

Pathway to Nature Recovery

Investing in Nature Recovery in the Liverpool City Region

DEFRA – Natural Environmental Investment Readiness Fund, Round 2



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Contents

Document Control.....	2
Executive Summary.....	6
Acknowledgements:.....	8
Project team.....	8
Recommendations	10
Part I. Introduction to the Project.....	14
1. Introduction	14
1.1 Background, context and drivers	14
1.2 The project	16
1.2.1 Project outline and description.....	16
1.3 Purpose of this report	18
1.4 Approach.....	19
2. Project area	22
2.1 Nature Improvement Areas	22
2.2 Natural Capital baseline	26
2.3 NIA opportunities, threats, and barriers.....	30
Stakeholder engagement 1: NIA Opportunities, threats and barriers	30
Stakeholder Consultation: NIA spatial priorities and aspiration consultations.....	33
2.4 Habitat opportunity mapping	36
2.5 Approach to habitat opportunity mapping.....	36
2.6 Stakeholder engagement: Ground truthing draft opportunity mapping and determining stakeholder requirements for a Seller’s Guide	38
2.7 Habitat opportunity mapping results.....	38
2.8 Ecosystem Service provision from habitat creation opportunities	45
Part III Funding Opportunities	47
3. Funding opportunities.....	47
3.1 Analysis of market, funding and income generation opportunities	47
Potential Markets.....	48
Biodiversity net gain.....	54
Carbon sequestration.....	55
Natural flood management and flood risk mitigation.....	56
Nutrient neutrality (water quality).....	57
Air quality.....	57
Green social prescribing and health & wellbeing	58
Other income or funding streams.....	59

3.2	Biodiversity Net Gain Needs Assessment	62
3.2.1	Approach to the Estimate of Biodiversity Net Gain need	62
3.2.2	BNG needs assessment results	64
	Discussion of BNG needs assessment	69
3.3	Results: Assessment of Habitat creation opportunities and funding opportunities for the project area	71
Part IV. Developing a Nature Based Investment Model for the Liverpool City Region		78
4.	Nature Based Investment Model introduction	78
5.	Seller’s business case and Seller’s Guide	81
5.1	Introduction to the Seller’s Business Case	82
5.2	Key considerations in developing an investable environmental project.....	82
5.3	The local authority perspective.....	84
5.4	Developing a sellers business plan.....	85
5.5	Generating and attracting investment and income to fund environmental projects	88
5.6	Finance models	91
6.	Buyers and investors business case	93
6.1	Introduction to the Buyers’ Business Case.....	95
6.2	Key Considerations in the Buyer’s Business Case	95
6.3	How markets may develop and operate	101
6.3.1	How markets may impact on value pricing.....	103
6.4	Market actors.....	103
6.5	Buyer Profiles.....	105
7.	Investors business case	108
7.1	Introduction to the Investors Business Case	109
7.2	Investor Types	110
7.3	Investment Opportunities.....	111
7.3.1	What are investors looking for in an investible proposition?	112
7.3.2	Appetites for risk.....	113
7.3.3	Finding the right type of capital	115
8.	Online open source learning toolkit.....	118
Part V. Conclusions, Lessons Learnt and Next Steps		122
9.	Conclusions	122
10.	Lessons Learnt.....	124
11.	Next steps and measures of success for the Liverpool City Region	127
11.1	Next Steps	127
11.2	Measures of success	129

12. Recommendations for further work	131
13. Glossary.....	132
Appendices.....	136
Appendix 1: NIA profiles	137
Appendix 2: NIA stakeholders	138
Appendix 3: LJMU baseline and opportunity mapping.....	139
Appendix 4: BNG Needs Assessment.....	140
Appendix 5: Sellers business case and Sellers guide.....	141
Appendix 6: Buyers and Investors business case	142

Executive Summary

The aim of this project was to develop a nature based investment model to deliver Biodiversity and Environmental Net Gain in line with the Environment Act¹ and Defra's 25 Year Environment Plan². The project sought to develop a solution to implement BNG and to provide an investment model which would provide sustainable and long term funding to drive nature and environmental recovery for the Liverpool City Region. This was a pilot project centred on three Liverpool City Region (LCR) Ecological Network Nature Improvement Areas (NIAs). These were River Alt Corridor NIA, River Alt and M57 Corridor NIA and Black Brook and Sankey Valley Corridor NIA. The NIA's identify areas within the LCR for nature recovery and will inform the forthcoming Local Nature Recovery Strategy (LNRS) for the LCR. The project sought to baseline the NIAs and model habitat creation opportunities and assess ecosystem service uplift. This would form the basis for understanding potential nature market for these NIAs with the goal of developing and a habitat bank for the LCR. Development of sellers, buyers and investors business cases sought to develop a nature based investment model on which a nature market for the project area and wider LCR could be established. The nature based investment model provides valuable information on funding sources and how to develop projects which would be suitable for funding.

This report provides an evidence base and pathway through which nature-based solutions can be taken forward across the LCR. The report shares the outcome of project and sets out an approach to developing a nature-based investment model for the LCR which can be replicated more widely. The report provides an overview of potential habitat interventions, funding opportunities as well as setting out the seller, buyer and investor business cases. The report concludes by making recommendations for next steps for further development and implementation of this pilot project.

The project was led by the Liverpool City Region Combined Authority and project managed by Merseyside Environmental Advisory Service. The project was supported by project partners including the Local Authorities of Knowsley, Liverpool, Sefton and St Helens as well as regional non-governmental organisations and nature conservation organisations. Project partners provided valuable input and insight on factors affecting the NIA's and aspirations for nature recovery and environmental improvement. Project partners provided ground truthing and sense checking role to the project ensuring that this project delivers at both the strategic and local scale.

Headlines:

The project identified the following key headlines:

- Nature markets are nascent and emerging. BNG provides the most viable current mandatory market within the LCR. This should therefore be the current primary focus for development. Other ecosystem service markets are the woodland carbon code and the emerging saltmarsh code, however, other carbon codes are in development, e.g. soil, grassland and hedgerow carbon codes. These markets are voluntary, i.e. there is currently no mandatory requirement to buy credits within the LCR. Other potential markets include grant funding for natural flood management. Opportunities to develop these markets should be explored, however should currently be a secondary focus as they are voluntary, emerging and prices remain variable.

¹ Environment Act, 2021 <https://www.legislation.gov.uk/ukpga/2021/30/contents/enacted>

² Defra 25 year Environment Plan <https://www.gov.uk/government/publications/25-year-environment-plan>

- Habitat opportunity mapping identified significant potential nature recovery interventions for woodland (630ha), semi-natural grassland (316ha) and wetland (533ha) across all three NIA's. This would provide a significant opportunity for nature recovery within the NIA's. Ecosystem services that could be delivered by the identified habitat creation opportunities include the potential carbon sequestration of 10,251 tonnes/ year. This could also result in increased flood mitigation of 148,195m³ /year. This illustrates how habitat creation can also address the Climate Emergency.
- Consultation with stakeholders identified the following requirements for the NIA's: the need for greater funding and resource; the need to enhance community engagement as this leads to positive community ownership; flooding and water quality issues could be positively addressed through natural flood management; and, more could be achieved at a landscape scale with greater private landowner engagement.

There would be a number of different actors involved in delivery of an LCR habitat bank and they need to adopt a coherent approach to delivery of habitat. Local authorities have a significant role to play as landowners, local planning authorities and legal signatories to habitat bank sites. Other players include conservation organisations as delivery organisations, landowners, developers and businesses as buyers and investors.

- BNG needs assessment of Local Plan allocations associated with the project area (those within 5km of the project NIA's) identified the estimated need for between 824 – 1045 biodiversity units which equates to approximately 199-321 ha of habitat creation. This equates to an estimated monetary value of between £16,487,600 and £26,137,750. The NIA and buffer areas equate to approximately 50% of the LCR and give an indication of total BNG need and potential income. However, this is considered to be an underestimate of real need as this relates to Local Plan allocation sites only. Analysis of opportunity mapping shows that the project NIA's could meet this demand, however, it is unlikely that this demand could be met within local authority estate alone. This highlights the need for engagement with private landowners including farmers. Initially it is predicted that demand will outstrip local supply. Rapid development of habitat banks is required to ensure that development can be delivered, that developers can address their BNG requirements in a cost effective way and to prevent biodiversity leakage out of the LCR.
- The sellers guide (Appendix 5) provides a key resource to those developing habitat banking projects for the nature market. The Sellers guide and project findings will be available on the Investing in Nature Recovery for the Liverpool City Region website.³
- Local Authorities are likely to be key actors in the BNG market. This provides an opportunity to provide leadership in addressing both nature recovery and climate emergencies. Local Authorities need to consider their role in the market, for example as both sellers and buyers, setters of standards and best practice and market enablers.
- Opportunities presented to investors, by BNG markets are to invest in:
 - i. Land that will be used for BNG projects in the future (land banking)

³ Investing in Nature Recovery for the LCR www.investinginnaturelcr.com

- ii. Land where BNG projects are already in the pipeline, initiated or up and running (habitat banking)
 - iii. The entity that is creating a new BNG project itself (Project investment)
- Environmental projects will be well placed to attract interest from Environmental, Social and Governance (ESG) investors and funds with biodiversity becoming a key component of ESG. Biodiversity is an increasingly recognised area within ESG. Corporate organisations are increasingly reporting on their impact on the natural world and habitats, for example through the Taskforce for Nature related Financial Disclosure (TNFD)⁴.
 - In attracting buyers or investors to habitat projects project developers will need to ensure that their needs are met. Key considerations of buyers and investors relate to risk, quality and integrity of the project and price as detailed within Part IV of this report.

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Special thanks to our project partners for their time, knowledge and experience, their input has been invaluable in shaping the project and ensuring its relevance for the Liverpool City Region. Thanks to: Knowsley Council, Sefton Council, Liverpool Council, St Helens Council, Mersey Rivers Trust, The Trust for Lancashire, Greater Manchester and North Merseyside, Groundwork, Mersey Forest, Environment Agency.

Thanks to the Defra NEIRF team for your assistance and guidance in delivering this project.

Project team

Liverpool City Region Combined Authority (Project lead)

The Liverpool City Region Combined Authority is led by Mayor Steve Rotheram and brings together region's six local councils – Halton, Knowsley, Liverpool, Sefton, St Helens and Wirral. The authority has taken powers and funding from the national government to through a 'devolution' deal. The Combined Authority sets LCR wide policy and provides a lead at a regional level in key aspects which impact on local communities and the environment.

Merseyside Environmental Advisory Service (Project manager)

⁴ Task Force for Nature Related Financial Disclosure <https://tnfd.global/>

Merseyside EAS is an environmental local authority service for the Liverpool City Region. MEAS provide environmental advice on planning and provides a strategic environmental overview. MEAS has a long history of delivering joint work across the LCR including development of the LCR Ecological Network, hosting Merseyside Biobank, Sustainable Energy Action Plan and establishment of Nature Connected (Local Nature Partnership). Merseyside EAS works in close collaboration with the LCR local authorities, governmental organisations (E.g., Natural England and the Environment Agency) and regional nature conservation organisations.

[Liverpool John Moore University \(Habitat and opportunity mapping\)](#)

The LJMU Natural Capital Hub is centre for research and knowledge exchange working on various aspects of natural capital, including mapping, natural capital finance and embeddings its use in decision making and policy. The Hub works with number of partners to apply the approach including LEPs and Combined Authorities, Conservation NGO's, Community Forests and Government Departments and Agencies across England and Scotland. This includes the evaluation of major national level programmes such as Nature for Climate. The hub is seeking to improve natural capital literacy, skills and understanding across all stages of the green-skills pipeline from school children, university students and graduates to those already in work across various sectors.

[Pure Leapfrog \(Buyer and investors business cases\)](#)

Pure Leapfrog is an innovation led sustainability charity that works across Carbon, Energy, Sustainable Finance and Natural Capital. They have experience and capabilities in project development, carbon markets, financial modelling, accessing finance, developing new business models, and working with communities. They develop new services and models that they leverage into alternative ownership structures such as Community Interest Companies, Community Benefit Societies, Local Authorities, Impact Partnerships et cetera, so that they are able to deliver social impact as well as environmental.

[Chris Bowden Consulting \(Sellers business case and guide\)](#)

Chris Bowden Consulting specialise in developing, scoping and managing nature recovery projects and environmental programmes and projects investigating natural capital approaches, implementing ecosystem services markets and developing innovative funding and green investment mechanisms. Key activities also include stakeholder engagement, developing partnerships, strategies and research projects. They have worked for a wide range of public, private and third sector clients including Warwickshire County Council, the Berks, Bucks and Oxfordshire Wildlife Trust, Defra, EA, JNCC, GFI, eftec, Logika Consultants and the Ecosystems Knowledge Network.

Recommendations

Recommendations for initial steps to develop an LCR natural capital market

Recommendation 1: BNG should sit at the top of the nature recovery and natural capital hierarchy for the LCR as it provides a certain and mandatory market because for development to legally proceed mandatory BNG must be delivered. BNG market should be the key short-term focus for the development of nature-based markets within the LCR. The LCR should seek to develop a pipeline of BNG habitat bank projects across the LCR.

Justification: This project has clearly identified that, where BNG cannot be delivered on development sites, that offsite compensation is needed. Without local BNG solutions the pipeline of development projects across the LCR is likely to slow or stall, or be costly due to the need to purchase national credits. This project has identified that to facilitate the delivery of BNG and other nature-based solutions that a buyer and seller business case must be developed with BNG solutions at its core (See Part IV). BNG due to its mandatory nature and imminent implementation currently provides the most secure and immediate income stream. (See Part III)

Recommendation 2: The learnings from this pilot project should be shared, developed and replicated across the wider Liverpool City Region and more widely. The online opensource toolkit⁵ is a key resource for habitat project developers and should be promoted by the local authorities as a key resource for habitat project planning and development.

Justification: This project was designed as a pilot and proof of concept. The nature-based investment model (NBIM) and learning from this project should be rolled out to the wider LCR. The Seller's guide, and buyers and investment business cases (See Part IV), are a key source of information for the development of nature-based markets and projects and are designed to be implemented locally and strategically, at scale.

Recommendation 3: To develop a seed funding for the LCR which provides project development finance and pump priming to start the market.

Justification: Consultations with project partners identified that the lack of initial funding, resourcing and staff time is currently preventing the development of projects including BNG habitat bank sites (See Section 2.3). Initial sources of funding are required to allow initial project development and habitat works to be undertaken to start the market.

Recommendation 4: A BNG 'needs and supply assessment' should be undertaken within each local authority within the LCR

Justification: This project completed a BNG needs and supply assessment which partially covers the local authorities of Liverpool, Knowsley, Sefton and St Helens (See section 3.2). A BNG needs and supply assessment can estimate the size of the BNG market across the combined authority area within each Local authority. This provides the business case for the approach and strategy taken by local authorities to address BNG offsite needs to ensure development can proceed and for the development

⁵ Investing in Nature Recovery in the LCR www.investinginnaturelcr.com

of Local authority habitat banks. A BNG needs assessment can confirm whether BNG development needs can be met within the Local authority area or wider LCR by local authority habitat banks and the extent to which private habitat banks are required to meet this demand. A consistent method to the assessments should be used for all local authorities including the LCR Combined Authority land ownership.

Recommendations for strategic approaches to develop an LCR wide natural capital market

Recommendation 5: To develop the appropriate policy landscape to provide the driver for natural capital markets including enabling policy development within Local Plan policy and Liverpool City Region Spatial Development Strategy policy.

Justification: The local authorities and LCR Combined Authority have a crucial leadership role in the nature and natural capital space and should use their statutory roles to drive recovery and secure investment for the city region. Development of appropriate policy landscape which supports both BNG and wider ecosystem service markets can provide the framework for these markets to establish and develop within the Liverpool City Region.

Recommendation 6: To develop a LCR natural capital investment strategy.

Justification: This project has shown that there are a number of natural capital markets available (See Part III). These should be capitalized on to drive nature recovery within the LCR, deliver the Local Nature Recovery Strategies and address the Climate Emergency. Delivery of nature recovery and climate emergency mitigation requires a co-ordinated partnership approach which has been illustrated by the partnership approach taken by this project. Partner consultations evidenced a want and need by all to work more coherently both within the public and private sector (See section 2.3). The development of a LCR wide natural capital investment strategy would ensure a coherent approach and enable greater partnership working. Sellers, buyers and investors business cases have shown that the drivers and requirements of different actors within the nature based market space will differ, for some it will be motivated by nature recovery, others by for financial reasons, others will have multiple drivers (See Part IV). A coherent strategy is required to understand and integrate these roles and motivations.

Recommendation 7: Each LCR local authority informed and in line with a wider LCR Natural Capital Investment Strategy and the LCR Local Nature Recovery Strategy should agree its approach and position, to benefit from the many nature-based natural capital opportunities and deliver nature recovery. This could take the form of a Natural Capital Investment delivery plan or form part of the local authorities responses to the Climate Emergency, Local Nature Recovery Strategies and Biodiversity Reporting requirements.

Justification: This research has shown that Local Authorities have a wide-ranging role in this space which includes landowner, enabler, signposting to funding opportunities, to build and enable a partnership approach, to set standards and ensure consistency, develop finance options. Local Authorities will need to make decisions on the approach they wish to take and the extent of their role within this space. This could be usefully set out within a delivery plan which is informed and supported by LCR wide policy and strategy (See recommendation 6).

Recommendation 8: To develop and adopt a BNG habitat bank standard as a guarantee of quality.

Justification: Both the buyers and investors business cases have identified that risk and reputational risk is a key factor for buyers and investors (See Part IV). Standards play an important role in ensuring participants trust and have confidence in the market, and that environmental benefits are fully realized. Development of, or adoption of BNG standard would evidence the quality and consistency of BNG provision by LCR habitat banks providing confidence to the market. Requiring private BNG habitat banks to meet a standard before allowing registration on the LCR online habitat bank would also ensure quality and protect the reputation of the LCR habitat bank. A national nature markets investment standard is in preparation (BSI Flex 701, Nature Markets – Overarching Principles and Framework - Specification⁶) the LCR should consider adoption of this standard. However, development of local standards may allow for the targeting of local priorities.

Recommendation 9: To ensure there is alignment between the Local Nature Recovery Strategy and the development of an LCR natural capital market.

Justification: The Local Nature Recovery Strategy will set the framework for nature recovery for the LCR. Development of nature based markets and other funding sources for on the ground delivery will need to align with the Local Nature Recovery Strategy to achieve nature recovery (See section X). However, this project has developed habitat opportunity mapping which can deliver nature recovery as well as wider ecosystem service benefits (See sections 2.7 and 2.8). The opportunity mapping outputs should feed into the Local Nature Recovery Strategy as an early opportunity for targeted delivery on the ground. The project is based on existing Nature Improvement Areas which are identified as being of strategic importance for nature. (See also Recommendations 6 and 7)

Group – Recommendations to develop a sustainable project pipeline

Recommendation 10: Support for project developers is provided.

Justification: This report has shown that that within the LCR there is an appetite to deliver natural capital projects (See section 2.3). However, consultation with stakeholders has shown that whilst there is some stakeholder knowledge of natural capital markets, further support will be required to assist stakeholders in bring projects forward (See section 2.3). There is local expertise within the LCR, this needs to be co-ordinated to assist with project development. (See also recommendation 3)

Recommendation 11: Projects should seek to deliver wider ecosystem services to maximise benefits and to allow projects to take advantage of emerging ecosystem service markets. Habitat opportunity mapping identifies where wider ecosystem services can be delivered.

Justification: Ecosystem service markets can be a viable source of sustainable funding for habitat projects, however, this market is still largely voluntary and in its infancy. Accepting recommendation 2, projects which also address wider ecosystem service needs (e.g. water quality, carbon sequestration)

⁶ BS Nature Markets Investment Standard <https://www.bsigroup.com/globalassets/localfiles/en-gb/about-bsi/sustainability/nature-investment-standards-programme/eco-system-invest-flyer-v4.pdf>

ensures that projects are nimble enough to take advantage of emerging markets or funding sources as they become available (See section 5). Non-marketed ecosystem services can also bring funding from companies Environmental, Social and Governance (ESG). Providing wider ecosystem service can also aid in gaining political project support and show additionality to potential buyers and investors. The Habitat opportunity mapping portal provides a resource which can evidence wider ecosystem services.

Recommendation 12: For sustainable funding a project should aim to develop a hybrid, or blended, funding model. Finances should be drawn from a number of different sources, ideally including public, private and third sector funders. This needs to include funds which provide long-term maintenance to ensure that projects are sustainable.

Justification: The findings of this project have shown that to develop a long-term and sustainable income stream for projects a hybrid or blended model is recommended (See Part IV).

Recommendation 13: Projects need to be informed by a robust ecological baseline. Nature recovery outputs need to be monitored and measured. The role of Local Ecological Record Centres is key to this and needs to be recognised and resourced.

Justification: Robust ecological data underpins the whole market, providing ecological baseline and context as well as ensuring that nature recovery can be measured. The Local Ecological Record Centres (Merseyside Biobank and Cheshire Record) are key to providing robust data to provide project baselines but also to ensure that project outcomes and wider nature recovery can be measured. The Liverpool City Region State of Nature Report provides a baseline on which to measure progress towards nature recovery within the LCR. Resourcing of the Local Environmental Record Centres are key. A robust ecological baseline should form part of any locally adopted standard (See recommendation 8).

Recommendation 14: Projects should ensure that they are climate resilient to ensure long-term benefits and resilience.

Justification: The long-term management requirements of many funding sources are long e.g. BNG 30 years, Carbon 100 year+ habitats must be viable for these period and must be appropriate for the future climate reality. In addition, projects must ensure that they will be resilient to climate change predictions. Climate resilience should form part of any locally adopted standard (See recommendation 8).

Recommendation 15: Develop a sustainable local market in the local providence of seed and plant stock to provide for BNG and ES project requirements.

Justification: There is a national shortage of wildflower seed. To address resource and demand implications of BNG requirements, habitat provision and to ensure local province of seed and plant stock which is adapted to local soil and climatic conditions and will limit the introduction of plant disease and pests. Local seed production may also provide an economic opportunity for the sector to meet LCR and wider demands. The LCR is a leader in urban ecological regeneration and holds national experts within Scouse Flowerhouse, Eden North and Groundwork.

Part I. Introduction to the Project

1. Introduction

1.1 Background, context and drivers

The industrial past of the LCR has led to a legacy of a degraded natural environment and associated wider social and economic issues. The LCR State of Nature report (MEAS 2022)⁷, commissioned by the LCR Combined Authority, assessed and confirmed overall trends of habitat and species loss and degradation. For example:

- Waterbodies are heavily modified, less than 1% are in good ecological status.
- Since 1970, 15% of Priority Species in the LCR, are likely to have gone locally extinct.
- Since the early 1980's the LCR has lost 10% of its most biodiverse grasslands and up to 5% of woodland.
- Lowland raised bog, once more widespread is now critically rare and heavily degraded.

The Environment Act 2021 commitments to mandatory BNG and the development of Local Nature Recovery Strategies (LNRSs) provides significant and much needed opportunity to address ecological and environmental degradation. It is essential that these opportunities are seized.

BNG due to its mandatory requirement through the planning system presents a significant opportunity to provide a long-term sustainable funding for nature recovery. Planning decisions on new development, with a few minor exceptions, must demonstrate that the 10% mandatory requirement has been met, otherwise consent cannot legally be given. Additionally, Local Plans must take account of Local Nature Recovery Strategies. Therefore, since 2021, national policy has been substantially strengthened for nature recovery.

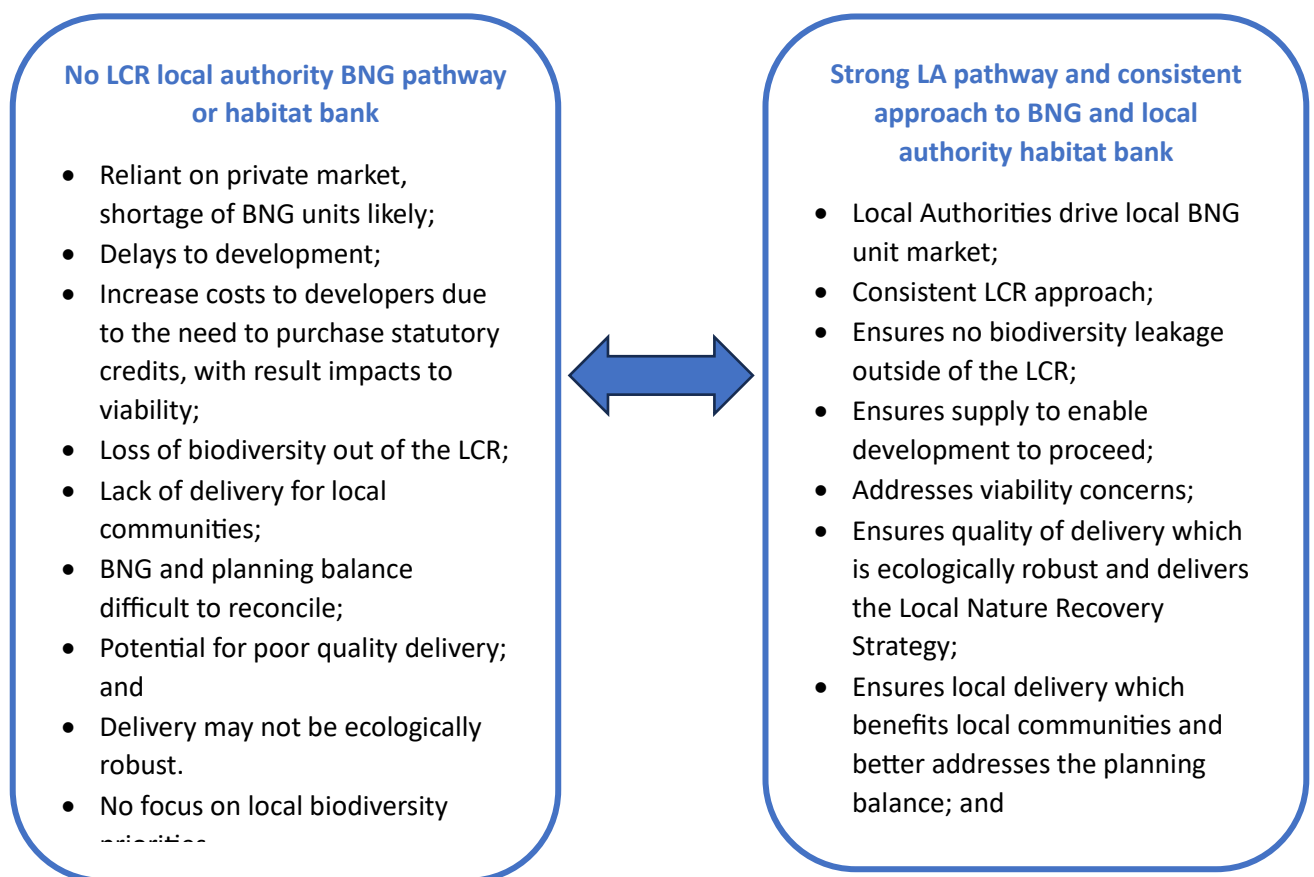
However, BNG also brings challenges – for development to proceed developers must achieve 10% BNG. Should development require off site BNG provision it is essential that offsite biodiversity units are available through habitat banks. At the heart of this project is ambition for local biodiversity units to be available to meet housing and sustainable economic regeneration needs through the development of local authority habitat banks. The project provides a pathway to nature recovery and at the same time unlocking development, meeting legislation, bringing cost savings, meeting housing targets and delivering employment. The project pathway will also secure community benefits and increase climate resilience. Should the local authorities not be well-prepared, BNG delivery will be left to market forces. The consequence of this would be delay, and/or higher costs to developers, increased viability risk with poorer outcomes for local communities, biodiversity and other ecosystem services.

Without Local Authorities taking control of this agenda through the establishment of habitat banks the provision of biodiversity units is left to currently unknown market forces or alternatively developers are required to buy credits from the national statutory credit scheme. The project therefore aims to place local authorities at the heart of BNG delivery and in a position of high influence for nature recovery.

⁷ Liverpool City Region State of Nature Report, [LCR-SDS-State-of-Nature-Report-January-2022.pdf](https://liverpoolcityregion-ca.gov.uk/LCR-SDS-State-of-Nature-Report-January-2022.pdf) (liverpoolcityregion-ca.gov.uk)

Whilst BNG provides the initial primary focus wider ecosystem service markets provide additional sources of available funding and provide opportunities to provided funded nature and environmental recovery. There is growing recognition and interest in the ecosystem service markets with companies increasingly wanting to address their Environmental, Social and Governance (ESG) requirements. These wider ecosystem service markets bring their own challenges in relation to establishing stable markets within the LCR as well as ensuring quality delivery to reduce the risk of greenwashing and issues such as the right habitat in the right place which have been identified in the media. The establishment of habitat banks which provide these wider ecosystem service markets is a key step towards establishing the LCR market.

Figure 1. Outcome of differing local authority approaches to BNG habitat banks



There are significant benefits to the local authority through the establishment of habitat banks. There are clear benefits to development and economic regeneration by allowing clear passage of development through the planning system and timely delivery of development. Provision of local authority habitat banks ensures no biodiversity leakage outside of the local authority area. Such an approach effectively makes it much more difficult for developers to propose habitat interventions outside of the local area which will have benefits for communities, biodiversity and quality of place. This delivers nature recovery and meets the Biodiversity Duty all local authorities are tasked with by the Environment Act.

There are significant cost savings to be gained from the development of local authority habitat banks. Cost savings to the developer when compared to the cost of buying statutory credits are obvious. However, it is important to remember that the local authority is also a developer (e.g. development of public buildings) and will also require biodiversity unit provision.

Delivery of enhanced public open space and greenspace has benefits for local communities, but can also aid in driving economic regeneration of areas where it is located.

The development of local authority habitat banks has the potential to generate revenue for Local Authorities. Emerging natural capital markets provide an opportunity add to local authority land management budgets whilst also delivering wider Council objectives, e.g. delivery of climate emergency objectives through the development of carbon credits. As these are emerging markets early engagement in this area has the potential to ensure that these opportunities can be realised by ensuring appropriate strategies to embrace the opportunities are in place. This report seeks to explore the wider ecosystem service markets available to habitat banks within the LCR.

The development of local authority habitat banks can ensure delivery is ecologically coherent and in line with LNRS that are in the early stages of preparation and provides a foundation for biodiversity opportunity areas. LNRS and BNG habitat banks will need to work proactively together.

The project creates a pathway which has potential to accelerate and complement existing work within the Liverpool City Region for preparation for mandatory BNG and LNRS and the opportunities these offer to climate emergency and ecological crisis action.

1.2 The project

1.2.1 Project outline and description

NEIRF is a national funding programme. It aims to stimulate private investment and market based mechanisms that improve and safeguard our domestic natural environment by helping nature projects get ready for investment. This project is funded under phase 2 and has a focus on unlocking investment for nature recovery.

The NEIRF Investing in Nature in the Liverpool City Region (LCR) project is a collaborative LCR wide project led by the Mayoral Combined Authority and project managed by Merseyside Environmental Advisory Service. The project aims to develop a new habitat banking and nature-based investment model (NBIM) for the Liverpool City Region to deliver Biodiversity and Environmental Net Gain. The NBIM seeks to provide a delivery mechanism for the Environment Act's requirement for BNG and Local Nature Recovery Strategy whilst also meeting wider aims set out within the Governments 25 Year Environment Plan and the goals set out within the Environmental Improvement Plan⁸.

The project focuses on three pilot areas across the LCR to test proof of concept with the aim of rolling the pilot out across the LCR. The project focuses on local authority land initially. The pilot areas are three Nature Improvement Areas (NIA's), which are:

⁸ Defra Environmental Improvement Plan, <https://www.gov.uk/government/publications/environmental-improvement-plan>

- River Alt and M57 Corridor NIA;
- River Alt Corridor NIA; and
- Black Brook and Sankey Valley Corridor NIA.

The NIA's form part of the Liverpool City Region Ecological Network (See Appendix 1 for more details on the NIA's).

Project aims and objectives

The project aim was to explore and identify habitat creation and restoration opportunities within the NIAs as pilots to support nature recovery which could deliver biodiversity net gain. Through the use of the innovative LCR Natural Capital Baseline tool, the project sought to identify where habitat delivery options can deliver wider ecosystem services, e.g. carbon storage, improved flood resilience, improved water and air quality benefits, improved access to nature for local residents.

The project aimed to explore, test and develop the potential to monetise these ecosystem services to develop an investment model for biodiversity units as well as other ecosystem service credits or investment opportunities. Ecosystem services considered by this project include: carbon sequestration, air purification, flood mitigation, recreational visit and physical health.

The project objectives were:

- i. Based on the ecological priorities for the NIA, the project will explore and identify habitat creation and restoration opportunities within the pilot NIAs.
- ii. Through the use of the innovative LCR Natural Capital Baseline tool the project will identify where habitat delivery can meet the need for and achieve wider natural capital benefits such as carbon storage, improved flood resilience, improved water and air quality benefits as well as providing a recreational resource for local residents. This profiling will inform the type and location of habitat delivery options within the NIA.
- iii. An assessment of the potential market based on spatial relationship between Local Plan allocations / required natural capital credits/ flood alleviation and the NIA.
- iv. Explore test and develop the potential to monetise these ecosystem services to develop an investment model for biodiversity units, carbon and nutrient credits, SANG credits and nature-based flood solutions. A particular area of interest could be in assessing whether investment in habitat banking is a viable alternative to development.
- v. To understand the resource requirement to develop, administer and deliver the investment model and build a business case for investing in additional capacity to maximise opportunities for investment and on the ground.

- vi. Develop an online habitat banking platform for the LCR so that habitat banking projects can be uploaded to the platform and provide a ready source for buyers of units and investors.
- vii. To develop an online opensource toolkit to aid habitat project developers in the development of investment ready projects.

The funded NEIRF project had the following project and long-term objectives:

- i. Through structured and collaborative engagement and learning with investors, buyers and sellers develop a nature-based investment model for the pilot NIAs by September 2023.
- ii. Designed to deliver for all parties, launch an online official LCR habitat banking register of sites, include a learning opensource toolkit by December 2023, to match investors, buyers and sellers with natural environment projects and drive nature and environmental recovery.
- iii. To roll out the NBIM across the LCR, to include other NIA's and Local Nature Recovery Strategy priority areas within 5 years with the aim of generating a self-sustaining NBIM for the LCR. To build capacity in use of the register of sites and toolkit in all stakeholders, offering at least 6 virtual learning sessions by 2024.
- iv. To deliver at least one project in each pilot NIA through the habitat banking model by March 2024. To create or restore the following Priority habitats in line with the priorities of the NIA's and North Merseyside Biodiversity Action Plan and deliver wider ecosystem services. The following will be delivered within the pilot NIA's within 10 years and across the LCR NIA within 20 years: wetland (up to 30 % increase), grassland (up to 30%), woodland (up to 30% increase), lowland raised bog (up to 20% increase).

