NORTH WEST GREENWAY NETWORK
ROUTE 2 - DERRY/ LONDONDERRY TO MUFF

STAGE 2 PREFERRED ROUTE CORRIDOR SELECTION REPORT

The North West Greenway Network project has been supported by the European Union's INTERREG VA Programme, managed by the Special EU Programmes Body (SEUPB)

Quality Control Sheet

Issue	Date	Prepared	Date	Checked	Date	Approved	Date
Draft 1	07.09.2018	KOS	07.09.2018	KOS	07.09.2018	SH	07.09.2018
Draft 2	27.09.18	KOS	27.09.18	KOS	27.09.18	KOS	27.09.18
Draft 3	19.11.18	KOS	19.11.18	KOS	19.11.18	KOS	19.11.18
Draft 4	23.11.18	KOS	23.11.18	KOS	23.11.18	SH	23.11.18
Rev 0	27.11.18	KOS	27.11.18	KOS	27.11.18	SH	27.11.18
Rev 1	05.12.18	KOS	05.12.18	KOS	05.12.18	SH	05.12.18

Contents

0 EXECUTIVE SUMMARY

The Preferred Route Corridor Selection Report describes Stage 2 of the Route Selection Process for the proposed Derry / Londonderry to Muff Route of North West Greenway Network (NWGN) Scheme. The report should be read in conjunction with the Stage 1 – Constraints Study and Route Options Report. The report has been prepared by the Integrated Consultant Team, in partnership with the Derry City & Strabane District Council, and with Donegal County Council.

Further to the detail provided in the Stage 1 Report, the key sections of this report – Sections 8 and 9,

- Describe the assessment of each of the Route Corridors Options in terms of the Assessment Criteria,
- Identify the Preferred Route Corridor and,
- Outlines the next steps in the development of the scheme.

In common with the Stage 1 Report, this report sets out the project background and the European, national and local policy guidelines which frame the scheme and the development of Greenway Schemes. It also sets out the overall aims and objectives of the NWGN scheme and route specific aims and objectives of Route 2, Derry / London Derry to Muff.

The report identifies the Study Area, describes the Constraints, Opportunities and Areas of Interest within the Study Area and proposes a number of “Route Corridor” Options.

Four Route Corridors from Derry / Londonderry to the southern extent of Muff village have been identified, as well as three Route Corridors for the Greenway through and around Muff village. The report describes these Route Corridors and explains why they were selected.

The report describes the Public Consultation Process carried out following the publication of the Stage 1 report and summarises the feedback on the scheme proposals received from the public and defines the Assessment Criteria used to identify the Preferred Route

1 INTRODUCTION

1.1 Project Background

In December 2016 Derry City and Strabane District Council in partnership with Donegal County Council, the Department for Infrastructure (NI) and Sustrans (the UK-based cycling and walking charity), secured funding for this project from the EU's INTERREG VA 2014-2020 programme, monitored by the Special European Union Programmes Body (SEUPB).

McAdam Design has been appointed by Derry City & Strabane District Council to lead the Integrated Consultant Team (ICT) which will provide co-ordinated NI and ROI Project Management and Design services to the Project Partners and deliver the North West Greenway Network (NWGN) Scheme from Preliminary Design, through to Technical Design, Procurement of the Principal Contractor and managing the delivery of the Construction Stages to completion of construction.

The core target project outputs of the NWGN project are as follows:

1. To develop 46.5km of cross-border greenway by December 2021
2. To achieve a targeted 5.5% rise in cross-border modal shift from the baseline (to be established) by December 2022

Core project specific aims are as follows

1. A reduction in CO2 emissions of 319 metric tons per annum by 2023.
2. Widespread behavioral and attitudinal change in all targeted beneficiaries through our strategic alliance with Sustrans.
3. Investment in the wider economic and social infrastructure in the Cross Border region.
4. The project will meet the strategic aims of Derry City and Strabane District Council Northwest Greenways Plan (2015) to develop a comprehensive interconnected regional Cross Border Greenway Network.

The proposed North West Greenway Network Scheme consists of three distinct Greenway Routes, totalling 46.5km shared pedestrian / cycle paths, with each route crossing the Northern Ireland (NI) / Republic of Ireland (ROI) border. The Routes are summarised as follows:

- Route 1 – Derry to Buncrana – approx. 32.5km
- Route 2 – Derry to Muff – approx. 10.5km
- Route 3 – Strabane to Lifford – approx. 3.5km

1.2 Project Progress to Date and Previous Reports

Since McAdam Design was appointed, the scheme has progressed through preliminary and concept design stages, and a number of Public Consultation Events have taken place for the Route 1 and Route 2 schemes. In support of these Consultation Events, Stage 1 Constraints, Study Area and Route Options Reports have been prepared for Route 1 and Route 2 Schemes, and these reports are available on Derry City and Strabane District Council and

Donegal County Council websites. This report consists of the next stage in the reporting and scheme assessment process, and will also support forthcoming Public Consultation Events.

The current project programme shows Planning Applications (in both NI & ROI) will be submitted for Route 2 and Route 3 before the end of 2018, with a Planning Application for Route 1 to follow in early 2019.

2 POLICY DOCUMENTS AND GUIDELINES

The following sections describe a non-exhaustive list of European, National (both NI and ROI), Regional and Local Policy Documents and Guidelines which contain clear policy objectives to promote and develop sustainable transport and cycling initiatives as well as recreational and tourism related objectives, which directly support the development of Greenway projects such as the route covered by this report.

2.1 European Policy and Guidelines

'Europe 2020 – A Strategy for Smart, Sustainable and Inclusive Growth' puts forward three mutually reinforcing priorities for smart, sustainable and inclusive growth. Sustainable transport strategy is set out under the "sustainable growth" priority, through flagship Initiative: "Resource efficient Europe", which supports a shift towards a resource efficient and low carbon economy.

The TEN-T - Connecting Europe Policy (2014) focuses on connecting Europe through major infrastructure such as rail and roads. It highlights the potential for long distance walking and cycling routes.

European Cyclists' Federation's EU Cycling Strategy: Recommendations for Delivering Green Growth and an Effective Mobility in 2030" is the result of a systematic review of all EU policies related to cycling. The central objectives of the plan are as follows:

- Cycling should be an equal partner in the mobility system
- Grow cycle use in the EU by 50% at an average in 2019/2020-2030
- Cut rates of cyclists killed and seriously injured by half (in km cycled) in 2019/2020-2030
- Raise EU investment in cycling to €3bn in 2021-27; and €6bn from 2028-34.

2.2 Northern Ireland Policy and Guidelines

2.2.1 National and Regional Policy Documents

North West Greenway Plan 2015

The Northwest Greenways Action Plan (https://www.derrystrabane.com/North-West-Greenway-Plan) forms the basis of a strategic and co-ordinated plan for the development of a network of greenways (GW) throughout the North West.

The vision of the Plan is: *"To develop a cross border network of greenways that link people with places locally, regionally and nationally- bringing social, economic & environmental wellbeing to all."*

Draft Programme for Government Framework 2016-2021

Sustainable travel initiatives support the following draft outcomes:

- Outcome 1- We prosper through a strong, competitive, regionally balanced economy
- Outcome 2- We live and work sustainably, protecting the environment
- Outcome 4- We enjoy long, healthy, active lives.
- Outcome 11- We connect people and opportunities through our infrastructure

NI Strategic Plan for Greenways- sets out a high level vision for NI to develop new greenway routes and contribute to overall modal shift targets.

A Bicycle Strategy for NI 2014 - The key aims of the Strategy are to provide people the freedom and confidence to travel by bike and to develop off-road greenways.

The North West Strategic Partnership- to collaboratively work with central government to*, "Collectively resource the region's key priorities for growth and development with a commitment to building a more resilient economy in the North West City Region" (www.derrystrabane.com)*

NI Regional Development Strategy 2035: Building a Better Future 2010- Regional Guidance Policy 9: "Reduce our carbon footprint and facilitate mitigation and adaptation to climate change whilst improving air quality- 'This will include reducing the need to use the car,' and: Regional Guidance Policy 11 through enhancing the amenity value of natural and cultural heritage assets by providing linkages to green infrastructure.

DRD Ensuring a Sustainable Transport Future: A New Approach to Regional Transportation 2012 - The strategy has three overarching aims;

- Supporting the growth of the economy
- Enhancing the quality of life for all citizens and;
- Reducing the environmental impact of transport

Building an Active Travel Future for NI 2012 - aims to increase the overall % of trips taken by bicycle and the need for a cross-sectoral approach and the development of partnerships in order to achieve this.

2.2.2 Local Policy Documents:

Derry City & Strabane District Council's Inclusive Strategic Growth Plan 2017-2032 (Our Community Plan)

Community Planning is a statutory duty placed on Councils as part of local government reform. Sustainable travel initiatives support the following outcomes of community planning;

Social Wellbeing Outcomes

- We enjoy long, healthy, active lives
- We give our children and young people the best start in life
- We have safer more cohesive communities with access to quality services and facilities
- We have improved physical and mental health and emotional wellbeing
- We are more physically active
- We are supported to age well, live longer and be more independent

Environmental Wellbeing Outcomes

- We connect people and opportunities through our infrastructure.
- We live and work sustainably, protecting the environment
- We benefit from well designed and managed green spaces and public realm
- We support environmental stewardship
- We value and enhance our environment

Local Growth Plans for Ballyarnett and Foyle

Delivery of Route 2 specifically referenced as an action.

DCSDC Tourism Strategy

Product & Experience, PE4 – "Develop the activity & adventure product across the region & rural built heritage, states Action Point 4.4:

- Action 4.4. "Support the implementation of the NW Greenways Plan which sets out a strategic vision for cross-border greenway development in the region including the 46.5km of new cross-border greenway across three routes: Derry-Buncrana, Derry-Muff and Lifford-Strabane"

Derry Local Development Plan (2030)

Enhancing connectivity in our City & District supports the aims of the emerging Local Development Plan through provision of sustainable infrastructure which will enhance our District for future generations.

Derry Area Plan 2011 Section 14.1 in relation to transportation the key aim is to 'Develop an efficient, safe, accessible and sustainable transport system which offers better choice and mobility for all its users.

2.3 Republic Of Ireland Policy and Guidelines

2.3.1 National and Regional Policy Documents

Project Ireland 2040 National Planning Framework and National Development Plan 2018-2027

Project Ireland 2040 is the Irish Governments overarching policy initiative for the long term planning of the State. It is informed by the Programme for a Partnership Government 2016, which recognises that economic and social progress go hand in hand, and is made up of the "National Planning Framework to 2040" and the "National Development Plan 2018-2027".

National Planning Framework to 2040

This is the Government's high-level strategic plan for shaping the future growth and development of the country out to the year 2040. It seeks to achieve ten strategic outcomes including the following which are relevant to the Northwest Greenway Project:

- *National Strategic Outcome 3: Strengthened Rural Economies and Communities* including an objective to "Invest in greenways, blueways and peatways as part of a nationally coordinated strategy"
- *National Strategic Outcome 4: Sustainable Mobility* including an objective to "Develop a comprehensive network of safe cycling routes in metropolitan areas to address travel needs and to provide similar facilities in towns and villages where appropriate."
- *National Strategic Outcome 7: Enhanced Amenities and Heritage* including an objective to "Invest in and enable access to recreational facilities, including trails networks, designed and delivered with a strong emphasis on conservation"
- National Strategic Outcome 8: Transition to a Low-Carbon and Climate-Resilient Society including developing metropolitan cycling and walking networks and greenways.

A key policy priority for the Northern and Western Region includes "building on the progress made in developing an integrated network of greenways, blueways and peatways that will support the diversification of rural and regional economies and promote more sustainable forms of travel and activity based recreation"

The importance of greenway development to support Rural Job Creation is highlighted noting that "the development of greenways, blueways and peatways offer a unique alternative means for tourists and visitors to access and enjoy rural Ireland. The development of a strategic national network of these trails is a priority and will support the development of rural communities and job creation in the rural economy"

National Policy Objective #46 includes the enhancement of "transport connectivity between Ireland and Northern Ireland, to include cross-border road and rail, cycling and walking routes, as well as blueways, greenways and peatways."

National Development Plan 2018 – 2027

The National Development Plan 2018–2027 is the most recent in the series of Government Capital plans adopted since 1988 and identifies the strategic priorities for public capital investment for all sectors to meet the strategic outcomes of the National Planning Framework.

It includes as a "Priority Investment Action" the facilitation of Cross Border Sustainable Transport with the Northwest Greenway Network listed as a specific action.

Investment in activity based tourism, including greenways, is identified as be a priority over the period of the National Development Plan and the publication of a Government Greenways Strategy is identified as a priority and targeted for Q1/Q2 of 2018.

Investment in sustainable travel measures, including comprehensive Cycling and Walking Networks for metropolitan areas, and expanded Greenways is also identified as a priority in delivering a transition to a Low-Carbon society.

Dept. for Transport, Tourism and Sport's: "Strategy for the Future Development of Greenways"

The "Strategy for the Future Development of National and Regional Greenways" Report was published in July 2018, following an extensive national consultations process undertaken in 2017. The Strategy outlines the Irish Government's objective to assist in the strategic development of Greenways to an appropriate standard in order to deliver a quality experience for Greenway users. It recognises the benefits that can arise from the further development of Greenways in Ireland, as a tourism product with significant potential to attract overseas visitors, for local communities in terms of economic benefits, and for all users as an amenity for physical activity and a contributor to health and wellbeing"

The objective of the Strategy is "to assist in the strategic development of nationally and regionally significant Greenways in appropriate locations constructed to an appropriate standard in order to deliver a quality experience for all Greenways users". It also aims to "increase the number and geographical spread of Greenways of scale and quality around the country over the next 10 years with a consequent significant increase in the number of people using Greenways as a visitor experience and as a recreational amenity".

To achieve these objectives, the Strategies requires project promoters to work with Local Communities, Local Landowners, Local Authorities and other relevant State Bodies and organisations to deliver:

- A Strategic Greenway network of national and regional routes, with a number of high capacity flagship routes that can be extended and/or link with local Greenways and other cycling and walking infrastructure;
- Greenways of scale and appropriate standard that have significant potential to deliver an increase in activity tourism to Ireland and are regularly used by overseas visitors,

domestic visitors and locals thereby contributing to a healthier society through increased physical activity;
- Greenways that provide a substantially segregated offroad experience linking places of interest, recreation and leisure in areas with beautiful scenery of different types with plenty to see and do;
- Greenways that provide opportunities for the development of local businesses and economies;
- Greenways that are developed with all relevant stakeholders in line with an agreed code of practice.

The Strategy identifies a 'best practise' approach to the development (i.e. throughout the Public Consultation and Land Access Processes) and the design of greenways, which the Project Team has considered and will adopt, where relevant and as far as is practicable.

The Strategy emphasises the requirement for early stage consultation with affected landowners. (It is noted that Public Consultations carried out for this project are in line with the guidelines set out in the Strategy).

The Strategy identifies Design Principles and Standards that should be considered throughout the design process, and introduces additional design Guidance in the forms of the Greenways and Cycle Routes Ancillary Infrastructure Guidelines which will be applied on this project where applicable and feasible.

The Strategy defines Greenways as:

- National Greenways are those which are at least 100 kilometres long.
- Regional Greenways is one which is at least 20 kilometres in length, but preferably closer to 40km long, or which can be extended to connect to a longer strategic route.

Post Construction, the Strategy proposes an accreditation system, similar to the Sport Ireland Trails register, which requires a minimum standard to be met for a Greenway to be accredited.

It highlights the benefits (based on experience to date in the Rep of Ireland) that can arise from the further development of Greenways as:
- a tourism product with significant potential to attract overseas visitors
- for local communities in terms of economic benefits
- as an amenity for physical activity and a contributor to health and wellbeing.

The Strategy lists a number of National and Regional Greenway projects which are identified as the initial priorities for development. This list includes the Northwest Greenway Network including Route 2 – Derry/Londonderry to Muff.

Smarter Travel - A Sustainable Transport Future

A New Transport Policy for Ireland 2009-2020- The NWGN project supports:

- Action 15 of the plan by striving to create a strong cycling culture in the NW;
- Action 17 through exploring opportunities to make a former railway line available for walking and cycling trails.

National Cycle Policy Framework 2009

Ireland's first National Cycle Policy Framework was launched in April 2009. It outlines 19 specific objectives, and details the 109 individual but integrated actions, aimed at ensuring that a cycling culture is developed in Ireland to the extent that, by 2020, 10% of all journeys will be by bike. The NGWN supports the overall aims and objectives of the plan and in particular (but not limited to):

- Objective 3: Provide designated rural cycle networks especially for visitors and recreational cycling.

Regional Planning Guidelines (2010-2022)

The Guidelines acknowledge that current cycling infrastructure in border regions is currently limited but outlines an aim to encourage greater shift to cycling/ walking by the promotions of the strategies outlined in the Smarter Travel Policy and the National Cycling Policy Framework as referenced above.

The NWGN will support specific cycling and walking Policy INFP13 of the Guidelines which seeks to 'Promote and support cycling and walking within the Region, particularly within urban centres.' while the Guidelines recommend that Local Authorities should also consider the use of 'off road' routes for both walking and cycling such as disused railway lines, canals and bridle paths to improve access to rural tourist attractions.

People, Place and Policy – Growing Tourism to 2025 (March 2015)

This Government Tourism Policy Statement sets out the Government's primary objective in maximising the services export revenue of the sector. The policy highlights the importance of high quality facilities for activity based tourism in the marketing of Ireland as a holiday destination. It notes the Government's support for development and improvement of facilities for visitor activities including Greenways.

Fáilte Ireland Strategy for Development of Irish Cycle Tourism 2007

Fáilte Ireland (FI) produced its Strategy for the Development of Irish Cycle Tourism in 2007. It observed that cycle tourism had declined in Ireland since 2000. The FI Strategy also referenced a research project conducted by the research company MORI in 2005 which found, among other things, that:

- Cycling on Irish roads is not perceived to be safe – cyclists face dangerous bends, fast cars, intimidating HGVs, more traffic and higher speeds;
- There are very few, if any, traffic-free routes to cater for touring cyclists wanting to leave the cities to discover the countryside or for families who wish to participate in cycling.

The purpose of the FI strategy was to determine how best to renew the popularity of cycling in Ireland, how to encourage visitors to come to cycle in Ireland, and how to ensure that cycle tourism can generate visitor spend in rural areas. It proposed an approximately 3,000km long cycle network running from Donegal along the West, South and South-east coasts and continuing along the East coast as far as the Northern Ireland border.

The Strategy identified the following needs for cycle tourists:

- Safe places to cycle and consideration from other road users;
- Attractive routes with good scenery;
- Well-connected and signposted routes and destinations avoiding long detours;
- Opportunities to visit local attractions and specific places of interest;
- Food, accommodation and refreshments available at intervals, which reflect comfortable distances for stopping off / overnight stops.

Fáilte Ireland Cycling and Activities Research, 2013

In May 2013 Fáilte Ireland commissioned cycling research in order to, among other things, inform the route selection process of routes'. Just over 15,000 people surveyed in Germany, France, Great Britain and Ireland. Respondents to this market research identified traffic free cycling and safety of cycle routes as the most important attributes of a tourism cycle route after a beautiful landscape and scenery.

This research indicates that directness of route is not a critical factor in the provision of a satisfactory **leisure** cycle route. On the contrary, picturesque landscapes and traffic free routes with good connections to towns and villages are rated highly.

Realising our Rural Potential – Action Plan for Rural Development (2017)

A Government Strategy aimed at delivering change for people living and working in Rural Ireland with key objectives including increasing the number of visitors to rural Ireland by 12% and supporting the creation of 135,000 new jobs in rural Ireland by 2020.

Specific key objectives and actions of the Strategy supported by the NWGN include:

- Develop and promote Activity Tourism in rural areas through the development of blueways, greenways and other recreational opportunities.
- Develop cross-Border tourism initiatives to support the tourism potential of the Border region, building on projects such as the Ulster Canal Greenway from Smithborough

(Co. Monaghan) to Middletown (Co. Armagh), the Carlingford Lough Greenway, and historic literary trails.

2.3.2 Local Policy Documents

(Draft) Donegal County Council Development Plan 2018 – 2024:

Chapter 5 – Infrastructure, Section 5.1, Transportation:

- Transportation Policy T-P-11: It is a policy of the Council to facilitate the appropriate development of affordable, multi-modal transport solutions that offer communities and future generations real transport choices such as park and ride; pedestrian and cycling; bus and taxi services; and ancillary infrastructure.

- T-P-24: It is a policy of the Council to protect established/historic railway corridors throughout the County primarily for strategic infrastructure provision (such as rail/road projects) and secondly for recreational development. Along these corridors other uses shall not be considered. Where these corridors have already been compromised by development, adjacent lands which could provide opportunities to bypass such an impediment and reconnect these routes for amenity purposes (walking/cycling) shall be protected for this purpose. However, in all instances, the over-riding objective shall be the provision of strategic infrastructure.

- T-P-34: It is a policy of the Council to encourage and facilitate joined up long distance walking and cycling routes for recreation and as alternatives to the car, particularly in rural areas, between settlements. Adequate car parking facilities shall be provided, where required, in association with any such developments.

- T-P-35: It is a policy of the Council to support and facilitate the maintenance, enhancement and expansion of the National Cycle Network.

Chapter 9 – Tourism:

Section 9.1 – Other Tourism Products and Attractions (pg 138):

“The Council will ... continue to protect the routes of such potential greenways through the policies of this plan and will actively work will all stakeholders to facilitate the development of Greenways and walking and cycling routes throughout the County.” and “… the Council recognise that Donegal effectively sits within a wider cross border tourism region and will work with local authorities and tourism agencies in Northern Ireland to exploit the these natural cross border synergies in order to unlock the regions full tourism potential.”

It also notes that “Protecting the routes and visual settings of potential Greenways and other recreational walkways and cycling routes.” is a Key Planning Challenge.

Section 9.1.2, Objectives:

- TOU-O-9: To support the development of new, and protect the functionality of existing, Greenways, walking and cycling routes as keys components of an overall green tourism infrastructure and as standalone tourism products in their own right.

Action Plan for Jobs: North East/North West 2015 – 2017 notes the following action:

- Identify and develop greenway / blueway networks in the Region (Ref Page 95, Pt 108)

The Donegal Local Economic & Community Plan 2016 – 2022:

Volume 1, identifies 'To develop Donegal as a Connect Place' as a priority goal.

Volume 2, sets out the Action Areas of the Plan and notes the following actions:

- Section 1.9.1: To develop an integrated North West Greenway
- Section 1.9.3: To identify a programme of walkways, cycleways and greenways within towns and their hinterland, to enhance town centre connectivity, support regeneration of town centres and improve health and recreation opportunities.
- Section 2.4.5: To develop an integrated Northwest Greenway (Walking, Trails, Cycling) as a key tourism project on a cross-border basis.
- Section 4.4.16: To maximise health and wellbeing outcomes for communities in the proposed development of the North West Greenway and other initiatives involving outdoor spaces.

3 NORTH WEST GREENWAY NETWORK PROJECT DESCRIPTION

3.1 Physical Character of a Greenway Facility

A Greenway is a traffic-free route designed exclusively for the use of pedestrians and cyclists. The character of the route is generally low-key in terms of its impact on the overall landscape of an area and its environmental effects. The route may be "online" within an existing road corridor located within the verge or footway, or "offline" located entirely 'off road' and traffic free.

The North West Greenway will generally be constructed as a 3m wide shared use path, with a bituminous surface to provide a high quality finish for cyclists.

In urban areas the Greenway will generally be **online**, (i.e. adjacent to the existing road carriageway) with a 1m buffer strip provided where lands are available, giving a desirable greenway 'corridor' of 4m, while options for offline / fully segregated sections will be explored where possible. The path width, or the buffer strip, or both, may be reduced through sections where constraints such as buildings, boundaries and carriageway kerblines cannot reasonably be adjusted. Where possible, appropriate screening in the form of shrubs, plants and/or trees will be planted as part of the greenway corridor to create wildlife habitats and to improve the visual quality and functionality of the infrastructure.

In rural sections the Greenway route may be either online or offline, or a combination of both. Where proposed offline routes are being identified the planning of the route will seek to follow, in so far as possible, field boundaries and land-holding boundaries, or existing laneways, rivers or other corridors to avoid disturbance to farming activity. The geometry of the facility is flexible and the route will be designed to minimise farm severance or agricultural impacts, apart from the loss of the small area of land forming the scheme footprint.

Figure 1 in Appendix B, shows the typical cross sections proposed for urban and rural sections of the Greenway.

Depending on the nature and alignment of the route, accommodation works may be required at 3rd party lands. These will be agreed with affected landowner as scheme is progressed. Greenway lighting will be provided in urban areas, and will be considered if necessary across rural sections subject to environmental and other restrictions, with any proposed specification being cognisant of, and sympathetic to, the rural landscape setting.

Gradients along the Greenway will preferably not exceed 3%, but may be relaxed to 5% if the topography requires. Short sections of 10% gradients may be considered in exceptional circumstances. Similarly, the horizontal alignment will be designed for gentle radii and gradual changes in direction, with a minimum radius of 4m.

3.2 North West Greenways Network – Scheme Overview

The proposed North West Greenway Network Scheme consists of three distinct Greenway Routes, totalling 46.5km shared pedestrian / cycle paths, with each route crossing the Northern Ireland (NI) / Republic of Ireland (ROI) border. The Routes are summarised as follows:

Route 1 – Derry to Buncrana – approx. 32.5km

Route 2 – Derry to Muff – approx. 10.5km

Route 3 – Strabane to Lifford – approx. 3.5km

Each route will be designed in accordance with relevant design standards, including (but not limited to):

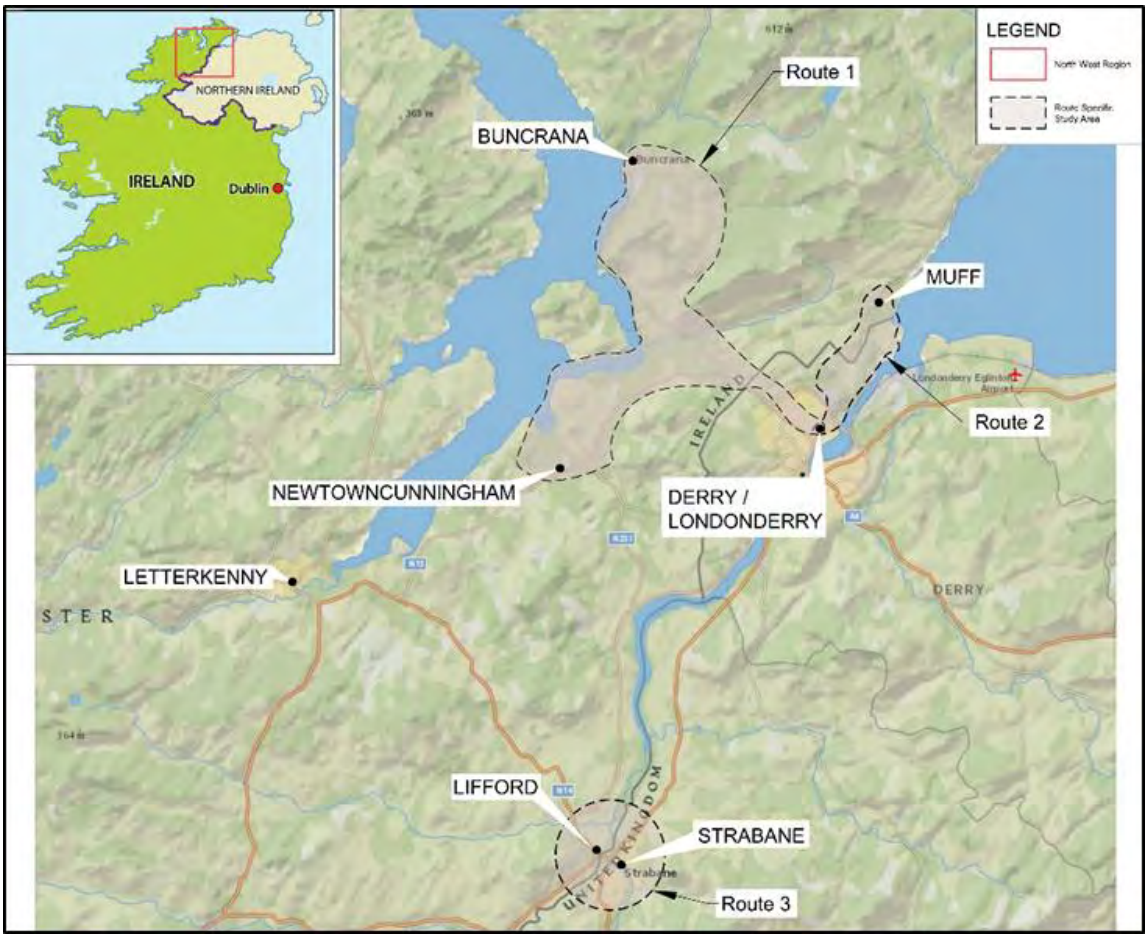
- National Cycle Manual,
- Handbook for Cycle-Friendly Design,
- Design Manual for Roads and Bridges (DMRB),
- Cycle Traffic and the Strategic Road Network (IAN 195/16),
- Rural Cycleway Design (DN-GEO-03047)
- ROI Dept of Transport, Tourism and Sport Greenways and Cycle Routes Ancillary Infrastructure Guidelines (2018).

The design will also include associated feature lighting, hard and soft landscaping, furnishings, accommodation works and appropriate safety features. The Greenway

A (non-exhaustive) list of design guidelines and cycling standards that will inform the Greenway Design are included in Appendix A of this report.

This report focuses on Route 2 – Derry / Londonderry to Muff, and describes the Study Area, Constraints, Opportunities and Areas of Interest and Route Corridor Options for that Route only. Route 2 forms part of a wider Inis Eoghain Greenway route identified in the Northwest Greenways Action Plan which is envisaged to eventually extend beyond Muff to the north east. The development of this Route should facilitate connection to this future extension.

Figure 3.2 – Northwest Greenway Network – Route Overview



3.3 Route Specific Aims and Objectives

The Project Partners have identified the following strategic Aims aligned to European, National and Local Policies (as outlined in Section 2.0), which set out the Core benefits which the development of the Greenway Route seeks to achieve.

SMART objectives have been developed to ensure overarching Project Aims are achieved.

All Aims and Objectives are targeted for substantial delivery by December 2021 based on current project programme.

Route 2 Derry / Londonderry To Muff Scheme - Aims

Social:

- Physically connecting People and Places within the region to link and enhance the social fabric of the communities.
- Achieve an increase in Modal Shift to more sustainable methods of travel (on foot or by bike) between the communities and destinations linked by the project.
- Promote health and wellbeing in the communities connected by the project.

- Enhance road safety for existing vulnerable and non-motorised road users.

Economic:

- Increase Modal Shift to more cost effective and sustainable forms of transport.
- Improve and enhance the Tourism Offering of the Northwest Region, attracting increased numbers of visitors.
- Increase the economic contribution of tourism to the Local Economy and provide a catalyst and opportunities for economic growth.
- Enhance the cycling tourism offering within the region.

Environmental:

- Contribute to reducing carbon emissions in the area through achieving a rise in modal shift.
- Value and enhance the natural environment by creating a 'green' linear corridor to the benefit of wildlife through sensitive landscaping.

Route 2 Derry / Londonderry To Muff Scheme - Objectives

- Connect the commuter villages of Culmore (Co. Derry / Londonderry) and Muff (Co, Donegal) with the city of Derry / Londonderry.
- Create a safe and pleasant amenity along which the local population can commute, socialise, and use as a recreational and leisure facility, and which promotes active lifestyles, physical exercise and participation in outdoor activities.
- Provide connection to existing and planned educational, recreational and leisure facilities such as schools, parks and open spaces, playgrounds, walks and trails, cycling routes, sports clubs and facilities.
- Provide a shared use Greenway route that is safe, comfortable and attractive to all user groups (both cycling and walking) and provides a reliable and safe level of service.
- Provide a route that can facilitate comfortable combined use by cyclists and pedestrians in an environment that feels safe to both user groups, particularly in areas with high levels of mixed activity.
- Provide connection to existing and planned tourism initiatives and infrastructure such as the Cityside greenway network and the National Cycle Network, as well as the Causeway Coastal Route and Wild Atlantic Way (which meet at the Culmore-Muff border).
- Bridge gaps in the existing greenway network, i.e. at Pennyburn.
- Provide high quality infrastructure which will attract increased visitors to the area and drive the demand for associated cycling/walking related facilities e.g. cafes, bike hire etc.
- Offer an attractive and cost effective sustainable alternative to private motor vehicle transport by providing connections between residential areas and areas of employment, commercial centres and recreational facilities.
- Facilitate Cycle Tourism by providing direct physical connections between larger settlements which provide services for visitors to the region - such as overnight

accommodation, retail outlets, entertainment and other attractions, bicycle repair, and public transport connections.

- Provide linkages to smaller settlements which provide basic facilities such as food, toilets and convenience shops.
- Facilitate access to existing visitor attractions and activities along the route either directly adjacent or accessible via a lateral link or otherwise which is suitable for walking/cycling.
- Develop the most cost effective route that, where possible, mitigates the impact on private lands and maximises use of available public lands, provided always that the route meets the needs of all user groups and meets the Route aims and objectives outlined above.

4 ROUTE SPECIFIC STUDY AREA, CONSTRAINTS, OPPORTUNITIES AND AREAS OF INTEREST

4.1 Study Area

In defining the Study Area, the Project Team considered the border locations of Muff and Culmore relative to Derry / Londonderry, the connecting road networks and physical boundaries.

The southern extent of the Study was defined as Derry / Londonderry, at Pennyburn Roundabout and the end of Cityside Greenway Network along the River Foyle. The eastern boundary was defined by the shore of Lough Foyle, while the western boundary was defined by the rising topography to the west of Racecourse Road. The northern boundary extends just beyond the environs of Muff village. The village of Culmore is located in approximately the centre of this area.

The Study Area includes Ballyarnett Country Park, Springfield Road, Alder Road and Racecourse Road in the west, and Culmore Country Park and Coney Road in the east. Bay Road Park is located within the limits of Derry / Londonderry in southern part of the Study Area. The area is a mix of residential settlements, and greenfield / agricultural lands.

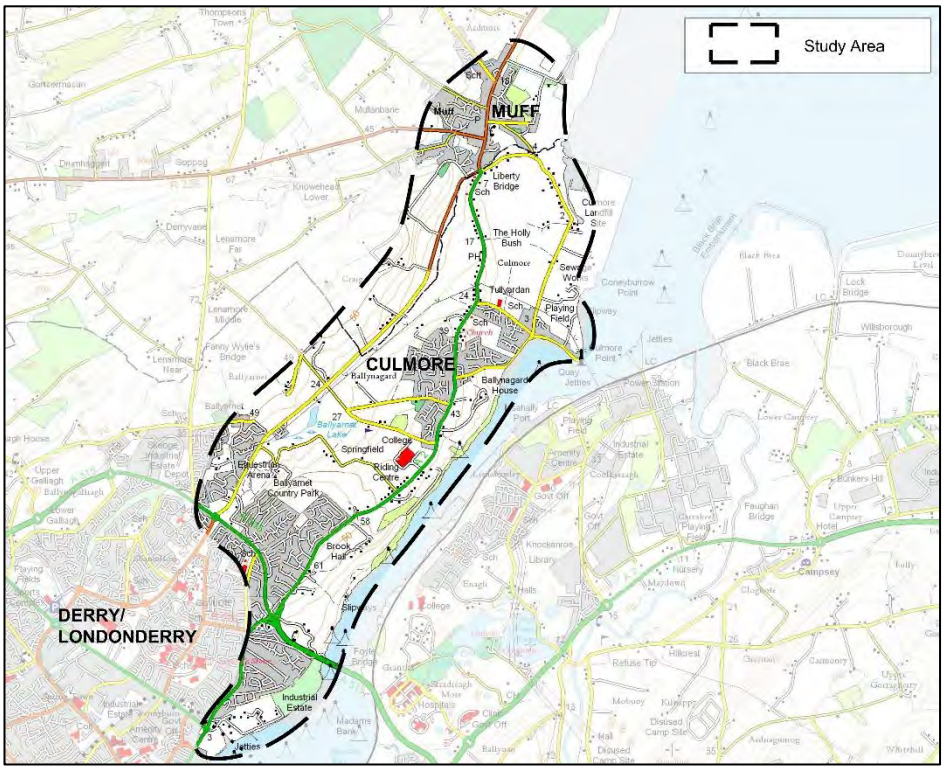
There are two main roads within the Northern Ireland section of the Study Area; A2 Derry to Muff, and A0501 Racecourse Road, with each road connecting Derry / Londonderry to Muff.

The main road through Muff village is the R238. There are a number of quiet local roads and tracks are located immediately to the east of the village, as well as undeveloped back lands, and the Study Area also includes these areas. The Study Area extends in the north to Muff Community Park which has been identified as potential destination / end point of the proposed greenway.

Figure 4.1 below describes the Proposed Study Area.

Note – All figures included in this report are included in Appendix B.

Figure 4.1 - Proposed Study Area



5 CONSTRAINTS, OPPORTUNITIES AND AREAS OF INTEREST

The preferred route of the completed greenway will be influenced by:

- physical and environmental constraints within the Study Area including impact on human beings and existing land use
- location of trip generators which offer significant potential to ensure significant usage and increase modal shift
- features within the Study Area that will offer opportunities to connect settlements and communities to each other, and to desired destinations (e.g. amenities, commercial or employment areas) via the proposed greenway; and will provide greatest opportunity for active travel and modal shift;
- Areas of interest, attractions, scenery and amenities within the Study Area that may attract tourists and visitors to the Greenway and the wider region, and/or service the needs of users of the greenway (e.g. cafes, toilet facilities)
- Geometric design standards
- Comparative Cost

This section describes the Study Area in terms of a range of headings which will help inform the design of the proposed greenway.

Note - Description of each heading (where appropriate) is split between Northern Ireland and Republic of Ireland to facilitate subsequent reporting required in each jurisdiction.

5.1 Topography

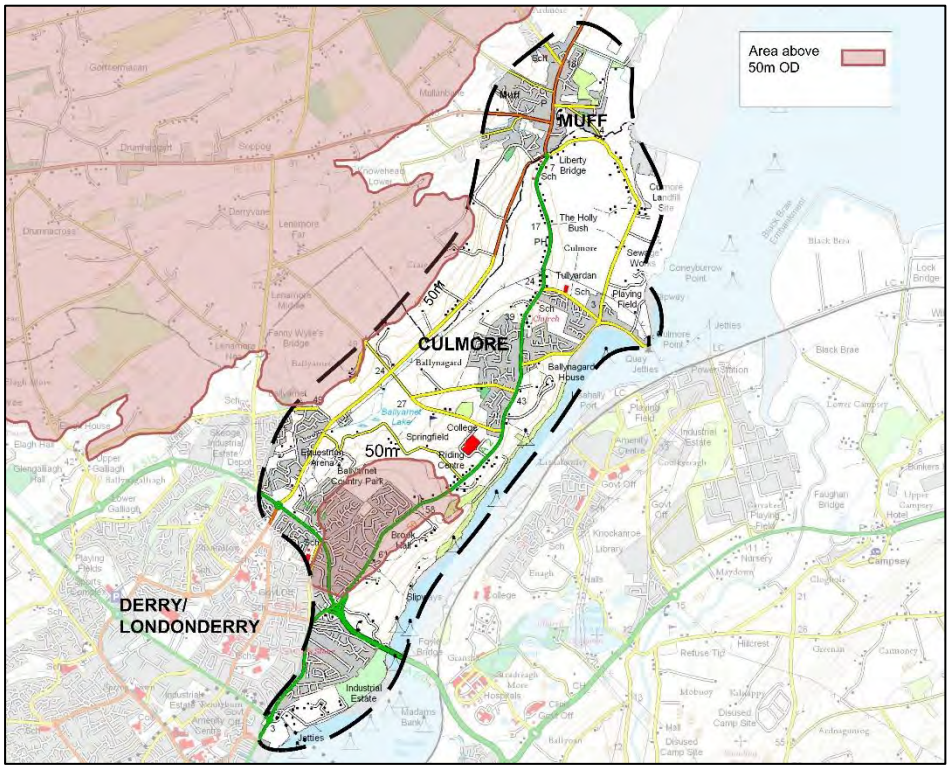
5.1.1 Topography - Northern Ireland

The topography across the Study Area is relatively flat, with no significant hills or mountains. Levels rise from sea level at the Foyle Estuary, to levels varying between 55m OD (southern end) and 10m (at Muff) along the A2. The highest point within the Study Area is approximately 72m OD to the west of Racecourse Road.

The section of the A515 between Culmore Road and Racecourse Road has a steep gradient which is not desirable and may deter some leisure cyclists.

This flat topography should lend itself well to the proposed greenway, it will minimise any requirement for significant earthworks and any inclines will be of a gradual gradient which will attract commuting and leisure cyclists.

Figure 5.1 – Topography



5.1.2 Topography - Republic of Ireland

The level through Muff village, and across lands to be east of the village, varies between approximately 20m OD to 5m OD. The R238 through the centre of the village is flat with no significant change in level from the border through to the end of the Study Area at the Community Park. Similarly, the back road and tracks to the east of the village are relatively flat and would be suitable for leisure cyclists.

5.2 Rivers, Streams and Watercourses

Rivers and streams do not offer significant features across the Study Area and providing views or connections with such water features will be difficult to achieve.

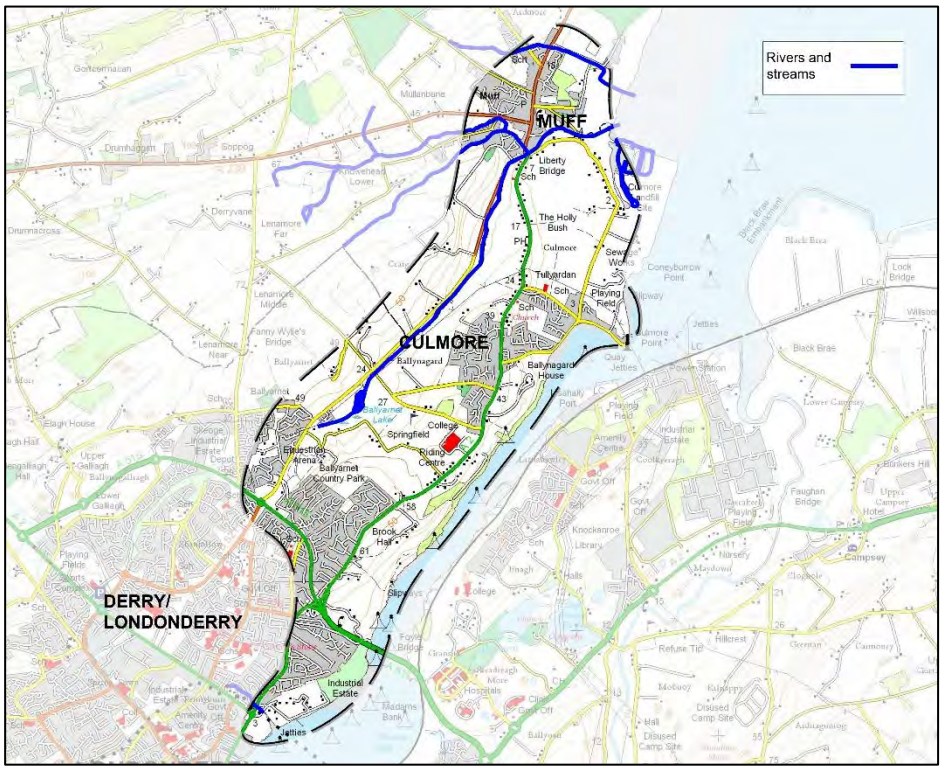
5.2.1 Rivers, Streams and Watercourses - Northern Ireland

There is a stream flowing adjacent to the NI / ROI border, predominantly within ROI, as described in Section 5.2.2.

The shallow Ballyarnett Lake is within the Study Area and consideration will be given to connecting a greenway corridor with the lake to create an attractive resting spot and access into Ballyarnett Country Park with its recently opened play area.

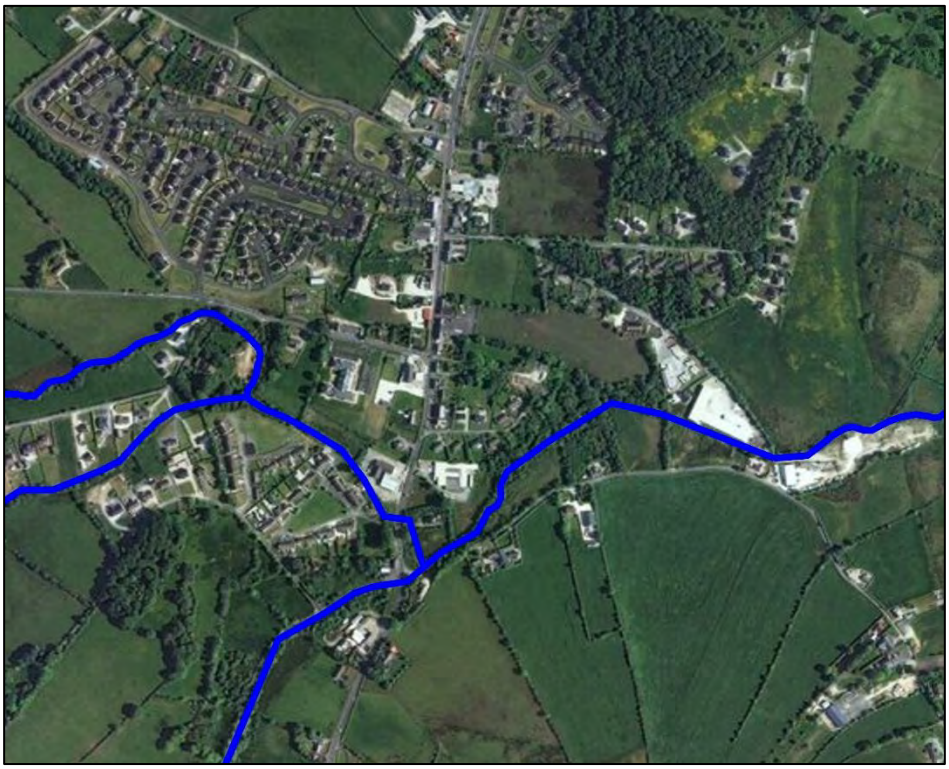
The Study Area is bounded on the east by the shore of Foyle Estuary, which is part of the Lough Foyle SPA. This is discussed further in Section 5.3.

Figure 5.2 – Rivers, Stream and Watercourses



5.2.2 Rivers, Streams and Watercourses - Republic of Ireland

The stream runs alongside Racecourse Road flows through the southern environs of Muff Village before entering Lough Foyle. There is an old stone, abandoned bridge which spans the stream to the south of the village. There is an opportunity to consider a route corridor along its bank and a new bridge across the stream would be required.



Aerial View of Stream / Watercourse south of Muff Village

5.3 Environment and Ecology

5.3.1 Designated & Protected Areas – Northern Ireland

The Study Area is bounded on the east by the shores of Lough Foyle. The Lough Foyle Special Protection Area (SPA) was designated in 1999 and qualifies for its designation under Article 4.1 of EC Directive 79/409 for its numbers of wintering birds, i.e. Whooper Swan, Brent Goose and Bar-tailed Godwit. It also qualifies under Article 4.2 for its numbers of a wide range of waterfowl. While the SPA area is bounded by the shoreline, any development which has potential to impact on the species for which the SPA is designated area may need to be assessed in accordance with the Habitats Directive.

There is an opportunity to provide a greenway in an attractive setting close to the water's edge however any route corridor running close to the boundary of the SPA will need to be assessed against its potential impact on the SPA and its designated features.

Within Northern Ireland, the following parts of the Study Area have achieved designations:

- The large area of green belt bounded by Madam's Bank Road, Culmore Road, Culmore and the River Foyle is a designated Area of High Scenic Value. Within this area is the Brook Hall Estate, which falls under the designation of Historic Gardens, Parks and Demesnes.

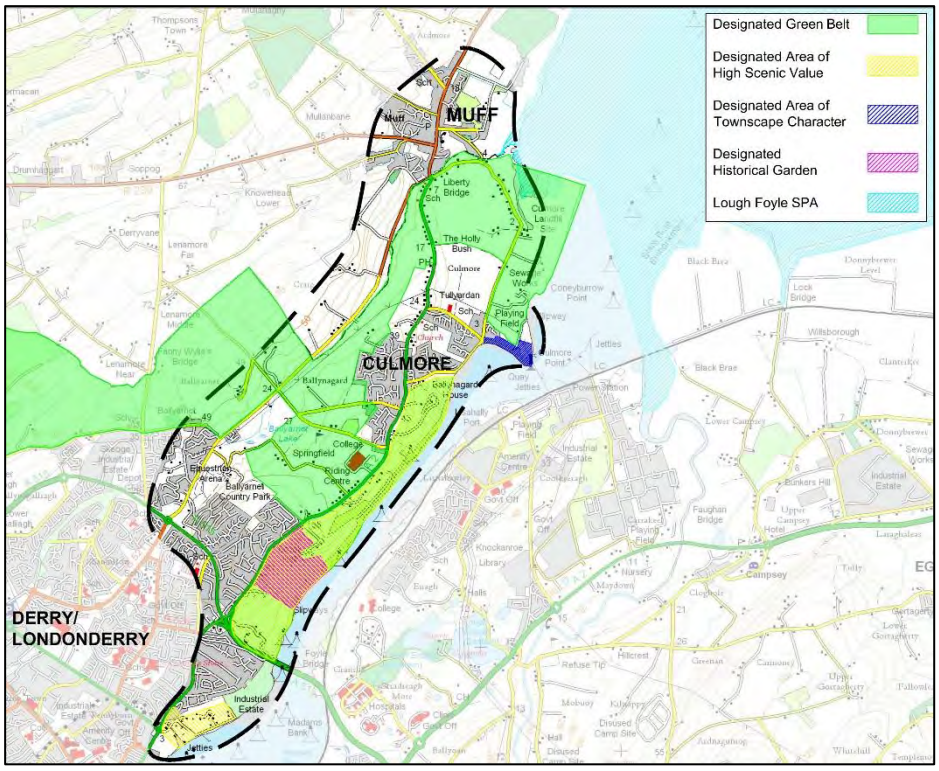
- The area of Culmore, around the historic core of Culmore Fort along Culmore Point Road is designated as an Area of Townscape Character.

5.3.2 Designated & Protected Areas – Republic of Ireland

The Lough Foyle SPA also bounds the shoreline at the eastern extents of Muff village.

The route corridors shown across the eastern lands of the village are not adjacent to the SPA and as such major impacts on the SPA are not anticipated.

Figure 5.3 – Environmental Designations



5.3.3 Ecology, Flora and Fauna – Northern Ireland

Aside from the Lough Foyle SPA, there are few notable areas of ecological interest within the Study Area. Rural carriageways and roads are bounded by hedgerows consisting of native species such as hawthorn, ash, sycamore and beech. Some notable stands of invasive species, e.g. Japanese Knotweed and Salmonberry have been identified during initial site walkovers. Detailed surveys to establish the extent of invasive species will be progressed as the preferred route corridor emerges.

Potential Greenway Route near Thornhill College passing Japanese Knotweed Stand

5.3.4 Ecology, Flora and Fauna – Republic of Ireland

Lands to the east of Muff village are a mix of grasslands, with areas of heavy tree cover at Coney Road, and Kilderry Lane. Some tree clearance may be required should a Greenway route through these lands be selected.

Note - Preliminary surveys and assessments of ecology, birds and mammals have been progressed across the Study Area. Detailed surveys will be progressed as required and in accordance with Environmental legislation and regulations. Where impact on habitats and species is unavoidable appropriate mitigation procedures will be explored and implemented to ensure minimal disturbance. Landowner agreements will be sought prior to any access onto private lands.

5.4 Existing Land Use

5.4.1 Existing Land Use - Northern Ireland

Outside of the urban areas, lands across the Northern Ireland section of Study Area are predominantly agricultural / greenfield. Farming and agricultural practices are mostly tillage and crops with some grazing of livestock also evident.

Coney Road, to the eastern edge of the Study Area has some industrial units along it, as well as a waste water treatment plant.

