records of selected 3 species in period 2014-2019

Step 2: Identify grids (tetrads?) squares with 3 species recorded – these are defined as hotspots

Note: if budget is restricted, this analysis could be excluded if the focus of the study is on settlement-edge landscapes

Wetland Birds

Whilst the priority species include a mixture of breeding and non-breeding records, some of the breeding records will overlap with the upland assemblage. So it is suggested that only winter records are used (September 1st to March 1st).

Step 1: Map all records of the selected species

Step 2: Map frequency of records using grid (resolution to be advised by Cofnod, but 2km x 2km tetrads are often used in bird censuses):

- Grid squares where 7,8,9,10 species have been recorded in time frame – "Hotspot squares"
- Grid squares where 5 or 6 species have been recorded in time frame – "Enhancement squares"

- Grid squares where 4,3,2 or 1 species have been recorded in time frame

Step 3: Further GIS analysis of output can be considered if necessary, but the above information may be adequate to inform priorities

Note: if budget is restricted, the analysis could be confined to any tetrads that intersect with a 2km settlement edge buffer zone; the reason being that these areas are more likely to come under the influence of development management.

Bats

It is suggested that the analysis has two strands; firstly lesser horseshoe bat roost conservation and secondly bat assemblage foraging

Lesser horseshoe bat CSZ's should be identified individually, using a 2km buffer around the roost record as core CSZ

For bat assemblages, it is recognised that records may not be provided at species level, typically with pipistrelle and myotis species. Use of roost records in isolation may highlight urban areas simply because these areas are more often recorded.

The CSZ's for bat species are typically expressed as 2, 3 or 4km from the roost.

For the purpose of this study, a simplified analysis of frequency of records per tetrad (2km x 2km) may be sufficient to identify hotspots and potential enhancement corridors.

Step 1: Filter records

- All records (roost and flight) can be considered in period 2014 – 2019.
- All pipistrelle sp. Records to be assumed to be common pipistrelle for the purpose of frequency analysis
- Myotis sp records to be treated separately from Daubenton's bat (Myotis daubentonii) for the purpose of frequency assessment

Step 2: Frequency Analysis

- Tetrads where 7,8 or9 species have been recorded in time frame – "Hotspot squares"
- Tetrads where 4, 5 or 6 species have been recorded in time frame – "Enhancement squares"
- Tetrads where 3,2 or 1 species have been recorded in time frame

Note: if budget is restricted, the analysis could be confined to any tetrads that intersect with a 2km settlement edge buffer zone; the reason being that these areas are more likely to come under the influence of development management.

Summary of Outputs

Distribution Maps showing all records in period 2014-19 for the selected species in the following categories:

1. Farmland Birds (all records)
2. Upland Birds (breeding season records only)
3. Wetland Birds (winter season records only)
4. Lesser Horseshoe Bat: Roosts and their Core Sustenance Zone

Hotspot Maps using tetrads, based on frequency of records from the period 2014-2019 for the selected species, as follows

Species	Hotspot	Enhancement	Presence
Farmland Birds	6, 7,8,9,10,11 species	3, 4 or 5 species	1,2 or 3 species
Upland Birds	3 species	N/A	N/A
Wetland Birds	7,8,9 or 10 species	4 or 5 species	3,2 or 1 species
Bat Assemblage	7,8 or 9 species	4,5 or 6 species	1,2 or 3 species

Note: if budget is restricted, the distribution and hotspot maps for farmland birds, wetland birds and bat assemblage could be confined to any tetrads that intersect with a 2km settlement edge buffer zone; the reason being that these areas are more likely to come under the influence of development management. Upland bird assemblage would be excluded completely.

TEP

May 5th 2020

Updated May 12th 2020 in response to Conwy CBC Ecologist comments

Appendix 3: Glossary - Green and Blue Infrastructure (GBI)

Asset
An asset is the general term covering any component of GBI such as a park, woodland or watercourse.

Typology
This is the primary use or description of GBI. The typologies used within this technical report are outlined below:

Agricultural Land and Horticulture
Agricultural land used for crop production and grazing.

Allotment, Community Garden or Urban Farm
These are open spaces primarily utilised by members of the public for the cultivation of fruit, vegetables and flowers. They usually consist of cultivation beds and boundary vegetation, and access can sometimes be restricted.

Amenity Green Spaces and Village Greens
This typology includes sites which are primarily for public recreation, and consist of grassed surface and associated vegetation. They are usually publically owned and managed.

Cemeteries and Churchyards
These are areas which are associated with churchyards or burial grounds. They primarily consist of grass with occasional shrubs or trees.