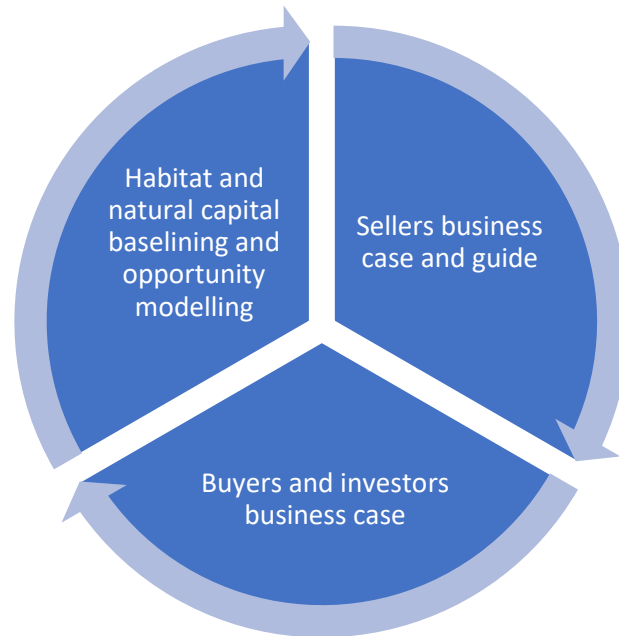
1.3 Purpose of this report

This report provides an evidence base and pathway through which nature-based solutions can be taken forward across the LCR. It is intended to:

- Share the outcomes of the funded NEIRF project.
- Set out an approach to developing a nature-based investment model.
- Report on the project pilot areas identifying the habitat opportunities and aspirations within each of the project NIA's.
- Report on funding opportunities and options.
- Set out how to develop a sellable/investable project that results in measurable biodiversity and ecosystem service benefits.
- Report on the development of buyer and investment business cases.
- Make recommendations for next steps to further develop this project and to implement the outcomes across the wider LCR.

1.4 Approach

The development of the LCR Nature Based Investment Model was based around three principal activities.



These were each developed through the following consultant contracts:

- Habitat and natural capital baselining and opportunity mapping – Liverpool John Moore’s University Natural Capital Hub.
- Seller’s business case – Chris Bowden Consulting.
- Buyers and Investors business case – Pure Leapfrog.

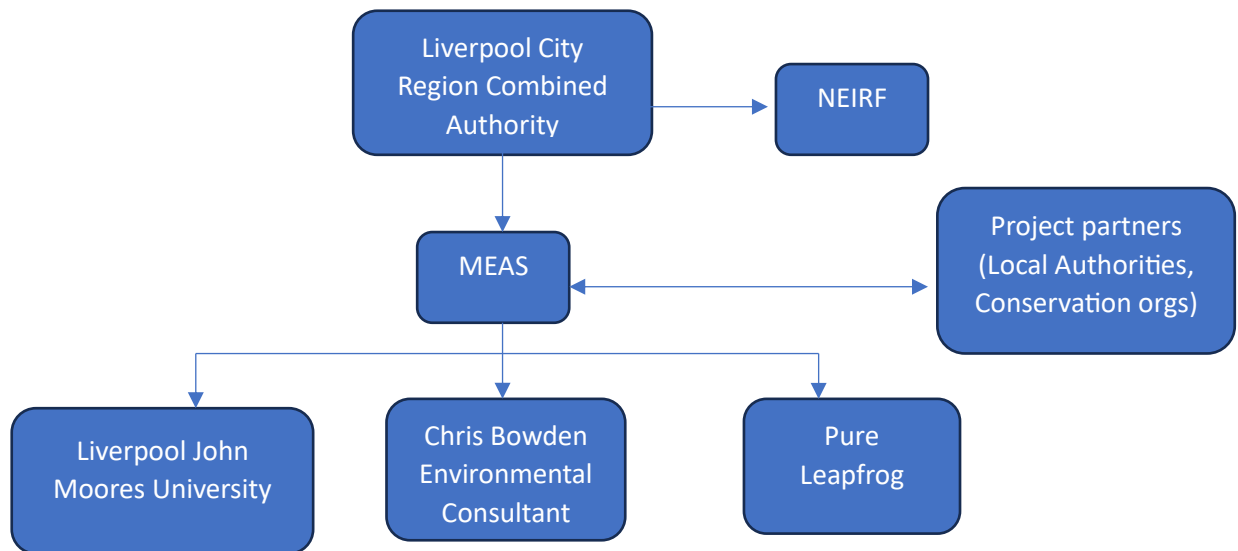
In addition, in support of these three main activities the following was undertaken by Merseyside Environmental Advisory Service:

- Co-ordinating role with project partners from the Local Authorities and regional nature conservation organisations.
- BNG needs assessment of Local Plan allocations within the project areas.
- Development of the open-source toolkit website.

The Liverpool City Region Combined Authority were project lead and provided oversight to the project and interface with Environment Agency as funding body.

Project team structure and reporting structure is illustrated in figure 2 below.

Figure 2. Project team structure



The project team took the following approach:

- Natural Capital baselining of the project NIA's.
- Assessment of aspirations, opportunities and threats for each NIA;
- Habitat opportunity modelling and wider ecosystem service opportunities for each NIA;
- Assessment of the estimate BNG unit demand for each of the NIA's;
- Development of a 'Seller's guide' to help guide landowners and managers in developing projects to attract funding or investment; and
- Development of a buyers and investment business case.

Figure 3 below illustrates the process this project followed. The supply and demand side of the process converge at the point of the NBIM, leading to the identification of a project pipeline to meet development requirements.

Figure 3. Project process

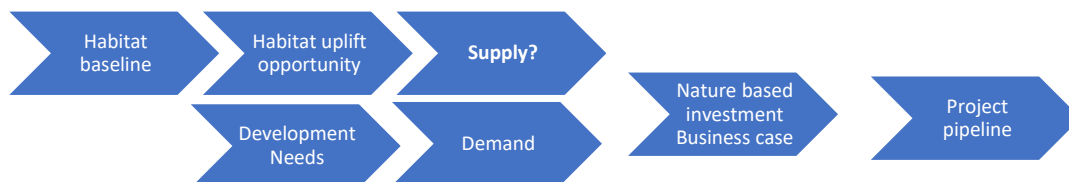


Figure 4. Shows the process of building the business case toward nature based investment



Part II. Habitat Baseline and Opportunities in the Project Area

2. Project area

Key messages:

- The Nature Improvement Areas are focused around the river corridors of three major waterways, the River Alt, Black Brook and Sankey Brook and provide strategic areas for nature recovery.
- Habitat creation priorities for the NIA's include wetland creation and enhancement to support the river catchments, as well as woodland and grassland creation and enhancement. Priorities are for both the creation and restoration of habitats.
- Baseline habitat mapping shows significant areas of the following habitats: cultivated land, improved grassland, semi-natural grassland and woodland. The dominance of low distinctiveness habitats provides an opportunity for habitat creation.
- Stakeholder consultation identified the following common issues: the need for resourcing and staffing to develop projects as well as funds for maintenance and management, flooding and water quality issues, the need for more community engagement, that there are opportunities and aspirations for habitat creation, and that project developers are looking at how projects can provide wider ecosystem service benefits.
- Cultivated land has the greatest percentage habitat cover for each project NIAs and demonstrates the need to engage with private landowners and farmers to deliver nature recovery.

2.1 Nature Improvement Areas

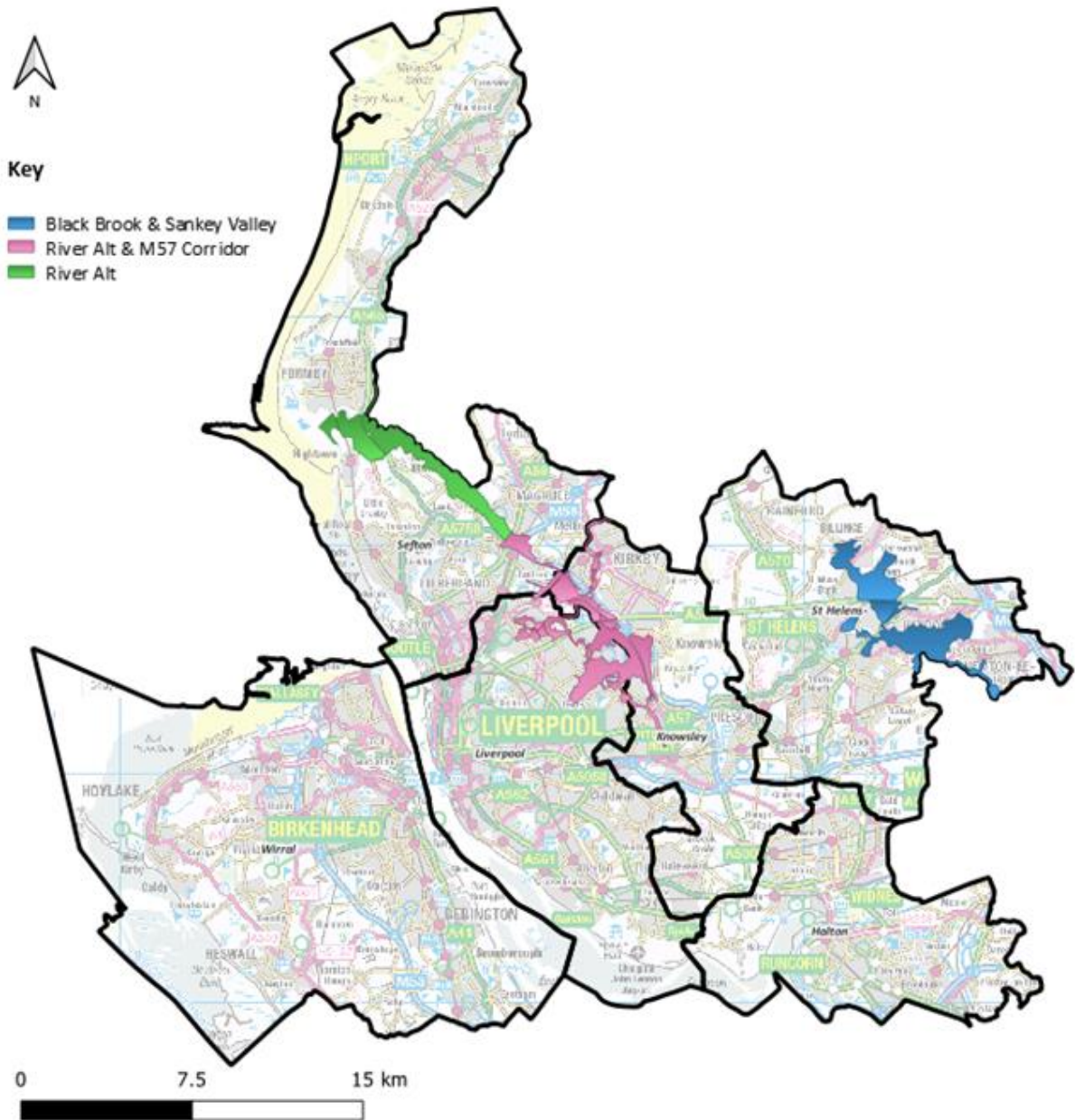
This project focuses geographically on three Nature Improvement Areas within the Liverpool City Region. For practical purposes for the grant application, it was not feasible to include all NIAs across the LCR. These areas form the focus of this pilot project, these are:

- River Alt Corridor NIA.
- River Alt and M57 Corridor NIA.
- Black Brook and Sankey Valley Corridor NIA.

See figure 5 below

The NIA's are mapped at a landscape scale and cross the administrative boundaries of Sefton, Knowsley, St Helens and Liverpool (See figure 5)

Figure 5. The Project area location within the Liverpool City Region



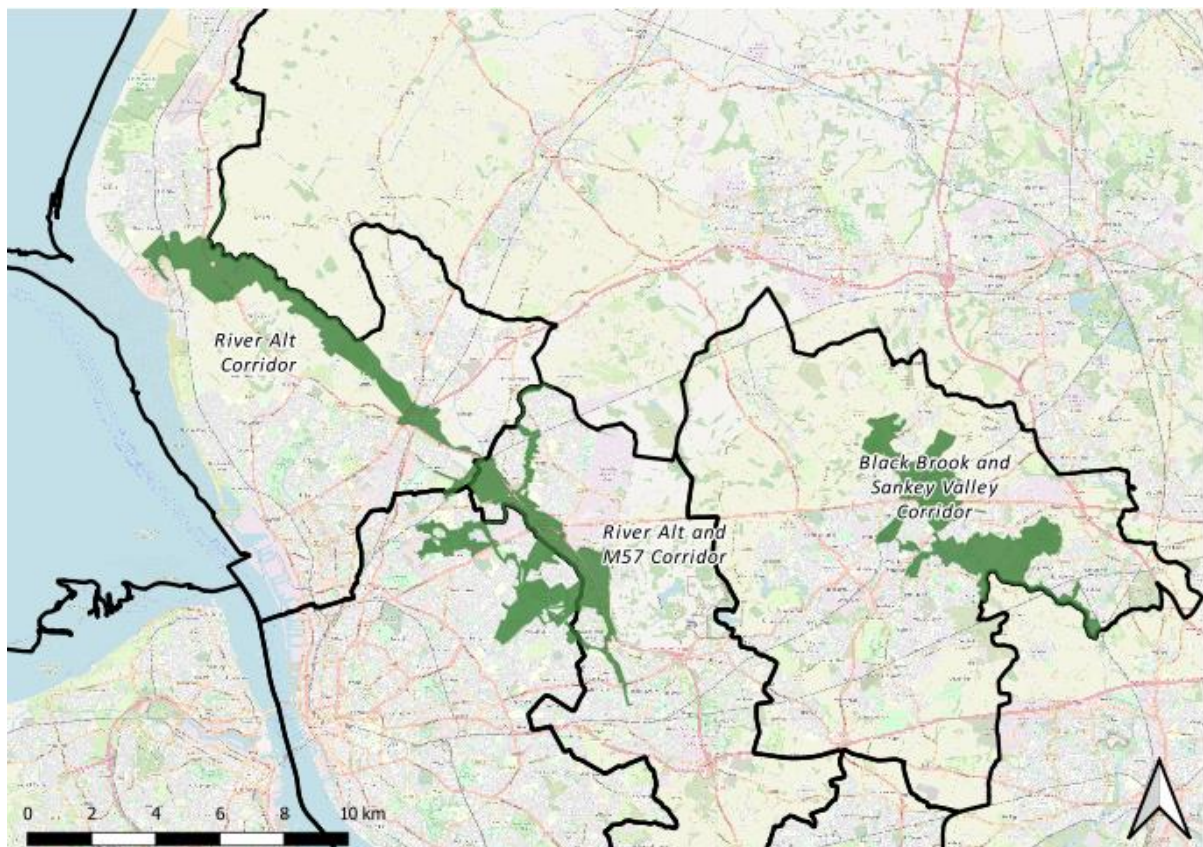
The project area did not include all LCR boroughs, however this project was a pilot and proof of concept. The approach and pathways identified through the project are relevant and commended to the whole LCR as set out in the recommendations.

These NIA are identified within the Liverpool City Region ecological network⁹. They form a suite of seventeen NIA's across the LCR. The NIA identify strategic, landscape scale, sites forming a focus for nature recovery across the LCR. They are intended to achieve significant enhancements to ecological networks by improving existing wildlife sites and Priority habitats, building ecological connections and restoring ecological processes. The ecological network meets the requirements of NPPF to “take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure.” The LCR Ecological Network has policy support within the LCR Local Plans. In BNG Defra metric terms, the NIA's are recognised as being of strategic significance ('formally identified in local strategy').

The LCR Ecological Network evidence base and mapped outputs will inform the baseline and mapping for the forthcoming LCR Local Nature Recovery Strategy. It provides a strong spatial starting point for the Local Nature Recovery Strategy to draw upon.

Each Nature Improvement Area has a set of ecological priorities which are summarised below. Full details are presented in Appendix 1 and are also available <https://lcreconet.uk/>

Figure 6. Project NIA's



⁹ Liverpool City Region Ecological Network <https://lcreconet.uk/>

Table 1. River Alt Corridor NIA**Overview**

This area is predominantly productive farmland within the River Alt flood plain. Habitats of importance within this area relate largely to wetland habitats as well as the importance of farmland for farmland species including breeding, passage and wintering birds as well as brown hare and water vole. The NIA includes Lunt Meadows Nature Reserve managed by Lancashire Wildlife Trust. Within the farmland area habitats are highly fragmented.

Ecological Priorities

Habitat creation to include: reedbed, swamp and fen, wet grassland, and hedgerows.
Habitat management of agricultural land for birds, enhancing watercourses, managing and enhancing existing grassland, woodland and hedgerows.

Table 2. River Alt and M57 Corridor NIA**Overview**

This area follows the course of the River Alt and its tributaries. This NIA takes in both rural and urban landscapes. It is predominantly within the Green Belt along the M57 and includes the large public parks of Croxteth Park and Valley Park, Kirkby. These large parks form important green links for both nature and people. On areas of unused or abandoned farmland, grassland and young woodland has established.

Ecological Priorities

Habitat creation to include: wetland including opportunities to re-naturalise rivers and brooks. Also, creation of grassland and woodland, including parkland.
Habitat management to include: enhancement of existing watercourses; and maintaining and enhancing existing woodland, wood pasture and parkland. Maintaining and increasing species diversity within existing grasslands. Maintaining and enhancing ponds.

Table 3. Black Brook and Sankey Valley Corridor NIA**Overview**

The Black Brook and Sankey Valley is a significant corridor stretching from north St Helens to Spike Island in Widnes. The northern sections of the NIA north of Carr Mill Dam are more rural in nature whilst areas to the south have been subject to significant alteration due to industry, resulting in often biodiverse sites. The area also contains a significant proportion of the ancient woodland resource within St Helens as well as Stanley Bank Meadow SSSI.

Ecological Priorities

Habitat creation to include: grassland, woodland around existing ancient woodland sites, wetlands including re-naturalisation of rivers and brooks.
Habitat management: maintaining Stanley Bank Meadow SSSI in favourable status, maintaining and enhancing existing ancient woodland, enhancing watercourses, increasing extent and species diversity of grasslands.

2.2 Natural Capital baseline

Primary evidence and authorship of this section of the report is Liverpool John Moores University.

The Liverpool John Moores EcoservR natural capital baseline (hereafter baseline) is a detailed habitat map produced by the R package EcoservR¹⁰ where each polygon contains information about the land cover. It was generated by extracting information from a range of environmental datasets into OS MasterMap Topography polygons. A set of classification rules were then applied to assign the most likely habitat type to each polygon. The resulting classification (“HabCode_B”) broadly follows the Phase 1 habitat codes commonly used for ecological surveys. The baseline was produced for the Liverpool City Region (LCR) which covers the Nature Improvement Areas (NIAs), the focus of this work.

The land cover and habitat types presented in the table 4 below

Table 4. Area and percent cover of land cover types in the River Alt Corridor NIA. Types making up less than 0.1% of the area have been removed.

Habitat type and land uses	Area (ha)	Cover (%)
Cultivated / disturbed land	327.1	43.4
Grassland, improved	229.9	30.5
Grassland, semi-natural	77.4	10.3
Woodland, mixed	36.9	4.9
Water, fresh	31.1	4.1
Woodland, coniferous	15.3	2.0
Woodland, broadleaved	11.5	1.5
Built up areas	8.6	1.1
Roads	6.4	0.8
Grassland, marshy	2.8	0.4
Garden	2.0	0.3
Path	1.8	0.2
Uncertain agriculture (improved grassland or arable)	1.6	0.2
Artificial exposure / waste	0.5	0.1

Table 5. Area and percent cover of land cover types in the River Alt and M57 Corridor NIA. Types making up less than 0.1% of the area have been removed.

Habitat type and land uses	Area (ha)	Cover (%)
Cultivated / disturbed land	496.3	41.3
Woodland, broadleaved	307.5	25.6
Grassland, improved	130.5	10.9
Grassland, semi-natural	69.1	5.7
Scrub	38.9	3.2
Woodland, mixed	33.1	2.8
Roads	27.2	2.3
Built up areas	22.5	1.9

¹⁰ Natural Capital Hub 2019, EcoservR. Available: <https://ecoservr.github.io/EcoservR/> [2023, 29/08/].

Water, fresh	20.9	1.7
Trees / Parkland	15.2	1.3
Garden	12.1	1.0
Path	10.4	0.9
Woodland, coniferous	6.0	0.5
Other	5.5	0.5
Pavement	3.9	0.3
Railway	1.0	0.1

Table 6. Area and percent cover of land cover types in the Black Brook and Sankey Valley Corridor NIA. Types making up less than 0.1% of the area have been removed.

Habitat type and land uses	Area (ha)	Cover (%)
Cultivated / disturbed land	373.9	36.4
Woodland, broadleaved	219.7	21.4
Grassland, improved	179.3	17.4
Grassland, semi-natural	51.2	5.0
Water, fresh	47.7	4.6
Scrub	25.9	2.5
Grassland, marshy	21.7	2.1
Woodland, mixed	19.8	1.9
Heathland	14.9	1.4
Built up areas	14.7	1.4
Uncertain agriculture (improved grass or arable)	11.0	1.1
Roads	10.4	1.0
Path	6.6	0.6
Other	6.0	0.6
Woodland, coniferous	4.2	0.4
Railway	4.1	0.4
Garden	3.9	0.4
Mire	3.9	0.4
Trees / Parkland	3.1	0.3
Artificial exposure / waste	2.6	0.3
Swamp	1.0	0.1
Grassland, unknown	0.8	0.1
Pavement	0.7	0.1

Figure 7 below shows the natural capital baseline for the Liverpool City Region. The baseline highlights cultivated land as the most prevalent land-use type across the project NIA's with cover of between 36.4 – 43.4%. Semi-improved and improved grassland, and woodland, are the next most common habitats measured on percentage cover within all NIA's.

Figure 7. Natural Capital Baseline mapping of the three NIAs (map scale 1:100 000).

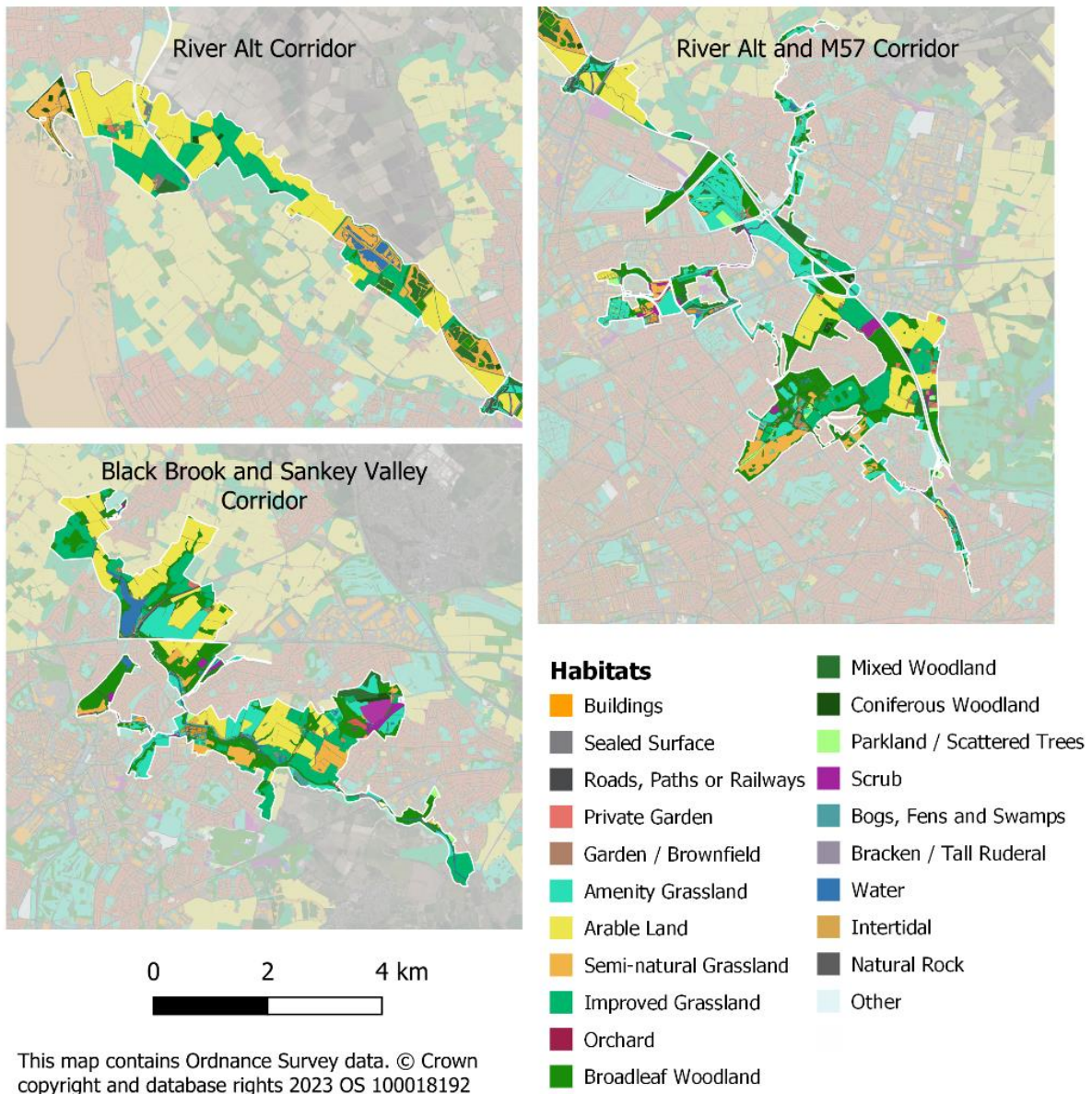
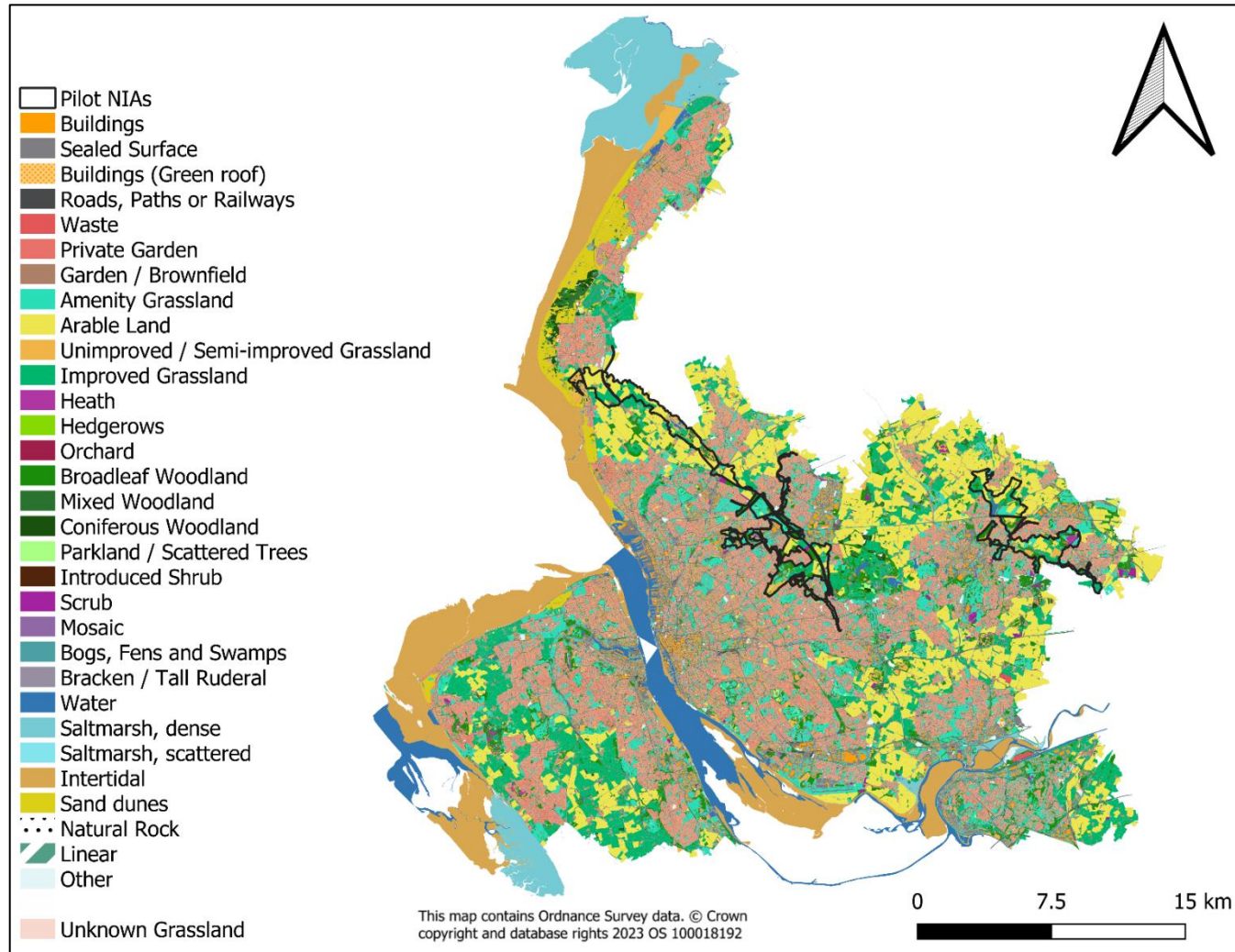


Figure 8: The natural capital baseline for the Liverpool City Region produced for the opportunity mapping and intervention creation. NIAs are highlighted with black outlines.



2.3 NIA opportunities, threats, and barriers

Stakeholder engagement 1: NIA Opportunities, threats and barriers

To better understand the issues and opportunities for each of the project NIA's stakeholder engagement meetings were undertaken. The outputs of these workshops were used to inform habitat opportunity mapping. These were attended by NIA Local Authorities and key local stakeholders including Lancashire Wildlife Trust, Mersey Rivers Trust, Groundwork and Mersey Forest.

In these workshops we discussed the following:

- The threats to the specific NIA
- Opportunities relevant to the NIA
- The barriers you are aware of. Including environmental, social, funding and specific barriers to BNG delivery, ecosystem services market development and other innovative or entrepreneurial income streams for this NIA.
- What are your, or your organisations, top four priorities for this NIA (and surrounding areas) over the next five years

Full stakeholder engagement results for each NIA are provided within Appendix 5. Summarised project wide results are provided below.

Threats, opportunities and barriers

Table 7. Summarised threats, opportunities and barriers identified through stakeholder engagement.

Threats	Opportunities	Barriers
Lack of funding, staff resource and expertise and required equipment. Resulting in little capacity to plan future projects or manage and maintain projects into the long term	Habitat development projects which offer multiple benefits and income generation	Lack of funding and resources, resulting in little capacity to plan future projects or manage and maintain projects into the long term
Lack of engagement with local communities and anti-social behaviour	Improved engagement and access for local communities	Political barriers – a lack of political will, environment not seen as high priority.
Flood risk and water quality	Improved engagement and partnership with land owners including farmers.	Lack of integrated approach across neighbouring Local authorities, different priorities, timescales, processes.
The need for an integrated approach across key players and landowners.	Habitat projects which can provide natural flood management solutions	Lack of community engagement and involvement
Loss of habitat due to development	Opportunities for partnership workings.	Much of the land is in private ownership.
Understanding of funding	Opportunities for BNG funding of projects	
	Woodland creation opportunities	

Stakeholder’s key priorities in this NIA over the next five years

There was a lot of agreement about the priorities of the stakeholders for all NIA. These are summarised below

Table 8 Summarised key priorities for each NIA identified through stakeholder engagement

Black Brook and Sankey Valley corridor NIA	River Alt corridor NIA	River Alt and M57 corridor NIA
Deliver environmental improvements to improve existing priority habitats, create new habitats and address existing environmental issues e.g. flooding.	Increase habitat and species to enhance nature, identify opportunities for habitat creation.	Deliver environmental improvements - Prioritise projects related to climate change and urban greening. Increase and enhance habitats to deliver Local Nature Recovery Strategy and wider biodiversity targets.
Engagement with the public to ensure better communication, local community engagement with nature and better local ownership of site.	Engagement with the public to communicate with people more effectively, improve engagement with a range of stakeholders, businesses and landowners and to improve access to nature including footpaths.	Engagement with landowners and the public, including improving public access to key sites. Develop habitat and sites to give greater benefits, and access, for people
Improve water quality	Healthier Rivers through taking a whole catchment approach to improved water quality, making use of natural flood management techniques.	Rivers- improve water quality, Remove barriers on the River Alt, Improve connectivity of waterways, re-naturalisation of rivers. Apply Natural Flood Management techniques
Develop new income streams to fund environmental aspirations to provide a long-term sustainable income stream	Better land management to improve sites	BNG and ecosystem services markets as a key funder of Local Nature Recovery Strategy. Prepare sites for BNG and other ecosystem services income streams.
		Strategic approach to land use to give better access to private land and to identify sites worthy of designation. This includes use of the Local Nature Recovery Strategy to identify where development cannot occur and where offsetting would be beneficial.

Conclusions for the overall region

Our research shows that there are a number of key issues which are common to all of the NIAs, these are:

Funding, staffing and resourcing- are a key concern in all NIA. Stakeholders are keen to find solutions to this and see BNG and other ecosystem services markets as viable future funding/income streams. However, a current substantial barrier to this is the lack of development or pump priming funding which would enable organisations to develop project plans, business cases or investible propositions. Even when funding is secured there is often little resource to manage and maintain initial funded habitat works and improvements. Initial development /pump priming funding would kick start the market locally and could be repaid through the sale of BNG units or ecosystem service market units.

Availability of land – Although Local authorities are significant landowners within at least two of the project NIA areas, all stakeholders identified the need for delivery on privately owned land to deliver nature recovery. This was a particular issue on the River Alt Corridor NIA is the lack of available land for environmental schemes to be delivered on as much is farmed agricultural land. Even for example on the River Alt and M57 corridor NIA although Knowsley and Liverpool Councils own land which could be used for fairly large scale habitat delivery, much of the additional land is currently in agricultural use.

Stakeholders aim to address this through taking a strategic approach to land use and to use the Local Nature Recovery Strategy to help them identify priority habitats and environmental opportunities. This will give them the information they need to make better decisions on potential developments and offsetting initiatives. They will also provide the framework for engagement with landowners, encourage landowners to take advantage of ELMs and look to develop a farmer cluster. Stakeholders aim to put considerable effort into engaging better with landowners and farmers and encouraging them to join environmental schemes such as ELMs or to develop farmer clusters.

MEAS has recently secured funding through the Defra Species Recovery Programme Capital Grant Scheme for a LCR wide Farmland species recovery project targeting the recovery of farmland priority species on a number of demonstrator sites across the LCR. This will aid in kickstarting this engagement and build on existing engagement work being undertaken by organisations such as Mersey Rivers Trust.

A strategic approach to land use is required to address competing demands for land e.g. BNG, tree planting, recreation, development.

Engagement with local communities and stakeholder including businesses - Currently there appears to be a disconnect between the NIAs and the local communities, manifesting itself as anti-social behaviour and some wildlife crime. Every stakeholder workshop highlighted that engagement with communities was required to encourage people to engage with nature in a positive way to take ownership of their local environment and to help improve people's lives through access to nature. Work to improve access to the site can increase footfall and deter anti-social behaviour.

Working in partnerships- To address the lack of resources and make better use of the expertise and staffing within the region, stakeholders are keen to develop strong working partnerships - promoting collaborative working between NGOs, local authorities, landowners and farmers. In addition, better partnership working is required between local authorities. A number of the project NIA's span more than one local authority area collaboration is required to align priorities, timescales and processes.