5.4.2 Existing Land Use - Republic of Ireland

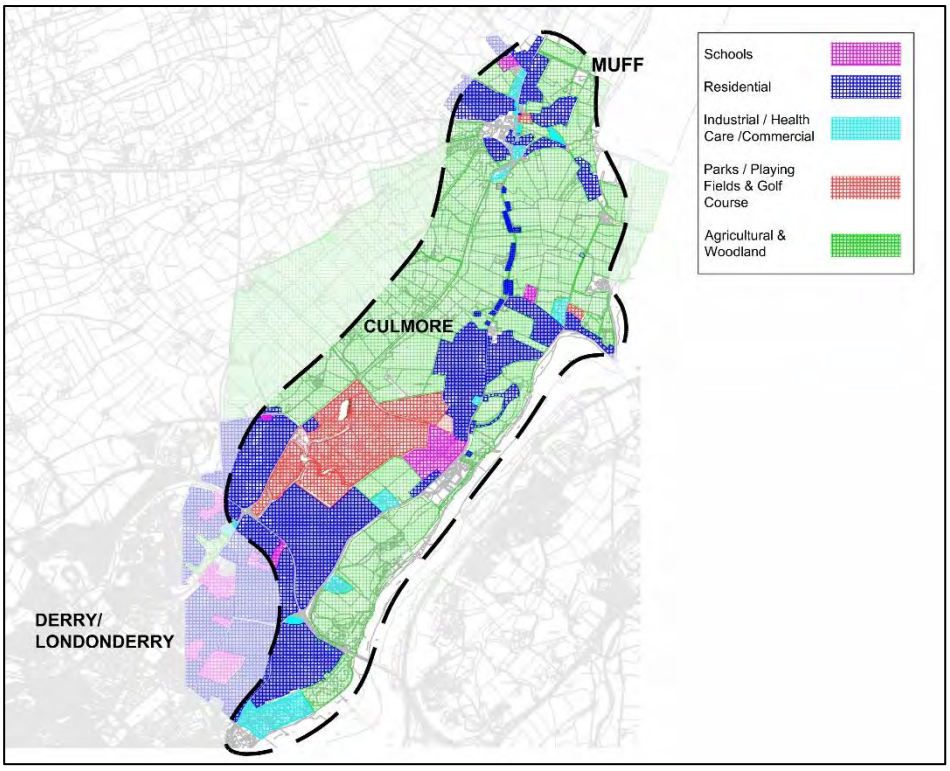
Muff village accounts for the majority of the Study Area within ROI. The village is mostly residential with a number of shops and businesses along its main street.

Along lands to the east of the village contain some light industrial units. The roads network in this area is quite narrow and some resurfacing of the carriageways may be required if the preferred greenway route is through this section.

The remainder of the land within ROI is agricultural, mainly tillage, with some grazing of livestock.

Where the greenway route is being considered across agricultural lands, constraints imposed by farming practices will be considered in detail and impacts on farming and agricultural lands will be minimised.

Figure 5.4 – Existing Land Use



5.5 Proposed and Future Developments

There are a number of large developments either proposed or under construction in close proximity to the proposed greenway corridors. The developments may provide opportunities

for links to the proposed greenway. On the other hand, the greenway route may have to take into account these proposed developments so that the designs complement each other.

5.5.1 Proposed Developments - Northern Ireland

Currently under construction is a proposed housing development of 211 dwellings in Culmore, between the Culmore Road and Culmore Point Road (Planning ref: LA11/2016/0383/F). Greenway provision has been constructed as part of the development along the main Culmore Road.

Planning Applications have been submitted for a four storey office development in the North West Regional Science Park (Planning ref: LA11/2017/0586/RM), Derry and a Retirement Village with over 100 beds at the former Thornhill College site, Culmore with pathways proposed within the development linking to Foyle River Garden (http://foylerivergardens.com/) proposals which plan to extend the trail via Brook Hall demesne to Boom Hall, (Planning ref: A/2015/0071/0).

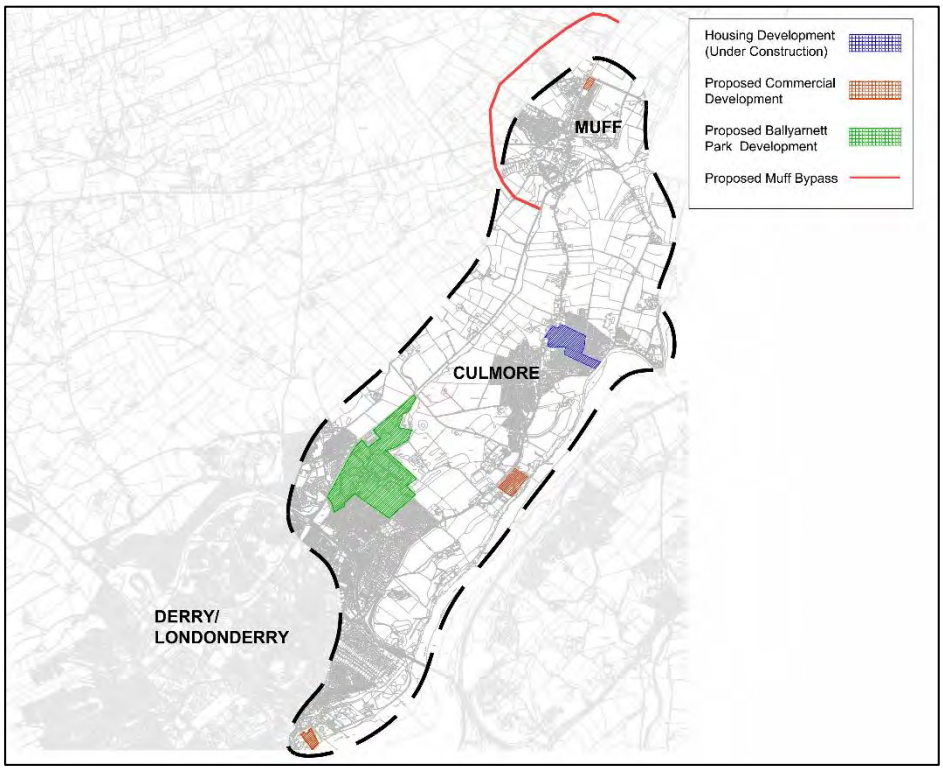
DCSDC is also considering a proposed redevelopment of Ballyarnett Country Park to include; car parks; footpaths; access road; new community Hub Building; restoration of the former Amelia Earhart Centre and grounds as an Activity Zone; new MUGA; beside the Hurling Club; and community allotments and gardens (Planning ref: LA11/2016/0497/0).

DCSDC is developing future plans for Culmore Country Park, which will include playing fields, a community centre and a play park.

5.5.2 Proposed Developments - Republic of Ireland

To the north of Muff village, opposite the Community Park, planning approval Planning Ref 17/151447) has recently been granted for a bar and restaurant, including car parking and a children's play area delivery yard. If this development proceeds, it could provide a food and rest stop for greenway users.

Figure 5.5 - Proposed Developments



5.6 Local Amenities and Attractions

Amenities and attractions within the Study Area will provide opportunities for connections with the proposed greenway. Route corridors connecting with local amenities and attractions will benefit from the existing trips generated by these facilities. The additional trips and journeys generated on completion of the greenway should also help to increase existing visitor numbers.

5.6.1 Local Amenities and Attractions - Northern Ireland

There are three parks maintained by DCSDC within the Study Area:

- Ballyarnett Country Park: Large park, with a range of trails and paths, a recently refurbished play area, and sports facilities.
- Culmore Country Park: Large park on lands formerly comprising a landfill site. The parks is made up of woodland, grassland and shoreline habitats, which are an important areas for biodiversity with wading birds feeding on the mudflats. The park provides a landscaped green space for the public with trails and paths and excellent views over Lough Foyle.

- Bay Road Park: this park covers 20ha and includes a variety of paths, wetlands, woodlands and meadows supporting a range of animal and plant life. The park offers views across the Foyle and of the Foyle Bridge.

Other attractions within the Study Area include a shops and businesses in Culmore and the Foyle Golf Course, located on Alder Road, between Racecourse Road and Culmore Road.

The Study Area also includes the northern sections of Derry / Londonderry, with its range of businesses, cafes and restaurants. The proposed Greenway will provide a new and attractive alternative travel option for residents and tourists travelling to the city for leisure, business, school and work.

Figure 5.6.1 shows the locations of key Amenities and Attractions across NI section of the Study Area and a list of these is included in Table 5.6.1.

Figure 5.6.1 – Amenities and Attractions - NI

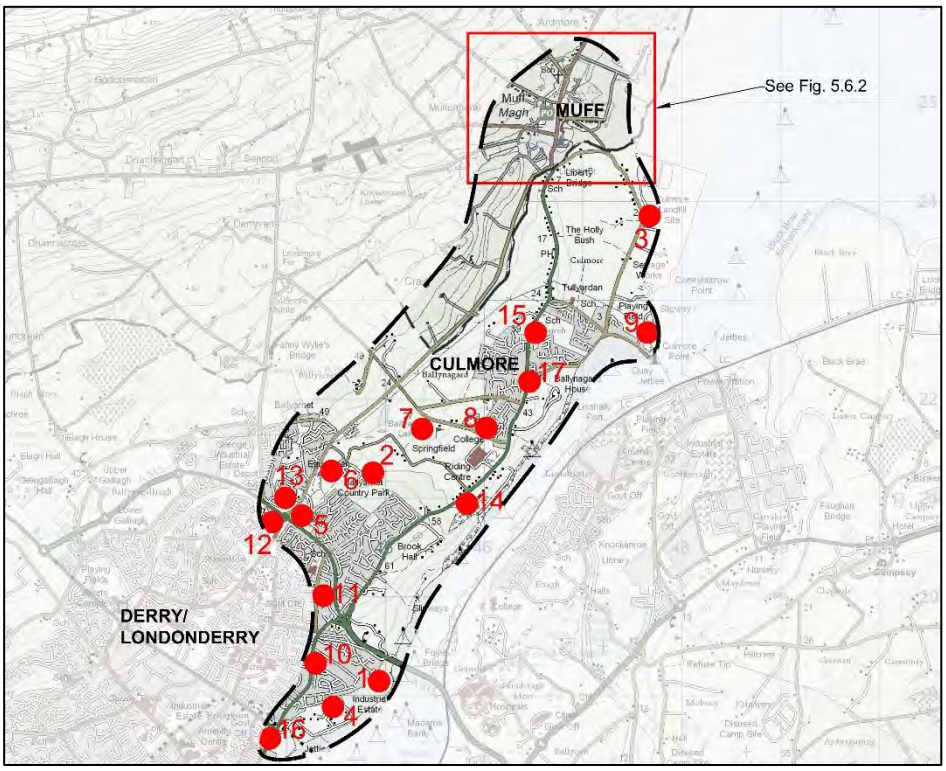


Table 5.6.1 - Amenities and Attractions - NI

Reference	Description	Amenity / Attraction
1	DCSDC Operated Parks	Bay Road Park
2		Ballyarnett Country Park
3		Culmore Country Park
4	Sports Facilities / Playing Fields	Bay Road Soccer Pitch
5		Pairc Bhrid, Steelstown Brian Óg's GAC
6		Equestrian Centre
7		Foyle Golf Centre
8		Ballynagard Soccer Pitch
9		Soccer Pitch
10	Community Buildings & Churches	Acorn Centre
11		Our Lady of Lourdes, Steelstown
12		Lenamore Youth Centre
13		Ballyarnett Presbyterian Church
14		Convent of Mercy
15		Culmore Holy Trinity, Church of Ireland
16	Commercial Hub	Strand Road Area
17		Culmore Town Centre

5.6.2 Local Amenities and Attractions – Republic of Ireland

The main community attraction in Muff is the Community Park, approximately 800m to the north of the village along the R238. The park has recently been developed to include a children's play area, parking and rest areas. The Park is ideally located to serve as the end point of the proposed greenway, and route corridors will be developed accordingly.

Within the village there is a variety of shops, cafes, amusement arcades and businesses, providing an attractive range of facilities for greenway users. Local businesses should benefit from increased visitor numbers generated by the greenway, and new business opportunities, e.g. bicycle rental and bicycle repairs, can be considered.

Figure 5.6.2 shows the locations of key Amenities and Attractions across Muff village section of the Study Area and a list of these is included in Table 5.6.2.

Figure 5.6.2 – Amenities and Attractions – Muff Village

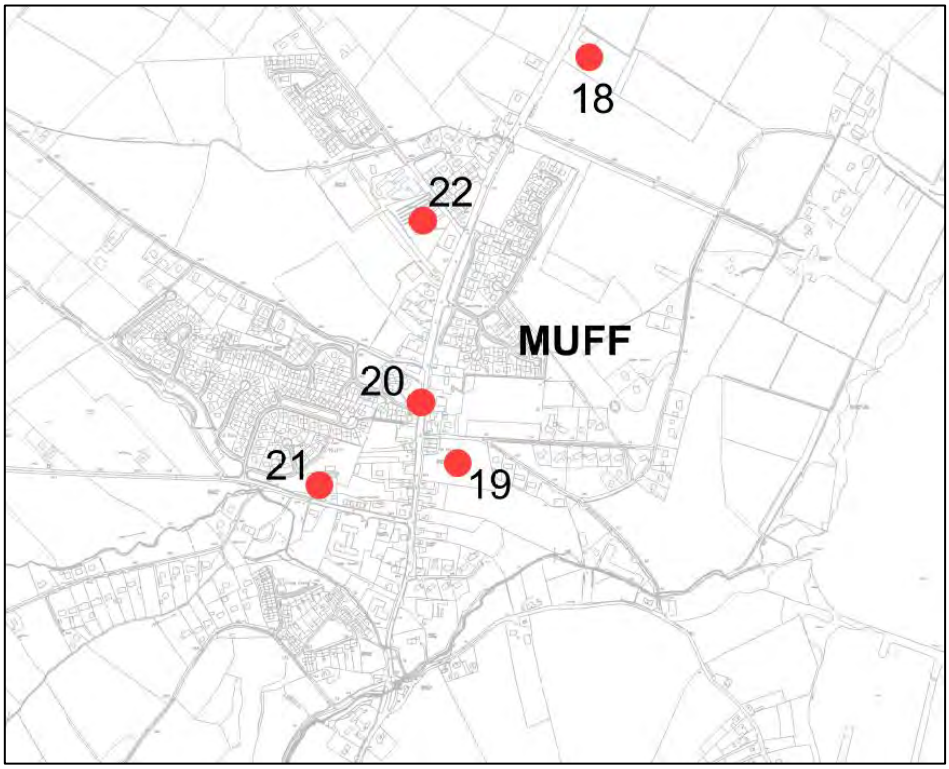


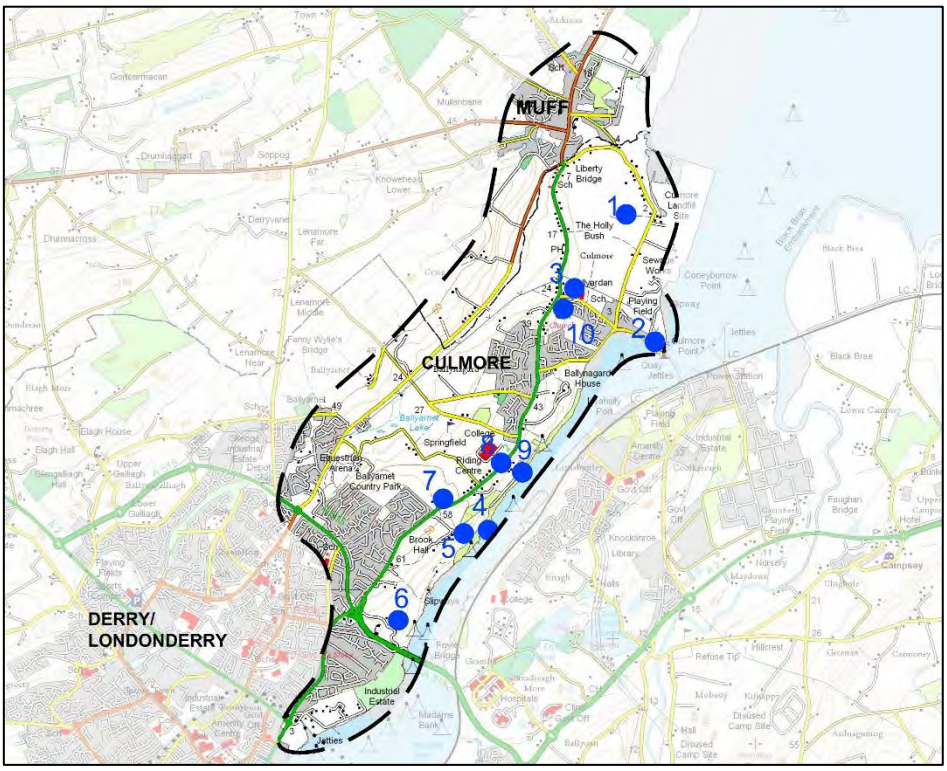
Table 5.6.2 - Amenities and Attractions, Muff Village

Reference	Description	Amenity / Attraction
18	Parks	Muff Community Park
19	Sport Facility	Soccer Pitch
20	Commercial Hub	Muff Town Centre
21	Community Buildings & Churches	Muff Church of Ireland
22	Community Buildings & Churches	Church of the Sacred Heart

5.7 Built Environment and Local Heritage

There are a number of historic buildings and scheduled sites and monuments within the Study Area. While these are not likely to be viewed as 'attractions' by the general public, they may be considered as constraints as the route corridors and the design of the greenway will need to avoid any significant impacts on these sites. These sites and monuments in Northern Ireland are shown on Figure 5.7 below.

Figure 5.7 – Built Heritage – Northern Ireland



The following table provides a summary of the key sites and monuments within the Study Area (not exhaustive). It is noted that the Church of Ireland at Muff is identified as a feature of importance on the National Inventory of Architectural Heritage (NIAH), however this feature has been included in the Local Amenities and Attraction Section.

Table 5.7.1 – Built Heritage

No.	Name	Designation/ Protection	Location
1	Culmore Heavy Anti-Aircraft Battery	Scheduled	Off the Coney Road, opposite Culmore country park
2	Culmore Fort	Scheduled	Culmore Point Road
3	Culmore Church (ruins of)	Scheduled	Off the main Culmore Rd, in the grounds of the present day Church of Ireland.
4	St George's Quay		In the grounds of Brook Hall Estate
5	Ice House		In the grounds of Brook Hall Estate
6	Boom Hall	Listed	Off the main Culmore Road
7	Brook Hall Country House and Gate Lodge	Listed	Off the main Culmore Road
8	Neolithic settlement	Scheduled	Grounds of Thornhill College
9	WWII Light Battery	Scheduled	Along foreshore, NE of former Thornhill College site.
10	Culmore Primary School	listed	Along main Culmore Rd

5.8 Existing Patterns of Travel, Work and Social Interaction

5.8.1 Existing Patterns of Travel and Social Interaction

Travel patterns within the Study Area are expected to be dominated by short, local commuting journeys for work, business and school between Muff / Culmore and Derry. The A2 also serves as the eastern access road to the Inishowen Peninsula – a popular destination for tourists throughout the year and particularly in summer.

The latest census data (2011) records the following population counts:

- Derry / Londonderry: 83,163
- Culmore: 3,465
- Muff: 1,271

5.8.2 Schools and Education Centres

Schools and Education Centres are an important consideration for achieving the NWGN scheme aim of modal shift. Providing a segregated greenway allowing students, parents and

staff to safely travel to school will help shift travel patterns towards more sustainable and healthy models. The selection of route corridors will consider proximity to schools, especially secondary schools or third level institutions where students are more likely to travel unaccompanied by parents or guardians.

The following table summarises the primary and secondary schools within the Study Area.

Name and Location	Description	Student Numbers
Bunscoil Cholmcille	An Irish Medium Primary School for Boys and Girls, located on Steelstown Road.	110
Culmore Primary School	A Primary School catering for Boys and Girls, Located on Culmore Road.	68
Hollybush Primary School	A Primary School catering for Boys and Girls, Located on Ardan Road.	436
Scoil Naisiúnta Naomh Bríd	A Primary School catering for Boys and Girls, Located in Muff.	218
Steelstown Primary School	A Primary School catering for Boys and Girls, Located on Steelstown Road.	375
Thornhill College	A Post-Primary Grammar School catering for Girls, Located on Culmore Road.	1400

6 ROUTE CORRIDOR OPTIONS

6.1 Route Corridor and Proposed Greenway Descriptions

Route Corridor options, based on the Project and Route Specific aims and objectives and on the Constraints, Opportunities and Areas of Interest, were initially identified in the Stage 1 Constraints Study and Route Options Report, published on 25th May 2018. To allow flexibility in the Preferred Route Selection Process, two distinct sections of the greenway route were identified, with a number of Route Corridor options in each section.

- Section 1: Routes from Derry / Londonderry to the southern environs of Muff village.
- Section 2: Routes through and around Muff village to the Community Park.

Figure 6.1 below shows the Route Corridor options. The corridors identified are approximately 10m wide, allowing flexibility in the detailed route alignment and design of the greenway. A summary of each corridor is provided below.

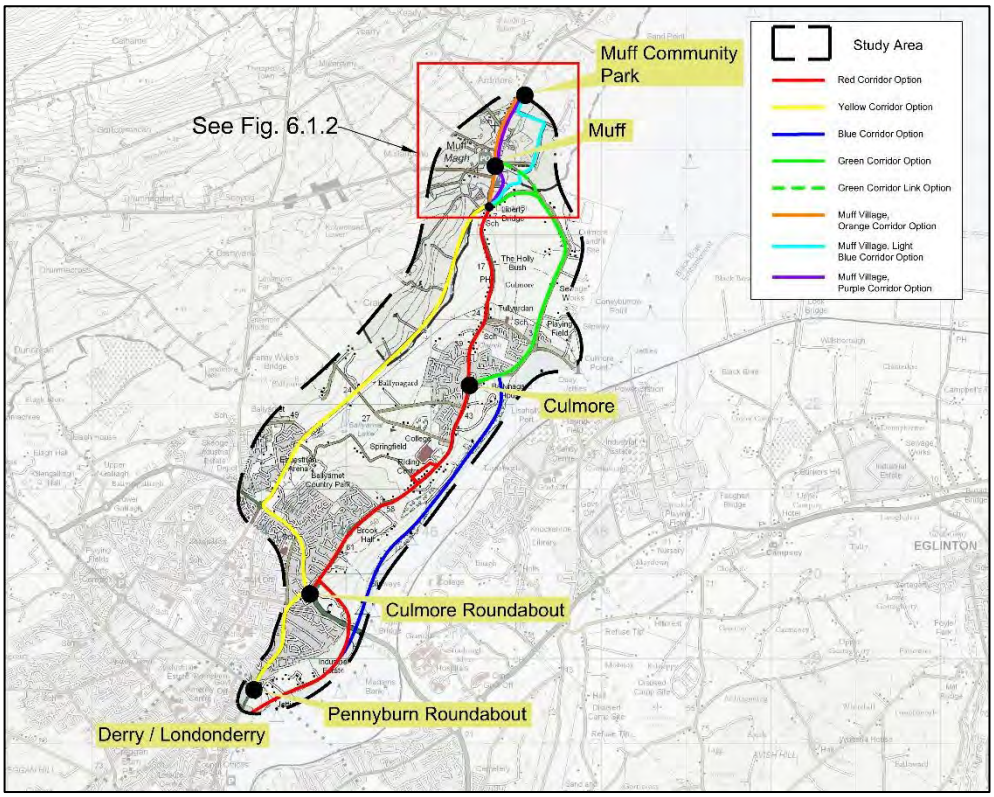
Following the Stage 1 Report, and to facilitate the assessment of each route corridor, the Project Team assessed how a greenway could be developed within the corridor. A description of the proposed Greenway considered for each corridor is also provided below.

As noted in the Stage 1 Report, consideration was given to combinations of Corridors being selected as the Preferred Route, i.e.

- Blue Corridor to Culmore, Red Corridor from Culmore to Muff; OR
- Red Corridor to Culmore, Green Corridor from Culmore to Muff

To allow a comparable assessment of all available route options, the Red Corridor was split into two sections, Red Corridor (South) and Red Corridor (North). A description of each corridor is provided below.

Figure 6.1.1



6.1.1 Section 1 - Red Corridor (South)

This section of the Red Corridor starts at the Pennyburn River where a new pedestrian/cycling bridge is proposed to extend the cityside greenway network linking to Bay Road, Derry. The Corridor runs along the bank of the Foyle River and connects with Bay Park and onwards to the entrance to Foyle Hospice.

A Greenway through this area would be adjacent to Bay Road and separated by a verge or buffer strip where possible, and would then utilise the existing path network at Bay Road Park and Boom Hall as far as the Foyle Hospice.

From the Hospice to Culmore, the corridor follows the alignment of the A2 Culmore Road, terminating at the junction of the A2 Culmore Road and the Culmore Point Road at the Magnet Bar. This option also incorporates a short Corridor through lands at Thornhill College. A Greenway along this section of the A2 would be constructed on the western side of the road (i.e. left hand side, heading towards Muff), as there is an existing footpath which could be widened and enhanced to provide the Greenway. A road crossing point would be required on the approach to Culmore.

View north along A2 Culmore Road at Larcom Drive.

View north from Thornhill College. A greenway facility could encourage students and staff to move to sustainable methods of travel.

A consistent desirable cross section could be provided for the majority of this section, however a pinch point of approximately 180m, with a cross section of less than 3m would remain on the approach to Springfield Road, as there is limited opportunity to acquire 3rd party lands or to reduce the carriageway width along the pinch point.

Some 3rd party lands would be required to achieve the desirable cross section along this route, however these would be minimised as far as is practical and would predominantly be along the A2 Carriageway boundary. It is not anticipated that the corridor will sever existing land boundaries. The total length of this section is approximately 5.5km.

6.1.2 Section 1 - Red Corridor (North)

The Red Corridor (North) is described as the section starting at the junction of the A2 Culmore Road and the Culmore Point Road at the Magnet Bar, and continuing along the alignment of the A2 Culmore Road to the border / Muff Village.

A greenway through this section would utilise existing footways through Culmore village. Due to the limited space available to widen existing footways (or to reduce the carriageway width) to provide a consistent desirable cross section between the junctions of Culmore Point Road and Ardan Road (approximately 830m), the greenway facility through the village would consist of sections of shared pedestrian and cyclist greenway with some sections where cyclists would share the carriageway with vehicular traffic, with advisory cycle lane markings being provided.

From Nr222 Culmore Road to the south of Muff, a greenway would be adjacent to the A2 on the eastern side (right hand side, heading towards Muff), with users being segregated from vehicular traffic. Some 3rd party lands would be required along this section, however these would be minimised as far as is practical and would predominantly be along the A2 Carriageway boundary. The corridor does not show the greenway severing existing land ownership boundaries. The total length of this option is approximately 2.5km.

6.1.3 Section 1 - Yellow Corridor:

The yellow corridor option starts at Pennyburn Roundabout and follows the Culmore Road as far as Culmore Roundabout. From Culmore Roundabout, it turns west and follows the A515 (Madam's Bank Road) as far as Ballyarnett Roundabout.

A greenway along this section would utilise existing footpaths and to existing crossing points. A consistent 3m greenway facility could be provided for the majority of the section of the corridor, however some pinch points with a reduced cross section would remain, (e.g. in the vicinity of Belmont Drive, and between Baronscourt and Talbot Park where footpath width is less than 3m) unless 3rd party lands could be acquired, or the carriageway width could be reduced. Further assessment would be required to determine which side of the carriageway would be most appropriate for connections with the various amenities, shops and cafés along this section, however the a greenway along this section would include multiple crossings of private entrances and minor roads.

At Ballyarnett Roundabout it veers north and follows Racecourse Road, crossing the NI / ROI border approximately halfway between Ballyarnett and Muff, to its junction with the A2 and the proposed Red Corridor, to the south of Muff village.

A greenway along this section of the corridor could be constructed adjacent to the existing carriageway (eastern side), which would require the removal of existing hedgerows, and acquisition of 3rd party lands. Greenway users would be segregated

from vehicular traffic and a buffer strip would also be considered to further improve the sense of the separation from vehicular traffic.

Some 3rd party lands would be required along the boundary of Racecourse Road, which would likely consist of a strip of land up to 10m from the edge of the carriageway to allow for the construction of the greenway, replacement planting, fencing and accommodation works. The corridor does not sever existing land ownership boundaries. The total length of this option is approximately 7.5km.

Note – Combinations of sections of the Yellow Corridor with sections of the other corridors were not assessed as it was considered that any such combinations would not offer a suitable and desirable Greenway.

View along Madam's Bank Road

6.1.4 Section 1 - Blue Corridor:

This corridor starts at the existing path networks in Boom Hall. It follows the shore of the Foyle Estuary as far as Culmore Point Road where it connects with Culmore village and the Red Corridor. The corridor traverses Council owned lands as well as privately owned lands and the Assessment Criteria outlined in Section 8 will describe how this constraint is be assessed during the Route Selection Process.

A greenway through this corridor would be off-line and segregated form vehicular traffic, and the optimum rural cross-section would be delivered as far as practicable.

This corridor allows for the greenway to be developed closer the water's edge, however, environmental and design issues will need to be closely considered. Furthermore, the corridor will require the acquisition of some 3rd party lands.

In order to link with Culmore village, the corridor extends along Culmore Point Road towards the junction with A2 Culmore Road. A greenway facility along this section would

use existing footways, with the path width being less than 2m wide at localised pinch points, e.g. between Greenwood and Mount Vernon. (This section is in common with the Green Corridor described below).

The Blue Corridor is approximately 4km.

View from The Quay Trail to proposed location for Bay Road Bridge.

View towards Foyle Bridge and from Bay Park.

6.1.5 Section 1 - Green Corridor:

The Green Corridor begins at Culmore Point Road and heads east towards Coney Road. It continues along Coney Road, passing Culmore Country Park, as far the NI / ROI border the south of Muff.

A greenway facility along this corridor would use the existing footways between the junctions with Culmore Road and Ardan Road, with the path width being less than 2m wide at localised pinch points, e.g. between Greenwood and Mount Vernon, and between Cooleen Park and Ardan Road. There is limited opportunity to increase the path width by reducing carriageway width, or obtaining additional lands in these sections. There is an existing grass verge along some sections of the path and the path may be widened at these sections. Advisory cycle lanes may have to be provided in certain areas, e.g. along the waterfront at Culmore Point Road.

From Ardan Road junction along Coney Road as far as Culmore Country Park, the greenway would be segregated from traffic and could be constructed on either side of the carriageway, however considering that Culmore Country Park is on the eastern side of the road, a greenway on the eastern side of the road would be the preferred alignment and would minimise the number of road crossings required. Some land acquisition would be required to achieve the desired cross section and detailed design would be need to be progressed before the exact greenway alignment and quantity of lands needed could be accurately determined.

View north along Coney Road.

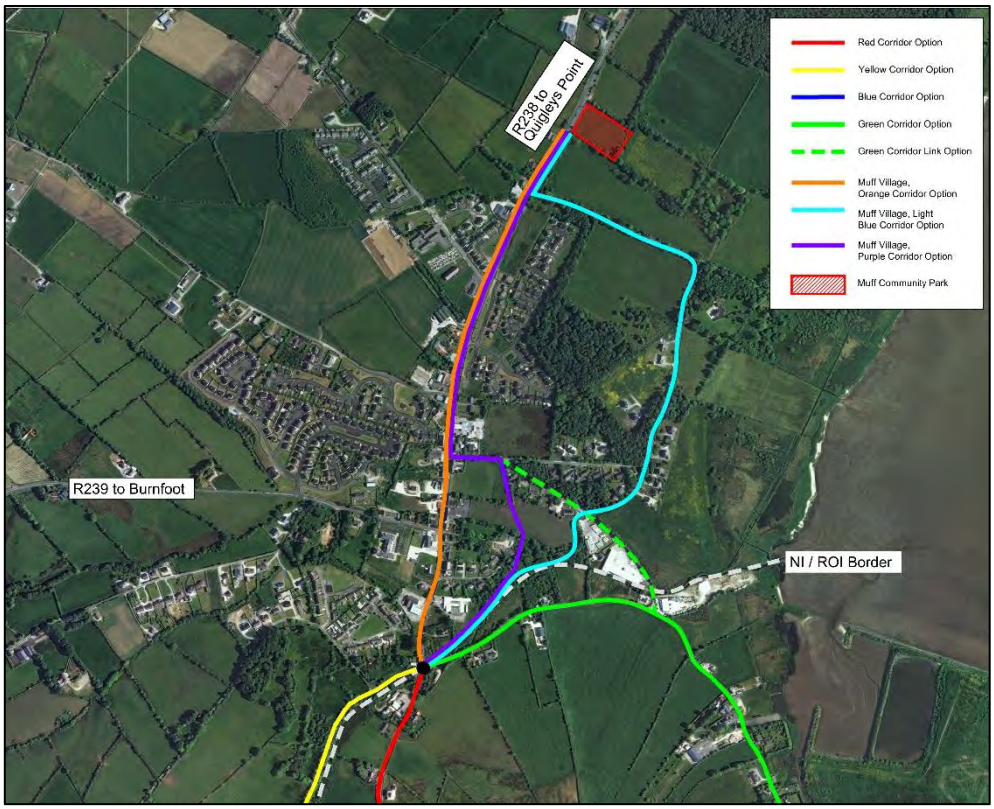
Section of poor visibility at Coney Road. Shared Carriageway / Greenway envisaged.

From the Country Park as far as the south environs of Muff, due to limited available cross section widths, a greenway would predominantly consist of a shared carriageway where users would not be segregated from vehicular traffic, although some sections of segregated greenway facility could be achieved.

The Green Corridor is approximately 3.6km length and land acquisition will be minimised as far as practicable.

An alternative Green 'Link' Corridor has also been considered, linking the Green Corridor at the old border crossing / disused bridge on Coney Road, with Muff, via Canning's Lane and Kilderry Lane. This link is approximately 600m.

Figure 6.1.2: Route Corridor Options, Muff Village



6.1.6 Section 2 - Muff Village, Orange Corridor

Tying in with the endpoint of Section 1 Options, the Orange Corridor continues through Muff village along the R238, connecting with the shops and businesses and terminating at the Community Park. The total length of this option is approximately 1.2km.

A greenway through Muff would consist of widening existing footways where possible. Given the fixed width available between buildings on each side of the street, there may be limited opportunities to do this, and in restricted locations, cyclists may be required to share the carriageway with vehicular traffic. To the northern extents of the village, on the approach to the Community Park, a greenway could be constructed on the eastern side of the carriageway which would be segregated from vehicular traffic and would meet the minimum desirable urban cross section.

Pinch Point at Muff Main Street

6.1.7 Section 2 - Muff Village, Light Blue Corridor

The corridor loops around lands to the east of Muff village, via Coney Road, crossing a stream and following the bank of this stream towards Canning's Lane. From Canning's Lane it continues along the northbound section of Kilderry Lane (L-18913), turning west along an existing path until it rejoins the R238 north of the village, terminating at the Community Park. Access across 3rd party lands will be required. The total length of this option is approximately 1.8km.

A greenway along this section could consist of an off-line, traffic free section as far as Kilderry Lane; a 600m shared carriageway / greenway facility along Kilderry Lane, before it turns west towards the R238; and a new 2.5m wide shared pedestrian / cyclist greenway could be provided as far as the junction with the R238. Where the greenway corridor joins the R238, a segregated facility on the east side of the R238 could be developed as far as the Community Park.

Available traffic survey data indicates that the facility along Kilderry Lane would comply with the design standards.

Following feedback at the Public Consultation Events, the Light Blue corridor identified at Stage 1 has been extended to include a suitable pedestrian/cycle link of approximately 350m along Canning's Lane and Kilderry Lane, and connecting with Muff Main St. Therefore, this link will be assessed in Section 8.4 below.

Kilderry Lane, looking west towards R238.

6.1.8 Section 2 - Muff Village, Purple Corridor

A further corridor option, approximately 1.5km, also loops around lands to the east of the village. This corridor turns north shortly after the stream crossing point (ref Section 5.6 above) and traverses across open fields to Kilderry Lane where it turn west and meets the R238 in Muff Village, connecting with shops and businesses before continuing north to the Community Park. Access across 3rd party lands will be required.

A greenway on the purple corridor would consist of an off-line, traffic-free section from Coney Road adjacent to its junction with the Culmore Rd as far as Kilderry Lane; short sections of shared carriageway / greenway (60m) and 3m wide segregated greenway (70m) as far as Muff Main St; and from that point to the end of the corridor at the Community Park, a greenway on the east side of the R238 could be constructed (similar to the Orange corridor described above. This section would be predominantly segregated from vehicular traffic.

Stream along Coney Road, looking towards A2, at start of Light Blue and Purple Corridors.

7 PUBLIC CONSULTATION PROCESS

The Stage 1 Constraints Study and Route Option Report was published on 25th May 2018. The report was published on DCSDC and DCC's website, and on the project website – www.nwgreenway.com. Links to the report were also published on the local authorities dedicated social media space at Facebook and Twitter

Following the publication of the report, two Public Consultation Events were held as detailed below at which the drawings and proposals outlined in the Stage 1 Report were displayed. Members of the Project Team were present at each event to explain the Project proposals, drawings and programme for delivery to the public. Feedback forms which provided the public with an opportunity to formally comment on the proposals and on the consultation event were distributed and the public was encouraged to complete and return these forms. A return date of 15th June was given, allowing 4 weeks for the public to consider and comment on the proposals.

The following table summarises the Public Consultation Events.

Table 7.1 – Summary of Public Consultation Events

Date	Venue	Nrs Signed Attendance *
1st Public Consultation Event, Wednesday 23rd May 2018	Hollybush Primary School, Culmore, Derry	69
2nd Public Consultation Event, Thursday 24th May 2018	Community Hall, Muff, County Donegal	89

92 feedback forms were returned and support for the scheme was broadly positive.

The following table summarises the numbers of feedback forms returned along with an overview of the responses provided.

** Sign in sheets were provided at each event and the numbers of signed in attendees are given in the table. It is noted that at busy periods some people may not have signed in, while others attending chose not to sign in.*

Table 7.2 – Summary of Consultation Feedback

	Responses from Northern Ireland	Responses from Republic of Ireland	Total
Feedback Forms Returned	58	34	92
Supportive of Principle of the Greenway connecting Derry to Muff	100%	100%	100%
Responses indicating Route Corridor Options presented were comprehensive	88%	88%	88%
Responses indicating consultation process has enhanced the understanding of the North West Greenway Network	98%	97%	98%

Appendix C included in this report contains further details on the public feedback provided.

8 ASSESSMENT OF ROUTE CORRIDOR OPTIONS

8.1 Introduction

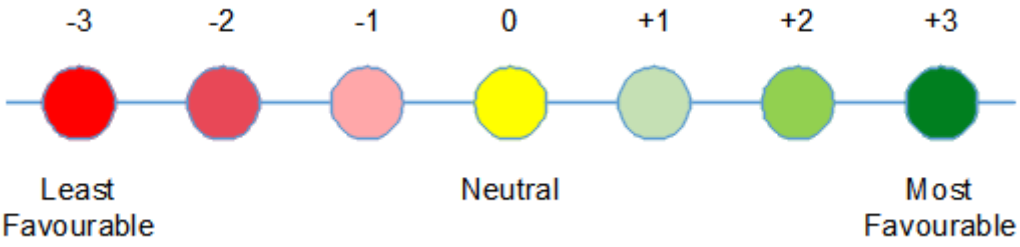
The assessment of each Route Corridor was carried out with reference to the route specific aims and objectives, and the assessment criteria and scoring matrix established in the Stage 1 report. For each of the criteria, a preamble which describes assessment and scoring process has been provided. (Note – preambles are included for the NI section only, however the same approach has been carried through for the ROI sections also).

8.2 Route Corridor Assessment Criteria

The Route Corridor Assessment Criteria set out the criteria used to score the Route Corridors and select the Preferred Route Corridor Option and are based on the Scheme Assessment Reporting (SAR) assessment criteria outlined in TD37/93 of the Design Manual for Roads and Bridges (DMRB) & Transport Infrastructure Ireland (TII, formerly National Roads Authority) Project Management Guidelines. The DMRB & TII criteria are more relevant to motorway and road schemes and are not strictly relevant to greenway schemes. Therefore, the Route Corridor Assessment Criteria have been adapted to reflect the proposed greenway scheme.

Each route corridor has been scored against the assessment criteria, having regard to the Route Specific Aims and Objectives and using the following scoring matrix, where the most favourable rating for a particular criteria will be +3 (green) and the least favourable will be -3 (red). The Preferred Route Corridor will be the Route with the highest overall score.

Scoring Matrix



The views of members of the public on the respective route options must be recorded and reflected in the route scoring. Routes which receive negative feedback will score lower than those which have neutral or positive feedback.

The route assessment criteria adopted for this Greenway Scheme are informed by policies and documents identified in Section 2 of the Stage 1 report. As part of carrying out the assessment under these criteria this report includes a preamble to each assessment criterion

which expands and further defines how the Project Team carried out the assessment of each route corridor.

Eleven Assessment Criteria have been identified as follows;

(i) Modal Shift
(ii) Connections and Local Access
(iii) Cultural, Heritage and Visual Attractions
(iv) Landscape and Visual
(v) Flora, Fauna and the Environment
(vi) Physical Constraints
(vii) Quality of Service
(viii) Material Assets and Human Beings
(ix) Potential Cost
(x) Physical cross-border connectivity
(xi) Public Feedback

8.3 Preambles

8.3.1 Preamble to Modal Shift

> Extract from Stage 1 Report:
>
> NWGN Modal Shift aims and objectives will be assessed against each route corridor. We will consider each corridor in relation to its connectivity / proximity to towns and villages, residential areas, schools and places of work and its potential to impact on the way in which people commute and travel between these places. High score will be awarded where a corridor has potential to deliver significant change in how the local population commute and travel.

Further to the paragraph above, in assessing this criterion, the project team considered the potential for each of the route corridors being compared to deliver “significant change in how the local population commute and travel” as set out above, and to meet the Route Specific Aims and Objectives outlined in Section 3.3 of the Stage 1 Report.

The key Route Specific Objectives defined at Stage 1 which are relevant to the Modal Shift criteria are:

- Connect the commuter villages of Culmore (Co. Derry / Londonderry) and Muff (Co, Donegal) with the city of Derry / Londonderry.

- Offer an attractive and cost effective sustainable alternative to private motor vehicle transport by providing connections between residential areas and areas of employment, commercial centres and recreational facilities.

In accordance with these objectives it is considered that the greatest potential to bring about a significant increase in modal shift can be expected from routes which connect the major population centres listed above to major destinations/trip generators such as large employers or education centres. These can be categorised as **Primary Modal Shift Drivers**. Primary modal shift drivers include:

- Secondary schools
- Major employers
- Key Cities, Towns and villages listed in the Route Objectives

It is also recognised that a secondary contribution to an increase in modal shift at a local level can be made by connecting smaller settlements and communities to local destinations such as local service centres, small employers and smaller educational centres which can be categorised as **Secondary Modal Shift Drivers**. Secondary modal shift drivers include:

- Smaller villages and settlements.
- Primary schools
- Local employers
- Local services (shops etc.)

Therefore, the key factor in assessing the potential of any corridor option to deliver modal shift is how it connects to Primary and Secondary modal shift drivers, how it impacts on existing provisions, and how likely people are to use it for key journeys.

Connection to major modal shift drivers would permit greater numbers of users to connect to both the key nodes and other services along the length and are those considered to have the most relevant volumes of the user group (i.e. adults or secondary school pupils) who would consider removing car journeys in lieu of cycling

Connection to minor modal shift drivers would still permit users to connect to both the key nodes and other services along the length but would be those which would offer lower numbers of potential journey changes, or would be users less likely to replace car transport (i.e. Primary school pupils).

Where an existing cycle provision is in place, but the provision of a particular route option envisaged under this project has the potential to cause existing users to cease to travel by bicycle or foot and instead resume travel by car, this should be considered as a negative influence on the score for this criteria, despite the ability to connect to the end nodes and other listed modal shift drivers.

Finally it is considered that for a proposed route to have potential to lead to a significant change in travel behaviour and to be considered an "attractive and cost effective, sustainable alternative to private motor vehicle transport" the assessment must also consider some elements of the quality of service and user experience which any potential users would encounter, with particular reference to the needs of commute cyclists as defined in relevant standards and guidance documents.

While a route may connect to Primary and Secondary modal shift drivers, if the route does not offer an attractive experience meeting the needs of the prospective user, it is ultimately less likely to attract actual use and therefore less able to deliver modal shift.

Therefore where a route corridor fails to provide a minimum standard under the Quality of Service criteria as detailed in Section 8.3.7, when the Quality of Service assessment is finalised, the final Modal Shift score will be reconsidered, and a reduced score applied if appropriate.

8.3.2 Preamble to Connections and Local Access

> Extract from Stage 1 Report
>
> Connections and Local Access Criteria will assess how each corridor links greenway users to local amenities such as accommodation, food and retail outlets, comfort breaks and public transport.

In considering this criterion the Project Team examined best practice guidance for recommended frequency of access to amenities such as accommodation, food and retail outlets.

The standards for Eurovelo cycle routes are set out in a European Cyclists Federation (ECF) document, **Guidance on the route development process (2011)**, which has minimum requirements for access to basic accommodation at minimum 30km intervals and access to food and drink (at pubs, restaurants etc) every 15-45km. In order to be certified as a touring route for all user categories the requirement set down in the ECF **European Certification Standard for the European cycle route network (2018)** is that there should be access to "Food or rest areas available every 15 km. Drinking water available every 15 km."

The ROI Dept of Transport, Tourism and Sport (DTTAS) Greenways and Cycle Routes Ancillary Infrastructure Guidelines does not provide detailed guidance on frequency of access to these amenities but does states that routes (particularly for leisure cyclists) should have regular resting areas & opportunities to buy food and drink. It does state that "ideally, major rest areas (e.g. at a halfway point on a 50km Greenway) should have somewhere on or close to the Route to get basic food and drink and toilet facilities".

The relevance for access to public transport is outlined in **Cycling by Design (Transport Scotland, June 2011)** as being based on provision of a "competitive door to door alternative to the private car for medium to long distance trips" and this standard recommends that "People are more likely to cycle if the journey to the public transport terminal is convenient and there is good, reliable provision of cycle parking or bicycle carriage to allow them to continue their journey using public transport."

The ECF requirement for access to public transport is that "access the route is legally and physically possible at least every 75km" while the ROI DTTAS Greenways and Cycle Routes Ancillary Infrastructure Guidelines recommend that routes should "be accessible via public transport at critical points".

Therefore the primary focus is that access should be available to public transport hubs or terminals where these exist within the study area. It is considered that links to local bus stops or services is of limited importance, particularly as most of these services do not have facilities for the carriage of bicycles on-board.

Having regard to the connectivity provided by all route alternatives considered in this report to the towns and villages identified in the Route Specific Aims and objectives, the maximum distance between connection to food, drink and toilet facilities is approximately every 6km with the exception of the Red route between Fahan and Buncrana - which is still less than 15km.

Therefore, at the outset of this assessment, as each route corridor option ultimately connects users to the major amenities at each node, and when linked to all the sections that would comprise the entire preferred greenway route, ample access to the major amenities would be provided, it was deemed that all routes would start with the maximum score of 3.

After consideration was given to how each route corridor connects with the major amenities within the overall study area, a further exercise was carried out to determine on how each route corridor connected to the local amenities within each section.

Where there are additional amenities within a section, routes which do not connect to these amenities will be awarded lower scores than those which do.

8.3.3 Preamble to Cultural, Heritage and Visual Attractions

> Extract from Stage 1 Report
>
> This criteria will compare how each corridor connects greenway users with notable Cultural, Heritage and Visual Attractions within the Study Area.

In considering this criterion, the Project Team considered how each greenway route linked to the Cultural, Heritage and Visual Attractions within a section, and also the importance of each feature within the section under a number of key categories which are set out below.

To assist in this criteria the information contained in the National Monuments Service and Northern Ireland sites and monument record database was assessed, as well as any notable sites or features identified during the public consultation process. Section 5.7 of this report has been revised and updated to include a number of additional sites and features identified since the Stage 1 Assessment.

Under this criteria the views of significant landscapes, or of significant flora and fauna, were not assessed, as these will be considered under separate criteria.

The key categories are;

(i) Items which could be considered to be, or are designated in the sources referred to in Section 5.7, as of National or International significance:

This includes listed or protected structures or buildings, internationally acknowledged points of historic interest, battlefields of note and items scheduled for inclusion on the next revision of the respective registers of listed or protected structures. Such items may be the reason for visitors to travel to a certain area.

(ii) Items which could be considered to be, or are designated in the sources referred to in Section 5.7, as of Regional significance:

This includes items or locations that while not formally listed or scheduled on a national basis are none the less of regional interest and significance and which could attract visitors once in the area.

(iii) Items which could be considered to be, or are designated in the sources referred to in Section 5.7, as of local significance or niche interest:

This includes items or locations that hold particular significance in local history, lore or heritage or are significant examples of specialist interest, examples of which may be minor features of railway heritage, WW1 emplacements etc.

A Greenway route will ideally provide as good a connection as possible to as wide a number of Cultural, Heritage and Visual attractions as possible to encourage external tourism and local access to historic offerings.

Therefore when assessing and scoring the Cultural, Heritage and Visual Attraction criteria within each section consideration will be given to how each route connects to:

- The number of attractions within a section
- The type of attractions within a section
- The number of attractions a route can access
- The type of attractions a route can access

Where a section contains a range of attraction types, ranging from national significance to local significance, careful consideration was given to the relative value of connecting a major attraction but missing a significant portion of locally significant attractions, versus a lesser connection to a major attraction but a more consistent level of connection to regional and local attractions.

8.3.4 Preamble to Landscape and Visual

> Extract from Stage 1 Report
>
> An assessment of the landscape and views along each corridor will be carried out. A Landscape & Visual Assessment will be completed which will rate the views at key points along each corridor, with high scores awarded where a corridor option provides striking or exceptional views across the landscape.

In assessing this criterion, a Chartered Landscape Architect undertook a Landscape and Visual Assessment Report which considered the views at key points along each corridor option within a section.

This report provides an outline summary of the landscape within the study area and the perceived Landscape Quality of the route corridors which have been identified in the Stage 1 Report. It describes the Landscape and Visual Experience along each corridor option and evaluates each route corridor under comparison. The results of this Landscaping and Visual Assessment are carried forward into the scoring of each route.

A copy of this report is appended to this Stage 2 Report.

8.3.5 Preamble to Flora, Fauna and the Environment

> Extract from Stage 1 Report
>
> Similar to 'Landscape and Visual' criteria, we will assess how each corridor provides a connection to notable flora and fauna within the Study Area. We will also consider proximity to designated environmental sites, e.g. Special Areas of Conservation (SAC), Special Protection Areas, (SPA) and Areas of Outstanding Natural Beauty (AONB).
>
> The effect of the construction of a proposed corridor on the environment will also be considered and corridors that negatively impact on the environment will score less highly than those which do not.

This criterion is a combined assessment of the connectivity with notable flora and fauna (e.g. woodlands, areas of wildflowers, and wildlife) and designated environmental sites and of the impact on all aspects of the natural environment (whether designated or not) of the construction and operation of the route corridors.

The 'Connectivity' section of the assessment is based on whether the route corridor connects directly (i.e. brings greenway users in contact) with notable flora and fauna, or designated environmental sites, available within the Study Area (or section of the study area relevant to a route corridor). This connection is deemed a positive factor for a route corridor. Conversely, if there are notable flora and fauna, or environmental designations in the study area, and a route corridor misses out on this connection, it is deemed a negative factor for that corridor. If there are no notable flora / fauna or environmental designations in the study area (or section of the study area under consideration) then all routes can be considered 'neutral' in terms of the 'connectivity' factor.

For the 'impact' section of the assessment, the project team considered the impact of construction and usage of the route corridor on the environment, while also rating the type of 'environment' affected, and of the mitigation measures that could be provided to offset the likely impact. Therefore, the construction of a greenway route beside a road which required the removal of a planted hedgerow, was considered less impactful that the construction of a greenway route beside a road which required the removal of an established, mature tree-lined border. A greenway route constructed through a wooded area and requiring the removal of several mature trees, which could not be replaced was considered more impactful than a greenway route constructed beside a road, where replacement planting could be provided to offset the loss of a road border / hedgerow.

Where a route corridor passed through, or close to a designated environmental site, the project team assessed the possible impacts on the designation, and the range and suitability of available design solutions to mitigate the impact on the designation.

In scoring this criteria, the cumulative effect of both aspects of the criteria as identified above will be considered and higher scores will be awarded to route corridors which have better connectivity to and lower impacts on the environmental features described above.

8.3.6 Preamble to Physical Constraints

> Extract from Stage 1 Report
>
> Physical Constraints, e.g. topography, river / stream crossing points, carriageway crossing points and local 'pinch' point, likelihood of flooding will inform the design of the preferred greenway. While significant changes in topography and river / stream crossing points bring opportunities for scenic landscape views and attractive features along a greenway they can also present design and construction challenges in relation to achieving desired gradients.
>
> Carriageway crossing points can deter greenway users and 'pinch' points, or sections of where path width varies, can make the greenway a less attractive amenity. These issues also present safe design challenges.
>
> In assessing each of the Route Corridors, these types of physical constraints will be considered and scored accordingly.

In assessing this criterion the Project Team considered the following physical constraints on each route corridor, grouped into categories to facilitate the assessment process;

Category 1:

- Stream / River Crossings
- Areas at risk of flooding

For these types of constraints, the Project Team considered the number of each constraints, and the type of design solution that could be provided, e.g. short bridge or culvert at a stream crossing (depending on width of channel) or a major bridge structure. Short span bridges / culverts represent a relatively straightforward design challenge while major bridge structures involve more complex design.

Major bridge crossings would also add significant cost to the average cost per kilometer of the route corridor and are therefore also assessed in the 'Potential Cost' category.

Design solutions at areas of flooding were considered on a case by case basis, as outlined in the discussion on each route corridor.