Derelict and Vacant Land, Sewage Treatment Works
Derelict and vacant land is land which has no formal use. It can include 'urban commons' which are used for informal recreation and brownfield land which has not yet been redeveloped. Sewage treatment works are large areas of private land which contain sludge drying areas, filter beds and other features associated with sewage treatment.

Grassland, Heathland and Scrubland
This typology includes sites which consist primarily of grassland and scrubland which are not agriculturally improved, but are also not part of a formal recreation space such as a village green.

Green Corridors along Railways, Highways and Other Routes
These are linear open spaces associated with transport routes such as cycle paths, roads and railways. They can consist of a mixture of grass, shrubs and trees.

Green Roof
The roofs of buildings which have been covered in vegetation with the intention to reduce water surface runoff. A variety of vegetation can be present, including mosses, sedges and other low level vegetation.

Landscaped areas Around Housing and Industrial Estates/Premises
These are areas which are associated with housing and industrial estates or premises. The areas usually consist of amenity grass, shrubs and trees.

Parks and Formal Gardens
This typology includes parks and formal gardens designed for public use and contain a variety of landscape and horticulture elements. Extraneous facilities such as a toilet block or visitor centre may also be present on site.

Play Area (All Types)
This typology includes open spaces designated for use by young people for recreation. It typically consists of grassed areas, trees and shrubs, with additional play equipment.

Playing Fields, Golf Courses, Equestrian Centre and Other Recreational Grounds
This typology includes sites designated for sports recreation. They typically include vegetated sports surface and associated vegetation. The sites can be publically or privately owned.

Private Domestic Garden
These areas are privately owned open space within the curtilage of individual dwellings, and are generally inaccessible to members of the public. They can include a variety of hard and soft landscape features.

Reservoir
This typology consists of sites which are primarily large expanse of open water which do not form part of another open space site (such as a park). As stated in the data limitations, it was not possible to identify smaller waterbodies such as ponds from the source datasets.

School and Hospital Grounds
These are open spaces associated with the grounds of educational and health facilities, and typically includes grassland with scattered trees, hedgerows and shrubs.

Street Trees
Street trees are composed of a row or collection of individual trees along the side of a road in tree pits or on grass verges.

Watercourse
This includes large areas of running water, such as rivers and canals. As stated in the data limitations, it was not possible to identify smaller watercourses such as streams or brooks from the source datasets.

Woodland
This typology includes sites which are identified as woodland by the GiGL open spaces dataset. The woodland can include both deciduous and coniferous trees, and can be privately owned or publically accessible. Woodland within other open space typologies, such as parks and formal gardens, may not be included within this typology.

Benefits
Whereas GBI functions refer to the specific use of land, benefits refer to the wider, potentially less tangible contributions to people and nature arising out of GBI. For example, the green travel route function can deliver a number of wider benefits, such as health and wellbeing for people who choose to walk or cycle, recreation benefits and a reduction in motorised traffic leading to less emissions into the atmosphere and reduced climate change risk.

Ecosystem Services
Humankind benefits from a multitude of natural resources and processes that are sustained by ecosystems. These 'ecosystems services' include the provision of food, clean water, resources for energy and industry, flood alleviation, crop pollination and recreation opportunities. Ecosystem services are grouped into four broad categories: provisioning, such as the production of food and water; regulating, such as managing the climate; supporting, such as nutrient cycles and crop pollination; cultural, such as recreational benefits.

Functions
One of the principal drivers of GBI planning is to manage land in a more sustainable way. While most GBI assets will have a primary purpose or function it is also possible for functions to co-exist, leading to multifunctional GBI and the ability to use land more effectively and efficiently. For example street trees add aesthetic quality to an urban area but can also support wildlife and improve environmental health by reducing airborne pollution and provide shade for people and wildlife. The functions used in this framework are defined below:

Aesthetic
GBI can improve the image of an area and this can make the surrounding area a more attractive place to live, work and visit, and also result in higher property values.

Carbon Storage
Carbon storage (or sequestration) is the removal of carbon from the atmosphere and the storage in plants, trees and soils. Trees and peat soils are particularly important for the storage of carbon. Different types of GBI will sequester carbon at different rates depending on the growth speed of vegetation.

Coastal Flood Protection
GBI can protect infrastructure and agriculture close to the shore. It can protect against winds and sea spray through the reduction of the speed of the waves and the impact of tidal surges.

Connectivity for Wildlife
Areas that wildlife can disperse through between habitat spaces. This function will become more important in the future, as species' ranges increase northwards with the climate changes. Different types of GBI provide connectivity for a variety of species. However the range of species is also dependent on other factors such as climate or disturbance.