They aim to develop better strategic relationships between local authorities and advocate to help reduce any political barriers. It is hoped that the Local Nature Recovery Strategy will assist in this.

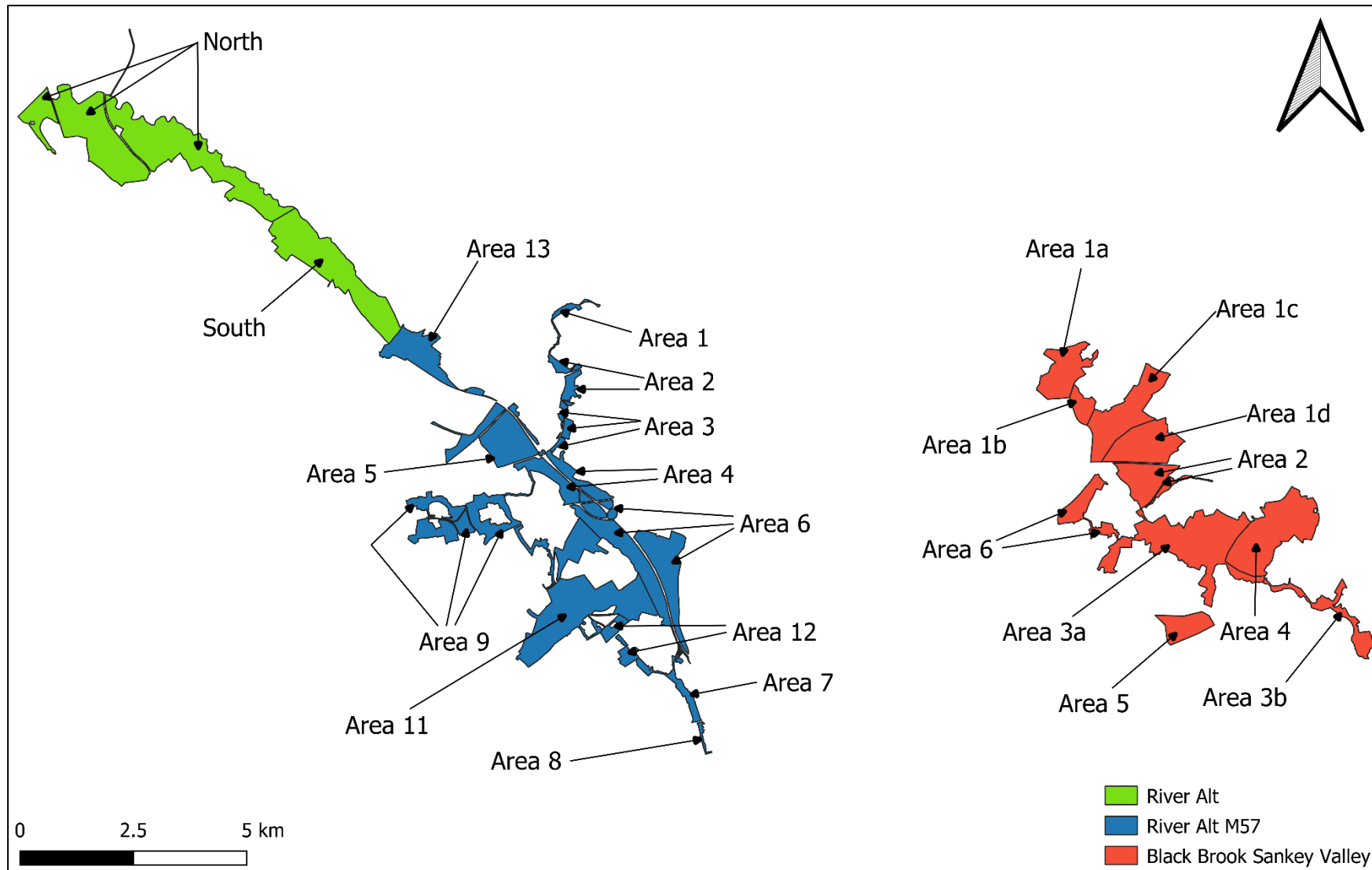
River health, water quality and flooding - Water-related projects are a priority in the project NIA's and stakeholders have a wide range of potential opportunities which could help increase water quality, enhance biodiversity and improve connectivity. Flooding is a priority problem in this region, with flooding issues raised for all project NIA's. Stakeholders are keen to address this through nature-based solutions and NFM. Key steps in improving our rivers include removing barriers, development of Natural Flood Management, improving connectivity and re-naturalisation of the river. However these will be dependant upon funding becoming available.

Stakeholder Consultation: NIA spatial priorities and aspiration consultations

In further refining opportunity mapping to ensure that it was in step with the NIA priorities and aspirations of NIA stakeholders MEAS undertook a series of consultation meetings with each of the Local Authorities in which the NIA's sit. These are St. Helens, Knowsley, Sefton and Liverpool. The aim of these consultations was to determine priorities spatially across the NIA's. The output would feed into intervention prioritisation by LJM as shown in figure 10 below and Appendix 3).

The result of these consultation meetings was a series of maps which split the NIA's into sub-areas (see figure 9 below) and an accompanying description of opportunities and aspirations for those areas which are summarised below and provided in full in Appendix 1.

Figure 9: Different areas of the NIAs for which specific habitat rankings were integrated into the analysis process.



River Alt Corridor NIA

This NIA was split into two distinct parcels:

South (Lunt Meadows and surrounding land) - This area comprises of largely public land ownership and includes Lunt Meadow Nature Reserve and surrounding planted forestry on previous landfill. Potential opportunities are for wetland creation and woodland management.

North (Altcar farmland to the coast) - This area comprises of farmland in private ownership, it is characterised by flat open arable fields with extensive ditch network. Opportunities to work with landowners would need to be explored but could include wetland creation and enhancement, hedgerow creation and woodland buffering.

River Alt and M57 Corridor NIA

This NIA covers a large area across 3 local authority areas. This NIA was split into thirteen sub-sections, these focused largely on local authority land. Priorities included brook improvements to address flooding and water quality. Habitat improvements to greenspaces, including meadow creation, woodland creation and management as well as invasive species removal.

Black brook and Sankey valley Corridor NIA

This NIA is entirely within the local authority area of St Helens. The NIA was split into six sub-sections. This area is split between the area to the north of the East Lancashire Road which is largely within private ownership, it is characterised by agricultural land with areas of ancient semi-natural woodland. Opportunities in this area would be for the buffering of ancient woodland through woodland planting. South of the East Lancashire Road, much of the NIA is in public ownership and habitats are often the legacy of previous industrial uses. Opportunities here are for wetland creation and management to improve flood and water quality issues in the area. There is also significant grassland resource in this area which is in need for management and restoration. This resource could be added to through species rich grassland creation.

2.4 Habitat opportunity mapping

Key messages:

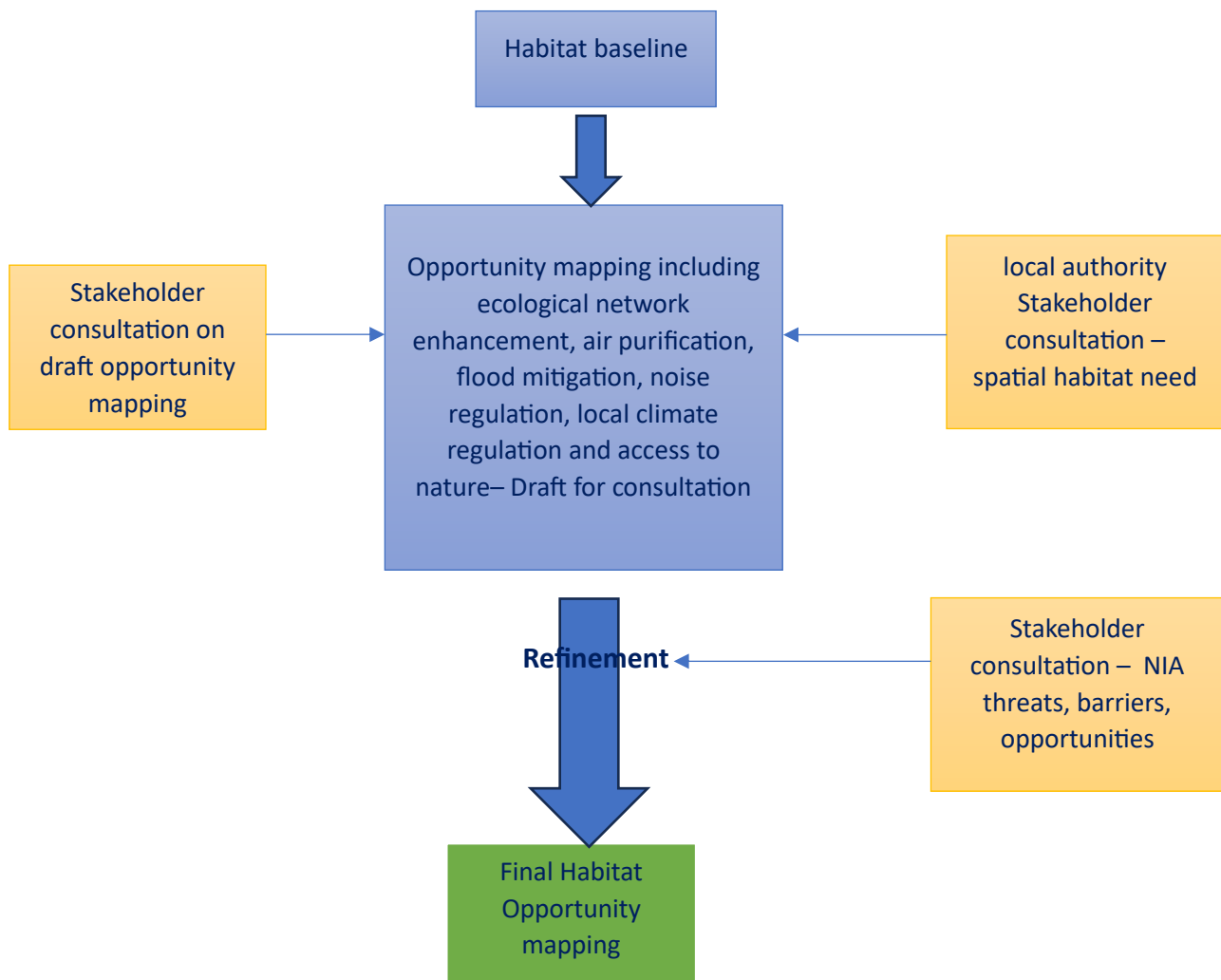
- Opportunity mapping shows significant opportunity for woodland (630ha), semi-natural grassland (316ha) and wetland (533ha) across all three NIAs. The relative composition of habitat opportunities differs by each individual NIA.
- Ecosystem services that could be delivered by the identified habitat opportunity mapping include the potential carbon sequestration of 10,251 tonnes/ year. Of this 8,735 tonnes could be sequestered by woodland. Woodland carbon code is currently trading between £50-£250 / tonne. Habitats could result in flood mitigation through increased absorption capacity provided by habitats worth 148,195m³ /year.
- Opportunity mapping was developed and refined in conjunction with stakeholder input to ensure modelling incorporated local habitat priorities and was locally relevant to the project NIAs.
- Habitat opportunity modelling shows where habitats could be provided to ensure that wider ecosystem service benefits are maximised.
- The ability of local authority land to deliver the habitat opportunities modelled depends on the extent of their landholdings. For example, within the River Alt Corridor NIA LA land ownership is low, therefore opportunities would need to

2.5 Approach to habitat opportunity mapping

Habitat opportunity mapping was undertaken to identify suitable locations for habitat provision. To identify the habitat opportunities the following was undertaken:

- Habitat opportunity mapping using LJMU multiple benefits model;
- Consultation with stakeholders on the threats, benefits and opportunities for each NIA;
- Consultation with local authority stakeholders to spatially identify areas with habitat creation need for each NIA;
- Consultation with stakeholders on draft opportunity mapping to allow further refinement.

Figure 10. Showing opportunity mapping development process



Habitat opportunity mapping was undertaken by Liverpool John Moore’s University,. This considered enhancement to ecological networks, ecosystem services benefits, BNG market demand and distinctiveness, and local priorities to select a set of interventions across each of the NIA’s. It also accounted for constraints which would exclude areas being suitable for habitat creation. Opportunity modelling assessed ecological networks enhancement, air purification, noise regulation , local climate regulation and access to nature. Whilst uplift in ecosystem services which could be generated from the interventions was assessed for carbon sequestration, air purification, flood mitigation, recreation, and physical health. This mapping exercise was informed by stakeholder consultation outputs. The opportunity mapping was then consulted on in a further round of stakeholder consultations the outcome of which was fed into a further refinement of the habitat mapping. Full habitat opportunity mapping methods are provided within Appendix 3.

2.6 Stakeholder engagement: Ground truthing draft opportunity mapping and determining stakeholder requirements for a Seller's Guide

In May, a round of online stakeholder workshops were ran, one workshop for each NIA. The aim of these workshops was to ground truth the draft opportunity mapping produced by LJM (the supply of ecosystem services), to present the BNG biodiversity unit demand research conducted by MEAS, and to discuss how these could help address the threats, opportunities and barriers identified in the January workshops (See section 2.3). Specifically:

- Present the findings on our research into the potential demand for biodiversity units from the forthcoming BNG market.
- Explanation of the LJM opportunity mapping and what it tells us in relation to BNG, Carbon and forthcoming ES market opportunities.
- Discussion of our research and how it aligns with the thoughts and plans of NIA stakeholders – is it accurate and what aspects are/aren't feasible?
- Discussion of what realistic opportunities this work presents and how can this help address the previously identified threats, barriers and opportunities?
- How can we use this research to help develop projects and fund them?
- What support do you think you will need and how could a seller's guide help provide this?

Stakeholder feedback on the draft opportunity mapping identified the following:

- The need to incorporate river data to a greater extent.
- That the opportunity mapping was based on buffering existing habitat patches. The result of this was that in areas with little semi-natural habitat few opportunities were identified e.g. in areas of intensive agriculture.
- The opportunity mapping did not currently incorporate linear features e.g. hedgerows and ditches sufficiently.
- The opportunity mapping did not identify sufficient habitat opportunities. More opportunities were required to provide sufficient options to take into account constraints such as land ownership, future land-use plans, site constraints e.g. access, site issues, contamination.

This feedback was used to refine the opportunity mapping.

2.7 Habitat opportunity mapping results

Habitat opportunity mapping results are shown in Table 9 and figures 11 to 13 below, full results and discussion are provided in Appendix 3. The result show results for the NIA area as a total and for local authority land only. Results show variability across the NIA's. Black Brook and Sankey Valley Corridor NIA for instance shows significant opportunity for woodland creation. The River Alt Corridor NIA shows significant opportunity for wetland creation. Whilst the River Alt and M57 Corridor NIA shows significant opportunity for both woodland and wetland as well as, to a slightly lesser extent, grassland.

When these results are considered in the context of local authority land ownership, the results show some changes to opportunities. For the Black Brook and Sankey Valley NIA St Helens owned land has the potential to deliver 16.1ha of woodland, 12.4ha of semi-natural grassland, 4.9ha of wetland and 0.1ha of open water. This provision reflects the habitat priorities identified for the NIA Habitat

provision would be largely on currently cultivated land (See section 2.1 and Appendix 1). However, cultivated farmland within the Liverpool City Region is highly productive and food production requirements need to be considered. Habitat creation on farmland which is less fertile could provide a viable alternative and provide a diversified income for the farming sector. (See Part III).

For the River Alt Corridor NIA, Sefton-owned land has the potential to deliver very small amounts of the total habitat opportunities, just 0.1ha of semi-natural grassland and 0.2ha of wetland. This reflects the fact that much of the land ownership within this NIA is in private hands and illustrates the importance of the need to engage with private land-owners within this NIA to achieve nature recovery. Habitat opportunities are being explored around Lunt Meadows Lancashire Wildlife Trust reserve. Land ownership and management in this area includes a number of governmental and conservation organisations including the Forestry Commission, Environment Agency and Lancashire Wildlife Trust. NIA priorities are largely focused around wetland provision (See section 2.1 and Appendix 1). Local authority land could contribute to this to a small extent, however, wetland opportunities around Lunt provide the greatest opportunities. Working with private landowners to increase wetland provision could help to achieve the 236.5ha of potential wetland habitat which could be provided within the NIA.

Local authority land within the River Alt and M57 Corridor NIA is owned either by Knowsley, Liverpool and to a very small extent Sefton, Councils. Here local authority land has the potential to deliver relatively significant amounts of habitat as follows; 58ha of semi-natural grassland, 31.8ha of wetland, 20.5ha of woodland, 8.6ha of freshwater. This delivery would largely be through the loss of cultivated land or improved grassland, as above food production requirements must be considered. Habitat opportunities reflect the habitat priorities for this NIA. (See section 2.1 and Appendix 1)

As a total project area, over 650ha of woodland, over 300ha of semi-natural grassland and over 100ha of wetland interventions were identified in all three NIAs. This represents a significant potential opportunity to restore nature. Of this total, there is potential on local authority land to create 36ha of woodland, over 70ha of semi-natural grassland and over 35ha of wetland habitat. This provides a significant opportunity to deliver habitat banks and the sale of units.

Table 9: Potential changes in land cover type areas before and after proposed interventions for Black Brook Sankey Valley, River Alt and River Alt M57 NIAs. Values below the local authority land heading show area changes as a result of interventions overlapping with LA land.

Land cover type	Area before interventions (ha)	Area after interventions (ha)	Change (ha)	Change (%)
Black Brook and Sankey Valley				
All interventions				
Woodland, broadleaved	291.9	622	330.2	113.1
Grassland, semi-natural	40.1	169.1	129	321.7
Wetland	24	132.1	108.2	450.8
Water, fresh	53.9	58.3	4.4	8.2
Woodland, coniferous	4.2	0.2	-4.1	-97.6
Improved grass or arable	12	1.5	-10.4	-86.7
Scrub	24.3	11.8	-12.5	-51.4
Grassland, improved	212.6	39.4	-173.2	-81.5
Cultivated / disturbed land	474.8	123.2	-351.7	-74.1

local authority land only				
Woodland, broadleaved	291.9	308	16.1	5.5
Grassland, semi-natural	40.1	52.6	12.4	30.9
Wetland	24	28.9	4.9	20.4
Water, fresh	53.9	54	0.1	0.2
Scrub	24.3	21.1	-3.2	-13.2
Grassland, improved	212.6	210	-2.6	-1.2
Cultivated / disturbed land	474.8	450.3	-24.5	-5.2
River Alt				
All interventions				
Woodland, broadleaved	15	107.9	92.9	619.3
Grassland, semi-natural	86	117.3	31.3	36.4
Wetland	35.8	272.3	236.5	660.6
Water, fresh	43.1	48.3	5.2	12.1
Woodland, coniferous	18.5	3.9	-14.7	-79.5
Grassland, improved	236.1	62.7	-173.4	-73.4
Cultivated / disturbed land	408.4	238.9	-169.5	-41.5
local authority land only				
Grassland, semi-natural	86	86.1	0.1	0.1
Wetland	35.8	36	0.2	0.6
Cultivated / disturbed land	408.4	408.2	-0.2	0
River Alt and M57				
All interventions				
Woodland, broadleaved	326.7	534.1	207.4	63.5
Grassland, semi-natural	69.1	225.4	156.3	226.2
Wetland	0.2	188.5	188.3	94,150.0
Water, fresh	22.1	49.6	27.5	124.4
Woodland, coniferous	6.2	0.7	-5.5	-88.7
Trees / Parkland	16	1.6	-14.4	-90.0
Scrub	40.7	10.7	-30	-73.7
Grassland, improved	131.6	11.8	-119.8	-91.0
Cultivated / disturbed land	620.2	184.4	-435.8	-70.3
local authority land only				
Woodland, broadleaved	326.7	347.2	20.5	19.4
Grassland, semi-natural	69.1	127.1	58	83.9
Wetland	0.2	32	31.8	15,900.0
Water, fresh	22.1	30.7	8.6	38.9
Woodland, coniferous	6.2	3.5	-2.7	-43.5
Trees / Parkland	16	9.6	-6.4	-40
Scrub	40.7	29.6	-11.1	-27.3
Grassland, improved	131.6	100.0	-31.6	-24
Cultivated / disturbed land	620.2	557.7	-62.5	-10.1

Geographically, interventions are spread evenly across the NIA regions. Wetland and pond opportunities were found adjacent to rivers or water bodies (Figure 11, Figure 12, Figure 13).

Black Brook and Sankey Valley Corridor NIA opportunity mapping showed significant opportunity for woodland creation. These woodland interventions are placed around Carr Mill Dam, north of the East Lancashire Road, to the north-west of the NIA where they would add to the existing ancient woodland resource in this area. Wetland creation is also identified in this area around existing brook corridors. Stakeholder consultation identified this area is subject to flooding and water quality issues and the opportunity mapping reflects this need (Figure 11). Significant grassland opportunity is identified within the centre of the NIA. This reflects existing grassland resource in this area. The opportunity mapping includes significant wetland and pond opportunities throughout the NIA along the Black or Sankey Brooks and their tributaries. The opportunity mapping reflects the priorities identified for the NIA (see section 2.1 and Appendix 1)

Most proposed interventions in the River Alt NIA are wetland and lie adjacent to the River Alt, along with pond interventions (Figure 12). These wetland interventions are within areas of current intensive agriculture. However, these areas are bisected by extensive ditch networks which provide opportunities for wetland creation but would require engagement with local landowners. There are some woodland intervention opportunities near the centre of the NIA, buffering existing woodlands. Additional woodland is also identified around existing woodland plantations in the south-east, interspersed within the wetland, while grassland is highlighted as the best intervention type in the north-west of the NIA where it approaches coastal habitats.

In River Alt and M57 NIA (Figure 13) shows significant opportunity for semi-natural grassland opportunities. Mapping shows these opportunities are located around Croxteth Park, Kirkby and Kirkby Valley Golf Course. Wetland and pond intervention opportunities are mainly along the River Alt in the north-west and the Croxteth Brook in the south-east (Figure 13). Proposed wetland interventions are particularly prevalent towards the north-west of the NIA where the River Alt meets Switch Island. In August 2023 the M57 in this location was subject to significant flooding and this illustrates that wetland creation through natural flood management interventions is desirable. Woodland interventions are more prevalent around the centre where they would add to and buffer the existing woodland resource in this area. Regions in and around Croxteth Park in the south of the NIA are highlighted as best for grassland interventions.

Figure 11: Proposed intervention creation areas for Black Brook Sankey Valley.

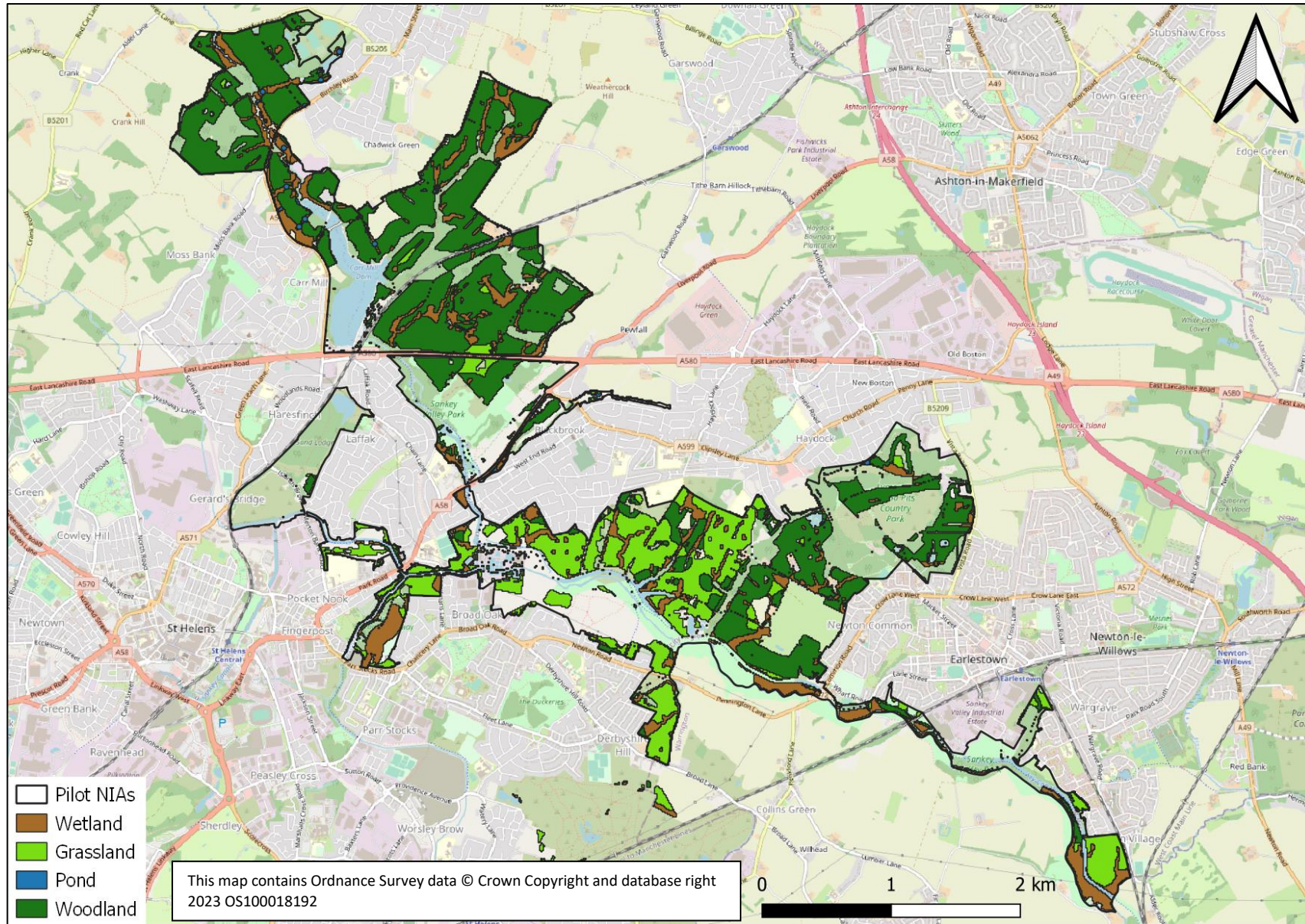


Figure 12. Proposed intervention creation areas for River Alt.

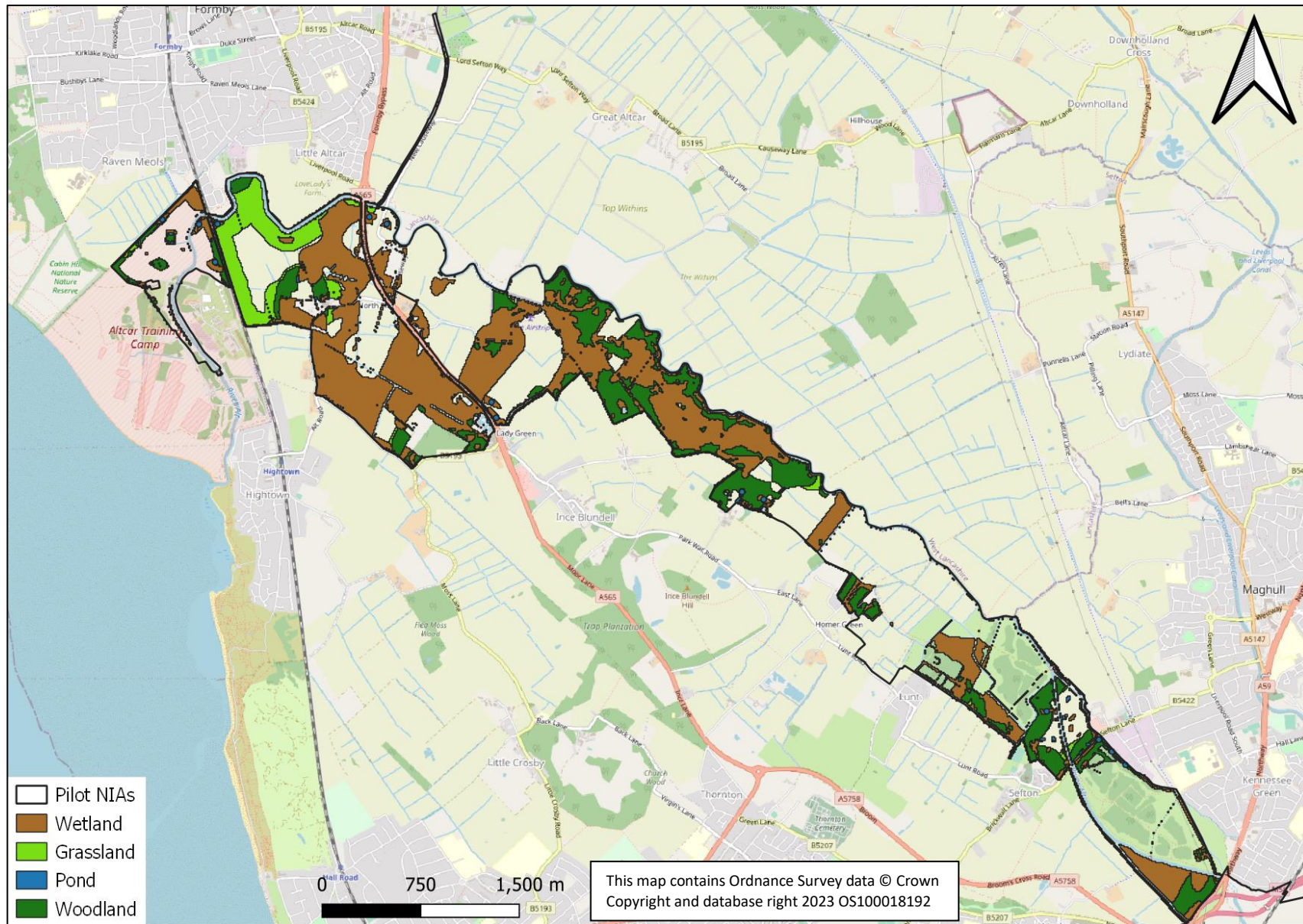
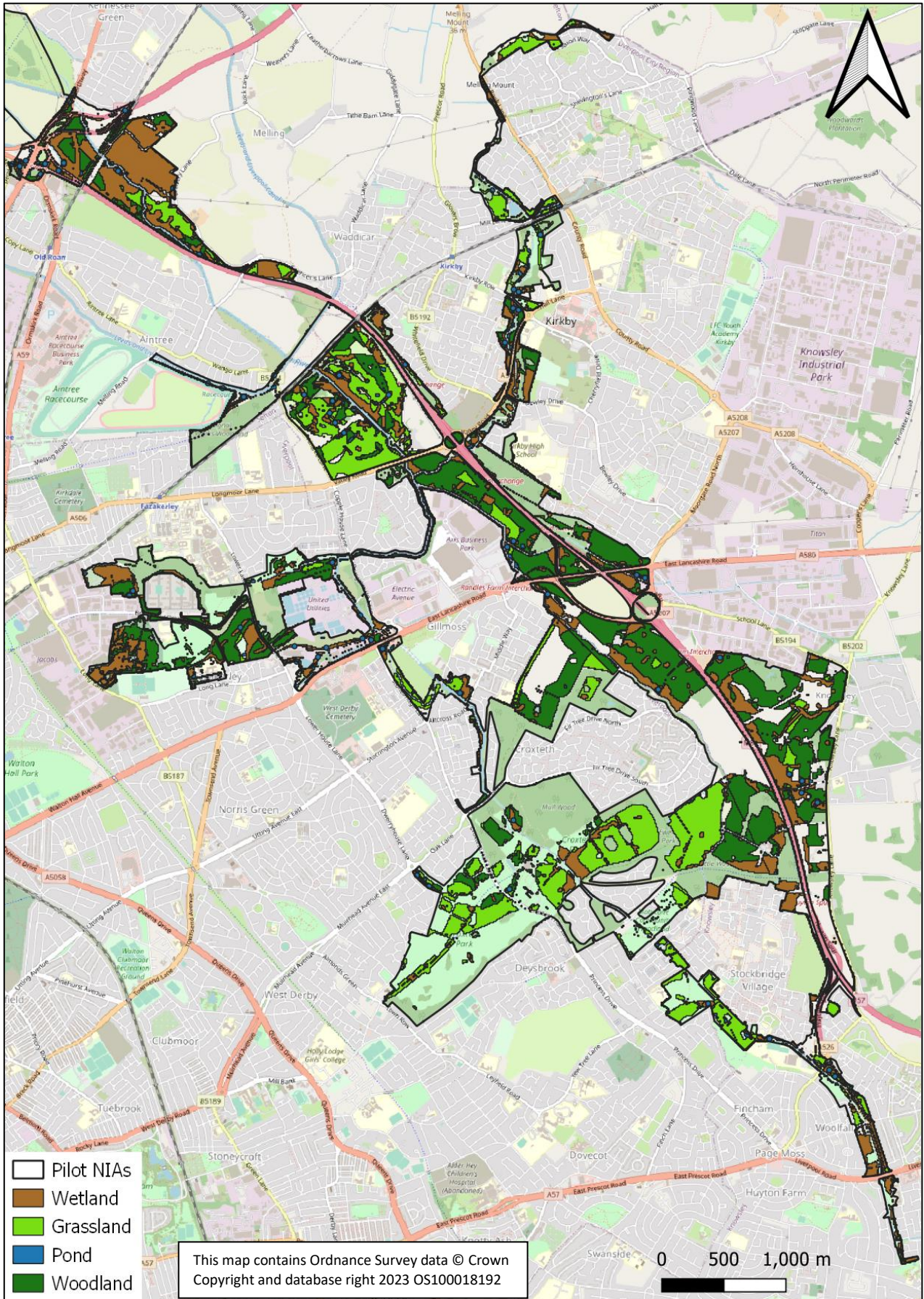


Figure 13. Proposed intervention creation areas for River Alt and M57.



2.8 Ecosystem Service provision from habitat creation opportunities

The positive impact of the proposed interventions on people is underscored by the increase in ecosystem service provision for the three NIAs post intervention creation. Potential changes in ecosystem service provision are presented in table 10 below.

All the opportunities identified through the assessment and mapping present substantial benefits and opportunities, especially to the local authorities in their response to climate emergency and biodiversity crisis. However, the benefits will only be delivered when implemented and this also provides a quantifiable tool for evidencing and communicating the positive action taken. Consequently, the local authorities are in a strong position for disclosure of climate-positive and biodiversity-positive action.

Around 10,000 more tonnes of carbon per year could be sequestered, important for the future response to climate change, and could provide a future income stream for landowners once further carbon codes are developed. For local authority land, carbon sequestration of 375.7 tonnes of carbon per year for Liverpool and Knowsley Local Authorities due to habitat creation within the River Alt and M57 Corridor NIA, 228.8 tonnes of carbon per year for St Helens Council and small amount of carbon for Sefton Council. All LCR Local Authorities have declared climate emergencies and this provision of habitats would aid in delivering on climate emergency pledges. However, it should be noted that habitat created for BNG purposes is largely to compensate for habitats lost – only 10% of BNG provides a gain and therefore only this could be recorded as a gain in carbon sequestration. Habitats which did not provide habitat compensation could however be recorded as carbon sequestration gains and could potentially be used to attract carbon credits.