Category 2:

- Steep Gradients / Changes in Level
- Localised Pinch Points, E.g. narrow cross sections, utilities infrastructure (e.g. pylons), overhead lines etc.) or other obstructions that might impact on the design of the greenway.

For these types of constraints the Project Team considered the potential impact of each of the constraints on achieving the desirable greenway cross section (refer to desirable cross sections provided in Stage 1 report) and / or a greenway gradient which would be in accordance with the design standards.

The Project Team also considered the range of design solutions available for each constraint.

Where a design solution involved additional land acquisition – e.g. to mitigate a pinch point that impacted on achieving the desirable cross section by purchasing 3rd party land – it was assumed, within the context of the scoring exercise and preferred route selection process, that the land could be purchased and the desirable cross section subsequently achieved. The impact of this assumption was then assessed in the 'Material Assets and Human Beings' scoring criteria.

The practicality of implementing design solutions was also considered. For example, where a route corridor involved a steep gradient, a practical design solution could be to provide rest stops along the steep section, or to provide a meander in the greenway alignment within available lands to reduce the gradient. An impractical design solution, within the context of the greenway scheme could be to carry out significant excavations to allow the gradient to be reprofile, or to attempt to purchase significant additional lands to introduce a meander.

Category 3:

- Nr of Major Road crossings required (where a route corridor crosses from one side of road to the other)
- Nr of minor road crossings – i.e. where side roads, access roads etc. cross the route corridor

For the major road crossing constraints, the design solutions considered were controlled or uncontrolled crossing points, while for minor road crossings, the design team will need to consider each crossing depending on the volumes of vehicular traffic using the minor road and the prevailing design standards.

Therefore, the Physical Constraint criteria can be considered as an assessment of;

- The number of physical constraints on each corridor,
- The severity of the constraints and whether practical design solutions can be implemented to mitigate.
- Impact any residual constraint will have on the cross section of the greenway.

Routes which have higher numbers of constraints which cannot be mitigated by reasonable and practical design solutions will score less that those with no constraints or constraints that can be easily mitigated.

A table describing the main physical constraints on each corridor, the design solution, and the residual impact is provided below.

8.3.7 Preamble to Quality of Service

Extract from the Stage 1 Report

For a greenway to attract high volumes of pedestrians / cyclists it must provide an attractive 'product'. The key desirable features of a greenway can be described as:

- Segregated from vehicular traffic
- Safe and accessible for all greenway users
- Developed in accordance with best practise and international standards, and;
- Substantially 'off road', .i.e. through green field lands, preferably where 3rd party land acquisitions are not required.

Route Corridors that can deliver these features will score highly.

INTRODUCTION:

When assessing this criterion, the project team considered whether or not each route option could deliver an attractive product which would encourage usage from a high volume of pedestrians and cyclists. The Project team also acknowledges that by ensuring a high quality product is delivered it will ensure the high level aims and objectives of the project are met.

As outlined in the aims and objectives for the project, for a route to be attractive it must:

- Create a safe and **pleasant** amenity along which the local population can commute, socialise, and **use as a recreational and leisure facility**
- Provide a Greenway route that is safe, **comfortable and attractive to all user groups** (both cycling and walking) and provides a reliable and safe level of service.
- Provide a route that can facilitate comfortable combined use by cyclists and pedestrians in an environment that **feels safe** to both user groups, particularly in areas with high levels of mixed activity.
- Provide **high quality infrastructure which will attract increased visitors** to the area and drive the demand for associated cycling/walking related facilities e.g. cafes, bike hire etc.

ASSESSMENT:

In order to determine whether a greenway corridor offered an attractive product and meet aims and objectives / criteria set out above, the corridor was assessed in terms of the four desirable features of a greenway as outlined in the Stage 1 report, i.e.;

a) Segregated from vehicular traffic
b) Safe and accessible for all greenway users
c) Developed in accordance with best practise and international standards, and;
d) Substantially 'off road', .i.e. through green field lands, preferably where 3rd party land acquisitions are not required.

It was also noted that the definition of each of the four desirable features, and consequently the 'attractiveness' of the greenway product, varies when applied to greenways in differing environments and settings, i.e. urban and rural, as what defines an attractive, segregated, safe, off-road greenway designed in accordance with best practice in an urban setting may differ from that in a rural setting.

Therefore, in assessing the Quality of Service for a route corridor, the following approach was adopted;

- Assess the setting of the corridor, i.e. urban or rural, or the proportion of the corridor within each setting. The design standards that would be applied within an urban or rural environment were also considered.
- Assess the corridor in terms of the four desirable features, with each feature assessed in terms of its definition in an urban or rural context. The link between each of the four features and consequential 'attractiveness' of the greenway corridor was also considered.
- Final engineering judgement based assessment of the attractiveness of the greenway product that could be delivered along the route corridor.

1. Assessment of Rural and Urban, and Design Guidelines to be considered:

For the purposes of the design of the greenway, and the assessment of this scoring criteria, the following definitions have been applied:

- Rural locations are considered to be outside of city, town or village fabric and boundaries, and not subjected to a local speed limit. The DTTAS Greenway Strategy guidance will be considered and DMRB standards will apply as appropriate. National Cycle Manual guidance may be applicable on lower speed sections with low traffic volumes.
- Urban locations are considered to be inside city, town or village boundaries and are subjected to a local speed limit. The National Cycle Manual and the Design Manual for Urban Streets will be the primary design guides.

2. Assessment of Four Desirable Features

a) Segregated from Traffic

In terms of this assessment, it is considered that a facility that is fully removed from vehicular traffic and does not run within or alongside a road corridor is the maximum, and most desirable form, of segregation.

Where the maximum level of segregation cannot be provided, and the greenway runs within/alongside an existing road corridor, the desirable level of segregation will be that dedicated space for pedestrians and cyclists is provided, and incorporates vertical separation from vehicular traffic using kerbs. It is also highly desirable that, where possible, this level of segregation will be increased by providing horizontal separation using a verge/buffer strip preferably including hedges, fences or barriers.

In locations where the above forms of segregation cannot be achieved, the following levels of segregation will be considered;

Providing a dedicated cycle lane facility on the carriageway with segregation by way of road markings. This is in compliance with standards for urban areas but is generally undesirable on rural roads or roads with higher traffic volumes and speeds, other than in exceptional circumstances where traffic volumes and speeds can be demonstrated to be very low. However having regard to the project aims and objectives and desire to provide a Greenway facility these type of arrangements should only be considered where insufficient space was available to provide a more desirable cross section.

Completely unsegregated facilities where cyclists and pedestrians share the road space with motorised traffic are considered to be not acceptable in most scenarios, however they may be considered in some urban situations or other locations where very low traffic volumes and speeds have been identified, and where ‘shared street’ or “quiet way” type measures (signage, road markings etc) are implemented in accordance with the prevailing guidelines and standards.

In scoring this element of the criteria, the ability of a greenway corridor to provide a minimum level of segregation as outlined in the prevailing design standards is deemed to be a requirement for a neutral or positive score, with corridors that can provide segregation above a minimum standard scoring more positively, while those that do not meet the minimum standards will score negatively.

b) Safe and accessible;

Safety

It will be a minimum requirement for all routes to be designed in accordance with relevant design standards. The further importance of the “perception of safety” is highlighted across all major design standards in UK and ROI as being a key design principle as highlighted in the extracts above.

Therefore it is considered that route options should be expected as a minimum to meet basic design and geometric standards in order to achieve neutral or positive scores. Where routes fail to achieve any element of the basic design standards negative

scores will apply, however route options which provide facilities that offer a higher perception of safety, particularly for young/vulnerable user groups will receive more positive scores.

Accessibility

In assessing this element of the criteria, the accessibility of the corridor for all users, and in particular the needs of vulnerable users such as families with small children, elderly people, wheelchair users and the mobility impaired was considered. The ROI National Trails Office publication "Classification and Grading for Recreational Trails" provides various classifications of both walking and cycling trails indicating their suitability for different user groups, including "multi-access" trails which are defined as "accessible to all, including people with reduced mobility, wheelchair users, people with a vision impairment, using crutches, with a buggy, with small children, older people and so on". Key factors influencing accessibility which can be considered at this stage are width, gradients and surface quality.

For ROI routes it will be desirable that the route will meet a minimum of Class 2 Cycling or Class 1 Walking trail standards.

Within Northern Ireland, the advice and requirements provided in the Planning Service's 'Planning Policy Statement (PPS) 3, Access, Parking and Movement' and Development Control Advice Note (DCAN) 11, 'Access for People with Disabilities' will be considered, as well as the relevant Sustrans Design Guidelines.

c) Developed in accordance with best practise and international standards;

In considering this element a comprehensive review was undertaken of UK and ROI Design Guides and Technical Standards to identify the key drivers which may impact on the attractiveness of the proposed greenway and its potential to "attract high volumes of pedestrians / cyclists".

Core Design Principles:

"Extensive networks of high quality routes that enable people to cycle safely and conveniently should reflect the five core design principles of:

- *coherence*
- *directness*
- *safety*
- *comfort*
- *attractiveness"*

(Reference Sustrans Design Manual, Chapter 1: Principles and Processes of Cycle Friendly Design).

The above five principles of cycle network design are common across design guidance published in both NI & ROI by various relevant Transport Authorities and Sustrans.

Some of the key desirable features under these headings which will be considered when assessing the route corridor options are set out below (non exhaustive).

Coherence:

Routes "should be logical and continuous. Delays, detours, gaps or interruptions should be avoided." (National Cycle Manual, ROI)

Be continuous and recognizable. Offer consistent standard of protection throughout" (Sustrans Design Manual, Ch1)

Routes should be continuous from an origin to a destination, easy to navigate and of a consistent Quality of Service. (TII Rural Cycle Design Offline)

Directness:

"Be based on desire lines. Result in minimal detours or delays. Provide a positive advantage, in terms of directness and priority, over motor traffic." (Sustrans Design Manual, Ch1)

Cycling infrastructure should be as direct as possible, minimising any delays or detours. Should confer an advantage in terms of average distance or journey time when compared with other transport networks. (NCM)

Safety:

"Design should minimise the potential for actual and perceived accident risk. Perceived risk is a key barrier to cycle use and users should feel safe as well as be safe." Cycle by Design, Transport For Scotland

"Any perception of a lack of safety could be a deterrent to cycling" NCM, ROI

"Core Design Principles: Be safe and be perceived as safe" Sustrans Design Manual, Chapter 1: Principles and processes of cycle friendly design

See also Section 2 (b) above.

Comfort:

"Anything that causes discomfort or delay, or requires a disproportionate amount of effort, is likely to result in the cycling facility not being used." (National Cycle Manual, ROI). Key elements include surface quality and avoiding excessive gradients.

"Be designed to avoid complicated manoeuvres. Enable cyclists to maintain momentum" Sustrans Design Manual, Chapter 1: Principles and processes of cycle friendly design

Routes should minimise the mental and physical stress required. Routes should meet surface width, quality and gradient standards and be convenient, avoiding complex manoeuvres. (Cycle by Design, Transport for Scotland)

Attractiveness:

Infrastructure should be designed in harmony with its surroundings in such a way that the whole experience makes cycling an attractive option. A route should complement and where possible, enhance the area through which it passes. (Cycle by Design, Transport for Scotland)

The cycling environment along a route should be pleasant and interesting. This is particularly important for beginners, tourists and recreational cyclists. (NCM ROI)

The ability for people to socialise by walking or cycling two abreast, or to stop and rest or look at a view, makes for a more pleasant experience. (TII Rural Cycle Design Offline)

Technical Standards

All the relevant technical design standards outlines in Appendix A shall be expected to be complied with fully at the detailed design stage. Route corridors should not have features or attributes which will be likely to limit the ability to meet these standards. Key considerations include:

Gradients: Routes should be able to achieve minimum standards for gradients, and where standards are exceeded lengths kept to a minimum.

Cross Section: Routes should be able to meet minimum cross section required for their locations and route type (road class, urban/rural etc). Standards that will apply include 'DN-GEO-03031 Rural Road Link Design' and 'DN-GEO-03036 Cross Sections and Headroom' for ROI and 'DMRB Vol 6, Section 3, Part 5 TA90/05' for NI.

Separation from traffic: Separation distances from traffic in accordance with standards are key to the attractiveness of the facility. Standards that will apply include 'DN-GEO-03036 Cross Sections and Headroom' for ROI and 'DMRB Vol 6, Section 3, Part 5 TA90/05' for NI. . "The space needed for a cyclist to feel safe and comfortable depends on.....the distance from, and speed of other traffic" (DN-GEO-03036 Cross Sections and Headroom)

d) Substantially 'off road', .i.e. through green field lands, preferably where 3rd party land acquisitions are not required

Recommendations in relation to traffic free routes and other forms of segregation are already referred to in this preamble. In the scoring of this element of the Quality of Service criteria, an 'off road' corridor is further defined as a section of greenway that could be constructed through lands where there would be no normal vehicular traffic can access (except for maintenance vehicles). Therefore a greenway which was constructed through a verge or margin adjacent to a road, would not be considered 'off road'. In an urban setting, a greenway within a public park could be considered 'off road'.

Route Corridors that are 'off road' will be awarded higher scores than corridors that are not considered 'off road'.

3. Final Overall Assessment of the 'Attractiveness' of the Corridor

Having given consideration to all the factors contributing to the Quality of Service criteria, it was also considered that the final assessment, and scoring, of the route corridor should include a final reflection on the complete greenway facility that could be delivered on that corridor.

In particular, the potential for the 'attractiveness' of a route to be defined by its 'weakest link' was considered. For example, if a route corridor could be designed to exceed the minimum Best Practise and International standards for the majority of its length, but failed to meet minimum segregation, safety and accessibility standards for a short section, the overall 'attractiveness' of the greenway facility could be considered lower than a route which could be designed to meet, but not exceed, Best Practise and International standards for its entire length.

CONCLUSION AND SCORING PRINCIPLES

In conclusion, in determining a score for this criterion, it was considered that a neutral (zero) score was merited where the minimum prevailing design standards could be applied to a route corridor, across its entire length. Corridors which exceeded the minimum design standards (either for the entire route, or sections of the route) were awarded positive scores, and corridors which failed to meet the minimum design standards (either for the entire route, or sections of the route) received negative scores.

8.3.8 Preamble to Material Assets and Human Beings

Extract from Stage 1 Report:

This criteria is defined by two sub-headings as follows:

a) Existing Land Use:
The impact of a corridor on existing Land Use will be an important consideration. High scores will be achieved where the proposed corridor uses lands of which have low or neutral usage value, or where existing path networks are developed. Lands which have a high usage value (e.g. agricultural) and on which the proposed greenway may have a negative impact, will score less well.

b) Land Ownership
Land ownership will be a key factor which considering the suitability of a route corridor. Where private land purchase is not required, higher

scores will be achieved. Conversely, if large tracts of private lands are required to construct the greenway, this will result is lower scores. Preference given to options that do not require the acquisition of 3rd party lands. In sections of a route corridor where this is unavoidable 3rd party land take will be minimised with severance of land boundaries avoided as far as practicable.

Further to the definition as set out in the Stage 1 Report, in the assessment of this criteria the project team considered the impact of a number of key factors a potential greenway route would have on private lands;

Requirement for Private Land;

It is considered highly preferable to deliver this project primarily on lands in public ownership or control, however it is also recognised that in order to provide a Greenway which meets the project aims and objectives and meets with design principles and standards, the use or acquisition of privately owned lands is likely to be required. Where viable routes which require no private lands exist these will be deemed to be low impact, while the greater the quantity of private lands required the higher the impact and lower scores will be awarded accordingly.

Amount of individual land owners affected;

Where a route corridor requires the use of private lands the project team evaluated comparable route corridors in the section being considered in terms of the number of individual landowners that would be affected. The number of landowners from which land needed to be acquired would affect the mechanism for seeking to access or acquire the lands. Routes which affect higher numbers of landowners in comparison to the alternative route options will be considered to have more impact and be awarded lower scores.

Severance;

As stated in the Stage 1 Report, and in accordance with the recommendations of the DTTAS Strategy (ROI), severance of lands will be minimised as far as practicable. Where a route corridor severs a land holding, the impact was considered during the assessment. Greenway routes which sever lands will be considered as ‘high impact’ during the assessment and scoring process.

Impact on Land Usage;

The usage value of any lands being impacted by route corridors was considered. High usage value lands were considered to be those which affect people’s domestic dwellings or business and livelihood. Routes which impact on lands from domestic

dwellings and gardens, or which impact negatively on any business operation will be considered to have high impact.

The impacts of routes which traverse agricultural lands will be considered carefully, and a preliminary assessment has been carried out by an agronomist to assess the implications for any farm holdings potentially impacted by route corridors.

Routes traversing private lands which are of lower usage value, e.g. undeveloped industrial lands, brown field sites, or lands zoned for specific purposes, etc. will be considered to have lower impact than route use high usage lands, and will be scored accordingly.

It is also recognised that the development of a greenway may be beneficial to some existing land uses, especially those pertaining to the leisure/tourism services sector.

Impact on privacy;

Route corridors which impacted on the privacy of houses, e.g. an offline corridor constructed adjacent to private houses, or a corridor adjacent to a carriageway which required the construction of new greenway infrastructure (as distinct from widening existing public path infrastructure) were considered to have a high impact during the assessment and scoring process. In such locations, options to provide reasonable mitigation or screening were considered. Where reasonable mitigation could be provided, this was considered to reduce the severity of the impact, and where reasonable mitigation options could not easily be provided, the severity of the impact was considered to be increased.

In the final assessment and scoring of each route corridor, those routes which have a greater combination of high impacts in relation to the above key factors, while also considering the severity of the impact, will score less favourably than those with fewer high impacts.

8.3.9 Preamble to Potential Cost

> Extract from Stage 1 Report:
>
> The potential cost of each corridor option will be assessed against the overall project budget. At this stage of the design process, a fixed rate per km of greenway will be estimated and applied to each route. For each corridor an assessment of structures (eg bridges, river crossings) will be included in the estimated costs. High cost options will receive a lower score than lower cost options.

In assessing this criteria the Project Team considered that the cost per km for a standard greenway profile, as estimated in the Project Cost Plan and taking into account, standard widths, normal ground conditions, minor structures or design challenges, (for example, small limited sections of retention that can be resolved with a dwarf wall kerb or similar), and limited or no demolition or significant site clearance would be used to determine the baseline cost for each corridor.

Factors which directly added or subtracted from the overall cost were considered under the following categories:

(i) Route length

When assessing route options within a section, certain routes may offer a shorter plan length over alternative sections. Where a shorter route is available, there would be a corresponding saving in km length costs if no other factors or influences were in effect.

(ii) Design Challenges

Structures that do not add value to the scheme have a negative impact on the overall cost profile for any given section. Such structures could include:

- Earth retention (i.e. retaining walls, gabions etc.)
- Underpinning
- Extensive Culverting operations
- Removal of areas of invasive species (i.e. Japanese Knotweed or similar)
- Significant reprofiling of existing terrain (i.e. extensive cutting or filling to form route contours)
- Extensive breaking out of rock or similar hard materials

(iii) Structures

Individual structures such as bridges, boardwalks, cantilevered structures etc. have the potential to impose significant cost over both isolated instances and longer stretches of a route.

Therefore, the Potential Cost criteria can be considered as an assessment of;

- The divergence in length between route options
- The number of design challenges considered to be present in any given route
- The number of structures that would be required in any given route

Potential Land Acquisition Costs are not considered in this criteria.

The cost per km of greenway is estimated to be €315,000 based on project cost plan.

8.3.10 Preamble to Physical Cross Border Connectivity

Cross Border Connectivity is a key aim and objective for the scheme. Each corridor or section (or combination of sections) within NI provides a link to the corridors or sections in ROI, and vice versa. Therefore each route corridor will be scored equally in this assessment.

8.3.11 Preamble to Public Feedback

> Extract from Stage 1 Report:
>
> The views of members of the public on the respective route options must be recorded and reflected in the route scoring. Routes which receive negative feedback will score lower than those which have neutral or positive feedback.

The approach to scoring of this criterion involved an assessment of any substantive issues raised during the public consultation stage process with a particular focus on tangible objections or obstacles identified regarding any of the corridor options. The overall broad level of support for, or opposition to, any of the corridors proposed was also taken into account.

Each of the feedback forms was reviewed and an assessment of the support for or opposition to each corridor was carried out.

A further detailed review was undertaken of the nature of the substantive issues being raised, particularly in the case of feedback in opposition to an element of the proposals as expressed on the returned forms. The comments/issues raised were grouped into a range of categories (e.g. health & safety concerns, impact on livelihood and privacy, design issues, environmental concerns etc.) as presented in the tables provided and referenced in the following sections.

Where issues raised in the Public Feedback comments were also already considered and assessed under other scoring categories, to avoid 'double scoring' of an issue (i.e. if a potential physical constraint was identified in the public feedback), it was judged proper that the individual comment raised be only considered under the appropriate scoring criteria, not under public feedback.

Where views and comments were provided that expressed concerns or highlighted issues with any overall aspect of the scheme (e.g. design, construction or usage of the

Greenway), these issues / concerns were assessed in terms of the available solutions and measures that could be proposed and / or implemented to mitigate and alleviate the effect of the issue raised.

Corridors on which the issues raised presented significant challenges to the resolution of the issue received a lower score than those corridors on which the issues raised could be more easily addressed.

Therefore in scoring this criteria, the following key factors were considered and assessed;

- The assessment of the support for, or opposition to, a particular route corridor;
- The substantive issues raised by the public, particularly objections or opposition to route options which had not already been clearly considered in the other scoring criteria;
- The mitigation measures that could be implemented to address and alleviate the effect of the issues raised.

8.4 Assessment of NI Corridors

This section describes how each of the Northern Ireland Route Corridor Options score when assessed against the criteria identified and the summary section outlines the scores achieved.

8.4.1 Modal Shift

Red Corridor (South):

The Red Corridor (South) connects Derry with Culmore and Muff (when linked with the preferred corridor between Culmore and Muff) and sizeable residential areas between Derry and Culmore. It also connects with the primary modal shift generator at Thornhill College, as well as secondary modal shift generators on the southern approach to Culmore.

Red Corridor (North):

The Red Corridor (North) connects Culmore and Muff with Derry (when linked with the preferred corridor between Derry and Culmore), and the sporadic residential developments along the A2. The corridor misses the primary modal shift generator at Grants Bacon Processing Plant, however it does connect with secondary modal shift generators along the corridor i.e. Holybush Primary School and Culmore Primary School, as well as some local businesses along Culmore Road.

Yellow Corridor:

The Yellow Corridor connects Derry with Muff, however it misses the key primary modal shift generators at Culmore and Thornhill College, and the residential areas along the A2. The corridor passes residential areas of Rockfield, Earhart Park and Steelstown Road along the A515, and also connects with some residential areas (e.g. Mansefield & Cornshell Estates) towards the southern end of Racecourse Road. However beyond these areas, there are few connections to primary or secondary modal shift generators.

Blue Corridor:

The Blue Corridor connects Derry with Culmore and Muff (when linked with the preferred corridor between Culmore and Muff). Outside either end of the corridor there are no residential areas along the route and it also misses the primary modal shift generator at Thornhill College. There are plans for walkways to be developed along sections of this corridor as part of the Retirement Village Planning Application (A/2015/0071/O) through former Thornhilll College lands to Brook Hall, where there are plans as part of the Foyle River Gardens (http://foylerivergardens.com/) to extend said pathways through Brooke Hall demesne to Boom Hall. However, while these

plans could improve the connectivity of the corridor to modal shift generators, they cannot be considered under this current assessment.

Green Corridor:

The Green Corridor connects Culmore and Muff with Derry (when linked with the preferred corridor between Derry and Culmore), as well as the residential areas to the east of Culmore. It also connects with the primary modal shift generator at Grant's Bacon Processing Plant which employs approximately 65 people. A short linkage of approximately 500m could be provided at Ardan Road to connect with Hollybush Primary School which would further improve the potential for modal shift. To the north of Coneyville Estate there are only isolated few private residences, mostly concentrated towards Muff.

Scoring Summary:

Both sections of the Red Corridor are considered to provide the most comprehensive opportunities to deliver / increase significant modal shift and in the initial assessment are awarded a score of 3.

The Green corridor connects with the primary modal shift generator at Grant's Bacon Processing Plant, however there are few secondary modal shift generators along the route and a score of 2 is awarded.

The Blue corridor misses primary modal shift generators along its section of the Study Area and a score of 1 is awarded.

The Yellow Corridor does not connect with Culmore which is a key aim and objective of the scheme. A link to connect this corridor with Culmore is not envisaged under this project. The corridor also misses some primary modal shift generators in the study area, although it does connect with a range of secondary modal shift generators. A score of -2 is awarded.

As noted in the preamble, and as described in Section 8.4.7 below, the Red (North) Corridor scores negatively in the Quality of Service criteria and a point is deducted from its score.

Corridor	Red (South)	Red (North)	Yellow	Blue	Green
Mark	3	2*	-2	1	2

* Point deducted for negative Quality of Service Score

8.4.2 Connections and Local Access

Red Corridor (South):

The Red Corridor (South) connects with the great majority of local amenities between Derry and Culmore. There are several food and retail outlets at Culmore and along the A2, as well as the 1a/1b bus route connecting Wheatfield (Muff) to Derry / Londonderry and local bus services.

Red Corridor (North):

The corridor connects with all amenities and facilities within Culmore, and with the shops at Foyleview Fuels close to the border. The 1a/1b bus route also travels along this corridor.

Yellow Corridor:

Beyond each end of the corridor, there are limited facilities along Racecourse Road to accommodate potential Greenway users, however the corridor does run close to the popular Ballyarnett Park. The 13b Bus Route runs from Derry-Londonderry as far as Ballyarnett, however there is no public transport beyond Ballyarnett along this road.

Blue Corridor:

There are no amenities, facilities or public transport linkages along the Blue Corridor, outside of the node points of Derry and Culmore at each end of the corridor.

Green Corridor:

The corridor connects with the amenities and facilities at Culmore, the popular Culmore Country Park (DCSDC is currently developing proposals to enhance Culmore Country Park). The 1a/b bus service travels along Coney Road from its junction with Ardan Road back onto the junction with the A2 at the Magnet Bar. There are no shops or food outlets along the corridor beyond Culmore.

Scoring Summary:

Given the relatively small extent of the Study Area, and the availability of adequate amenities at the start and finish point of each of the corridors, (i.e. at Derry, Culmore and Muff) each corridor is initially deemed to merit a maximum score of 3. On review of the amenities and facilities along the central sections of each corridor, the Blue and Yellow Corridors offered few additional amenities and a point was deducted from its score.

Each of the other corridors offer connections to local amenities (e.g. Culmore Country Park on Green Corridor) and shops (both Red Corridors) across the Study Area.

Corridor	Red (South)	Red (North)	Yellow	Blue	Green
Mark	3	3	2	2	3

8.4.3 Cultural, Heritage and Visual Attractions

Scoring Summary:

Brook House and its associated features (e.g. the Ice House) and Boom Hall are considered the main Cultural and Heritage attractions within the Study Area, however while they are important features in their own right, they are considered to be of local significance / niche interest in the context of this report. Other features of local significance / niche interest the Culmore Heavy Anti-Aircraft Battery at Coney Road, and the Holy Trinity Church at Culmore.

The Red (North), Red (South) and Green Corridors are considered to provide a connection with Holy Trinity Church, Boom Hall and the Anti-Aircraft Battery, while the Blue Corridor connects with Boom Hall and Brook House. A score of 1 is awarded for each of these routes.

The Yellow Corridor is not considered to offer any significant connections to Cultural and Heritage attractions, and is awarded a score of 0 (zero).

Corridor	Red (South)	Red (North)	Yellow	Blue	Green
Mark	1	1	0	1	1

8.4.4 Landscape and Visual

A copy of the Landscape and Visual Assessment Report which describes in the landscape character and scenic views available within the Study Area is appended to this report. The scores provided in that report are included below.

Scoring Summary:

Corridor	Red (South)	Red (North)	Yellow	Blue	Green
Mark	1	0	-1	3	1

8.4.5 Flora, Fauna and the Environment

Red Corridor (South):

The Red Corridor (South) connects with the Lough Foyle SPA between Pennyburn and Culmore Roundabout, and to the flora and fauna within Bay Park. The design and construction of the proposed bridge at Bay Road will have to be carefully considered as any potential impacts on the SPA will have to be mitigated. Construction elsewhere will primarily involve widening existing footpaths, and removal of hedges / vegetation of relatively low value which can be mitigated by replacement planting.

Red Corridor (North):

The Red Corridor (North) does not connect with the Lough Foyle SPA nor to areas that could be considered to have notable flora or fauna. Construction of a greenway along this corridor would include removal of hedges along the busy A2 road which would be mitigated by replacement planting.

Yellow Corridor:

Similarly to the Red (North) Corridor, there is no connection with the Lough Foyle SPA nor notable flora or fauna. Construction of a greenway along this corridor would include the removal of some sections of well-established hedgerows along Racecourse Road.

Blue Corridor:

The Blue Corridor connects with the Lough Foyle SPA, and would connect greenway users with flora and fauna along and adjacent to the Foyle shoreline. There could be considerable impacts on the environmental designations, habitats and tree cover and careful review of the design and mitigation measures would have to be considered.

Green Corridor:

The Green Corridor follows the shore of the Foyle at Culmore, connecting with the Lough Foyle SPA. However the corridor would be incorporated within the existing road network at this section and therefore the impact of construction would likely be minimal. Furthermore, the existing road network already provides this connection to the SPA so the impact of increased road / greenway users would likely be minimal when

considered against the current impacts of road users. Beyond Culmore, the greenway would have minimal impact on valued environment as construction would not require removal of significant sections of hedgerow.

Scoring Summary:

The Red (South), Blue and Green Corridors connect with the SPA, however only the Blue Corridor is considered to connect with notable flora (i.e. the wooded areas between Foyle Bridge and Culmore).

Of these corridors, the potential environmental impacts are considered most extensive on the Blue corridor, due to the proximity to the SPA and also due to the likely impact of bringing greenway users into an area where public access is not currently provided. Impacts would need to be carefully considered with Department of Agriculture, Environment and Rural Affairs (DAERA) and a suitable range of mitigation measures – both during construction and operation – would need to be agreed. Due to the potential for significant environmental impacts, the Blue Corridor is awarded a score of -1.

The Red (South) Corridor could impact on the SPA at Bay Road, but beyond that impact it would have little impact on the environment. The potential environmental impact of Bay Road Bridge would be carefully assessed by the design team and appropriate mitigation measures agreed with DAERA. However, given the potential impact of Bay Road Bridge a score of 0 (zero) is considered appropriate for this corridor.

The potential impact of the Green Corridor is considered low, and the potential impact on the SPA (over a short section) could be considered low given construction would be within the existing road corridor and high volumes of vehicle and pedestrian traffic use that section of the corridor already. Furthermore, the environmental impact along Coney Road is considered low, and the green corridor is awarded a score of 2.

Neither the Red (North) nor Yellow Corridors connect with the SPA or notable flora and fauna. The impacts on the Yellow Corridor are considered greater, as the corridor would require clearance of more extensive sections of mature hedgerow. Hedge clearance on the Red (North) Corridor can be considered low impact as the hedges are less mature/ dense with less impact on flora and fauna. In both cases, mitigation measures such as replacement planting would be considered. Scores of 1 and 0 (zero) are awarded respectively to each corridor.

Corridor	Red (South)	Red (North)	Yellow	Blue	Green
Mark	0	1	0	-1	3

8.4.6 Physical Constraints

The tables provided below summaries the main physical constraints on each corridor, the possible mitigation options, and the residual impact of the physical constraint after the mitigations options have been considered.

Red Corridor (South):

Main Physical Constraints	Possible Mitigation Options	Residual Impact
River crossing at Bay Road / Pennyburn;	Scheme includes for provision of Bay Road Bridge	None Also considered in the potential costs assessment.
Change in level from the Foyle Bridge Underpass to Culmore Road;	Provide rest areas / benches to mitigate steep gradients	low
Providing safe crossing points along Culmore Road	Utilise existing controlled crossing points. Provide new controlled crossing points where appropriate and in accordance with design standards and DfI Roads approvals.	low
Pinch point at private houses for 180m approaching Springfield Road.	Practical design solutions not available within the scope of this project, however the existing footpath width will be retained.	Minor constraint, due to relatively short length of section and good forward visibility.

If consideration could be given to obtaining lands to the rear of the houses at the Springfield Road pinch point, and connecting the greenway with Springfield Road at the proposed Thornhill College offline section, the minor physical constraint could be removed and a consistent corridor be provided. However this potential link is not scored in the assessment.

A consistent greenway cross section, with an appropriate level of segregation can be delivered for all other sections along this corridor, assuming 3rd party lands could be acquired where necessary.

Red Corridor (North):

Main Physical Constraints	Possible Mitigation Options	Residual Impact
Providing safe crossing points along Culmore Road	Utilise existing controlled and uncontrolled crossing points. Provide new controlled crossing points where appropriate and in accordance with design standards and DfI Roads approvals.	low
Narrow Cross Sections and Pinch Points throughout Culmore Village, approx. 700m	Design to be in accordance with prevailing standards, however it is envisaged that cyclists may need to share the carriageway with vehicular traffic along some sections.	Significant, due to length of constraint
Narrow Cross Section, steep gradients and poor visibility at Ardan Road junction with Culmore Rd	Practical design solutions not available within the scope of this project, however the existing footpath width will be retained.	Significant due to severity of constraints

The pinch points identified above are deemed to have a significant residual impact on the Quality of Service of the greenway facility along this corridor and are further considered in Section 8.4.7 below.

In particular, the section of carriageway and footpath between Culmore Primary School, past the junction with Ardan Road to the northern extent of Culmore is very narrow and provides poor horizontal and vertical alignments which could not be designed out without substantial roadworks and acquiring 3rd party lands.

From the northern extent of Culmore to the border a 4m greenway corridor could be achieved for the majority of the corridor, assuming 3rd party lands can be acquired.

Yellow Corridor:

Main Physical Constraints	Possible Mitigation Options	Residual Impact
Providing safe crossing points along Culmore Road	Utilise existing controlled and uncontrolled crossing points. Provide new controlled crossing points where appropriate and in accordance	low

	with design standards and DfI Roads approvals.	
Narrow Cross Sections and pinch points along Culmore Road (e.g. in the vicinity of Belmont Drive, and between Baronscourt and Talbot Park)	Design to be in accordance with prevailing standards, however it is envisaged that cyclists may need to share the carriageway with vehicular traffic along some sections.	Low, as the length of these sections is relatively short, and an advisory cycle lane is currently provided.
Steep gradient between Culmore Roundabout and Racecourse Road	Provide rest areas / benches to mitigate steep gradients	low

The constraints listed above are present along the Pennyburn Roundabout to Racecourse Road roundabout. A consistent greenway cross section, with an appropriate level of segregation can be delivered along the Racecourse Road sections of the corridor, assuming 3rd party lands can be acquired.

Blue Corridor:

Main Physical Constraints	Possible Mitigation Options	Residual Impact
River crossing at Bay Road / Pennyburn;	Scheme includes for provision of Bay Road Bridge	None. Also considered in the potential costs assessment.
Extensive tree and vegetation cover from Foyle Bridge to Culmore	Tree and vegetation clearance	Low. (environmental impact assessed in that category). Also considered in the potential costs assessment.
Steep gradient along link at Culmore Point Road to Culmore	Provide rest areas / benches to mitigate steep gradients	low
Narrow Cross Sections and pinch points along Culmore Point Road (e.g. between	Design to be in accordance with prevailing standards, however it is envisaged that cyclists may	Low, as this is a minor constraint.

Greenwood and Mount Vernon)	need to share the carriageway with vehicular traffic along some sections.	

A consistent greenway cross section can be provided from the start of the corridor as far as Culmore Point Road. Pinch points and narrow cross sections will remain on the Culmore Point Road section, however the residual impact of these issues are deemed minor.

Green Corridor:

Main Physical Constraints	Possible Mitigation Options	Residual Impact
Change in level along link at Culmore Point Road to Culmore	Provide rest areas / benches to mitigate steep gradients	low
Narrow Cross Sections and pinch points along Culmore Point Road (e.g. between Greenwood and Mount Vernon & Cooleen Park and Ardan Road)	Design to be in accordance with prevailing standards, however it is envisaged that cyclists may need to share the carriageway with vehicular traffic along some sections.	Low, as these are minor constraints.
Narrow Cross Sections, poor forward visibility at Coney Road	Limited opportunities to acquire lands. Shared greenway / carriageway section required	Significant (see discussion below)

The main physical constraints along the Green Corridor are at each end i.e. the section from the Magnet Bar to Culmore (steep gradient, limited opportunity to maximise cross sections) and the narrow carriageway and poor forward visibility at corners between Culmore Park and Muff. Significant physical constraints are not envisaged in the central section of the corridor and a consistent greenway corridor should be achievable with minimal acquisition of 3rd party lands.

The section of Greenway from Culmore Park to Muff would predominantly be a shared surface, accommodating pedestrians, cyclists and vehicles.

Options to acquire 3rd party lands which could reduce visibility issues at corners and could provide short sections of segregated greenway will be explored and this could reduce the extent of shared surface, providing a more attractive greenway.

Based on an initial review of existing OS Mapping data, there may be an alternative off-line corridor, across lands to the west of Coney Road and looping around these

blind corners. However as this option would sever a number of land folios it will not be progressed under this scheme and may be considered by Council at a later date.

The pinch points identified above are deemed to have a residual impact on the Quality of Service of the greenway facility along this corridor and are also considered in Section 8.4.7 below.

Scoring Summary:

Apart from a short section along Culmore Point Road where the greenway cross section would be below the desirable width, there are few significant physical constraints on the Blue Corridor which would not be designed out, and the corridor achieves a score off 2.

The Red (South) and Yellow Corridors include similar types of 'pinch point' constraints to the Blue Corridor, however the additional constraint of crossing the Culmore Road at various locations results in these corridors achieving a score of 1.

The Red (North) and Green Corridor have physical constraints at Culmore village / Ardan Road and Coney Road respectively score negatively in this assessment.

The physical constraints on the Red (North) corridor are such that a greenway facility would not be in accordance with the prevailing design standards, and there would be a significant residual effect on the Quality of Service of the corridor. A score of -2 is awarded.

Based on the available traffic survey information for the Green Corridor, the physical constraints at Coney Road (north of the Country Park) can be mitigated by a design in accordance with the prevailing design standards, and a shared greenway / carriageway facility is envisaged along this section, with some segregated sections where 3rd party lands could be acquired. This design solution would have a moderate residual impact on Quality of Service.

Careful design and ongoing consultations with Department for Infrastructure (Roads) will be required to ensure a greenway design which is compatible with the existing road network is achieved.

A score of -1 is merited for the Green Corridor

Corridor	Red (South)	Red (North)	Yellow	Blue	Green
Mark	1	-2	1	2	-1

8.4.7 Quality of Service

Red (South) Corridor:

The corridor is predominantly urban, with approximately 900m at Bay Park that is considered 'off road'. Segregation of greenway users from vehicular traffic by way of a kerb is achievable across the remaining 4.6km (approx.) of the route (except for a short 150m section at Springfield Road), with enhanced horizontal separation achievable at some sections, such as Thornhill College and Drummond Park.

Given the moderate volume and speed of traffic on the Culmore Road, options to improve the level of horizontal separation across the corridor could be considered further at detailed design stage.

Within the urban context, the corridor is considered to be safe and accessible, and a consistent cross section can be achieved for the majority of the route.

It is noted that the 'pinch point' approaching Springfield Road could detract from the accessibility of the corridor at that location to vulnerable greenway users.

It is considered that a greenway facility along this corridor would be an 'attractive' product, and it exceeds the minimum prevailing design standards for the majority of the route.

Given the pinch point approaching Springfield Road, the short shared section along Springfield road, and the proximity to vehicular traffic along the Culmore Road, the maximum score is not merited and a score of 2 is considered appropriate for this corridor.

Red (North) Corridor:

The corridor is a mix of urban (at Culmore Village) and rural (from Culmore to the border). There are no 'off road' sections, and segregation of greenway users from vehicular traffic by way of a kerb is achievable across the majority of the corridor, with a desirable level horizontal separation achievable across the rural section.

Given the volume and speed of traffic on the Culmore Road, options to improve the level of horizontal separation across the corridor could be considered further at detailed design stage.

It is considered that the greenway along the rural section of the corridor could be considered safe, accessible and the 'attractiveness' of the product could be enhanced if sufficient lands could be acquired to maximise the level of segregation.

As noted in the Physical Constraints section, there are a number of significant pinch points within Culmore which would result in a less than desirable level of segregation being provided. While the existing pedestrian footpaths would ensure pedestrians are segregated from traffic, cyclists would be required to share the carriageway with motorised traffic in some sections, which have high traffic volumes and narrow

carriageway. While traffic calming measures could be incorporated it is considered that this would be unsuitable for vulnerable greenway user groups.

It is also considered that the greenway in the vicinity of Ardan Road junction would not be accessible to vulnerable greenway users, e.g. young children on bicycles, wheelchairs users, the elderly or people with impaired mobility due to the combination of steep gradients, poor visibility and narrow footpath with little potential to widen the cross section without significant impacts on adjacent dwellings..

These issues cannot be reasonably designed out and it is considered that the effect of these issues on the greenway facility would be to substantially detract from its 'attractiveness', albeit that they occur over a relatively short section of the overall route.

A score of -2 is considered appropriate for this corridor.

Yellow Corridor:

The Yellow Corridor is a mix of urban and rural (from Ballyarnett Park to Muff). There are no 'off road' sections. A minimum level of vertical and horizontal segregation to the prevailing design standards would be achievable for the majority of the corridor.

The corridor is considered to be safe and accessible, although there are some sections of steep gradient where rest areas would need to be provided to ensure vulnerable greenway users are catered for adequately.

The corridor within the urban section is defined by very large volumes of traffic, particularly on the Culmore Road section with two lanes in each direction, and while the minimum prevailing design standards can be met (including an appropriate level of segregation), a greenway along this section of the corridor is not considered to offer an 'attractive' product or user experience.

It is considered that a greenway facility along the rural section of the corridor would be an 'attractive' product, and it exceeds the minimum prevailing design standards for the majority of the route.

A score of 1 is considered appropriate for this corridor.

Blue Corridor:

Except for the section at Bay Road (approx. 600m approx.), and the section along Culmore Point Road up to Culmore Road (500m approx.) the Blue Corridor is considered to be entirely 'off-road'. This equates to approx. 80% of the route being classed as off-road. As noted in the Preamble, this is the most desirable level of segregation from vehicular traffic, and furthermore a consistent cross section, in accordance with the minimum prevailing design standards can be achieved both for the off-road section, and the Bay Road section.

The section of the corridor along Culmore Point Road contains some pinch points which would result in the desirable cross section not being achieved. . It also contains

a section with a steep gradient which could prove challenging to some greenway users, and rest stops would be required to ensure the facility would be accessible to all users.

The corridor is considered to be safe and accessible and it is considered that an attractive and pleasant greenway facility could be delivered.

This corridor is considered to merit the maximum score of 3.

It is noted that if the Blue and Green corridors emerge as the Preferred Route from Derry to Muff, the section along Culmore Point Road, would need to be provided to ensure a link to Culmore village is delivered in line with the project aims and objectives.

Green Corridor:

The Green Corridor is a combination of urban (1.2km) and rural (2.4km), and no sections of the corridor are considered 'off road'.

Along the urban section, the level of segregation that could be achieved varies. The section from Culmore Road along Culmore Point Road to where it turns north along the shore of the Foyle is common with the Blue Corridor and the same issues affecting the quality of service prevail, i.e. pinch points which reduce the cross section and steep gradients with impact on accessibility. Vertical segregation is achievable for this section, however a consistent level of horizontal segregation could not be achieved due to pinch points and limited opportunities to reduce the carriageway width or widen the existing footpath. Along the section parallel to the waterfront, a similar scenario prevails however cyclists would be required to share the carriageway with vehicular traffic. Advisory road markings can be provided and a design in accordance with the prevailing design standards can be achieved.

The rural section can be described in two distinct sections.

As far as Culmore Country Park a segregated facility with consistent cross section can be provided and in accordance with the design standards, subject land acquisition. The greenway can be described as safe and accessible and is considered to be the most attractive and coherent section of the Green Corridor.

The section from the Country Park to the A2 Culmore Road is approximately 1.4km long and the greenway facility would consist of a combination of segregated sections (vertical segregation) and shared sections, where all greenway users would share the carriageway with vehicular traffic. Traffic survey information indicates low volumes of traffic and while a design in accordance with the prevailing design standards could be achieved, the facility here could not be considered a coherent or 'attractive' product as users would be interchanging between the segregated and shared sections. Careful design and the provision of warning signs in accordance with the design standards would be required to ensure safety and accessibility for all road and greenway users is achieved.

Taken as a whole, it is considered that the quality of service, and attractiveness of the Green corridor is adversely impacted by the 1.4km section from Culmore Country Park

to the border, and while a design in accordance with the prevailing standards can be achieved, a neutral score of 0 (zero) is merited.

However, it is noted that if the Green Link corridor is delivered to achieve the cross bother connectivity to Muff, the final 600m of shared section from the disused bridge border crossing to the A2 Culmore Road would not be required to be developed and improve its Quality of Service score to 1.

Corridor	Red (South)	Red (North)	Yellow	Blue	Green
Mark	2	-1	1	3	0

8.4.8 Material Assets and Human Beings

Red Corridor (South):

The majority of the lands required for the Red Corridor (South) are within public control, however it is envisaged that a small amount of lands would be required from multiple landowners to construct the greenway along this corridor. There is minimal requirement for acquiring agricultural lands and the impact on the usage of the required land parcels is deemed low. No severance of lands is envisaged and the impact on privacy is also deemed low.

Red Corridor (North):

The majority of the lands required to construct the Red Corridor (North) would be required from private landowners as the section from Culmore village to Muff does not include lands in public ownership. Land usage along this section is predominantly agricultural and the impact on the usage of the required land parcels is deemed high. However, no severance of lands is envisaged and the impact on privacy is also deemed low. It should also be noted that some localised issues were identified during the public consultation process and further consultation with affected parties to agree mitigation measures would be required if this corridor was identified as part of the Preferred Route.

Yellow Corridor:

The majority of the lands required to construct the Yellow Corridor would be required from private landowners along Racecourse Road. Land usage along this section is predominantly agricultural and the impact on the usage of the required land parcels is deemed high. However, no severance of lands is envisaged and the impact on privacy

is also deemed low. The section of the corridor between Pennyburn Roundabout and the southern end of Racecourse Road is predominantly in public control.

Blue Corridor:

The majority of the lands within the Blue corridor are in private ownership, and multiple landowners would be affected should this corridor be progressed. There would be a significant impact on these landowners, as some severance of lands would be required, and impacts of privacy would also be high.

Green Corridor:

While the sections of the Green Corridor between Culmore Road and Ardan Road, and between Culmore Country Park and Muff, can be developed availing of lands within public control, the majority of the section along Coney Road (as far as the Country Park) wold require the acquisition of 3rd party lands from multiple landowners. The required lands are predominantly agricultural and therefore the impact on farming practices is considered high, although no severance of lands is envisaged. Furthermore, the impact on privacy to private dwellings is considered low.

It is also noted that livestock are moved along Coney Road and a greenway design along this corridor would be required to consider how any impact on moving livestock could be minimised.

Scoring Summary:

The Blue Corridor has the most significant impact in this assessment as significant lands from multiple landowners would be required, and impacts on severance and privacy are deemed high.

The Red (North), Green and Yellow Corridors would require the acquisition of a corridor of agricultural lands along the edge of the carriageway (A2, Coney Road and Racecourse Road respectively), with multiple landowners affected and high impacts on land usage. However no severance of lands or high impacts on privacy are envisaged.

The Red (South) corridor can mostly be delivered availing of lands in the public domain and although small parcels of lands from multiple landowners would be required, impacts on land usage, severance and privacy are considered low.

Corridor	Red (South)	Red (North)	Yellow	Blue	Green
Mark	1	-1	-1	-3	-1

8.4.9 Potential Cost

Scoring Summary:

The Red (North), Yellow and Green Corridors can be delivered within reasonable margin of the average greenway construction cost.

The Red (South) and Blue Corridors will be more costly to deliver, primarily due to the Bay Road Bridge which is required for each option. Furthermore, the Blue corridor would require extensive site clearance and removal of vegetation which would further impact on cost.

It is noted that the cost of the Green Corridor along Coney Road would need to be considered at detailed design stage as the design of the greenway could require realignment of the existing carriageway depending on the extent of land acquisition.

Corridor	Red (South)	Red (North)	Yellow	Blue	Green
Mark	-1	0	0	-2	0

8.4.10 Physical Cross Border Connectivity

Cross Border Connectivity is a key aim and objective for the scheme. Each corridor or section (or combination of sections) within NI provides a link to the corridors or sections in ROI, and vice versa. Therefore each route corridor will be scored equally in this assessment.

Scoring Summary:

Corridor	Red (South)	Red (North)	Yellow	Blue	Green
Mark	3	3	3	3	3

8.4.11 Public Feedback

Scoring Summary:

The range of comments and issues raised by the public on the NI route corridors were related primarily to traffic issues, (i.e. a desire to provide a traffic free greenway), safety

concerns, a desire to provide scenic views and 'connectivity' related issues (i.e. a desire for the greenway to connect with facilities, amenities, schools and places of employment). These issues have been considered by the design team in determining the preferred route, as indicated in Section 8.3.

Other issues raised include a desire to minimise environment impacts, and general concerns relating to the maintenance of the facility. This latter issue will be considered by DCSDC when developing the design of the greenway scheme.

Appendix C of this report provides a summary of the substantive issues raised by the public during the consultation process.

The assessment of public feedback also included an analysis of the levels of support for each corridor. The Blue and Green Corridors received a high level of positive support, with low numbers expressing concerns about the routes. Issues of concern related to the potential impact of the Blue Corridor and landowners concerns and both of these issues are covered under the relevant scoring criterion.

The public were less receptive of the Yellow and Red Corridors (it is noted that the proposal to split the Red (South) and Red (North) corridors was not presented at the public consultation) as a potential greenway route. However the traffic and 'user-friendly' issues and concerns raised could be mitigated by increasing the level of segregation from traffic and developing the design in accordance with design principles set out the Quality of Service assessment. As noted in Section 8.3.7, providing a safe design will be a minimum project requirement.

In assessing the Public Feedback scores, the project team considered the 'off road' and lightly trafficked nature and scenic views available (as noted in the Landscape Assessment) on the Blue Corridor as positive factors, and coupled with the level of support for the route, a score of 3 is merited. In addition, given the level of public support indicated for the Green Corridor and that traffic survey data for the road network along Coney Road indicates low volumes of traffic and a design can be achieved in accordance with the relevant standards, a score of 3 is also merited for that corridor.

The Yellow Corridor is considered to merit a positive score, as the traffic, user-friendly and safety related issues can be alleviated or mitigated by ensuring a design within in the design standards can be achieved. However, the section along Madams Bank Road and the southern sections of Racecourse Road do not provide scenic views, and coupled with the numbers expressing less than favourable support for the corridor, a score of 1 is merited.

The Red Corridor scores negatively due to the proximity of the corridor to traffic, the limited scenic views available and the less than favourable levels of support for the corridor. A score of -1 is merited for the Red Corridor as a whole, however as noted in this report, a careful design in accordance with the prevailing design standards can be achieved for the Red (South) corridor which is considered to mitigate the issues and concerns raised by the public in this section of the corridor.

Corridor	Red (South)	Red (North)	Yellow	Blue	Green
Mark	-1	-1	1	3	3

8.4.12 Summary Scoring Sheet for NI Corridors

	Red (South)	Red (North)	Yellow	Blue	Green
Modal Shift	3	2	-2	1	2
Connections and Local Access	3	3	2	2	3
Cultural, Heritage and Visual Attractions	1	1	0	1	1
Landscape and Visual	1	0	-1	3	1
Flora, Fauna and the Environment	0	1	0	-1	3
Physical Constraints	1	-2	1	2	-1
Quality of Service	2	-1	1	3	0
Material Assets and Human Beings	1	-1	-1	-3	-1
Potential Cost	-1	0	0	-2	0
Physical Cross Border Connectivity	3	3	3	3	3
Public Feedback	-1	-1	1	3	3
Total	13	5	4	12	14

A table summarising the scores for each route and a short summary of the scoring assessment is provided in Appendix F of this report.

8.5 Assessment of ROI Corridors

This section describes how each of the Northern Ireland Route Corridor Options score when assessed against the criteria identified and the summary section outlines the scores achieved.

Note – Based on the Assessment of NI corridors, the emerging Preferred Route in from Derry to the border is a combination of Red (South) and Green. Therefore, the Green 'Link' option, as shown on Figure 6.1.2, could be developed as a link to connect with any of the Muff Route Options. Where appropriate in the following assessments, a Greenway consisting of the Green 'Link' along with a combination of any of the Muff corridors is considered.

8.5.1 Modal Shift

Scoring Summary;

Each of the corridors, when linked with the NI Sections, will connect Muff with Derry and Culmore. There are no primary modal shift generators in the area, and each of the corridors connects with a range of secondary modal shift generators. As noted in the preamble in Section 8.3.1, and as described in Section 8.5.7 below, the Orange Corridor scores negatively in the Quality of Service criteria and a point is deducted from its score.