Culture
Space used for cultural purposes, the hosting of public art, events and festivals provide the function of culture.

Evaporative Cooling
Evaporative cooling is the process by which plants transpire water which is evaporated from their surfaces cooling their immediate locality. All types of vegetation can provide this function, including open water. Plants with a larger leaf area are likely to be better than those with a smaller leaf area.

During periods of drought, irrigation is likely to be necessary to maximise this function in plants, whilst open water will continue to be valuable in its own right.

Food Production
Land used for growing crops or the grazing of animals.

Green Travel Route
Green travel routes are off-road routes for pedestrians and cyclists (for recreational purposes as well as moving between places) through greenery and includes the area surrounding the green travel route. These include PRoWs.

Habitat for Wildlife
The provision of a place for wildlife to live, including a source of food. The variety of types of GBI will provide habitats for a range of species. However the range of species is also dependent on other factors such as climate or disturbance.

Heritage
Historic links in the landscape (including ancient woodlands, canals, designated sites and monuments). Heritage is defined as that which is inherited.

Learning
GBI can provide a backdrop for outdoor classrooms and learning outside of the indoor school environment. It can also be used as a setting for learning new skills which may help adults develop skills for the workplace.

Noise Absorption
Screening of noise, especially from major transport routes can improve quality of environment. However this requires GBI elements that are tall enough to intercept and absorb sound waves. This function is usually associated with urban areas, especially close to travel routes.

Private Recreation
Land which is used for recreation but only by the landowners or those invited by the landowners to use. This primarily consists of private domestic gardens.

Public Recreation
Areas that can be freely used for recreational purposes (formal/informal and active/passive), without any restrictions to access (such as payment or membership). This can include areas closed at night, on specific days or seasonally but this was assessed on an individual basis.
Restricted Public Recreation
Areas that can be used by the public for recreational purposes (formal/informal and active/passive), but is restricted (usually via payment or membership). This usually includes outdoor sports facilities and formal parks and gardens.

Shading from the Sun
Shading of people and surfaces from solar radiation can reduce temperatures and increase comfort levels and is usually provided by trees and taller plants. Shading from the sun is also important to protect agricultural land and other species from solar radiation. This function will become more critical when adapting to climate change.

Trapping Air Pollutants
Removal of pollutants, including ozone, nitrogen dioxide and particles from the air, through uptake via leaf stoma and deposition on leaf surfaces. Once inside the leaf, gases diffuse into intercellular spaces and may be absorbed by water films to form acids or react with inner

leaf surfaces. This function is usually associated with urban areas, especially close to travel routes.

Water Infiltration
Vegetation and roots can aid the movement of water into the ground. Includes both surface infiltration and deep infiltration, which can reduce the risk of flooding.

Water Interception
The interception of rainwater before it reaches the ground, by the leaves of trees and plants will slow the flow of water to the ground. This can reduce the risk of flooding. All vegetated types of GBI will intercept water in some way, although this varies with leaf area.

Water Storage
Water storage in ponds, lakes, rivers and some wetlands. This water is accessible for human use and for irrigation if it is required.

Wind Shelter
GBI can provide shelter from winds by slowing or diverting currents.

Geographic Information System (GIS)
GIS is a system designed to capture, analyse, manage and present all types of geographical data. In the context of the Conwy Green Infrastructure Assessment, GIS is used to map all GBI assets and identify the existing functions of those assets. GIS also provides the analysis for the needs assessment.

Index of Multiple Deprivation (IMD)
This is a measure of relative deprivation for Lower Super Output Areas. It is made up of a number of indicators reflecting different aspects of deprivation experience by those living in an area.

Lower Super Output Area
The Lower Super Output Area is a geographic area used by the Office for National Statistics for many of its statistical outputs.

Natural Capital Accounting
Natural capital is 'the stock of our physical natural assets (such as soil, forests, water and biodiversity) which provide flows of services that benefit people (such as pollinating crops, natural hazard protection, climate regulation or the mental health benefits of a walk in the park). Natural capital is valuable to our economy. Some marketable products such as timber have a financial value that has been known for centuries. In other cases (e.g. the role of bees in pollinating crops), we are only just beginning to understand their financial value.'
Natural capital accounting is the process of calculating the stocks and flows described above and attributing them a financial value.

Needs
The essence of sustainable development is providing for people’s and nature’s needs, now and in the future. So it is important to take people and nature as the starting point for GBI planning in the context of the built and natural environment. People and wildlife have many needs: for example people have needs to use greenspace for recreation and leisure and health and wellbeing; wildlife species have needs to move across land to find sources of food and places to shelter.