There is a large increase in flood mitigation capacity for all NIAs as they sit on urban rivers, and project consultation meetings with stakeholders and local authorities highlighted localised flooding issues within all of the NIAs.

The only ecosystem service without an increase in capacity is air purification for the River Alt NIA which retains the same capacity (Table 10).

When only considering potential interventions that overlap with LA land, there are still some marginal gains across the three NIAs, but much reduced, with a total of around 600 tonnes of carbon that could be sequestered, and reduced capacity for flood mitigation.

Opportunity mapping provided by LJMU provides the ability to specifically assess ecosystem service provision for specific land parcels. This mapping will be provided on the LCR NEIRF toolkit website.

Table 10: Change in ecosystem service provision after proposed intervention creation for the three NIAs for air purification, carbon sequestration, flood mitigation, recreation, and physical health. Values below the 'local authority Land Only' heading show ecosystem service changes as a result of interventions overlapping with LA-owned land.

Ecosystem service	Black Brook Sankey Valley	River Alt	River Alt M57
All interventions			
Air purification (PM_{2.5}, NO₂, SO₂, O₃) (tonnes/year)	+14.7	0	+15.9
Carbon sequestration (tonnes/year)	+4,775	+1,933	+3,543
Flood mitigation (m³/year)	+84,423	+21,060	+42,712
Recreation (visits/year)	+1,718,120	+478,869	+2,597,782
Physical health (visits/year)	+738,792	+205,914	+1,117,046
local authority land only			
Air purification (PM_{2.5}, NO₂, SO₂, O₃) (tonnes/year)	+0.9	0	+2.6
Carbon sequestration (tonnes/year)	+228.8	+1.2	+375.7
Flood mitigation (m³/year)	+3,490.4	+6.2	-24.4
Recreation (visits/year)	+435,694	0	+1,048,289
Physical health (visits/year)	+187,348	0	+450,764

Part III Funding Opportunities

3. Funding opportunities

Key messages:

- Current funding opportunities for the LCR come from BNG, the woodland carbon code, peatland carbon code, and Natural Flood Management grant funding. Wider opportunities exist through ELMS, Recreational Mitigation Strategy via local delivery arrangements, woodland creation offer and district level licensing.
- BNG needs assessment of Local Plan allocations within proximity to the NIA identified the need for 824-1045 BU over the next 10-12 years, requiring the creation of approximately 199-321ha of habitat and worth between £16 - £26 million.
- Opportunity mapping shows that all NIA's have the capacity to deliver the BNG need comfortably. However, demand could not be met by local authority land holdings alone illustrating the requirement for collaboratively approaches within other landowners.
- The lack of local authority land to service BNG demand illustrates the potential for competing demand from other land use requirements, e.g. recreation, sport, tree planting for carbon and land use strategies are required.

3.1 Analysis of market, funding and income generation opportunities

There are many funding and income-generating opportunities which could support the development and long-term, sustainable financing of environmental projects and programmes of work within the Liverpool City Region and its NIAs.

An overview of separate funding and income opportunities is provided below, each of which may only be applicable to specific aspects of particular projects, for example a forthcoming carbon market opportunity will need to focus upon woodland planting or peatland restoration, as they are the only current markets that are trading in the UK. However in reality, in the future these funding and income streams will need to be combined with other new markets to give sufficient income and flexibility. It will also be important to develop a blended finance model, incorporating a wide range of public, private and third sector finance, funding and income streams to fund projects and partnerships in the long term.

Greater detail on all of these opportunities is given in the Seller's Guide provided in Appendix 5.

Potential Markets

The following potential markets, based upon the trading of units related to specific ecosystem services, all offer opportunities to develop long-term, sustainable income streams. It should be noted that ecosystem service markets are still in their infancy and most are still in their development phases. So, these income streams (with the exception of BNG, woodland and peatland carbon) should be viewed as potential, medium term income generating opportunities.

The Seller's Guide case studies (Appendix 5) show that it is possible to develop and fund environmental projects using ecosystem services, and other innovative, income streams. The case studies show how:

- The Mersey Rivers Trust have used BNG funding to create or enhance wetlands, ponds, hedges, wildflower meadows and river restoration in 6 public parks across Kirkby.
- The Rivers Trust, Wyre Rivers Trust and partners are delivering a £1.5 million natural flood management project in the River Wyre catchment that covers over 70 ha, spread across more than 10 land holdings. It includes 39 hectares of woodland creation, 10 km of new bunded hedgerows, 42 ponds and scrapes and 1,710 leaky dams.
- Four Wildlife Trusts are developing a new Habitat Banking Investment Model that will deliver BNG at scale, across a diverse range of habitats.
- Surrey Wildlife Trust (SWT) have set up a subsidiary Natural Capital Investment Company (NCIC) to sell biodiversity units and accelerate habitat restoration and nature recovery.
- East Devon District Council are creating an investment model and a Community Investment Bond which will trade in woodland carbon and BNG units to increase woodland in the Clyst Valley in East Devon.

Table 11. A summary of current ecosystem services markets

Market	Qualifying habitat types	Requirements and restrictions	Pros and Cons	Further info
Biodiversity Net Gain	All	<ul style="list-style-type: none"> • May require upfront costs for land management and ecological baselining (UK Hab assessments). • Requires habitats to be managed for 30 years. • Monitoring and reporting required for the 30 year period. • Sites must be within a legal agreement. • Sites must be registered on NE national sites register • Currently BNG units can be stacked with nutrient credits, but they can't be stacked with woodland or peatland carbon units. 	<p>Pros:</p> <p>Funding secured for 30 years so is a sustainable funding source.</p> <p>Additional units can be sold after 30 years.</p> <p>Likely to be very high demand, and low supply, initially. So prices might increase.</p> <p>Can be stacked with nutrient credits.</p> <p>Likely to be a key funding stream for the Liverpool City Region Local Nature Recovery Strategy.</p> <p>Cons:</p> <p>Ties up land use for 30 years – places a restriction on future land uses, e.g. development.</p> <p>Potentially takes land out of agricultural production.</p> <p>Can't be stacked with carbon units.</p>	<p>For LCR-specific advice see: MEAS website (https://www.meas.org.uk/) and information.</p> <p>Defra website Biodiversity net gain - GOV.UK (www.gov.uk)</p>
Carbon sequestration:	Woodland	See Home - UK Woodland Carbon Code for full requirements and regulations.	<p>Pros:</p> <p>WCC is a fully accredited and independently verified carbon standard and market.</p>	Different habitats capture and store carbon differently – to

Woodland Carbon Code (WCC) #2		<ul style="list-style-type: none"> • Landowners and their successors in title must commit to a permanent change of land use to woodland. • Credits can only be claimed once the trees have grown and actually sequestered the carbon. Therefore, tree planting will initially only generate 'Pending Issuance Units', which, following external verification can start to be converted into 'Woodland Carbon Units', generally from year 10 onwards. • Regular monitoring will be required • Carbon units must be registered with the UK Land Carbon Registry. • WCC carbon units are currently sold as a bundle, in which other associated ecosystem services are included within the measured carbon unit. 	<p>All projects are listed in the UK Land Carbon Registry and recorded on the HIS Markit Carbon Meta-Registry.</p> <p>Cons: Commits land to woodland use in perpetuity.</p> <p>Can't be stacked with BNG units.</p>	<p>find out more go to Carbon Storage and Sequestration by Habitat 2021 - NERR094 (naturalengland.org.uk)</p>
Carbon sequestration: Peatland Code (PC)	Upland and, in the near future, Lowland raised bog and peatland	<p>See Peatland Code IUCN UK Peatland Programme (iucn-uk-peatlandprogramme.org) for full requirements and regulations.</p> <p>The Peatland Code is a voluntary standard that allows owners of degraded peatlands, which emit significant carbon, to restore these using funds from 'carbon units' sold to private buyers.</p> <p>PC carbon units are currently sold as a bundle, in which other associated ecosystem services are included within the measured carbon unit.</p>	<p>Pros: Peatland habitats hold the largest carbon stores of all UK habitats. When in healthy condition they sequester carbon slowly but are unique in that they can go on doing so indefinitely. Carbon Storage and Sequestration by Habitat 2021 - NERR094 (naturalengland.org.uk) .</p> <p>PC is a fully accredited and independently verified carbon standard and market.</p>	

			<p>All projects are listed in the UK Land Carbon Registry and recorded on the HIS Markit Carbon Meta-Registry.</p> <p>Con: Can't be stacked with BNG units.</p>	
Carbon sequestration: Forthcoming carbon codes	Hedgerows, rewilding sites, saltmarsh and arable soil, meadow, grassland and pasture			
Natural flood management (NFM) and flood risk mitigation	<p>Rivers, waterways and wetland habitats.</p> <p>Can also include wet meadows and wet woodland.</p>	<p>You will need to work closely with the Environment Agency and your Regional Flood and Coastal Committee.</p> <p>River-related flood risk is normally location-specific, so revenue opportunities will be based on the convergence of interests by specific beneficiaries e.g. insurers, local authorities, transport infrastructure providers and water utilities.</p>	<p>Pro: NFM is currently attracting grant funding and many RFCCs are looking to use this and other nature-based solutions.</p>	<p>See the Wyre catchment NFM project case study (Appendix 5).</p> <p>The Environment Agency's recent publication 'Natural Flood Management Programme: evaluation report (December 2022)' (Natural Flood Management Programme: evaluation report - GOV.UK (www.gov.uk))</p>
Nutrient neutrality / water quality	Rivers, waterways and	Nutrient credit market developed around specific areas of nutrient management concern associated with the national sites network.	<p>Pro: Can be stacked with biodiversity units.</p>	Nutrient Neutrality Generic Methodology -

	wetland habitats.	<p>Currently, the Liverpool City Region is not in a nutrient neutrality zone.</p> <p>Currently nutrient credits can be stacked with biodiversity units.</p>	<p>Positive impact on nutrient inputs to waterways which are all under restoration via Catchment Partnerships.</p> <p>Con: No requirement within the LCR currently.</p> <p>The UK Government has recently backtracked on nutrient neutrality regulations, however other water quality markets might emerge.</p>	<p>NECR459 (naturalengland.org.uk)</p> <p>https://www.push.gov.uk/wp-content/uploads/2022/04/Nutrient-Neutrality-a-summary-guide-March-2022.pdf</p>
Air quality (NOx gasses and airborne nitrates)	All – especially urban environments and sensitive habitats such as ancient woodland.	<p>Currently no air quality offsetting market in the UK.</p> <p>The pollution must occur in close proximity to a protected site.</p>	N/A	<p>Liverpool City Region Combined Authority Air Quality Action Plan Microsoft Word - LCRCa AIR QUALITY ACTION PLAN 2020.docx (liverpoolcityregion-ca.gov.uk).</p>
Green Social Prescribing and health and wellbeing	All – especially those in urban and peri-urban environments	Markets currently in development	<p>Not currently operational within the LCR. However, strong evidence to support benefits from Mersey Forest research.</p> <p>Pros: Could be incorporated within the design of many environmental projects</p> <p>Health & wellbeing initiatives could combine a wide range of ES benefits and markets and</p>	<p>Health and well-being The Mersey Forest</p> <p>23JUN Health Report Summary FINAL.pdf (wildlifetrusts.org),</p>

			could meet the multiple needs and wants of nature, the environment and people. Attractive to local authorities	
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#1 - Note: Unit prices are yet to be established and are likely to be subject to market forces. In August 2023, Defra published guide prices for developers buying biodiversity credits [Statutory biodiversity credit prices - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/publications/statutory-biodiversity-credit-prices) with prices ranging from £42k to £650k (high distinctiveness lakes) per unit.

#2 - Currently trading at between £50 and £250 per tonne.

Biodiversity net gain

One of the key opportunities in the short-term is to deliver habitat creation and enhancement measures using funding from the mandatory BNG system that will be implemented by elements of the Environment Act 2021 that will be introduced in January 2024. As discussed in the introduction BNG is a significant opportunity to drive nature recovery within the LCR and to deliver the Local Nature Recovery Strategy. The development of local authority habitat banks is seen as a key strategy to ensuring local delivery, ensure built development can proceed and to meet the wider goals of the Local Authorities.

BNG is an approach to development that leaves the natural environment in a measurably better state than before'. The Environment Act 2021 brings in the requirement for all major development from November 2023 to provide 10% BNG with management for 30 years. With minor developments required to meet 10% BNG from April 2024.

Developments will be required to provide 10% BNG on site and where this is not possible it will need to be provided offsite, or as a last resort by a developer purchasing national biodiversity credits. It is anticipated that there will be a significant requirement for off-site Biodiversity Unit provision within the LCR. This is estimated broadly as upto 2500 units within the LCR over the next ten years. Section 3.2 presents the results of more detailed modelling for the 3 NIAs. This demand will provide opportunities for development-funded habitat gains within the wider LCR. A BNG needs assessment has been undertaken as part of this project, which focused on three Nature Improvement Areas (NIAs). This estimated that the potential requirement for just these three areas was the following:

- Between 824 – 1045 Biodiversity Units
- Approximately 199 - 321 ha of habitat creation
- Approximately 1.9 to 2.8 km of hedgerow creation
- 8 – 9 km of ditch and brook habitat creation or enhancement

It is important to note that these figures were based on developments occurring within a 5km radius of the three NIAs. This equates to approximately 50% of the LCR, therefore demand for the whole of the Liverpool City Region is likely to be at least double these figures. In addition, estimates are considered to be conservative as they relate only to Local Plan allocation sites and do not include other developments outside of the allocations. In addition, these estimates are based on current understanding and predictions on the likely offsite requirement. This is currently difficult to predict as BNG is not yet mandatory and there were no clear trends from existing development in relation to offsite need.

To realise the funding potential from BNG there is, however, the need for upfront funding to pump prime the development of the habitat banks. Some funding has been provided by the NEIRF project and Defra S31 burdens funding to baseline potential habitat bank sites. Further funding is required to plan and management plan these sites.

Currently, within the development process, some developers look to the local authority to provide solutions and sites for any off-site habitat compensation required. Whilst larger developers may be more prepared for BNG, and are already developing their own habitat banking sites, it is anticipated that there will still be a strong demand for local authority BNG solutions from medium and small-scale developers. This demand will create opportunities for Local Authorities, environmental organisations, landowners and other 'sellers' to develop BNG projects producing Biodiversity Units through habitat

banks. Local Authorities across the LCR are already looking to develop such habitat banking projects. The development of these projects provides an opportunity to address a number of current issues for Local Authorities such as the climate emergency, the lack of funding for greenspaces, the loss of skills and staff within greenspaces teams and positive uses for Council owned land for the benefit of local communities.

Whilst larger developers may look to deliver BNG on-site and/or provide their own compensation sites within their wider approach to BNG, there is a strong opportunity for local authorities to influence where BNG is delivered. The planning process and potentially, a local-first approach, provides the local authorities with significant influence to deliver local outcomes. Furthermore, developers that embrace local matters e.g. local delivery of BNG and other ecosystem benefits, have significant opportunities for positive community impact and positive climate and biodiversity disclosure at a corporate level.

The sellers guide presents a simplified process that project developers could follow when developing a BNG project, this is based upon a number of current approaches and covers the main tasks that might be required (See Appendix 5).

Case studies in the Seller's Guide (Appendix 5) illustrate how BNG can fund habitat delivery:

Case study 1: Mersey Rivers Trust and Network Rail – Headbolt Lane Station BNG project

Case study 3: The wildlife Trust's habitat banking investment model

Case study 4: A natural capital investment company for accelerating delivery of habitat banks

Carbon sequestration

The only fully accredited and independently verified voluntary carbon markets currently available in the UK are the Woodland Carbon Code¹¹ and the Peatland Code¹², with projects and carbon units being registered via the UK Land Carbon Registry and recorded on the IHS Markit Carbon Meta-Registry. Full information on the current Woodland and Peatland carbon codes is available via these links and these websites are constantly being updated. It is relatively straightforward to register carbon sequestration sites and to achieve accreditation and acceptance.

A number of other carbon codes are currently being developed, however these are all currently 'work in progress' and so little published information is currently available on them. The next carbon codes to be developed are likely to be a hedgerow carbon code and an arable soil carbon code. These codes are expected to be completed in 2023 and markets set up in 2024. Research is also being carried out to develop carbon codes for rewilding, saltmarsh and meadow, grassland and pasture soil carbon.

The Liverpool City Region would be ideal for the trading of carbon units using the UK Woodland Carbon Code (UKWCC), there is also some limited opportunity through the Peatland Code. Habitat

¹¹ Woodland carbon code [Home - UK Woodland Carbon Code](#)

¹² [Peatland Code | IUCN UK Peatland Programme \(iucn-uk-peatlandprogramme.org\)](#)

opportunity mapping identified the opportunity for up to 650.5ha of woodland creation. In future, habitat restoration could also take advantage of forthcoming farm soil, grassland, and hedgerow carbon codes. The sale of carbon credits could be a significant and long-term income stream for this project area. It would also guarantee the long-term management of the sites, for example the UKWCC requires that any new woodland would need to be managed and maintained for 100 years.

At the time of writing, the carbon market is in a state of flux and prices vary significantly. It is possible to purchase high integrity carbon from organisations such as Wilder Carbon¹³ for £75 per tonne CO₂e as an Estimated Issuance Unit and lower integrity carbon can also be purchased for less than this. However, it has been calculated that the cost of creating woodland and maintaining it in good condition for 100 years could cost approximately £114,260 per hectare, or £221 per tonne CO₂e. However, this cost assumes that land is already available on which to plant the trees, should you need to purchase land, it would add approximately £20k per hectare to the cost, taking the total to around £134,260 per hectare, or £259 per tonne CO₂e.

Additional information on carbon sequestration is available in the Seller's Guide see Appendix 5, this also includes Case study 5: The crystal clear Clyst bond.

Natural flood management and flood risk mitigation

The Environment Agency's recent publication 'Natural Flood Management Programme: evaluation report (December 2022)¹⁴' highlights the opportunities for income linked to natural flood management and mitigating flood risk. The Environment Agency and Defra have recently launched a £25 million funding pot for Natural Flood Management (NFM)¹⁵. There are considerable opportunities for developing markets based around Natural flood management and flood risk mitigation in the Liverpool City Region. Project delivery organisations should discuss these flood risk options with the Environment Agency and the Regional Flood and Coastal Committee at an early stage of the project development, they will offer support, information and further advice on funding and income.

Habitat opportunity mapping identified the opportunity for up to 570ha of wetland habitat creation. Issues around flooding and water quality were also raised within the stakeholder consultation meetings as a threat to the NIA's. Wetland habitat creation provide natural flood management and act by absorbing and holding water providing flood volume temporary storage which reduce erosion and peak flows during rain events. They also play an important function in improving water quality. Funding through the NFM programme or other flood and water management funding sources could fund delivery of this habitat type.

Given that river-related flood risk is invariably location-specific, new revenue opportunities will be based on the convergence of interests by interested parties such as FloodRe¹⁶ (a reinsurance service) individual insurers, local authorities, transport infrastructure providers and water utilities.

A precedent for the private financing of natural flood management is found in the Wyre Catchment in Lancashire - Case study 2: The Wyre Catchment Natural Flood Management Project as well as

¹³ Wilder carbon www.wildercarbon.com

¹⁴ Environment Agency 2022 Natural Flood Management Programme: evaluation report [Natural Flood Management Programme: evaluation report - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/107422/natural-flood-management-programme-evaluation-report-2022.pdf)

¹⁵ Environment Agency Natural Flood Management Fund [Natural flood management programme - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/news/natural-flood-management-programme)

¹⁶ [Flood Re - A flood re-insurance scheme](https://www.floodre.co.uk/)

additional information on natural flood management and flood risk mitigation is available in the seller's guide in appendix 5.

Nutrient neutrality (water quality)

Nutrient neutrality (nitrate and phosphate trading) is an important emergent source of finance for habitat management in England, enabling built developments such as new housing to occur.

Currently, the Liverpool City Region is not in a nutrient neutrality zone and this will be carefully monitored as practice emerges nationally, including the nutrient neutrality assessment tools. This is not to say that nutrient enrichment is not an issue in the area, and Environment Agency catchment data shows less than 1% of our rivers are in good ecological status. An important consideration is how natural flood management and sustainable urban drainage projects will make a positive contribution to nutrient status and thus reduce nutrient-related risks to the aquatic environment. The majority of catchments and main rivers within City Region and all within the 3 NIAs are a focus for positive action via work of the Catchment Partnerships and delivery partners. A key component of their approach is to assess the multi-functionality of interventions (use a case study here to re-iterate or cross reference).

Additional information on water quality is available in the seller's guide in appendix 5.

Air quality

Air quality (NO_x gasses and airborne nitrates) is a material planning consideration and if it becomes an issue (i.e. affecting human health or a protected environmental site (e.g. a SSSI)) then an AQMA (Air Quality Management Area) is identified and closely managed. Currently, Air quality issues are then addressed and mitigated via Section 106 obligations, but there is also the potential to develop air quality offsetting markets in the UK based specifically on nitrogen deposition.

Because of the nature of airborne pollution's creation and its effects on natural habitats, in order for this market to be feasible the pollution must occur in close proximity to a protected site. For example ancient woodlands being affected by airborne pollution from a nearby development or transport/traffic-related pollution from the development of road infrastructure. If feasible, this market could be an important income stream for areas of ancient woodland or other such sensitive habitats.

Although there is currently no air quality offsetting market in existence in the UK, it has long been recognised by air quality specialists and Natural England that something needs to be done to address the incremental deterioration of the UK's habitats due to nitrogen deposition.

The Liverpool City Region Combined Authority developed an Air Quality Action Plan in December 2020¹⁷.

¹⁷ Liverpool City Region Combined Authority 2020, Air Quality Action Plan [Microsoft Word - LCRCa AIR QUALITY ACTION PLAN 2020.docx \(liverpoolcityregion-ca.gov.uk\)](#)

Green social prescribing and health & wellbeing

Green social prescribing is about using exercise, activities and access to nature outdoors to improve people's health and wellbeing as part of the management of specified health conditions. However, the green social prescribing market is currently in its infancy in the UK with no models of sustainable finance for land managers. The opportunities for a green social prescribing income stream, based upon a health and wellbeing ecosystem services benefit, would focus upon the development of suitable greenspaces and natural habitats/environments which have been designed to consider the needs of the human population. NIAs within the Liverpool City Region project area could offer many opportunities to incorporate the requirements of green social prescribing within their design and management plans.

Income would not be taken from individuals or GP practices as part of the universal personalised care model, instead the income streams would include investment from the NHS/private healthcare sector (as an alternative to drug-related treatments and therapies), local authorities (as part of their Public Health strategies), employers (happier staff being more productive and taking fewer sick days), health insurance companies (fewer pay-outs) and pharmaceutical companies could invest in green social prescribing projects for Corporate Social Responsibility (CSR) and Public Relations (PR) purposes.

The Wildlife Trusts have just published a report titled 'a natural health service'¹⁸, which shows that a thriving, wildlife-rich environment benefits people's physical and mental health.

Ideally such health and wellbeing initiatives would combine a wide range of Ecosystem Service (ES) benefits and markets and would meet the multiple needs and wants of nature, the environment and people. For example, a new country park would have obvious health and wellbeing benefits, but could also be designed to take advantage of BNG, carbon, air quality, nutrient neutrality, flood risk and many other ES markets. Another example might be the creation of a woodland; in order for it to be funded by green social prescribing (in addition to BNG, carbon, flood risk mitigation, etc) it might be located close to a town or in a deprived neighbourhood, it could be accessible by public transport and would be designed to be suitable for specific health and wellbeing-related activities. This could include the provision of good quality paths, information boards, seating, outdoor exercise facilities, toilets or even a visitor centre and refreshment facility.

Another revenue-generating opportunity would be to combine the health and wellbeing and recreation ES markets (including access to nature, eco-tourism, outdoor sports, and recreation). There is obviously an overlap in the benefit provision, see examples above, and it would open up a wider range of potential markets, beneficiaries and investors.

Green social prescribing is considered to be a viable future income stream in the medium-long term for the Liverpool City Region area, but we would expect it to take a further five or more years before becoming a significant income opportunity as part of habitat restoration and creation in the region.

Within the LCR the Mersey Forest has led the way in this area and have run several health and wellbeing projects including Natural Health Service and Nature4Health. More information can be found on the Mersey Forest website ([Health and well-being | The Mersey Forest](#))

Additional information on Green social prescribing and health & wellbeing is available in the sellers guide in Appendix 5.

¹⁸ The Wildlife Trusts 2023 A Natural Health Service [23JUN Health Report Summary FINAL.pdf \(wildlifetrusts.org\)](#),

Other income or funding streams

Funding from the corporate investment community is discussed in full in section 7 of this report and is therefore not discussed here.

See the Seller's Guide for further information on all of the following.

- Environmental Land Management schemes (ELMs)
ELMs will offer long-term, sustainable funding opportunities for farmers, landowners and land managers in the Liverpool City Region. Funding could come from any of the three ELMs schemes:
 - Sustainable Farming Incentive (action at farm level)
 - Countryside Stewardship (action at local level)
 - Landscape Recovery (long-term, landscape scale changes)
- Forestry Commission England Woodland Creation Offer (EWCO) and others
Landowners, land managers and public bodies can apply for support to create new woodland, including through natural colonisation. Payments can be in excess of £10,000 per hectare for areas as small as one hectare. There are numerous funding opportunities available from the UK Government, environmental funds and organisations such as the Woodland trust.
- Funding for individual projects from statutory bodies (Defra, Natural England, Environment Agency, Forestry Commission) and Local Authorities
Funding opportunities will appear on a regular and frequent basis, so project delivery organisations will need to keep their eyes open and maintain regular communications with their contacts in statutory bodies and local authorities.
- Funding through a Recreation Mitigation Strategy
The National Sites Network of nationally and internationally designated sites including Special Protection Areas (SPA), Special Areas of Conservation (SAC's) and Ramsar's are very sensitive to recreational disturbance due to increasing populations driven by new residential development. In the LCR, these sites are all coastal. In order to meet the requirements of the Conservation of Habitats and Species Regulations 2017, with regards to new residential development, a number of strategic schemes have been opened by groups of local authorities throughout the UK.

The local authorities are currently developing a Recreation Mitigation Strategy for the Liverpool City Region and West Lancashire, which should be completed in 2023, Recreation Mitigation Strategy¹⁹ (meas.org.uk), with MEAS as project managers. The emerging strategic approach includes provision for mitigation measures on the designated coast and in parks and open spaces which are called Suitable Alternative Natural Greenspaces as part of an integrated suite of measures. It is certainly possible that tariff payments for recreation mitigation from new housing development can be spent on the same land as payments for ecosystem services provided that the interventions are for different purposes. This is likely to be driven locally through local delivery plans for the RMS tariff payments collected. This can be secured through obligations and legal agreements and strong evidence of interventions, outputs and effectiveness is essential.

¹⁹ Liverpool City Region Recreation Mitigation Strategy (meas.org.uk)

- Funding for individual projects from other sources including the private sector
There are many income streams related to benefits which can be provided to the private sector in addition to mandatory or voluntary ecosystem services markets. Suitable funding organisations could include utility companies, the Landfill Communities Fund, transport infrastructure (Network Rail, National Highways, etc), insurance companies, businesses joining an accreditation scheme and businesses with Environmental Social Governance (ESG) or net zero carbon ambitions or commitments.
- Entrepreneurial income streams
There are many ways that a project developer/deliverer could develop a wide range of income streams which are sustainable and have little or no negative impact upon the habitats, environment and local communities – in fact they could be beneficial. These could include:
 - Developing income generating visitor infrastructure (paid car parking, café/restaurants, gift shops, etc).
 - Developing paid-for visitor activities (nature guides, bicycle hire, camping, bushcraft, arts and crafts courses, etc).
 - Links with local eco-tourism.
 - Harvesting of wood (agroforestry), meadow grass, grassland seed collection or other resources. There will be natural resources which can be harvested, and which could provide a regular income.
 - In the near future as a result of BNG, there is expected to be an increase in demand for tree and hedgerow plants, saplings and seeds. This provides an opportunity to develop tree and/or hedgerow nurseries.
- District level licensing
This could fund the delivery of ponds for Great Crested Newts and further licenses are currently being developed for other European protected species. This approach is, however, currently not operational within the Liverpool City Region.
- Income through Section 106 payments
Section 106 of the Town and Country Planning Act 1990 allows a local planning authority to enter into a legally binding agreement, or planning obligation, with a landowner as part of the granting of planning permission. The obligation is termed a section 106 agreement. These agreements are a way of delivering or addressing matters that are necessary to make a development acceptable in planning terms. They can be used to support the provision of services and infrastructure, such as highways, recreational facilities, education, health and affordable housing. They could also be used to fund environmental, social or access initiatives within the Liverpool City Region area and are commonly used by the local planning authorities to secure contributions for specific purposes.

Securing a tariff payment as part of mitigating recreation pressure is an example of how S106 funds can be used. With all legal agreements there is a need to agree a robust monitoring and reporting process with the local planning authority to evidence that the funds are being used effectively for the purposes that they are intended for. Such opportunities need to be discussed with the local planning authority.

- Grant applications and philanthropic donations

Funding opportunities (National Lottery Heritage Fund, Esmée Fairbairn Foundation, etc) will appear on a regular basis and there may also be more local funding opportunities from local authorities, utilities companies, local businesses or other institutions.

3.2 Biodiversity Net Gain Needs Assessment

3.2.1 Approach to the Estimate of Biodiversity Net Gain need

Currently the market with the most surety is the BNG market. To understand the potential funding opportunities from BNG, MEAS undertook a BNG needs assessment. The assessment estimated BNG off site need from all Local Plan allocations which could reasonably require BNG offsite provision within the one of the project NIA's.

The full assessment report and methods are presented within Appendix 4.

To complete the Local Plan allocation needs assessment all Local Plan allocation sites within 5km of the project NIA's. A total of 67 allocated sites were mapped, see table 12 below and figures 14 to 16.

Table 12. Allocations within or within a 5km buffer of the project NIA's

NIA +5km buffer	Total number of allocations	Allocation types		
		Residential	Employment	Other
River Alt Corridor	19	16	2	Waste – 1
River Alt and M57 Corridor	34	5	25	Hospital – 1, Mixed use – 3
Black Brook and Sankey Valley Corridor	14	8	6	-
Total	67	29	33	5

Figure 14. Local Plan allocations within a 5km buffer of the River Alt Corridor NIA

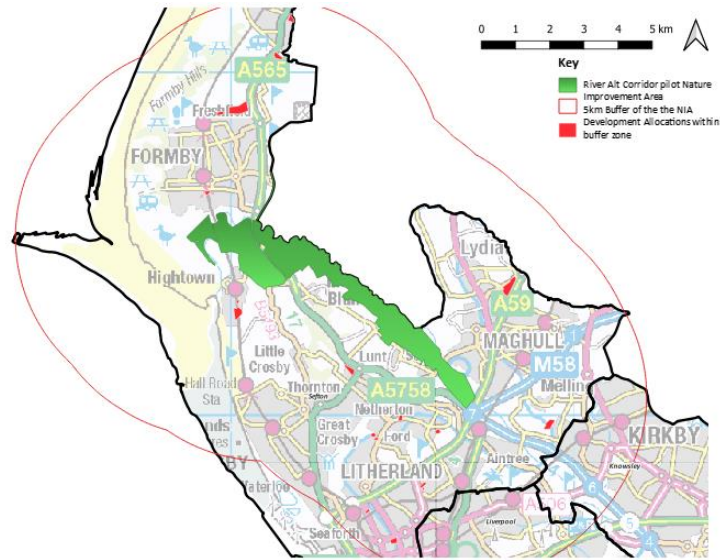


Figure 15. Local Plan Allocations within 5km buffer of the River Alt and M57 Corridor NIA

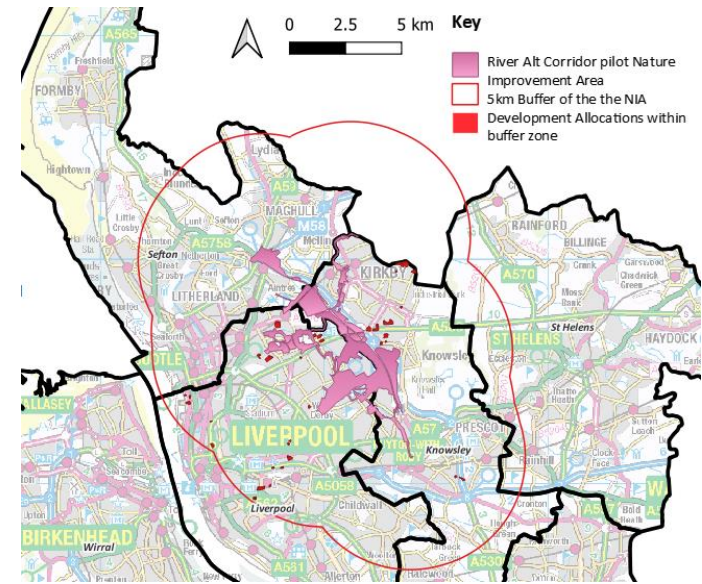
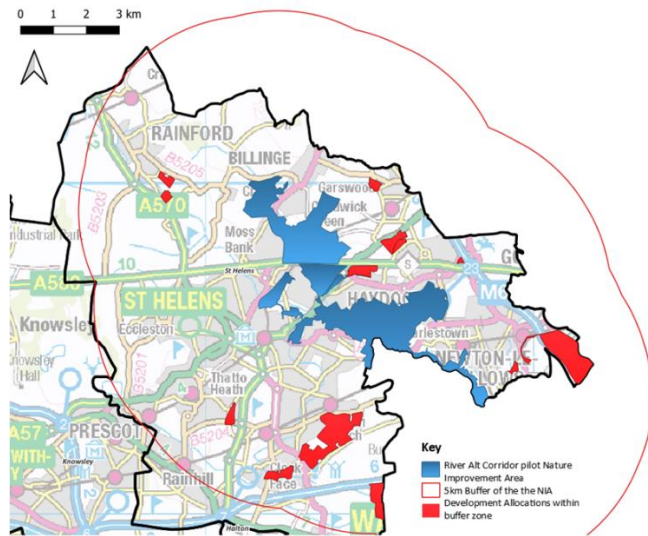


Figure 16. Local Plan Allocations within 5km buffer of the Black Brook and Sankey Valley Corridor NIA



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3.2.2 BNG needs assessment results

Local Plan allocation baseline

Baseline mapping of Local Plan allocated sites found that habitats within the allocated sites baseline largely comprise low and medium distinctiveness habitats as identified by the Defra Metric 4.0²⁰. They comprise the following main habitats, agricultural land, modified and neutral grassland, other broadleaf woodland and scrub, hedgerows and lines of trees, ditches, and other rivers and streams (See table 13 below)

Table 13. Habitat types present within the allocated sites baseline with an area of greater than 1 ha. Habitats are listed in area order, from greatest to smallest.