Corridor	Orange	Light Blue	Purple
Mark	2*	3	3

* Point deducted for negative Quality of Service Score

8.5.2 Connections and Local Access

Scoring Summary:

Given the relatively small extent of the Study Area, and the availability of adequate amenities within Muff that are close to each of the corridors when additional linkages are considered, each corridor is initially deemed to merit a maximum score of 3.

Corridor	Orange	Light Blue	Purple
Mark	3	3	3

8.5.3 Cultural, Heritage and Visual Attractions

Scoring Summary:

There are no notable Cultural, Heritage and Visual Attractions within the Muff Area. It was considered therefore that each route should score an equal mark of zero.

Corridor	Orange	Light Blue	Purple
Mark	0	0	0

8.5.4 Landscape and Visual

Scoring Summary:

A copy of the Landscape and Visual Assessment Report which describes in the landscape character and scenic views available within the Study Area is appended to this report. The scores provided in that report are included below.

Corridor	Orange	Light Blue	Purple
Mark	-1	2	0

8.5.5 Flora, Fauna and the Environment

Scoring Summary:

There are no Environmental Designations in the vicinity of the Muff Route Corridor options. While the flora and fauna to the east of the village make an attractive setting for a greenway (as assessed in the Landscape and Visual Assessment), they are not considered 'notable' for this assessment. Therefore, the assessment of Flora, Fauna

and Environment for these corridors is based on the potential environmental impacts of the construction and use of the scheme.

The Orange Corridor is through the centre of Muff Village and construction would not have a significant environmental impact and a score of 3 is awarded.

The construction of the Light Blue and Purple corridors would have some minimal impact on small extents of wooded areas, and some vegetation and hedgerow habitat but these are considered to have a relatively low environmental value and the removal of trees, hedgerows and vegetation would be minimised as far as practicable. Suitable mitigation measures and replacement planting could be provided in line with statutory requirements. The Light Blue and Purple Corridors are each awarded a score of 2.

Corridor	Orange	Light Blue	Purple
Mark	2	1	1

8.5.6 Physical Constraints

The tables provided below summaries the main physical constraints on each corridor, the possible mitigation options, and the residual impact of the physical constraint after the mitigations options have been considered.

Orange Corridor:

Main Physical Constraints	**Possible Mitigation Options**	**Residual Impact**
Narrow cross sections and pinch points at Muff (between border and Kilderry Lane) Features such as railings, bollards and boundary walls also provide physical constraints	Design to be in accordance with prevailing standards as far as practicable however limited opportunity to widen footpaths or reduce carriageway widths and it is envisaged that cyclists may need to share the carriageway with vehicular traffic along some sections. A consistent width for the GW facility could not be provided.	Significant due to the severity and extent of these of the constraints.

The main physical constraints and design challenges along this corridor are the path widths, buildings, shop frontages and existing street furniture (e.g. bins, bollards, guardrails, street lighting etc.) through Muff, and in particular between the border and the Topaz garage. Without significant kerb re-alignment a desirable, consistent width, greenway corridor could not be achieved through the village. Any greenway through the village could potentially increase the risk of conflict between cyclists and vehicles due to these constraints. From Topaz to the Community Park, there are few physical constraints that careful design could not address.

The pinch points identified above are deemed to have a significant residual impact on the Quality of Service of the greenway facility along this corridor and are also considered in Section 8.4.7 below.

Light Blue Corridor:

Main Physical Constraints	Possible Mitigation Options	Residual Impact
Stream crossing at NI / ROI border	Short Bridge or culvert	none
Invasive Species	Treatment, or removal	Low (Also considered in potential cost assessment)
Tree and vegetation to lands south and east of Muff	Tree and vegetation clearance	Low (environmental impact assessed in that category)
Narrow Cross Sections and pinch points at Kilderry Lane / Canning's Lane	Limited opportunities to acquire lands. Shared greenway / carriageway section required	Low, as this is a minor constraint and a design can be provided in accordance with the prevailing design standards.

The Light Blue corridor is predominately through wooded areas and along the alignment of existing roads and laneways to the east of Muff. The first part of the corridor follows the line of the stream running along the NI / ROI border and a bridge crossing would be required - however this is considered a relatively minor design constraint and a consistent, desirable cross section could be provided.

The Preliminary Ecological Assessment has identified stands of invasive species, i.e. Japanese Knotweed, along this stream. Japanese Knotweed could represent a significant physical constraint unless it was eradicated or removed before construction. From Kilderry Lane to the R238, the corridor follows narrow existing roads and laneways (average width between 3m to 4m) with limited opportunities to provide a segregated greenway facility due to the number of private properties adjoining the road network. A segregated facility could be provided on the short section of Kilderry Lane approaching the R238 to the north of Muff.

Based on the available traffic survey information at Kilderry Lane, which indicates very low traffic volume and speed, these physical constraints can be mitigated by a design in accordance with the prevailing design standards, and a shared greenway / carriageway facility is envisaged along this section. Given the low volumes of traffic, it is considered that there would not be a residual impact on the Quality of Service of this facility.

Purple Corridor:

Main Physical Constraints	Possible Mitigation Options	Residual Impact
Stream crossing at NI / ROI border	Short Bridge or culvert	none
Invasive Species	Treatment, or removal	Low (Also considered in potential cost assessment)
Tree and vegetation to lands south and east of Muff	Tree and vegetation clearance	Low (environmental impact assessed in that category)
Narrow Cross Sections and pinch points at Kilderry Lane / Canning's Lane	Limited opportunities to acquire lands. Shared greenway / carriageway section required	Low, as this is a minor constraint and a design can be provided in accordance with the prevailing design standards.

The physical constraints on the Purple Corridor along its initial section are the same as the Light Blue – i.e. some clearance of wooded areas and a stream crossing. The

corridor connects with Muff village at a point beyond the most significant physical constraints described on the Orange Corridor.

Scoring Summary:

The Orange Corridor has some significant physical constraints that cannot be designed out and would result in the desirable cross section not being achieved through the village. These physical constraints are also deemed to have a significant residual impact on the Quality of Service of the greenway facility along this corridor and are also considered in Section 8.5.7 below. A score of -2 is awarded.

Both the Purple and Light Blue corridors have some minor physical constraints that can be designed out without impacting on the desirable cross section, as well as physical constraints that impact on achieving a segregated facility. A shared facility is envisaged at these sections, however these sections of shared greenway are not deemed to have a residual impact on the Quality of Service of these corridors as traffic survey information indicates that the design of the greenway would be in accordance with the prevailing design standards. The Light Blue and Purple Corridors area awarded a score of 1

Corridor	Orange	Light Blue	Purple
Mark	-2	1	1

8.5.7 Quality of Service

Orange Corridor

The Orange Corridor is considered to be entirely urban, and as noted in the Physical Constraints assessment, there are a number of factors which would impact on the Quality of Service and 'attractiveness' of the greenway, predominantly in the section from the border to Kilderry Lane.

The greenway facility would include sections off varying cross section which would require cyclist to share the carriageway with vehicular traffic and there are few opportunity improve the horizontal segregation above the minimum desirable, and where traffic volumes are moderate.

A safe and accessible design in accordance with the prevailing design standards could be achieved for the most sections of the corridor, however it is considered that the design would not deliver a coherent, pleasant and attractive greenway for all users. A score of -2 is considered appropriate.

Light Blue Corridor

The Light Blue Corridor is described as an urban section, with approximately 700m 'off road' section (from the border to Kilderry Lane), 500m of shared road section along Kilderry Lane, and finally a 600m section along Kilderry Lane and R238 as far as the Community Park.

The 'off road' section achieves the maximum levels of segregation, and a safe, accessible and attractive could be delivered.

Traffic survey data indicates very low volumes of traffic and a safe and accessible design in accordance with the prevailing design standards can be delivered for both the shared and segregated sections along Kilderry Lane.

It is considered that an attractive and pleasant greenway could be provided along this corridor. Any adverse impact on the quality of service due to the shared sections would be mitigated by the extremely low volumes of traffic using Kilderry Lane, and the good forward visibility available to greenway users which will reduce the potential for conflicts with other road users.

A score of 2 is considered appropriate for this corridor.

Purple Corridor

The Purple Blue Corridor is a described as an urban section, with approximately 600m 'off road' section (from the border to Kilderry Lane), a short section where the greenway would consist of a combination of segregated (from the carriageway) and shared (with the carriageway) facilities, and an 800m section from Kilderry Lane to Muff Community Park along the R238 which is in common with the Orange Corridor.

The 'off road' section achieves the maximum levels of segregation, and a safe, accessible and attractive could be delivered.

Traffic survey data indicates very low volumes of traffic and a safe and accessible design in accordance with the prevailing design standards can be delivered for the short section of shared and segregated facilities along Kilderry Lane.

The section along the R238 avoids the majority of the pinch points at Muff village identified on the Orange corridor, and a consistent cross section, with an appropriate level of segregation could be delivered.

It is considered that a reasonably attractive greenway could be provided along this corridor. Any adverse impact on the quality of service due to the shared section would be mitigated by the extremely low volumes of traffic using Kilderry Lane, (as well as the short length of the shared facility). However, the proximity of greenway users to traffic along the R238 section is considered to detract from the attractiveness of the facility that could be delivered, while the transition from 'off-road' to 'shared' to 'segregated' over a short section along Kilderry Lane is considered to detract from the overall coherence of the route.

A score of 1 is considered appropriate for this corridor.

Corridor	Orange	Light Blue	Purple
Mark	-2	2	1

8.5.8 Material Assets and Human Beings

Orange Corridor:

The majority of the lands required for the Orange are within public control and no acquisition of 3rd party lands would be required to construct the greenway facility. Acquisition of lands opposite Texaco could be considered if this option were to be progressed.

Light Blue Corridor:

The Light Blue corridor would require the acquisition of small parcels of lands to the south of Muff, along the course of the stream. Multiple landowners would not be affected and severance of lands would not be required, however there would be some impacts on land usage. The section at Kilderry Lane would have some impact on privacy, although 3rd party lands are not required. Impacts on privacy will be mitigated as far as practicable. From Canning's Lane to the Community Park, 3rd party lands would not be required.

Purple Corridor:

The Purple corridor would require the acquisition of small parcels of lands to the south of Muff along the course of the stream and also between the stream and Kilderry Lane. Multiple landowners would not be affected and severance of lands would not be required, however there would be some impacts on land usage and privacy. Impacts on privacy will be mitigated as far as practicable. Beyond Kilderry Lane on the approach to Muff Main St, and along the R238 (similar to the Orange Corridor), the acquisition of 3rd party lands would not be required.

Scoring Summary:

The Orange Corridor does not require private lands to be acquired, and there is no impact on privacy or usage of dwellings or places of work, and scores 3 in this assessment.

The Light Blue and Purple Corridors would each require some land acquisition from private landowners, however multiple landowners would not be affected and there

would be no severance of lands. However there some impacts on land usage and privacy and therefore a score of 1 is awarded.

Corridor	Orange	Light Blue	Purple
Mark	3	1	1

8.5.9 Potential Cost

Summary:

As noted in Section 8.3.9 above, deviation from the average potential cost will determine the overall score of each corridor in this criteria. While there are some cost factors that will need to be considered at detailed design and construction stage (e.g. bridge costs, treatment of invasive species) each of the corridor options at Muff are considered to be deliverable within a reasonable margin of the average greenway construction cost, and score 0 (zero).

Corridor	Orange	Light Blue	Purple
Mark	0	0	0

8.5.10 Physical Cross Border Connectivity

Summary:

Each Corridor (or combination of corridors) provides a connection the NI / ROI border and the NI Corridor options, and therefore each route scores equally.

Corridor	Orange	Light Blue	Purple
Mark	3	3	3

8.5.11 Public Feedback

Summary:

The range of comments and issues raised by the public on the ROI route corridors were broadly similar to those raised on the NI Route corridors. Traffic related issues were raised on 25% of the responses, with positive comments of support provided for 'off-line' or lightly trafficked routes, and in particular the Light Blue Corridor. Conversely, the proximity of the Orange Corridor to the R238, was considered by the public as a negative factor for that corridor. The desire for 'off-road', or lightly trafficked corridors reflects the design standards identified in the Quality of Service.

The other issues that dominated the responses, included safety concerns and issues, and a desire for the greenway to have scenic views.

These three factors contribute to the scoring assessment outlined below.

As referenced, in the Quality of Service preamble, it will be a minimum requirement for the greenway facility to be in accordance with relevant design standards and it is considered that this requirement will address any safety concerns identified by the public.

The desire for scenic views is considered in the Landscape and Visual Assessment report which contributes to the assessment of the preferred greenway corridor.

Specific issues raised during the public consultation process relating to the greenway facility at Muff included the provision of additional linkages from the Light Blue route to connect with the Muff Main St (which were considered in the preparation of this report) and the desire to provide car-parking facilities at Muff to allow people to drive to the greenway and use it to commute to work, or as a leisure facility. This issue will be considered by DCC in due course.

Appendix C of this report provides a summary of the substantive issues raised by the public during the consultation process.

The assessment of public feedback also included an analysis of the levels of support for each corridor. The Light Blue Corridor received a high level of support positive, with a low level of opposition to the corridor expressed. Levels of support for, and opposition to the Purple Corridor were broadly equal, while the public expressed opposition to the Orange Corridor.

In assessing the Public Feedback scores, the project team considered the 'off road' and lightly trafficked nature and scenic views available (as noted in the Landscape Assessment) on the Light Blue Corridor as positive factors, and coupled with the level of support for the route, a score of 3 is merited.

The Purple Corridor also contains off-road, traffic free sections which are considered a positive factors in terms of public feedback for that route, however the neutral score achieved in the Landscape Assessment indicated that scenic views are not available on the corridor. Combined with the levels of support for, and opposition to, the corridor a score of 1 is merited.

The Orange Corridor is deemed to score negatively in this assessment as mitigation measures to alleviate the effects of the issues raised cannot be achieved – i.e. the route will not be traffic free, and scenic views will not be achieved. Furthermore, responses received indicated more opposition to the corridor than support for it.

Appendix C includes a summary of Public Feedback received.

The scores awarded each route are presented below.

Corridor	Orange	Light Blue	Purple
Mark	-1	3	1

8.5.12 Summary Sheet for ROI Corridors

	Orange	Light Blue	Purple
Modal Shift	2	3	3
Connections and Local Access	3	3	3
Cultural, Heritage and Visual Attractions	0	0	0
Landscape and Visual	-1	2	0
Flora, Fauna and the Environment	2	1	1
Physical Constraints	-2	1	1
Quality of Service	-2	2	1
Material Assets and Human Beings	3	1	1
Potential Cost	0	0	0
Physical Cross Border Connectivity	3	3	3
Public Feedback	-1	3	1
Total	7	19	14

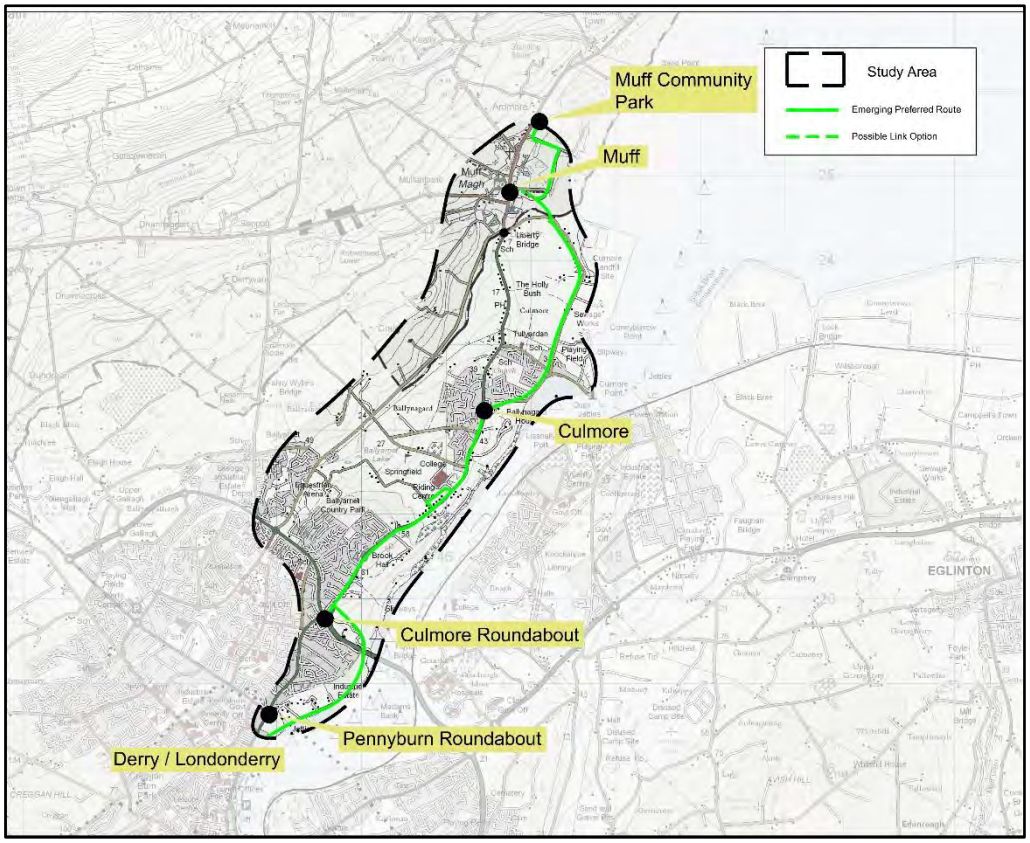
A table summarising the scores for each route and a short summary of the scoring assessment is provided in Appendix F of this report.

8.6 Emerging Preferred Route Corridor and Alternative Options Considered

Following the assessment of each of the corridor options, the Emerging Preferred Route is identified as:

- Red Corridor (South), from Derry to Culmore (junction with Culmore Point Road), where it links with;
- Green Corridor, from Culmore Point Road, beyond Culmore Country Park to the disused bridge border crossing;
- The Green 'Link' Corridor from the bridge crossing, along Canning's Lane as far as the intersection with the Light Blue Corridor;
- Light Blue Corridor, from the off-road link between Canning's Land and Kilderry Lane, and onwards to Muff Community Park, via Kilderry Lane.

The Emerging Preferred Route Corridor is described on Figure 8.6.1 below.



Disused Bridge at NI / ROI Border on Green 'Link' Corridor

8.6.1 Assessment of Emerging Preferred Route

The corridor links Derry with Culmore and Muff, and provides excellent potential for delivering modal shift as it connects with residential areas and schools. Where residential areas (e.g. through Culmore) and schools (e.g. Holybush Primary School) are not directly on the corridor, short links can be provided to improve access to the greenway. The Corridor also connects with the majority of local amenities and public transport, as well as Culmore Country Park, which should encourage leisure cyclists and pedestrians to use the greenway. There are limited Cultural and visual Attractions and across the Study Area and while the Emerging Preferred Route misses connections with Brook Hall Country House (as well at Holy Trinity Church at Culmore) and is associated features, it does traverse adjacent to Boom Hall and the Culmore Heavy Anti-Aircraft Battery.

Striking or exceptional views are not achieved along the corridor, however the overall assessment of landscape and views can be considered as positive. The corridor is considered to have minimal impact on the environment as any trees or vegetation required to be removed could be mitigated by replacement planting.

In terms of Physical Constraints, the sections of the Corridor from Derry to Culmore and from the border to Muff Community present few constraints that could not be designed out, although the section approaching Thornhill College will require careful consideration. There are some sections of the corridor from Culmore to the border where physical constraints exist that cannot be reasonably designed out (e.g. steep gradient at Culmore Point Road) and constraints to road and footpath widths that would require sections of shared carriageway / cycleway. The corner with poor visibility on Coney Road beyond the Country Park could be improved if lands to the right hand side of the corner (northbound) could be acquired. There is an existing short

bridge crossing at the proposed border crossing point. This bridge is in poor structural condition and a new bridge would need to be provided at the proposed crossing point. The remainder of this section presents no significant constraints.

The overall 'Quality of Service', and attractiveness of a greenway along this corridor is considered to be positive as it will be segregated from vehicular traffic for the majority of the route, with 'off road' sections provided at Bay Park, Thornhill College and between Canning's Lane to Kilderry Lane. Existing road crossing points can be utilised to ensure users can safely cross Culmore Road, and available traffic data indicates that a greenway design that meets the design standards and best practice where shared greenway / carriageway sections are proposed can be achieved.

The majority of the corridor avails of lands within public ownership, but 3rd party lands will be required along the A2 as far as Culmore (6Nr affected landowners) and along Coney Road (up to 8Nr affected landowners, depending on final greenway alignment). There are up to four landowners affected in the ROI section of the route, depending on the final greenway alignment. The extent of 3rd party lands required will be determined at detailed design stage, and in accordance with the policy documents outlined in Section 2, will be minimised as far as practicable.

Outside of the proposed Bay Road Bridge, which has benefit to the project as a feature/attraction, the Corridor can be delivered within a reasonable margin of the average greenway construction cost.

Public Feedback received indicates high levels of support for this corridor from Culmore as far as Muff Community Park when compared with the alternative Route Options across those sections. The main public feedback issues raised, i.e. concerns about traffic volumes and speed are mitigated by avoiding the Red (North) corridor and providing an appropriate level of segregation on the Red (South) corridor.

Table 8.6.1 below summarises the scoring assessment of the Emerging Preferred Route Corridor.

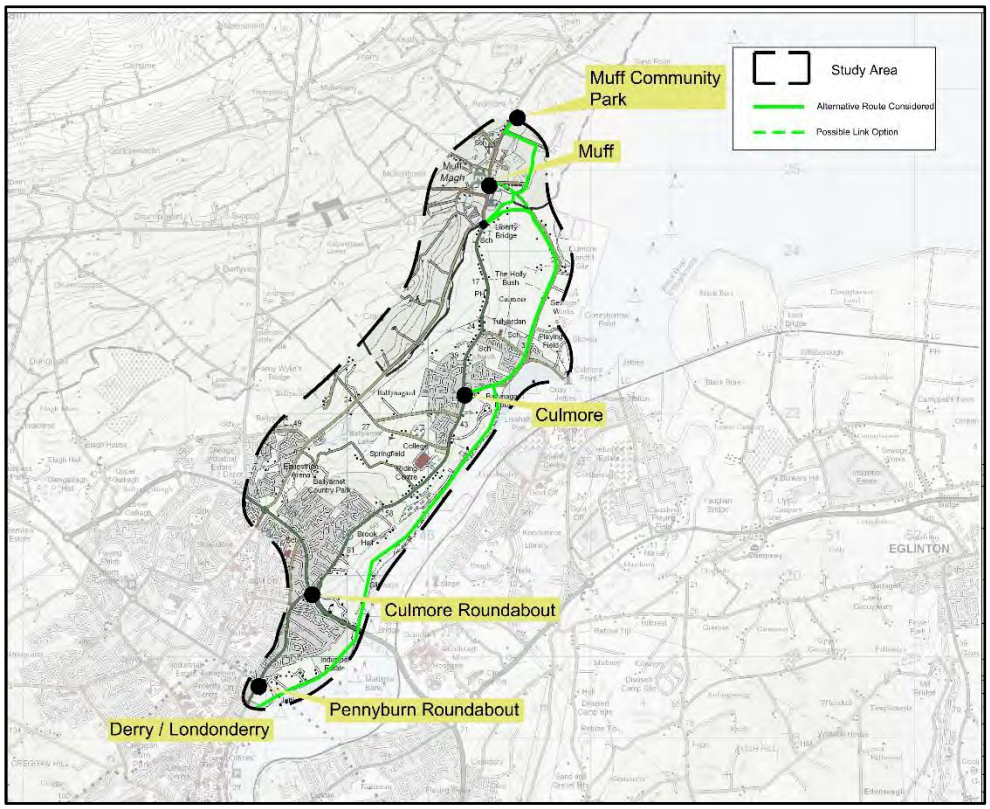
8.6.2 Assessment of Alternative Route Corridor

As evidenced by the scoring assessment undertaken in Section 8.4, there is only 1 point between the Red (South) and Blue Corridors. The Project Team considered that a greenway consisting of;

- the Red (South) Corridor from Derry, through Bay Park, to Foyle Bridge Underpass;
- the Blue Corridor to Culmore Point Road, including a link up Culmore Point Road up to Culmore (junction with A2.
- Green Corridor, from Culmore Point Road, beyond Culmore Country Park to the junction with A2 Culmore Road to south of Muff;
- The Light Blue Corridor from the south of Muff and along the border / stream towards Canning's Lane onwards to Muff Community Park, via Kilderry Lane.

could be seen as a viable alternative to the Emerging Preferred Route, and therefore an assessment of this corridor has been carried out and is described below.

The Alternative Route Corridor is described on Figure 8.6.2 below.



This corridor links Derry, Culmore and Muff however is does not provide a direct link to major residential areas between Culmore Roundabout and Culmore, nor with schools within the Study Area. While the corridor misses out on important primary modal shift generators in the study area, it would provide a good facility for leisure use. It does not provide direct access to local amenities, although public transport along Culmore Point Road and Culmore Country Park are connected by the corridor. The corridor also links with the Cultural and visual Attractions and across the Study Area, e.g. Brook Hall Country House and is associated features and passes close to the Culmore Heavy Anti-Aircraft Battery.

The section of the corridor between Bay Park and Culmore Point would provide striking views across the Foyle, however the environmental impacts of construction through this section would have to be considered. There is potential for considerable impacts on the environmental designations (Lough Foyle SPA), habitats and tree cover and these issues would require suitable mitigation measures. The landscape views and impacts on the environment beyond this section are comparable with those on the Emerging Preferred Route.

The alternative avoids the physical constraint (narrow carriageway and footpath width) on the approach to Springfield Road. Some tree clearance may be required in the vicinity of Brook

Hall Country House, and the other constraints evidenced on the Emerging Preferred Route Corridor would also need to be considered on this alternative. This alternative corridor also includes a longer section of shared carriageway / greenway as it contains the section of Coney Road from the disused bridge to the south of Muff – approximately 600m.

The corridor is predominately off-road as far as Culmore, and this section is considered to offer a high quality of service and an attractive greenway product. From Culmore to Muff, the Quality of Service is deemed to be comparable to the route identified as the Emerging Preferred Route.

The impact on Material Assets and Human beings are considered high as significant 3rd party lands would be required. Furthermore, as noted in Section 8.5.8, the Light Blue Corridor as described in this option has further impacts on 3rd party land that the combination of the Green Link and Light Blue identified in the Emerging Preferred Route Corridor avoid.

Outside of the proposed Bay Road Bridge, the Corridor can be delivered within a reasonable margin of the average greenway construction cost.

Based on the public feedback received for the Blue, Green and Light Blue Corridors which comprise the majority of the alternative corridor, it is considered that public support for this corridor would be positive, as indicated by comments noting the scenic predominantly traffic free nature of the corridor. Concerns raised relating to potential environmental impacts and landowner's issues would need to be considered if this route were to be developed.

It is noted that within Northern Ireland, the combination of the Blue and Green Corridor could be considered as an attractive greenway facility, achieving positive scores for Landscaping and Visual, Physical Constraints and Quality of Service. However, whilst the corridor will deliver some modal shift it misses out the primary Modal Shift generators at Thornhill College and along the Culmore Road between Culmore Roundabout and Culmore village. It also scores -3 in the Material Assets and Human Beings assessment and due to some of the potential developments along the Blue Corridor (identified in this report) it is not considered that this corridor could be delivered within the timescales of the funding for this this project.

It is noted that within Northern Ireland, the combination of the Blue and Green Corridor could be considered as an attractive greenway facility, achieving positive scores for Landscaping and Visual, Physical Constraints and Quality of Service. However, whilst the corridor will deliver some modal shift it misses out the primary Modal Shift generators at Thornhill College and along the Culmore Road between Culmore Roundabout and Culmore village. It also scores -3 in the Material Assets and Human Beings assessment and due to some of the potential developments along the Blue Corridor (identified in this report) it is not considered that this corridor could be delivered within the timescales of the funding for this project.

The following table provides the scores awarded against each Assessment Criteria for the Emerging Preferred Route and the alternative option considered.

Table 8.6.1

Assessment Criteria	Emerging Preferred Route		Alternative Route Corridor	
Modal Shift	3	Links Derry with Culmore and Muff, significant MS Generators	2	Links Derry with Culmore and Muff, however misses some significant MS Generators between Derry and Culmore
Connections and Local Access	3	Connects with a more than adequate number amenities across the Study Area	3	Connects with a more than adequate number amenities across the Study Area. Noted that the southern section misses some connections but taken as a whole a score of 3 is justified
Cultural, Heritage and Visual Attractions	1	Cultural Heritage is deemed of local, or niche, interest in the Study Area, and this route connects with these attractions at Culmore WWII Anti-Aircraft Battery	1	Cultural Heritage is deemed of local, or niche, interest in the Study Area, and this route connects with these attractions.
Landscape and Visual	1	Positive landscape scores throughout, but no 'striking views' achieved beyond Bay Park section	2	Positive landscape scores throughout, but 'striking views' only achieved on the Blue Corridor.
Flora, Fauna and the Environment	2	Connects with designated areas and notable Flora & Fauna, however the potential impact at Bay Rd Bridge is anticipated to be the only significant env Impact	1	Connects with designated areas and notable Flora & Fauna, however high env impact at Blue Route impacts on the score.
Physical Constraints	1	Physical constraints along the route, but mitigation measures available and no residual impact on QoS. Narrow cross sections can be mitigated by adopting the prevailing standards	1	Physical constraints along the route, but mitigation measures available and no residual impact on QoS. Narrow cross sections can be mitigated by adopting the prevailing standards.
Quality of Service	2	Positive score as the route, as a whole is considered 'attractive' within the context of the urban / rural environment and a design in accordance with the prevailing design standards could be achieved. Shared carriageway sections detract from the maximum available score, and it is noted that the preferred Green corridor omits the section of shared surface from the disused border bridge on Coney Road to the R238	2	Positive score as the route, as a whole is considered 'attractive' within the context of the urban / rural environment and a design in accordance with the prevailing design standards could be achieved. Shared carriageway sections detract from the maximum available score
Material Assets and Human Beings	-1	Significant 3rd party lands required, but low impacts on privacy and land usage.	-3	Significant 3rd party lands required, with high impacts on privacy and land usage at the Blue Corridor
Potential Cost	0	The potential cost of the Bay Road Bridge is mitigated by relatively low costs along the remainder of the corridor	-1	The potential cost of the Bay Road Bridge and tree clearance along the Blue Corridor is mitigated by relatively low costs along the remainder of the corridor
Physical Cross Border Connectivity	3	Achieves the aim and objective	3	Achieves the aim and objective
Public Feedback	2	The concerns and issue raised on the Red Corridor are mitigated by avoiding the Red (North) section, and by providing a design in accordance with the prevailing standards	3	High levels of support, and issues raised identifying a preference for 'traffic fee' or lightly trafficked sections are delivered by this corridor.
Total Score	**17**		**14**	

8.7 Comment on Other Route Corridor Options

Due the physical constraints identified along the section from Culmore Primary school, past Ardan Road and on to Nr 222 Culmore Road, and the associated impact on the achievable 'Quality of Service', the Red Corridor (North) has not be considered further as part of the potential corridor from Derry to the border. The Yellow Corridor, coupled with any of the corridors around Muff scored significantly lower than the combinations identified in Sections 8.5 and is not considered further.

The difference in scoring between the Light Blue Corridor and both the Purple and Orange corridors was deemed significant enough that further assessment of the Purple or Orange corridors, in combination with Northern Ireland Route Corridor options, was not considered.

9 CONCLUSION, RECOMMENDATION AND NEXT STEPS

9.1 Conclusion and Recommendation

The Preferred Route is defined as the best combination of Route Corridor Options within the Study Area that will deliver a greenway which best achieves the aims and objectives of the NWGN Scheme as outlined in Sections 2.0 and 3.3.

As identified in Section 8.6 above, the Preferred Route is defined as:

- Red Corridor (South), from Derry to Culmore (junction with Culmore Point Road), where it links with;
- Green Corridor, from Culmore Point Road, beyond Culmore Country Park to the disused bridge border crossing;
- The Green 'Link' Corridor from the bridge crossing, along Canning's Lane as far as the intersection with the Light Blue Corridor;
- Light Blue Corridor, from the off-road link between Canning's Land and Kilderry Lane, and onwards to Muff Community Park, via Kilderry Lane.

The development of the proposed greenway along this corridor, in conjunction with the delivery of the Route 1 and Route 3 sections of the overall NWGN scheme, would facilitate achieving the aims and objectives of the NWGN Scheme as outlined in Section 2.0.

Furthermore, the development of the proposed greenway along this corridor would deliver the Route 2 Specific aims and objectives as outlined in Section 3.3.

It is recommended that the Preferred Route Corridor as developed in accordance with the design standards and best practice guidance documents described in the appendices, and in line with the statutory requirements and approvals process of the relevant jurisdictions.

9.2 Next Steps

The next steps and key target dates for the delivery of NWGN Route 2, Derry to Muff are:

- Late 2018: Meetings with affected Landowners, ongoing until early 2019
- November 2018: Stage 2 Preferred Route Selection Report published
- November 2018: Public Information Events
- December 2018: Submission of Planning Applications in NI
- January 2019: Publish Part 8 Planning Application in ROI
- 1st Quarter 2019: Vesting Order prepared for required land acquisitions
- 2nd / 3rd Quarter 2019: Planning Approvals
- 4th Quarter: Procurement of Integrated Supply Teams
- Late 2020: Construction Complete

APPENDIX A – LIST OF DESIGN GUIDELINES AND STANDARDS & GLOSSARY OF TERMS AND ABBREVIATIONS

Northern Ireland

Title	Details
Handbook for Cycle-Friendly Design	Sustrans, April 2014
Cycle Traffic and the Strategic Road Network, Interim Advice Note 195/16	Department for Infrastructure, Oct 2016
Provision for Non-Motorised Users, DMRB Vol5, Section 2, Part 5, TA 91/05	Design Manual for Roads and Bridges
Geometric Design Of Major/Minor Priority Junctions DMRB Vol6, Section 2, Part 6, TD 42/95	Design Manual for Roads and Bridges
Geometric design of Pedestrian, Cycle and Equestrian Routes DMRB Vol6, Section 3, Part 5, TA 90/05	Design Manual for Roads and Bridges
Traffic Signs Manual, latest editions of relevant chapters	Department for Infrastructure

Republic of Ireland

Title	Published By
National Cycle Manual	National Transport Authority, June 2011
Rural Road Link Design TII, DN-GEO-03031	Transport Infrastructure Ireland, June 2017
Cross Sections and Headroom TII, DN-GEO-03036	Transport Infrastructure Ireland, June 2017
Subways for Pedestrians and Pedal Cyclists TII, DN-GEO-03040	Transport Infrastructure Ireland, June 2017
Rural Cycleway Design (Offline) TII, DN-GEO-03047	Transport Infrastructure Ireland, April 2017
Geometric Design of Junctions TII, DN-GEO-03060	Transport Infrastructure Ireland, June 2017
Strategy for the Future Development of National and Regional Greenways	Department of Tourism, Transport and Sport
Greenways and Cycle Routes Ancillary Infrastructure Guidelines	Department of Tourism, Transport and Sport
ROI Traffic Signs Manual, latest editions of relevant chapters	Department for Transport, Tourism and Sport,

Other Documents

Title	Published By
Cycling By Design, Revision 1	Transport Scotland, June 2011
London Cycling Design Standards (LCDS)	Transport for London, June 2014

Glossary of Terms and Abbreviations

AONB	AREA OF OUTSTANDING NATURAL BEAUTY
CHVA	CULTURAL HERITAGE & VISITOR ATTRACTIONS
DCC	DONEGAL COUNTY COUNCIL
DCSDC	DERRY CITY & STRABANE DISTRICT COUNCIL
DfI	DEPARTMENT FOR INFRASTRUCTURE
DMRB	DESIGN MANUAL FOR ROADS & BRIDGES
DTTAS	DEPARTMENT FOR TOURISM, TRANSPORT &SPORT
ECF	EUROPEAN CYCLISTS FEDERATION
FI	FÁILTE IRELAND
IAN	INTERIM ADVICE NOTE
ICT	INTEGRATED CONSULTANTS TEAM
LCDS	LONDON CYCLING DESIGN STANDARDS
NI	NORTHERN IRELAND
NWGN	NORTH WEST GREENWAY NETWORK
ROI	REPUBLIC OF IRELAND
SAC	SPECIAL AREA OF CONSERVATION
SAR	SCHEME ASSESSMENT REPORT
SEUPB	SPECIAL EUROPEAN UNION PROGRAMMES BODY
SPA	SPECIAL PROTECTION AREA
TII	TRANSPORT INFRASTRUCTRE, IRELAND

APPENDIX B – DRAWINGS AND FIGURES

Figure	Drawing Title
3.2	Route Overview
4.1	Study Area
5.1	Topography
5.2	Rivers & Streams – NI
5.2.2	Rivers & Streams – ROI
5.3	Environmental Designations
5.4	Existing Land Use
5.5	Proposed Developments
5.6.1	Local Amenities – NI
5.6.2	Local Amenities – ROI
5.7	Built Heritage
6.1.1	Route Corridor Options – Section 1
6.1.2	Route Corridor Options – Section 2
8.6.1	Emerging Preferred Route
8.6.2	Alternative Routes Considered

LEGEND

North West Region

Route Specific Study Area

612 m

363 m

364 m

BUNCRANA

Buncrana

Route 1

MUFF

Londonderry Eglinton Airport

Route 2

IRELAND

NEWTOWNCUNNINGHAM

DERRY / LONDONDERRY

A6

R237

N13

LETTERKENNY

STER

DERRY

LIFFORD

N14

STRABANE

Strabane

UNITED KINGDOM

Route 3

Rev No Add Rev date | Rev Description | Rev by Rev ch Rev ap

Interreg
Northern Ireland - Ireland - Scotland

The North West Greenway Network project has been supported by the European Union's INTERREG VA Programme, managed by the Special EU Programmes Body (SEUPB)

NORTH WEST GREENWAY NETWORK

Project Manager/ Civil Engineers:
M ADAM

McAdam Design Ltd
1c Montgomery House
478 Castlereagh Road
Belfast, BT5 6BQ
T 028 9040 2000
F 028 9079 4144
admin@mcadamdesign.co.uk
www.mcadamdesign.co.uk

Project Manager/ Cost Consultant: Sammon

Landscape Architect: MWA Partnership

Drawn: C.R | Checked: K.O'S | Approved: K.O'S
Date: 14/09/18 | Date: 14/09/18 | Date: 14/09/18

Client: Derry City & Strabane District Council

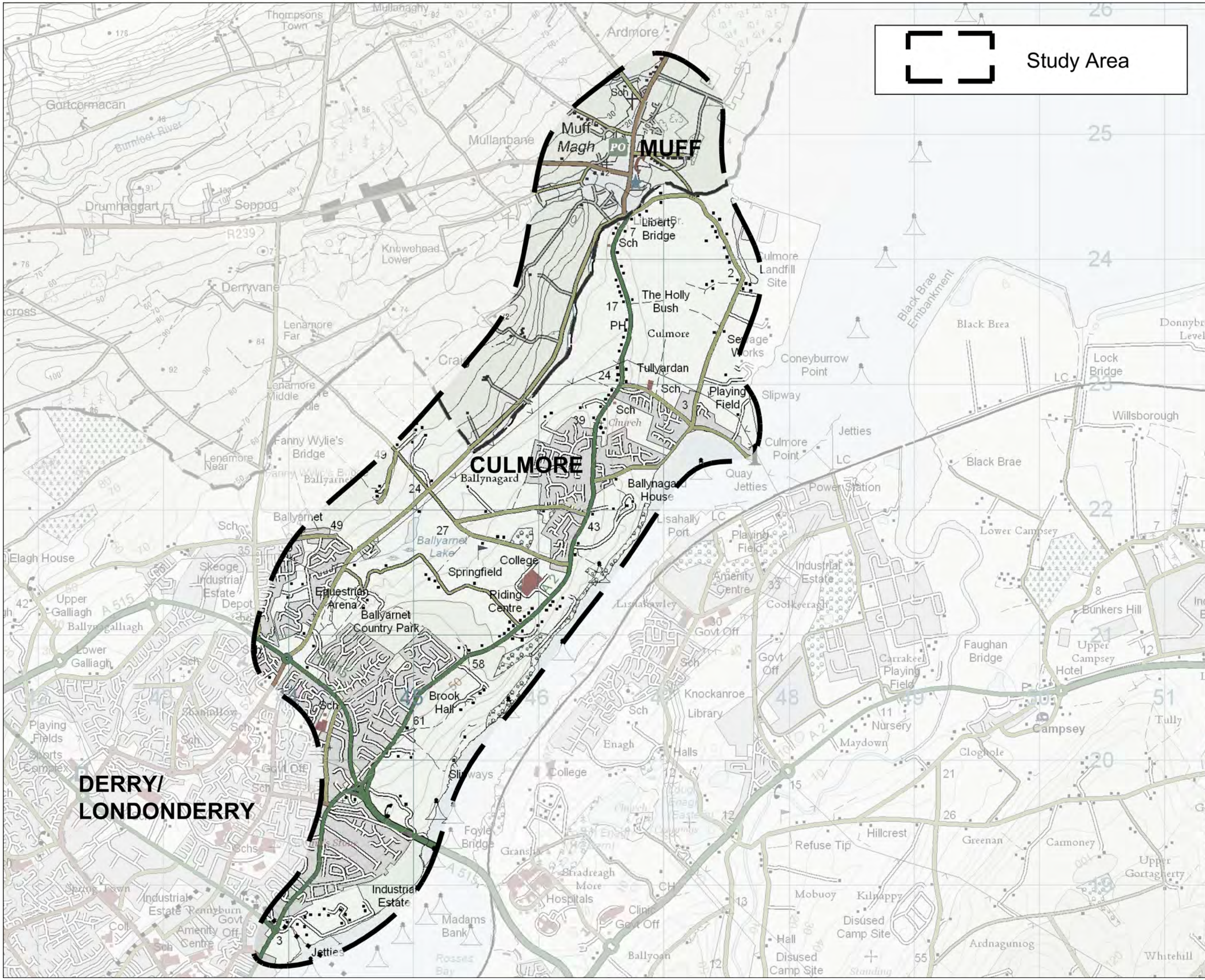
Client/ Partner: Donegal County Council

Project: NORTH WEST GREENWAY NETWORK

Drawing: PREFERRED ROUTE CORRIDOR SELECTION REPORT
ROUTE 2 - ROUTE OVERVIEW

Scale: NTS

Project No: E2002 | Drawing No: 3.2 | Revision:


Study Area
MUFF
Muff
Magh
CULMORE
DERRY/
LONDONDERRY
Liberty Bridge
The Holly Bush
Culmore
Tullyardan
Ballynagard
Ballynagard House
Ballyarnet
Ballyarnet Lake
Springfield
College
Riding Centre
Equestrian Arena
Ballyarnet Country Park
Brook Hall
Industrial Estate
Jetties
Foyle Bridge
Slipways
Culmore Point
Quay Jetties
Culmore Landfill Site
Sewage Works
Coneyburrow Point
Black Brae Embankment
Black Brae
Lock Bridge
Willsborough
Power Station
Mullanbane
Drumhaggart
Seppog
Gortcormacan
Ardmore
Thompsons Town
Derryvane
Knowehead Lower
Lenamore Far
Lenamore Middle
Lenamore Near
Fanny Wylie's Bridge
Skeoge Industrial Estate
Elagh House
Upper Galliagh
Lower Galliagh
Campsey
Upper Campsey
Lower Campsey
Faughan Bridge
Bunkers Hill
Maydown
Hillcrest
Refuse Tip
Greenan
Camoney
Mobuoy
Kilnappy
Disused Camp Site
Ardnagunlog
Whitehill
Tully
Enagh
Knockanroe
Library
Hospitals
Madams Bank
Gransha
Clooney

Rev No	Add Rev date	Rev Description		Rev by	Rev ck	Rev ap

Funder: Interreg — Northern Ireland - Ireland - Scotland

The North West Greenway Network project has been supported by the European Union's INTERREG VA Programme, managed by the Special EU Programmes Body (SEUPB)

NORTH WEST GREENWAY NETWORK

Project Manager/ Civil Designers: McADAM
McAdam Design Ltd, 1c Montgomery House, 478 Castlereagh Road, Belfast, BT5 6BQ
T 028 9040 2000
F 028 9079 4144
admin@mcadamdesign.co.uk
www.mcadamdesign.co.uk

Project manager/ Cost Consultant: Sammon
Landscape Architect: MWA partnership

Drawn: C.R 14/09/18 | Checked: K.O'S 14/09/18 | Approved: K.O'S 14/09/18

Client: Derry City & Strabane District Council

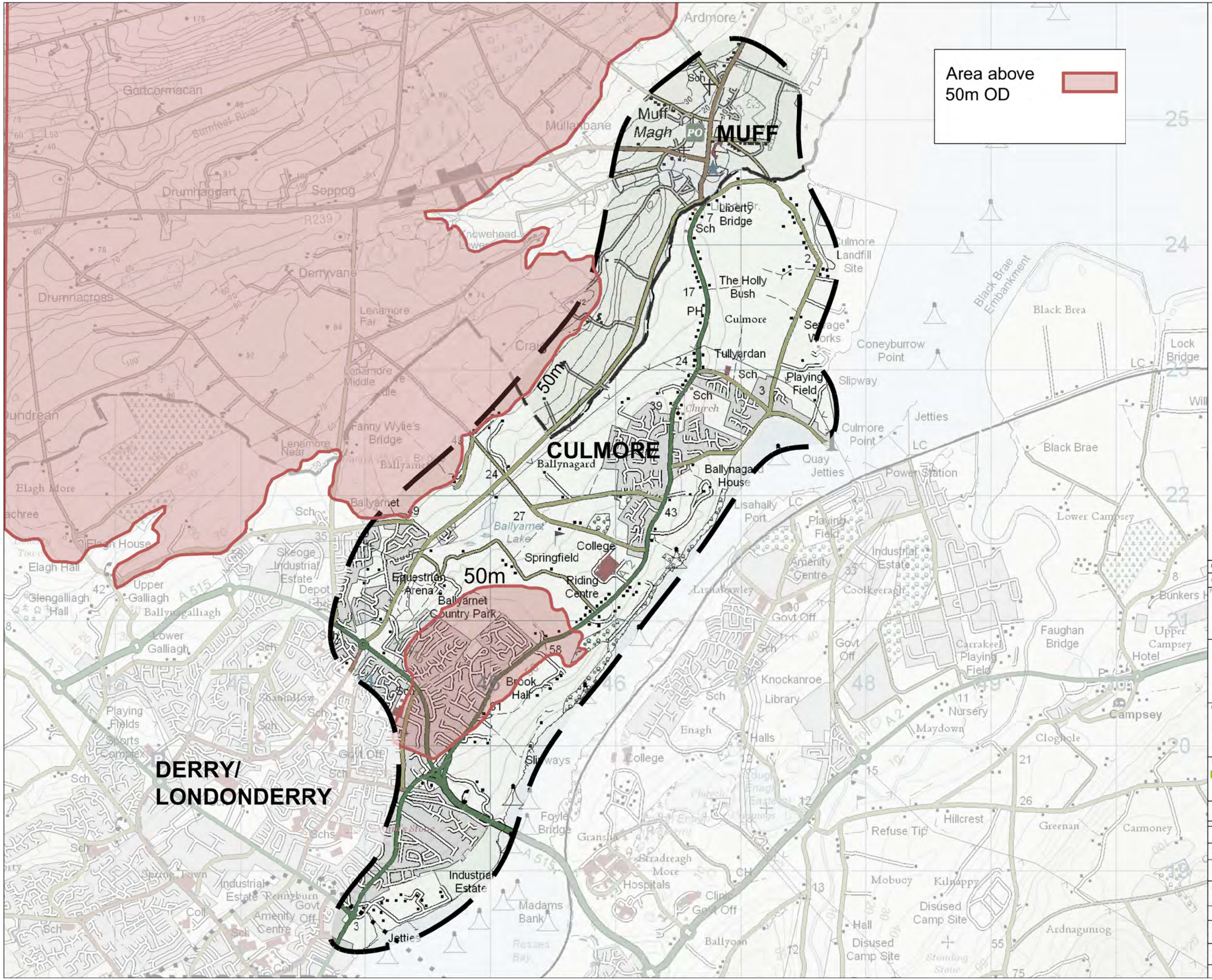
Client Partner: Donegal County Council

Project: NORTH WEST GREENWAY NETWORK

Drawing: PREFERRED ROUTE CORRIDOR SELECTION REPORT ROUTE 2 - STUDY AREA

Scale: NTS

Project No: E2002 | Drawing No: 4.1 | Revision:



Rev No Add Rev date Rev Description Rev by Rev ck Rev ap

Rev Date Description Drn Ckd Rev

Funder

Interreg
Northern Ireland - Ireland - Scotland

The North West Greenway Network project has been supported by the European Union's INTERREG VA Programme, managed by the Special EU Programmes Body (SEUPB)

NORTH WEST GREENWAY NETWORK

Project Manager/ Civil Engineers

McADAM DESIGN

McAdam Design Ltd
1c Montgomery House
478 Castlereagh Road
Belfast, BT5 6BQ
T 028 9040 2000
F 028 9079 4144
admin@mcadamdesign.co.uk
www.mcadamdesign.co.uk

Project manager/ Cost Consultant: Sammon

Landscape Architect: MWA partnership

Drawn	C.R	Checked	K.O'S	Approved	K.O'S
Date	14/09/18	Date	14/09/18	Date	14/09/18

Client: Derry City & Strabane District Council

Client Partner: Donegal County Council

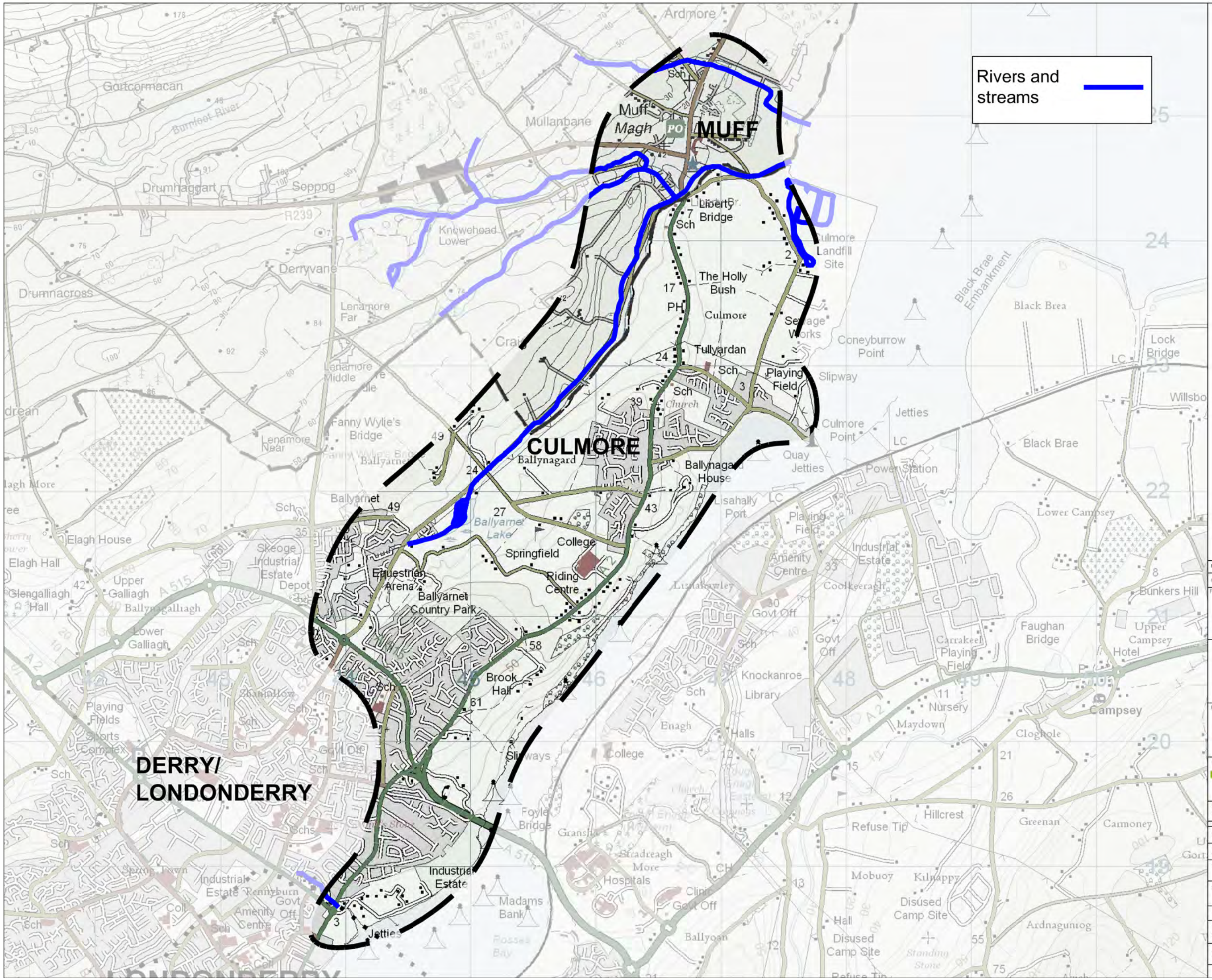
Project: NORTH WEST GREENWAY NETWORK

Drawing: PREFERRED ROUTE CORRIDOR SELECTION REPORT
ROUTE 2 - TOPOGRAPHY

Scale: NTS

Project No	Drawing No	Revision
E2002	5.1	

All dimensions are in millimetres. Figured dimensions to be taken in preference to scaled dimensions. Dimensions to be checked on site. © 2010 McAdam Design Ltd