Black brook Sankey Valley Corridor NIA	River Alt Corridor NIA	River Alt and M57 Corridor NIA
Non-cereal crop	Modified grassland	Other woodland; broadleaved
Modified grassland	Other neutral grassland	Modified grassland
Other woodland; mixed	Other lowland acid grassland	Other neutral grassland
Temporary grass and clover leys	Temporary grass and clover leys	Mixed scrub
Other neutral grassland	Mixed scrub	Other woodland; mixed
Mixed scrub	Other woodland; mixed	Vacant or derelict land
Other woodland; broadleaved	Open mosaic on previously developed land	Open mosaic on previously developed land
Vacant or derelict land	Other woodland; broadleaved	Bare ground
		Ruderal/ephemeral

The baseline was assessed against the Defra Metric 4.0 trading rules. The trading rules set minimum habitat creation and enhancement requirements to compensate for specific habitat losses to allow 10% BNG (which is the minimum required to meet the legislation) to be provided. The distinctiveness of the habitat type to be lost determines the requirement for whether like for like habitat creation is required. E.g. broadleaf woodland is a habitat of high distinctiveness due to its value for nature and therefore requires replacement with the same habitat type. Whilst low distinctiveness habitats, for example, amenity grassland are of relatively low value for nature and are species poor, therefore the replacement requirement is less and replacement habitats could be with any habitat type of the same distinctiveness or better. These are set out below in table 14.

Table 14. Defra metric 4.0 trading rules

Defra Metric 4.0: Habitat Trade Offs		
HABITAT UNITS	Low distinctiveness habitat	same distinctiveness or better
	Medium distinctiveness habitat	same broad habitat or a higher distinctiveness habitat required (\geq) NB does not need to be the same broad habitat if higher distinctiveness
	High distinctiveness habitat	same habitat required =

²⁰ Defra metric 4.0 was the current metric at the time of the assessment

	Very high distinctiveness habitat	bespoke compensation likely to be required
HEDGEROW UNITS	Low distinctiveness hedgerow	same distinctiveness or better
	Medium distinctiveness hedgerow	same distinctiveness or better
	High distinctiveness hedgerow	like for like or better
	Very high distinctiveness hedgerow	same habitat required =
W A	Low distinctiveness watercourse	better distinctiveness habitat required
	Medium distinctiveness watercourse	same habitat required =
	High distinctiveness watercourse	same habitat required =
	Very high distinctiveness watercourse	bespoke compensation likely to be required

Following the trading rules the assessment found that there will be the need to create, enhance or restore the following habitats within the project Nature Improvement Areas:

- Native broadleaved woodland and scrub
- Species rich native grassland
- Priority habitat open mosaics on previously developed land.
- Small amounts of wetland and ditch habitat, hedgerows, field margins and ponds.

Habitat requirements for each of the project NIA's is presented in tables 15 to 17 below. The tables are RAG rated, with those habitat types in red being the habitats in most demand and green being those habitats in least demand.

Table 15. Estimated biodiversity unit need and habitat area for the Black Brook and Sankey Valley Corridor NIA.

Habitat type	Estimated Biodiversity Unit (BU) need	Estimated area / length of habitat creation required	Estimated value £
Native broadleaf woodland	187 BU	60ha	£3.74million - £4.675million
Any habitat type ²	181-362 BU	56 - 117ha**	£3.62million - £9.05million
Species rich native grassland	42 BU	6ha	£852,000 - £1.065million
Mixed native scrub	21 BU	4ha	£420,000 - £525,000

River habitat creation or enhancement, would include ditches	19 BU	7km*	£380,000 - £475,000
Single trees	2 BU	43 medium trees	£37,600 - £47,000
Native tree lines	3BU	1.5 km	£64,000 - £80,000
Ponds	3 BU	0.5ha	£52,000 -£65,000
Native species rich hedgerows, some including tree standards	12-18 BU	1.6 – 2.3m ¹	£242,000 - £440,000
Totals	470 -657 BU	127 – 240 ha + 1.5-2.3km hedgerow 7km of ditch/water course	£9.4 million - £16 million

¹Estimate of required hedgerow length based on creation of native species rich hedgerow 1km = 7.7HU, therefore approx. 130 m per HU.

²Low distinctiveness baseline habitats within development sites which are lost do not require replacement with similar habitats and therefore could be replaced with any habitat which is of equal or higher distinctiveness. **Assumed modified grassland poor at offsite baseline, with creation of moderate woodland (other- broadleaved).

*Assumed offsite enhancement of ditches with no encroachment and within river catchment in POOR condition are enhanced to MODERATE condition.

Table 16. Estimated biodiversity unit need and habitat area for the River Alt Corridor NIA.

Habitat type	Estimated Biodiversity Unit (BU) need	Estimated area / length of habitat required	Estimated Value £
Species rich native grassland (Other neutral grassland in good condition)	120 BU	18 ha	£2.4million - £3million
Any habitat type ¹	16-31 BU	5 - 10 ha**	£314,000 - £783,750
Native Broadleaf woodland	13 BU	4 ha	£250,000 - £312,500

Priority habitat Open mosaic on previously developed land	16 BU	3 ha	£310,000 -£387,500
Native species rich scrub	15 BU	3 ha	£298,000 - £372,500
River habitat creation or enhancement, could include ditches	2-5 BU	0.75-2 km	£40,000 - £112,500
Single trees	4 BU	Approx 92 medium trees	£81,200 - £101,500
Arable field margins	0.5 BU	0.3 ha	£10,800 - £13,500
Native species rich hedgerows, some including tree standards	3 HU	260 -442m ²	£40,000 - £85,000
Totals	189 – 207 BU	33 – 38 ha 260-442m hedgerow 0.75-2km brook /ditch habitat	£3.7 million - £5.2 million

¹Low distinctiveness baseline habitats within development sites which are lost do not require replacement with similar habitats and therefore could be replaced with any habitat which is of equal or higher distinctiveness. **Assumed modified grassland poor at offsite baseline, with creation of moderate woodland (other- broadleaved).

²Estimate of required hedgerow length based on creation of native species rich hedgerow 1km = 7.7HU, therefore approx. 130 m per HU.

Table 17. Estimated biodiversity unit need and habitat area for the River Alt and M57 Corridor NIA

Habitat type	Estimated Biodiversity Unit (BU) need	Estimated area / length of habitat required	Estimated value £
Native Broadleaf woodland	43 BU	13 ha	£856,000 - £1,070,000
Species rich native grassland	44 BU	7 ha	£880,000 – 1,100,000
Open Mosaic on previously developed land	36 BU	6 ha	£728,000 - £910,000
Any habitat type ²	14 -29 BU	5 - 9 ha	£285,000 - £356,250
Native species rich scrub	23 BU	4 ha	£460,000 - £575,000
Single trees	3 BU	81 trees (2.9681ha)	£68,000 - £85,000
Ponds	2 BU	0.3 ha	£39,600 - £49,500
Native species rich hedgerows, some including tree standards	1 BU	Approx 90-150m ¹	£14,000 – 30,000
River habitat creation or enhancement, could include ditches	0.5 -1 BU	Suggest given small requirement enhancement to brook / ditch habitat 0.1 – 0.2 km.	£6,000 - £15,000
Total	166 – 182 BU	38 – 43 ha 90 -150m hedgerow 0.1 -0.2km ditch or river habitat	£3.3 million - £4.5 million

¹Estimate of required hedgerow length based on creation of native species rich hedgerow 1km = 7.7HU, therefore approx. 130m per HU.

²Baseline habitats within development sites which are lost do not require replacement with similar habitats and therefore could be replaced with any habitat which is of equal or higher distinctiveness.

Discussion of BNG needs assessment

The assessment estimates the potential BU need for the next 10-12 years across the project area from allocated sites as:

- Between 824 – 1045 biodiversity units (values rounded to nearest whole BU)
- Approximately 199-321 ha of habitat creation;
- Approximately 1.9 to 2.8 km of hedgerow creation
- 8 – 9 km of ditch and brook habitat creation or enhancement

The assessment confirms the following potential BU need for each of the project NIA's across their remaining local plan period (approximately 10 -12 years):

(Unit values are rounded to whole units)

- Black brook and Sankey Valley NIA – between 470 - 657 biodiversity units
- River Alt Corridor NIA – between 187 – 207 biodiversity units
- River Alt and M57 Corridor NIA – between 167 -182 biodiversity units

The analysis shows that the potential BU need from the Black Brook and Sankey Valley NIA is significantly higher than from the other project NIA's. This is due to their Local Plan being more recent and due to some large sites allocated for development. For the two River Alt NIA's BU need is similar. It is worth noting that development sites will come forward outside of those allocated within the local plan and therefore actual demand is likely to be higher.

Black Brook and Sankey Valley Corridor NIA

The potential BU need reflects the NIA ecological priorities and could deliver the following:

- Approximately 6.32 ha of species rich grassland
- Approximately 60.49 ha of woodland, 3.8 ha of native scrub, 43 medium sized trees, and up to 2.3 km of hedgerows
- 0.4 ha of ponds, 7 km of ditch and wetland
- In addition, between 181 – 362 BU of “Free Choice” habitats to contribute towards the ecological priorities of the NIA.

River Alt Corridor NIA

With the exception of reedbed, swamp and fen the BU need reflects the NIA ecological priorities and could deliver the following:

- Approximately 18 ha of grassland
- Approximately 4 ha of woodland
- Between 250 - 442 m of hedgerow

There is no requirement from the BU need assessment for reedbed, swamp or fen habitat, however, there is the requirement for between 0.75 – 1.7 km of ditch type habitat and between 15.7 – 31.35 BU derived from low distinctiveness habitat, which could be used to create these wetland habitats.

River Alt and M57 Corridor NIA

The potential BU need reflect the NIA ecological priorities and could deliver the following:

- Approximately 0.3 ha of pond habitat;
- Approximately 0.1-0.2 km of ditch/brook habitat;
- Approximately 6.53 ha of grassland habitat;
- Approximately 13.5 ha of woodland creation, 4.26 ha of mixed native scrub, 81 medium sized trees, 90-150 m of species rich native hedgerow.

In addition, there are approximately 14 - 29 BU which are from low distinctiveness habitats and therefore can be used for any habitat creation. This could help to achieve wetland priorities.

Defra metric trading rules

Following the Defra metric trading rules there are specific habitat creation requirements to be met. However, the current baseline includes large areas of low distinctiveness habitats, e.g. agricultural land and modified grassland. There is no requirement from the Defra metric 4.0 trading rules to replace these with like-for-like habitats or habitats within the same broad habitat type and therefore provides opportunity to create a range of alternative habitats. This equates to between 211 - 421 estimated area habitat biodiversity units available across the project NIA's, with the following specific values within each of the NIA's

- Black Brook and Sankey Valley NIA – 181-362 BU
- River Alt Corridor NIA – 15.7 – 31.32 BU
- River Alt and M57 Corridor NIA – 14.25 -28.5 BU

However, there is a need to ensure ecological coherence and to ensure compliance with strategical nature recovery strategies such as the Local Nature Recovery Strategy and LCR Ecological Network. It is therefore essential that an ecologically sound approach is taken to habitat creation. It is important not to chase the metric by proposing only high distinctiveness and therefore high biodiversity unit value habitats. Delivery of lower distinctiveness habitat are also likely to be needed.

Estimated Value of the BU need [potential demand]

The analysis presented above has been consolidated into Table 18. A BU value of £20k to £25k has been used to estimate the potential scale of opportunity. These values have been used as they align with national assessments and towards the lower middle of the range BU values used to date. It is imperative that the real costs of management and maintenance are taken into account within the BU value used to avoid creating a management liability. The potential BU demand equates to an estimated monetary value of between £16,487,600 and £26,137,750.

Table 18. Estimated monetary value of BU need for the pilot NIA's

NIA	Estimated BU	Value £ based on £20K - £25K / BU
Black Brook and Sankey Valley NIA	470-657 BU	£9.4 million -£16.4 million
River Alt Corridor NIA	187 -207 BU	£3.7 million - £5.2 million
River Alt and M57 Corridor NIA	167-182 BU	£3.3 million – £4.5 million
Project area total	824 - 1046	£16.4 – £26.1 million

It is plausible that the potential BU need could be substantially higher than this given potential windfall development and strategic drivers. Furthermore, there may be potential to meet potential BU from outside of area on the proviso that local needs are fully met first. Section 3.3 below provides an assessment of the ability of each NIA to meet the demand set out in Table 18.

3.3 Results: Assessment of Habitat creation opportunities and funding opportunities for the project area

Natural capital opportunity modelling shows significant habitat creation opportunities within the project NIA's. Tables 19 to 21 below present the ability of the BNG demand identified to be met within the NIA and by local authority land. Green shading denotes estimated demand met, orange denotes demand may possibly be met, pink denotes estimated demand not met.

The tables show that the BNG demand identified in the BNG needs assessment (Section 3.2.2 above) can be met within each of the NIA's. However, this would require delivery on both public and private land. The ability of local authority land within each of the NIA's to meet the BNG demand is variable. Only local authority land within the River Alt and M57 Corridor NIA is able to meet the demand from the remaining Local Plan allocations. local authority land holdings within the River Alt NIA are limited and this is reflected within the ability of local authority land to meet demand. There are however discussions to extend Lunt Meadows LNR and this may provide opportunity for greater supply of Biodiversity units and to secure funding from other funding streams, for example, natural flood management funds or carbon credits once a reedbed carbon code is established. Despite this there is a clear need to work with local landowners within the River Alt NIA to bring forward habitat banking sites. As previously stated, initial step to engage with private landowners and farmers have been taken within the LCR through the Farmland Species Recovery Project and work by Mersey Rivers Trust.

Black Brook and Sankey Valley NIA has the most demand for biodiversity units from development of its remaining local plan allocations. This reflects the relatively early stage of the local plan period with a large proportion of local plan allocations still to come forwards for development. It also reflects a number of large greenbelt release allocations which will generate significant demand for biodiversity units. Table 19 below shows a mixed picture in terms of meeting demand from local authority land holdings, whilst it is likely that grassland and wetland opportunities could be met, there is a significant shortfall in the ability of LA habitat banks to meet native broadleaf woodland demand. It is possible that this habitat type will be retained to a greater extent within development sites which may decrease

this demand. However, if not other providers such as Mersey Forest may have a role in meeting demand.

Table 19. Black Brook and Sankey Valley Corridor NIA – Ability to supply the BNG habitat demand for the remaining Local Plan period and remaining allocations.

Habitat type	Estimated area / length of habitat creation required to meet BNG demand	Habitat opportunity within the NIA (ha)	Habitat opportunity within the NIA on LA land only (ha)
Native broadleaf woodland (187 BU)	60ha	330.2	16.1
Any habitat type ² (181-362 BU)	56 - 117ha**	Demand could be met	Demand could not be met
Species rich native grassland (42 BU)	6ha	129	12.4
Mixed native scrub (21 BU)	4ha	See woodland	See woodland
River habitat creation or enhancement, would include ditches (19 BU)	7km*	112.6 ha of wetland opportunity identified *	5ha of wetland opportunity identified*
Single trees (2 BU)	43 medium trees	See woodland	See woodland
Native tree lines (3BU)	1.5 km	Linear habitats not part of opportunity mapping modelling	Linear habitats not part of opportunity mapping modelling
Ponds (3 BU)	0.5ha	241.7	4.9
Native species rich hedgerows, some including tree standards (12-18 BU)	1.6 – 2.3m ¹	Linear habitats not part of opportunity mapping modelling	Linear habitats not part of opportunity mapping modelling

*Linear habitats are not modelled within opportunity mapping

** Baseline habitats within development sites which are lost do not require replacement with similar habitats and therefore could be replaced with any habitat which is of equal or higher distinctiveness.

Green shading denotes estimated demand met, orange denotes demand may possibly be met, pink denotes estimated demand not met.

Table 20. River Alt corridor NIA – Ability to supply the BNG habitat demand for the remaining Local Plan period and remaining allocations.

Habitat type	Estimated area / length of habitat required	Habitat opportunity within the NIA (Ha)	Habitat opportunity within the NIA on LA land only (ha)
Species rich native grassland (Other neutral grassland in good condition) (120 BU)	18 ha	31.2	0.1
Any habitat type ¹ (16-31 BU)	5 - 10 ha**	Demand could be met	Demand could not be met
Native Broadleaf woodland (13 BU)	4 ha	92.9	0
Priority habitat Open mosaic on previously developed land (16 BU)	3 ha	Habitat not modelled, bespoke provision required. Potentially met if looking at grassland opportunities	Habitat not modelled, bespoke provision required
Native species rich scrub (15 BU)	3 ha	See woodland above	See woodland above
River habitat creation or enhancement, could include ditches (2-5 BU)	0.75-2 km	236.5 ha of wetland opportunity identified *	0.2 ha of wetland opportunity identified *
Single trees (4 BU)	Approx 92 medium trees	See woodland above	See woodland above
Arable field margins (0.5 BU)	0.3 ha	Linear habitats not part of opportunity mapping modelling	Linear habitats not part of opportunity mapping modelling
Native species rich hedgerows, some including tree standards (3 HU)	260 -442m ²	Linear habitats not part of opportunity mapping modelling	Linear habitats not part of opportunity mapping modelling

*Linear habitats are not modelled within opportunity mapping

** Baseline habitats within development sites which are lost do not require replacement with similar habitats and therefore could be replaced with any habitat which is of equal or higher distinctiveness.

Green shading denotes estimated demand met, orange denotes demand may possibly be met, pink denotes estimated demand not met.

Table 21. River Alt and M57 Corridor NIA – Ability to supply the BNG habitat demand for the remaining Local Plan period and remaining allocations.

Habitat type	Estimated area / length of habitat required	Habitat opportunity within the NIA (Ha)	Habitat opportunity within the NIA on LA land only (ha)
Native Broadleaf woodland (43 BU)	13 ha	207.4	20.5
Species rich native grassland (44 BU)	7 ha	156.3	58
Open Mosaic on previously developed land (36 BU)	6 ha	Habitat not modelled, bespoke provision required. Potentially met if looking at grassland opportunities	Habitat not modelled, bespoke provision required. Potentially met if looking at grassland opportunities
Any habitat type ² (14 -29 BU)	5 - 9 ha	Demand met	Demand met
Native species rich scrub (23 BU)	4 ha	See woodland above	See woodland above
Single trees (3 BU)	81 trees (2.9681ha)	See woodland above	See woodland above
Ponds (2 BU)	0.3 ha	27.5	8.6
Native species rich hedgerows, some including tree standards (1 BU)	Approx 90-150m ¹	Linear habitats not part of opportunity mapping modelling	Linear habitats not part of opportunity mapping modelling
River habitat creation or enhancement, could include ditches (0.5 -1 BU)	Suggest given small requirement enhancement to brook / ditch habitat. 0.1 – 0.2 km.	188.3 ha of wetland opportunity identified *	31.8 ha of wetland opportunity identified *

*Linear habitats are not modelled within opportunity mapping

** Baseline habitats within development sites which are lost do not require replacement with similar habitats and therefore could be replaced with any habitat which is of equal or higher distinctiveness.

Green shading denotes estimated demand met, orange denotes demand may possibly be met, pink denotes estimated demand not met.

Wider Ecosystem Service Benefits

Meeting BNG demand through the supply of BU's is a fundamental mandatory driver for this project and at the top of the hierarchy of ecosystem services. The NIAs also offer huge potential for wider ecosystem services. Analysis of wider ecosystem service benefits (See table 22 below) shows that there is potential to generate income from carbon sequestration particularly as additional carbon codes are developed.

However, stacking²¹ rules do not permit BNG and carbon to be stacked. Bundling would be possible however, so BNG and carbon credits could be developed on different parcels of land within the same site. This requires clear recording and auditing. Project developers would need to assess which option provided the best return and met the wider aims of any project.

Funding opportunities in relation to carbon currently focus on the woodland carbon code and peatland carbon code. Table 23 below shows the potential carbon sequestration which could be provided by woodland creation alone from the opportunity mapping. The opportunity mapping has not identified the creation of lowland raised mire, however, opportunities do exist within the wider LCR. Carbon trading values are currently variable but currently trading at between £50 and £250 per tonne.

Table 22. Ecosystem service benefits estimation from the opportunity mapping uplift.

Ecosystem service	Black Brook and Sankey Valley	River Alt	River Alt and M57
All interventions			
Air purification (PM_{2.5}, NO₂, SO₂, O₃) (tonnes/year)	+14.7	0	+15.9
Carbon sequestration (tonnes/year)	+4,775	+1,933	+3,543
Flood mitigation (m³/year)	+84,423	+21,060	+42,712
Recreation (visits/year)	+1,718,120	+478,869	+2,597,782
Physical health (visits/year)	+738,792	+205,914	+1,117,046
local authority land only			
Air purification (PM_{2.5}, NO₂, SO₂, O₃) (tonnes/year)	+0.9	0	+2.6
Carbon sequestration (tonnes/year)	+228.8	+1.2	+375.7
Flood mitigation (m³/year)	+3,490.4	+6.2	-24.4
Recreation (visits/year)	+435,694	0	+1,048,289
Physical health (visits/year)	+187,348	0	+450,764

²¹ For stacking and bundling definition see glossary

Table 23. Carbon sequestration from woodland opportunity mapping

Ecosystem service	Black Brook Sankey Valley	River Alt	River Alt M57
Woodland interventions			
Carbon sequestration (tonnes/year)	+4,508	+1,273	+2,954

There are emerging opportunities around natural flood management (e.g. Environment Agency Natural Flood Management programme fund totalling £25million). The natural capital benefits above show that there are significant flood mitigation opportunities within all three of the NIAs.

Within the LCR development is subject to needing to address recreational pressure impacts on coastal national and international sites. This is required to meet the needs of Habitats Regulations legislation. The LCR and West Lancashire is close to adopting a Recreation Mitigation Strategy which sets out the approach to addressing recreational pressure at these sites. Part of this strategy is the development of Suitable Alternative Natural Greenspace (SANGS) which would be funded by developer contributions. The deployment of mitigation measures to protect the coastal designated sites has potential to provide complementary funding that may result in biodiversity improvements and uplifts in other ecosystem services. Implementation is likely to be driven through local delivery plans and as the tariff is to be secured through planning obligations may be stackable with BNG credits and some other ecosystem service income. This will require records and audit of specific interventions, including a spatial database or similar, to be able to monitor implementation and avoid double funding or double counting.

Wider natural capital benefits modelled as part of this project (namely air purification, recreation and physical health) illustrate the wider benefits projects can provide and may provide additional drivers to development of habitat banking projects on local authority land as they meet wider local authority objectives.

Analysis of BNG demand and opportunity mapping illustrates that there is potential for demand to outstrip supply when considering local authority land alone. Analysis of the potential BU supply alongside stakeholder engagement is evidence of a clear market for biodiversity units within the project area. The natural capital benefits modelled also shows clear, but at this time emerging, funding opportunities from other natural capital funding streams.

A further consideration is opportunities to attract investment for businesses wanting to improve their green credentials. This may be significant for organisational disclosure of ESG, climate performance and biodiversity action that has rapidly moved up corporate and investment priorities.

To optimise opportunities to deliver nature recovery within the LCR, requires the development of clear business cases and investment cases in the form of a nature-based investment model (NBIM). This is discussed in Part IV.

Summary

In summary, uplift from habitat opportunity modelling identifies the following:

- Opportunities for up to 1,516 ha of habitat creation, of which 152ha is on local authority estate.
- BNG demand identifies the need for between 199-321 ha of habitat creation.
- Ecosystem service analysis identified considerable opportunity for carbon sequestration, natural flood management and SANGS as well as wider ecosystem service benefits which are not monetised but provide benefits to the local community.

In Part IV below, this report discusses the development of a nature-based investment model and associated business cases.

Part IV. Developing a Nature Based Investment Model for the Liverpool City Region

4. Nature Based Investment Model introduction

Key messages from sellers, buyers and investors business cases:

- Sellers should have a clear aim and objectives for the development of any fundable project. This will ensure that funding sources are well matched to the project and that wider aspirations and constraints are met.
- In attracting buyers or investors to habitat projects, project developers will need to ensure that their needs are met. Key considerations of buyers and investors relate to risk, quality and integrity of the project and price.
- Projects should review all funding options and assess which funding sources fit best the aims of the project.
- Projects should aim to develop a hybrid, or blended, funding model where finances are drawn from a number of different sources, this can include both grant funding, selling of credits and investment.

Key messages for both the sellers and buyers and investors business cases are provided below within their respective sections.

This project has sought to develop a Nature-Based Investment Model (NBIM). The NBIM is developed through the lens of the environmental project developer. In this case the local authority or regional non-governmental organisation (NGO). However, it would be applicable to other types of landowners or environmental organisation, including private landowners.

The NBIM seeks to understand and develop a model which allows environmental project developers to bring forward projects which have a sustainable income stream be this from either sale of services derived from natural capital or through attracting investment. The focus of this project was to develop a NBIM with the aim of developing a model which would secure sustainable funding for environmental projects which seek to address nature recovery and address wider environmental problems e.g. land contamination, water and air quality issues. The primary aim of the business cases put forward in this report are to develop sustainable funding sources to allow the implementation of these environmental projects. This is as opposed to the development of habitat projects with the primary aim of securing an income stream for a parcel of land, in these cases the habitat delivery is a secondary aim.

The NBIM has developed a detailed seller business case and 'how to' Seller's Guide. Buyer and investment business models have been developed to aid in the understanding of potential sources of sustainable income; to develop an understanding of buyer and investment options and opportunities available to sellers; and the needs of those buying or investing in natural capital markets. The buyer and investment business cases have explored how these developing markets may operate and function and have therefore identified issues to be aware of.

The NBIM developed by this project follows the Green Finance Institute's Investment Readiness Toolkit²² Their toolkit (below) is recognised as a useful and practical tool to assist in developing a fundable and investible project based upon natural capital investment and ecosystem services markets. The Green Finance Institute (GFI) is an independent, commercially focused, organisation supported by HM Treasury, the Department for Business, Energy and Industrial Strategy and the City of London Corporation. It is the UK's principal forum for public and private sector collaboration in green finance.

What are sellers, buyers and investors?

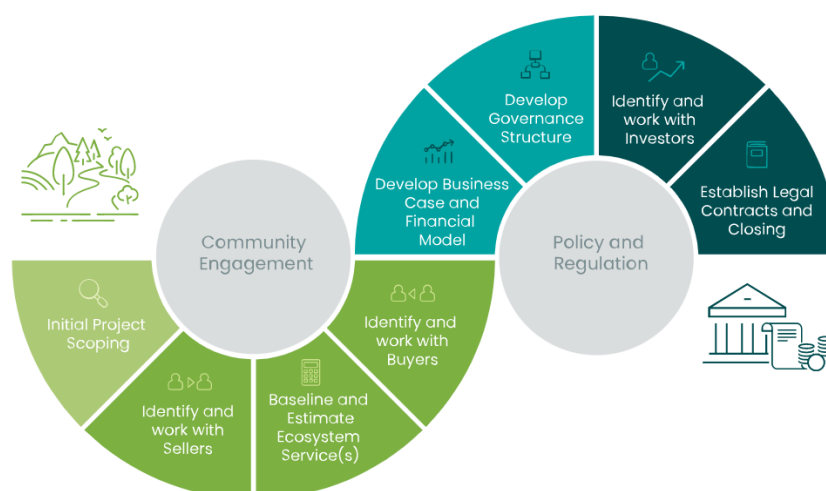
Sellers are organisations, or project developers, who are developing and delivering environmental projects which will have natural capital assets services or ecosystem services (ES) benefits which can be sold or traded, for example biodiversity or carbon units. Sellers can be landowners, but don't have to be – they might manage the land for a landowner or be tenants. Similarly they could be any size, from small-scale landowners or farmers to Country Parks, local authorities or large environmental charities.

Buyers are individuals or organisations which might want to buy these assets or ecosystem services benefits. For example a business wishing to buy carbon offset units, a housing developer buying biodiversity units or a local authority paying for reduced flood risk.

Investors are individuals or organisations which might put money into a project with the intention of deriving a return on their investment. This could be an ongoing income or an increase in the value of their investment which could be sold at a later date.

²² Green Finance Investment Readiness Toolkit [Investment Readiness Toolkit \(greenfinanceinstitute.co.uk\)](https://www.greenfinanceinstitute.co.uk/).

Figure 17. Green Finance Institute Toolkit



Nature Based Investment Model - Key Terms

Habitat and land banking - This describes the setting aside of a parcel of land to be developed into a 'habitat bank' in order to trade in Biodiversity Units, or other ES credits. The purchase of undeveloped, or ecologically unimproved, land is usually termed land banking. On this land appropriate environmental and ecological restoration activities can now take place and the biodiversity value of the land will be increasing in order to turn this land into a habitat bank. To do this funding, surveying, monitoring and a management plan will need to be carried out. Typically, habitat banks include creating species-rich grassland, woodland, wetland, mixed scrub or rewilding sites on low-yielding land where this is a significant opportunity for biodiversity uplift.

Note that if you've created a habitat bank for BNG, the land must be legally secured for at least 30 years with either a S106 agreement or a conservation covenant²³

Stacking and bundling - Any approach to developing ES markets and natural capital income streams must demonstrate an awareness of stacking and bundling. These terms refer to different ways of packaging and selling multiple ecosystem goods and services. See Nature Markets: A Framework for scaling up private investment in nature recovery and sustainable farming published by Defra in March 2023²⁴ for more information. This HM Government framework contains specific rules relating to stacking and bundling.

Bundling is when a suite of ES benefits produced on a piece of land is sold as a single package, for example a 'Liverpool woodland credit' could include carbon sequestration, BNG, water quality and flood risk mitigation. **Stacking** is when various overlapping ES benefits produced on a given piece of land are measured and separately 'packaged' into different credit types or units of trade that together form a stack. The components of the stack can then be sold individually to different buyers and separate payments received for each set of services. So you could separately sell carbon, BNG or other

²³ Conservation covenant - [Getting and using a conservation covenant agreement - GOV.UK \(www.gov.uk\)](https://www.gov.uk/getting-and-using-a-conservation-covenant-agreement).

²⁴ [Nature markets A Framework for scaling up private investment in nature recovery and sustainable farming: \(publishing.service.gov.uk\)](https://publishing.service.gov.uk/nature-markets-a-framework-for-scaling-up-private-investment-in-nature-recovery-and-sustainable-farming)

ES units. The key premise of stacking is to prevent 'double counting' or a parcel of habitat charging twice for ecosystem services benefits.

Hybrid, or blended, finance - For sustainable funding a project should aim to develop a hybrid, or blended, funding model where finances are drawn from a number of different sources, ideally including public, private and third sector funders. In such a model, these sources of finance would have different risk and return on investment expectations thereby offering flexibility. For example, a project might commence with initial public or third sector funding and then be expanded by the addition of business or investor finance attracted by the development of ES credits, the reduced level of perceived risk and the proven success of the project.

5. Seller's business case and Seller's Guide

Key messages:

- The aim of the seller's business case and guide is to aid organisations to design, plan, project manage and market their projects to make them attractive to potential funders, buyers and investors. The seller's business case uses the Green Finance Institutes Investment Readiness Toolkit as the basis for business case development
- Key elements of building a seller's business case include: governance, building partnerships, assessing funding opportunities and setting clear aims and objectives.
- A roadmap for developing BNG projects is provided. Caution should be exercised in 'chasing the Defra Biodiversity metric' where the pursuit of greatest economic uplift could undermine the most suitable biodiversity and ecosystem service outcomes.
- For sustainable funding a project should aim to develop a hybrid, or blended, funding model where finances are drawn from a number of different sources, ideally including public, private and third sector funders. In such a model, these sources of finance would have different risk and return on investment expectations thereby offering flexibility.
- Projects should aim to offer multiple benefits including ecosystem services in order to attract a wide range of potential funding streams, meet the requirements of funders and to aid in obtaining political support.

5.1 Introduction to the Seller's Business Case

This project has sought to develop a seller's business case. The aim of which is to aid environmental organisations and environmental project development teams to design, plan, project manage and market their projects to make them attractive to potential funders, buyers, and investors. The aim is to enable them to develop long term, sustainable income and revenue streams based upon natural capital and developing ecosystem services markets.

To assist with this the project has developed a 'how to' Seller's Guide (See Appendix 5). The seller's Guide has been designed to assist the various stakeholders, local authorities and environmental organisations working in Nature Improvement Areas in the Liverpool City Region, but it could also be applicable to any environmental programme or project within the Liverpool City Region or throughout the UK. The Guide aims to help environmental organisations and environmental project development teams to design, plan, project manage and market their projects to make them attractive to potential funders, buyers and investors. The advice can be used to assist projects and organisations of any size – from an individual farmer to a large environmental NGO or local authority. The Seller's Guide is provided in full in Appendix 5. This will be provided as an online resource within the projects Online opensource toolkit.

The seller's business case and seller's guide seeks to develop a business case for environmental project developers to secure funding from those sources identified in Part III. The seller's guide provides advice on the following:

- Typical stages to follow when developing an investable environmental project
- Factors to consider when developing a project
- Generating and attracting investment and income to fund your environmental projects
- Case studies

Full detail of the seller's business case is provided within the Seller's Guide in Appendix 5. In this section of the report provides an overview of the business case and key considerations in developing a fundable environmental project. The guide and business case recognises that this is not a step-by-step process because every project is different, and no such standardised process exists.

5.2 Key considerations in developing an investable environmental project

Project aims and objectives must be clear from the start of your project. This should include a clear project outcome based around a problem / issue you are trying to address. This could for instance be to recover habitats on a particular site or number of sites within a landscape. To recover a specific species or group of species e.g. water vole, or riparian species. To address a particular environmental issue e.g. to address flooding or water quality issues in a specific location through the creation of wetlands. By having clear aims and objectives this can help identify relevant funding, but also ensure that projects do not 'chase the funding' and develop habitats which are ecologically or environmentally appropriate. It is therefore important to understand the landscape and policy context in which the project sits. Local Nature Recovery Strategies will form the framework for nature restoration within the LCR. Project should seek to implement the aims of the Local Nature Recovery Strategy and ensure that they deliver on the spatial element of the strategy.

This project has shown the benefits and needs of developing a partnership and stakeholder approach to habitat delivery. In working towards delivery of a local authority based habitat bank the importance of engaging with Local Authorities and gaining support and buy in has become apparent. It is therefore essential that time is put into this element of any project or habitat bank.

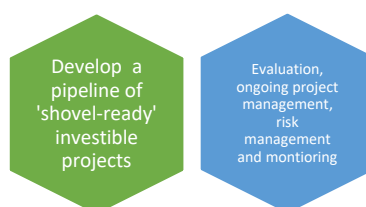
The seller’s business case uses the Green Finance Institutes Investment Readiness Toolkit as the basis for business case development. However, some additional stages, are also identified which are of particular relevance to developing environmental projects on public land. These may come in advance of the stages identified in the GFI toolkit. These are set out in Figure 18 below:

Figure 18. Additional advance stages to the GFI toolkit



After reaching the last stage of the GFI process you might want to consider the stages in Figure 19 below.

Figure 19. Additional stages to the GFI process.

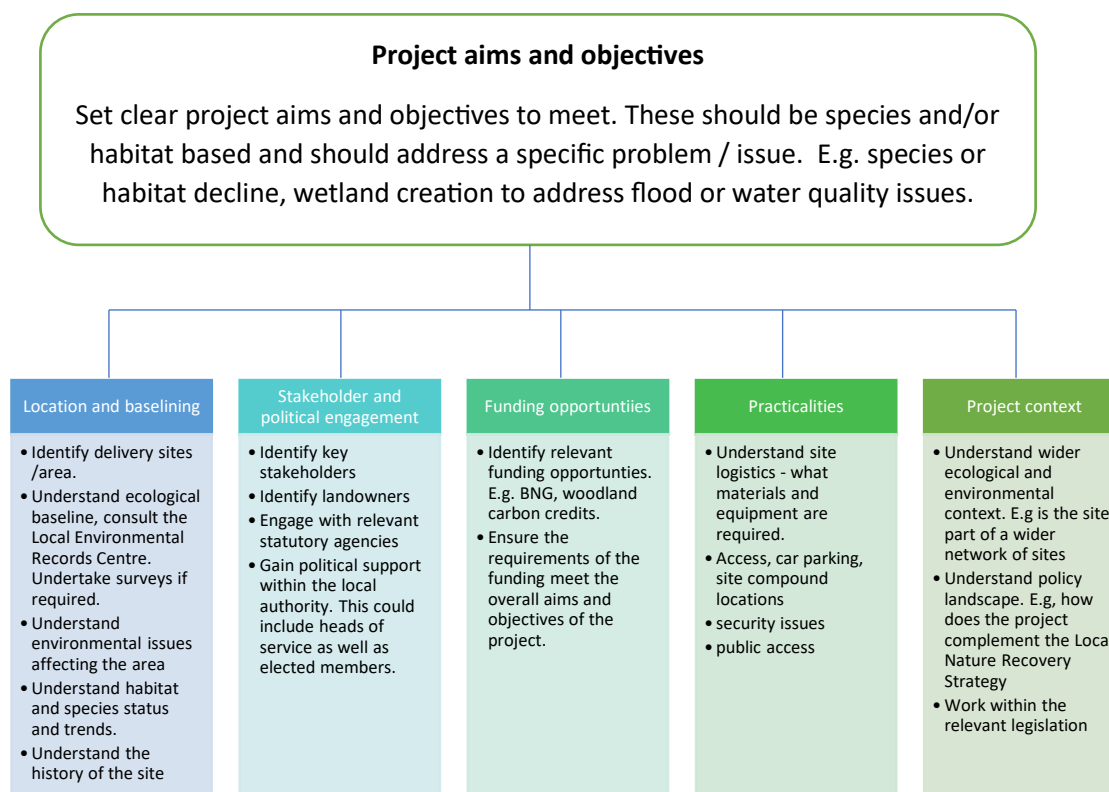


In developing an investable environmental this project has identified the following key considerations which should form the scope of any project.

Project scope

Figure 20 below provides an example project scope model which project developers may want to consider.

Figure 20. Example project scope.



5.3 The local authority perspective

Whilst the project developer may have the primary environmental aims for example, the restoration of habitats or species. The local authority may be driven by other considerations which may be primary drivers to take the project forwards and to engage political will. For example, a habitat restoration project may be considered to be important due to improving the aesthetic of a key transport gateway within the borough or because the habitat creation will provide a new greenspace for local residents. When developing a habitat banking scheme or local ecosystem service markets on local authority land, there are three major priorities which projects should address:

- Their response to climate emergencies – producing a pathway to net zero.
- Making a positive response to the biodiversity emergency – taking practical steps for nature recovery.
- Providing solutions to meet local social and economic needs, including regeneration, housing and employment needs to achieve Local Plan targets as well as wider health and wellbeing needs.

Understanding the wider priorities of these organisations as well as local policies, strategies and plans is an important element of project planning and can help to gain political support and potentially funding for any project and should form part of any initial project planning. Partner input into this is valuable.

Depending upon the strategy and agreed direction, you might want to consider working to embed net gain and natural capital into local authority planning and decision-making processes.

5.4 Developing a sellers business plan

In order to be able to fund projects and work with funders, grant bodies and private sector organisations, a detailed and feasible business plan is required. This business plan will need to provide a clear, comprehensive and compelling overview of the main project areas, a description of the offering, how it will be delivered and costs for each phase of its development and ongoing management. It should be a living and constantly updated document and will need to serve three purposes. An outline business plan is provided in Table 24 below.

- Project developer's guide to what they are doing, how and who will do it, and what is needed.
- How much it will cost and when funding is required.
- To help inform other partners, stakeholders or interested parties. This could be an abridged or adapted copy and it could be that you have different versions for different audiences, such as funders, investors, partners or developers.

Project partnerships, governance, and support

A clear governance structure for any project or habitat bank is required. This sets the processes and checks and balances in place to illustrate to buyers or investors in projects of the quality of the units being sold and reduces risk factors.

Shared ownership projects can be important as partners and stakeholders can have valuable insight and experiences to add to your plans and overall vision. They might also be able to help with resourcing, funding, fundraising and widening your appeal to funders, grant giving bodies, buyers and investors.

Ideally the project partnership should include members from a wide range of stakeholder groups including landowners, Local Authorities and environmental NGOs. The key thing here is to get the right people from these organisations involved – those who will support the project (champions), influence others and who can get things done and help move the project forward. It is important that partnership members are committed to getting things done and making progress, therefore a key aspect of the project should be that it has its own identity and is not replicating work that other groups (for example the Local Nature Partnership or Wildlife Trust) are already covering.

Table 24. Developing a business plan template

BUSINESS PLAN TEMPLATE

INTRODUCTION

- High level overview including concept and aims
- Key statistics
- Standards of work and any relevant policies/legislation
- Summarise expected outcomes, and resulting impact.

PROJECTS

- Expand on the details
- Site and area current use and state
- Reasons for degradation and the restoration or conservation priorities
- Focus and target market (e.g. BNG)
- What interventions are planned and how they will work, detail outcomes
- Explain additional streams of revenue

IMPACT

- Tell a story, linking your project outputs to the impacts it will have
- Detail the Ecological and environmental; Social and community; Financial impacts
- Relate to climate change and other environmental concerns
- Include impacts beyond the project perimeter e.g. water quality affect habitats downstream, education of school groups
- Quantify outputs and outcomes and assess the value of the resulting benefits

SALES & INCOME

- What are you selling and to whom, how will this be done (e.g. broker, marketplace)
- Is it one type of 'credit' or are you stacking / bundling, are there additional income streams
- Are there partnerships with any other market players e.g. developers
- How will the project earn its required income
- Demonstrate a clear understanding of the requirements of any funding /income e.g. Biodiversity Units for BNG require a 30 year commitment including monitoring

GOVERNANCE

- Describe the structure of the organisation
- How it will be incorporated (or not), who the stakeholders, shareholders and partners are.
- For co-operatives- who are the members
- For existing charities- will this form part of overall portfolio or is it a special purpose vehicle?
- Describe the governance and oversight structure. Who is ultimately responsible?

TEAM

- Demonstrate project credentials and team competence
- Overview of each core team member (role, expertise, etc.)
- Short case studies, as proof of concept and delivery

WORK ALREADY COMPLETE

- Update on work that has already happened- where the project is up to?
- How is this delineated from main body of work (for which this plan is for)
- How has this been funded (grants, volunteering, philanthropy)

BUSINESS PLAN TEMPLATE

FINANCIALS - WILL INFORM THE FINANCIAL MODEL

- How much, and what kind, of capital will you need- alignment with the structure and governance of the organisation E.g. Community Interest Company cannot sell community shares; and a Community Benefit Society cannot sell equity.
- May include a profit and loss forecast for the entirety of the project, and a break down of revenue stack into tables forecasting any dividends that may be paid, etc.
- Costings: project development and management; operations; maintenance of site, legal and admin fees; insurance and liability; monitoring and reporting
- Outline how capital and income will be raised, include your accounting policies
- Being secure in your knowledge of your financial position and cashflow is an important aspect of risk management – essential for potential funders or investors
- **NOTE: Financials may require specialist assistance**

INSURANCE

- What types and levels of insurance the project will need, and how can they be secured

DEVELOPMENT FINANCE

- Consider the up-front funding needed that will allow work to start and/or to show that the project is progressing and risk is low

RISK ASSESSMENT & MITIGATION

- Show awareness of likely risks within the project and business plans, by producing a risk register. Identify risks; how they will be eliminated, reduced and mitigated

Risk to...	Examples
Organisation	Reputational risk in case of failure to deliver
Landowner	Entering long-term commitment with uncertainty around future of subsidies
Investor	If the business model fails, leading to a loss of capital.
Buyer	Value for money, project performance and delivery of the required credits or units.
Environmental	Extreme climatic events, unseasonal flooding, climate crisis effects.
Regulatory	Government regulations around environmental markets change during the project
Stakeholder	A key stakeholder terminates their contract early; unforeseen event e.g. insolvency.
Litigation	A party taking legal action against the project or one of its key stakeholders

The seller's guide provides an example of business plan development from the Wyre Catchment Natural Flood Management Project.

It is recommended that a project board, steering or working group has the following membership:

- **Chair** – someone who will drive the project forwards and is an effective and charismatic leader.
- **Project manager or officer** – the person who will effectively run the project. This need not be a full-time role in itself and would be suitable for a staff member from an NGO organisation or a local authority.
- **Secretariat support** – to help organise, run and takes minutes of meetings and offer the Chair and project officer additional support. Secretariat support is often supplied from a local authority or NGO organisation.
- **Advisory team** – especially covering communications, finance and legal aspects of the project. These do not need to be permanent board or group members and could form part of the wider project partnership.

The partnership will need to meet on a regular basis, this should be determined by the core members. The Seller's guide in Appendix 5 provides further details of the key early-stage decisions and actions that it will need to be made.

The advice above will apply to most environmental projects and especially those which are medium-large in size, ambition and complexity. However, for simpler projects, for example a single landowner creating new habitat on their land, such complex governance and partnership working might not be necessary. Although, even in this example, partners can help by offering advice and expertise, and this specialist support might be required in order to attract funding or investment. This is why many farmer cluster groups support individual landowner projects and are usually linked to Wildlife Trusts and advisors from Natural England and the Environment Agency.

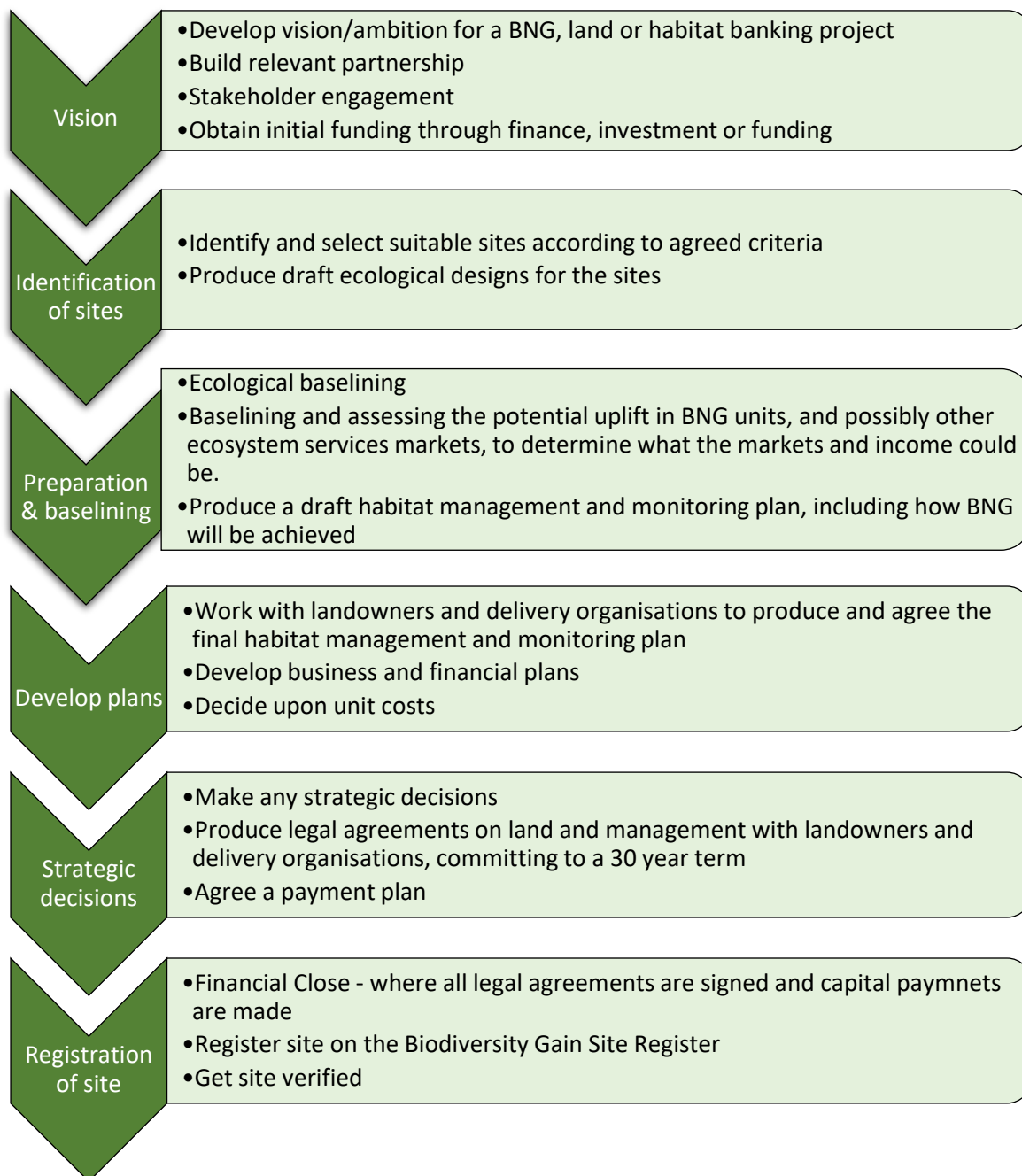
The seller's guide also provides advice on other essential elements of the seller's business plan, including:

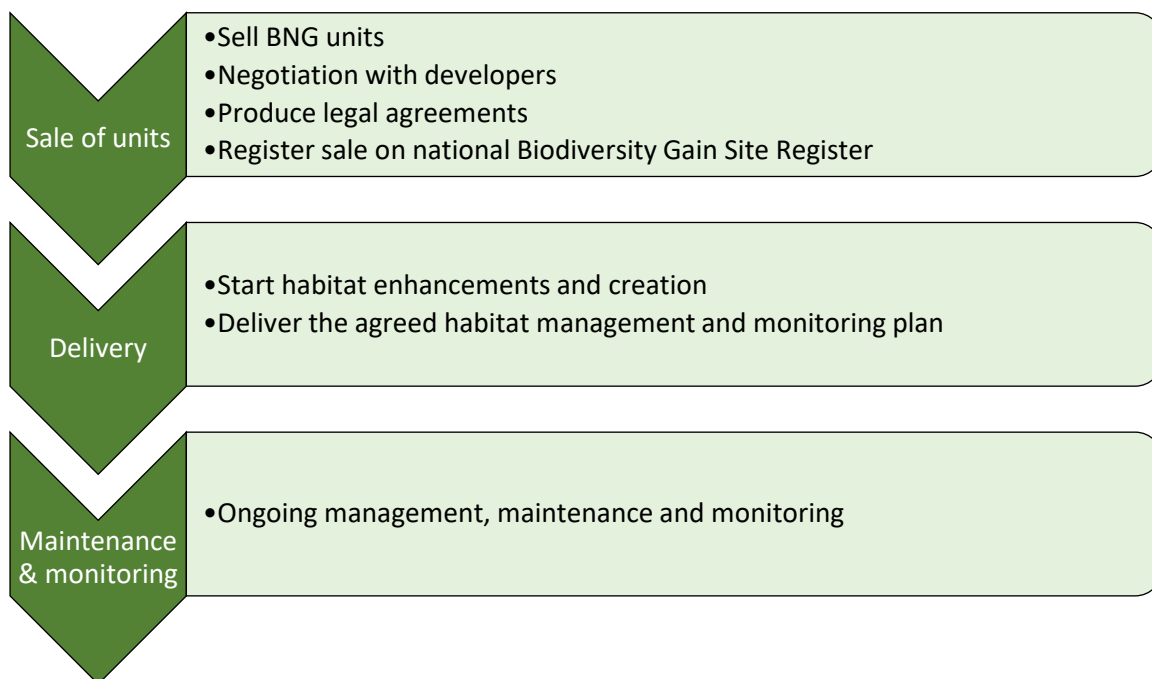
- Project management
- Baselineing and monitoring
- Land ownership, land purchase and working with landowners
- Local authority and publicly owned land
- Promoting and marketing your project

5.5 Generating and attracting investment and income to fund environmental projects

Chapter 6 above provides an outline of funding opportunities available. This project has focused primarily on BNG and the sale of biodiversity units through habitat banks. Initially on local authority-owned habitat banks. Figure 21 below provides a simplified process to develop a BNG project.

Figure 21. A simplified process for developing a BNG project





Habitat banks will need to be registered on the ‘National Biodiversity Gain Sites Register’²⁵ to sell biodiversity units to developers. Part of this includes creating a legal agreement to secure the habitat enhancements for 30 years, either in the form of a conservation covenant or Section 106 agreement, and submitting a habitat monitoring and management plan to cover the length of the agreement. Private or conservation NGO project developers can enter into S106 agreements with the relevant local authority. Conservation covenants will also be an option once responsible bodies are appointed. There are currently no responsible bodies within the LCR (November 2023). For local authorities securing the legal agreement is more complex as they cannot enter into a S106 agreement with themselves. To allow this to happen a local authority habitat bank would need to set up an arm’s length special purpose vehicle. This has time, cost and resource implications. LA habitat banks can enter into conservation covenants where responsible bodies exist. LA’s need to work collaboratively to establish responsible bodies within their area to allow LA habitat banks to proceed.

Habitat banking sites will need to be advertised and a number of trading platforms will become available once BNG becomes mandatory. An output of this NEIRF project is the development of a habitat banking platform for the LCR, see section 8 below.

Within the LCR the Local Authorities are working collaboratively to address BNG with a willingness to develop a consistent LCR approach to policy guidance and BNG offsetting including a LCR-wide Biodiversity Unit price. The ambition is for a centralised habitat bank which all local authorities and regional nature conservation organisations can supply and sell biodiversity units through. This would provide a centralised hub to direct developers in terms of BNG and Biodiversity Units. Whilst this provides the current driver, the wider and long-term ambition to facilitate true nature recovery is for a centralised LCR Nature Bank which would attract wider investment and finance into nature recovery.

Great caution should be exercised in ‘chasing the Defra Biodiversity metric’ where the pursuit of greatest economic uplift could undermine the most suitable biodiversity and ecosystem service outcomes. The habitat interventions need to make ecological sense across the landscape and have a

²⁵ National Biodiversity Gains Sites Register more information at [Biodiversity net gain - GOV.UK \(www.gov.uk\)](https://www.gov.uk/guidance/biodiversity-net-gain)

high likelihood that they will sustain and prevail. For example, creating grassland on soil which is too fertile risks habitat failure a few years later, creating ponds that are costly to maintain creates a liability for the owner/management organisation and poorly located woodland may not be appropriate in some ecological landscapes.

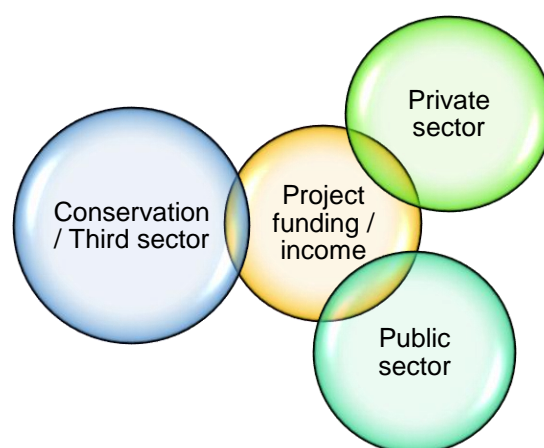
Other ecosystem services markets

Although BNG biodiversity units are considered the current main source of funding due to their mandatory requirement and identified need for biodiversity units are demonstrated within the BNG needs assessment. Other ecosystem service markets both established, and forthcoming have been explored by the project and are discussed Part III.

5.6 Finance models

Hybrid, or blended, finance

For sustainable funding a project should aim to develop a hybrid, or blended, funding model where finances are drawn from several different sources, ideally including public, private and third sector funders. In such a model, these sources of finance would have different risk and return on investment expectations thereby offering flexibility. For example, a project might commence with initial public or third-sector funding and then be expanded by the addition of business or investor finance attracted by the development of ES credits, the reduced level of perceived risk and the proven success of the project.



Blending of grant funding, revenue and investment

Part III above considers specific opportunities for the generation of funding and finance in order to deliver nature recovery projects and enhance the environment. In reality, these opportunities are likely to come to fruition at different times. In particular:

- Public policy and implementation programmes relating to the rural environment are subject to ongoing change, some of which is unpredictable. Examples include local and national planning policy, agri-environment support, built infrastructure programmes, support for woodland and taxation for enhancement of the natural capital value of land.
- Throughout the UK, there is now a high level of innovation in private finance for environmental protection and enhancement. This includes strong interest by the UK Government in the blending of public finance with other sources, such as through the Big Nature Impact Fund launched in November 2022.

Bringing together and blending funding and finance from different sources in a co-ordinated, responsive and synergistic way will be important for any successful project. Blended finance can provide flexible funds to facilitate project development and reduce the risk of investment, thereby

encouraging capital and knowledge flow from more risk-averse investors to develop the market. It should also be planned along a medium to long term timescale as different funding/income sources will be more applicable during different stages of programme development. For example, grant funding or philanthropy are more likely in the early stages, but corporate investment could become a major income source once projects, income streams and returns on investment are well established.

When considering timescales, delivery could involve a wide range of land managers, as well as those who will wish to buy and invest in the outcomes, and these stakeholders will enter the project or programme at different times depending on their perception of the benefits and risks involved in either acting or not acting.

The importance of offering multiple benefits

In order to attract a wide range of potential funding streams and cover the requirements of local authorities and businesses, especially those with ESG aspirations, investible environmental projects should identify and cover as many different ecosystem services benefits as possible. Many projects could be designed to allow potential income streams from biodiversity (BNG), carbon, water and air quality, reducing flood risk, access to green space, leisure, health and wellbeing markets.

Multiple benefits can be especially important to local authority stakeholders. Even though a benefit may not currently have an associated income-generating market, it might still be politically attractive and important for a local authority. For example, emphasise the importance of access to nature, health and wellbeing, green social prescribing and any benefits which could help local communities and the local economy. A woodland funded by BNG and carbon credits will pay for itself and help the environment, but by emphasising how it could reduce air and noise pollution, give people a pleasant recreation environment and allow them to reconnect with nature will be very attractive to a local authority.

6. Buyers and investors business case

The buyers and investors business cases for the purpose of this project focused on BNG. This mandatory market currently offers the greatest certainty in terms of attracting sales and funding and therefore this formed the basis for this work. Of the voluntary markets there are currently opportunities for carbon trading within the Woodland and Peatland carbon codes. These markets although still relatively new are more established and understood. Parallels have been drawn between these markets where they exist to aid learning and development of the business case.

Both buyers business case and investors business case are considered in turn

Buyers business case - key messages:

- A good business case should always consider proposition, price, risk, management and commercial arrangements. Those seeking to develop projects should ensure that these are addressed.
- Although cost is likely to be a factor for buyers, they are also likely to seek high quality interventions that deliver the benefits sought as this reduces reputational risk. The following are key factors considered by buyers, quality of delivery, co-benefits and additionality, risk of delivery failure or reputational risk, integrity of delivery body. Projects which consider and address these factors are more likely to be successful in attracting buyers and carbon markets have shown that they may be able to attract a higher price.
- The development of a LCR wide standard for BNG units and standard for good practice or adoption of a national standard may be beneficial.
- There is the potential for both primary and secondary BNG markets to establish. There are both reasons for and against selling biodiversity units to the secondary market and project developers should carefully consider these and come to a conclusion on who to sell units to.
- Research has identified five possible use cases for buying BNG units. They are: buy to retire; buy to hold; buy to hedge; buy to sell with plot; buy from self (develop and hold).
- Biodiversity unit price is likely to be influenced by supply and demand. Initial predictions for the LCR are that there will be greater demand than is met by supply. Habitat banks will need to maintain awareness of current market conditions and consider timing and quantity of release of units. The LCR local authority habitat banks may have a role to play in setting the local market.

The business case for both buyers and investors was developed by consultants Pure leapfrog and build on their knowledge and experience in this field as well as in carbon markets, which can supply analogue experience and insights. To inform the business cases interviews with a number of organisations were undertaken as well as drawing on case studies within the natural capital markets.

Using their existing network, Pure Leapfrog engaged initially with existing actors in the carbon markets, on the broad topic on new BNG markets, requirements, establishment, services, finance, and regulation. These actors included:

- Project developers
- Buyers
- Financiers
- Resellers
- Scoring agencies
- Marketeers

Taking insights from these engagements, PL then engaged with a further cohort, who may have interest in new markets, such as:

- Property developers
- Local Authorities
- Land owners
- Farmers
- Existing ES projects
- Communities

As well as informing the full report, some key themes from different groups emerged from these conversations. They were:

1. The existing ancillary services surrounding carbon markets are showing a keen interest in moving into BNG markets. They see it as a sideways move into an adjacent (and sometimes overlapping) space.
2. Project Developers are interested in the additional revenues that could be derived from BNG markets, with careful navigation of two sets of standards and regulation (existing carbon standards that they subscribe to, and the Govt standards and regulation surrounding the BNG market). It was noted on more than one occasion that most Carbon Markets are voluntary and that the BNG market is underpinned with legislation, but that they both have standards that need adhering to, and these need greater scrutiny to determine whether they “play well” together.
3. Land owners and farmers (not all land owners are farmers, and not all farmers are land owners) expressed a concern around missing an opportunity to shape a new market. They see themselves as the ultimate “interested parties” who have claim/title over land. There is a nervousness about the Construction and Property Industry and/or Local Authorities squeezing out their interests, whilst at the same time it is they who remain title holders and guardians of the land.
4. An urban community in Nottingham was very concerned about the prospect for perverse outcomes, in particular driving further beneficial development of the countryside at the cost of the further urbanisation of the city, and driving more green spaces out of the urban environment. This is something for LAs to be particularly alert to, and for Project Developers to think about when assessing social impact and additionality.

6.1 Introduction to the Buyers' Business Case

The buyer's business case set out below is defined by the narrow but clear market for those who would buy BNG units. **Buying** BNG units is defined here as "the purchase of BNG credits to be used for the purpose they were intended".

This does not include the following:

- Buying them to trade in a secondary market
- Buying into a project that will develop and sell BNG units
- Buying land that could be developed at some later date to create and sell BNG units
- Buying a project, or part of a project that has been developed but credits or units not yet issued

All of these examples mobilise capital in a way that commodifies the asset in each instance, and as such are considered by the author to be "investment" and are discussed in the investment business case below.

6.2 Key Considerations in the Buyer's Business Case

The business case for buying BNG units would apparently come down to compliance (providing 10% BNG is a mandatory requirement. Development cannot commence unless it can be demonstrated that 10% BNG can be achieved) and the requirement to do so. The picture is rarely so straightforward, however.

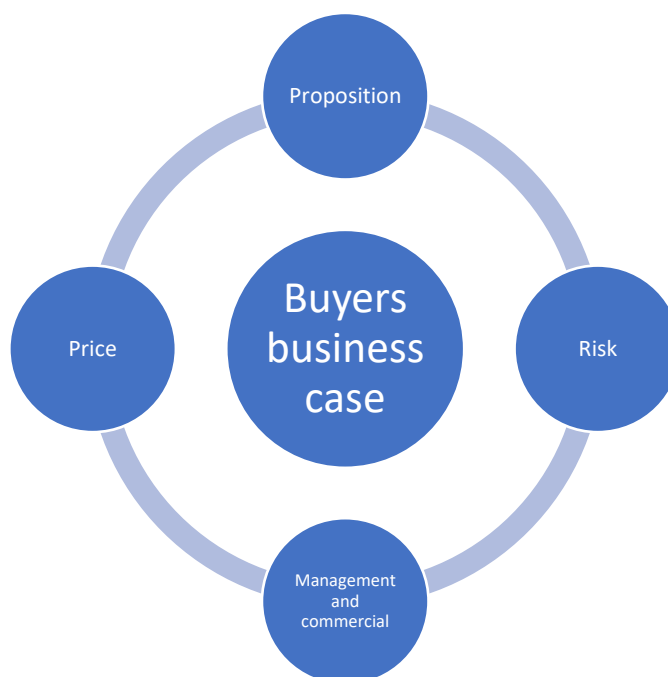
There are direct parallels that can be drawn between BNG Units and Carbon Markets. Whilst the use case is different, and there may be some physical constraints that also differ, the use of a market mechanism to allow 'Human Activity A' to be undertaken with apparently zero impact, by requiring (or encouraging) an investment in 'Human Activity B' to offset its impact, is a direct facsimile.

A number of factors that we can learn from carbon markets and their evolution will help us to understand some of the nuance and considerations that may start to feature in BNG markets.

A business case to support the purchase of, or investment in, BNG units/projects, should pay close attention to the overall quality of any proposition. This can be assessed through due diligence, where a greater or lesser number of points may be considered and considered to differing degrees. The thoroughness of any due diligence will be decided upon by the party undertaking or commissioning it and will depend on the amount of engagement secured from the project/seller.

A good business case should always consider proposition, price, risk, management and commercial arrangements. These are discussed in detail below.

Figure 22. Key considerations in developing a buyers business case



Proposition

Buyers are buying biodiversity units that should satisfy obligations that they have and that cannot be met onsite at the site of their proposed land development. Buying units to meet such obligations does not pass that obligation to the provider of the units, it simply records that they have been used to meet the buyer's obligation.

Although cost is likely to be a factor for buyers for established and larger scale developers will wish to ensure that they are buying units that represent high quality interventions that deliver the benefits sought as this reduces reputational risk. Despite the mandatory requirement, development viability is a key consideration for the LCR in meeting economic regeneration objectives and housing delivery requirements. Biodiversity unit cost is likely to be an important consideration across large parts of the LCR because of low land values and small margins which impact on development viability. There will be a number of fundamental and optional factors that buyers may wish to consider. In developing BNG projects the following should be considered:

The descriptions below are garnered from research, conversations with other BNG interest groups – some representing potential buyers, and the authors' experience in the parallel market of Carbon Offsets.

Additionality is an important concept within the carbon markets already use the language of "high quality" and "low quality" offsets in respect of additionality, to describe whether or not projects really are adding to carbon reduction any more, or just undertaking interventions that have become largely commoditised anyway – such as solar power i.e solar power is now so commonplace, and such a cheap way to generate energy., it is felt disingenuous to sell carbon offsets off the back of it.

The quality of a proposition is linked very much to this concept. The equivalent within BNG markets may be a cheap and unsophisticated practice of simply propagating acres of wildflower meadow and selling low additionality, low quality units at a commodity price. Consideration will also need to be given to the appropriateness of habitat interventions within the ecological landscape. These may be just enough within scope to satisfy any legal obligations on behalf of the buyer, but will they really pass the scrutiny of the press, the environmental lobby, and the public?

Co-benefits may also be a significant factor in determining the perception of quality for a project, and therefore its units. Co-benefits are the extra benefits arising from a project and how it is designed. If a project is open to the public then this would be a co-benefit; if it includes managed forestry, the arboreal thinnings from which supply a local biochar enterprise then this too would be a co-benefit; if it provided learning days with resources and materials for local schools and provide health and well-being benefits then this would be a co-benefit too. This project, through the use of natural capital modelling, has assessed where project interventions can deliver wider, but not all, co-benefits as set out in Table x.

It may also be possible to express in terms of actual social value, using the governments Greenbook methodology to put a financial value on these co-benefits. This links to diversification of income streams, which is discussed elsewhere. Propositions that are high quality with good co-benefits may be very appealing to some buyers as it allows them to go beyond simply meeting their obligations; allowing them to make some CSR and/or ESG claims about their values and their business.

Price

A number of different and diverse factors can work together, or against each other, to establish the price paid for any units.

The framework, designed as it is, establishes a market for BNG Units. The “market” consists of both primary and secondary markets. Features and factors from both will also contribute to the pricing of units. In establishing unit price, the following needs to be considered as well as ensuring that project costs are fully covered throughout the 30 year period. All markets are dynamic in their nature and will be responding to a variety of factors not just on a daily basis, but sometimes on an intra-day basis too.

The price that developers pay for BNG Units will ultimately be a commercial decision, as it will affect profitability / viability of their own projects, output prices in their own market, and whether or not their own market will bear the output prices they seek.

Quality - Having discussed it in the section above, one of the most important factors that can affect price is the quality of the project that is issuing units – effectively the quality of the units themselves. As with most products and services, the higher the quality the higher the price. Nobody should be paying anything for goods or services that fall beneath a quality point that fundamentally undermines the veracity or efficacy of the goods or service i.e. whilst lower quality units may well get generated in the future, nobody should expect that they are any lesser, or any less reliable, at fulfilling their intended primary function.

High integrity - Many current environmental projects and investment opportunities are describing themselves as being 'high integrity', although here is no agreement on this, typically high integrity propositions include:

- Delivery organisations with a track record of helping nature and the environment, such as Environmental NGO's, that can be trusted to operate ethically and sympathetically towards the environment, its staff and local communities
- Projects which are sensitive to an area, are ecologically coherent or appropriate and adhere to landscape character guidelines, etc.
- Projects helping to deliver biodiversity action plans or supporting other local habitat/species guidelines. This may include making a positive contribution to nature recovery strategies.
- Fair pricing for nature-based environmental services that reward farmers, land managers and other sectors for integrating nature with agriculture, forestry, and infrastructure.
- Only working with buyers or investors who are actively following green policies in other areas of their business, for example not selling carbon credits to companies who are making no effort to reduce their carbon footprint.
- Avoiding relationships that could lead to accusations of 'greenwashing'

For example, Warwickshire County Council have proposed the development of a high integrity Carbon Standard which would specify that any qualifying project must:

- Meet the UK Woodland Carbon Code specifications and regulations
- Plus
- Cover the creation and maintenance of woodlands for a period of 100 years plus
 - Demonstrate that it adheres to the Warwickshire Landscape Character Guidelines
- Plus
- Be within the County of Warwickshire.

Risk

When buying BNG Units a buyer is not directly purchasing an ecosystem service but effectively a commoditised derivative of such services. There is no service contract to fall back on if the expected benefits are not delivered; nothing that can be prosecuted privately if needed – only recourse to statute, potential for planning enforcement and precedent if anything has been mis-represented or worse. The liability lies with the body responsible for the delivery, maintenance, and reporting of the interventions as evidence of providing the BNG agreed through the planning process.

Within the BNG market there is a requirement for monitoring to ensure delivery of the intended habitat outcomes. This is overseen by the local authority or by the Responsible Body if delivery is secured by Conservation covenant. The buyer of the units (the developer) typically buys the units and walks away and monitoring of delivery falls to these other organisations. Buyers however, may want to address guarantee of delivery within contracts as failure of delivery could potentially result in reputational risk to the developer. Legal mechanisms are necessary to avoid risk e.g. Unilateral Undertakings, Section 106 Agreements, Conservation Covenants.

Assessing risk as part of the business case to use BNG Units as part of a strategy to meet BNG obligations for land development, is therefore very important – particularly in a very immature market. Given the immaturity of the market plus the lack of any established independent standards bodies that

verify projects and units, a number of other latent variables may be used to take a view on the trustworthiness of any particular project itself. At the time of writing a British Standard are developing an investment standard for nature markets (BSI Flex 701, Nature Markets – Overarching Principles and Framework - Specification). These are the same variables as may be used to assess the quality of any project, as covered in the section above.