Rev No AdRev date Rev Description Rev by Rev ck Rev ap

Rev Date Description Drn Chg App

Funder

Interreg

Northern Ireland - Ireland - Scotland

The North West Greenway Network project has been supported by the European Union's INTERREG VA Programme, managed by the Special EU Programmes Body (SEUPB)

NORTH WEST GREENWAY NETWORK

Project Manager/ Civil Engineers

McADAM DESIGN

McAdam Design Ltd
1c Montgomery House
478 Castlereagh Road
Belfast, BT5 6BQ
T 028 9040 2000
F 028 9079 4144
admin@mcadamdesign.co.uk
www.mcadamdesign.co.uk

Project manager/ Cost Consultant: Sammon

Landscape Architect: MWA partnership

Drawn	C.R	Checked	K.O'S	Approved	K.O'S
Date	14/09/18	Date	14/09/18	Date	14/09/18

Client Derry City & Strabane District Council

Client Partner Donegal County Council

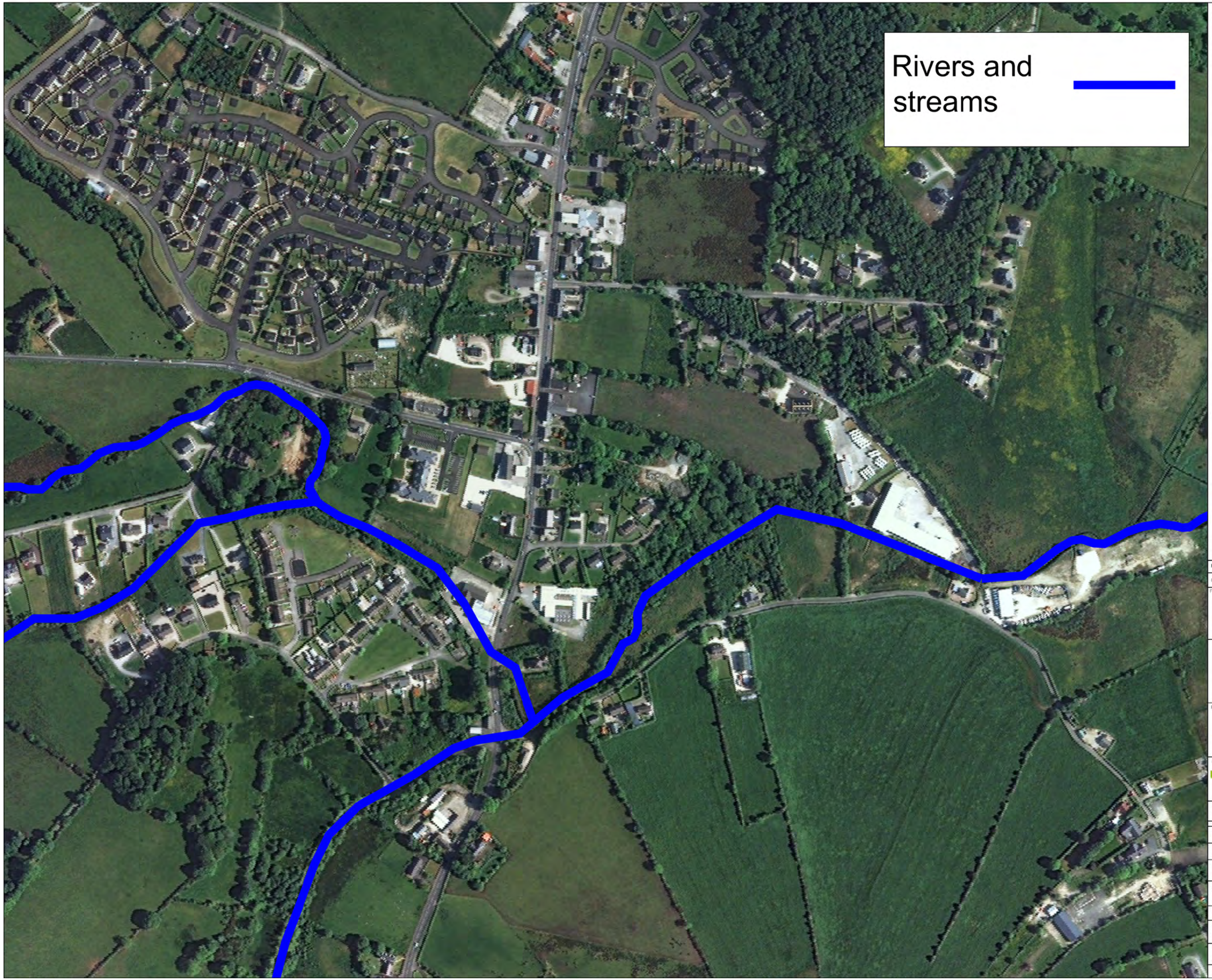
Project NORTH WEST GREENWAY NETWORK

Drawing PREFERRED ROUTE CORRIDOR SELECTION REPORT
ROUTE 2 - RIVERS & STREAMS - NI

Scale NTS

Project No	Drawing No	Revision
E2002	5.2	

All dimensions are in millimetres. Figured dimensions to be taken in preference to scaled dimensions. Dimensions to be checked on site. © 2018 McAdam Design Ltd



Rev No Add Rev date Rev Description Rev by Rev ck Rev ap

Rev	Date	Description	Drn	Chd	Appd

Funder

Interreg
Northern Ireland - Ireland - Scotland

The North West Greenway Network project has been supported by the European Union's INTERREG VA Programme, managed by the Special EU Programmes Body (SEUPB)

NORTH WEST GREENWAY NETWORK

Project Manager/ Civil Engineers:

McAdam Design Ltd
1c Montgomery House
478 Castlereagh Road
Belfast, BT5 6BQ
T 028 9040 2000
F 028 9079 4144
admin@mcadamdesign.co.uk
www.mcadamdesign.co.uk

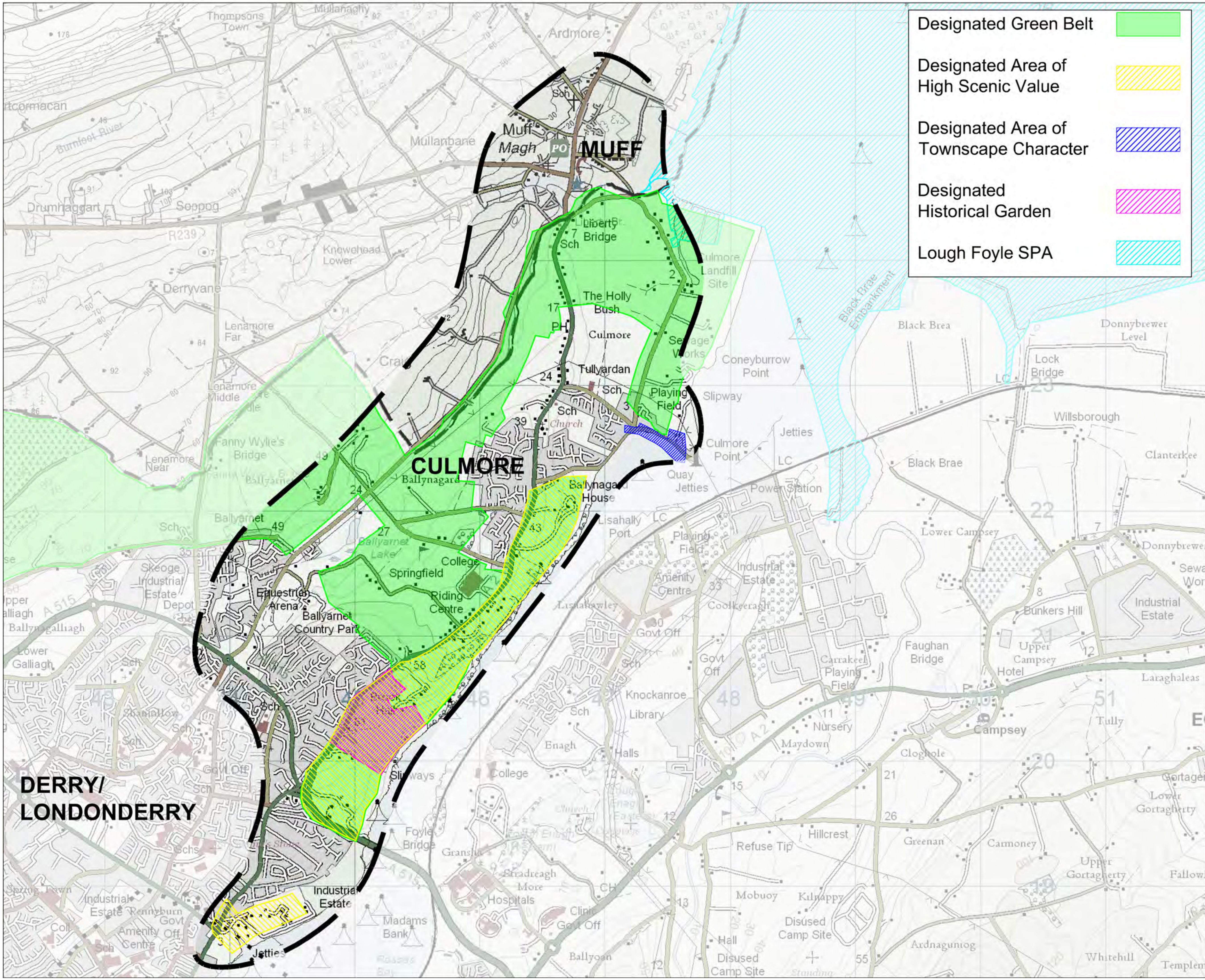
Project manager/ Cost Consultant: Sammon

Landscape Architect: MWA partnership

Drawn	C.R	Checked	K.O'S	Approved	K.O'S
Date	14/09/18	Date	14/09/18	Date	14/09/18

Client	Derry City & Strabane District Council
Client Partner	Donegal County Council
Project	NORTH WEST GREENWAY NETWORK
Drawing	PREFERRED ROUTE CORRIDOR SELECTION REPORT ROUTE 2 - RIVERS & STREAMS - ROI
Scale	NTS

Project No	Drawing No	Revision
E2002	5.2.2	



Interreg
Northern Ireland - Ireland - Scotland

The North West Greenway Network project has been supported by the European Union's INTERREG VA Programme, managed by the Special EU Programmes Body (SEUPB)

NORTH WEST GREENWAY NETWORK

McADAM DESIGN

McAdam Design Ltd
1c Montgomery House
478 Castlereagh Road
Belfast, BT5 6BQ
T 028 9040 2000
F 028 9079 4144
admin@mcadamdesign.co.uk
www.mcadamdesign.co.uk

Sammon

MWA partnership

Drawn: C.R Date: 14/09/18
Checked: K.O'S Date: 14/09/18
Approved: K.O'S Date: 14/09/18

Client: Derry City & Strabane District Council

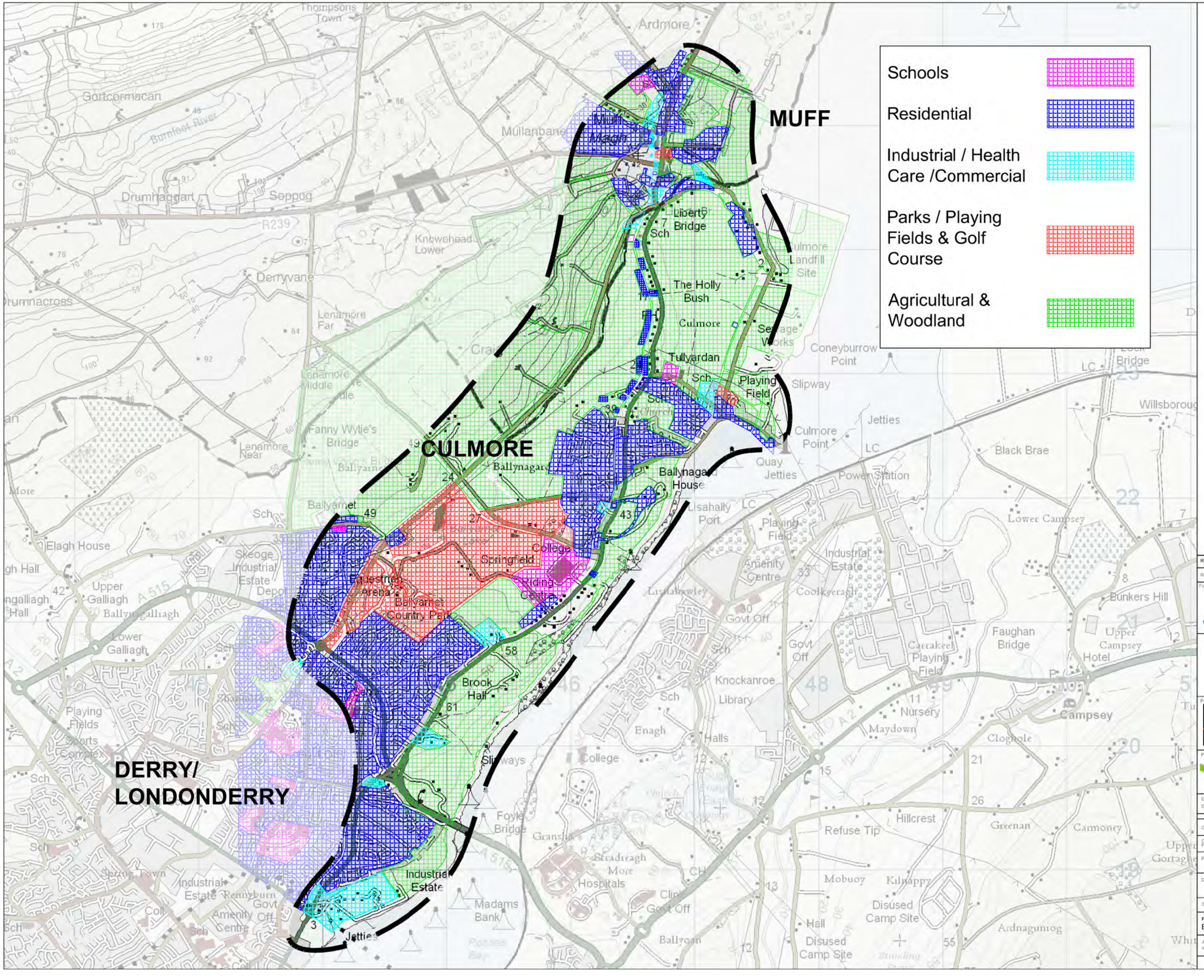
Client Partner: Donegal County Council

Project: NORTH WEST GREENWAY NETWORK

Drawing: PREFERRED ROUTE CORRIDOR SELECTION REPORT
ROUTE 2 - ENVIRONMENTAL DESIGNATIONS

Scale: NTS

Project No: E2002
Drawing No: 5.3
Revision:



Rev No Adr Rev date Rev Description Rev by Rev ck Rev ap

Rev Date Description Dwn Chkd Appd

Funder

Interreg
Northern Ireland - Ireland - Scotland

The North West Greenway Network project has been supported by the European Union's INTERREG VA Programme, managed by the Special EU Programmes Body (SEUPB)

NORTH WEST GREENWAY NETWORK

Project Manager/ Cost Consultant / Landscape Architect

McAdam Design Ltd
1c Montgomery House
478 Castlereagh Road
Belfast, BT5 6BQ
T 028 9040 2000
F 028 9079 4144
admin@mcadamdesign.co.uk
www.mcadamdesign.co.uk

Sammon

MWA partnership ltd

Drawn	C.R	Checked	K.O'S	Approved	K.O'S
Date	14/09/18	Date	14/09/18	Date	14/09/18

Client	Derry City & Strabane District Council
Client Partner	Donegal County Council
Project	NORTH WEST GREENWAY NETWORK
Drawing	PREFERRED ROUTE CORRIDOR SELECTION REPORT ROUTE 2 - EXISTING LAND USE
Scale	NTS

Project No	Drawing No	Revision
E2002	5.4	

Rev No AdRev date | Rev Description | Rev by Rev ck Rev ap

Rev | Date | Description | Drn | Chk | App

Funder

Interreg
Northern Ireland - Ireland - Scotland

The North West Greenway Network project has been supported by the European Union's INTERREG VA Programme, managed by the Special EU Programmes Body (SEUPB)

NORTH WEST GREENWAY NETWORK

Project Manager/ Civil Engineers

McADAM DESIGN

McAdam Design Ltd
1c Montgomery House
478 Castlereagh Road
Belfast, BT5 6BQ
T 028 9040 2000
F 028 9079 4144
admin@mcadamdesign.co.uk
www.mcadamdesign.co.uk

Project manager/ Cost Consultant: Sammon

Landscape Architect: MWA partnership

Drawn	C.R	Checked	K.O'S	Approved	K.O'S
Date	14/09/18	Date	14/09/18	Date	14/09/18

Client: Derry City & Strabane District Council

Client Partner: Donegal County Council

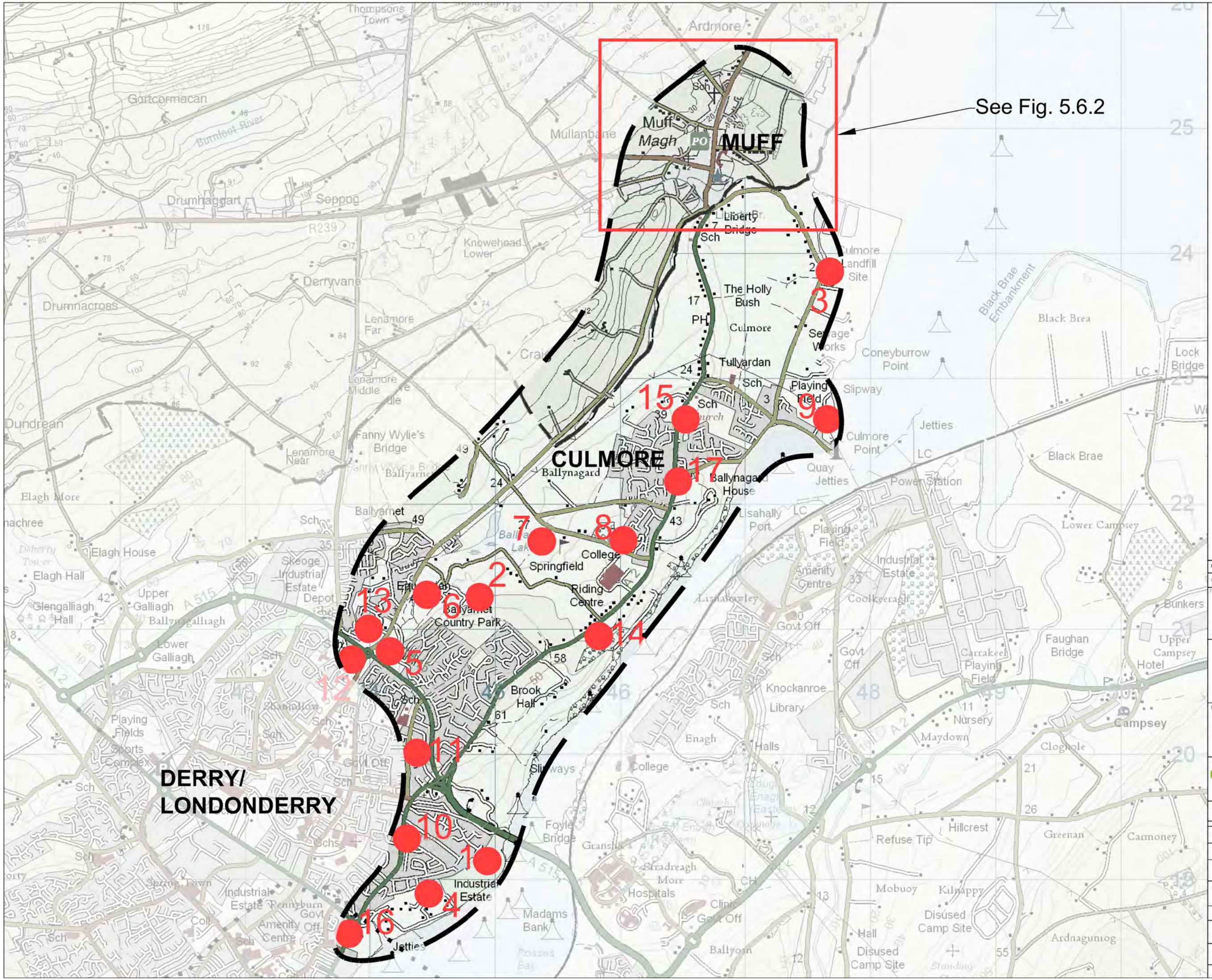
Project: NORTH WEST GREENWAY NETWORK

Drawing: PREFERRED ROUTE CORRIDOR SELECTION REPORT
ROUTE 2 - PROPOSED DEVELOPMENTS

Scale: NTS

Project No	Drawing No	Revision
E2002	5.5	

All dimensions are in millimetres. Figured dimensions to be taken in preference to scaled dimensions. Dimensions to be checked on site © 2010 McAdam Design Ltd.



LEGEND

1	Bay Road Park
2	Ballyarnett Country Park
3	Culmore Country Park
4	Bay Road Soccer
5	Pairc Bhrid, Brian Óg's GAC
6	Equestrian Centre
7	Foyle Golf Centre
8	Ballynagard Soccer Pitch
9	Soccer Pitch
10	Acorn Centre
11	Our Lady of Lourdes, Steelstown
12	Lenamore Youth Centre
13	Ballyarnett Presbyterian Church
14	Convent of Mercy - Church
15	Holy Trinity, Church of Ireland
16	Strand Road Area
17	Culmore Town Centre

Rev No	Ad/Rev date	Rev Description	Rev by/Rev ck/Rev ap
Rev	Date	Description	Drn / Chk / Rev

Funder

Interreg
Northern Ireland - Ireland - Scotland

The North West Greenway Network project has been supported by the European Union's INTERREG VA Programme, managed by the Special EU Programmes Body (SEUPB).

NORTH WEST GREENWAY NETWORK

Project Manager/ Civil Engineers

McAdam Design Ltd
1c Montgomery House
476 Castlereagh Road
Belfast, BT5 6BQ
T 028 9040 2000
F 028 9079 4144
admin@mcadamdesign.co.uk
www.mcadamdesign.co.uk

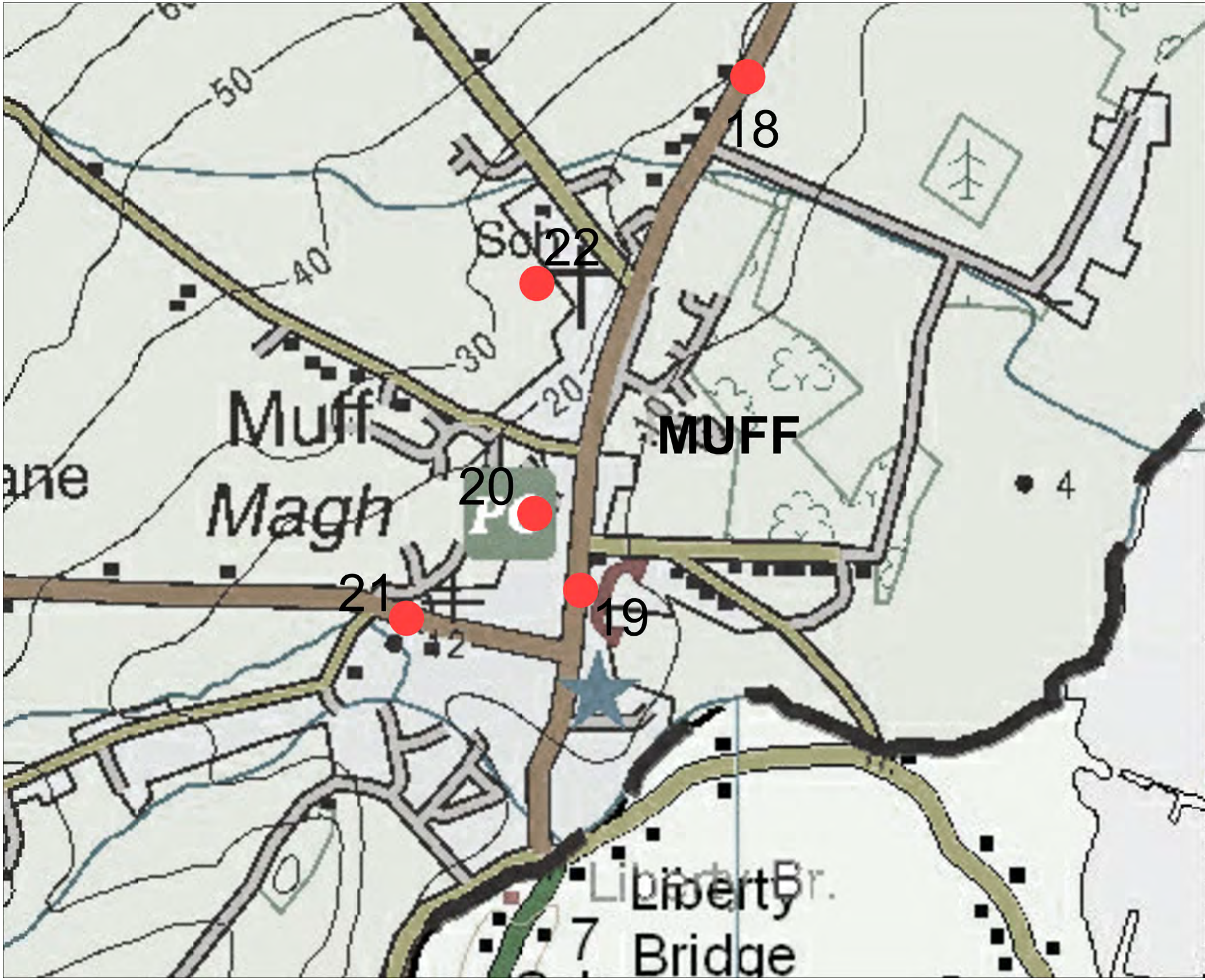
Project Manager/ Civil Consultant / Landscape Architect

Sammon / MWA partnership

Drawn	C.R	Checked	K.O'S	Approved	K.O'S
Date	14/09/18	Date	14/09/18	Date	14/09/18

Client	Derry City & Strabane District Council
Client Partner	Donegal County Council
Project	NORTH WEST GREENWAY NETWORK
Drawing	PREFERRED ROUTE CORRIDOR SELECTION REPORT ROUTE 2 - LOCAL AMENITIES - NI
Scale	NTS

Project No	Drawing No	Revision
E2002	5.6.1	



LEGEND

18	Muff Community Park
19	Soccer Pitch
20	Muff Town Centre
21	Muff Church of Ireland
22	Church of the Sacred Heart

Rev No Add/Rev date | Rev Description | Rev by/Rev ck/Rev ap

Interreg
Northern Ireland - Ireland - Scotland
The North West Greenway Network project has been supported by the European Union's INTERREG VA Programme, managed by the Special EU Programmes Body (SEUPB)

NORTH WEST GREENWAY NETWORK

M^c^ADAM DESIGN
McAdam Design Ltd
1c Montgomery House
478 Castlereagh Road
Belfast, BT5 6BQ
T 028 9040 2000
F 028 9079 4144
admin@mcadamdesign.co.uk
www.mcadamdesign.co.uk
Sammon
MWA partnership

Drawn: C.R 14/09/18 | Checked: K.O'S 14/09/18 | Approved: K.O'S 14/09/18

Client: Derry City & Strabane District Council

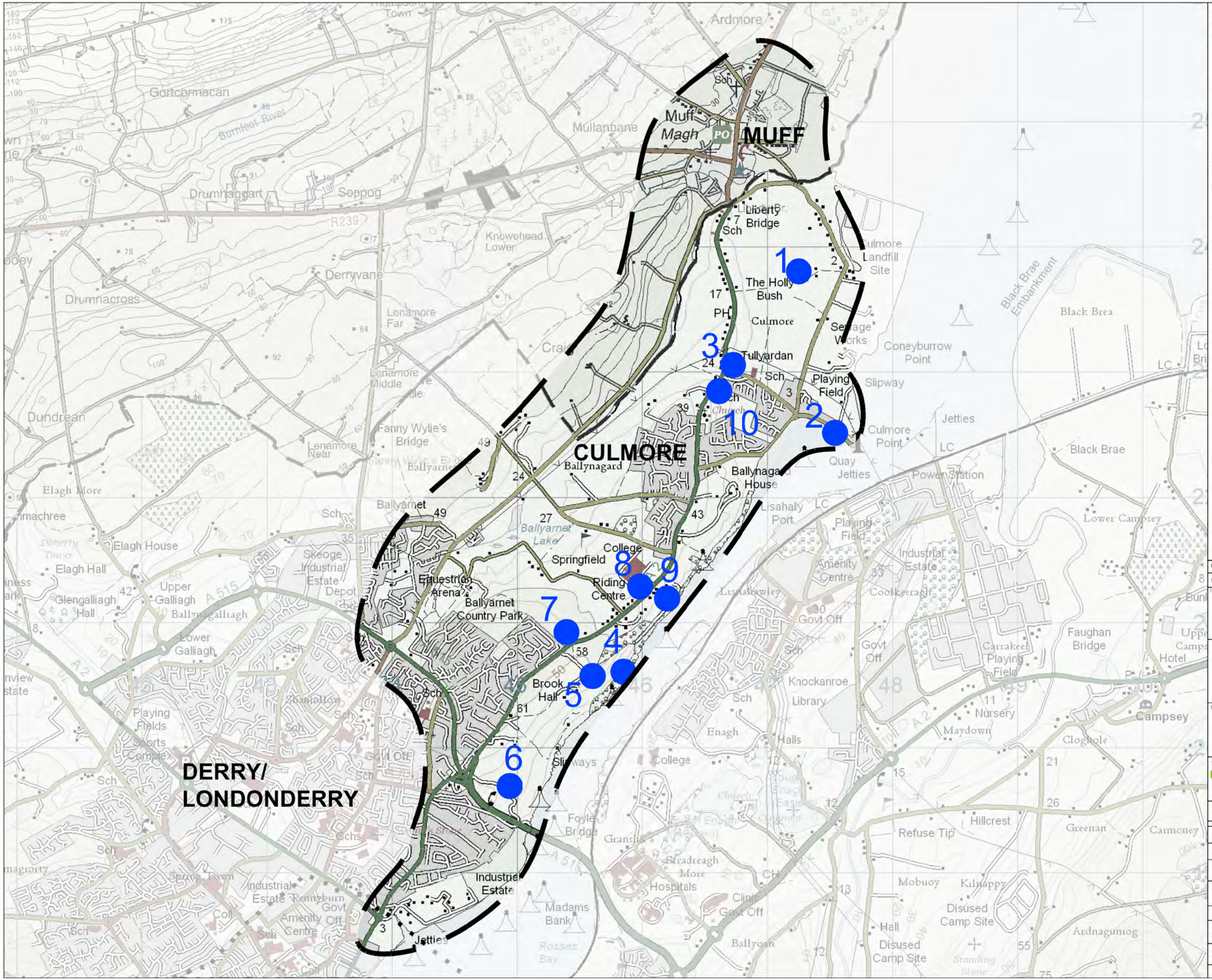
Client Partner: Donegal County Council

Project: NORTH WEST GREENWAY NETWORK

Drawing: PREFERRED ROUTE CORRIDOR SELECTION REPORT
ROUTE 2 - LOCAL AMENITIES - ROI

Scale: NTS

Project No: E2002 | Drawing No: 5.6.2 | Revision:



LEGEND

1	Culmore Heavy AntiAircraft Battery
2	Culmore Fort
3	Culmore Church (ruins of)
4	St George's Quay
5	Ice House
6	Boom Hall
7	Brook Hall Country House & Gate Lodge
8	Neolithic Settlement
9	WWII Light Battery
10	Culmore Primary School

Rev No Ad Rev date Rev Description Rev by Rev ck Rev ap

Rev Date Dimensions Drn Chd Rev

Funder

Interreg
Northern Ireland - Ireland - Scotland

The North West Greenway Network project has been supported by the European Union's INTERREG VA Programme, managed by the Special EU Programmes Body (SEUPB)

NORTH WEST GREENWAY NETWORK

Project Manager Civil Engineers

McAdam Design Ltd
1c Montgomery House
478 Castlereagh Road
Belfast, BT5 6BQ
T 028 9040 2000
F 028 9079 4144
admin@mcadamdesign.co.uk
www.mcadamdesign.co.uk

Project Hydrology/ Flood Consultant Landscape Architect

Sammon MWA partnership

Drawn	Checked	Approved
C.R	K.O'S	K.O'S
Date 14/09/18	Date 14/09/18	Date 14/09/18

Client: Derry City & Strabane District Council

Client Partner: Donegal County Council

Project: NORTH WEST GREENWAY NETWORK

Drawing: PREFERRED ROUTE CORRIDOR SELECTION REPORT
ROUTE 2 - BUILT HERITAGE

Scale: NTS

Project No	Drawing No	Revision
E2002	5.7	

Muff Community Park

Muff

See Fig. 6.1.2

Culmore

Culmore Roundabout

Pennyburn Roundabout

Derry / Londonderry

Study Area

Red Corridor Option

Yellow Corridor Option

Blue Corridor Option

Green Corridor Option

Green Corridor Link Option

Muff Village, Orange Corridor Option

Muff Village, Light Blue Corridor Option

Muff Village, Purple Corridor Option

Rev No	Adj Rev date	Rev Description	Rev by	Rev ck	Rev ap

Rev	Date	Description	Drn	Chkd	Appd

Funder: Interreg Northern Ireland - Ireland - Scotland

The North West Greenway Network project has been supported by the European Union's INTERREG VA Programme, managed by the Special EU Programmes Body (SEUPB)

NORTH WEST GREENWAY NETWORK

Project Manager/ Civil Engineers: M ADAM

McAdam Design Ltd
1c Montgomery House
478 Castlereagh Road
Belfast, BT5 6BQ
T 028 9040 2000
F 028 9079 4144
admin@mcadamdesign.co.uk
www.mcadamdesign.co.uk

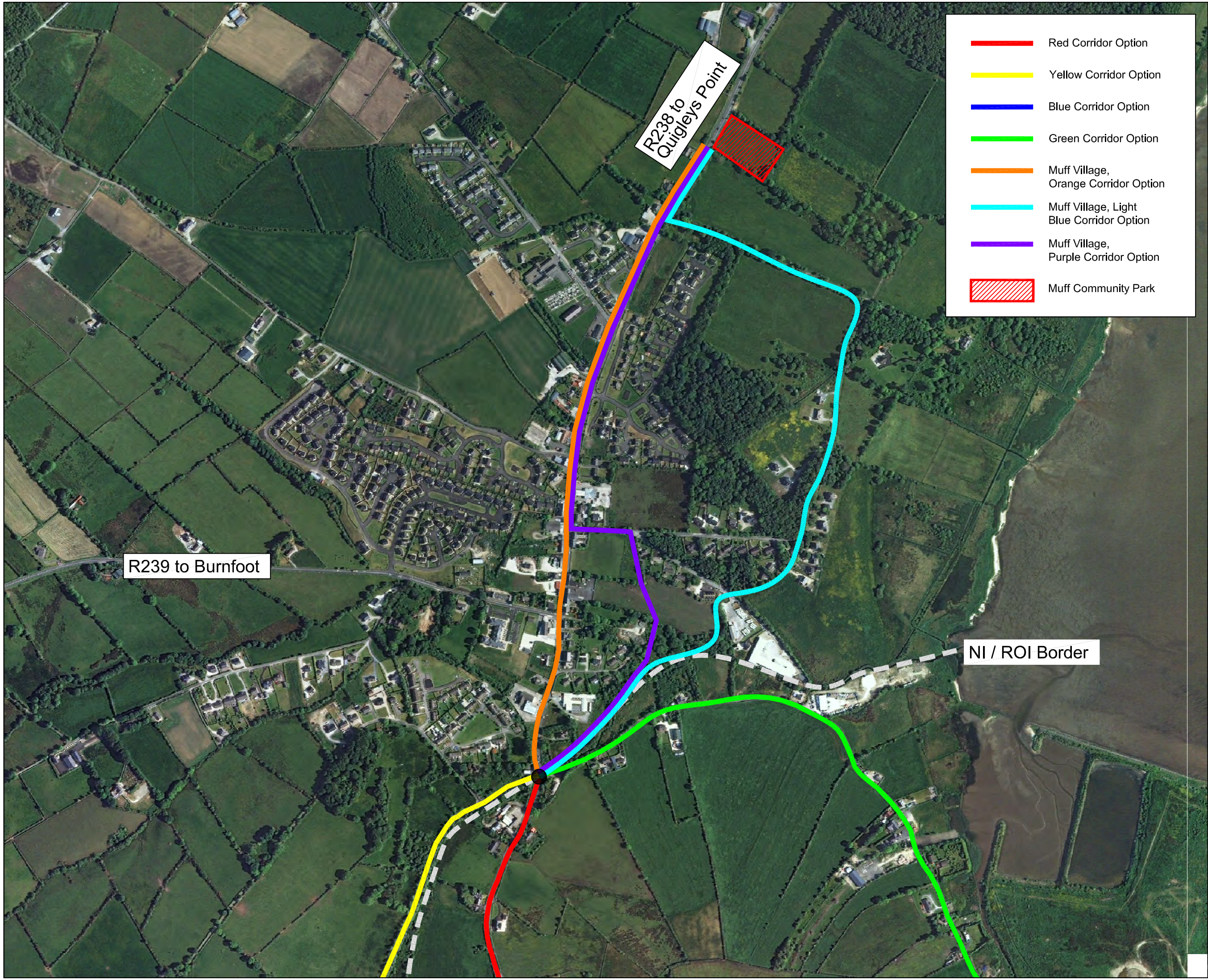
Project manager/ Cost Consultant: Sammon

Landscape Architect: MWA partnership

Drawn	Date	Checked	Date	Approved	Date
C.R	14/09/18	K.O'S	14/09/18	K.O'S	14/09/18

Client	Derry City & Strabane District Council
Client Partner	Donegal County Council
Project	NORTH WEST GREENWAY NETWORK
Drawing	PREFERRED ROUTE CORRIDOR SELECTION REPORT ROUTE 2 - ROUTE OPTIONS - SECTION 1
Scale	NTS

Project No	Drawing No	Revision
E2002	6.1.1	



Rev No Add	Rev date	Rev Description	Rev by	Rev ck	Rev ap
Rev	Date	Description	Drn	Ckd	App

Funder

Interreg Northern Ireland - Ireland - Scotland
European Regional Development Fund

The North West Greenway Network project has been supported by the European Union's INTERREG VA Programme, managed by the Special EU Programmes Body (SEUPB)

NORTH WEST GREENWAY NETWORK

Project Manager/ Civil Engineers
McAdam Design Ltd
1c Montgomery House
478 Castlereagh Road
Belfast, BT5 6BQ
T 028 9040 2000
F 028 9079 4144
admin@mcadamdesign.co.uk
www.mcadamdesign.co.uk

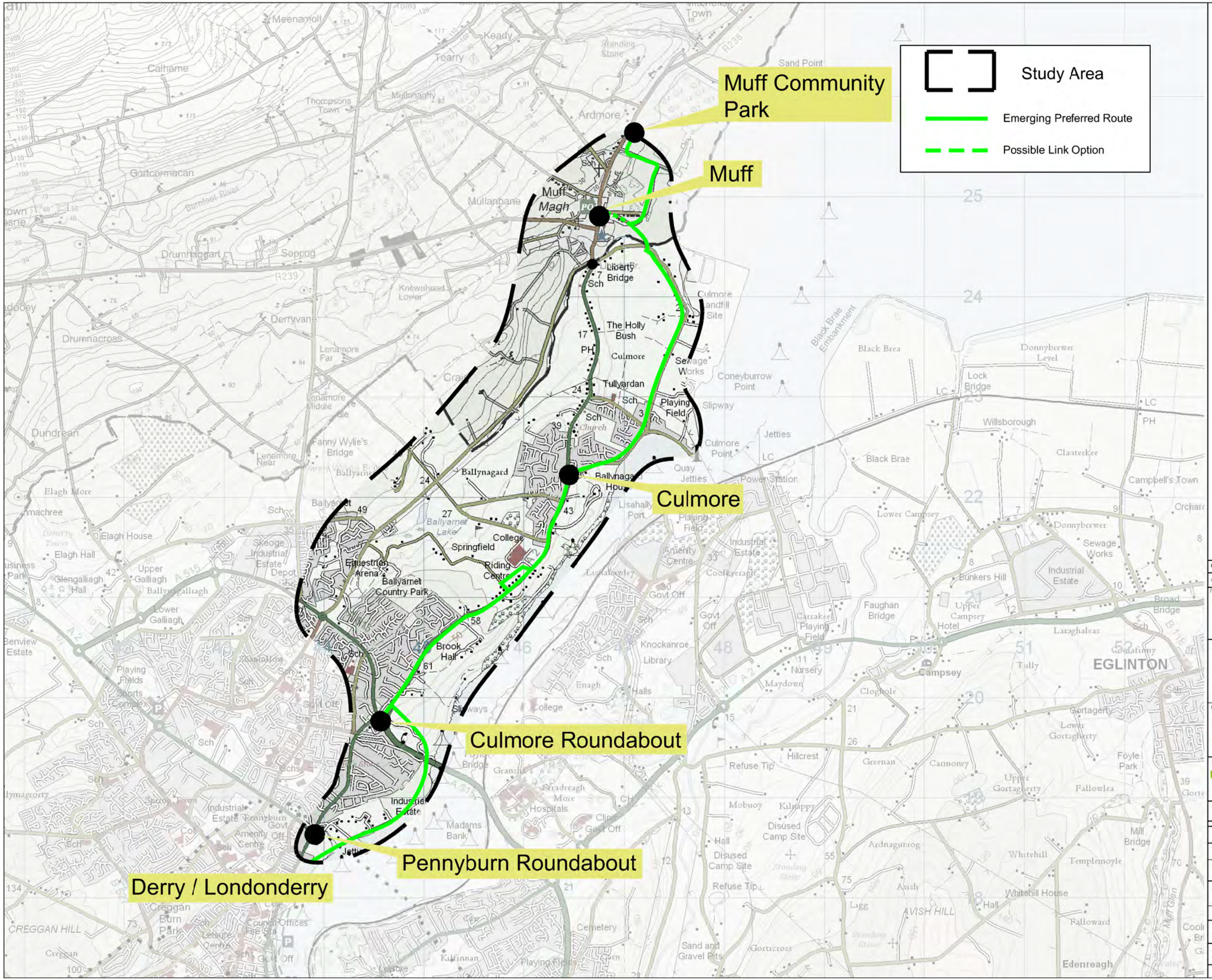
Project manager/ Cost Consultant
Sammon

Landscape Architect
MWA partnership

Drawn	C.R	Checked	K.O'S	Approved	K.O'S
Date	14/09/18	Date	14/09/18	Date	14/09/18

Client	Derry City & Strabane District Council
Client Partner	Donegal County Council
Project	NORTH WEST GREENWAY NETWORK
Drawing	PREFERRED ROUTE CORRIDOR SELECTION REPORT ROUTE 2 - ROUTE OPTIONS - SECTION 2
Scale	NTS

Project No	Drawing No	Revision
E2002	6.1.2	



Rev No	Add/Rev date	Rev Description	Rev by/Rev ck/Rev ap
Rev	Date	Description	Drn / Chk / Ref

Funder

Interreg
Northern Ireland - Ireland - Scotland

The North West Greenway Network project has been supported by the European Union's INTERREG VA Programme, managed by the Special EU Programmes Body (SEUPB)

NORTH WEST GREENWAY NETWORK

Project Manager/ Civil Engineers

M ADAM

McAdam Design Ltd
1c Montgomery House
478 Castlereagh Road
Belfast, BT5 6BQ
T 028 9040 2000
F 028 9079 4144
admin@mcadamdesign.co.uk
www.mcadamdesign.co.uk

Project manager/ Cost Consultant / Landscape Architect

Sammon

MWA partnership

Drawn	C.R	Checked	K.O'S	Approved	K.O'S
Date	14/09/18	Date	14/09/18	Date	14/09/18

Client	Derry City & Strabane District Council
Client Partner	Donegal County Council
Project	NORTH WEST GREENWAY NETWORK
Drawing	PREFERRED ROUTE CORRIDOR SELECTION REPORT ROUTE 2 - PREFERRED ROUTE CORRIDOR
Scale	NTS

Project No.	Drawing No.	Revision
E2002	8.6.1	

Study Area

Alternative Route Considered

Possible Link Option

Muff Community Park

Muff

Culmore

Culmore Roundabout

Pennyburn Roundabout

Derry / Londonderry

Rev No	Add/Rev date	Rev Description	Rev by/Rev ck/Rev ap

Rev	Date	Description	Drn	Chk

Funder

Interreg
Northern Ireland - Ireland - Scotland

The North West Greenway Network project has been supported by the European Union's INTERREG VA Programme, managed by the Special EU Programmes Body (SEUPB)

NORTH WEST GREENWAY NETWORK

Project Manager/ Civil Engineers

M ADAM

McAdam Design Ltd
1c Montgomery House
478 Castlereagh Road
Belfast, BT5 6BQ
T 028 9040 2000
F 028 9079 4144
admin@mcadamdesign.co.uk
www.mcadamdesign.co.uk

Project manager/ Cost Consultant

Sammon

Landscape Architect

MWA partnership

Drawn	C.R	Checked	K.O'S	Approved	K.O'S
Date	14/09/18	Date	14/09/18	Date	14/09/18

Client	Derry City & Strabane District Council
Client/ Partner	Donegal County Council
Project	NORTH WEST GREENWAY NETWORK
Drawing	PREFERRED ROUTE CORRIDOR SELECTION REPORT ROUTE 2 - ALTERNATIVE ROUTES CONSIDERED
Scale	NTS

Project No	Drawing No	Revision
E2002	8.6.2	

APPENDIX C – SUMMARY OF PUBLIC CONSULTATION FEEDBACK

Consultation Events	Date	No. of recorded Attendees	No. of Responses
Hollybush Primary School	23rd May 2018	69	39
Muff Community Hall	24th May 2018	89	33
Email/Post	15th June 2018	N/A	20
	Total	**158**	**92**

Table 1: Consultation Event Responses

Consultation Responses	No. of Responses
Northern Ireland Residents	58
Republic of Ireland Residents	34
Total	**92**