- Structure
- Governance
- Developer (track record, position, reputation)
- Financiers
- Transparency
- Site data
- Intervention proposals
- Measurement and reporting, and potentially mandatory reporting by the local planning authority to Government.

In developing investable habitat banks, sellers should pay attention to the above.

Buyers should also consider the fact that it is their obligation to deliver the net gain required as part of their land development, and the requirement for it to be secured over the statutory 30 year period. Relying on BNG Units to provide this may satisfy an obligation at a specific point in time. From the point of recording their use to discharge an obligation on the register, the developer becomes entirely reliant on the project delivering its expected results and on nothing catastrophic befalling the project itself.

Buyers should consider what warranties are given with the units they purchase, what insurance or other laying-off of risk the project has considered, in case external events remove benefits. What happens if four years in to the 30-year obligation, the project in which units have been purchased is subject to an industrial contamination event following an accidental/illegal discharge into a waterway? Furthermore, it is important that expert advice is sought or evidenced in the choice of habitat intervention to reduce risk to the buyer. What is the requirement if a habitat created, fails after 5 years due to inappropriate ecological design e.g. for the longevity of grassland and wildflower meadow habitats detailed information is required on soil chemistry such as nutrient status. Early establishment through sowing may fail after 3 – 7 years should the prevailing nutrient levels are too high.

The carbon market has faced these same questions, seeing afforestation projects subject to wildfires. The same contingent issue remains for the habitat in both cases, not just that it is denuded of the benefits of interventions that took place, but that they are actually in deficit as habitats, compared to their baseline at project inception. Who carries the risk when such a disaster happens. Who underwrites the land developers' risk of having relied on these units to meet their obligations?

The market is young, and much of this may not have been considered, let alone established. Neither has it been in the also young, but not quite as young, Carbon Market. Following some catastrophic wildfires in areas of California containing forestry carbon projects in 2022 this question came into sharp relief. As yet there is no straightforward answer, though academics have started to try to answer this question. Professors Kaplan and Ramanna of Harvard Business School and the Oxford Blavatnik School

of Government²⁶ respectively have presented initial work on this, publishing a number of papers that consider this, amongst other, questions.

Whilst there are more questions than answers on this topic at the moment, other markets have shown us mechanisms that could be applied here. The construction industry has standards linked to guarantees that are underpinned with an industry membership scheme that both awards trusted badges (FENSA, NHBC) and provides insurance cover where individual claims are made in specific instances.

Similarly, membership bodies that are established to represent members' interests will often have funds attached to protect members in different ways. A simple example of this (for individuals) is the Trade Union, where membership often confers benefits that only some members will draw on infrequently – benefits such as legal support. Whilst similar to insurance, it is a different mechanism, socialising the risk across the group.

High quality projects that can demonstrate additional “greenbook²⁷” social value, may also be a mark of quality, stability and good governance of a project. Maybe de-risking it to some degree and increasing local acceptability because public bodies have added social value requirements. The same could be asserted when looking at diversified income streams. If there is a diverse source of revenues into a project, then it does not stand or fall alone on selling BNG Units. This should give it strength and longevity.

Reputation should also be considered. Again, borrowing experience from the still young, but more established carbon markets, several projects have been coming under increased scrutiny for their methodologies, monitoring, reporting and ultimately their claims. Scientific bases of project claims are being tested by scientific studies into the outputs of projects and in some instances, it is asserted by those scrutinising the project claims that the project claims do not hold up. Access to expert advice is therefore critical for risk reduction and management.

There are social risks to consider too. There are already concerns about BNG projects facilitating a drive of urban development, that in time could encroach on urban green spaces, effectively exporting them to the already ‘green’ countryside or exporting the credits to the national trading scheme resulting in loss of green space for those who have access to little.

In any early market risk cannot be fully quantified or understood until some unforeseen issues have already arisen and been dealt with. More will undoubtedly be learnt and understood as the market matures and caselaw is established.

Management and commercial

Management, structure and governance of a project may give key insights into the value of what is being purchased as a buyer. A number of key questions may be asked:

²⁶ Kaplan, Robert S., and Karthik Ramanna. "[We Need Better Carbon Accounting. Here's How to Get There.](#)" Harvard Business Review Digital Articles (April 12, 2022).

²⁷ Governmental Greenbook

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1063330/Green_Book_2022.pdf

- Who is running a project? Have they developed other projects before? Are they from the ecology sector? Is the project ecology led or finance led? Who is in charge at an executive level, who has oversight and what is their experience?
- How is the project incorporated? Is it in its own Special Purpose Vehicle, or part of a wider organisation? Is it “for profit” or “not for profit”? Is it for community benefit? Understanding the corporation including their ESG policy will help to identify where there are values alignments.
- What are the arrangements between the project and the market – is there an intermediary or marketing organisation? Do they sell direct? Do they offer a transparent pricing structure? Do they have strong key contracts in place?

As a buyer, you may be able to gain access to this level of Due Diligence, or you may not. The lesser your potential interest, the less reason a project would have to entertain your requests for information. If however, you were looking to commit to a multi-year majority offtake, then a project may be very open about these points.

6.3 How markets may develop and operate

Primary and Secondary markets

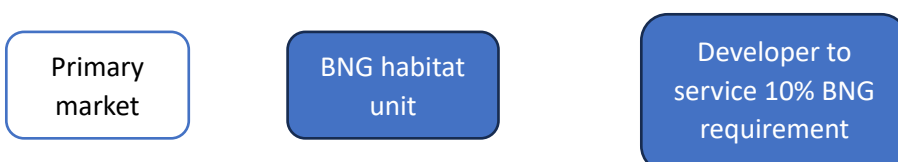
Goods and services trading in primary and secondary markets will also affect price; not only the price paid but sometimes price movement over time too.

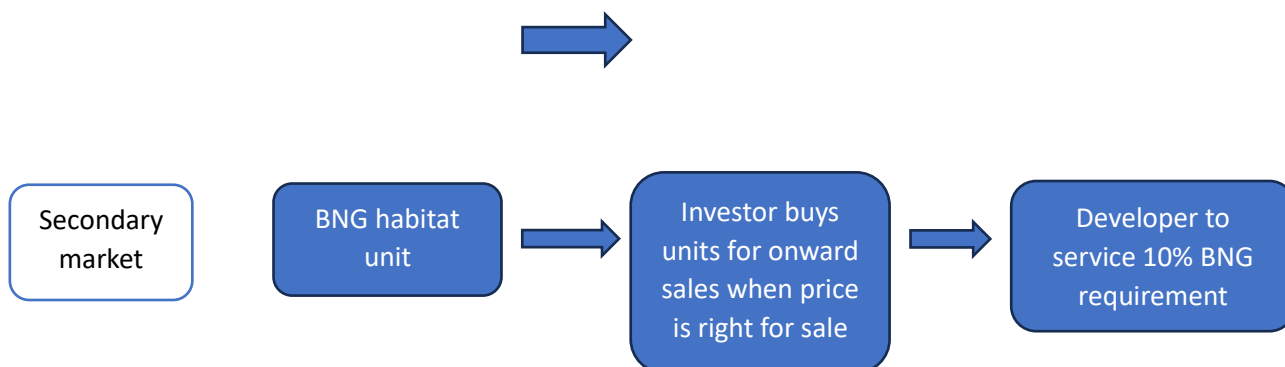
A Primary market is a market that exists for “new things” – i.e. when assets or commodities are sold for the very first time. For example, a family purchasing a new home from a property developer directly and as the first owners, or somebody buying new shares in a company that has just had its ‘Initial Public Offering’ (IPO), are examples of primary markets. A nature-based project, seeking to exploit the BNG Units market, selling units in its project for the very first time, is also an example of a primary market.

In all of these examples, the asset in question can only be traded in the primary market once. Once that trade has occurred, if any of those assets change hands again, then it is by definition in the Secondary Market.

A secondary market is a market in the trade of assets only **after** assets have been brought to the market in the first instance. Financial instruments, property, vehicles, and carbon offsets, all have active secondary markets.

Figure 23. Primary and secondary markets in Biodiversity Units





BNG Units and the mechanism through which they are created and registered, just like the carbon markets, allow for a secondary market to be established. That is not to say that a secondary market has been designed into the system, simply that the conditions required to preclude one from establishing itself have not been met. There are simple ways, either through design, regulation, or even primary legislation, to create conditions such that secondary markets cannot establish themselves. However, there are currently no such mechanisms within the BNG market.

Just as is the case with carbon offset credits (once a tonne of carbon has been ‘retired’ the asset that represented that tonne of carbon, ceases to exist); once a BNG Unit has been registered against a development, the asset that represents the habitat gains ceases to exist. Put simply, once these assets have been used for their original intended purpose (allowing ‘Human Activity A’ to be undertaken with apparently zero impact, by requiring (or encouraging) an investment in ‘Human Activity B’ to offset its impact), they cannot be further sold in the secondary market. This is not so much a rule as a design feature. Any attempt to make such sales of ‘spent’ units or credits would be seen as fraudulent.

The design choice of needing to ‘retire’ credits/register BNG Units, and with there being no explicit bar (through design, regulation or legislation) to holders of credits/units trading them onward, are the two features that in combination allow a secondary market to establish itself.

Habitat bank developers will need to take a view on whether to allow sale of their units into the secondary market. There may be reasons both for and against this. The reasons may be wider than just monetary reasons particularly when local authority, nature conservation organisations or other organisations are providing the habitat bank sites. For example, monetary reasons for sale to secondary markets may allow an initial pump prime source of funding for further development of the habitat bank on land within their ownership. However, once the sold units are then released to developers for sale, their per unit value could significantly increase compared to that which the seller received. This could be politically unpalatable but is likely to be a feature of the secondary market as some buyers may hedge or speculate. In addition, the local authority loses control of who ultimately buys the habitat units to service BNG development needs. Again, this could be politically unpalatable or challenging for the local communities within which the development is located, if for instance, if the development is locally contentious or the units are sold to service needs of development from outside of the local authority area.

6.3.1 How markets may impact on value pricing

Pricing any new asset when a secondary market already exists allows the producers of that new asset to price in line with the market (value pricing) rather than simply cost-plus-margin. If at the point that a developer is ready to market new BNG Units in the primary market, significant demand has built up in the secondary market, then such new units could sell for a significant premium – possibly achieving multiples of what might otherwise be considered a ‘reasonable’ margin. In the case of BNG it is anticipated that there will be a shortfall in supply in the short term and this may become a reality. However, BNG is a mandatory requirement and high prices may end up being paid to the point where the price is restricted by development viability issues. This is a market at work and expressing a significant imbalance between supply and demand.

Ultimately a market is not established without there being both sellers and buyers, and if such new units did not find buyers at the price first offered, then this would be a signal from the market that the price is too high for what is being offered. If the same habitat bank prices new units far below what the market would stand, then they might expect to see a quickly oversubscribed offer, and to see their units being traded at a premium in any secondary market almost immediately. This would likely be value extractive and they would be left possibly wondering why others are extracting value that their project had created. Where a market experiences a significant mismatch between supply and demand it can send prices far higher than net asset values, or much lower. It can be driven by either a lack of, or surplus of either supply or demand.

A definition of Increased demand can either be down to growth in that sector (and really this is technically a supply issue), or increased demand for that asset class within the secondary market for other reasons – such as potential future price rises, speculative trading, rumours of policy change, etc. Price rises due to a lack of supply is a rational and reasonable market response. Price rises due to increased demand can present risk to a buyer. The risk may be in the form of a speculative bubble.

Habitat banks will need to maintain awareness of current market conditions and may want to consider whether they set restrictions on sales either in the number of units they make available at any one time to ensure the market isn’t flooded with units. Or by restricting who units are sold to, to restrict the secondary market. Local authority habitat banks are expected to be significant actors in the BNG unit market within the LCR, they therefore may have a role to play in setting the market. There are a number of reasons why they may wish to do this. These include, political reasons, ensuring the supply of reasonably priced biodiversity units to development where viability is an issue. Ensuring that local authority habitat banks retain the full financial benefit of any biodiversity unit sales.

Within this context an important consideration for the LCR will be the effect of land values and development viability in unit pricing. Should the unit price be set too low, then this may become very attractive to speculation or out of area development which have higher land values, less viability constraint.

6.4 Market actors

Within the market there are a number of potential actors, these are discussed below.

Market Makers

A Market Maker is a role within a secondary market that exists to help buyers find sellers. Market makers exist because they need to. Without them it becomes very difficult for buyers and sellers to agree trades, and for efficient price discovery to occur. A pawn shop or second-hand car dealer are examples of Market Makers. Market Makers “take a position” in a market. This means that in order to match buyers to sellers, they will use their own capital to buy assets, hold them as their own stock, and then sell them for a profit to buyers. They are risking their own capital to do this and make a return on their capital from difference between what they buy at and what they sell at. This is called the “spread”.

Modern market centric economic theory (Adam Smith and the “invisible hand”) tells us that prices will find their own level. That the market will correct itself and that an optimum balance between supply and demand will be established. In mature markets there is price transparency, competition, depth, liquidity, and efficient pricing; and it is Market Makers who provide all of these things.

Market Makers already exist in the carbon markets, often known as “resellers” in this context. Research for this project told us that there is already interest from the carbon markets to establish similar mechanisms for the BNG market.

Speculators

A Speculator is a market participant that is investing their capital in assets to make a return. It sounds like a Market Maker because this is also what Market Makers do. The difference is that Market Makers buy from Sellers, and then sell to buyers. Speculators will buy from a Market Maker in the expectation that the price of an asset will rise, and then sell back to a Market Maker for a higher price, the profit (or loss) being the difference between the two prices. In order to make a profit, the Speculator must see the price of what they bought rise more than the size of the Market Maker’s spread.

Speculative bubbles can form in any market. It is unsustainable because the underlying business will never be able to provide a return on investment that justifies the amount invested. When considering price, it is important to consider the role of the Speculator, which is very different to that of the Market Maker, and to consider it when looking at market prices and considering supply and demand.

Speculators are able to drive prices higher by fuelling demand for an asset – not to use for its intended original purpose, but to take profits from selling at higher prices, may attract additional speculators to a market that looks as though it is booming. This is not true ‘demand’ for an asset that has value to the buyer, it is speculative demand for an asset that investors believe will give them a return. Speculators will often continue to buy such assets even when their price has become entirely disconnected from their “fundamentals” – the metrics that describe their true value. In short, Speculators are unlikely to be invested in the outcomes, longer term benefits or local context and view this as a financial transaction and extractive approach to yield a return. Speculators entering the BNG market may therefore distort the market, and this may not be welcome within a local authority community context. This context is important as it may influence the potential buyers that the LCR players wish to engage.

Speculative bubbles will always burst, and prices in that market will always correct themselves back to a level that is more truly reflective of those assets and their true value; more in line with their fundamentals.

When building a business case to purchase BNG Units, it is important for buyers to scrutinise price and to form an informed opinion on what is driving current market price, if any of it is made up of speculator driven demand, if so then how much of a premium might that be adding, and whether or not their need as a Buyer is such that they are prepared to pay such premium to access the units they need.

6.5 Buyer Profiles

Buyers purchasing BNG units for their intended purpose may be motivated to do so for a variety of reasons. The most clear-cut case is a developer that is unable to meet their legal obligations through onsite interventions, having to look offsite and making purchases to ensure compliance. Another case may be purchasing BNG units as they become available, but to hold them to offset against future planned development. This is close to buying them as a hedge, different only in as much as a hedging strategy is about minimising future financial risk as opposed to maximising future development opportunity.

Research has identified five possible use cases for buying BNG units. They are:

- Buy to retire
- Buy to hold
- Buy to hedge
- Buy to sell with plot
- Buy from self (develop and hold)

Table 25. Possible cases for buying BNG units

	Buy to retire	Buy to hold	Buy to hedge	Buy to sell with plot	Buy from self (develop and hold)
Description	Purchasing units at or very close to the point at which they are needed to meet developer obligations through the use of offsite mitigations; setting them against a specific project and registering them accordingly on	Purchasing units significantly in advance of registering them against a specific project; knowing that offsite mitigations will be required when a project or projects in the pipeline are fully developed, and/or keeping	Purchasing units significantly in advance of registering them against a specific project; knowing that offsite mitigations will be required when a project or projects in the pipeline are fully developed, and/or keeping a pool of units for such use.	Purchasing units to bundle with land that is zoned, or may be likely to be zoned, for future development, where the land and/or development type is likely to require offsite mitigation.	Not purchasing units per se but being both a land developer and a BNG Project developer and satisfying their own unit requirements through their own unit development activities.

	the national register.	a pool of units for such use.			
Reason	Baselining and design demonstrates that BNG net gain on the specific development site itself will not be achievable and that some portion of it may need to be met through offsite contributions.	Early design, development archetype, knowledge and experience variously show that offsite units will be required to achieve compliance AND there is a compelling commercial reason to purchase BNG units in anticipation of future use – possibly scarcity, for example.	Early design, development archetype, knowledge and experience variously show that offsite units will be required to achieve compliance AND there is a compelling financial and risk management reason to purchase BNG units in anticipation of future use. Units could be traded at a later date for more appropriate, or cheaper units, partially sold, or ameliorated with the future purchase of credits to meet total requirement.	Where land is owned that could, in the estimation of the owner, be zoned for development in the future, but that, for whatever reason held to be the case, would struggle to meet onsite obligations. This could be urban brownfield or rural estate land, or anything in between.	<p>Larger commercial concerns with diversified operations, looking to create competitive advantage by not relying on the market.</p> <p>Campus based organisations that already own significant amounts of land but are developing only part. Possibly partnering with a delivery partner.</p> <p>Local Authorities with significant and diverse land holding. They also develop local economic and development policy as well as often being the planning authority. There is a strategic imperative to align all of these.</p>
Buyer profiles	Land developers of any type, including, but not limited to: Housing Associations or commercial house builders, city centre commercial or mixed use developments, infrastructure and energy projects; commercial or non-	Land developers of any type, including, but not limited to: Housing Associations or commercial house builders, city centre commercial or mixed use developments, infrastructure and energy projects; commercial or non-	Land developers of any type, including, but not limited to: Housing Associations or commercial house builders, city centre commercial or mixed use developments, infrastructure and energy projects; commercial or	Land owners – Estate owners, Local Authorities, Pension funds, stranded asset holding companies, etc. Unlikely to be developers, more likely to be those without the capability to develop, but with land that could be	<p>Large and/or diversified commercial land developers.</p> <p>Campuses, such as Universities, Hospitals; and multi site/distributed campuses such as Multi Academy Trusts.</p> <p>Local Authorities.</p>

	commercial developers.	commercial developers.	non- commercial developers.	developed. Possibly being advised by land agents.	
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7. Investors business case

Investors business case - key messages:

- The different opportunities presented to investors, by BNG markets are to invest in:
 - i. Land that will be used for BNG projects in future (land banking)
 - ii. Land where BNG projects are already in pipeline, initiated or up and running (habitat banking)
 - iii. The entity that is creating a new BNG project itself (Project investment)
- Environmental projects will be well placed to attract interest from Environmental, Social and Governance (ESG) investors and funds with biodiversity becoming a key component of ESG. Any finance will be equity or debt finance.
- Habitat banks will need to be aware of factors important to buyers and investors, such as proposition, quality, risk, and management and commercial and will need to address due diligence requirements within their business plan.
- Investors will want to understand risks, guarantees and returns, project expertise and experience, business and financial plans, who else is investing, what conditions relate to their funding.
- As with buyers risk management is an important consideration, however, risk appetites will differ depending on the investor and their motivation.
- Investment scale is important to consider and projects should consider bundling projects together to be of sufficient scale to attract investment. Understanding who to approach to match your investment requirements is important. A number of specialist fund managers are available.
- Local Authorities are in a position to exploit opportunities unavailable to others. Specifically, they are able to borrow money at less than commercial rates through the Public Works Loan Board. They are also able to issue Municipal Bonds. This has the ability to fund pump priming of local authority habitat banks development.

7.1 Introduction to the Investors Business Case

Investing in BNG Units, projects, land or habitat banks is a very different proposition to buying units. Whilst investors may have different reasons to get involved in BNG markets, they are both using them as value stores and/or as appreciating or enabling assets. The fundamental difference is that the ultimate intention of any investment is to make a return on that investment. As described above, in the section about secondary markets, there is a type of investor that may be called a speculator, these (and others) are considered further below under “Investor Types”.

Many of the same things should be considered by any investor in this space, as are considered by buyers. There is a shared desire, whether investor or buyer, to have a fair exchange of value – nobody wishes to find that they have paid more than they should have for the quality of what they bought. Making an investment – depending on its size and the investor objectives and may well come with high levels of due diligence. All of what a buyer may wish to consider in the previous section (Buyers’ Business Case), will be considered as carefully, if not more so, by any investor. Be sure to read that section, as everything on Proposition, Quality, Risk and Management and Commercial applies. Habitat banks will need to be aware of these factors and will need to address due diligence requirements within their business plan.

This investors business case considers different investment opportunities in this space, different investor objectives, discussing what other considerations an investor may have (above and beyond a buyer), and profiling different investors.

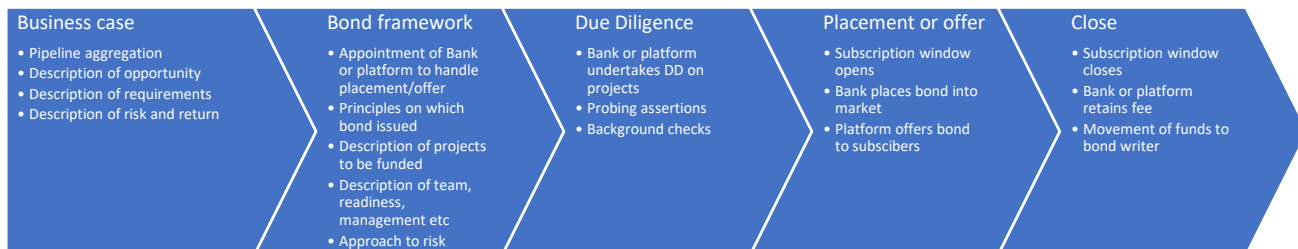
Investing in BNG may be either investing in a project that will produce BNG Units, land that such a project may subsequently wish to buy or rent, investing in a complete project that has not yet issued its units, or investing in units that have been issued. Investing includes mobilising capital into investible propositions for a well quantified and risk managed return, and also speculating in a secondary market in the belief that asset values will increase.

Figures 24 and 25 below show the common stages to investment

Figure 24. Standard flow for an equity or debt investment



Figure 25. Standard flow for a bond placement



7.2 Investor Types

First, it is important to understand that there are different types of investors.

Speculators use an available asset or instrument to place money on, often short term, in the expectation it will increase in value, when they then sell and take their profit out. No value has been created as a result of this investment; nothing facilitated, enhanced, or secured. You will rarely see speculators participating in primary markets – where this does happen they are referred to as Stags. A Stag will purchase an asset in a primary market, speculating that the primary market has under-priced that asset, and then sell it almost immediately in the secondary market. Stags often have little interest in the outcomes for local interests and view the investment through almost a pure profit and return on investment “lens”.

Capital investors are investing directly in businesses, either with debt or equity. They might be individuals, subscribing to a community share offer, or a large bank seeking to invest in high quality projects. They will often invest over the medium to long term, seeking to build value. Value is important as it increases the value of an equity investment, and it de-risks a debt investment.

Corporate Capital investors are sophisticated. They will already have investment criteria assigned to their funds, and will only invest in opportunities that align with their criteria. Capital investment doesn’t only come from corporates, but also individuals – either from High Net Worth individuals or family offices, but also through Community Share Offers.

Strategic Investors may be purchasing units in a secondary market, or making a capital investment in a nature bank, or early stage in a brand-new project. They are defined by the fact that they are not necessarily making these investments for a direct return on investment (though often this is also the case) but that they have other interests that are enhanced or secured in some way, by making their investment.

A Local Authority is a good example of a Strategic Investor. It is not uncommon for LAs to look for investment opportunities to make returns on capital reserves. This was widely seen as being encouraged by central government in the 2011 Localism Act²⁸, that gave powers to LAs to be able to borrow and to make loans.

²⁸ Localism Act 2011 [Localism Act 2011 \(legislation.gov.uk\)](http://legislation.gov.uk)

As an LA also has multiple services to deliver and responsibilities to manage, it can find itself at the nexus of multiple interests – for example:

- Planning
- Economic development
- Health and wellbeing
- Net Zero and Nature Recovery

An LA making an investment in a BNG project, would expect to make a return, but would also be making a very strategic investment as any such project could enhance the LA's work in all of the areas above.

Other strategic investors might be philanthropic investors who manage endowments, local communities who want to secure a site for nature, large nature based charities (RSPB, WWF, etc) with reserves to manage.

Here we will only be considering **Capital** and **Strategic** investors. These are the only ones that help to create value. Neither shall we be considering investors in BNG units, where the investment objective is to hedge or add value to something else. This has been dealt with under the Buyers' section.

7.3 Investment Opportunities

An investment opportunity, for our purposes here, is where there is a strategic need for capital to be deployed by an investor (for a return) and by an investee (to capitalise a project opportunity).

The different opportunities presented to investors, by BNG markets are to invest in:

1. Land that will be used for BNG projects in future (land banking)
2. Land where BNG projects are already in pipeline, initiated or up and running (habitat banking)
3. The entity that is creating a new BNG project itself (Project investment)

Additional value may be created if it is a strategic investment that enhances or secures other existing holdings of the investor. This may be with an alignment of other investments, possibly in projects that may wish to utilise BNG units, for example.

The third (project investment) is project based and is a capital investment that the investor believes will create new value. New value is created by developing a nature-based project, at risk; developing a business model, revenue stack, bundling opportunities, securing capital and delivering a project.

Ultimately, risk-quantified and risk-managed generation of cashflows is what an investor will be looking for.

7.3.1 What are investors looking for in an investible proposition?

Investors come in different shapes and sizes and with different appetites for risk and different requirements of their investees. However, any environmental projects will be well placed to attract interest from Environmental, Social and Governance (ESG) investors and funds with biodiversity becoming a key component of ESG.

Depending on what stage your project is at, you may need research, development, early stage or project finance. Depending on your structure you may be restricted in the types of finance available to you, for example debt, equity, community shares, etc.

To raise capital, there are two main financing options available; equity and debt finance. More detail as well as a comparison between equity and debt finance is provided in Appendix 6

Equity finance - In its simplest form, this involves selling a portion of the equity in your project in return for capital. For example, you might need to raise capital to start habitat creation or landscaping work on your project before you can start to generate ecosystem service credits or units. You could decide to give up 10% of ownership in the project, including the land it is being developed on, and sell it to an investor in return for capital. That investor now owns 10% of the project and might then have input into all business decisions going forward.

However, raising equity finance doesn't always mean 'selling shares' in your venture in practical terms. It could be partnering with another organisation that brings finance to the table, and then creating the new venture/project in partnership.

Debt finance - This involves borrowing money and paying it back with interest, so the most common form of debt financing is a loan.

Most business propositions use a combination of these two financing options.

Either way, investors will always want to understand the same kinds of things, and really it is all about certainty. Investors will want to know the following and habitat banks looking at attracting investors will need to address the following in their business cases:

- What are the risks? Are they well understood and how will they be managed?
- What guarantees can you offer?
- What is your projected return on investment over the next 5, 10 and 20 years?
- Does the organisation have the capabilities, expertise and the capacity to do what it says it will do?
- Do you have examples of achieving success with similar projects and if so what were the environmental and financial outcomes?
- Are the assumptions made in the business and financial plans evidenced and reasonable?
- Is anyone else putting money into the project, for example earlier investors, grants or philanthropic capital? Are there local considerations which influence the risk profile?
- If a funder, or philanthropist, has already committed funds to the project – who is it and what conditions relate to their funding?

7.3.2 Appetites for risk

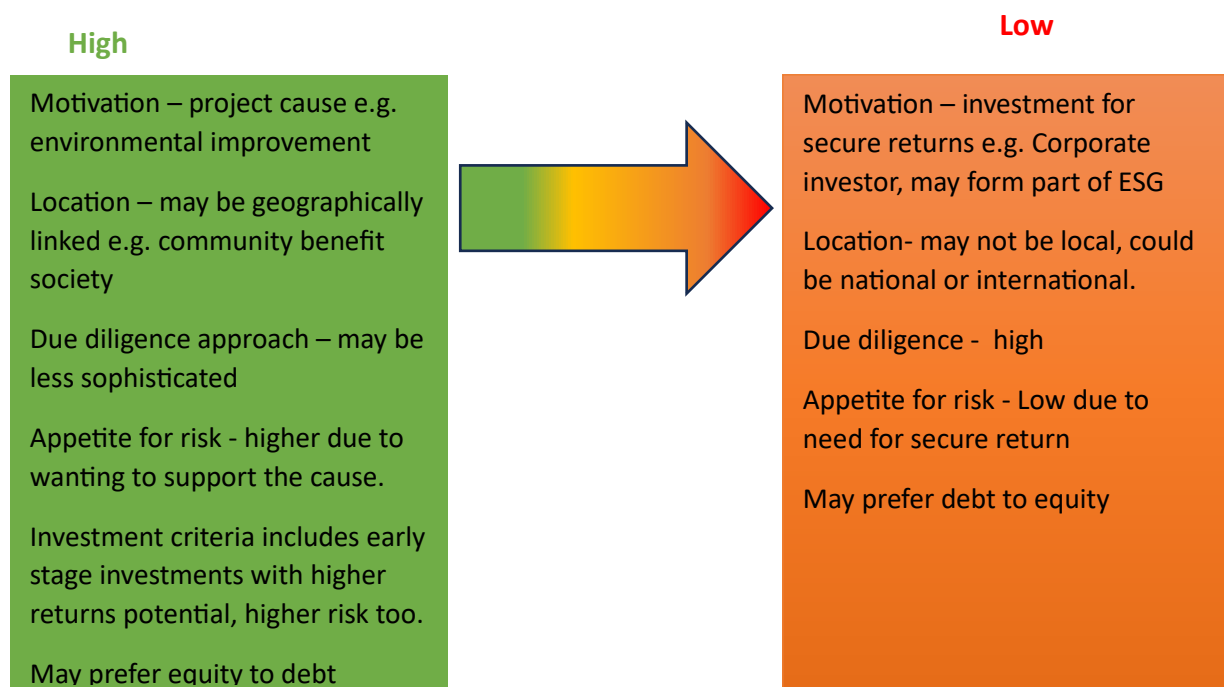
Whilst all investors want to make sure they understand the risk, different investors may have different risk appetites and may also be investing for different reasons. They might also use their investment in your project for public relations or marketing purposes relating to Corporate Social Responsibility or Environmental, Social and Governance (ESG). For example, 'the ABC Pharmaceuticals Wetland reserve' could say many positive things about that company, effectively increasing the value of their investment to them. Figure 26 below provides a simplified view of investor risk appetites.

Other examples:

A straightforward, dispassionate investment from a fund or corporate investor investing project finance will likely have a very low risk appetite and will want to see steady and assured returns over the term of the project. Such an investor is motivated by achieving secure returns. Even if the capital is coming from an ESG aligned pool, your project will simply be seen as achieving or not achieving the relevant eligibility criteria to apply for finance. The fact that it is an ESG investor and you are offering an ESG investment will not be a factor in the motivation to invest. Such an investor will still be motivated by an assured return.

A different scenario could be that you are a Community Benefit Society looking to raise £1.5m in community share capital. Again, whilst anyone investing should want all of the same risk based questions above answered, they may be less sophisticated in their approach and their due diligence, and may also be differently motivated. These investors are often members of the local community or a community of practice. Equally they could be located anywhere and want to support a cause close to their hearts, or wealthy/high net worth individuals who are looking for higher returns than they may achieve with more traditional investments. There are also tax allowances that can be attached to investing in community shares - depending on qualifying requirements being met. These can include the Enterprise Investment Scheme (EIS), Seed Enterprise Investment Scheme (SEIS), and the Community Investment Tax Relief (CITR). All of these can be motivating factors that could change the risk appetite of any potential investor.

Figure 26. Risk appetite model



These two illustrations are not intended to imply that sophisticated investors will have a lower appetite for risk, and that less sophisticated investors will have a higher appetite. An institutional investor (they will always be 'sophisticated') may well consider investing in a high-risk investment - so long as the risks, how they will be managed and who will be managing them is known. All it means is that they will demand a higher return.

In very broad and general terms, the more sophisticated an investor is, the greater the due diligence you can expect. An investment company or fund will want to have a whole extra raft of assurance in other forms, that you will not need to provide for less sophisticated investors. Depending on the investment type (equity, debt, bridge finance, project finance, etc) this could include:

- Inputs and variables that you have included in your financial model. Some investors will model what you are describing and use your inputs to see if they reach the same results as you are claiming.
- Detailed investment metrics
- Insight into your structure, going as deep as looking at your governance and constitution and sometimes requiring you to make changes as a condition of making an investment.
- They may wish to have sight of project contracts to ensure that whatever they are investing in has "bankable" contracts in place - whether these are contracts to deliver land-based interventions, or contracts with long term purchasers of BNG credits. Understanding these contracts will help them to understand risk, and how secure their investment is.
- Sometimes investors may ask for representation, usually at board level, to ensure that they have a close eye on their investment, as well as the ability to input and influence decision making that may affect it.
- Investors may also sometimes want to place a charge on a company or an asset. It is the highest priority way they can ensure their capital comes back to them if their investment looks like it is in trouble.

In summary - making a project investible depends on the type and amount of capital you need, who is providing it, and what they will need by way of assurance.

Remember that different types of capital exist, with different risk appetites; that different types of investment may be reserved for different types of structure; that the more sophisticated an investor the more they will ask for; and finally that you have the best chance of raising the investment you need if you are well organised, straightforward, present an honest view of the opportunity, and a compelling reason to invest - one that is aligned to the market you are addressing for investment.

7.3.3 Finding the right type of capital

Different pools of capital exist within capital markets, that have different characteristics; i.e level of risk, return, length of term of deployment, payback period, early stage, growth stage etc etc. Having an opportunity that is risk managed, secure and bankable, to raise finance, isn't enough in itself. You need to consider which type of capital you wish to seek, or think you are best aligned to.

BNG Unit requirements are to provide projects that are running/secure for thirty years. This immediately rules out a large number of potential investors who are not looking to lock up their capital for such a long period. Usually, also, the longer and lower risk a project, the more "patient" the capital, and (in relative terms) the lower the return that it may be looking for. This is particularly the case with debt. Equity is harder to quantify as the risk profile is different, and the potential returns are different. A good example of patient capital is investors in electricity and gas meters. Many premises still have decades old meters, and these will still be producing cashflows for the asset owner/investor decades later.

Capital may also be purpose driven, which increasingly more and more of it is. ESG aligned capital (Environmental, Social and Governance) is capital that wants to invest in solid bankable projects for the right return, but also for those projects to have additional co-benefits for the environment, and/or society, and to hold themselves to high standards of governance and corporate behaviour.

There is increasing pressure on banks to decarbonise their portfolios. There is now mandatory company reporting, above certain thresholds, for carbon impact too. Frameworks such as the Taskforce for Carbon related Financial Disclosure (TCFD)²⁹ and Science Based Targets Initiative (SBTI)³⁰ are driving more and more transparent reporting in an effort to decarbonise investment portfolios. A very relevant framework for BNG projects, that seeks to do for nature recovery, what TCFD is increasingly do for carbon, is the Taskforce for Nature related Financial Disclosure (TNFD) – with the intention for corporates to increasingly report on their impact on the natural world and habitats.

ESG aligned capital cares very much about these frameworks, and cares very much about investing in opportunities that help drive the right behaviours.

Ticket size and intermediaries

²⁹ Taskforce for Carbon related Financial Disclosure (TCFD) <https://www.fsb-tcfid.org/>

³⁰ Science Based Targets Initiative (SBTI) <https://sciencebasedtargets.org/>

The term “ticket size” refers to the amount of capital being invested; the value of the transaction. £1m will sound like an impossibly large amount of money to many people, but it is a drop in the ocean to pension funds with £Billions under management. If a project is looking for £500k investment, it will not get anywhere knocking on the door of Legal and General or Blackrock.

There may well be funds undermanagement at such institutions that are very well suited in terms of length of investment and ESG alignment, but a ticket for anything less than £10m is unlikely to be written.

As with many other supply chains, there is a supply chain for capital too. Large tickets may well be written to intermediaries, who then mark up that capital and invest it onwards in a series of smaller investments.

Understanding your project size, and who to approach to match your investment requirements is important. A number of specialist fund managers such as Social and Sustainable Capital, Big Society Capital, Altana Wealth (many others available) would be the sort of sources well aligned capital of between £500k and £2m ticket size could be found.

Habitat bank projects will need to consider bundling of projects, e.g. at the NIA scale, local authority scale or City Region scale so the scale/ticket is large enough to attract investment.

Local authority Finance

Local Authorities are in a position to exploit opportunities unavailable to others. Specifically, they are able to borrow money at less than commercial rates through the Public Works Loan Board. This may be for investment directly into their own projects, projects in partnership with others, or simply to invest onward into third party projects, where there is a strategically aligned interest. Local Authorities are also able to issue bonds. Commonly known as Municipal Bonds, new flavours that are ESG aligned, are being worked on. Sustainability Bonds and Green Bonds are increasingly talked about, with bond frameworks becoming more available.

Rather than seeking investment from a single investor, or even consortium, placing a bond into the debt market is something that would be done on behalf of the LA, by a bank. There are often high administrative costs to placing a bond, and the ticket size will reflect that. It can be a good option for an LA that has a pipeline of different ‘sustainable’ or ‘green’ projects that it is looking to finance.

Smaller bonds of around £1m can be issued using platforms such as Abundance and Ethex.

Partnership Opportunities

A common partnership opportunity that often arises in renewable energy, that could also work well in this space, is a partnership between Project Developer and “Offtaker”.

For an example, in the green energy market, the offtaker is the consumer of the energy. It could be a large industrial customer who understand that at scale it is cheaper to build a solar farm to supply

green energy rather than try to buy that energy through a traditional supplier in the market. The offtaker can look for a developer that will develop, own and operate the solar farm; enter in to Heads of Terms with them, demonstrating their long term intention to lock in to purchasing all of the energy. Developing solar farms is not the offtaker's core business and it lacks the competencies to do so, so this a good solution.

With this partnership, investment is massively de-risked and can be sought, with effort made jointly to seek it. Sometimes guarantees may be sought by investors and are easily given by the offtaker. In some circumstances, the investment may come from the offtaker too. BNG Projects may well find that there is appetite for this approach from land developers, who may also be interested in offtaking all of the output of a project, but lack the competencies to deliver one themselves.

Full service real estate companies, such as CBRE, may also be in a strong position to broker partnerships that include investment, from within their own holdings, resources and client list – providing a one stop shop for shovel ready development opportunities with BNG projects attached. Adding value to two types of client and awarding themselves an investable opportunity at the same time.

Eliminating uncertainty

Something investors do not like is uncertainty. Properly understood risk, mitigations, appropriate risk/reward ratios, are all fine. Uncertainty is not. Many things can drive uncertainty – shifting policy environments, lack of regulation, standards and codes, legal risk/lack of precedent, etc.

Uncertainty, as well as opportunity, often exists in new markets too. Looking at new markets of any type, over the years, it is a hallmark of most that a great deal of money could be made very early on by a few number of market participants who often lack standards – this was seen in modular double glazing, early pharmaceuticals development, equity release schemes, door to door energy sales, cryptocurrency, and voluntary carbon markets, to pick out a few.

All of these have had (or still have) a bad reputation, avoidable scandals, low standards/sharp practice. Most of these now have either trade associations, voluntary standards, and/or regulation that provides certainty. More recent markets from this list still lack a stable policy environment and regulation.

Where markets have matured and standards have been adopted or imposed, there has also been a commoditisation and process evolution to achieve scale, with the attendant unlocking of capital that sees a stable environment that it can more safely invest in.

The BNG market is new, and may very well not be immune to pockets of low standards, misrepresentation/mis-selling, poor reporting etc.

During the course of research for this work, the author discovered a number of groupings of potential future market participants, united by sector or theme, that are already looking to work together to ensure high standards.

This included landowners and land agents, groupings of farmers (distinct just from landowners), community shares practitioners, and local authorities.

In each instance, maturing this new market quickly to establish high standards, was an important factor in each interest grouping wanting to work together in this space.

8. Online open source learning toolkit

The aim of the online toolkit is to communicate the work of the project but in addition to provide an online resource to those wishing to develop nature-based investment projects. The website is a stand-alone website hosted by Merseyside EAS. The website is seen as an online home for nature-based investment for the Liverpool City Region.

The website can be viewed at: www.investinginnaturelcr.com

The website scope is provided below:

Aim of online toolkit:

- To provide an online toolkit to communicate how to develop nature-based investment model for use by project developers but also key point of contact for green finance investment
- To communicate the outcome of the NEIRF project
- To provide an online presence for nature-based investment for the LCR
- To provide a location for the online habitat bank once developed.

Website style:

- Snappy and attractive
- Interactive
- To include mapping features including habitat bank once available
- Build content over time to include, case studies, details of funding sources habitat bank platform

Content scope:

- Introduction to the NEIRF project- project background, scope, aims, partnership and outcomes.
- LJMU mapping tool – website to host opportunity mapping tool to aid in project location identification The address is: https://ljmu-ecoservr.shinyapps.io/LCR_NEIRF_map_viewer/ (Username: NEIRF, Password: mapping)Change wording if definitely incl
- Habitat bank platform – initially light touch to highlight that a LCR habitat bank will be available and that steps are being taken. Opportunities for other landowners to input into LCR habitat bank. It will eventually include a searchable mapping module which can be used to identify where units are for sale.
- Could include some form of standard to be met by those within the register to ensure quality. Develop standard habitat bank site outline template so standard presentation.
- Seller's Guide
- Current funding sources applicable for the LCR
- Investment business case – guidance on how to develop

- Local Nature Recovery Strategy and LCR Ecological network – relevant Local Nature Recovery Strategy and LCR Ecological Network to be linked from the site.
- Links to GFI toolkit and other useful resources
- Case studies – LCR and nationwide case studies. This final report available as a PDF download

Figure 27. Investing in Nature In the Liverpool City Region – opensource toolkit website structure map

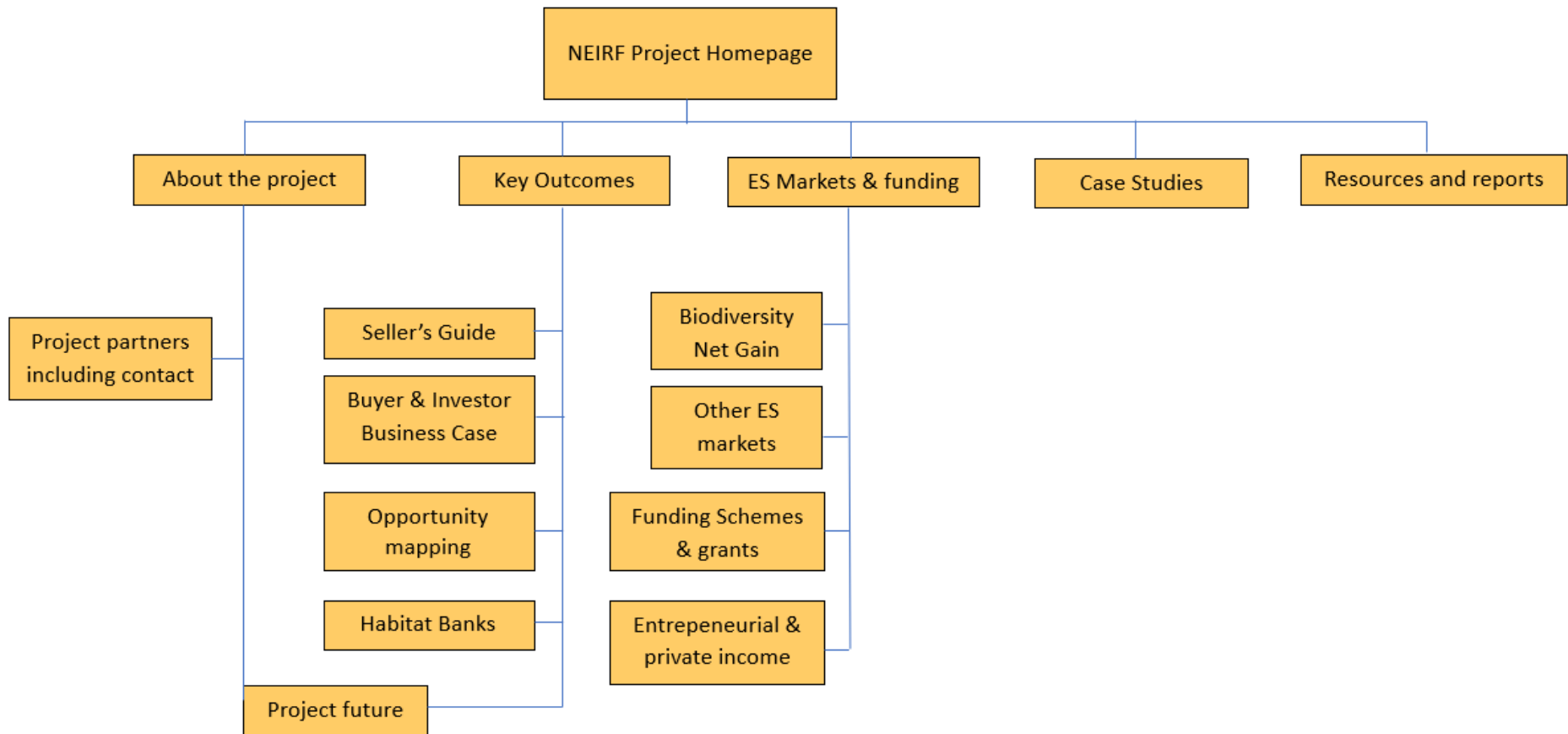
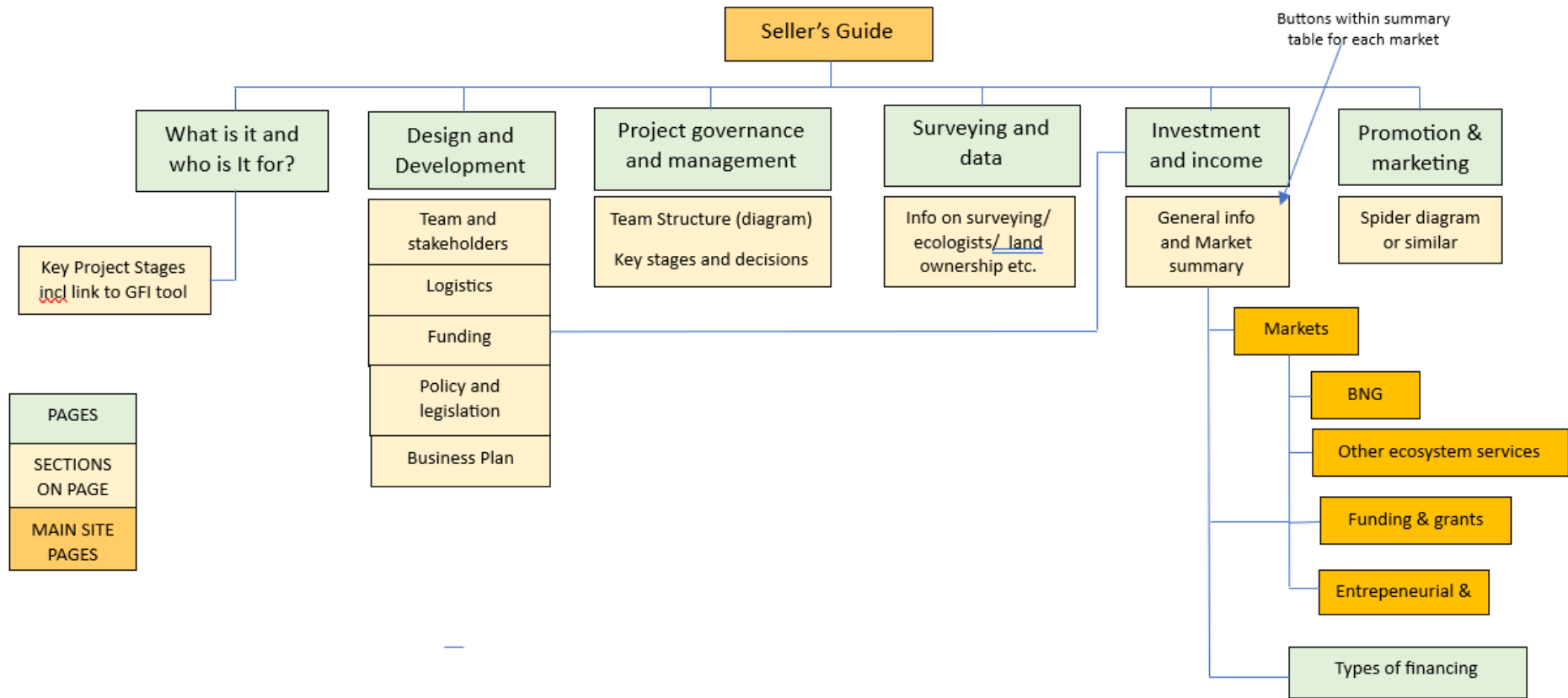


Figure 28. Investing in Nature In the Liverpool City Region – Sellers guide section of the website map.



Part V. Conclusions, Lessons Learnt and Next Steps

9. Conclusions

The industrial past of the LCR has led to a legacy of a degraded natural environment as well as wider social and economic issues. The LCR State of Nature report (MEAS 2022) assessed and confirmed overall trends of habitat and species loss and degradation. The Environment Act 2021 provides key legislation to address the biodiversity emergency and provides a turning point to reverse declines. The introduction of BNG and the Local Nature Recovery Strategies (Local Nature Recovery Strategy) provides a clear opportunity to invest in nature. The mandatory nature of BNG and the requirement for the maintenance of any created or enhanced habitat for 30 years provides an opportunity for sustainable and long-term funding. The Liverpool City Region recognises the need to seize this opportunity to address both nature recovery and the climate crisis and these were key drivers in this project.

BNG currently provides the primary nature market for delivery of nature recovery within the Liverpool City Region. Other voluntary ecosystem service markets are in operation such as carbon credits but are yet to establish fully within the LCR to provide market certainty for habitat bank developers. However, these markets will establish and are likely to expand and develop over the coming years as there is increasing need for companies to demonstrate green credentials, offset carbon and increasing pressure for corporate disclosure. The growth in this market is prompting the development of a wider habitat based carbon codes in recognition that it is not only woodland and peatland that have a role in sequestering carbon. A watching brief should be maintained. The establishment of ecosystem service markets within the LCR could be aided through the development of policy framework which addresses biodiversity, natural capital and climate emergencies.

This project focused on three pilot areas across the LCR to test proof of concept with the aim of rolling the pilot out across the LCR. The project focuses on local authority land initially. This approach, in particular in relation to BNG, ensures the delivery of wider local authority duties including economic regeneration, delivery for local communities as well as addressing the climate emergency and delivering against the mandatory biodiversity duty. There are a number of benefits to local authorities establishing habitat banks as set out within Figure 1 in Part I of this report. Local Authorities are likely to have a key role in the BNG space as a Local Planning Authority, habitat bank provider and as signatory to Section 106 legal agreements to secure BNG on private land. Local Authorities need to develop considered approaches to this role to ensure successful delivery of biodiversity which meets its wider objectives. Local Authorities should consider how they can shape the market to ensure delivery of BNG to facilitate development but also ensure successful market establishment of high integrity biodiversity unit delivery. This could be for example, setting of LCR wide standards for BNG in a similar way to those set for carbon standards by Warwickshire. Provision of clear guidance and policy. An LCR wide approach should be adopted to ensure a clear and level playing field which can deliver real biodiversity benefits and address the climate emergency.

This project does not stop at delivery on local authority land, it is the intention for this project and the opensource toolkit website to be relevant for all landowners. The need to engage with private landowners was raised by project stakeholders (see section 2.3) and assessment of the ability of the NIA's to deliver BNG requirements has shown that delivery on private sites will also be required (See section 3.3).

Habitat opportunity mapping identified significant opportunity for woodland (630ha), semi-natural grassland (316ha) and wetland (533ha) across all three NIA's. Ecosystem services that could be delivered by the identified habitat opportunity mapping include the potential carbon sequestration of 10,251 tonnes/year. Habitats could result in flood mitigation of 148,195m³ /year. BNG needs assessment identified the requirement for between 824-1045 ha of habitat worth approximately between £16 million -£26 million over the next 10-12 year period. This can largely be met by the pilot NIA's but not through local authority estate alone and highlights the need to engage with private landowners. The area covered by this projects BNG assessment is approximately 50% of the LCR and this therefore gives an indication of possible demand across the LCR. This estimate is based on Local Plan allocations only, other development will also come forwards and therefore it is considered a conservative estimate. The estimate is also based on understanding at this time and predictions on the likely offsite requirement from development. This proved difficult to predict as BNG is not yet in effect and there are no clear trends from existing data. Further BNG needs and supply assessment is required for each of the LCR Local Authorities to determine whether the likely need can be met by local authority land. This will aid in shaping the strategy to meet this demand, however any local authority approach will also need to have a wider understanding of the land use requirements for its estate as there are many pressures on local authority land and it has many functions.

This project confirms that funding and markets are available to fund habitat projects in a sustainable way. The business cases for seller, buyers and investors set out within this report provide a key source of information for those developing fundable habitat projects. They provide key advice on how to develop projects to attract funding from buyers and investors and will be made available through the online opensource toolkit. The buyers and investors business cases confirm that there is a market that is attractive to buyers and investors. The buyers and investors business cases have profiled buyer and investor types as well as their requirements. This work has also predicted how these markets may develop. This has implications for BNG habitat bank developers, particularly in relation to supply and demand and the potential for secondary markets. Local Authorities may want to take a position on these issues.

In conclusion, this project has confirmed that there are sustainable funding sources which can provide long-term funding to allow the development and maintenance of nature recovery projects. Initially these markets focus on biodiversity net gain as this is a forthcoming mandatory market which will provide funding at scale across the LCR. However, other ecosystem service markets are emerging. This project has confirmed that demand could be significant and could result in significant income generation opportunities. The project has set out seller, buyer and investor business cases to aid in the development of nature markets within the LCR.

10. Lessons Learnt

Reflecting on this project it is possible to identify a number of key lessons learnt:

Awareness of a natural capital approach, ecosystem services markets and innovative income streams

There is some awareness and understanding of natural capital, green finance, ecosystem services and current/forthcoming markets within Local Authorities, nature conservation organisations and key players within the LCR. However, most are still trying to increase their knowledge and understanding, collate relevant information and decide how it might be helpful and relevant to them in their professional roles. This project has been a key step forwards in increasing awareness and knowledge of natural capital markets within the LCR, however, there is a need to further educate partners and potential habitat project developers.

The key concepts (natural capital, natural capital investment planning, ecosystem services and ES markets) are quite abstract, so they need to be clearly explained and communicated, with a focus on tangible examples and demonstrator projects. To get your message across clearly, there is a need to talk in a suitable language for your audiences, make it accessible and simple. Explain why natural capital investment and its' associated markets matter, what it could achieve and how this could benefit the audience. These wider benefits do not need to be confined to monetised benefits, they can also include benefits such as community access to nature, improved aesthetic of an area to help appeal to wider audiences noting that these non-monetised benefits may be of particular interest to local authorities.

Local Authorities are not used to operating in the nature market space. Local Authorities need a prescriptive approach to their role within this. There has been a need to bring together many different players from across local authority departments. This takes considerable time to engage and secure buy in. This has resulted in the lack of site-specific projects identified by this project.

The seller's guide produced as part of this project will have a key role in addressing the issues raised above. It will help communicate what the approaches are and explain, in practical terms, how current mechanisms and markets can be employed.

The need to develop and build understanding between the nature conservation sector and financial sector

The nature finance sector is new and evolving and bringing together two sectors which have previously not worked closely together, nature conservation and finance. It's a journey for both. There is a need for clear communication to ensure key concepts from both these sectors are understood. Significant time was spent early on in the project gaining common understanding from both sectors.

Nature finance markets

The nature finance markets are emerging and young, there are many lessons still to be learned in terms of seizing this opportunity. There are still many markets in development which may provide additional opportunities. It is therefore important to continue to keep a watching brief on the development of

these markets and to be flexible in project development approaches to take advantage of emerging markets as they establish.

Methods for developing nature-based investment projects

There is no one size fits all approach to developing a nature-based investment model, each sector will have different drivers, priorities, constraints and opportunities. The nature conservation sector is not used to working at the investor scale in terms of monetary value. The sector needs to develop strategies and approaches to move towards investment ready scale. This project seeks to develop understanding of investor needs through the investor business plan.

Project drivers

Different project developers will have different motivations and drivers. Nature conservation or deriving an income may not necessarily be the primary driver. In consultation meetings with partners a wide range of drivers were discussed, the primary driver was never the generation of revenue. The drivers were often based around nature conservation, improving water quality and flooding issues, community benefit or restoration of historic landscapes. Funding was the means for delivery. It is also important to note the non-monetised drivers may be key to securing political support, particularly from local authorities with community benefit, improving the appearance of an area, climate crisis and regeneration aspirations often cited by local authority partners. In securing political support therefore, projects should consider the potential wider drivers and benefits from their project. Natural capital opportunity mapping undertaken by this project was seen as a way of evidencing some of these wider benefits and aiding in identifying why projects should be supported.

Habitat opportunity modelling

In developing opportunity mapping, consultation with local stakeholders added local knowledge and priorities to the strategic approach. This achieved project buy in and produced a mapping output which works both at the strategic and on the ground scale. In relation to opportunity mapping, be generous in terms of identifying opportunities. This provides stakeholders on the ground with a wide range of opportunities despite on the ground delivery constraints e.g. landownership, access etc.

Mapping is not prescriptive; it is a recommendation and a starting point for project development and refinement.

The second round of NIA stakeholder engagement highlighted potential issues with the initial opportunity mapping work. What this highlights, is the importance of using data and mapping work as part of the project planning jigsaw. It can be very helpful in identifying opportunities for habitat enhancement and creation and funding – but it needs to be used in conjunction with other approaches and be used to help evidence the logic of decisions with data. It is particularly important that ground-truthing and survey work is carried out in addition to the interpretation of mapping and data – only then will you get the full picture.

The benefits of an ecosystem service approach

The project opportunity mapping also includes wider ecosystem service benefits. This will aid in identifying suitable ecosystem service funding streams e.g., woodland carbon code. However, as stated above it can also be a useful a tool for gaining project support by evidencing wider benefits of a nature conservation project.

11. Next steps and measures of success for the Liverpool City Region

This project sought to develop a pilot project for the LCR. It was always the intention that this would be a pilot and proof of concept and stepping stone to future activity to develop nature-based investment markets within the LCR. The following next steps are required to progress this work:

11.1 Next Steps

Publicise and raise awareness

A key learning of this project was the need to increase awareness and understanding of nature markets within the LCR. Through the website and through project events we will publicise the work of this project and the web resource available to project developers. Continue to run events and engage with partners to increase awareness and understanding of nature-based markets and funding opportunities.

Continue to develop case studies to showcase and provide on the ground examples of how the nature-based investment model can work.

Develop fundable projects

To build on work undertaken by the project we will continue to work with partners to develop a pipeline of habitat projects based on the opportunity mapping. These projects will form the start of the LCR habitat bank, providing BNG biodiversity units for sale to developers. Opportunities for project funding from other sources will also be sought. For example, a number of partners within the River Alt corridor NIA and River Alt and M57 corridor NIA are currently working to pull together a bid for the Environment Agencies Natural Flood Management programme funding pot. Carbon markets and codes continue to establish and the project will continue to follow their progression providing updates to partners and seeking to develop funding opportunities for projects.

To upscale to the wider Liverpool City Region

This pilot project was developed as a proof of concept with the intention that it would then be scaled up to the wider LCR but would also be applicable to other areas of the country. We will communicate project outcomes and key learning to wider partners within the LCR and work with Local Authorities and conservation organisations to build awareness and understanding of nature markets and the development of investable projects. The open-source toolkit on the website plays a key role in this.

To engage with private landowners

Analysis of habitat opportunities and BNG need identified the need to engage with private landowners to fully capitalise on habitat creation opportunities and to deliver nature recovery. This is also required to ensure sufficient BNG biodiversity unit supply to meet demand from development. This pilot project

focused on local authority land, however, it was the intention that it could be rolled out to private landowners. Opportunities to engage and build partnerships with private landowners will be sought. The first steps in this have been taken as MEAS has recently been successful in securing funding through the Defra Species Recovery Programme Capital Grant Scheme for a Farmland species recovery project. This project is a two year project focused on a number of demonstrator farms across the LCR. The project will baseline habitats on farm, develop farmland action plans, identify BNG opportunities and deliver habitat creation/enhancement which could then be 'banked' by the landowner for receipt of future BNG monies through planning offsets.

To develop an online habitat bank

One of the aims of the project is to establish an online habitat bank platform. This would be hosted on the project website. It would provide an interactive mapping tool to identify BNG habitat bank sites with units for sale within the LCR. This would be administered by MEAS. It is anticipated that initially these would be local authority or trusted partner habitat bank sites. Consideration will be given to the establishment of a standard or adoption of a national standard (if and when published) to ensure quality of delivery, which was identified as a requirement of buyers in the business case. This will be particularly important should the online habitat bank include private habitat banks.

As identified by this report currently local authority habitat banking sites are under development and there are currently no local authority habitat bank sites established within the LCR. However, a number are in the pipeline. Initially the online habitat bank site will publicise that LA will be providing habitat banking sites and provide initial information of current work being undertaken.

Develop policy and strategy landscape to support delivery of local nature markets

The development of an appropriate policy landscape to facilitate and drive local nature markets is required. Policy development in areas such as biodiversity, carbon, environment and green infrastructure should consider how it can support the development of nature and ecosystem service markets. For example, the development of policies to ensure a local first sequential approach to BNG delivery. The development of climate and carbon policies to support local carbon markets.

11.2 Measures of success

This pilot project has sought to develop and nature based investment model which can be rolled out to the wider LCR. To measure the wider success of this project the following measures of success are considered:

A pipeline of market-ready projects for the Liverpool City Region

The development of a pipeline of market-ready projects within the project area and within the wider LCR will evidence the success of this project. By the end of 2024 the aim would be for there to be a minimum of one project at market per local authority area within the LCR. A pipeline of projects for each local authority will be agreed and in development by the end of 2024.

LCR Online habitat bank

The development of a pipeline of projects will allow the population of an online habitat bank mapping tool to match developers with BNG habitat banks. This will be operational by the end of 2024.

Private landowner projects

To truly recover nature within the Liverpool City Region habitat creation and restoration is required on both the public and private estate. We will continue to build on existing work to engage with private landowners in the development of projects for nature markets. Awareness raising through current projects and farming partners of the opportunities around nature markets will be undertaken. The LCR Farmland species recovery project is seen as a key tool in raising awareness, understanding and trust in this community.

The establishment of common standards or codes is considered an important step in developing a robust nature market which includes private habitat banks but provides risk assurances to buyers and investors.

A measure of success would be that the demonstrator projects within the LCR Farmland species recovery project have a secure and sustainable funding stream to continue the maintenance of habitat created or restored through the project. In addition, that other private habitat banks are established within the LCR.

Project funding from a range of nature market sources

In addition to project funding from BNG biodiversity unit sales the project will seek to establish projects with funding from other sources identified by this project, e.g. Woodland or peatland carbon code. A measure of success would be that by 2025 at least one project within the LCR will be funded from sources other than BNG.

Establishment of a functioning nature markets within the LCR

The ambition of this project was to provide a stepping stone towards the establishment of a functioning and thriving nature market within the LCR. This is a key step towards nature recovery for the region and key to delivery of the Local Nature Recovery Strategy. A measure of success would be that within 5 years there would be a functioning and established nature market within the LCR.

12. Recommendations for further work

Liverpool City Region Nature Capital Investment Strategy

This project was a pilot and a stepping stone to wider ambitions. Further work is required by the Liverpool City Region and Combined Authority to develop approaches which seize the opportunity to fund nature recovery. An initial roadmap strategy to develop an LCR nature market would be beneficial setting out the steps which could be taken within the LCR towards roll out across the LCR. This should include development of both public and private markets.

Project pipeline development

Opportunity mapping provides the framework for habitat delivery. Within the project area this should be taken forward to develop a pipeline of projects. Additional work such as ground truthing, feasibility studies and project development and management planning are required.

BNG and natural capital policy development

To provide the policy framework for the successful establishment of nature markets within the LCR both the Liverpool City Region Combined Authority and the LCR local authorities should look to develop policies which encourage delivery of biodiversity.

13. Glossary

This glossary presents definitions of a number of terms referred to within this report.

Term	Technical definition	Non-technical definition
Biodiversity	A contraction of biological diversity. The variability among living organisms from all sources, including terrestrial, marine, and other aquatic ecosystems and the ecological complexes of which they are part. Biodiversity includes diversity within species, between species, and between ecosystems.	Biodiversity is the variety of life found in a place on Earth or, often, the total variety of life on Earth. Biodiversity includes all living organisms, such as plants, animals and microorganisms.
Biodiversity Net Gain	An approach to development, and/or land management, that aims to leave the natural environment in a measurably better state than it was beforehand.	An approach to development, and/or land management, that aims to leave the natural environment in a measurably better state than it was beforehand.
Blended (Hybrid) funding or finance	A way to pull together finance from a number of different sources for a given project or programme. Sources should have different risk and return expectations in order to balance each other. Blended finance provides flexible funds to facilitate project development and reduce the risk of investment, thereby encouraging capital and knowledge flow from more risk-averse investors to develop the market.	
Corporate Social Responsibility (CSR)	Corporate social responsibility (CSR) is a self-regulating business model that helps a company be socially accountable to itself, its stakeholders, and the public. By practicing corporate social responsibility, also called corporate citizenship, companies can be conscious of the kind of impact they are having on all aspects of society, including economic, social, and environmental.	
Ecosystem	A dynamic complex of plant, animal, and microorganism communities and their non-living environment interacting as a functional unit.	Communities of plants, animals and microorganisms and the environment they live in.
Ecosystem services	The benefits people obtain from ecosystems. These include provisioning services such as food and water; regulating services such as flood and disease control;	A way of describing and understanding the benefits we get from nature. Ecosystem services are grouped into 4

	<p>cultural services such as spiritual, recreational, and cultural benefits; and supporting services such as nutrient cycling that maintain the conditions for life on earth. The concept “ecosystem goods and services” is synonymous with ecosystem services. The benefits provided by ecosystems that contribute to making human life both possible and worth living.</p>	<p>categories: provisioning services such as food and water; regulating services such as flood and disease control; cultural services such as spiritual, recreational, and cultural benefits; and supporting services such as nutrient cycling that maintain the conditions for life on earth.</p>
<p>Environmental, Social and Governance (ESG)</p>	<p>ESG is a collective term for a business's impact on the environment and society as well as how robust and transparent its governance is in terms of company leadership, executive pay, audits, internal controls, and shareholder rights. It measures how businesses integrate environmental, social, and governance practices into operations, as well as your business model, its impact, and its sustainability.</p>	<p>ESG is a set of standards measuring a business's impact on society, the environment, and how transparent and accountable it is.</p>
<p>Multiple benefits</p>	<p>An approach, strategy or plan which identifies and covers multiple natural capital and/or ecosystem services benefits. Including biodiversity, carbon, water and air quality, reducing flood risk, access to green space, leisure, health and wellbeing.</p>	
<p>Nature markets</p>	<p>Markets based around sale of biodiversity, typically habitats. This could be Biodiversity Units in relation to BNG, carbon credits, nutrient neutrality credits.</p>	
<p>Natural capital</p>	<p>The elements of nature that directly or indirectly produce value to people, including ecosystems, species, freshwater, land, minerals, the air and oceans, as well as natural processes and functions.</p>	<p>Natural resources and their supporting processes (e.g. the water cycle) that people value and benefit from. Includes things like plants and animals and their habitats, freshwater, land, minerals, the air and oceans. Referred to as 'natural capital assets'.</p>
<p>Natural capital accounts</p>	<p>A calculation and record of the stocks and flows of environmental assets in a given area or ecosystem, using physical and/or monetary terms.</p>	<p>A way of recording the current amount and condition (stock) of our natural resources that allows us to see if they are improving or declining. It can be thought of as a kind of balance sheet where we look at the changes in our natural</p>

		resource. The accounts can be produced in different ways. They can; describe and compare the importance of natural resources and processes, they can be a physical measure our natural resources and processes or a summary of some of the monetary values of the natural environment.
Natural capital approach	A means for identifying and quantifying natural resources and associated ecosystem goods and services that can help integrate ecosystem-oriented management with economic decision-making and development. By integrating economic and environmental imperatives, NCA operationalises the ecosystem approach and facilitates policy-making for sustainable development.	A way of describing, quantifying and valuing our natural resources and the benefits they bring to people to aid decision making. By taking a natural capital approach we take nature into account when making policies and decisions that can affect the environment.
Natural capital investment strategy and plan	Strategies and plans that promote investment and delivery of opportunities that protect and enhance natural capital to support a healthy population and economy.	
Natural capital metrics	Quantitative measure of an indicator, including the units used. Environmental datasets that can be used to define measures of natural capital.	Measurements of different aspects of the environment and the way we manage and use it.
Natural capital asset register	An inventory of the natural capital assets in an area, and their condition. For example, woodland could be defined by its type (plantation, mixed, deciduous), its area, quality (e.g. age, rotation, wildlife species and population, quality of run-off waters) and distribution. For wildlife sites the condition may be measured by the ecosystem type (e.g. wetland, mixed woodland) and should record the number of species present, perhaps focusing on key types such as fungi, plants, insects, birds.	A snapshot of natural resource in a given area (can be at local, catchment, national or international scales) and how they are distributed.
Natural capital risk assessment	A risk assessment that considers the pressures acting on the natural environment now, and in the future, and how the	

	decisions and actions being considered can affect natural capital assets.	
Nature based solutions	Actions or measures that use or mimic natural processes and resources to manage and improve natural capital assets.	
Net gain - biodiversity	Measurable improvement in biodiversity following an activity after all significant positive and negative impacts have been taken into account.	

Appendices

Appendix 1: NIA profiles

Appendix 2: NIA stakeholders

Appendix 3: LJMU baseline and opportunity mapping

Appendix 4: BNG Needs Assessment

Appendix 5: Sellers business case and Sellers guide

Appendix 6: Buyers and Investors business case