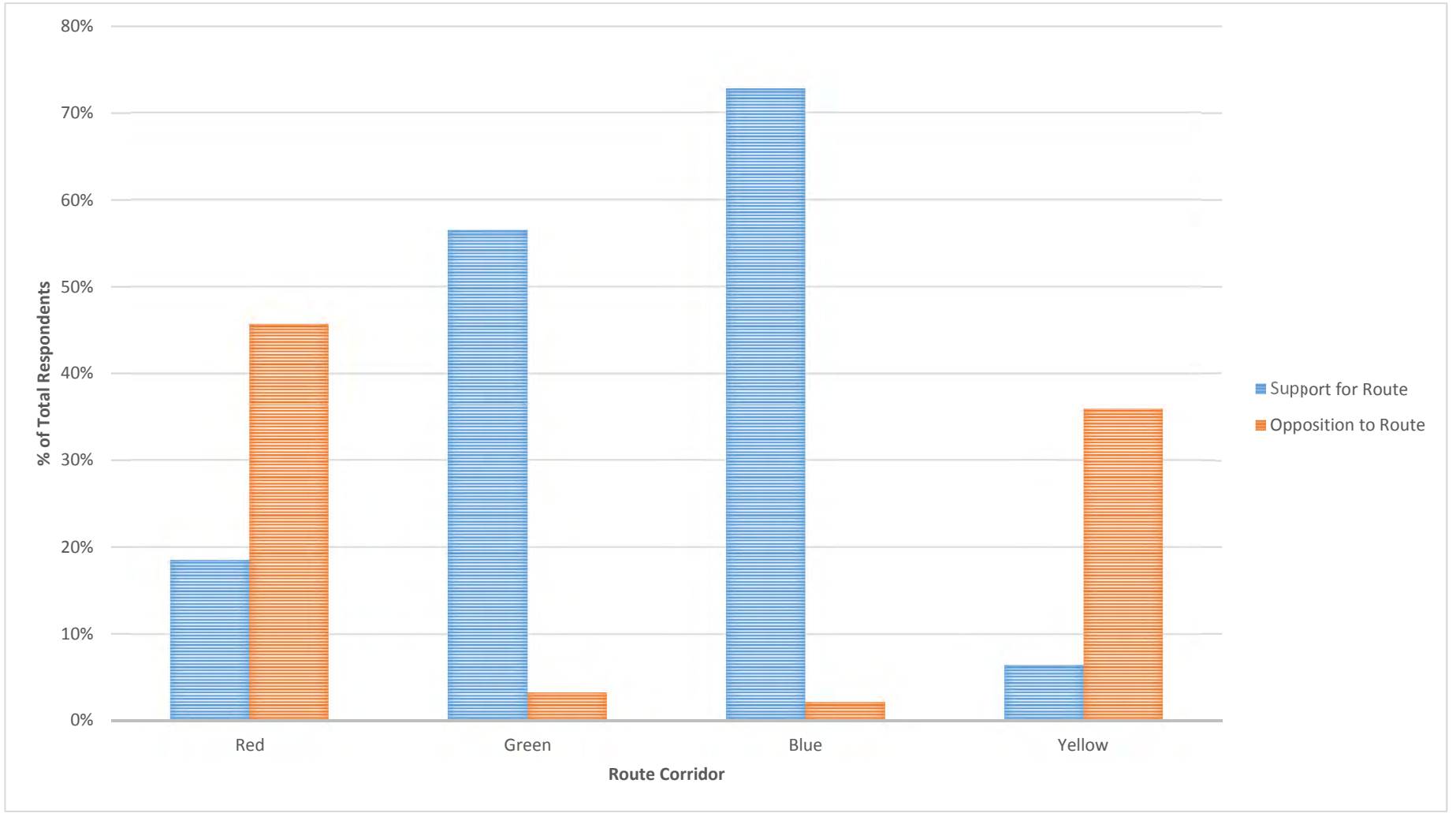
Table 2: NI/ROI Responses

North West Greenway Network

Route 2

Public Consultation Feedback

Assessment of Support / Oposition - NI Route Corridors

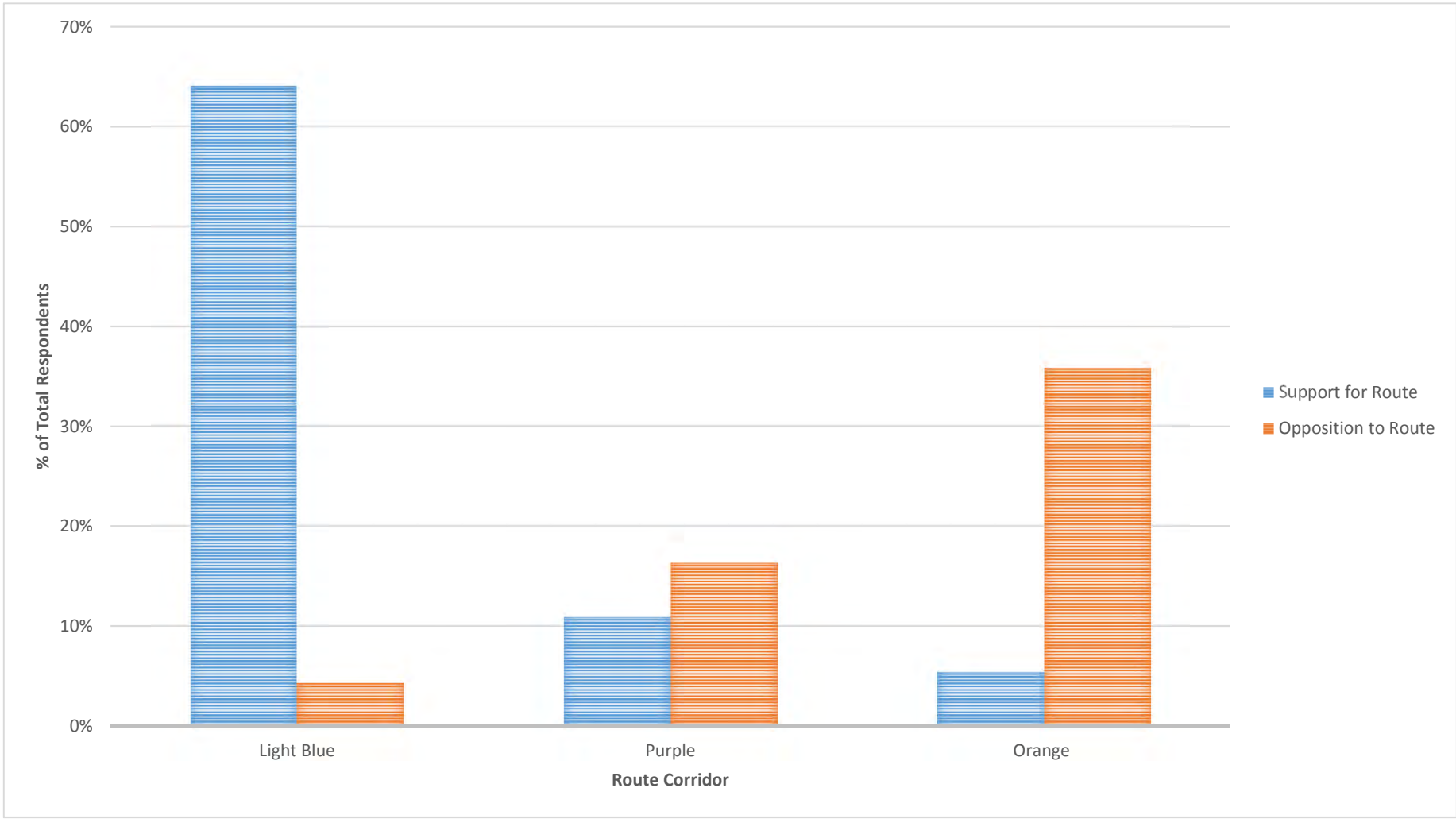


North West Greenway Network

Route 2

Public Consultation Feedback

Assessment of Support / Opposition - ROI Route Corridors

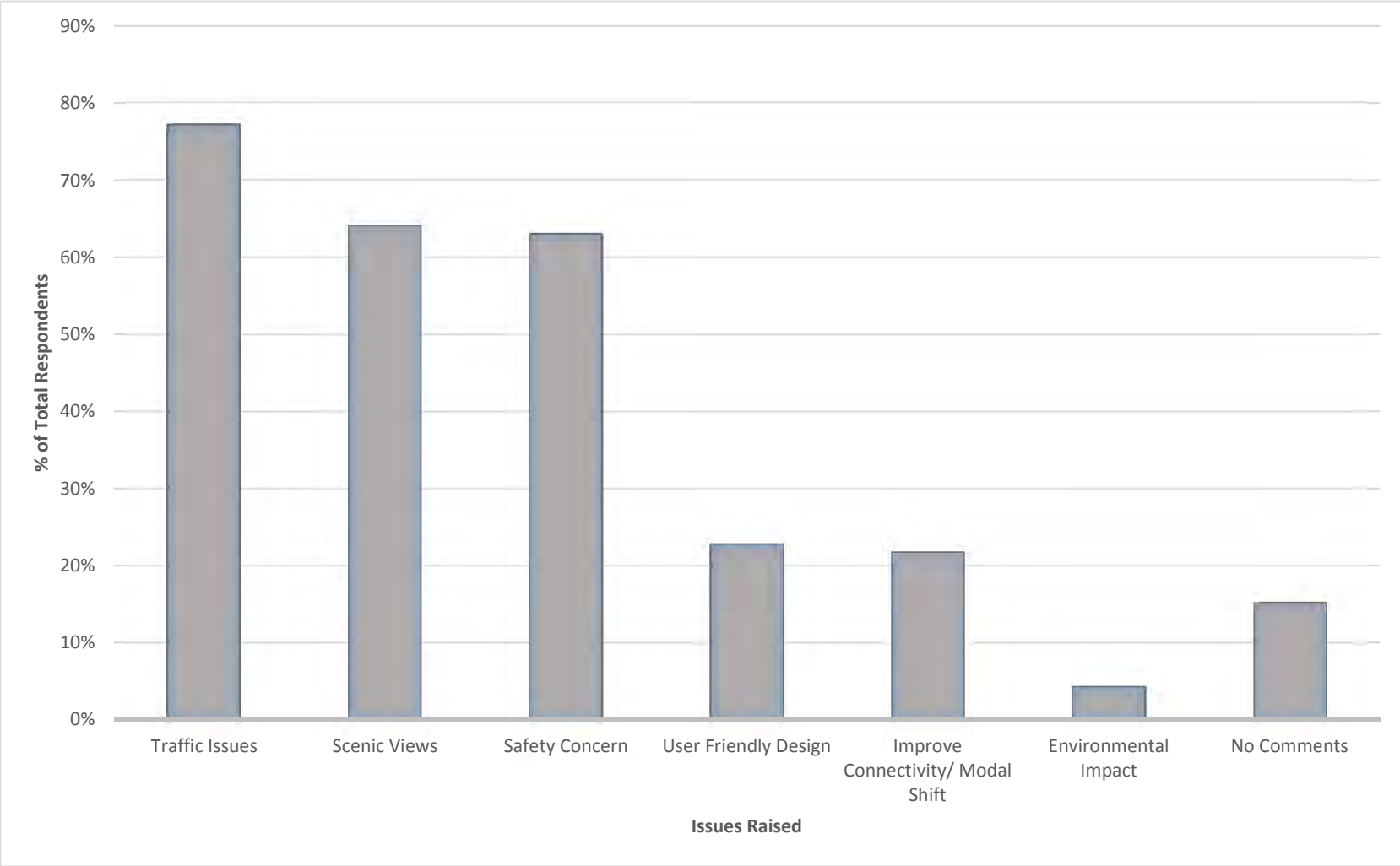


North West Greenway Network

Route 2

Public Consultation Feedback

Issues Raised - NI

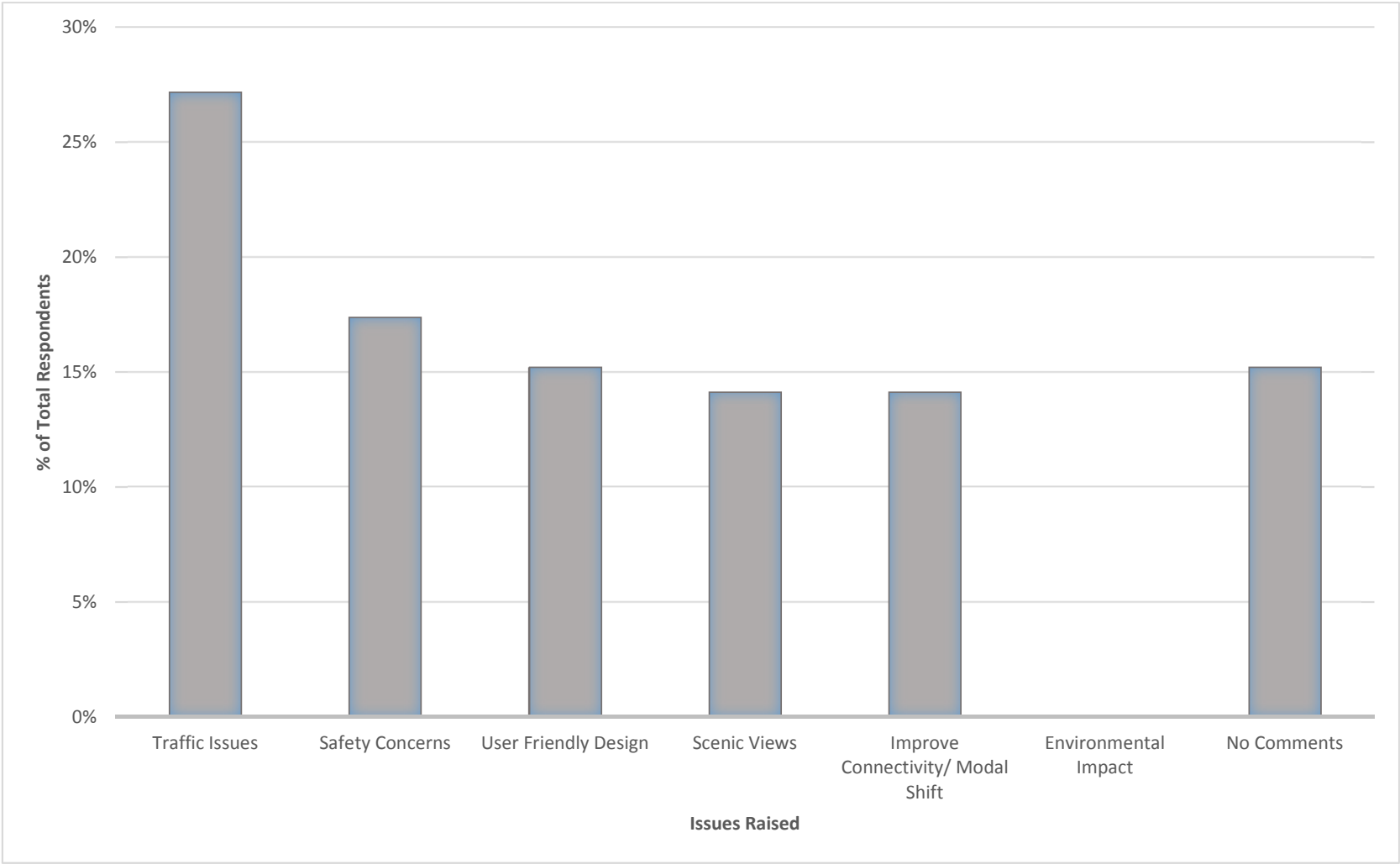


North West Greenway Network

Route 2

Public Consultation Feedback

Issues Raised - ROI



APPENDIX D – LANDSCAPE ASSESSMENT

NORTH WEST GREENWAY NETWORK

ROUTE 2 - DERRY / LONDONDERRY TO MUFF

LANDSCAPE ASSESSMENT - NOVEMBER 2018

River Foyle at Culmore

Coney Road

Muff Village

PREPARED BY: MWA Partnership Ltd - Chartered Landscape Architects,
35 Clarendon Street, Derry BT48 7ER
MWA Ref: 83741 - Route 2

1.0 INTRODUCTION - ROUTE 2

In association with the current study being prepared by McAdam Design, on behalf of both Derry City and Strabane District Council and Donegal County Council, to prepare a preferred route Design for this Route of the committed 3 North West Cross Border Greenways, MWA Partnership Ltd (a Chartered firm of Landscape Architects) were tasked with undertaking a Landscape Assessment of this route.

2.0 LANDSCAPE ASSESSMENT

This Landscape Assessment is a supplement to the current **Stage 2 - Preferred Route Corridor Selection Report** produced by McAdam Design, as part of the on-going route selection option appraisals.

This Assessment is not a full Landscape and Visual Assessment normally provided for major developments as part of an Environmental Impact Assessment, whereby the Design Team make an assessment of how a major development impacts on the environment, and proposes methods to mitigate any perceived Visual Impacts that the proposed development may impose on the landscape. This Assessment is rather more an overview of the type of Landscape and Landscape Character of the route of the proposed options, and an overview assessment of the value and visual experience users of a particular route may experience on their journey.

This report provides an outline summary of the Landscape Assessment and perceived Landscape Quality of the Route Corridor Options which have been identified within the study area in the **Stage 1 Constraints Study and Route Options Report**, and evaluates these against the Landscape and Visual Experience along each option, and to assist in criteria of evaluating an overall preferred option against each route identified. The methodology employed in this assessment is broadly based on The Landscape Institute's methodology for Landscape and Visual assessments.

3.0 STAGE 1 - CONSTRAINTS STUDY AND ROUTE OPTIONS REPORT

The Stage 1 Report in the overall Study Area has identified, outlined and illustrated for both the Northern Ireland and Republic of Ireland route options a summary of the following headings, which will also help inform the selection and design route of the proposed Greenway:

- *Topography*
- *Rivers, Streams and Watercourses*
- *Environment and Ecology (and Designated and Protected Areas)*
- *Ecology, Flora and Fauna*
- *Existing Land Use*
- *Proposed Future Developments*
- *Local Amenities and Attractions*
- *Built Environment and Local Heritage*
- *Existing Patterns of Travel and Social Interaction and Schools and Education Centers*
- *Public Consultation response and feedback*

As these have been summarized in the Stage 1 Report, these have not been repeated in this Landscape Assessment. Of particular relevance to the Landscape is the **Designated and Protected Areas** in both jurisdictions. These are listed in the Stage 1 report and noted below:

- **Northern Ireland** - The study area here is bounded by the shores of Lough Foyle. The **Lough Foyle Special Protection Area (SPA)** was designated in 1999, and any route running close to the boundary of the SPA would need further assessment against any potential impacts on

the SPA. A Large area of **Greenbelt** bounded by Madam's Bank Road. Culmore Road, Culmore and the River Foyle is designated an **Area of High Scenic Value**. Within this area is Brook Hall Estate, which falls under the designation of **Historic Gardens, Parks and Demesnes**, with Boom Hall listed as a Supplementary Site. The area around Culmore with its Historic Fort along Culmore Point Road is designated as an **Area of Townscape Character.**

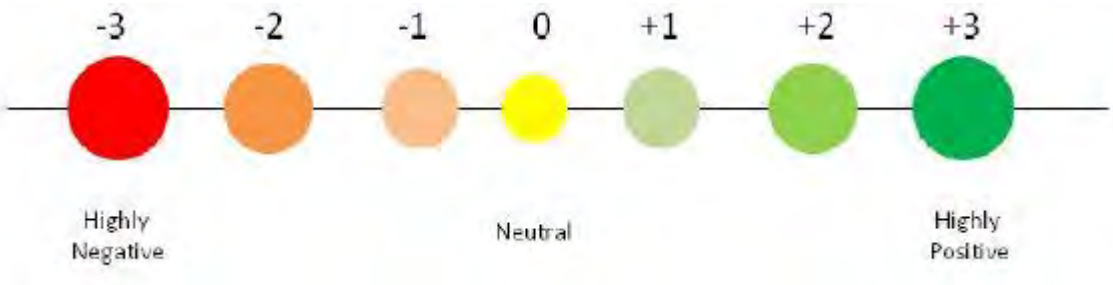
- **Republic of Ireland** - To the eastern extents of Muff Village the **Lough Foyle SPA** also bounds the shoreline.

4.0 THE SCORING MATRIX

As a method of how the Landscape Assessment of each route/option performs against each other in the selection of a preferred corridor, the soring matrix outlined below has been used.

The scoring matrix assists in the evaluation of each of the routes over the various Landscapes that the users may experience on the Greenway, and allows a scoring module to make an assessment of a particular route/option which may pass through High Quality Landscape Character Areas (Scoring +3) - areas very high in scenic quality, to routes which might cross over Very Low Quality Landscape Settings (Scoring -3) - areas with very little or very poor scenic quality.

The following matrix has been employed, and is the same method used for scoring the Route and Option selection process in the Stage 1 Report, for other key characteristics:



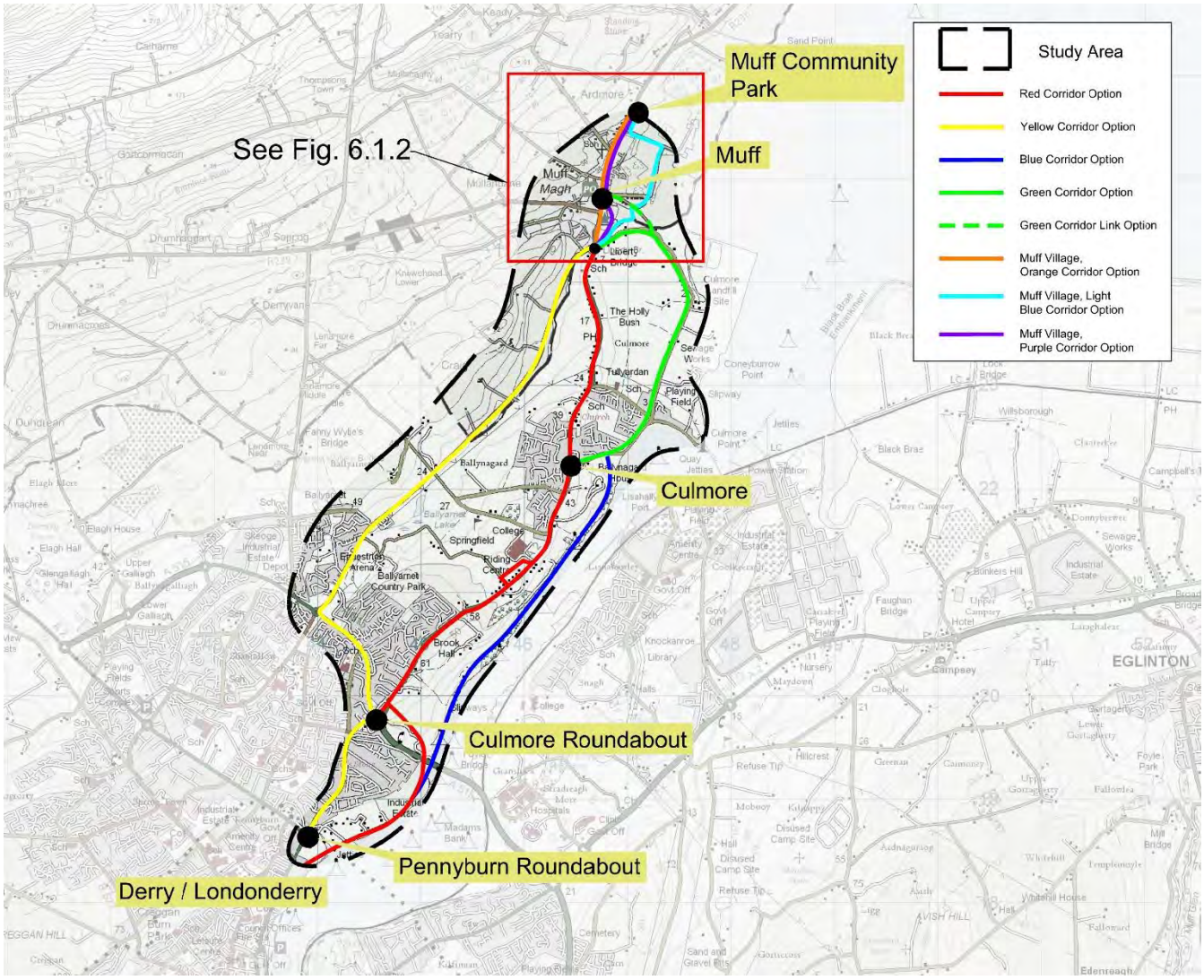
The scoring matrix for the Landscape Assessment will be evaluated with the other multi criteria assessments based on the above scoring matrix undertaken by the Design Team, which includes:

- *Model Shift*
- *Connections and Local Access*
- *Cultural, Heritage and Visual Attractions*
- *Flora, Fauna and the Environment*
- *Physical Constraints*
- *Quality of Service*
- *Material Assets and Human Beings*
- *Potential Cost*
- *Cross Border Connectivity*
- *Public Feedback*

In the final analysis and selection of an emerging preferred route, and of the preferred best option within a route, there will be combination of a total score including all of the above, and the Landscape Assessment score to assist the Client and Design Team in the final selection of an emerging preferred route, taking account also of Community Consultation responses and feedback.

5.0 ROUTE 2 CORRIDOR - NORTHERN IRELAND - LANDSCAPE ASSESSEMENT

Below is a figurative illustration of the Route Corridors for Route 2 in the North of Ireland section of this route.



The Landscape Assessment for Derry /Londonderry section of this Route is based on the following Route Corridors illustrated above:

- Yellow Corridor Option
- Red Corridor Option (Red Corridor North) and (Red Corridor South)
- Green Corridor Option
- Blue Corridor Option

5.1 ROUTE 2 - YELLOW CORRIDOR

This corridor follows an existing section commence from Pennyburn Roundabout to Culmore Road Roundabout (where an existing on-road cycleway route presently exists). This is wide road corridor, with road and residential views along the route. Forward views are more dominant with little or no scenic views available of the River Foyle. The Landscape Character can largely be described as a Road Corridor, with urban and part rural landscape characteristics.

At Culmore Roundabout this corridor follows Madams Bank Road, alongside a wide 4 lane carriageway, with rising and falling gradients. Views are channelled by existing mature roadside tree planting. The trees add greatly to the visual experiences, but this section is largely a road corridor.

Madams Bank Road - wide road corridor view

The yellow corridor continues along Madams Bank Road, turning right onto the Racecourse Road into Muff. The early section of the Racecourse Road is developed with housing and a GAA Club, and elevated housing at Cornshell Fields, visual dominant from this part of the route. The Landscape becomes more rural in nature and character departing Ballyarnett Village, to provide longer distance channelled road views over a relatively straight and level road with close and distant views of Ballyarnett Country Park available.

Ballyarnett Country Park

Along the Racecourse Road views are channelled along the line of the road by established field hedges and road side tree planting, restricted to forward views. Occasional glimpses of the rural countryside are available due to the existing roadside planting, and the user visual experience is confined to a rural road landscape setting. This road can also be heavily trafficked.

Landscape Assessment Score - Yellow Corridor (including the section of this route in Donegal to Muff)
Pennyburn Roundabout to Culmore Road Roundabout (0)
Madams Bank Road (-1)
Lower Racecourse Road (-1)
Upper Racecourse Road to Muff Village (1)
Aggregate Score for the Yellow Corridor (-1)

5.2 ROUTE 2 - RED CORRIDOR

Within the Stage 2 Preferred Selection Report, the route is split into two sections, Red (South) Corridor, from Derry to Culmore Village, and Red (North) Corridor, from Culmore Village to Muff.

The Red (South) corridor connects to the existing greenway section beside Sainsbury's along The Quay Trail, with a new cycleway and footbridge over the mouth of the river leading onto Bay Road, and then enhancing the existing path network through Bay Park, under the Foyle Bridge and up towards Culmore Road at the entrance to the Foyle Hospice. The Red (South) Corridor then extends along Culmore Road to Culmore Village. The Red (North) Route runs from Culmore Village to Muff. The landscape here is partly developed, partly under developed, partly industrial (beside the coal yards), with relatively good visual connection with the River Foyle, and riverside landscape setting. Visual experiences of the landscape can change from positive to negative in a single turn of view. The proposed bridge could enhance the visual experience here, if well and simply designed.

View of proposed bridge crossing over to Bay Road on right hand side

Along Bay Road, the landscape is semi - Industrial in nature on one side of the proposed Greenway route, with an attractive riverside landscape on the other side. Views of the River Foyle are intermittent, due to the line of large established trees along the river bank screening views of the river. The main visual experience though along the Bay Road remains that of an Industrial setting and landscape, dominated by the long straight vistas of Bay Road. This short section is relatively industrial and poor in landscape quality

Bay Road, towards the Foyle Bridge direction

The corridor then exits Bay Road, and extends along an existing Greenway section through Council controlled lands at Bay Park, up to join the Culmore Road close to Foyle Hospice. User experience views along here will be intensified, as the more open landscape permits better viewing opportunities, providing commanding views of the River Foyle and the Foyle Bridge.

Joining Culmore Road, this route then follows the Culmore Road all the way into Muff. This part of the route, whilst not necessarily unattractive in terms of visual experiences and landscape setting by potential users of the Greenway, does not for the most part provide distant views or continuous views and sensual experiences of the River Foyle due to existing buildings, housing and tree lined road verges.

Culmore Road - View back towards Derry direction

For most part, the visual experience along the Culmore Road, provides that of a mature Roadside setting and roads side landscape character, enhanced by existing roadside trees and hedgerows. Going through Culmore Village the user experience alters to a tighter urban landscape setting.

Approaching Muff Village on the Culmore Road, when views of surrounding landscape begin to open up

The views open up revealing more of the surrounding landscape along the Culmore Road and approaching Muff Village, with the previous restricted linear road views further back towards Culmore Village are left behind. The main advantage of this route is its directness from Muff to Derry for users of the Greenway, and not necessarily the experience of enjoying the landscape and scenery.

Landscape Assessment Score - Red (South) Corridor - Derry to Culmore
Sainsbury's/The Quay Trail and along Bay Road, through Bay Park and up to Culmore Road (+1)
Culmore Road up to Culmore Village (0)
Aggregate Score for the Red (South) Corridor (+1)

Landscape Assessment Score - Red (North) Corridor - Culmore to Muff
Through Culmore Village (0)
Outside Culmore Village past agricultural lands and towards border at Muff (0)
Aggregate Score for the Red (North) Corridor (0)

5.3 ROUTE 2 - GREEN CORRIDOR

The Green corridor route effectively is a spur off the Red Corridor. This route commences at the Magnet Bar on the Culmore Road, down Culmore Point Road, and then along Coney Road to Muff Village.

This route provides a range of Landscapes and visual experiences. The first part form Culmore Road down to the wall at the River Foyle is another urban residential landscape.

Culmore Point Road - View up to Culmore Road, typical urban landscape character

Along the Foyle River the views and experiences are more dramatic and riverside/semi-coastal in character over the Foyle River. There are also semi-industrial landscape distant views over the Foyle Estuary to the working port of Londonderry Port, and the large scale of the Power Station and port buildings breaking the horizon and interrupting distant views.

View from road at Culmore looking over the Foyle Estuary to the industrial riverside landscape setting of Coolkeeragh ESB Power Station and Londonderry Port and Harbour

Along Coney Road, the flat topography allows wider all around views of the surrounding landscape with distant views of the river Foyle The quality of the Landscape along this section is not of exceptional quality, with some light industrial units, a water treatment plant and a relatively flat featureless rural landscape.

Towards the end section of the Coney Road, leading into Muff Village, the road narrows significantly and twists and turns in a rural country road character, and visually controlled by the by

field hedges and garden boundary walls to houses. Whilst the interesting curves and turns in this narrow road section would provide a meandering section of Greenway, forward visibility and safety of users would need to be considered in any design proposals for this part of this route.

Coney Road - view back to Culmore Point Road

Landscape Assessment Score - Green Corridor
Culmore Point Road to Foyle River (+1)
Culmore Point Road along River Wall (+1)
Coney Road (-1)
Aggregate Score for the Green Corridor (+1)

5.4 ROUTE 2 - BLUE CORRIDOR

The Blue corridor route effectively runs from Sainsbury's / The Quay Trail then over the new Bridge along Bay Road (as in the Red Corridor initially - these have been assessed previously, and are therefore not repeated here) and joins onto the existing Greenway system at the first bend in Bay Road. It would run along the existing Greenway under the Foyle Bridge and then spur off alongside and more or less parallel to the River Foyle.

Entering the Blue Corridor route on Council controlled lands to lead down to the upper edge of the riverbank

The landscape along this section of this route is possibly the most interesting and scenic of all the route corridors and options. The topography changes, and the feeling of a riverside landscape remains with the user, although glimpses of the river are only available during the summer months

due to the fairly dense belt of a linear wood present on the steep riverbank which falls down to the river.

Other key issues that would require careful consideration in the design and construction and costings of this part of the Blue corridor would include lighting details (bats), land ownership and land take, and how the segregation of the Greenway from private lands and historic gardens might be achieved and agreed by all parties. The Greenway users would experience a real rural/riverside landscape experience with pleasant countryside views, and a parkland landscape character throughout this part of the route, all the way until it reaches the Culmore Point Road.

Blue Corridor joins onto Culmore Point Road (and then joins the Green Corridor)

Landscape Assessment Score - Blue Corridor
Sainsbury's/The Quay Trail and along Bay Road, through Bay Park and up to Culmore Road (+1) Alongside the river to Culmore Point Road (+3)*
Aggregate Score for the Blue Route (+3) **

*** Note** – some attractive views of the Foyle are available on the section from Bay Park up to Culmore Rd, which is part of the Red (South) Corridor, but not the Blue Corridor.

**** Note** – the maximum positive score, as noted in the Stage 1 report, is achieved for the Blue Corridor.

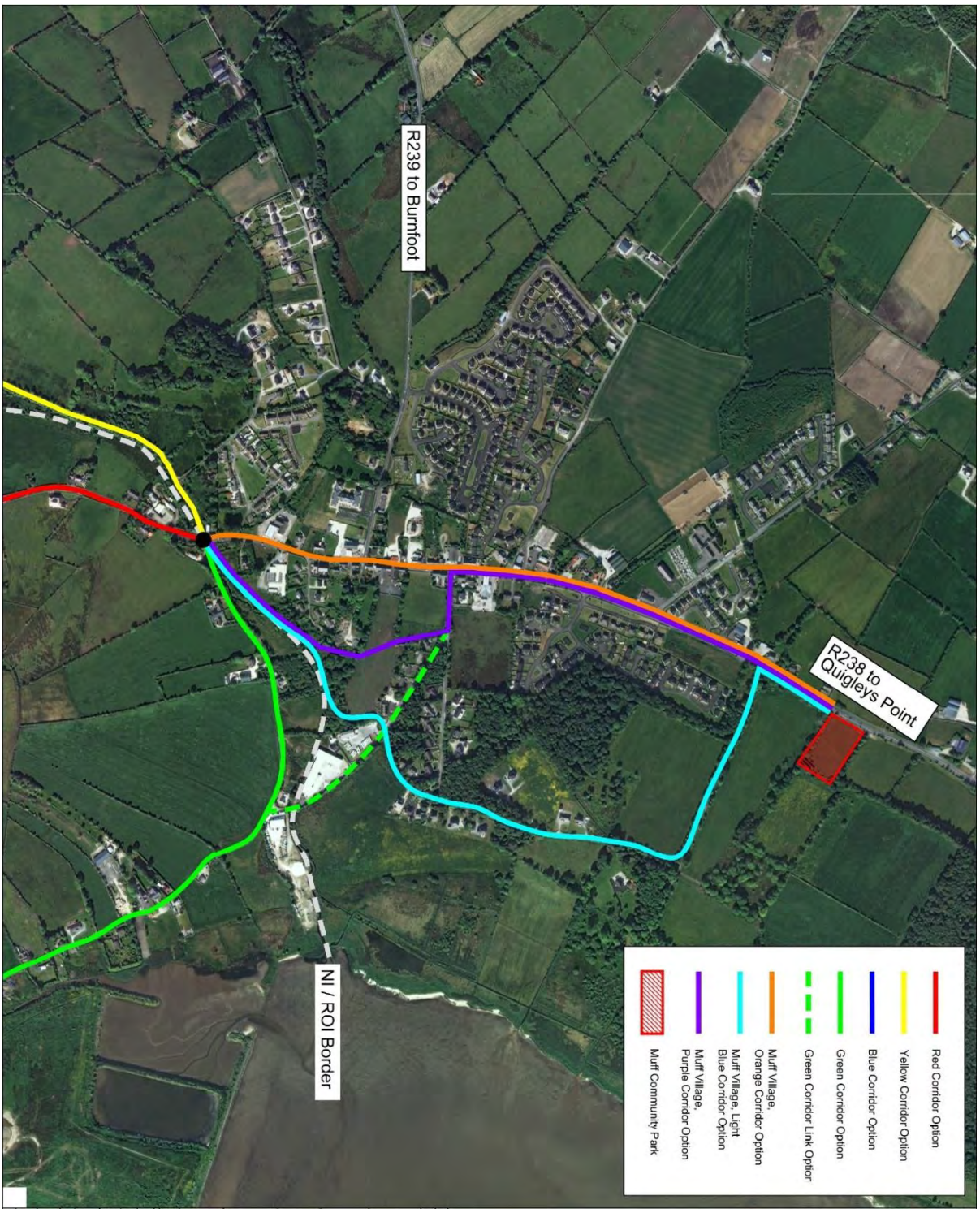
5.4 ROUTE 2 - NORTHERN IRELAND - LANDSCAPE ASSESSMENT SCORE SUMMARY

A summary of the scores of the Landscape Assessment for the Corridors illustrated for the Northern Ireland options can therefore be summarised in the table below**:**

CORRIDOR	Yellow Corridor	Red (South) Corridor	Red (North) Corridor	Green Corridor	Blue Corridor
Score	**-1**	**+1**	**0**	**+1**	**+3**

6.0 ROUTE 2 CORRIDOR - REPUBLIC OF IRELAND - LANDSCAPE ASSESSEMENT

Outlined below is an illustration of the Route Corridors for Route 2 in the Republic of Ireland/Donegal part of this route. (Note: there is no Blue Corridor as shown on the legend)



The Landscape Assessment for the Donegal section of this Route is based on the following Route Corridors illustrated above:

- *Yellow Corridor Option (connecting to the yellow corridor route in NI - Note the matrix score for this section is included within the NI score for this route)*

- Muff Village, Orange Corridor Option
- Muff Village, Purple Corridor Option
- Muff Village, Light Blue Corridor Option

6.1 ROUTE 2 - YELLOW CORRIDOR

This corridor extends from the yellow corridor in the North of Ireland section, leading directly into the entrance of Muff Village.

Along this road section towards Muff, views are channelled along the line of the road by established field hedges and road side tree planting, restricted to forward views. Occasional glimpses of the rural countryside are available due to the existing roadside planting, and the user visual experience is confined to a rural road landscape setting and character. This road can also be heavily trafficked.

Road from Racecourse Road leading to Muff Village

Landscape Assessment Score - Yellow Corridor

*Included in score for the Yellow Route in **5.1** Yellow Corridor for NI Section*

6.2 ROUTE 2 - MUFF VILLAGE - ORANGE CORRIDOR OPTION

The Orange corridor takes the most direct route to the Community Park from the NI route connection of the Greenway at the border and start of Muff Village. This corridor basically runs through the centre of the village, and its rural village urban landscape setting. Views are mostly directed along the road line, due to the presence of the continuous building line on each side of the village. Views are channelled by the built form, and the urban views and experiences are also dominated by the busy traffic flows through the village. In this route corridor through the main village, obstructions occur for the potential users with locations of street furniture, parking, bays, and pinch points created by building projections and narrow pathways.

Muff Village - Urban Landscape Character

As this route departs the main village core, views open up as the semi-urban architecture of the Ribbon Development of the Village ends heading towards the Community Park.

Views open up and a greater space occurs heading towards the Community Park, as residential areas are set back form the main road, and the width of the road here and the opportunity for providing a safer greenway route exists within the wide road corridor landscape.

View back towards Muff Village form the Community Park Direction

Whilst the landscape within the village remains predominantly semi-urban in landscape character, as the route leaves the village towards the Community Park, views open up and the spatial experience is increased with a return of roadside vegetation and hedgerows, with longer and more pleasing wider views being made more readily available, with pleasant views over

Landscape Assessment Score - Orange Corridor
Through Muff Village (-1)
Leaving Muff Village towards the Community Park (0)
Final part of route into Community Park (0)
Aggregate Score for the Orange Corridor (-1)

6.3 ROUTE 2 - MUFF VILLAGE - PURPLE CORRIDOR OPTION

The Purple corridor connects to the NI Greenway at the border at Muff, and immediately veers off in a North Westerly direction over lands around the former Muff Customs and Excise building and

around a small housing area, and continues in a line over fields until reaching the existing laneway at Kilderry Lane.

Kilderry Lane entrance off the Main Street in Muff

There is only a small part of the first section of this route proposed to follow an existing lane (Kilderry Lane), and the greater part of the first part of this route option traverses over overgrown scrubland and over rough pasturelands. There is limited scope for enhanced views or overall appreciated landscape experiences on this corridor. The capacity for a change in landscape appearance is somewhat restricted by perhaps the amount of land take required, and overall the potential users shall experience little or no change to the Landscape.

From Kilderry Lane access back onto the Main Street on the R238, this route then follows the Orange route out as far as the Community Park. The Purple route by-passes the main village and commercial core, with its physical constraints (street furniture and parking), and returns along this route of a less' built up' and semi-urban' landscape, with a wide road corridor.

Purple Route landscape setting approaching the Community Park, out from the Village centre

The final length of this route from the Kilderry road to the Community Park landscape experience is the same as for the Orange Corridor previously summarised. Overall this section will have a neutral score in terms of Landscape assessment and user experiences.

Landscape Assessment Score - Purple Corridor
From the border at Muff to Kilderry Lane (0)
Short section of Kilderry Lane to Main Street (0)

Leaving Kilderry Lane towards the Community Park (0)
Final part of route into Community Park (0)
Aggregate Score for the Purple Corridor (0)

6.4 ROUTE 2 - MUFF VILLAGE - LIGHT BLUE CORRIDOR OPTION

The Light Blue corridor connects to the NI Greenway at the border with Muff Village and immediately veers off in a North Westerly direction over lands around the rear of the former Muff Customs and Excise building and around a small housing area, and continues in a line over an old overgrown laneway until reaching the existing laneway at Kilderry Lane.

The route then connects with Kilderry Lane which is used to access some residential properties due east of the village.

As with the Purple route, this corridor by-passes the main commercial core of Muff Village, and unlike the Purple Corridor route, it also by-passes the remaining part of the Village core heading towards the Community Park. This route flows through a line therefore clear of urban clutter (street furniture, Lamp posts etc. and pinch points evident in the Orange Corridor route through the semi-urban landscape character of the Village.

Where this route meets and follows the existing laneway system back onto the Kilderry Lane, this route is seemingly a quiet narrow vehicular laneway, set within a heavily tree lined and tree canopied landscape. Views are somewhat restricted along this section, and the ambience of this portion of the Light Blue Corridor has a ‘Country Park Road’ character feeling and sensual experience. Part of this section of laneway is unmade, and a gate/boom has been erected to stop general through traffic.

If this gated system was retained in any further design work and to allow free movement of cyclists and walkers, then it may help achieve the relatively low level of vehicles from using and sharing part of this route - and better for the experiences of potential users, and safer for users for a small part of this route.

Kilderry Lane approaching the existing gate, along an attractive leafy lane

The Light Blue Corridor then continues up Kilderry lane through a leafy lane with some wider views of agricultural fields experienced and a greater sense of a rural landscape character appears as it re-joins the R238 at the main road - see the photo illustrated below.

Kilderry lane heading towards the R238 with views opening up of the surrounding landscape setting becoming more apparent

This section of the Kilderry Lane (shown above), provides a pleasant rural landscape setting, far removed from the semi-urban landscape of the main Village.

The final section of this route then re-joins the R238, and follows the same corridor as the Orange route until reaching the Community Park.

An overview of the landscape assessment for the final section of the route is the same as previously described for the Orange Route.

The entrance into the Community Park, and end of Route 2

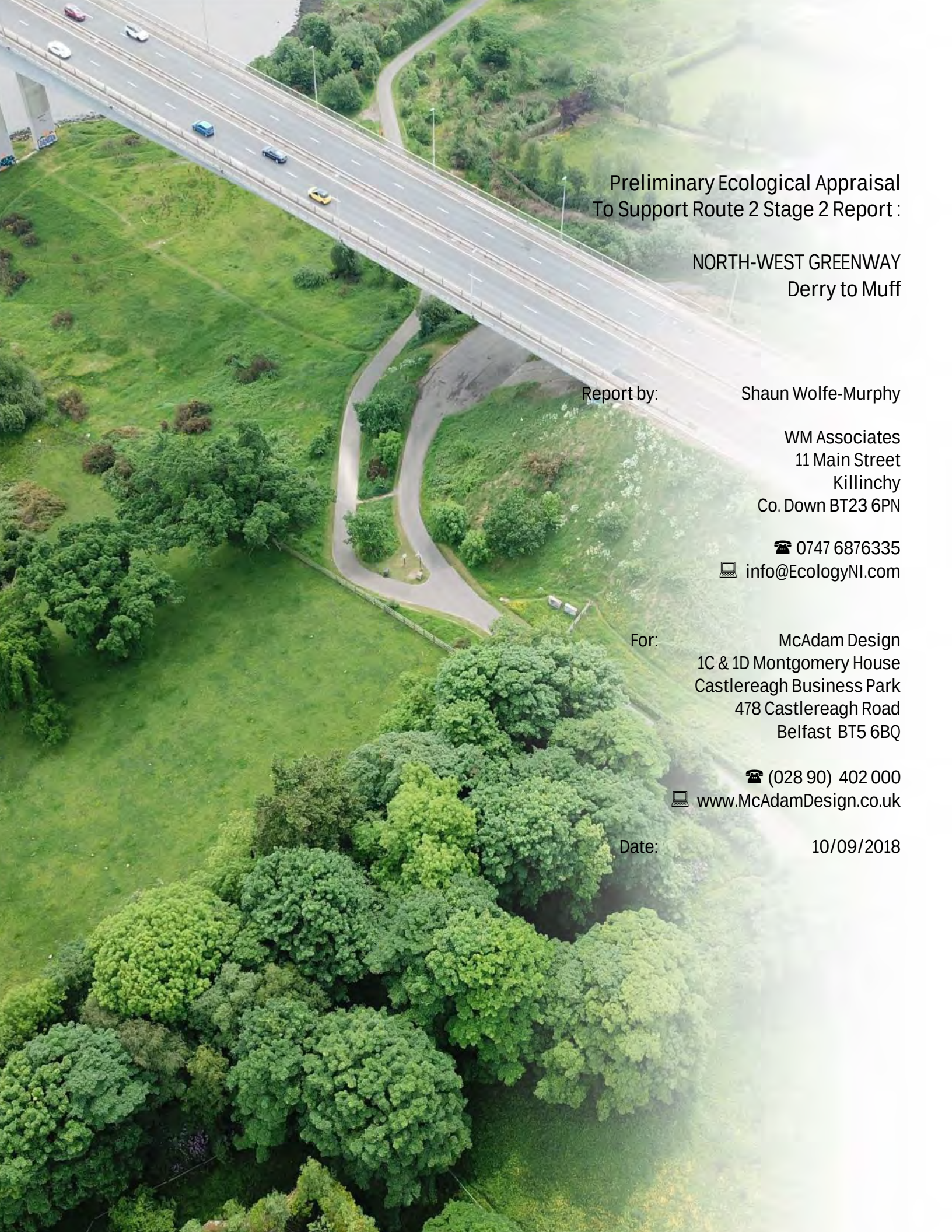
Landscape Assessment Score - Light Blue Corridor
From the border at Muff to Kilderry Lane (0)
Along the Kilderry Lane (+2)
Leaving Kilderry Lane towards the Community Park (0)
Final part of route into Community Park (0)
Aggregate Score for the Light Blue Corridor (+2)

6.5 ROUTE 2 - REPUBLIC OF RELAND - LANDSCAPE ASSESSMENT SCORE SUMMARY

A summary of the scores of the Landscape Assessment for the Corridors illustrated for the Republic of Ireland/Donegal options can therefore be summarised in the table below**:**

CORRIDOR	Orange Corridor	Purple Corridor	Light Blue Corridor
Score	-1	0	+2

APPENDIX E – PRELIMINARY ECOLOGICAL ASSESSMENT



Preliminary Ecological Appraisal
To Support Route 2 Stage 2 Report :

NORTH-WEST GREENWAY
Derry to Muff

Report by: Shaun Wolfe-Murphy

WM Associates
11 Main Street
Killinchy
Co. Down BT23 6PN

☎ 0747 6876335
💻 info@EcologyNI.com

For: McAdam Design
1C & 1D Montgomery House
Castlereagh Business Park
478 Castlereagh Road
Belfast BT5 6BQ

☎ (028 90) 402 000
💻 www.McAdamDesign.co.uk

Date: 10/09/2018

Preliminary Ecological Appraisal :
NORTH-WEST GREENWAY Pennyburn to Muff

Contents:

Version History

10/09/2018	Version 1.1

Background:

The North-west Region Cross Border Group identified three routes in their *North West Greenway Plan, A Vision & Action Plan For Greenway Development* published in September 2015:

> Route 1: Pennyburn roundabout in L~Derry to Buncrana and Newtowncunningham forking at Tooban junction.
>
> Route 2: Muff village, to Pennyburn roundabout L~Derry.
>
> Route 3: Strabane, to Lifford, Co Donegal via Lifford Bridge

This report supports the Route 2 Stage 2 Preferred Route Selection Report and examines the ecological aspects of the Route 2 Corridor Options identified in the Stage 1 Constraints Study and Route Corridor Report.

Once the preferred route is fully determined, this report can be revised to a Preliminary Ecological Appraisal which can be submitted with the relevant project planning applications.

The interim version will inform the selection of the final preferred route, and can be used in per-application consultation with the various bodies.

The aims of this report are:

1. Identification of potential ecological constraints to the development for example:

In Northern Ireland:	Priority species and habitats as defined by Planning Policy Statement 2 (including Habitats Directive Annexed habitats and species).
	Species protected under the Wildlife Order.
	Invasive species listed on Schedule 9 of the Wildlife Order as amended.

In the Republic:	Priority species and habitats Listed in Annex 1 and 2 of the 'Habitats Directive'. Species protected by the Wildlife Act 1976 and subsequent amendments and the Flora Protection Order 1999. Invasive species listed in the European Communities (Birds and Natural Habitats) Regulations 2011.

2. Identification of any additional surveys which may be required by NED in Northern Ireland or NPWS in the Republic of Ireland to enable the assessment of any future planning application relating to the selected route.

3. Provide advice if necessary on the most economically effective response to any identified constraints.

It has been identified in advance that there is a requirement that the potential impacts of the Route 2 Greenway will require to be tested against the designation features of the River Foyle SPA (Republic of Ireland), and upon the selection features of the River Foyle SPA (Northern Ireland).

In the Republic of Ireland this is known as an Appropriate Assessment (or sometimes a Natura 2000 Assessment).

In Northern Ireland this is known as a Habitat Regulations Assessment (formerly known as an Article 6 Assessment or Appropriate Assessment).

These are in preparation and will be published separately once the route and greenway design for which permission will be sought has been finalised.

Survey details:

Site visits

18/01/2018[1] 01/06/2018 04/07/2018 10/07/2018	Shaun Wolfe-Murphy BSc., Dip. EIA Mgmt., MCIEEM

[1] Reconnaissance visit with other development team members

Statement of Authority: Shaun has 30 years' experience as a professional botanist, including working for the NIEA habitat survey and designations team, the England Field unit of the (then) NCC and for the survey and designations unit of Dúchas in the government conservation agency of Republic of Ireland. During the time spent working for these agencies much emphasis was on the survey and ecological evaluation of sites.

Since establishing WM Associates in 1994 as an ecological consultancy, he has routinely compiled ecological impact assessments for a wide variety of development projects in both urban and rural habitats.

Statement of Objectivity: The data have been collected and presented impartially, as required by the CIEEM code of professional conduct. Payment or other favour is not dependent upon any particular planning outcome, and there is no other vested or personal interest in any particular outcome.

Survey method

The full route was walked.

It was not attempted to describe all habitats crossed, or passed by the provisional routes. Where there was a potential ecological constraint, enough data was recorded to evaluate the constraint.

In Northern Ireland, habitats are assigned to type using the JNCC Phase 1 survey classification. In the Republic, habitats are assigned to type using the Heritage Council's classification.

Where appropriate, notes were made of the main plant species, and other species that are indicative of the condition and management of the habitat.

In describing the status of plant species in an area, the qualitative DAFOR scale is used, where:

D	=	Dominant	Qualifying prefixes		
A	=	Abundant			
F	=	Frequent	L	=	Local – patchy distribution
O	=	Occasional	V	=	'very'
R	=	Rare			

Lists are tabulated in order of descending abundance.

Where trees were measured during this survey, their diameter at breast height (dbh) is given in cm.

The habitat suitability for different animals or animal groups was assessed, specifically:

Badgers – The survey included a search for signs of usage by Badger, such as foraging tracks, snagged guard hairs, dung etc. In particular a search was conducted for potential sett entrances.

Otters – The survey considered the potential suitable habitats for otters and notes were made of any signs of Otter use along waterways, plus any potential holt entrances.

Bats – Potential roosting places were noted, and the general suitability of the area for supporting foraging bats was assessed. Trees close to the available development area were assigned to Bat Roost Risk group as follows:

Bat Roost Risk Group (After Bat Conservation Trust (2012) Bat Surveys : Good Practice Guidelines)

Risk Group	BCT Tree category	Description
0	3	*No potential to host roosting bats*. Trees without loose bark, fissures and rot holes, and not with dense mature Ivy cover. Generally young to semi-mature specimens.
1	2	*Unlikely to host roosting bats*. Trees without loose bark, fissures and rot holes, and not with dense mature Ivy cover, but the tree is of a size and age that climbing surveys may result in cracks or crevices being found which may have limited potential to host roosts.
2	1	*Moderate potential to host roosting bats*. Trees with e.g. loose bark, deep fissures or splits and rot holes, or with dense thick-stemmed Ivy that seem likely to present potential at least for use by single bats.
3	1*	*High potential to host roosting bats*. Trees with multiple, highly suitable features that appear capable of supporting larger roosts.
4	known	*Confirmed roost site or evidence of roost occupation.*

Birds - Suitable nesting and feeding habitats were noted on and around the site.

Common lizard – The survey included an assessment of suitable habitat for lizards.

Newts - The survey included an assessment of suitable habitat for lizards, including terrestrial habitats and potential breeding ponds.

Invertebrates - Habitats of special importance for invertebrates were noted.

All survey compartments were photographed. Some sections were photographed from the air using a drone.

The direction of survey was from Pennyburn (-ve) and to Muff (+ve). Ground level photos are also taken from –ve to +ve unless indicated. All images are archived and available as high resolution graphic files.

Site Description:

Leaving the city, the route crosses an urban park on paths already in place, It then progresses to Culmore and then to Muff through an improved agricultural landscape, although staying close to the A2 trunk road.

Designated sites:

Natura 2000 (Both jurisdictions)

In the Republic of Ireland, the Lough Foyle SPA starts at Muff , 0.75 km from the Main Street, and then continues up the coast.

In Northern Ireland the Lough Foyle SPA is designated largely along the eastern shore of the estuary, but includes a section of Muff Bay bringing it to 0.5 km of Muff Main Street.

River Faughan and Tributaries SAC is generally 2.5 km to 4km from the proposed route as it flows south to north part the eastern outskirts of Derry. The lower Faughan is incorporated into the Lough Foyle SPA before it empties into the Foyle estuary on the opposite shore to Culmore and Muff.

NHA (Republic of Ireland)

No NHAs are designated close to the route of the Greenway

ASSI (Northern Ireland)

The two N2K sites are also designated ASSI, but there are no other ASSIs close to the proposed route.

AOLNCI (Northern Ireland)

There are no AOLNCIs on the western side of the Foyle.

LNR (Northern Ireland)

The route passes through the Bay Road Park Local Nature Reserve.

Local Wildlife Sites (Northern Ireland)

The are no Local Wildlife Sites indicated on the NIEA map viewer within 4 km of any part of the route.

Long-established woodlands

The route does not pass close to any woodlands in Northern Ireland.

The woodlands that are potentially passed by the route in the Republic of Ireland are not listed in the 2010 provisional inventory of ancient and long established woodland in Ireland was published by the National Parks and Wildlife Service (NPWS).

Ecological Assessment of the Routes:

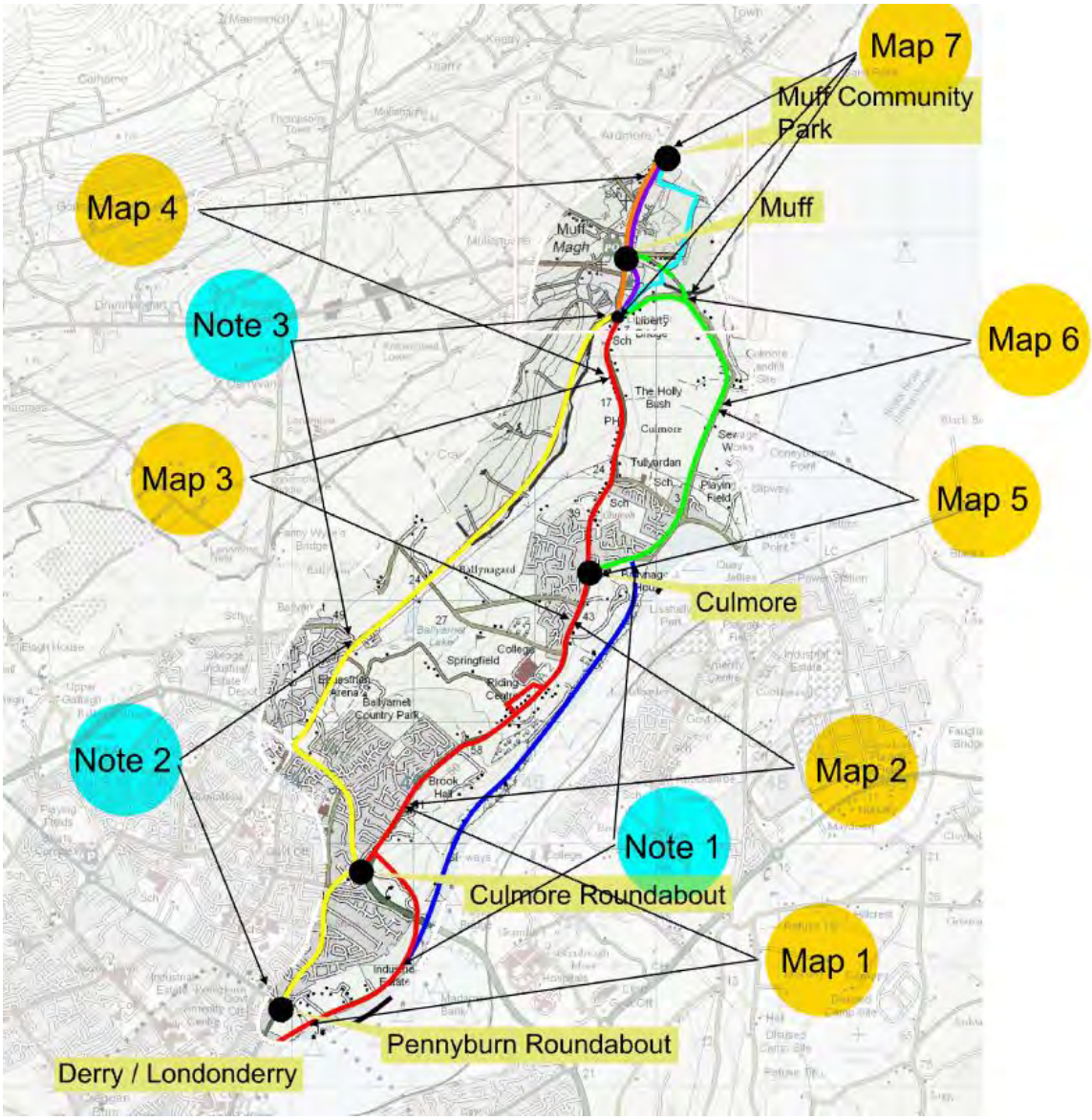
Routes sections marked in white indicate that no ecological issues were identified during the walk through. These have all been walked. Absence of notes does not imply absence of survey

Route sections marked in yellow are numbered and can be referred to a description identifying potential issues.

Potential routes that may be viable but have not been surveyed or considered are indicated by dotted lines.

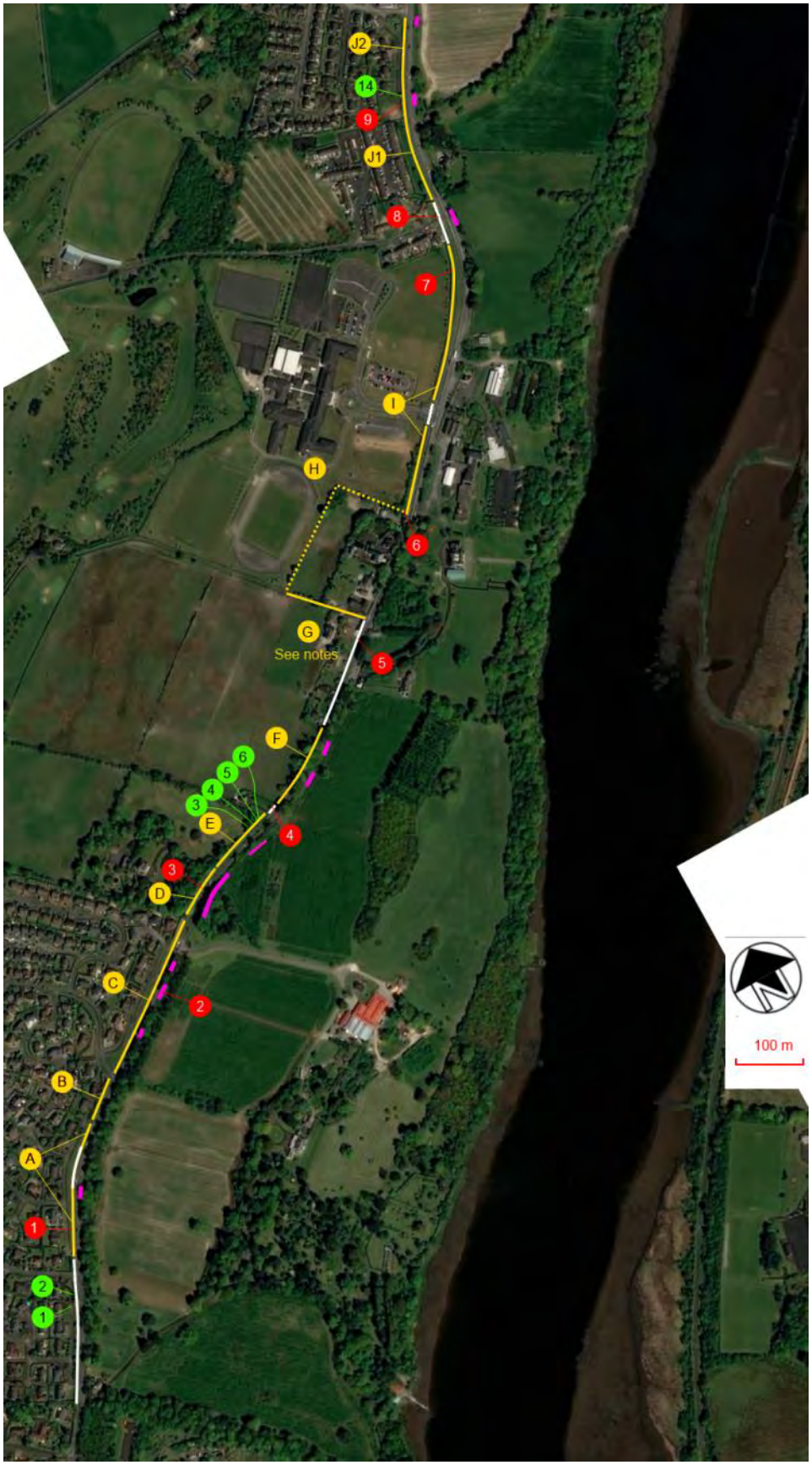
Target notes (TN) are indicated in Red.

Individual trees or tree groups are indicated in Green. The mapping of a tree does not imply that the tree will be lost, or even damaged by the greenway project.


Map 7
Muff Community Park
Map 4
Muff
Note 3
Map 6
Map 3
Map 5
Culmore
Note 2
Map 2
Note 1
Culmore Roundabout
Map 1
Pennyburn Roundabout
Derry / Londonderry

Map Key

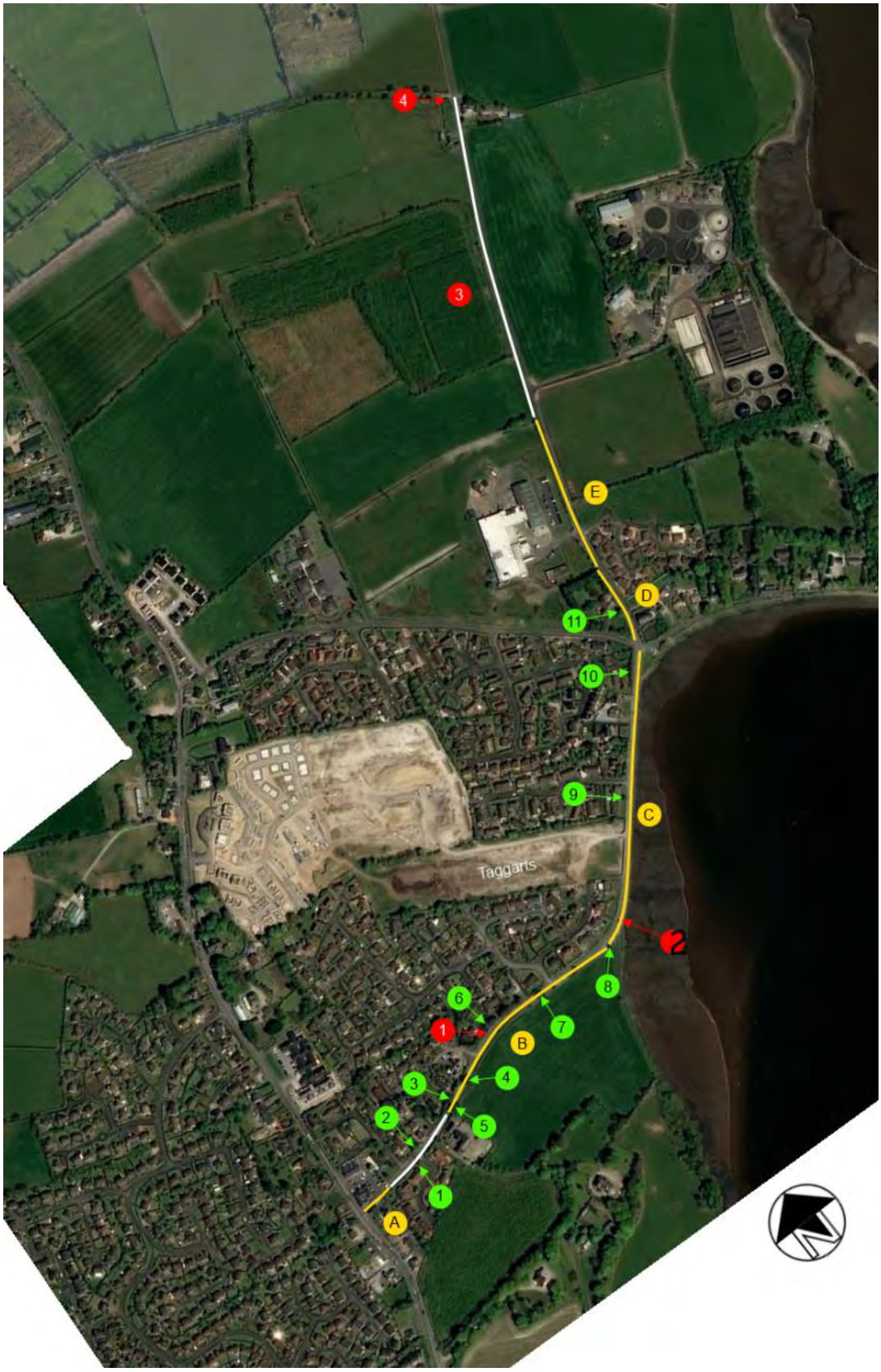
Map 1



Map 2

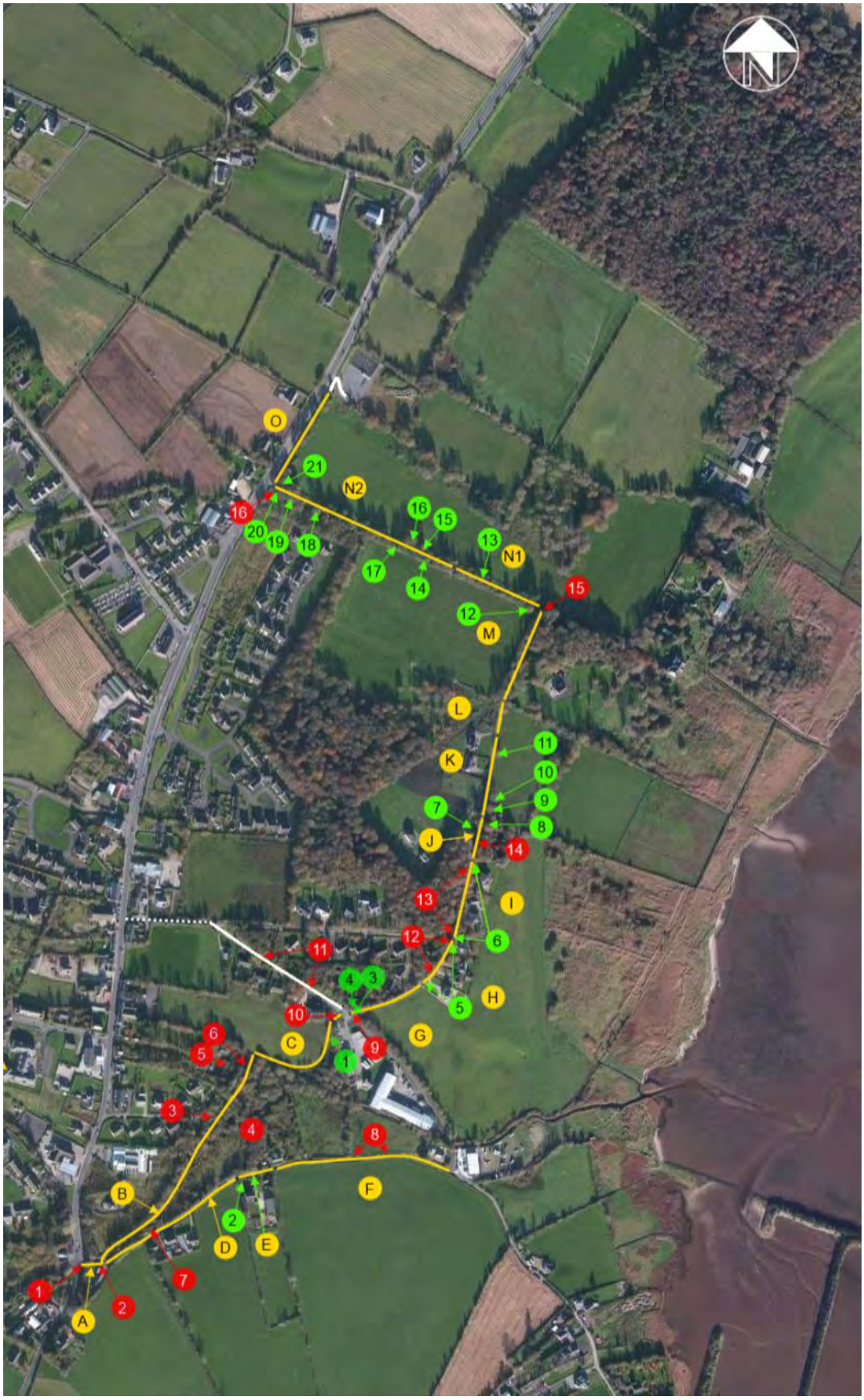
Map 3

Map 4



Map 5

Map 6


N
O
21
N2
16
20
19
18
16
15
13
N1
17
14
15
12
M
L
11
K
10
9
7
8
J
14
13
I
12
6
11
4
3
H
5
10
C
G
6
5
9
1
3
4
8
F
B
2
D
E
1
7
2
A

Map 7

Map 1

TN 1 – An alternative route, already in place across the Bay Road Park, that would deliver greenway users to the new walkway along the Foyleside without the need for a bridge.

Section A – The Pennyburn Inlet for which a signature bridge is proposed across the inlet mouth. B:4 improved grassland to the –ve side. No access to the +ve side at Kelly's Fuel's. This side of the inlet formerly with a Japanese Knotweed (Fallopia japonica) infestation. No plants were noted on inspection with a drone.

Section B – Alongside Kelly's Fuels' yard. No access but inspected by drone. The vegetation is a worn ruderal habitat likely to be of low biodiversity importance. No signs of Japanese Knotweed (Fallopia japonica) were noted. There is a pinch point towards the shore where the yard wall of sleepers stacked in RSJs would require to be moved to accommodate a path. Some purchase of 3rd party lands may be required depending on the final greenway route alignment.

Habitat

Pinch point

Section C – B:21 unimproved neutral grassland/A:22 scattered scrub. A wide verge of False Oat-grass (Arrhenatherum elatius)/Common Nettle (Urtica dioica) and scattered Bramble (Rubus fruticosus agg.) with 2 x spreading form Goat Willow (Salix caprea) and 1 x young Pedunculate Oak (Quercus robur).

Section D – Along the Bay Road there is a 2.5 m wide verge of Red Fescue (Festuca rubra), Yorkshire-fog (Holcus lanatus) and Rough Meadow-grass (Poa trivialis) dominated amenity grass in which Sodium street maps posts are located. To the positive, there is a transition to False Oat-grass (Arrhenatherum elatius) and Common Nettle (Urtica dioica), the latter spreading from the adjacent woodland.

@ D1 – Beyond the verge the land drops off into a mature A:112 planted broadleaved woodland.

The plantation with mainly mature Large-leaved Lime (Tilia platyphyllos) along the edge of the verge. These trees with a dbh to 36 cm. The interior of the plantation is more diverse.

Norway Maple (Acer platanoides)	FLD
Goat Willow (Salix caprea)	O
Silver Birch (Betula pendula)	O
Midland Hawthorn (Crataegus laevigata)	R
Sycamore (Acer pseudoplatanus)	FLD

The trees are mainly mature, some early mature, and there is no shrub or regeneration layer. The ground-flora is patchy MG:1b the Urtica dioica sub-community of the MG:1 Arrhenatherum elatius grassland community, with Common Nettle (Urtica dioica) proliferating in the shadier sections and only rarely giving way to Common Ivy (Hedera helix) which occurs with no other shade indicators.

TN 2 – Japanese Knotweed (Fallopia japonica) occurs 6m from the road here and scattered towards the shore.

TN 3 – patchy Field Horsetail (Equisetum arvense) in the verge, this is a species that can heave hard surfaces.

@ D 2 – beyond the dense plantation there remain just scattered mature Norway Maple (Acer platanoides), the gaps filled with Bramble (Rubus fruticosus agg.) ad Common Nettle (Urtica dioica) with scattered patches of Raspberry (Rubus idaeus). Occasionally with patches of Field Horsetail (Equisetum arvense) and of Montbretia (Crocosmia x crocosmiiflora). Becoming grassier towards the end of Bay Road as False Oat-grass (Arrhenatherum elatius) gains status.

TN 4 – To gain access to the Bay Road Park the greenway would pass through a gap between the early-mature roadside Common Alder (Alnus glutinosa) alongside the road as it swings inland, and the shore. This is planted with 8 x Pedunculate Oak (Quercus robur), now to 17 cm dbh, but these in rows allowing a 6.3 m wide corridor in which to route the Greenway without significant root damage.

Section E – The Bay Road Park LNR. This has an existing path network. To connect the Bay Road through section E will require travel of between 50 and 90 m over B:22 semi-improved neutral grassland comprising:

Marsh Foxtail (Alopecurus geniculatus)	F
Jointed Rush (Juncus articulatus)	OLF
Daisy (Bellis perennis)	F
White Clover (Trifolium repens)	A
Creeping Bent (Agrostis stolonifera)	O-F
Yorkshire-fog (Holcus lanatus)	A
Smooth Meadow-grass (Poa pratensis agg)	F
Crested Dog's-tail (Cynosurus cristatus)	O-F
Sweet Vernal-grass (Anthoxanthum odoratum)	O-F
Bog Stitchwort (Stellaria alsine)	R
Oval Sedge (Carex leporina)	OLF
Floating Sweet-grass (Glyceria fluitans)	O-F
Annual Pearlwort (Sagina apetala)	R
Creeping Buttercup (Ranunculus repens)	OLA
Hairy Sedge (Carex hirta)	O
Common Bird's-foot-trefoil (Lotus corniculatus)	O
Common Mouse-ear (Cerastium fontanum)	R

Despite the absence of Perennial Rye-grass (Lolium perenne) this is probably within MG:6 Lolium perenne-Cynosurus cristatus mesotrophic grassland pasture community and probably derived from a neglected reseeding.

TN 5 – Existing path – this is 3.4 m wide with 1 - 2m wide mown B:4 improved grassland verges to either side, probably re-sown as a part of the path construction.

This travels through unmanaged or extensively managed B:22 semi-improved neutral grassland of:

Yorkshire-fog (Holcus lanatus)	A
Sweet Vernal-grass (Anthoxanthum odoratum)	F-A
Creeping Buttercup (Ranunculus repens)	FLA
Silverweed (Potentilla anserina)	FVLA
Creeping Bent (Agrostis stolonifera)	F

Smooth Meadow-grass (Poa pratensis agg)	F
Smooth Meadow-grass (Poa pratensis agg)	O-F
Hairy Sedge (Carex hirta)	OLF
Soft-rush (Juncus effusus)	OLF
Oval Sedge (Carex leporina)	OLF
Meadow Buttercup (Ranunculus acris)	O
Ribwort Plantain (Plantago lanceolata)	O
Field Horsetail (Equisetum arvense)	O
Red Fescue (Festuca rubra)	O
Common Mouse-ear (Cerastium fontanum)	LO
Red Clover (Trifolium pratense)	LO
Meadowsweet (Filipendula ulmaria)	LO
Common Sorrel (Rumex acetosa subsp acetosa)	R
Tall Fescue (Schedonorus arundinaceus)	R

In which there are scattered Rusty Willow (Salix cinerea subsp oleifolia) generally 3-4 m tall as spreading bushes, but in places beginning to coalesce to form cover.

TN 6 – the path ascending a slope up from the shore. There are frequent planted saplings of Pedunculate Oak (Quercus robur), Ash (Fraxinus excelsior) and Hazel (Corylus avellana) establishing well at the path-sides, generally planted no closer than 2m. 1 x potential newt breeding pond.

TN 7 – the path continues to the +ve of the bridge, 3.2 m wide with pin kerbs, and winding through open estate woodland with some impressive trees. Patches of invasive Lesser Knotweed (Persicaria campanulata) in places beside the path are not on Schedule 9 of the Wildlife Order.

TN 8 – Beyond the occupied dwelling (45 Culmore Road), the route is wider and used for vehicle access to the house and stables. Fields in either side are weedy B:6 poor semi-improved grassland and horse-grazed, and the path initially lined by large, mature Sycamore (Acer pseudoplatanus).

Section F – The initial route from the upper Bay Road Park entrance is via road and pavement. At Section F a small embankment of ruderal grass is to be removed to gain access to a wide B:4 improved grassland verge.

TN 9 – A retaining wall behind the pavement along this section.

Map 2

Section A – Hedge that is proposed for removal. This is almost monospecific Hawthorn (Crataegus monogyna) and flailed to 1.5 m tall with patchy Common Nettle (Urtica dioica), Common Ivy (Hedera helix) and Cleavers (Galium aparine) at the base. In a central section the hedge has already been removed and replaced with a wall.

TN 1 – A single tall Salmonberry (Rubus spectabilis) plant in the hedge.

Section B – It is not clear if this hedge is proposed to be removed. It is 2.4m tall with a 1.1 m B:4 improved grassland verge alongside.

Hawthorn (Crataegus monogyna)	A	
Ash (Fraxinus excelsior)	F-A	Flailed
Salmonberry (Rubus spectabilis)	LA	Schedule 9
Sycamore (Acer pseudoplatanus)	O	Flailed.

Section C – Ecologically dull mown amenity grass here.

TN 2 – Salmonberry (Rubus spectabilis) in patchy abundance on the opposite side of the road from the proposed greenway. Often behind a stone wall. These stands are indicated in pink.

Section D – A wide B:4 improved grassland verge in front of See House.

TN 3 – Salmonberry (Rubus spectabilis) in the woodland fringe of See House is abundant beside the verge in a 15m length beyond the driveway, and then continues in smaller patches to the end of the property.

Section E – the route here is on the pavement (to be widened into the road) this above a retaining structure with a hedge planted along the top:

Hawthorn (Crataegus monogyna)	D	
Ash (Fraxinus excelsior)	O	Saplings
Salmonberry (Rubus spectabilis)	FLA	

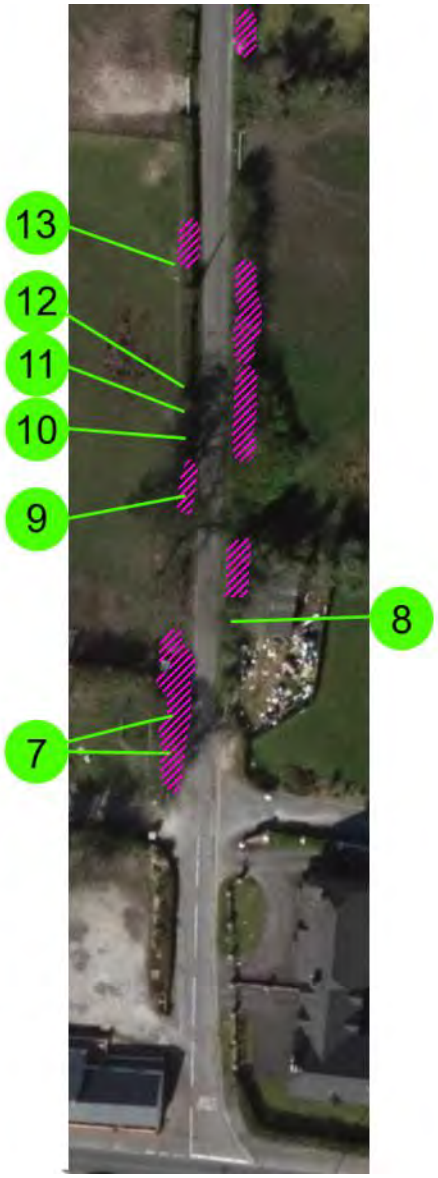
This with patchy Salmonberry (Rubus spectabilis) arising from stands of dominance at the field edge at the lower level. It is also abundant along the roadside on the opposite side where the carriageway will be moved to compensate the path widening.

TN 4 – Salmonberry (Rubus spectabilis) growing in the adjacent garden as a tended shrub

Section F – The adjacent B:6 poor semi-improved grassland field with trees along the roadside edge, but all set far enough back into the field not to be at risk. There is a wire roadside fence with a single small Salmonberry (Rubus spectabilis) opposite the first tree – this sprayed as a part of the verge spraying programme. It remains in patchy abundance on the opposite side of the road.

TN 5 – the pavement here runs beside an assortment of garden walls and hedges (Garden Privet (Ligustrum ovalifolium)) with a bank down to the adjacent garden level. The roadside hedge of the final house is entirely of Salmonberry (Rubus spectabilis).

Section G – Springfield Road. Is a route diversion to avoid a pinch point. This is 3.6 m wide with narrow weedy verges (Yorkshire-fog (Holcus lanatus), Ground-elder (Aegopodium podagraria), Montbretia (Crocosmia x crocosmiiflora), Cow Parsley (Anthriscus sylvestris), Winter Heliotrope (Petasites fragrans)) and mixed hedges often with patches of Salmonberry (Rubus spectabilis) dominance (including at the breakthrough into the adjacent Thornhill College grounds) as mapped:



Section H – Observed from the road. The route through the school is over mown B:4 improved grassland with several large Sycamore (Acer pseudoplatanus) in bat roost risk group 2 on the Paladin boundary that the proposed route follows.

TN 6 – There is a tree screen along the school boundary, mainly of planted Downy Birch (Betula pubescens ssp pubescens) and Pedunculate Oak (Quercus robur), but at the required breakthrough to regain the Culmore Road, the planting is of Field Maple (Acer campestre), Rusty Willow (Salix cinerea subsp oleifolia), Wild Cherry (Prunus avium) and tall Red-osier Dogwood (Cornus stolonifera). Salmonberry (Rubus spectabilis) 8m from the corner is the only plant within the Section I boundary to the –ve of the school gates.

Section I – the route is in a wide B:4 improved grassland verge alongside the school boundary hedge and fence, which comprises Hawthorn (Crataegus monogyna) and Red-osier Dogwood (Cornus stolonifera) with rare Portugal Laurel (Prunus lusitanica), Ash (Fraxinus excelsior)

saplings and Bramble (Rubus fruticosus agg.). beyond the Thornhill College entrance more Hawthorn (Crataegus monogyna) dominated and only with scattered Pedunculate Oak (Quercus robur) planted inside the boundary.

TN 7 – An 8m stretch of the Section I boundary here dominated by Salmonberry (Rubus spectabilis), around 8m from the pavement.

TN 8 – small stand of Salmonberry (Rubus spectabilis) on the corner of Alder Avenue

Section J – Hedges

@ J 1 – a low clipped hedge of Hawthorn (Crataegus monogyna) with Portugal Laurel (Prunus lusitanica), Blackthorn (Prunus spinosa), Rusty Willow (Salix cinerea subsp oleifolia) Bramble (Rubus fruticosus agg.), Beech (Fagus sylvatica) and Sycamore (Acer pseudoplatanus) in small amounts. The verge with 1-8 m wide pavement along the hedge, then a 1.8 m wide service strip of mown B:4 improved grassland separating the road from the pavement.

@ J2 – A taller hedge (2.5 m + dominated by Hawthorn (Crataegus monogyna) with flailed Sycamore (Acer pseudoplatanus), Wild Cherry (Prunus avium), Ash (Fraxinus excelsior) and Beech (Fagus sylvatica), and a base of False Oat-grass (Arrhenatherum elatius), Cock's-foot (Dactylis glomerata), Cleavers (Galium aparine), Common Nettle (Urtica dioica) and Yorkshire-fog (Holcus lanatus).

TN 9 – three plants of Salmonberry (Rubus spectabilis) in front of the hedge.

Tree table - Map 2

No.	Spp.	DBH cm	BRRG	Condition/notes
1	Japanese Cherry (Prunus serrulata)	48	0	1.9 m from pavement
2	Norway Maple (Acer platanoides)	36	0	1.9 m from pavement.
3	Norway Maple (Acer platanoides)	To 20	0	Above retaining wall
4	Sycamore (Acer pseudoplatanus)	47	2	Below retaining wall
5	Sycamore (Acer pseudoplatanus)	66	2	1.6 m from the pavement
6	Beech (Fagus sylvatica)	74	1	1.6m from the pavement
7	2 x Ash (Fraxinus excelsior)	To 30	0	Multi-stemmed. 90 cm from road
8	Sycamore (Acer pseudoplatanus)	To 28	1	Multi-stemmed. 90 cm from road
9	Pedunculate Oak (Quercus robur)	64	1	2.2 m from road
10	Pedunculate Oak (Quercus robur)	50	2	1.9 m from road
11	Pedunculate Oak (Quercus robur)	59	2	1.6 m from road
12	Pedunculate Oak (Quercus robur)	48	1	1.9 m from the road
13	Scots Pine (Pinus sylvestris)	52	0	90 cm from the road
14	Pedunculate Oak (Quercus robur)	29	0	2.1 m from the pavement

Map 3

TN 1 – Salmonberry (Rubus spectabilis) locally dominant on the corner of Thornhill Park.

TN 2 – Salmonberry (Rubus spectabilis) along a 12 m length of the adjacent boundary to 90 cm from the pavement.

TN3 – The route crosses the road at Holy Trinity church. Japanese Knotweed (Fallopia japonica) is recorded between here and the new Barley Fields development, not mapped but 10 m + away from the pavement, so wont impact upon the greenway construction. The newly laid wide pavement and verge before and in front of Barley Fields may have been constructed as the greenway, but runs to a pinch point in front of Culmore Primary School.

TN4 – A heavy infestation of Japanese Knotweed (Fallopia japonica) opposite the end of Tullyard Square, and on the opposite side of the road from the Greenway.

Section A – The route runs at the roadside adjacent to a B:4 improved grassland silage field sloping gently off the fence. **@ A1** adjacent to a pavement which stops at the field entrance. **@ A2** adjacent to a eutrophic but otherwise B:21 unimproved neutral grassland verge of:

Cock's-foot (Dactylis glomerata)
Smooth Meadow-grass (Poa pratensis agg)
Dandelion (Taraxacum officinale)
Bramble (Rubus fruticosus agg.)
False Oat-grass (Arrhenatherum elatius)
Broad-leaved Dock (Rumex obtusifolius)
Common Nettle (Urtica dioica)
Hogweed (Heracleum sphondylium)
Creeping Buttercup (Ranunculus repens)
Yorkshire-fog (Holcus lanatus)

No hedge alongside the field, but a fence associated with patchy Bramble (Bramble (Rubus fruticosus agg.)) and in places Snowberry (Symphoricarpos albus), Hollyberry Cotoneaster (Cotoneaster bullatus), Garden Privet (Ligustrum ovalifolium), and Snowberry (Symphoricarpos albus), with only rare Hawthorn (Crataegus monogyna) and sapling to young Sycamore (Acer pseudoplatanus) and Ash (Fraxinus excelsior).

TN 5 – opposite no. 232, Lesser Knotweed (Persicaria campanulata) is invasive, but not on Schedule 9 of the Wildlife Order.

Section B – Arable and B:4 improved grassland with a narrow roadside verge of False Oat-grass (Arrhenatherum elatius), Cow Parsley (Anthriscus sylvestris) and Cock's-foot (Dactylis glomerata). A low (1.5m) flailed hedge is virtually monospecific Hawthorn (Crataegus monogyna), with just rare flailed Ash (Fraxinus excelsior) and Holly (Ilex aquifolium),

TN 6 – a single crown of Japanese Knotweed (Fallopia japonica) within the hedge. 18m from the subsequent field boundary. This will be removed along with the rest of the hedge.

Section C – Tall roadside hedge of unmanaged Garden Privet (Ligustrum ovalifolium). No access to check behind for Japanese Knotweed (Fallopia japonica).

Section D – As in Section B, a narrow verge of False Oat-grass (Arrhenatherum elatius) etc, here also with patchy Montbretia (Crocosmia x crocosmiiflora), with a very species-poor trimmed hedge of Hawthorn (Crataegus monogyna), this running alongside a biomass plantation.

Map 4

Section A – Narrow B:4 improved grassland verge and species-poor Hawthorn (Crataegus monogyna) dominated hedge.

Section B – Cherry Laurel (Prunus laurocerasus 'Rotundifolia') hedge in front of no. 231.

Section C – very species-poor Hawthorn (Crataegus monogyna) hedge alongside an adjacent B4 improved grassland. The verge here is B:22 semi-improved neutral grassland.

Yorkshire-fog (Holcus lanatus)	A
Cock's-foot (Dactylis glomerata)	F
Creeping Buttercup (Ranunculus repens)	A
Bush Vetch (Vicia sepium)	OLF
False Oat-grass (Arrhenatherum elatius)	LF
Sweet Vernal-grass (Anthoxanthum odoratum)	O
Ribwort Plantain (Plantago lanceolata)	O
Meadow Vetchling (Lathyrus pratensis)	O
Smooth Meadow-grass (Poa pratensis agg)	O0F
Cuckooflower (Cardamine pratensis)	LO
Broad-leaved Dock (Rumex obtusifolius)	O
Red Fescue (Festuca rubra)	LF
Common Bird's-foot-trefoil (Lotus corniculatus)	LF
Silverweed (Potentilla anserina)	LO

The pavement restarts to the +ve of Section C

Compartment D – the pavement in front of the large Ash at tree 2 is a wide section which will help avoid root damage. The pavement walkway then runs behind a wide verge/service strip planted with Large-leaved Lime (Tilia platyphyllos), now to 30 cm dbh. Sometimes with younger Rusty Willow (Salix cinerea subsp oleifolia).

Two options are to follow the pavement behind the trees, or occupy the B:4 improved grassland verge between the trees and the road, which is a minimum of 4m wide. Either way risks damage to the Lime tree roots.

Compartment E – A desire line looping around Muff connecting the single track roads of Kilderry Lane and Coney Road. More guidance is required on the type of path (in particular whether a shared access with no adjacent hedgeline/tree losses, or a 3m path alongside the existing road.

TN 1 – Japanese Knotweed (Fallopia japonica) locally abundant at the riverside below the bridge, especially on the opposite bank.

TN 2 – roadside Rhododendron (Rhododendron ponticum) a Scheduled plant in the Republic of Ireland.

TN 3 – The pavements on either side are only 1m wide over this road bridge.

TN 4 – Young ruderal development behind a post and wire fence – no dumping and no Japanese Knotweed (Fallopia japonica) noted.

TN 5 – 1x ramet of Japanese Knotweed (Fallopia japonica) in a Fuchsia (Fuchsia magellanica) hedge around 8m from the pavement.

TN 6 – Norway Maple (Acer platanoides) Beech (Fagus sylvatica) and Cherry Plum (Prunus cerasifera) in a front garden here, but far enough from the wall not to be impacted by the proposed route.

Section F – Roadside trees and scrub.

@F1 Probably within the curtilage of a former dwelling at F1 there is overgrown scrub immediately adjacent to a woodland rail fence alongside the pavement. This of:

Ash (Fraxinus excelsior)	O	Young
Rusty Willow (Salix cinerea subsp oleifolia)	A	
Goat Willow (Salix caprea)	O	Young
Bramble (Rubus fruticosus agg.)	A	
Hawthorn (Crataegus monogyna)	O	
Gorse (Ulex europaeus)	O	

MWA shows the greenway extending into the road rather than the adjacent properties here.

Before the end of the adjacent scrub, there is an overgrown Beech (Fagus sylvatica) hedge at the fence-side.

@ F2 the relict Beech hedge trees have been thinned and now extend as scattered trees above a sloping bank of GA:2 Improved grassland down to Wheatfield. These trees now to 20 cm dbh.

TN 7 – passes along the front of an active building site

Tree table Map 4

No.	Spp.	DBH cm	BRRG	Condition/notes
1	2 x Sycamore (Acer pseudoplatanus)	To 26	1	Multi=stemmed. 1.3 m from the road
2	Ash (Fraxinus excelsior)	90	2	0.7 m from the pavement
3	Sycamore (Acer pseudoplatanus)	To 24	1	30 cm from Pavement. 6 trees or a coppice
4	Ash (Fraxinus excelsior) Ash (Fraxinus excelsior)	20 18	1 1	Both 30 cm from the pavement

Map 5

Section A – The road here is 6.4m wide, with pavements to either side. To the RHS there is a screen of mature Lawson's Cypress (Chamaecyparis lawsoniana) behind the wall of the Swan Salon, and garden shrubs and semi-mature trees along the wall of the Locarden development:

Norway Maple (Acer platanoides) X2
Tree Cotoneaster (Cotoneaster frigidus) X1
Ash (Fraxinus excelsior) X1
Silver Birch (Betula pendula) X1
Laurustinus (Viburnum tinus)
Cherry Laurel (Prunus laurocerasus)

Section B – Mainly with an improved grassland verge and 1.5 m pavement on the LHS (with tree 3 rooted in a raised verge section). A retaining wall at the road side to the RHS before improved agricultural grassland. The verge is variable and lost in front of no 6 (buck check actual ownership) It narrows substantially before Mt Vernon, then quickly and considerably widens.

TN 1 – Here the verge slopes up from the pavement to a tall Holly (Ilex aquifolium) screen at the verge side. The garden on no 6 with the same slope back but here all in curtilage, with 6 x mature Norway Spruce (Picea abies) to 40 cm along the roadside – these closest is 60 cm from the pavement.

No. 4 with a garden wall at the pavement side. with 1 x early mature coppiced Common Alder (Alnus glutinosa) and 2 more Norway Spruce (Picea abies) to 1.5 m from the wall.

TN 2 – At the start of the sea wall – a small stand of Japanese Honeysuckle (Lonicera japonica) A Schedule 9 plant, at the wall base is unlikely to impact upon the proposed route.

Section C – Alongside the Foyle, the saltmarsh extends to the base of the sea wall, there are no sensible options for routing seaward of the sea wall. The pavement to the RHS is 2m wide. Past the Taggarts site, there is a new ironwork railing fence at the edge of the pavement – this leads to garden hedge boundaries adjacent to the pavement. Pavement is even narrow to the +ve:

House no.	
4 Cooleen Park	*Beech (Fagus sylvatica) hedge*
2 Cooleen Park	*Wooden rail fence and garden shrubs*
	Tall Lawson's Cypress (Chamaecyparis lawsoniana) with young:
	2 x Japanese Cherry (Prunus serrulata cultivar)
22	*2x Common Whitebeam (Sorbus aria agg)*
	1 x Rowan (Sorbus aucuparia)
	All just behind the hedge
24	*Fence panelled wall*
	1 x semi-mature Hornbeam (Carpinus betulus)
26	*Fence panelled wall*
28a	*Wall*
28	*Wall*
30	*Fence with mixed New Zealand Broadleaf (Griselinia littoralis) and Escallonia(Escallonia cv) hedge*

From the front of no 32, there is once again a wide improved grassland verge.

Section D – The hedge around no 20 is a bulky structure of

Sycamore (Acer pseudoplatanus)	Flailed
Garden Privet (Ligustrum ovalifolium)	
Holly (Ilex aquifolium)	
Rusty Willow (Salix cinerea subsp oleifolia)	
Red-osier Dogwood (Cornus stolonifera)	
Ash (Fraxinus excelsior)	Flailed
Beech (Fagus sylvatica)	Flailed
Hollyberry Cotoneaster (Cotoneaster bullatus)	
Escallonia (Escallonia cv)	
Bullace (Prunus domestica var insititia)	

Here the 2m pavement is on the RHS of the 6.3 m road. To the LHS the improved verge becomes a narrow bank up to the hedge. If the verge is cut into, tree 11 will suffer root damage.

Section E – The road passes William Grant & Co.'s plant with False Oat-grass (Arrhenatherum elatius) and Yorkshire-fog (Holcus lanatus) verges on both sides of the road. Chain-link fence alongside the plant, with scattered Hawthorn (Crataegus monogyna), Holly (Ilex aquifolium), and 4 x young Ash (Fraxinus excelsior) to the +ve. The next agricultural field to the +ve is of B:6 poor semi-improved grassland species-poor Perennial Rye-grass (Lolium perenne) and Crested Dog's-tail (Cynosurus cristatus).

TN 3 – Common Nettle (Urtica dioica) dominates between the fence and the biomass plantation. A few Gorse (Ulex europaeus) and 1 x Hawthorn (Crataegus monogyna) on the fence line.

TN 4 – Salmonberry (Rubus spectabilis) on both sides of the track that joins the road here, and extending the roadside hedge 2.2 m from the road edge.

Tree table Map 5

No.	Spp.	DBH cm	BRRG	Condition/notes
1	Common Lime (Tilia x europaea)	To 40	1	2-stemmed. 3m from pavement
2	Common Lime (Tilia x europaea)	To 50	1	2-stemmed. 50 cm from pavement
3	Sycamore (Acer pseudoplatanus)	55	2	'Simon Louis Frères'. In grass verge
4	Pedunculate Oak (Quercus robur)	86	1	1.5 m from wall. Rooted 1.2m above road level
5	Pedunculate Oak (Quercus robur)	98	1	1.5 m from wall. Rooted 1.8m above road level
6	Ash (Fraxinus excelsior)	To 38	2	Multi-stemmed
7	Pedunculate Oak (Quercus robur)	80	1	1.3 m from the wall
8	Ash (Fraxinus excelsior)	To 43	2	3-stemmed. 3.8 m from wall
9	Silver Birch (Betula pendula)	33	1	0.8 m from fence
10	9 x Japanese Cherry (Prunus serrulata cv)	To 25	0	Row along boundary. 2.8 m from road
11	Sycamore (Acer pseudoplatanus)	>100	1	Around 5m from the road. Low breaking.

Map 6

Section A – The road here is embanked by around 90 cm between improved agricultural fields to either side. Just agricultural fences along the roadside boundary.

TN 1 – Potential routes have been surveyed across the capped landfill, now being managed as Culmore Country Park. Both routes would require minor losses of recently planted saplings, and both would require a bridge crossing of the tidal creek which runs up the landward side of the creek.

The creek is part of the SPA designation and the second potential crossing includes a margin of saltmarsh.

Neither possible route exits back on to Coney road at a convenient place. The detour through the Park has for now been ruled out.

Section B – A difficult blind corner on a narrow road around no.s 42 and especially 44, and opposite no.s 43 and 45.

Verges are narrow banks in front of garden hedges to either side. No 43 and short flailed patchy Hawthorn (Crataegus monogyna) hedge, with No 45 initially a tall Lawson's Cypress (Chamaecyparis lawsoniana) screen. With a row of semi-mature Norway Spruce (Picea abies) and Sycamore (Acer pseudoplatanus) to the +ve around the corner. There is potential a requirement for widening the road around the corner.

Section C – Here past no. 44, the road is 3.9 m wide with the same narrow embanked verges. A species-poor Hawthorn (Crataegus monogyna) hedge flailed to 1.4 m on the LHS can be removed and replanted, but the Tn2 reedbed on the RHS should remain undisturbed.

TN2 – A Common Reed (Phragmites australis) reedbed, becoming weedy at the edges, but remaining a Northern Ireland Biodiversity Strategy Priority habitat – it must be avoided by the greenway route. Common Reed (Phragmites australis) extends to mix with the roadside hedge.

TN3 – Here there is an informal area of uneven tipping/infilling, mainly revegetated, but still with a mounded topography. Currently a mosaic of Rusty Willow (Salix cinerea subsp oleifolia), Osier (Salix viminalis), Goat Willow (Salix caprea) and Common Alder (Alnus glutinosa) scrub/young woodland, Gorse (Ulex europaeus) and Bramble (Rubus fruticosus agg.), and weedy False Oat-grass (Arrhenatherum elatius)/Yorkshire-fog (Holcus lanatus) grassland with patches of Rosebay Willowherb (Chamerion angustifolium), Creeping Thistle (Cirsium arvense), Great Willowherb (Epilobium hirsutum), Field Horsetail (Equisetum arvense), scattered escapes from tipping of garden waste, but (surprisingly) no Schedule 9 species.

There is a roadside bund with the same mosaic of species plus a few Hawthorn (Crataegus monogyna), not planted as a hedge.

Section D – Another tricky section with a pinch point between the gardens of no. 61 and no 64, and then the road running between the cottages at no. 68, and their gardens located on the opposite side of the road. There is perhaps an option of widening the road into TN 4

TN 4 – to the –ve, a completely overgrown garden – the garden shrubs forming a closed canopy – this leads to the TN 4 area, an unmanaged enclosure sloping at around 8° down to the reedbed.

The roadside hedge:

Hawthorn (Crataegus monogyna)	A	
Sycamore (Acer pseudoplatanus)	F	Flailed
Ash (Fraxinus excelsior)	O	Flailed
Garden Privet (Ligustrum ovalifolium)	R	

The slope is occupied by coarse grassland of:

False Oat-grass (Arrhenatherum elatius)	
Soft-rush (Juncus effusus)	
Common Couch (Elytrigia repens)	
Creeping Thistle (Cirsium arvense)	
Creeping Bent (Agrostis stolonifera)	
Amphibious Bistort (Persicaria amphibia)	Terrestrial
Yorkshire-fog (Holcus lanatus)	
Hedge Bindweed (Calystegia sepium agg)	
Montbretia (Crocosmia x crocosmiiflora)	
Etc…	

With scattered Hawthorn (Crataegus monogyna) Bramble (Rubus fruticosus agg.) and Rusty Willow (Salix cinerea subsp oleifolia) scrub.

Section E – LHS field boundary is a fenced embankment carrying only False Oat-grass (Arrhenatherum elatius) and Bramble (Rubus fruticosus agg.).

Section F – Another pinch pint between no.s 61 and 64.

RHS no. 61 with a tall roadside hedge:

Hawthorn (Crataegus monogyna)	A	
Lawson's Cypress (Chamaecyparis lawsoniana)	F	
Garden Privet (Ligustrum ovalifolium)	F	
Ash (Fraxinus excelsior)	O	Inc. semi-mature
Holly (Ilex aquifolium)	O	

LHS the garden all of no. 64 is set back from the roadside by 1.5 m, but this doesn't imply that the ownership doesn't extend to the road side

Section G – The wall to the RHS continues and remains slightly set back from the road. To the RHS a roadside embankment of False Oat-grass (Arrhenatherum elatius) with scattered large Hawthorn (Crataegus monogyna).

Section H – Another pinch point – here between the gardens of no.s 69 and 70. Trimmed Garden Privet (Ligustrum ovalifolium) hedge to RHS, and New Zealand Broadleaf (Griselinia littoralis) Skimmia (Skimmia japonica) hedge to the LHS in both front of small tended gardens.

Section I – The same narrow banks along the roadside nut for this stretch with species-poor Hawthorn (Crataegus monogyna) hedges – this continuous to the LHS.

Section J – Track in front of the workshop that leads to the closed border. This runs between wooden fence, security fence and Garden Privet (Ligustrum ovalifolium) garden hedge without verges or pavement, but is easily wide enough to accommodate the greenway.

TN6 – Old bridge across the stream. The SPA designation starts 130 m downstream from the bridge. The bridge is 5m between broken parapets. Repair work here will need to be cognisant of dense mature Japanese Knotweed (Fallopia japonica) north sides of the stream downstream of the bridge (and following the ditch to the rear to the section K boundary for a few metres.

Section K – Past Reddins Coaches, the road is 4.5m wide and there is an additional 1.7m pavement on the LHS beside the chain link security fence. (measured further to –ve as 4.4m and 1.5 m respectively). The RHS presents a near continuous tree line of early-mature and mature trees with relatively sparse shrubs between.

Trees within the RHS boundary:

Ash (Fraxinus excelsior)	X 7	>20 cm dbh
	None	>30 cm dbh
Sycamore (Acer pseudoplatanus)	X3	>20 cm dbh
	X1	>30 cm dbh
Pedunculate Oak (Quercus robur)	X3	>20 cm dbh
	X1	>30 cm dbh
	X6	>15 cm dbh

Downy Birch (Betula pubescens ssp pubescens)	X9	>25 cm dbh
Rusty Willow (Salix cinerea subsp oleifolia)	A	To mature
	X5	>25 cm dbh
Hawthorn (Crataegus monogyna)	FLA	
Gorse (Ulex europaeus)	LF	
Beech (Fagus sylvatica)	LO	Young
Holly (Ilex aquifolium)	OLF	
Rowan (Sorbus aucuparia)	R	Young
Dog-rose (Rosa canina agg)	R	

The roadside verge is wide (> 2m) with:

False Oat-grass (Arrhenatherum elatius)
Common Bent (Agrostis capillaris)
Common Ivy (Hedera helix)
Common Bird's-foot-trefoil (Lotus corniculatus)

Behind the hedge a ditch that is damp with Common Reed (Phragmites australis) for the first few metres, but to the +ve is dry.

Map 7

Section A – Coney Road crosses a bridge immediately beside the junction, The road with is 4.6 m with an additional 100 cm pavement (width between parapets = 5.6m).

The stream that is bridged joins another stream which then flows initially beside the Coney Road, where it represents the international border.

Between the stream and the road on the LHS some uneven regeneration:

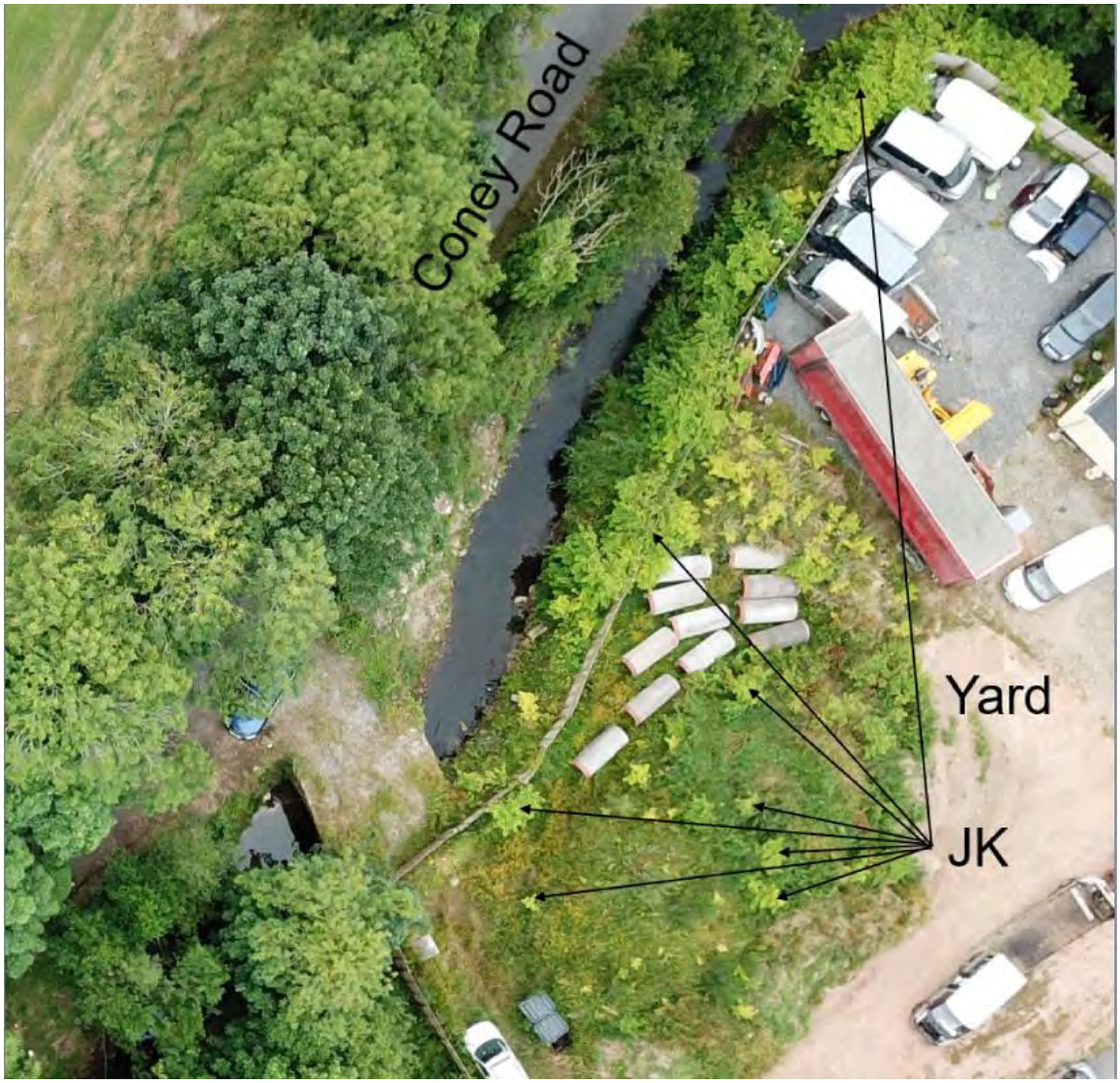
Common Alder (Alnus glutinosa)	F	Young
Bramble (Rubus fruticosus agg.)	A	
Snowberry (Symphoricarpos albus)	LA	
with		
Cow Parsley (Anthriscus sylvestris)	LF	
False Oat-grass (Arrhenatherum elatius)	A	
Common Bent (Agrostis capillaris)	LF	

This only along the initial 60% of the section – it has been cleared from the remainder.

To the RHS of the road, a steep bank with trees makes it unsuitable for any widening.

TN1 – Japanese Knotweed (Fallopia japonica) is widespread and abundant here. It forms a continuous zone between the fence of the shop fitters yard that abuts the stream, and was noted to be frequent in patches within their yard also.

TN2 – A bridge (without parapets) over the stream leads to the fence at the corner of the shop fitters yard – bridge width is 5.4 m. There is some Japanese Knotweed immediately adjacent to the bridge which would need to be considered if the final greenway alignment traverses this area.to the required land take.



Section B – The off-road route runs largely through woodland The selected passage through this woodland is to the LHS of the stand, avoiding more mature cover, and large stands of Japanese Knotweed (Fallopia japonica) towards the river.

Soils exposed along the river sides indicate that this is made up ground.

The route can be usefully divided into several sub-sections:


B1
B2
JK
JK
B3
B4
JK
B5
Badger sett
JK
B6
C

@ B1 From the shop fitters yard (or new adjacent bridge?) the route leads directly into semi-natural broadleaved woodland. Initially this presents a continuous high canopy, but is only based on recent regeneration:

	Very-Mature 60+	Mature 30+	Early-Mature 20+	Semi-Mature 12+	Young 6+	Sapling to 6	Seedling 0-2 yr
Trees							
Ash (Fraxinus excelsior)			R			F-A	F
Common Alder (Alnus glutinosa)			R	F	A		
Sycamore (Acer pseudoplatanus)						R	
Shrubs							
Rusty Willow (Salix cinerea subsp oleifolia)				O	A		
Hawthorn (Crataegus monogyna)							R
Supressed Gorse (Ulex europaeus)				R			

Ash is generally < 3cm stem diameter and the plants don't reach the high canopy. Alder are mainly in the 2-8 cm dbh range and form around 60% high canopy cover. The remaining 40% is contributed by Rusty Willow with stems 1-6 cm diameter. Widespread Bramble (Rubus fruticosus agg.) is sparse, with only a few small dense patches.

There are a very few more mature trees in spreading (open-grown) form along the surveyed route. Rusty Willow (Salix cinerea subsp oleifolia) to 30 cm dbh and Common Alder (Alnus glutinosa) to 25 cm dbh. A route through need only remove 2 such specimens from the B1 stand

More mature woodland along the river with the high canopy mainly of Common Alder (Alnus glutinosa) in the 17 – 20 cm dbh range. These can be avoided.

The former (presumably) grassland cover is now supressed and the young ground-flora still retains some of the open habitat species.

Common Ivy (Hedera helix)	FLA
Bramble (Rubus fruticosus agg.)	OLA
Common Nettle (Urtica dioica)	OLF
Meadow Buttercup (Ranunculus acris)	OLF
Remote Sedge (Carex remota)	OLF
Dandelion (Taraxacum officinale)	OLF
Wood Avens (Geum urbanum)	O
Field Horsetail (Equisetum arvense)	O
Herb-Robert (Geranium robertianum)	O
Creeping Buttercup (Ranunculus repens)	O
Broad-leaved Dock (Rumex obtusifolius)	O
Short-fruited Willowherb (Epilobium obscurum)	O
Glaucous Sedge (Carex flacca)	LA
Creeping Bent (Agrostis stolonifera)	LF
Wavy Bitter-cress (Cardamine flexuosa)	LO
Primrose (Primula vulgaris)	LO

Broad Buckler-fern (Dryopteris dilatata)	LO
Ground-elder (Aegopodium podagraria)	LO
Broad-leaved Willowherb (Epilobium montanum)	R
Cock's-foot (Dactylis glomerata)	R
Selfheal (Prunella vulgaris)	R
Wild Angelica (Angelica sylvestris)	R
Enchanter's-nightshade (Circaea lutetiana)	R
Rough Meadow-grass (Poa trivialis)	R
Nipplewort (Lapsana communis)	R
Male-fern (Dryopteris filix-mas)	R
Hart's-tongue Thyme-moss (Plagiomnium undulatum)	R
Colt's-foot (Tussilago farfara)	R
Marsh-marigold (Caltha palustris)	R
Hogweed (Heracleum sphondylium)	R
Hedge Woundwort (Stachys sylvatica)	R
Soft-rush (Juncus effusus)	R
Marsh Ragwort (Senecio aquaticus)	R
Cleavers (Galium aparine)	R
Common Bent (Agrostis capillaris)	VLF
Opposite-leaved G'-saxifrage (Chrysosplenium oppositifolium)	VLO

Where Common Ivy (Hedera helix) is lost (mainly to the +ve) there is much bare soil, with frequent Dandelion (Taraxacum officinale), and patches of Remote Sedge (Carex remota).

@ **B2** there is increasing presence of exotics:

Wilson's Honeysuckle (Lonicera nitida)	LA
Fuchsia (Fuchsia magellanica)	LF
Chinese Bramble (Rubus tricolor)	LF
Himalayan Honeysuckle (Leycesteria formosa)	LO
Garden Privet (Ligustrum ovalifolium)	O

And on the ground,

Variegated Yellow Archangel (L. galeobdolon ssp argentatum)	LA
Fringe Cups (Tellima grandiflora)	LA
Montbretia (Crocosmia x crocosmiiflora)	O

The sub-canopy cover becomes increasing dominated by coalescing patches of Bramble (Rubus fruticosus agg.) with Common Nettle (Urtica dioica), and the canopy becomes more uneven, with

	Very-Mature 60+	Mature 30+	Early-Mature 20+	Semi-Mature 12+	Young 6+	Sapling to 6	Seedling 0-2 yr
Trees							
Sycamore (Acer pseudoplatanus)						LF	
Ash (Fraxinus excelsior)			O			O	
Common Alder (Alnus glutinosa)			O	F	F		
Lawson's Cypress (Chamaecyparis lawsoniana)					R		
Goat Willow (Salix caprea)		LO					
Shrubs							
Elder (Sambucus nigra)		LO	OLF	O	O		R
Rusty Willow (Salix cinerea subsp oleifolia)				R	O	O	
Fuchsia (Fuchsia magellanica)					OLA		
Wilson's Honeysuckle (Lonicera nitida)					LA		
Rhododendron (Rhododendron ponticum)					R		
Cherry Laurel (Prunus laurocerasus)					LA		

Salmonberry (Rubus spectabilis) is scarce in the river bank, where Snowberry (Symphoricarpos albus) also spreads up the bank.

Japanese Knotweed (Fallopia japonica) is present as a few ramets at the base of the slope up to the first dwellings. It is also present in large stands between the stream and Coney Road (RHS of stream) and up to 6m from the stream on the LHS, remaining in the more mature woodland corridor.

Additional ground-flora species:

Fringe Cups (Tellima grandiflora)	
Archangel (Lamiastrum galeobdolon subsp argentatum)	
Broad Buckler-fern (Dryopteris dilatata)	
Bramble (Rubus fruticosus agg.)	A
Herb-Robert (Geranium robertianum)	

Lady-fern (Athyrium filix-femina)
Honeysuckle (Lonicera periclymenum)
Common Ivy (Hedera helix)
Montbretia (Crocosmia x crocosmiiflora)
Creeping Buttercup (Ranunculus repens)
Opposite-leaved G'-saxifrage (Chrysosplenium oppositifolium)
Meadow Buttercup (Ranunculus acris)
Creeping Buttercup (Ranunculus repens)
Field Horsetail (Equisetum arvense)
Meadowsweet (Filipendula ulmaria)
Enchanter's-nightshade (Circaea lutetiana)
Cow Parsley (Anthriscus sylvestris)
Short-fruited Willowherb (Epilobium obscurum)
Nipplewort (Lapsana communis)

@ B3, the surveyed route emerges into a clearing (cleared sine the Google Earth image of 2012). Initially this has become densely recolonised by Rosebay Willowherb (Chamerion angustifolium) growing vigorously to 2m tall, to the exclusion of other plant species.

@ B 4 separated from B3 by a dry ditch with scattered small adventive Japanese Knotweed (Fallopia japonica) ramets. These are struggling to compete with vigorous ruderal grassland growth dominated by Yorkshire-fog (Holcus lanatus) and Arrhenatherum elatius that occupies B 4.

Yorkshire-fog (Holcus lanatus)	A-D	
False Oat-grass (Arrhenatherum elatius)	FLA	
Hedge Bindweed (Calystegia sepium agg)		
Broad-leaved Dock (Rumex obtusifolius)		
Field Horsetail (Equisetum arvense)		
Sweet Vernal-grass (Anthoxanthum odoratum)		
Silverweed (Potentilla anserina)		
Greater Bird's-foot-trefoil (Lotus pedunculatus)		
Common Alder (Alnus glutinosa)	O	Saplings
Rusty Willow (Salix cinerea subsp oleifolia)	O	Saplings
Etc…		

@ B 5, the surveyed route passes to the RHS of an area of deep rock fill accessed via a long driveway from the main Street. This possibly a demolition site. The rock fill now piled up estimated 6m. the side of the fill facing the surveyed route include a very large mature stand of Japanese Knotweed (Fallopia japonica) beyond which (to the positive) is a large stand of Many-flowered Rose (Rosa multiflora).

The boundary of the fill site is marked by an embankment – a former hedge boundary, now with mature Sycamore (Acer pseudoplatanus) and large Hawthorn (Crataegus monogyna). This with a well-established Badger sett. One entrance was located on the bank – there may be more within the Japanese Knotweed. Sett tunnels will be exclusively heading away from the surveyed route.

The surveyed route is through a level area of long-established woodland where the patchy cover is derived from mature, but well-spaced trees and Willow shrubs. The recruitment of a new cohort

may previously have been supressed by grazing, now possibly by the extensive cover of Bramble (Rubus fruticosus agg.) which forms a low (70cm) canopy over much of the sub-compartment.

	Very-Mature 60+	Mature 30+	Early-Mature 20+	Semi-Mature 12+	Young 6+	Sapling to 6	Seedling 0-2 yr
Trees							
Sycamore (Acer pseudoplatanus)					R	R	
Common Alder (Alnus glutinosa)		F					
Ash (Fraxinus excelsior)				R	O	OLA	R
Shrubs							
Rusty Willow (Salix cinerea subsp oleifolia)		A	F	O	O	LA	
Holly (Ilex aquifolium)						R	R

Because of the wide-spacing of the trees, relatively few would be lost.

Ground-flora

Bramble (Rubus fruticosus agg.)	D
Creeping Buttercup (Ranunculus repens)	O-F
Creeping Bent (Agrostis stolonifera)	OLA
Broad Buckler-fern (Dryopteris dilatata)	O
Common Feather-moss (Kindbergia praelonga)	O
Soft-rush (Juncus effusus)	O
Herb-Robert (Geranium robertianum)	O
Common Nettle (Urtica dioica)	LA
Field Horsetail (Equisetum arvense)	LO
Wild Angelica (Angelica sylvestris)	LO
Yorkshire-fog (Holcus lanatus)	R
Reed Canary-grass (Phalaris arundinacea)	VLA

@ B 6 the surveyed route emerges into a small section of damp grassland:

Yorkshire-fog (Holcus lanatus)	A
Creeping Buttercup (Ranunculus repens)	A
Creeping Bent (Agrostis stolonifera)	F
Soft-rush (Juncus effusus)	F-A
False Oat-grass (Arrhenatherum elatius)	FLA
Water Horsetail (Equisetum fluviatile)	OLF
Lesser Stitchwort (Stellaria graminea)	O
Wild Angelica (Angelica sylvestris)	O
Greater Bird's-foot-trefoil (Lotus pedunculatus)	LF
Field Horsetail (Equisetum arvense)	LF
Cleavers (Galium aparine)	LF
Marsh-bedstraw (Galium palustre)	LO
Lady-fern (Athyrium filix-femina)	LO
Common Sorrel (Rumex acetosa subsp acetosa)	R
Sharp-flowered Rush (Juncus acutiflorus)	R

The species composition suggest that this is a dried out wetland. It could be rejuvenated by scraping back to wetter soil conditions. This would be an appropriate off-setting exercise.

It could be avoided completely by a route tweak, but the adjacent woodland stand is wet woodland of high value, with B 5 type cover over a damp ground-flora withy Water Horsetail (Equisetum fluviatile), Wild Angelica (Angelica sylvestris) Branched Bur-reed (Sparganium erectum) Marsh-bedstraw (Galium palustre) etc….

TN 3 - TN5 – Japanese Knotweed (Fallopia japonica) as described.

TN 6 – Badger sett as described

Section C – The field to the LHS of Reddins Coaches rises from wet woodland to the –ve. This is semi-improved pasture of:

Yorkshire-fog (Holcus lanatus)	D	
Creeping Bent (Agrostis stolonifera)	A	
Creeping Buttercup (Ranunculus repens)	A	
Greater Bird's-foot-trefoil (Lotus pedunculatus)	F	
Soft-rush (Juncus effusus)	F	
Sweet Vernal-grass (Anthoxanthum odoratum)	O-F	
Broad-leaved Dock (Rumex obtusifolius)	O	
Amphibious Bistort (Persicaria amphibia)	LF	Terrestrial
Sharp-flowered Rush (Juncus acutiflorus)	LF	
Ribwort Plantain (Plantago lanceolata)	R	
Silverweed (Potentilla anserina)	R	
Compact Rush (Juncus conglomeratus)		

To avoid severance the route should run around the field edge and could run behind a group of young Common Alder (Alnus glutinosa) close to the woodland edge, but do not remove the snag (standing dead tree) in the corner of the field,

Section D – The Coney Road continues with a bank up to a field boundary to the RHS with a low flailed species-poor Hawthorn (Crataegus monogyna) hedge. The has patches of Raspberry (Rubus idaeus), not to be confused with Salmonberry (Rubus spectabilis).

The adjacent B:4 improved grassland to the RHS is interrupted by three adjacent houses (84, 86 and 88).

The LHS of section D there is an embankment boundary mainly abrupt and around 90 cm tall, possibly formerly a low wall. Hawthorn (Crataegus monogyna) along the boundary now continuous with young A:111 broad-leaved semi-natural woodland that occupies the area between Coney Road, and the border stream.

The high representation of exotic species, particularly to the –ve, indicates that this was probably once a garden area.

Hawthorn (Crataegus monogyna)	A	Tall
Ash (Fraxinus excelsior)	F	To mature
Common Alder (Alnus glutinosa)	O	To mature
Sycamore (Acer pseudoplatanus)	O	To mature
Elder (Sambucus nigra)	O	
Holly (Ilex aquifolium)	O	
Common Alder (Alnus glutinosa)	LA	Young trees behind the boundary
Wilson's Honeysuckle (Lonicera nitida)	LF	

Fuchsia (Fuchsia magellanica)	LF
Oleaster (Elaeagnus macrophylla)	LF
Bullace (Prunus domestica var insititia)	LF
Hydrangea (Hydrangea macrophylla)	R
Rhododendron (Rhododendron ponticum)	R
Guelder-rose (Viburnum opulus)	R

Ground-flora is not well-developed – the ground often bare behind the embankment:

Common Ivy (Hedera helix)	FLA
Montbretia (Crocosmia x crocosmiiflora)	OLF
Common Nettle (Urtica dioica)	O
Ground-elder (Aegopodium podagraria)	LF
Hedge Bindweed (Calystegia sepium agg)	LO

If a strip alongside the road opposite the houses is required to be cleared to accommodate the greenway, tree losses would amount to:

	dbh	
	>20 cm	> 30 cm
Ash (Fraxinus excelsior)	x5	-
Common Alder (Alnus glutinosa)	x1	-
Sycamore (Acer pseudoplatanus)	-	x2

TN 7 – Rhododendron (Rhododendron ponticum) a single large wild genotype shrub at the roadside on the LHS. This may need to be removed if the road is widened – although this is on the Northern Ireland side, and it is not yet listed on Schedule 9 of the wildlife Order as amended.

Section E – A pinch point. The road passes between the garden of no. 81 to the LHS, and of nos. 82, and 80 to the RHS. The garden of 82 is managed, with young Horse-chestnut (Aesculus hippocastanum) and a large Sycamore (Acer pseudoplatanus) (tree 2). The garden of 80 is unmanaged, with young Lawson's Cypress (Chamaecyparis lawsoniana) and young Ash (Fraxinus excelsior) close to the road boundary.

Section F – The Coney Road here is 4.3 to 4.4 m wide. To the RHS is a steep roadside bank around 1.4m tall leading up to a fence line field boundary with sections of Gorse (Ulex europaeus) trimmed up as a hedge, before a considerably agriculturally improved field. If the road is widened, it would be to this side to avoid gardens.

To the LHS, a fence alongside a recent extension to the Coach yard, to the –ve, and a B:6 poor semi-improved grassland field to the +ve.

TN 8 – 7 x 2-10 m linear stands of semi-mature Japanese Knotweed along the LHS fence line, including at the elaborate field entrance.

TN 9 – two small crowns of Japanese Knotweed (Fallopia japonica) at the LHS of the path before the start of the section G path

TN 10 – A patch of mature Japanese Knotweed (Fallopia japonica) canes beside the gateway from the field beside Reddins Coaches – this measures 9m x 5m and has implications for heavy vehicles accessing here.

TN 11 – Major Japanese Knotweed (Fallopia japonica) stands at the pavement side on the RHS opposite George Doherty Construction's compound and the adjacent dwelling

Section G – A grassy footpath, probably not used frequently, running between an immature naturally regenerated woodland to the LHS and an improved agricultural field to the RHS.

To widen this for the greenway would require the removal of the boundary to the RHS.

Hawthorn (Crataegus monogyna)	A	To 6m tall
Sycamore (Acer pseudoplatanus)	OLF	Saplings and young
Ash (Fraxinus excelsior)	OLF	Saplings
Bramble (Rubus fruticosus agg.)	O	
Raspberry (Rubus idaeus)	LF	
Holly (Ilex aquifolium)	LF	

This with a hedge base including:

Wood Avens (Geum urbanum)	
Common Ivy (Hedera helix)	A-D
Dandelion (Taraxacum officinale)	
Nipplewort (Lapsana communis)	
Enchanter's-nightshade (Circaea lutetiana)	
Herb-Robert (Geranium robertianum)	

Hedge replacement should include a nutrient poor hedgebank

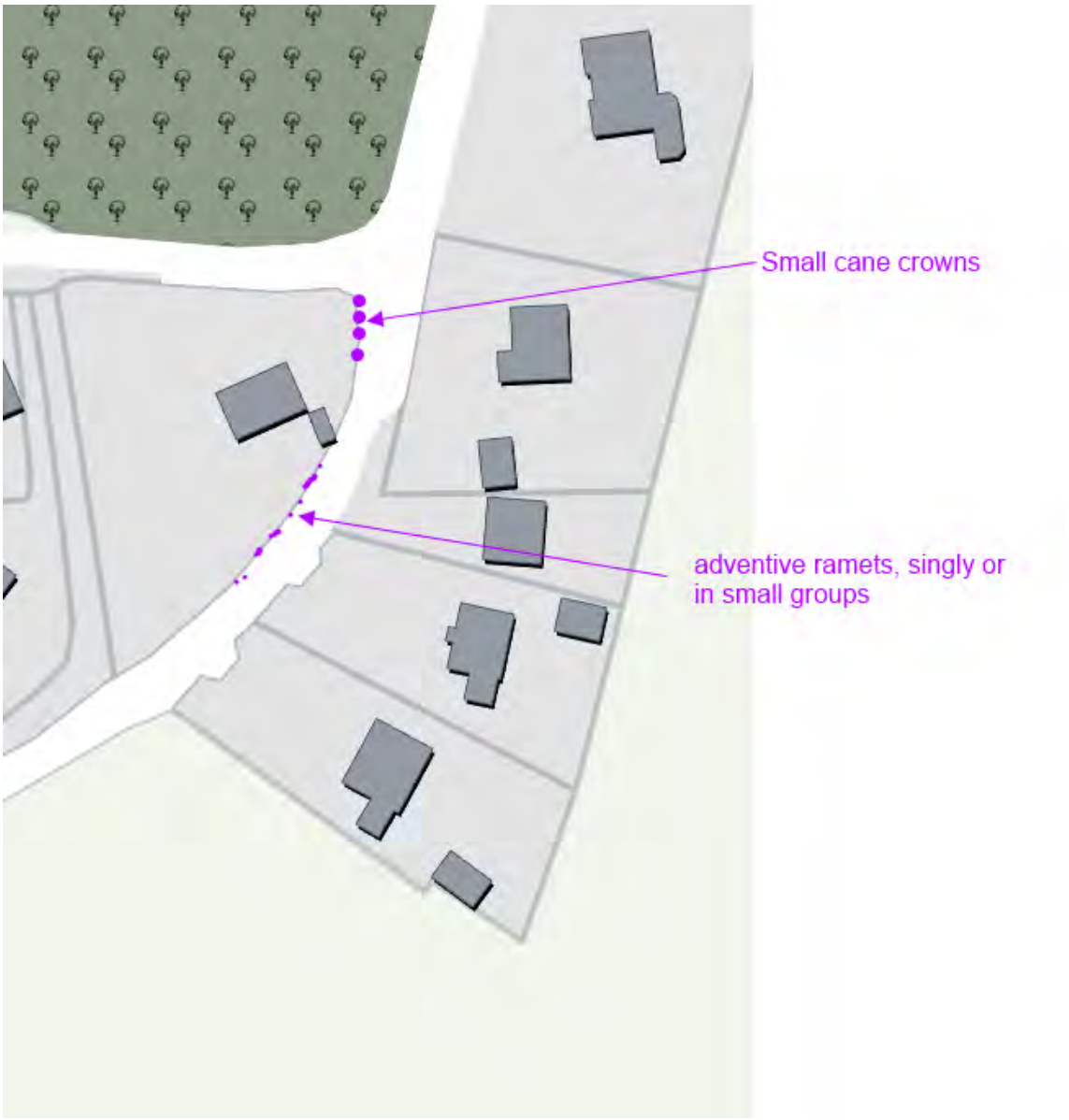
A ditch running alongside the boundary on the field side, is completely dry, but may still require a culvert – drainage work is ongoing in the adjacent field.

Section H – This part of Kilderry Lane is a 5m wide road with four dwellings to the RHS and a single dwelling to the LHS with a boundary an embankment with an uneven hedge and scattered trees, including ± 8-9 semi-mature Common Alder (Alnus glutinosa), Pedunculate Oak (Quercus robur) and Downy Birch (Betula pubescens ssp pubescens), plus the trees included in tree (group) 5 as encountered from the -ve to +ve.

Hawthorn (Crataegus monogyna)	O	
Holly (Ilex aquifolium)	OLF	
Bramble (Rubus fruticosus agg.)	LF	
Beech (Fagus sylvatica)	LF	Young

Apart from Common Ivy (Hedera helix) and Herb-Robert (Geranium robertianum), not with woodland shade indicators.

TN 12 – Japanese Knotweed (Fallopia japonica) is scattered along the lower embankment to the LHS of section H



Section I – The existing road is 5m wide. To the RHS bounded by garden walls of the adjacent dwellings.

To the LHS of the road, and not fenced, is a broad-leaved woodland. Trees within 200 cm of the road verge are listed as tree (group) xx as encountered from the -ve to +ve.

The exception is the 79 cm Pedunculate Oak (Quercus robur) located opposite the gateway of the last house on the RHS – this is 2.4 m from the edge of the road.

Woodland edge habitat is described below under Section J.

TN 13 – Rhododendron (Rhododendron ponticum) Locally frequent in small stands at the woodland edge- the closest is 90 cm from the road verge at the turning.

Section J – The road passes through broad-leaved plantation of Beech, Downy Birch, Sycamore and Oak to both sides. Mature trees are set well back from the road, with the exception of tree 8, leaving a zone to either side of the existing road of woodland edge habitat:

Common Nettle (Urtica dioica)	FLA	
Cleavers (Galium aparine)	FLA	
Bracken (Pteridium aquilinum)	OLA	
Bramble (Rubus fruticosus agg.)	OLF	
Ash (Fraxinus excelsior)	OLF	saplings
Cock's-foot (Dactylis glomerata)	O	
Holly (Ilex aquifolium)	O	
Enchanter's-nightshade (Circaea lutetiana)	LF	
Yorkshire-fog (Holcus lanatus)	LF	
Creeping Buttercup (Ranunculus repens)	LF	
**Rhododendron (Rhododendron ponticum)*	LF	Schedule 3 species
Broad Buckler-fern (Dryopteris dilatata)	R	
Elder (Sambucus nigra)	R	

* of the European Communities (Birds and Natural Habitats) Regulations 2011

Keep any additional land take to the LHS to avoid tree 8 If this means the road is moved to the RHS to accommodate the Greenway, then Rhododendron will need to be removed.

TN 14 – Rhododendron (Rhododendron ponticum) 5 x 5 m mature stand

Section K– The road here varies from 3 to 3.5 m wide, with a verge to the RHS before a slight bank down to the adjacent improved grassland. The verge is of low ecological value:

Perennial Rye-grass (Lolium perenne)
Yorkshire-fog (Holcus lanatus)
False Oat-grass (Arrhenatherum elatius)
Hedge Bindweed (Calystegia sepium agg)

Generally fenced boundaries with Bramble (Rubus fruticosus agg.) plus a section of Snowberry (Symphoricarpos albus) hedge on the RHS and a patch of Steeple-bush (Spiraea douglasii) to the LHS. A few important trees. Impacts upon them will depend upon the construction required.

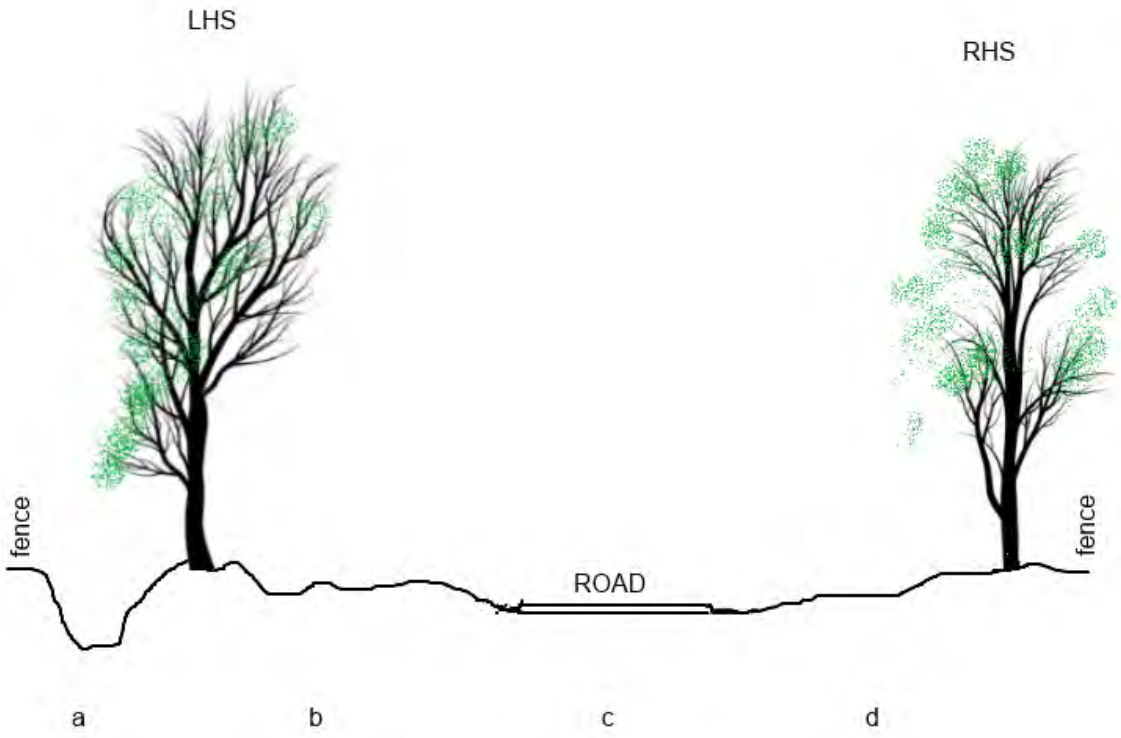
Section L – Beyond the last house**,** a short section of unsurfaced access track passes scrubby Bracken (Pteridium aquilinum). To the LHS and B:4 improved grassland to the RHS on a slightly elevated causeway and past fences with Bramble (Rubus fruticosus agg.).

Section M – An existing 3m wide unsurfaced track with early-mature to mature trees to both sides but with verges of Common Nettle (Urtica dioica) and Cleavers (Galium aparine) so there is around 10 m between trees to either side, and it is not envisaged that these trees could be impacted. If there is lighting here it would need to be low level to avoid impacting bats.

To the RHS a woodland of Ash (Fraxinus excelsior), Sycamore (Acer pseudoplatanus) and Beech (Fagus sylvatica) over a species-poor ground-flora of Common Ivy (Hedera helix) with Herb-Robert (Geranium robertianum) etc…

TN 15 – The track crosses a brick built bridge. There is 4m between parapets.

Section N – This un-named(?) road with important trees to either side that form a continuous tree line with an important function in connecting habitats.



Schematic (not to scale)

a) field side stream- 1.3m wide x 8cm deep with moderate flow over stony silt, and with 1.2 m freeboard from the adjacent habitat (initially an improved agricultural grassland, to the +ve running in to a broad-leaved semi-natural woodland of mature Sycamore)

b) 5.5 m wide verge with near frequent, often continuous tree cover to the rear. Where it is most shaded, it has scattered Broad Buckler-fern (Dryopteris dilatata), Enchanter's-nightshade (Circaea lutetiana), Wood Avens (Geum urbanum) etc in a grassy cover, otherwise with grassland of Yorkshire-fog (Holcus lanatus), Rough Meadow-grass (Poa trivialis), Common Nettle (Urtica dioica), Cleavers (Galium aparine), Hogweed (Heracleum sphondylium), Creeping Buttercup (Ranunculus repens) etc…

c) Road 3.3 m wide

d) RHS verge varies in width but is narrower than b, and more open but still with scattered trees at the fence line, the verge with tall herbs, mainly Common Nettle (Urtica dioica)/Cleavers (Galium aparine) and Hogweed (Heracleum sphondylium).

The gap between the trees along the b and d boundaries can accommodate an additional 3m road, but the existing road may need to be adjusted, and measures will be required to avoid significant root-damage to the treelines.

RHS (d) trees are generally 2-3 m from the road. LHS trees are generally 4-5 m from the road and positioned at the streamside – but tree 15 a large Sycamore and 16, a smaller Ash, are inconveniently rooted away from the stream making this tree especially vulnerable.

Larger trees are listed in the tree table for the map 7. Notes were made of the smaller trees along this section:

Tree inventory for section N1 (as far as gateway)

		LHS (b)	RHS (d)
Sycamore (Acer pseudoplatanus)	*At least early-mature*	5	
	Young and semi-mature	5	1
Ash (Fraxinus excelsior)	*At least early-mature*	5	1
	Young and semi-mature	7	2
Common Alder (Alnus glutinosa)	*At least early-mature*		1
	Young and semi-mature		
Norway Spruce (Picea abies)	*At least early-mature*	3	3
	Young and semi-mature		2
Downy Birch (Betula pubescens ssp pubescens)	*At least early-mature*	1	
	Young and semi-mature		

Tree inventory for section N2 (+ve of gateway)

		LHS (b)	RHS (d)
Sycamore (Acer pseudoplatanus)	*At least early-mature*	12	1
	Young and semi-mature	2	-
Ash (Fraxinus excelsior)	*At least early-mature*	2	4
	Young and semi-mature	-	2
Common Alder (Alnus glutinosa)	*At least early-mature*	-	3
	Young and semi-mature	-	1
Norway Spruce (Picea abies)	*At least early-mature*	5	6
	Young and semi-mature	-	-
European Larch (Larix decidua)	*At least early-mature*	2	-
	Young and semi-mature	-	-
Rusty Willow (Salix cinerea subsp oleifolia)	*At least early-mature*	-	-
	Young and semi-mature	O	OLF

The tree lines are a dark corridor of value to bats. Unless carefully designed, lighting the greenway could impact on bat foraging or commuting.

TN 16 – The 2a stream is close to the road as it approaches the junction with Main Street. Between the stream and the road, tree 7 is at risk (plus a couple of semi-mature Sycamore (Acer pseudoplatanus)).

It will be probably necessary to veer to the RHS into the adjacent field approaching this junction. A wooden pylon will need to be relocated some Norway Spruce (Picea abies) will be threatened, but this is a species of low ecological value.

Section O – The main road with a 1.6m hard shoulder 3.3 m pavement in front of a field side fence. This above a grassy B:6 poor semi-improved grassland bank with mature trees. The closest tree to the fence is a Norway Spruce (Picea abies) @ 2.4 m the closest Broadleaved, a Sycamore (Acer pseudoplatanus) @ 4m from the fence.

Tree table Map 7

No.	Spp.	DBH cm	BRRG	Condition/notes
1	Beech (Fagus sylvatica)	110	1	On the fence line
2	Sycamore (Acer pseudoplatanus)	90	1	2.5 m from the road.
3	Ash (Fraxinus excelsior)	36	1	Roadside
4	2 x Sycamore (Acer pseudoplatanus)	To 14	0	Multi-stemmed, @ pathside
5	Ash (Fraxinus excelsior)	To 26	1	Multi-stemmed
	Ash (Fraxinus excelsior)	To 26	1	Multi-stemmed
	Ash (Fraxinus excelsior)	To 28	2	Multi-stemmed
	Beech (Fagus sylvatica)	60	2	
	Sycamore (Acer pseudoplatanus)	To 26	2	Multi-stemmed
	Sycamore (Acer pseudoplatanus)	35	2	
	Sycamore (Acer pseudoplatanus)	To 25	2	Multi-stemmed
6	Pedunculate Oak (Quercus robur)	37	1	90 cm from road edge
	Sycamore (Acer pseudoplatanus)	29	2	Multi-stemmed
	Sycamore (Acer pseudoplatanus)	27	2	
	Ash (Fraxinus excelsior)	To 24	0	Multi-stemmed
	Ash (Fraxinus excelsior)	35	1	Low breaking
	Pedunculate Oak (Quercus robur)	79	1	Opposite gate of last house
	Beech (Fagus sylvatica)	57	0	
7	Pedunculate Oak (Quercus robur)	83	1	4m from the road (LHS)
8	Pedunculate Oak (Quercus robur)	96	2	1.6 m from the road (RHS)
9	Beech (Fagus sylvatica)	111	1	2.6 m from the road (RHS)
10	Pedunculate Oak (Quercus robur)	38	0	1.7 m from the road (RHS)
11	3x Downy Birch (Betula pubescens)	To35	0	2.8 m from road
12	Pedunculate Oak (Quercus robur)	88	2	6m from road (LHS)
13	Ash (Fraxinus excelsior)	61	2	Epicormic, 2-stemmed 1.1 m from road (RHS)
14	Ash (Fraxinus excelsior)	42	2	2.3m from Road LHS
15	Sycamore (Acer pseudoplatanus)	103	1	2.5 m away from Road
16	Pedunculate Oak (Quercus robur)	84	2	2.6 m from Road (RHS)
17	Pedunculate Oak (Quercus robur)	91	2	4.5 m from Road (LHS)
18	Sycamore (Acer pseudoplatanus)	To 31	2	2-stem. 2.7m from fence
19	Ash (Fraxinus excelsior)	To 20	0	3-stem 1.7m from fence
20	Ash (Fraxinus excelsior)	99	1	1.7m from road.
21	Norway Spruce (Picea abies)	62	0	1.6m from fence

Notes

Other potential routes have been scoped but not surveyed.

Note 1: Coastal off-road route

For the most part the route would be screened from the adjacent mudflats by linear woodland along the Foyle shore. This is too steeply sloping down to the shore for the greenway to easily run in woodland. The farmland sloping above the wooded fringe is generally highly improved for agriculture.

Salmonberry is very abundant in these fringing woodlands and an understory and where there are tracks through woodland blocks further upslope, there are several other invasive species known to be locally abundant.

Upstream of the former Thornhill College

For 500 m or so before the Coney Road, the slopes down to the Foyle lessens and the fringing woodland belt is lost Here, there may be issues with disturbance of wildfowl and waders from the adjacent mudflats in winter.

A route of low ecological impact could probably be found along the potential coastal route corridor, but Schedule 9 species may be problematic, and a large amount of private land is crossed.

Maintaining a root protection zone in front of the mature woodland fringe would significantly increase the land take, but would also present opportunities for positive management of the verge (within the RPZ) for biodiversity, either as woodland edge (shrubs and semi-shade species) or as grassland.

High level lighting if required would have to be carefully designed to avoid light spill onto the edge of the woodland fringe.

Note 2: Urban Derry.

Initially follows the main A2 – a trunk road usually with pavements to either side. No ecological issue anticipated on the route to the Culmore roundabout.

North of Culmore Roundabout, the A515 Madams Bank Road runs in a cutting with a landscape screen. A roadside greenway could not impact on the screen planting.

Urban Racecourse Road runs past a few stretches of broadleaved woodland, but with verges that would probably make woodland or tree losses unlikely.

Note 3: Rural Racecourse Road

Once the Racecourse Road leaves the city, it passes through farmland. It seems likely that one or other boundary would require to be removed to facilitate a 3m greenway for the entire route.

This would require losses of hedges that for the most part appear intermittent and poorly structures, however also include fairly frequent hedgerow trees. Losses would be inevitable.

Summary

Potential Ecological Constraints and Impacts

Disturbance of birds.

The route is not within sight of the SPA designations, although birds using the respective Foyle SPAs are protected if they use the inner estuary off the Bay Road Park. They have already accommodated use of the coastal path by park users.

Structural vegetation anywhere on the route could host bird nests. Clearance work should be undertaken outside the breeding season

Disturbance/damage to Badger setts

Potential issue at Map 7 section B:5 where the adjacent sett will be conspicuous. Temporary measures will be required whilst planted screening vegetation becomes established.

Disturbance/damage to Otter holts

Not an issue

Potential Bar roosts

Some trees passed by the route are within Roost Risk Group 2, but these are not likely to be impacted by the route.

Disruption to bat foraging routes

Not an issue.

Tree and hedge losses

Hedges are mainly of species-poor Hawthorn (Crataegus monogyna). All hedge losses will be off-set by replanting. There is an opportunity to replant much more interesting hedges than will be lost.

Damage to retained trees

Where the route runs close to trees that have been retained, there is a risk of root damage, This can be mitigated in some cases by shallow-dig, or no-dig construction.

Grassland losses

Minor losses of B:22 semi-improved neutral grassland within the Bay Road Park. As this is an LNR, this could be an issue. Grassland in the park generally is suffering from the lack of sympathetic management.

Losses of planted landscaping

Not an issue.

Loss of woodland

One route option crosses a woodland stand. This is either very young, very impacted by exotic e=invasive plants, or with very open structure allowing minimal tree losses. Losses can be off-set by managing other parts of the woodland which is in ecologically poor condition.

Illegal dispersal of Schedule 9/Schedule 3 species

Masses of Salmonberry (Rubus spectabilis) along the A2. Where it is removed, this will present a disposal problem. Anywhere else where the route passes mature stands, there may be appropriate biosecurity measures to prevent transferring seeds to any new site.

Japanese Knotweed (Fallopia japonica) present in small quantity, as far as Muff, only one crown that will certainly require precautionary measures. Within Muff JK is frequent in in places forming very large stands – the precautions required will be determined by the selected route.

General

The proposed route and greenway design remains to be finalised.

An assessment of impacts can only be completed once the final route for which planning approval will be sought has been selected, and the greenway design in each section is clarified.

Particularly important in this respect is the clarification of the approach where the selected route follows single track roads, and the construction of an adjacent greenway would require continuous removal of a boundary on one or other side.

In some sections we await a decision as to whether it is satisfactory for motor traffic and greenway users to share the same carriageway.

There may yet be adjustments required to avoid the curtilage of dwellings at pinch points, and possibly to avoid a dangerous corner beside Culmore Country Park

Potential impacts upon selection features for the Foyle SPA (Republic of Ireland) is the subject of an Appropriate Assessment, and upon the selection features of the Foyle SPA (Northern Ireland) will be the subject of a Habitat Regulations Assessment.

APPENDIX F – SUMMARY OF ROUTE CORRIDOR SCORING ASSESSMENT

Summary of Scoring Assessment - NI Corridors

Assessment Criteria	Red (South)		Red (North)		Yellow		Blue		Green	
Modal Shift	3	links to Derry & Culmore, and with Muff via Red (North) or Green Routes. Links with primary MS generator at Thornhill. Links to some secondary MS generators.	2	links to Culmore & Muff, and with Derry via Red (South) or Blue Routes. No primary MS generators in this section. Links with all secondary MS generators in the section. Loses a point due to QoS criteria	-2	Does not connect with the primary MS generators of Culmore (and therefore does not meet key aim & objective) and Thornhill College. Links to 50% of secondary MS shift generators	1	links to Derry & Culmore, and with Muff via Red (North) or Green Routes. Misses link with primary MS generator at Thornhill (although a link could be provided in the future this would be by 3rd party and cannot be considered in this assessment. Links with no secondary MS generators	2	links to Culmore & Muff, and with Derry via Red (South) or Blue Routes. Links to Grants Bacon Processing Factory which is a primary MS generators in this section. Links to Ardan School via less direct link and there are no secondary MS generators along the corridor
Connections and Local Access	3	Links to a more than adequte level of amenities within the limits of the corridor	3	Links to a more than adequte level of amenities within the limits of the corridor	2	along the central section of this corridor there are limited amenties, and linkages of up to 500m would be required to achieve further connectivites	2	along the central section of this corridor there are limited amenties, and additional linkages would be required to achieve further connectivites	3	Links to a more than adequte level of amenities within the limits of the corridor, links to Culmore Country Park
Cultural, Heritage and Visual Attractions	1	Cultural Heritage is deemed of local, or niche, interest in the Study Area (eg Boom Hall, Brooke Lodge & as described in Stage 1 Report). This route connects with these within the limits of the relevant section	1	Cultural Heritage is deemed of local, or niche, interest in the Study Area (eg Boom Hall, Brooke Lodge & as described in Stage 1 Report). This route connects with these within the limits of the relevant section	0	Cultural Heritage is deemed of local, or niche, interest in the Study Area (eg Boom Hall, Brooke Lodge & as described in Stage 1 Report). This route does not connect with these within the limits of the relevant section	1	Cultural Heritage is deemed of local, or niche, interest in the Study Area (eg Boom Hall, Brooke Lodge & as described in Stage 1 Report). This route connects with these within the limits of the relevant section	1	Cultural Heritage is deemed of local, or niche, interest in the Study Area (eg Boom Hall, Brooke Lodge & as described in Stage 1 Report). This route connects with these within the limits of the relevant section
Landscape and Visual	1	as described in the Landscape Assessment	0	as described in the Landscape Assessment. (Ref Culmore Road to Muff Village only)	-1	as described in the Landscape Assessment	3	as described in the Landscape Assessment	1	as described in the Landscape Assessment
Environmental, Flora and Fauna	0	Connects with Lough Foyle SPA, and notable Env Features at Bay Park. Potential Mitigation measures can be considered at Bay Road, and impact across the rest of the route is minimal	1	No connection with Env Designations, or notable Flora & Fauna. Very low impact on Env for the section along Culmore Rd	0	No connection with Env Designations, or notable Flora & Fauna. Low impact on Env aloing Racecourse Rod, as some sections of mature hedgerow will have to be removed and replanted	-1	Connects with Lough Foyle SPA, and notable Env Features at Bay Park. Potential Mitigation measures can be considered at Bay Road, and the potential impact across the rest of the route is will need to be managed in line with NIEA guidance and requirements	3	Connects with Lough Foyle SPA, however no impact on SPA at the route at this point use existing infrastructure. Very low impact on Env for the section along Coney Rd
Physical Constraints	1	Few physical contraints that cannot be designed out, one residual pinch point approaching Springfield Road cannot be designed out. Major road crossing at Foyle Hospice, along with a number of minor road crossings. Consistent GW corridor can be delivered for majority of the corridor	-2	Significant physical constraints that will impact on achieving the desireable cross section at Culmore village, and at section in region of Ardan Rd. Subsequent significant residual impact on QoS	1	Few physical contraints that cannot be designed out on section from Pennyburn to Racecourse Rd roundabout, but consistent GW corridor can be delivered for majority of the route. Major road crossings to be considered depending on alignment, along with a number of minor road crossings.	2	Few physical constraints for the majority of the corridor, and these are not considered significant. Some pinch points and sections of steep gradient (which can be mitigated by providing rest areas) at Culmore Pt Road merit hte deduction of a point	-1	Significant physical constraints at Coney Rd however a design in accordance with the relevant standards can be provided. Some pinch points and sections of steep gradient (which can be mitigated by providing rest areas) at Culmore Pt Road.
Quality of Service	2	Within the prevailing design standards, a segregated, safe & accessible GW in accordance with Best Practise & Standards can be provided for majority of the route . Segregation can be increased above minimum desireable across significant extents. Route loses a point as it is beside the busy Culmore Rd and it is not off-line where a comparable off-line section is available (ie Blue Route)	-1	Within the prevailing design standards, a segregated, safe & accessible GW in accordance with Best Practise & Standards can be provided for majority of the route . Segregation can be increased above minimum desireable from Nr226 Culmore Rd to Muff. The significant pinch points and constraints at Culmore and the Ardan Rd junction would detract substantially from the Quality of Service, and attractiveness, of the facility	1	Within the prevailing design standards, a segregated, safe & accessible GW in accordance with Best Practise & Standards can be provided for majority of the route . Segregation can be increased above minimum desireable across significant extents. Route loses a point as it is not off-line where a comparable off-line section is available (ie Blue Route)	3	Within the prevailing design standards, a segregated, safe & accessible GW in accordance with Best Practise & Standards can be provided for majority of the route. The route is off line for all sections except the link to Culmore. There are minor pinch points and short sections of steep gradient here but these are not deemed to detract from the attractiveness of the facility	0	Within the prevailing design standards, a segregated, safe & accessible GW in accordance with Best Practise & Standards can be provided for majority of the route . Segregation can be increased above minimum desireable along Coney Rd. Due to low volumes of traffic, a design in accordance with the design standards could be achieved at Coney Road. Due to the combined steep gradient at Culmore Point Rd, and the shared sections on Coney Rd a score of 0 is considered appropriate.
Material Assets and Human Beings	1	Some private land required, but low impact on usage, no severance of lands, and minimal impact on privacy.	-1	Route requires private land along A2 with mulitple landowners affected, but no severance of lands, and no impact on privacy	-1	Route requires private land along Racecourse Road with mulitple landowners affected, but no severance of lands, and no impact on privacy	-3	Route required significant access to private lands, with susequent impact on privacy, and likely severance of lands	-1	Route requires private land along Coney Road with mulitple landowners affected, but no severance of lands, and no impact on privacy
Potential Cost	-1	The requirement to construct the Bay Road Bridge results in GW costs exceeding the average cost	0	Can be delivered within a reasonanble deviation from the average cost	0	Can be delivered within a reasonanble deviation from the average cost	-2	The requirement to construct the Bay Road Bridge, and significant requirement for tree clearance results in GW costs exceeding the average cost	0	Can be delivered within a reasonanble deviation from the average cost
Cross Border Connectivity	3	as noted in Preamble, each route scores equally	3	as noted in Preamble, each route scores equally	3	as noted in Preamble, each route scores equally	3	as noted in Preamble, each route scores equally	3	as noted in Preamble, each route scores equally
Public Feedback	-1	Approx 45% of returned forms noted 'dislike' for this corridor. Issues of concern raised predominantly related to traffic volume and speed, which are acknowledged and will be considered further at detailed design stage as appropriate	-1	Approx 45% of returned forms noted 'dislike' for this corridor. Issues of concern raised predominantly related to traffic volume and speed, which are acknowledged and will be considered further at detailed design stage as appropriate	1	Approx 36 % of returned forms noted 'dislike' for this corridor. Issues of concern raised related to connectivity (which is addressed elsewhere in the scoring criteria) and traffic related concerns. The greenway facility described in the report is considered to have mitigated the potential traffic issues raised.	3	Broad public support for this corridor, and the quiet, secluded and scenic nature of the facility appealed to the general public. Issues raised relating to the potential Environmental impact are acknowledged and will be considered further at detailed design as appropriate	3	Broad public support for this corridor, and the quiet, secluded and scenic nature of the facility appealed to the general public. Issues raised relating to poor road alignments at Coney Road are acknowledged and will be considered further at detailed design as appropriate
Total Score	**13**		**5**		**4**		**12**		**14**	

Summary of Scoring Assessment - ROI Corridors

Assessment Criteria	Orange		Light Blue		Purple	
Modal Shift	2	links to Derry & Culmore when combined with the preferred NI Section. No primary Modal Shift Generators in the area. Links with secondary MS generators at Muff town centre. QoS scores negatively and merits the loss of a point	3	links to Derry & Culmore when combined with the preferred NI Section. No primary Modal Shift Generators in the area. Links with secondary MS generators at Muff town centre when Kilderry Link, and link to Community Hall are provided, and with MS generators at Canning's Lane	3	links to Derry & Culmore when combined with the preferred NI Section. No primary Modal Shift Generators in the area. Links with secondary MS generators at Muff town centre.
Connections and Local Access	3	Links to a more than adequte level of amenities within the limits of the relevant section of the study area	3	Links to a more than adequte level of amenities within the limits of the relevant section of the study area	3	Links to a more than adequte level of amenities within the limits of the relevant section of the study area
Cultural, Heritage and Visual Attractions	0	There are no Cultural Heritage attractions in the ROI part of the Study Area and all routes therefore score equally	0	There are no Cultural Heritage attractions in the ROI part of the Study Area and all routes therefore score equally	0	There are no Cultural Heritage attractions in the ROI part of the Study Area and all routes therefore score equally
Landscape and Visual	-1	as described in the Landscape Assessment	2	as described in the Landscape Assessment	0	as described in the Landscape Assessment
Environmental, Flora and Fauna	2	No Env Designations, and no connections to the notable flora and fauna, in the Study Area. Minimal impact on the environment as this is an urban section	1	No Env Designations, and no connections to the notable flora and fauna, in the Study Area. Minimal impact on the environment as replacement planting can be provided where there is any loss of trees etc	1	No Env Designations, and no connections to the notable flora and fauna, in the Study Area. Minimal impact on the environment as replacement planting can be provided where there is any loss, and most of the section is in urban environment
Physical Constraints	-2	Significant physical constraints that cannot be designed out and will impact on achieving the desireable cross section at Muff town centre. Subsequent residual impact on QoS	1	Some minor physical constraints but these can be designed out. Narrow cross sections at Kilderry Lane would require shared greenway / carriageway facility but this can be designed in accordance with the relevant design standards. No residual impact on QoS – ie the facility could still be considered 'attractive'	1	Some minor physical constraints but these can be designed out. Narrow cross sections at Kilderry Lane would require shared greenway / carriageway facility but this can be designed in accordance with the relevant design standards. No residual impact on QoS – ie the facility could still be considered 'attractive'
Quality of Service	-2	Within the prevailing design standards, a segregated GW in accordance with Best Practise & Standards could not be provided for some sections of the route, and cyclists would be required to share the carriageway with vehicular traffic where there are narrow footpaths and no oppurtunity to increase the cross section. A buffer strip could not be provided and it is not considered that a GW route along this corridor would be 'attractive' to all potential GW users.	2	While full segregation of cyclists and pedestrains will not be achievable across approx 56% of this route, the low volumes and speeds of vehicular traffic using these roads means the GW facility could be designed within the prevailing design standards. The overall greenway facility can be designed in accordance with the prevailing design standards and can be considered 'attractive' and safe & accessible to all users	1	An attractive facility could be provided along the off-line sections between the border and Kilderry Lane (approx 50% of the overall length), however the section from Kilderry Lane to the Community Park, alongside the R238, is considered to detract from the overall attractiveness of the route.
Material Assets and Human Beings	3	no private land take required	1	Some private land required, but no severance of lands, and limited potential impact on usage of dwellings and places of works. Some impacts on privacy which will be minimised as far as practicable	1	Some private land required, but no severance of lands, and limited potential impact on usage of dwellings and places of works. Some impacts on privacy which will be minimised as far as practicable
Potential Cost	0	Can be delivered within a reasonanble deviation from the average cost	0	Can be delivered within a reasonanble deviation from the average cost. The short bridge / culvert required, and treatment of invasive species is not deemed sufficient in increase the cost significantly	0	Can be delivered within a reasonanble deviation from the average cost. The short bridge / culvert required, and treatment of invasive species is not deemed sufficient in increase the cost significantly
Cross Border Connectivity	3	as noted in Preamble, each route scores equally	3	as noted in Preamble, each route scores equally	3	as noted in Preamble, each route scores equally
Public Feedback	-1	Approx 40% of returned forms noted 'dislike' for this corridor. Issues of concern raised predominantly related to its proximity to traffic and potential conflicts between vehicles and greenway users. These issues are acknowledged and will be considered further at detailed design stage as appropriate	3	Broad public support for this corridor, and the quiet, secluded and scenic nature of the facility appealed to the general public. Issues raised relating to the potential Environmental impact and privacy concerns are acknowledged and will be considered further at detailed design as appropriate	1	Limited public support for, or opposition to, this corridor was provided. Issues raised related to traffic concerns and these issues are acknowledged and will be considered further at detailed design stage as appropriate
Total Score	**7**		**19**		**14**	